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

December 2, 2019

Wendi Kern
Email: wkern63@gmail.com

RE: State Pit; DRMS File No. M-1990-112; Inaccurate Annual Reports

Dear Wendi Kern,

The Division has reviewed the permit file and available aerial photography for the State Pit (M1990-112) to better understand how the pit has evolved over time. The State Pit is currently permitted for 1,046 total acres, with an affected land boundary of 755 acres.

In the case of the State Pit the Division reviewed aerial photography available on Google Earth Pro including historic imagery dating back to 1999 (Attachment 1). The images indicate that between 1990 and 1999 a total of 135 acres were affected by mining. From September 1999 to September 2004 an additional 10 acres were affected by mining bringing the total disturbance area to 145 acres. In March of 2006 six more acres had been affected bringing the total disturbance to 151 acres. From March 2006 to August 2013 it does not appear that there was any expansion of mining activities. In June 2018 a total of 241 acres appear to have been affected by mining.

In April 2018 the Division performed an inspection of the State Pit related to your Citizen Complaint received in February 2018 (Attachment 2). During that inspection the Division found the affected acreage to be 222 acres which is close to the 241 acres estimated from the aerial imagery. In response to your initial e-mail regarding the inaccurate annual reporting for the State Pit, the Operator revised their acreages to indicate that 226 acres were currently affected. The Division believes that this is an accurate area of affected land based on imagery, the most recent inspection report, and corrected annual report numbers. The Operator is in the process of submitting an acreage release request for 70 acres that they feel meet the reclamation requirements in the northern portion of the affected land boundary around the pipeline. If the 70 acres are released that would mean that the current affected acreage would be 171 acres (241 acres minus 70 acres) leaving 514 acres (755 acres minus 241 acres) available for mining.

It does not appear that 420 acres were ever affected at the site at one time. The Operator reported the 420 acres in error and subsequently corrected that number to be 226 acres as reported in November 2019.

Based on the review of available aerial imagery, 2018 inspection report, and corrected annual report numbers the Division believes that we have addressed most, if not all, of your concerns related to the inconsistencies in annual reports and maps.

If you need additional information or have any questions, please contact me at Division of Reclamation, Mining and Safety, 1313 Sherman Street, Room 215, Denver, CO 80203, by telephone at **303-866-3567 x8114**, or by email at patrick.lennberg@state.co.us.

Sincerely,

Patrick Lennberg
Environmental Protection Specialist

Enclosure: Attachment 1 – Google Earth Imagery
Attachment 2 – 2018 Inspection Report

cc: Jared Ebert, DRMS

Attachment 1

999

2018

State Pit M1990-112

Google Earth Pro Image from 9/3/1999

Legend

- Approximate Permit Boundary
- Area Affected 9/3/99 Acres = 135
- Delinated Affected Area Boundary

331

36th Ln

Google Earth

Image U.S. Geological Survey

N

3000 ft

9/2/2004

State Pit M1990-112

Google Earth Pro Image from 9/2/2004

Legend

- Approximate Permit Boundary
- Area Affected 9/2/2004 Acres = 145
- Delinated Affected Area Boundary

331

36th Ln

Google Earth

Image USDA Farm Service Agency

N

3000 ft

3/26/2006

State Pit M1990-112

Google Earth Pro Image from 3/26/2006

Legend

- Approximate Permit Boundary
- Area Affected 3/26/2006 Acres = 151
- Delinated Affected Area Boundary

331

36th Ln

Google Earth

Image U.S. Geological Survey

N

3000 ft

8/28/2013

State Pit M1990-112

Google Earth Pro Image from 8/28/2013

Legend

- Approximate Permit Boundary
- Area Affected 3/26/2006 Acres = 151
- Delinated Affected Area Boundary

