




MINERALS PROGRAM INSPECTION REPORT
PHONE: (303) 866-3567

The Division of Reclamation, Mining and Safety has conducted an inspection of the mining operation noted below. This report documents observations concerning compliance with the terms of the permit and applicable rules and regulations of the Mined Land Reclamation Board.

MINE NAME: Rich Pit	MINE/PROSPECTING ID#: M-1985-218	MINERAL: Sand and gravel	COUNTY: Pueblo
INSPECTION TYPE: Monitoring	WEATHER: Clear	INSP. DATE: July 13, 2023	INSP. TIME: 08:30
OPERATOR: Martin Marietta Materials, Inc.	OPERATOR REPRESENTATIVE: Phillip Courtney and Rusty Cochran	TYPE OF OPERATION: 112c - Construction Regular Operation	
REASON FOR INSPECTION: Normal I&E Program	BOND CALCULATION TYPE: Complete Bond	BOND AMOUNT: \$344,500.00	
DATE OF COMPLAINT: NA	POST INSP. CONTACTS: None	JOINT INSP. AGENCY: None	
INSPECTOR(S): Amber Michels	INSPECTOR'S SIGNATURE: 	SIGNATURE DATE: September 11, 2023	

The following inspection topics were identified as having Problems or Possible Violations. OPERATORS SHOULD READ THE FOLLOWING PAGES CAREFULLY IN ORDER TO ASSURE COMPLIANCE WITH THE TERMS OF THE PERMIT AND APPLICABLE RULES AND REGULATIONS. If a Possible Violation is indicated, you will be notified under separate cover as to when the Mined Land Reclamation Board will consider possible enforcement action.

INSPECTION TOPIC: Hydrologic Balance

PROBLEM: The Division has no evidence that the Operator has a valid well permit, substitute water supply plan, or approved water augmentation plan for the exposed groundwater in a new pit being excavated at the site. This is a problem related to 34-32.5-116(4)(h) of the Colorado Revised Statutes and 3.1.6(1)(a) of the Construction Materials Rules and Regulations governing injury to existing water rights.

CORRECTIVE ACTIONS: The Operator shall demonstrate that the operation is in compliance with the Office of the State Engineer, show evidence that the operator is taking measures to bring the site into compliance with the SEO, or backfill the pits to at least two feet above the groundwater surface by the corrective action date specified.

CORRECTIVE ACTION DUE DATE: 10/11/23

INSPECTION TOPIC: Gen. Compliance With Mine Plan

POSSIBLE VIOLATION: The Operator has failed to comply with the conditions of an order, permit, or regulation pursuant to C.R.S. 34-32.5-124. Specifically, the Operator has failed to comply with the mining plan approved in the permit by excavating a new pit in an area not previously approved for excavation. Therefore, the reclamation plan does not account for this new excavation.

CORRECTIVE ACTIONS: This possible violation will require a hearing before the Mined Land Reclamation Board. The schedule and other details for the MLRB hearing will be provided under a separate document to be sent via certified mail to the Operator.

CORRECTIVE ACTION DUE DATE: 10/18 or 10/19, 2023 (Possible MLRB Hearing Dates)

OBSERVATIONS

The Rich Pit was inspected by Amber Michels with the Division of Reclamation, Mining and Safety (Division). The inspection was completed as part of the Division's routine monitoring inspection program. Phillip Courtney and Rusty Cochran, both representing the Operator, accompanied me during the inspection. The weather was warm and the sky was clear.

The Rich Pit is a Construction Materials Regular 112c Operation Reclamation Permit and is approved to disturb a maximum of 61.1 acres within a 364.90 acre permit. Through Amendment AM1, approved July 18, 1996, the 61.1 acres of disturbance includes 31.1 acres of active excavation and 30 acres consisting of the plant site, stockpile area, and roads. Sand and gravel are the main commodities and are primarily sold for use in concrete and pipe bedding. Affected lands will be reclaimed to support wildlife habitat post-mining land use. The site is located 8 miles east of Pueblo, Colorado.

Availability Of Records:

Annual Report, Map, and Fee were submitted on June 14, 2023 and are current through June 15, 2024. The Substitute Water Supply Plan for this site was renewed with the Colorado Division of Water resources and expires in 2024. However, the Division believes the 2024 SWSP does not account for the mining disturbance that has occurred onsite since mining resumed in 2021. This has been **cited above as a problem**.

Financial Warranty:

The financial warranty currently held by the Division does not reflect the current on-site conditions and does not adequately reflect the cost to reclaim the site. The currently held bond was updated in 2012 as a response to the Operator's plan to install a slurry wall in Lake #2 upon reclamation. However, the Operator has never submitted an amendment to the permit to revise the reclamation plan to allow for the installation of a slurry wall. Therefore, a new Reclamation Plan is required, and upon its approval a new Financial Warranty will be calculated.

The current bond held by the Division is in the amount of \$344,500. The Division estimates the cost to reclaim the current disturbance onsite at \$22,547,120. This is an increase of \$22,202,620. The Division's cost estimate is enclosed with this report. The Operator will have 14 days (September 25, 2023), from the issuance of this report to submit any questions on the cost estimate. If no questions are received, the Division will issue a surety increase notice for the difference. The Operator will have 60 days from the date of the notice to submit and obtain acceptance of the increase from the Division in accordance with Rule 4.2.1(2).

Gen. Compliance With Mine Plan and Hydrologic Balance:

The Rich Pit is currently approved to be reclaimed as a mix of commercial/industrial and wildlife habitat. The commercial/industrial area being the processing and plant site, and the wildlife habitat encompassing the remainder of the site. The currently approved mining and reclamation plans involve two de-watered pits to be reclaimed as unlined lakes for wildlife (see Figure 1). Upon approval of Amendment 1 (AM1), the Operator was instructed to provide proof that they had an approved plan to replace evaporative losses, or alternatively, provide a financial warranty in excess of four million dollars to backfill the pits. In the late 1990s, the Arkansas River, running along the southern border of the permit boundary, migrated, and washed out the partially reclaimed Lake #1 area. In 2012, the Operator's submitted an engineering evaluation for the installation of a slurry wall for Lake #2 (see Photos 11-13, Map 1, and Figure 1 for Lake #2). The Operators were instructed at that time to revise the reclamation plan to reflect the change in post-mine land use to align with the lined

water resource and the naturally reclaimed Lake #1 area. Shortly after the site was bonded for the installation of a slurry wall, the operation entered into Temporary Cessation 1 (TC-1). The reclamation plan was not revised for the installation of a slurry wall. Therefore, this is not an approved component of the reclamation plan.

Mining resumed in June 2021. The Operators created freshwater settlement ponds from which water is recycled for use in processing (Photos 5-8; Maps 1-2), and a new actively mined de-watered pit (Photos 19-25; Maps 1-2). The new ponds and Lake #2 are accounted for in the Operator's Supplemental Water Supply Plan (SWSP) with the Division of Water Resources, but the new pit area is not yet included. As of now, the new pit is marked as a "proposed mining area" on the SWSP's map. This has been **cited as a problem** for exposing ground water without a valid well permit, substitute water supply plan, or approved water augmentation plan for the site. The Operator must include the area that has been mined since mining resumed in 2021, in their SWSP permit. Additionally, the Operator must apply for an amendment to their permit to account for this un-approved pit excavation.

Currently mining is being conducted in 10 acres increments. However, the Division estimates that approximately 29.5 acres have been actively mined since mining resumed in June 2021 in an area that has not been approved to be mined (northern purple polygon on Map 1). AM1 stated that this area was proposed to be affected eventually, but prior to mining, the Operator would submit revisions to update the mining plan to account for new mining disturbance. The Division believes the Operator to be in **violation** for failure to comply with the approved mine plan. The Operator will be brought before the Mined Land and Reclamation Board for a hearing pursuant to Rules 3.3.2.

Processing Waste:

The freshwater ponds constructed onsite are used for recycling purposes during processing. These ponds do not discharge. The mud created as processing waste is routinely removed from the ponds using a long-reach excavator, and placed along the berms (see Photos 6-7). The Operators stated that the ponds were initially eight feet deep from ground level, but the berms have increased the depth of the ponds to about 16 feet deep. The Operator also stated that their plan is to eventually dewater Lake #2, bring the water up to the plant for processing, and in doing so they'll close the northern two recycling ponds. At that time they expect they'll request an increase in their allowed discharge, and are prepared to increase their sampling frequency for their discharge permit. A recently constructed pipeline for the eventual de-watering of Lake #2 was observed during the inspection. The Division reminds the Operator that a revision to the permit is required before these changes can be implemented.

Revegetation:

When the Arkansas River re-aligned in the late 1990s, the area proposed to remain as Lake #1 was washed out, and has since self-reclaimed with a variety of grasses and trees (Photo 14; Map 1; Figure 1). This area remains within the permit boundary, however the October 2004 SWSP deemed this area to no longer be contributing to stream depletions. No other areas on site have been reclaimed or revegetated at this time.

Signs and Markers:

A mine sign posted in compliance with Rule 3.1.12(1) was posted at the entrance to the site (Photos 1 & 2, Maps 1 & 2).

A few boundary markers were observed onsite (Photos 9, 15, 16, and 18; Map 1). Many of the boundaries are

delineated by fencing in the area. The fences do not appear to follow the approved map precisely (Figure 3), however, they do seem to follow land boundaries owned by the Operator.

The Succession of Operators Revision #3 (SO3) changed the Permittee to Martin Marietta Materials, Inc. At that time, Martin Marietta Materials, Inc. acquired much of the land that the permit encompasses. However, the approved permit boundary does not appear to match the parcel boundaries exactly (Figure 3). It appears that the boundaries adhered to by the Operator are mostly or entirely contained within the land owned by the Operator. Figure 2 is the 2023 annual report map submitted by the Operator, which seemingly shifts the boundaries of the permit to more closely match the parcel boundaries. The Division has not approved a change in the permit area and cautions the Operator to ensure they do not affect land outside of their approved boundary. Additionally, the annual report map does not show that the processing area is included within the Rich Pit boundary (Figure 2). However, this area is still included within the boundary pursuant to the approved mining (and reclamation) maps (see Figure 1). If the Operator wishes to modify the permit or affected land boundary, they must first submit and obtain approval of appropriate revisions and/or release applications.

Topsoil:

A topsoil pile was observed onsite (Photo 17; Map 1). The topsoil pile appears relatively stable with some vegetation growing on it. However, some rills have formed due to the high precipitation in the area. If the pile is to remain unused in reclamation for greater than 180 days, the Operators must address the erosion or ensure that the pile is stabilized by creating a vegetative cover using the approved seed mix in accordance with Rule 3.1.9(1).

Conclusion:

This concludes the Division's Inspection Report; a few maps and figures displaying topics discussed during the inspection and a subset of corresponding photographs that were taken during the time of the inspection are included below. If you need additional information or have any questions, please contact me by email at amber.michels@state.co.us or by telephone at (720) 836-0967.

Inspection Contact Address

Phillip Courtney and Rusty Cochran
Martin Marietta Materials, Inc.
1627 Cole Blvd, Suite 200
Lakewood, CO 80401

Enclosure: 2023 DRMS Cost Estimate

CC: Jared Ebert, DRMS
Brock Bowles, DRMS

GENERAL INSPECTION TOPICS

The following list identifies the environmental and permit parameters inspected and gives a categorical evaluation of each

(AR) RECORDS----- <u>Y</u>	(FN) FINANCIAL WARRANTY----- <u>Y</u>	(RD) ROADS----- <u>N</u>
(HB) HYDROLOGIC BALANCE----- <u>PB</u>	(BG) BACKFILL & GRADING----- <u>N</u>	(EX) EXPLOSIVES----- <u>N</u>
(PW) PROCESSING WASTE/TAILING---- <u>Y</u>	(SF) PROCESSING FACILITIES----- <u>N</u>	(TS) TOPSOIL----- <u>Y</u>
(MP) GENL MINE PLAN COMPLIANCE- <u>PV</u>	(FW) FISH & WILDLIFE----- <u>N</u>	(RV) REVEGETATION---- <u>Y</u>
(SM) SIGNS AND MARKERS----- <u>Y</u>	(SP) STORM WATER MGT PLAN---- <u>N</u>	(RS) RECL PLAN/COMP-- <u>N</u>
(ES) OVERBURDEN/DEV. WASTE----- <u>N</u>	(SC) EROSION/SEDIMENTATION--- <u>N</u>	(ST) STIPULATIONS----- <u>N</u>
(AT) ACID OR TOXIC MATERIALS----- <u>N</u>	(OD) OFF-SITE DAMAGE----- <u>Y</u>	

Y = Inspected / N = Not inspected / NA = Not applicable to this operation / **PB = Problem cited / PV = Possible violation cited**

PHOTOGRAPHS



Photo 1: Looking at the permit sign posted outside of the office.