331

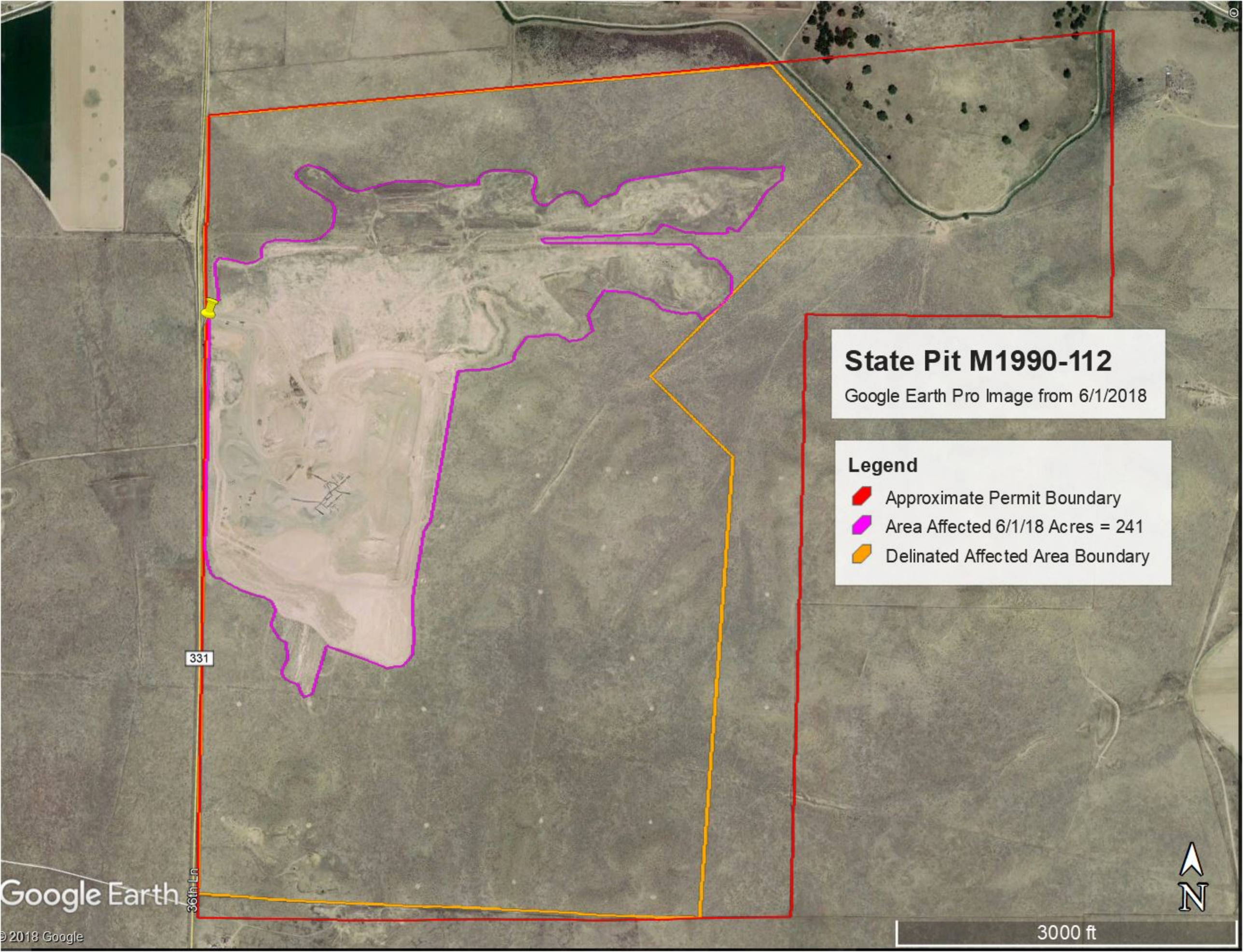
36th Ln

Google Earth

Image U.S. Geological Survey

N

3000 ft


State Pit M1990-112
Google Earth Pro Image from 6/1/2018
Legend
Approximate Permit Boundary
Area Affected 6/1/18 Acres = 241
Delinated Affected Area Boundary
331
36th Ln
Google Earth
© 2018 Google
N
3000 ft

Attachment 2

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

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: State Pit	**MINE/PROSPECTING ID#:** M-1990-112	**MINERAL:** Gravel	**COUNTY:** Pueblo
INSPECTION TYPE: Monitoring	**INSPECTOR(S):** Elliott R. Russell	**INSP. DATE:** February 28, 2018	**INSP. TIME:** 09:00
OPERATOR: Fremont Paving & Redi-Mix, Inc.	**OPERATOR REPRESENTATIVE:** Jodi Schrieber	**TYPE OF OPERATION:** 112c - Construction Regular Operation	

REASON FOR INSPECTION: Citizen Complaint	**BOND CALCULATION TYPE:** Complete Bond	**BOND AMOUNT:** $103,925.00
DATE OF COMPLAINT: NA	**POST INSP. CONTACTS:** None	**JOINT INSP. AGENCY:** None
WEATHER: Clear	**INSPECTOR'S SIGNATURE:** 	**SIGNATURE DATE:** April 6, 2018

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.

GENERAL INSPECTION TOPICS

The following list identifies the environmental and permit parameters inspected

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

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

PROBLEMS/POSSIBLE VIOLATIONS

INSPECTION TOPIC: Sediment Control
COMPLIANCE PROBLEM #1: The Operator needs to update the permit regarding current storm water controls. The Operator must provide sufficient information to describe or identify how the operator intends to stabilize and protect all surface areas of the affected lands to effectively control erosion and prevent sedimentation. Additional details regarding this compliance problem are provided in this inspection report.
CORRECTIVE ACTIONS: The operator shall submit a Technical Revision, with the required $216 revision fee, to update and clarify the current plan to control erosion and sedimentation.
CORRECTIVE ACTION DUE DATE: June 5, 2018

INSPECTION TOPIC: General Compliance with Mine Plan
COMPLIANCE PROBLEM #2: The current mine plan needs to be updated and clarified pursuant to C.R.S. 34-32.5-112(1)(c)(VI). The operator must provide sufficient information to describe or identify how the operator intends to conduct the operation. Additional details regarding this compliance problem are provided in this inspection report.
CORRECTIVE ACTIONS: The operator shall submit a Technical Revision, with the required $216 revision fee, to update and clarify the current approved mine plan to reflect existing and proposed activities by the corrective action date.
CORRECTIVE ACTION DUE DATE: June 5, 2018

INSPECTION TOPIC: Revegetation
COMPLIANCE PROBLEM #3: Tamarisk (salt cedar) trees are present within or have volunteered into the permit area and are becoming established. This is a problem for failure to employ weed control methods for a state listed noxious weed species within the permitted area, and to reduce the spread of weeds to nearby areas as required by Rule 3.1.10(6). Additional details regarding this compliance problem are provided in this inspection report.
CORRECTIVE ACTIONS: The operator shall develop a weed control and management plan in accordance with Rule 3.1.10(6). This plan should be developed in consultation with the county extension agency, or weed control district office and should include specific control measures to be applied, a schedule for when control measures will be applied and a post-treatment monitoring plan. This weed control plan shall be submitted to the Division as a Technical Revision to the permit with the appropriate Technical Revision fee of $216.00 by the corrective action date.
CORRECTIVE ACTION DUE DATE: June 5, 2018

OBSERVATIONS

The State Pit was inspected by Elliott Russell with the Division of Reclamation, Mining and Safety (Division) in response to a citizen complaint (CT-01) received via email on February 14, 2018 from Ms. Wendi Kern. The complaint was forwarded to Fremont Paving & Redi-Mix, Inc. (Operator) on February 15, 2018. Ms. Kern also submitted multiple emails on February 16th and 28th which were added to the original compliant and also forwarded to the Operator. The complaint identified several of Ms. Kern's concerns at the State Pit, Permit No. M-1990-112. These included (A) overnight stays on State land, (B) mining outside of the boundary, (C) slopes near a gas utility line, (D) use of topsoil to build berms, and (E) storm water controls.