Photo 2: Mine name posted on the building leading to the processing site.



Photo 3: Looking west at a recycled asphalt stockpile. Material was milled off of the highway and stored onsite. The material was scheduled to leave the site after the inspection.



Photo 4: Looking south at the processing equipment and product stockpiles.



Photo 5: Looking south at the middle settling pond.



Photo 6: Looking west at the processing waste extracted from the north pond.



Photo 7: Looking north at the north pond. An excavator is removing the muddy waste and placing it along the berm separating the north and middle pond.



Photo 8: Looking at the southern-most pond.



Photo 9: Looking north-west along the fence line delineating the western boundary.



Photo 10: Standing on the eastern edge of Lake #2, looking north-east at the northern edge of the current active mining pit.



Photo 11: Looking west from the eastern border of Lake #2 at the dewatered pit outlet.



Photo 12: Looking north-east at the discharge inlet at Lake #2.



Photo 13: Looking west at the discharge point for Lake #2 into the Arkansas River.



Photo 14: Looking west into the area that was proposed to be reclaimed as Lake #1. Fence is a remnant of an old grazing area agreement.



Photo 15: Looking west at a boundary marker marking the north-eastern most corner of the permit boundary.



Photo 16: Looking south along a fence line recognized as the east northern boundary.



Photo 17: Looking north at the stockpile located to the west.



Photo 18: Looking north at a fence treated as the boundary.



Photo 19: Looking across the active pit at its at the south border.



Photo 20: Looking across the pit at the pit's northern border.



Photo 21: Looking north-east at the trees lining the access road north of the pit. Trees have been dying since dewatering has taken place.



Photo 22: Standing within the pit, looking at the western pit wall.



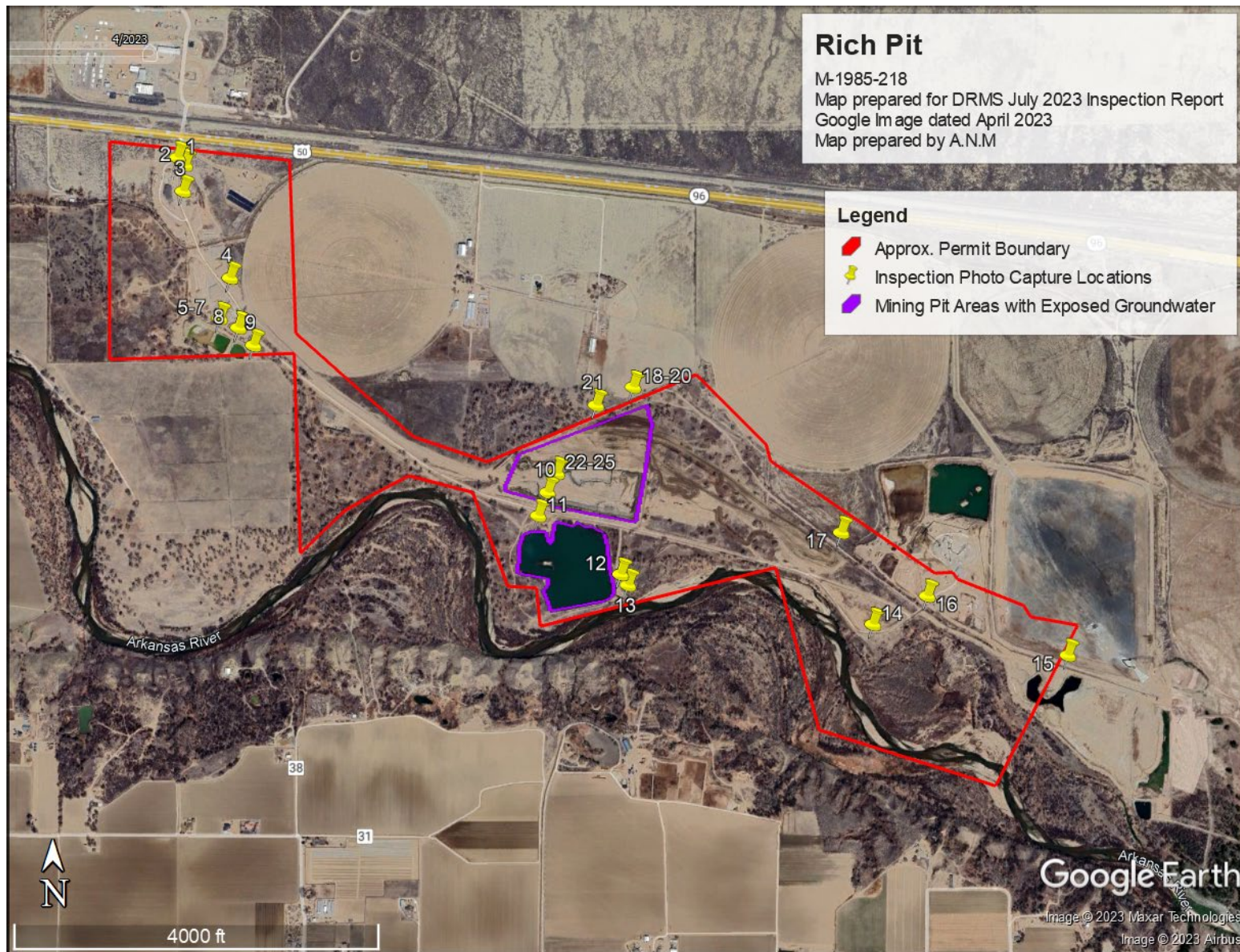
Photo 23: Standing in the pit, looking south at the intersection of the south and west borders. Drill logs provided by the Operator indicate the maximum depth of the pit to be 35 feet.