The Division met Ms. Jodi Schrieber, Mr. Josh Ary, and Mr. Mike Ausmus (all representing the Operator) at the entrance to the site along 36th Lane. The State Pit is a Construction Materials 112c Operation and is permitted at

1,046 acres with 755 acres identified as affected land. The State Pit is located on land owned and controlled by the State of Colorado and is managed by the Colorado State Board of Land Commissioners (State Land Board). The site is located approximately 2.8 miles south of Vineland in Pueblo County. Affected lands will be reclaimed to support a post-mining land use of rangeland.

The Division investigated all of Ms. Kern's concerns during the inspection and has summarized the observations below:

A. Overnight stays on State land: This issue is not within the purview of the Division's jurisdiction. The Division forwarded the compliant to the State Land Board on February 15, 2018. On February 27, 2018, the Division received correspondence from the State Land Board confirming they had received a similar complaint and visited the site in early February. The State Land Board stated nothing was found in violation of lease at the time of the visit.

B. Mining outside of the boundary: Ms. Kern indicated the northeast portion of the disturbance could be outside of the boundary. The northern portion of the permit was mined by previous Operators until roughly 2004. This area is in final reclamation and the Operator has stated no further mining will re-disturb this area as the operation is now advancing to the south. The Division inspected the northeast area of the permit and observed no evidence of disturbance beyond the affected lands boundary (**Photos 1 & 2**). Additionally, the Division acquired GPS data of the affected area boundary and compared that to a Google Earth aerial image to confirm all mining disturbances have remained within the affected area boundary.

C. Slopes near a gas utility line: The northern portion of the permit is bisected by a gas utility line. The 1990 permit application includes information regarding the established slopes leading away for the gas line. The gas utility structure owner asked the Operator to stay 50 feet away from the gas line and have a maximum gradient of 1.5H:1V. The Operator felt this was too steep to revegetate and committed to replacing the excavations near the pipeline with a slope not steeper than 3H:1V on the south facing side and not steeper than 2.5H:1V on the north facing slope. A 2013 structure agreement, executed between the Operator and gas utility structure owner, states that no mining is to occur within 50 feet of the gas line and a minimum of 4H:1V slope will be maintained as a back-slope to the existing right of way (ROW) easement "from this time forward of the current operations." The Division observed the side slopes away from the gas utility line ROW during the inspection (**Photos 3 - 6**). Based on the revegetation and time since the mining operation was near the gas line (before 2004), these slopes have not been re-disturbed since the 2013 agreement. These slopes appear stable and well vegetated and appropriately graded. The Division recommends the Operator contact the utility company to verify and document there are no issues with the slopes prior to submitting any future release requests of these areas.

D. Use of topsoil to build berms: The Operator has mined, backfilled, and started to reclaim portions of the affected lands along the western and southern sides of the active mining area (**Photos 7 & 8**). The Division believes these backfilled areas are the referenced berms in the complaint. The Operator stated these areas were backfilled with overburden, topsoiled, seeded, and mulched in accordance with the approved Reclamation Plan. These areas help contain storm water on the active mining and processing areas from leaving the site. It appears these also serve as a slight visual barrier of the processing area from 36th Lane. The outward slopes of this backfilled area have been seeded and mulched, but have yet to be established with vegetation.

E. Storm water controls: The approved permit references storm water would be controlled by utilizing low berms between the edge of the disturbance and undisturbed lands, however, also states the land is relatively flat and a NPDES permit is not applicable to the operation as no discharge will occur. Additionally, the

permit states contour furrows and rough grading would control erosion during reclamation. The compliant and subsequent emails from Ms. Kern describe and show storm water leaving the site near the southwest portion of the active disturbance. The outward slopes of the backfilled areas (referenced in Issue D above) directly report to undisturbed lands and a small drainage, within the permit boundary, which travels to the west under 36th Lane via a culvert (**Photos 9 & 10**). The Operator had recently installed new erosion control wattles on various portions of this outward slope as well as across the drainage. There was also an older wattle across the drainage near the permit boundary. The Operator stated a discharge permit from the Colorado Department of Public Health and Environment (CDPHE) has been obtained for the operation. The Division has determined the original permit's storm water and erosion control discussion and the methods being implemented on-site do not appear adequate. The Division recommends establishing more appropriate storm water controls on these un-vegetated outward facing slopes as they currently exhibit the potential for erosion and sedimentation. Such controls could include contour ditches and berms, silt fencing, more wattles, or other Best Management Practices (BMPs). This issue has been cited as Compliance Problem #1 on page two of this report. The Operator is required to submit a Technical Revision to the permit to address improved erosion control BMPs and an updated Exhibit M regarding the discharge permit in accordance with C.R.S. 34-32.5-116(4)(j) and Rules 3.1.5(3), 6.4.7(2)(c), and 6.4.13.