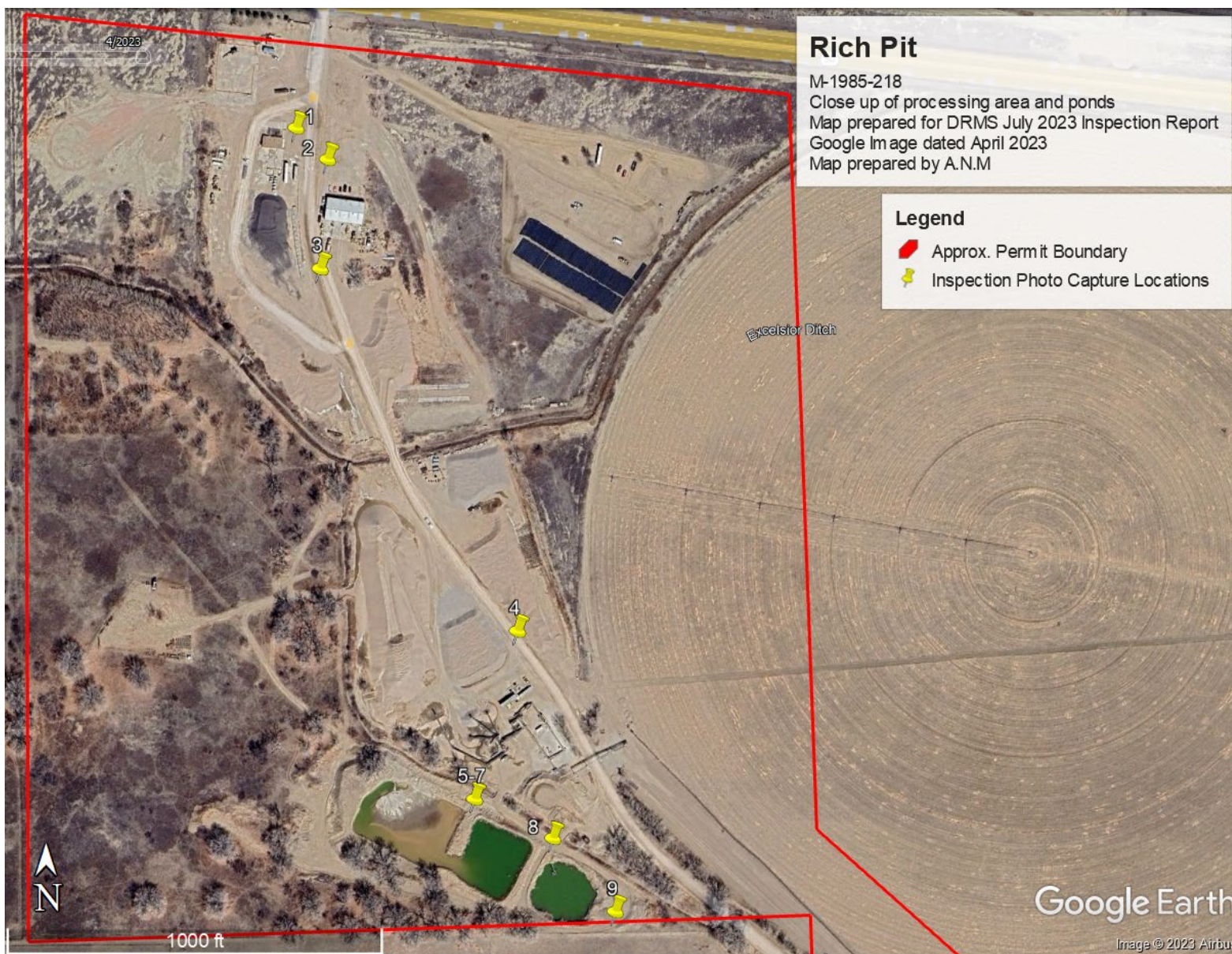
Photo 24: Standing in the pit, looking at the northern wall. Some standing water present in the pit.



Photo 25: Standing in the pit, looking north-east at the conveyor belt being installed.



Map 1: Map generated in Google Earth Pro. The red polygon is an approximation of the approved permit boundary. The locations where photos were taken during the July 2023 inspection are indicated by the yellow push-pin icons. The purple polygons are the areas that have been mined to-date. The Operator currently plans to install slurry walls in these pits when they are mined out (however they must first amend their reclamation plan for this activity).



Map 2: Map generated using Google Earth Pro. The map shows a close-up view of the processing and office area located within the permit boundary.

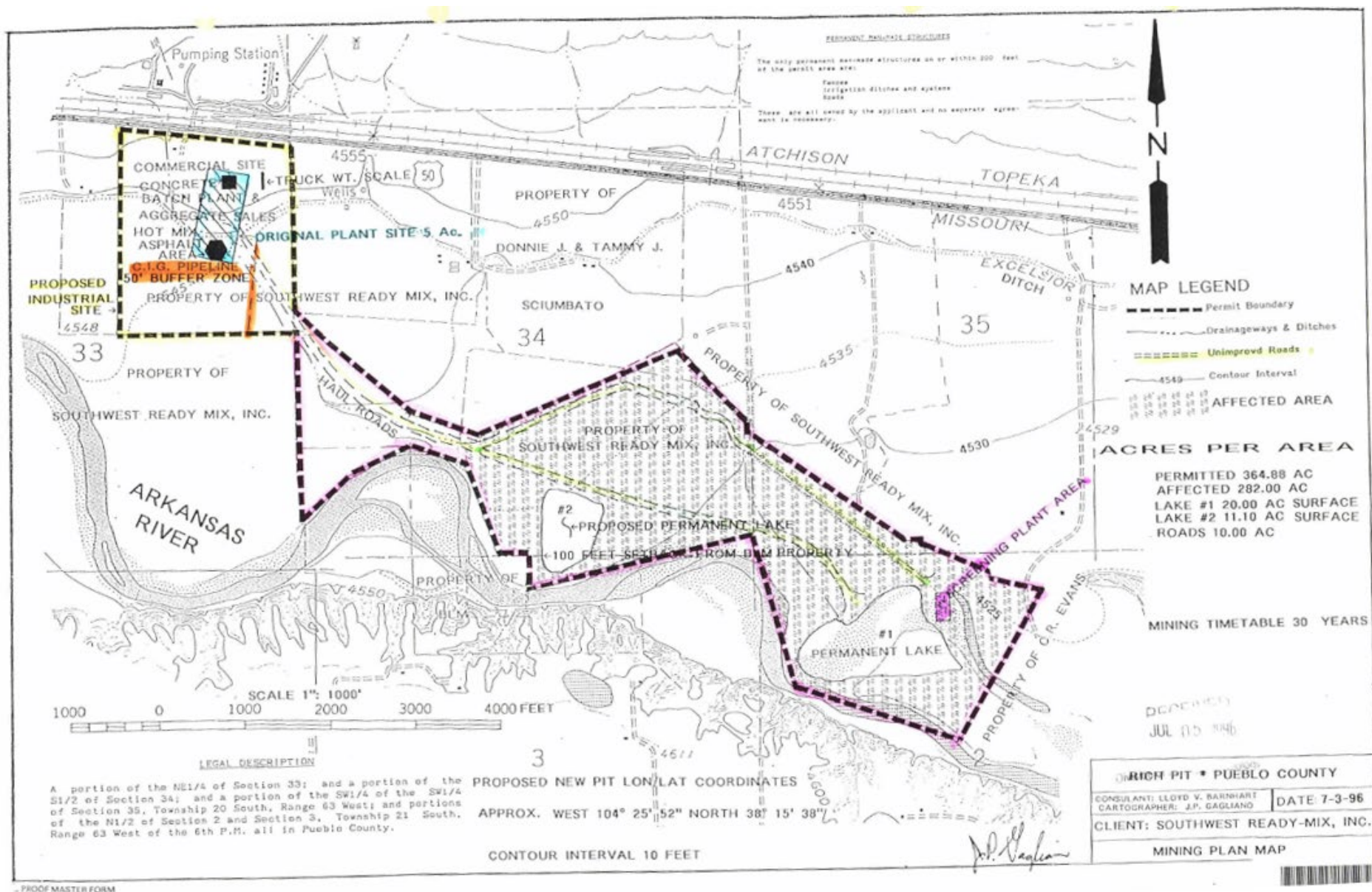


Figure 1: The currently approved mining plan map submitted as an adequacy response during the Amendment 1 application process.

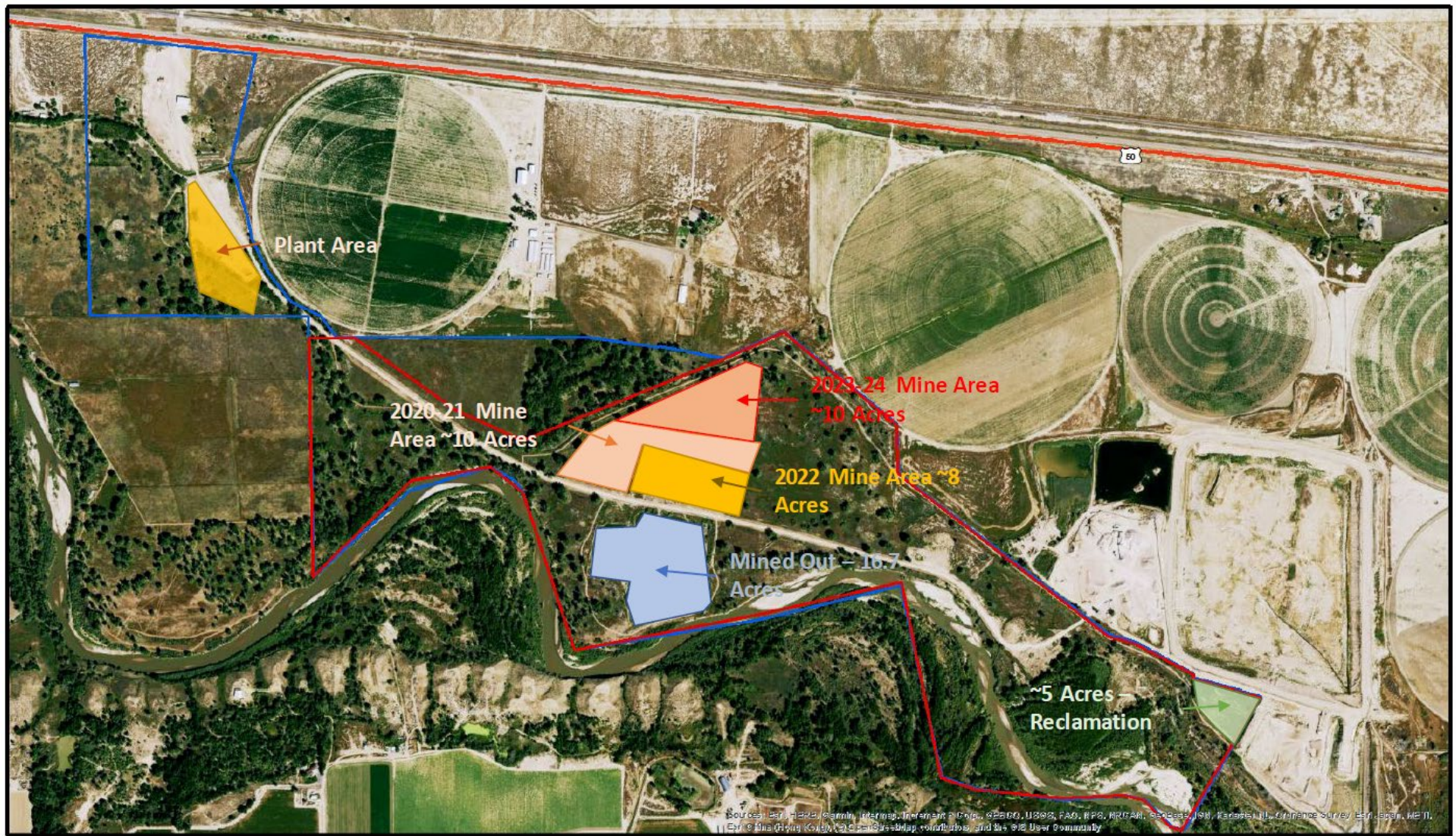


Figure 2: The annual report map submitted by the Operator in 2023.