After the investigation of list of concerns in Ms. Kern's compliant, the Division proceeded with a normal monitoring inspection. Those observations are discussed below.

Availability of Records: The Operator has complied with the most recent Annual Report, Map and Fee, due on June 15, 2017. The last inspection at the State Pit was conducted January 18, 2012. There are no open infractions. The Division approved a Succession of Operators (SO-03) from Larfarge West, Inc. to the Operator on December 9, 2013.

General Compliance with Mine Plan: The operation extracts gravel from eroded river terraces and processes the material with a mobile crushing and screening plant (**Photos 11 & 12**). The Operator states the operation is currently removing approximately 3-12 feet of overburden and mining approximately 15 feet of gravel. The active mining highwall is currently located along the east portion of the pit (**Photo 13**). Various product stockpiles are located around and to the west of the processing plant (**Photo 14**).

The original permit discusses major (20 acres), moderate (50 acres), and minor (100 acres) level of disturbances at any given time during the operation and accordingly address in the original bond calculation. The Division no longer uses the major/moderate/minor disturbance categories and it is no longer defined in the Act or Rules. In accordance with Rule 4.2.1(1) and 6.4.12(1), the Division now calculates the required financial warranties based on the actual current cost of fulfilling the requirements of the Reclamation Plan. The Division estimates there are now currently 100 acres disturbed associated with activing mining and processing areas and approximately 122 acres in various stages of reclamation. These issues have been cited as Compliance Problem #2 on page two of this report. The Operator is required to submit a Technical Revision to the Mining Plan to address how the Operator intends on conducting the mining operation.

Signs and Markers: The mine identification sign was posted at the entrance of the mine site along the east side of 36th Lane (**Photo 15**). The Affected lands boundary was recently survey by the Operator and was delineated with tall PVC pipes painted with florescent green (**Photo 16**). The GPS location of these markers were recorded with a Trimble Juno 3b unit. The attached *DRMS 2-28-18 Inspection Map M1990112* delineates the GPS location of these boundary markers. The Operator stated that the original hand-drawn Mine Plan and Reclamation Plan Maps contain various errors and inaccuracies based on the total affected and permit acreages. The Division suggests the Operator submit updated Mine and Reclamation Plan Maps, in accordance with Rules 6.4.3 and 6.4.6, as a Technical Revision to the permit.

Financial Warranty: The Division currently holds a Financial Warranty in the amount of $103,925.00 in the form of a corporate surety. The last time the Division evaluated the financial warranty was in 2012. The Division has re-evaluated the Financial Warranty held for the site based on the current level of disturbance and the approved mining and reclamation plan. The Division calculated the liability at the site to be $404,500.00. This is $300,575 more than the currently held financial warranty. The Division's estimate is enclosed with this report for the Operator's review. The Division requests that the Operator review the cost estimate and provide the Division with any questions or concerns by **April 20, 2018**. The Division may issue a surety increase revision after April 20, 2018 and require the Operator to post the additional required financial warranty in accordance with Rule 4.2.1(2). The Operator will have 60 days from the date of the separate notice of surety increase to provide the additional financial warranty.

Topsoil: Topsoil has been salvaged and stockpiled in several stockpiles around the site. The Division estimates there is sufficient salvaged topsoil on site to be replaced on the existing disturbance for reclamation.

Revegetation: As discussed above, the northern portion of the site, approximately 122 acres has been mined and is in final reclamation. The southern half of this area (approximately 56 acres) has yet establish appropriate vegetative cover and may need to be re-seeded. The northern half of this area (approximately 66 acres) has vegetation established. This 66-acre area is located from the northern edge of the mining disturbance to the toe of the southern gas utility line slope as well as a section on the south side of the utility line in the northeast portion of the mining distubnace. This area could be eligible for release through an Acreage Reduction request, however, Tamarisk is starting to establish on the reclaimed lands (**Photos 3, 6, & 17**). Tamarisk is a noxious weed List B species which will need to be controlled. The current permit does not contain a weed control and management plan in accordance with Rule 3.1.10(6). This issue has been cited as Compliance Problem #3 on page two of this report. The Operator is required to submit a Technical Revision to the permit to address the control and management of Tamarisk. The Weed Control Plan shall provide the control methods, a schedule for when control measures will be applied, and a post-treatment monitoring plan. The Division recommends you contact the Pueblo County Weed Manager for assistance with this plan. The 12th edition of the Noxious Weeds of Colorado handbook by the Colorado Weed Management Association lists Bill Alt at 719-586-9768 and balt7302@gmail.com as the Pueblo County Weed Manager. Please note, a Technical Revision to the Weed Control Plan will be required if the Operator intends to modify this plan in the future to include new treatment methods and time tables for other noxious weed species. The Division recommends the Operator develop specific management plans for several common noxious weed species that occur in the area of the State Pit and submit those with the required Weed Control Plan, as this will avoid having to submit future Technical Revision(s) for any new species. The Pueblo County Weed Manager should be able to assist you in determining which noxious weed species are likely to occur within the area of the State Pit and provide you with the management plans for those species.

This concludes the Division's Inspection Report; a subset of photographs taken during the time of the inspection are included below. If you need additional information or have any questions, please contact me at Division of Reclamation, Mining and Safety, 1313 Sherman Street, Room 215, Denver, CO 80203, by telephone at **303-866-3567 x8132**, or by email at elliott.russell@state.co.us.