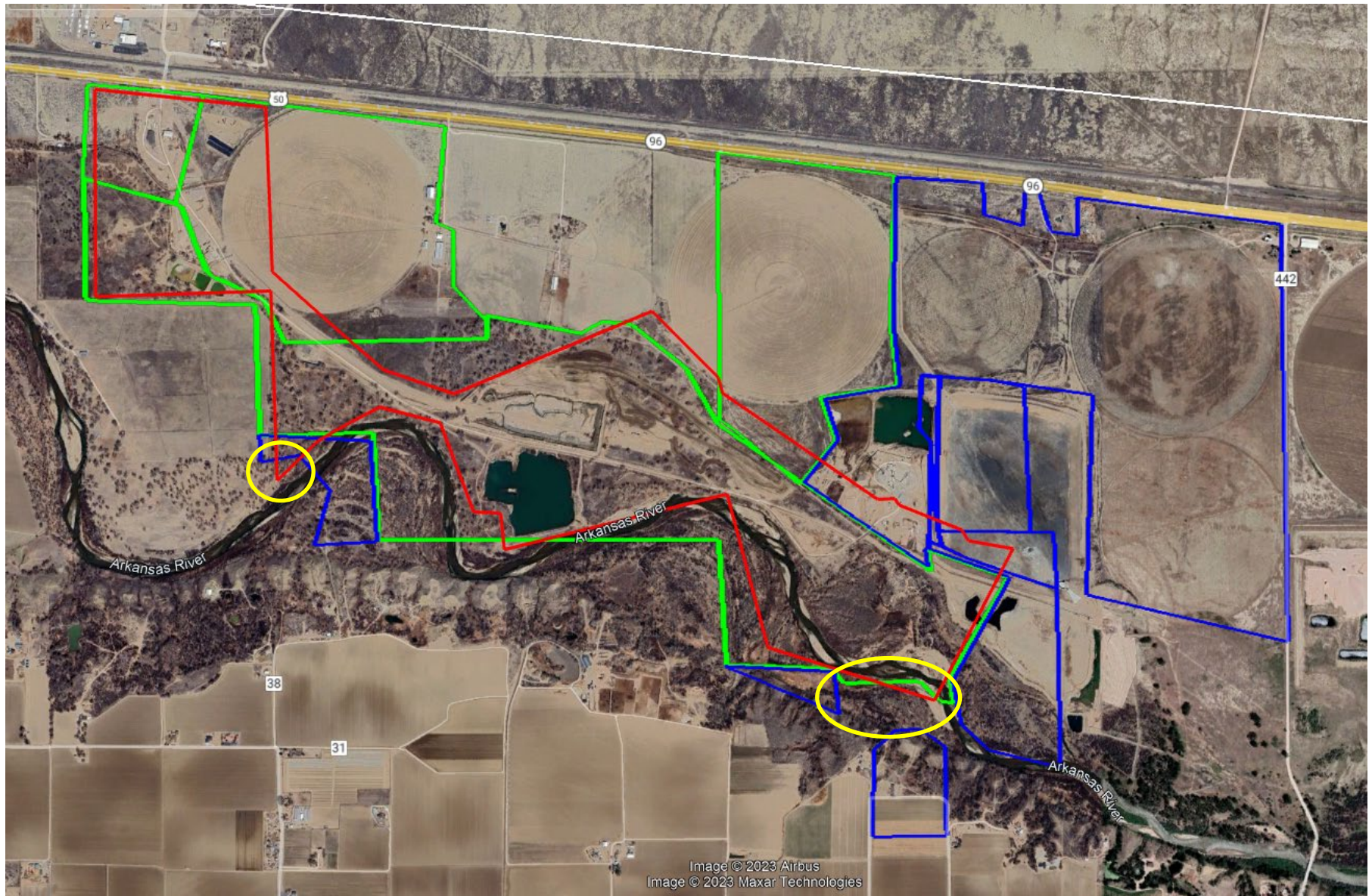


Figure 3: An extrapolation of the approved permit boundary into Google Earth using Google Earth Pro. The red polygon represents the approximate approved permit boundary. The green polygon represents the parcels owned by the Operator according the County Assessor site. The blue polygons represent parcels that the boundary appears to cross that are not owned by the operator. The areas circled in yellow indicate where the permit boundary crosses areas with no ownership information provided on the Pueblo County Assessor's site.

COST SUMMARY WORK

Task description: 2023 Cost Reclamation Cost Estimate for the Rich Pit

Site: Rich Pit

Permit Action: 2023 Inspection

Permit/Job#: M1985218

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 8/31/2023

County: Pueblo

Filename: M218-000

User: ANM

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Backfill silt and freshwater ponds	DOZER	2	25.69	\$21,855
002	Backfill active pit	DOZER	3	1,017.22	\$1,297,978
003	Bring in backfill, \$10/CY to fill 1.64 mil CY pit	SITEMAINT ENANCE	1	0.00	\$16,375,330
004	Backslope Lake 2 Pit w/ Overburden	DOZER	2	7.92	\$6,734
005	Slurry Wall Install from Applegate Estimate	SITEMAINT ENANCE	1	0.00	\$223,125
006	Road Reclamation	GRADER	1	8.06	\$1,474
007A	Spread Topsoil over 84.19 acres	SCRAPER1	1	27.45	\$110,371
007B	Revegetation	REVEGE	1	84.00	\$147,967
008	Mob/Demob	MOBILIZE	1	8.04	\$33,344
<u>SUBTOTALS:</u>				1178.38	\$18,218,178

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02
Performance bond: 1.05
Job superintendent: 589.19
Profit: 10.00

Total = \$368,007

Total = \$191,291

Total = \$38,344

Total = \$1,821,818

TOTAL O & P = \$2,419,460

CONTRACT AMOUNT (direct + O & P) = \$20,637,638

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): \$500

Total = \$500

Engineering work and/or contract/bid preparation: 4.25

Total = \$877,100

Reclamation management and/or administration: 5.00

\$1,031,882

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$4,328,942

TOTAL BOND AMOUNT (direct + indirect) = \$22,547,120

BULLDOZER WORK

Task description: Backfill silt and freshwater ponds

Site: Rich Pit

Permit Action: 2023 Inspection

Permit/Job#: M1985218

PROJECT IDENTIFICATION

Task #: 001

State: Colorado

Abbreviation: None

Date: 8/30/2023

County: Pueblo

Filename: M218-001

User: ANM

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:

		<u>Utilization %</u>
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: 29,040

Swell factor: 1.135

Loose volume: 32,960 LCY

Source of estimated volume: 98,010 sqft ponds x 8 ft deep = 784,080
ft or 29040 CY

Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet

Unadjusted hourly production: 1,400.0 LCY/hr

Materials consistency description: Wet, highly cohesive 0.8

Average push gradient: 0 %

Average site altitude: 4,550 feet

Material weight: 2,700 lbs/LCY

Weight description: Earth - Wet excavated

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.800	(CAT HB)
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.852	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4582

Adjusted unit production: 641.48 LCY/hr
Adjusted fleet production: **1282.96** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: \$0.663/LCY

Total job time: **25.69** Hours
Total job cost: **\$21,855**

BULLDOZER WORK

Task description: Backfill active pit

Site: Rich Pit

Permit Action: 2023 Inspection

Permit/Job#: M1985218

PROJECT IDENTIFICATION

Task #: 002

State: Colorado

Abbreviation: None

Date: 8/31/2023

County: Pueblo

Filename: M218-002

User: ANM

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:

		<u>Utilization %</u>
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: **\$1,276.01**

MATERIAL QUANTITIES

Initial Volume: 1,637,533

Swell factor: 1.125

Loose volume: **1,842,225** LCY

Source of estimated volume: 1.26 mil sqft pit x 35' deep = 44.2mil sqft or 1,637,533 CY

Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet

Unadjusted hourly production: 1,400.0 LCY/hr

Materials consistency description: Wet, highly cohesive 0.8

Average push gradient: 0 %

Average site altitude: 4,550 feet

Material weight: 2,550 lbs/LCY

Weight description: Earth - Dry packed

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.800	(CAT HB)
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(SSD-AC)

Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4312

Adjusted unit production: 603.68 LCY/hr

Adjusted fleet production: **1811.04** LCY/hr

JOB TIME AND COST

Fleet size: 3 Dozer(s)

Unit cost: \$0.705/LCY

Total job time: **1,017.22** Hours

Total job cost: **\$1,297,978**

SITE MAINTENANCE

Task description: Bring in backfill, \$10/CY to fill 1.64 mil CY pit

Site: Rich Pit

Permit Action: 2023 Inspection

Permit/Job#: M1985218

PROJECT IDENTIFICATION

Task #: 003

State: Colorado

Abbreviation: None

Date: 8/31/2023

County: Pueblo

Filename: M218-003

User: ANM

Agency or organization name: DRMS

UNIT COSTS

Maintenance Item	Hours per Year	Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Bring in backfill	1.00	USER PROVIDED ITEM	1,637,533.00	1	\$10.00	\$16,375,330.00

Job Hours: 0.00

Total Cost: \$16,375,330.00

BULLDOZER WORK

Task description: Backslope Lake 2 Pit w/ Overburden

Site: Rich Pit

Permit Action: 2023 Inspection

Permit/Job#: M1985218

PROJECT IDENTIFICATION

Task #: 004

State: Colorado

Abbreviation: None

Date: 8/31/2023

County: Pueblo

Filename: M218-004

User: ANM

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:

		<u>Utilization %</u>
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: 17,500

Swell factor: 1.000

Loose volume: **17,500** LCY

Source of estimated volume: 2:1 until 5' from surface, 3:1 after. 17'deep, 3750'perm

Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 60 feet

Unadjusted hourly production: 1,246.9 LCY/hr

Materials consistency description: Partly consolidated stockpile 1.1

Average push gradient: -15 %

Average site altitude: 4,550 feet

Material weight: 2,550 lbs/LCY

Weight description: Earth - Dry packed

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)

Push gradient:	1.329	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8865

Adjusted unit production: 1,105.38 LCY/hr

Adjusted fleet production: **2210.76** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$0.385/LCY

Total job time: **7.92** Hours

Total job cost: **\$6,734**

SITE MAINTENANCE

Task description: Slurry Wall Install from Applegate Estimate

Site: Rich Pit Permit Action: 2023 Inspection Permit/Job#: M1985218

PROJECT IDENTIFICATION

Task #: 005 State: Colorado Abbreviation: None
Date: 8/31/2023 County: Pueblo Filename: M218-005
User: ANM

Agency or organization name: DRMS

UNIT COSTS

Maintenance Item	Hours per Year	Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Construct Active Pit Slurry Wall (3750LFx17ftD)	1.00	USER PROVIDED ITEM	63,750.00	1	\$3.50	\$223,125.00

Job Hours: 0.00

Total Cost: \$223,125.00

MOTOR GRADER WORK

Task description: Road Reclamation

Site: Rich Pit Permit Action: 2023 Inspection Permit/Job#: M1985218

PROJECT IDENTIFICATION

Task #: 006 State: Colorado Abbreviation: None
Date: 8/31/2023 County: Pueblo Filename: M218-006
User: ANM

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 12M Horsepower: 158
Ripper Attachment: Multi-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$74.98	NA
Operating Cost/Hour:	\$55.26	100
Ripper Ownership Cost/Hour:	\$3.09	NA
Ripper Operating Cost/Hour:	\$2.57	100
Operator Cost/Hour:	\$46.87	NA
Total Unit Cost/Hour:	\$182.77	
Total Fleet Cost/Hour:	\$182.77	

MATERIAL QUANTITIES

Total Area to be graded or ripped: 10.00 acres

Source of estimated acreage: Google Earth Estimate 2023 image

HOURLY PRODUCTION

Average Grader Speed: 1.50 mph
Selected Application: Ripping (0-3 mph) - 1.50
Selected Blade Angle: -1 degrees
Effective Blade Length: 0.00 feet
Width of blade overlap per pass: 2.00 feet
Net grading or ripping width per pass: 7.58 feet
Unadjusted Hourly Unit Production: 1.3782 acres/hour

Job Condition Correction Factors

Site Altitude: 4550 feet

		Source
Altitude Adj:	<u>1.00</u>	(CAT HB)
Job Efficiency:	<u>0.90</u>	(1sh/d, fav.)
Net Correction:	<u>0.9000</u>	multiplier

Adjusted Hourly Unit Production: 1.2404 acres/Hour
Adjusted Hourly Fleet Production: 1.2404 acres/Hour

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: 8.06 Hours

Unit cost: \$147.35 per acre Total job cost: \$1,474

SCRAPER TEAM WORK

Task description: Spread Topsoil over 84.19 acres

Site: Rich Pit

Permit Action: 2023 Inspection

Permit/Job#: M1985218

PROJECT IDENTIFICATION

Task #: 007A

State: Colorado

Abbreviation: None

Date: 8/31/2023

County: Pueblo

Filename: M218-007A

User: ANM

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 657G w/push-pull
-Dozer:	NA
Support Equipment -Load Area:	Cat D8T - 8SU
-Dump Area:	Cat D8T - 8SU
Road Maintenance -Motor Grader:	CAT 12M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	50	50	50	50
Ownership cost/hour:	\$379.25	NA	\$241.38	\$241.38	\$74.98	\$11.35
Operating cost/hour:	\$358.77	NA	\$71.96	\$71.96	\$27.63	\$11.46
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$47.28	NA	\$40.04	\$40.04	\$46.87	\$0.00
Unit Subtotals:	\$785.30	NA	\$353.38	\$353.38	\$149.48	\$22.81
Number of Units:	4	0	1	1	1	1
Group Subtotals:	Work:	\$3,141.20	Support:	\$706.76	Maint:	\$172.29

Total work team cost/hour: \$4,020.25

MATERIAL QUANTITIES

Initial volume: 67,913

CCY

Swell factor: 1.000

Loose volume: 67,913

LCY

Source of estimated volume: Google Earth dist acreage est from 2023 image and .5' TS AM1

Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Scraper Bowl (volume) Basis:

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

Cycle Time:

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

Job Condition Correction:

Site Altitude: 4550 feet

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

Travel Time:Road Condition: Hard, smooth, stabilized, surfaced, watered, maintained 2.0**Haul Route:**

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1500.00	-1.00	2.00	1.00	3004	0.69

Haul Time: 0.69 minutes**Return Route:**

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1500.00	1.00	2.00	3.00	2958	0.67

Return Time: 0.67 minutes

Total Scraper team cycle time: 3.06 minutes
 Adjusted for job conditions: 1,236.86 LCY/Hour
 Selected Number of Scrapers: 4 Scraper(s)
 Adjusted single scraper team (unit) hourly production: 2,473.73 LCY/Hour
 Adjusted multiple scraper team (fleet) hourly production: 2,473.73 LCY/Hour

Unadjusted unit production/hour: 1,490.20 LCY/Hour
 Optimal Number of Scrapers per push
 dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: 27.45 HoursUnit cost: \$1.625 /LCY Total job cost: \$110,371

REVEGETATION WORK

Task description: Revegetation

Site: Rich Pit

Permit Action: 2023 Inspection

Permit/Job#: M1985218

PROJECT IDENTIFICATION

Task #: 007B

State: Colorado

Abbreviation: None

Date: 8/31/2023

County: Pueblo

Filename: M218-007

User: ANM

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
Triple superphosphate, 0-46-0	90.00	pound	\$0.89	\$80.10
			Total Fertilizer Materials Cost/Acre	\$154.90

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	0.30	11.71	\$8.54
Sand Dropseed	0.10	11.94	\$0.98
Sideoats Grama - Butte	2.70	8.86	\$24.30
Yellow Sweet Clover - Madrid	0.70	4.18	\$1.98
Western Wheatgrass - Arriba	4.80	12.12	\$31.20
Saltbush, Four Wing	0.50	0.69	\$6.25
Totals Seed Mix	9.10	49.50	\$73.25

Application

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

MULCHING and MISCELLANEOUS

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$429.79	\$859.57
Total Mulch Materials Cost/Acre				\$859.57

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$74.46
Power mulcher (MEANS 32 91 13.16 0350)	\$147.67
Total Mulch Application Cost/Acre	\$222.13

JOB TIME AND COST

No. of Acres:	84.19	Cost /Acre:	\$1,696.49
Estimated Failure Rate:	20%	Cost /Acre*:	\$305.25
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	\$142,827.49
Reseeding Job Cost:	\$5,139.80
Total Job Cost:	\$147,967
Job Hours:	84.00

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: Mob/Demob

Site: Rich Pit

Permit Action: 2023 Inspection

Permit/Job#: M1985218

PROJECT IDENTIFICATION

Task #: 008
Date: 8/31/2023
User: ANM

State: Colorado
County: Pueblo

Abbreviation: None
Filename: M218-008

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
Cat D8T - 8SU	47.71	\$241.38	\$158.17	3	\$1,198.65	\$474.51	\$250.00
CAT 12M	16.01	\$74.98	\$82.29	1	\$157.27	\$82.29	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$6.73	\$82.29	2	\$178.04	\$164.58	\$250.00
Power Mulcher (Bowie LD-90)	6.00	\$25.94	\$82.29	1	\$108.23	\$82.29	\$250.00
Cat 657G w/push- pull	80.25	\$379.25	\$175.95	4	\$2,220.80	\$703.80	\$500.00

Subtotals: **\$3,862.99** **\$1,507.47** **\$1,500.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Water Tanker, 2,500 Gal.	\$73.18	1	\$73.18	\$73.18
Light Duty Pickup, 4x2, 1/2 T.	\$87.62	1	\$87.62	\$87.62
Fuel Tanker, 4x2, 170 HP	\$73.18	1	\$73.18	\$73.18
Lube Truck, 4x2, 190 HP	\$80.73	1	\$80.73	\$80.73

Subtotals: **\$314.71** **\$314.71**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	<u>PUEBLO</u>	
Total one-way travel distance:	<u>10.00</u>	miles
Average Travel Speed:	<u>55.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$33,229.98</u>
* two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$114.44</u>
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.18</u>	<u>0.18</u>
Return Time (Hours):	<u>0.18</u>	<u>0.18</u>
Loading Time (Hours):	<u>1.83</u>	<u>NA</u>
Unloading Time (Hours):	<u>1.83</u>	<u>NA</u>
Subtotals:	<u>4.02</u>	<u>0.36</u>

JOB TIME AND COST

Total job time:	<u>8.05</u>	Hours
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Total job cost:	<u>\$33,344</u>
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