PHOTOGRAPHS

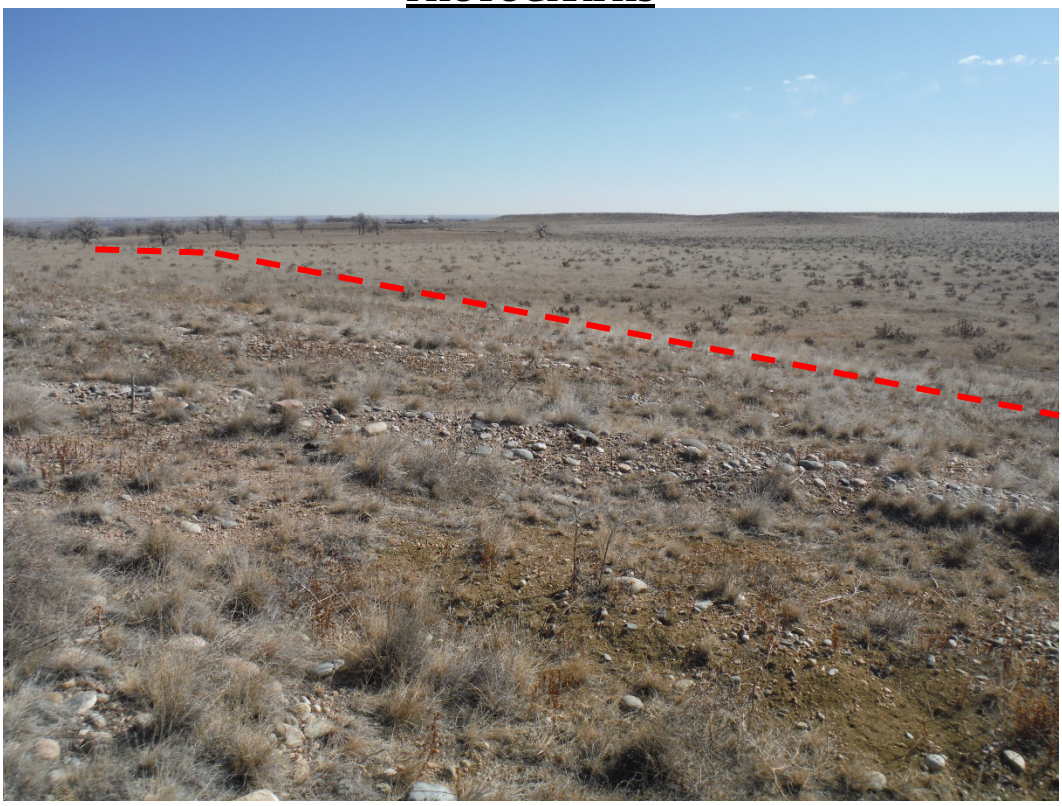


Photo 1. Reclaimed disturbance in northeast portion of the site near the affected lands boundary (approximately delineated by red-dashed line); looking northeast.

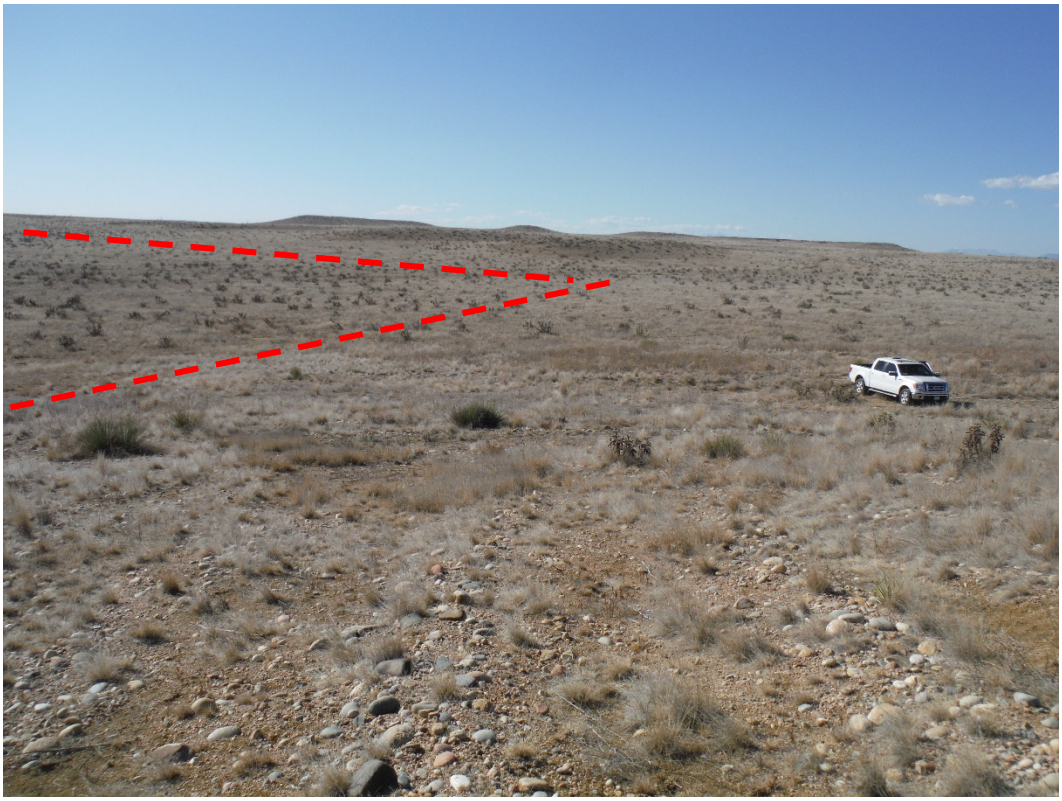


Photo 2. Reclaimed disturbance in northeast portion of the site near the affected lands boundary (approximately delineated by red-dashed line); looking southwest.

Photo 3. Portion of the southern slope along gas utility line, tamarisk circled in red; looking west.

Photo 4. Portion of the northern slope along gas utility line; looking west.

Photo 5. Portion of the southern slope along gas utility line; looking west.

Photo 6. Portion of the northern slope along gas utility line, tamarisk circled in red; looking east.

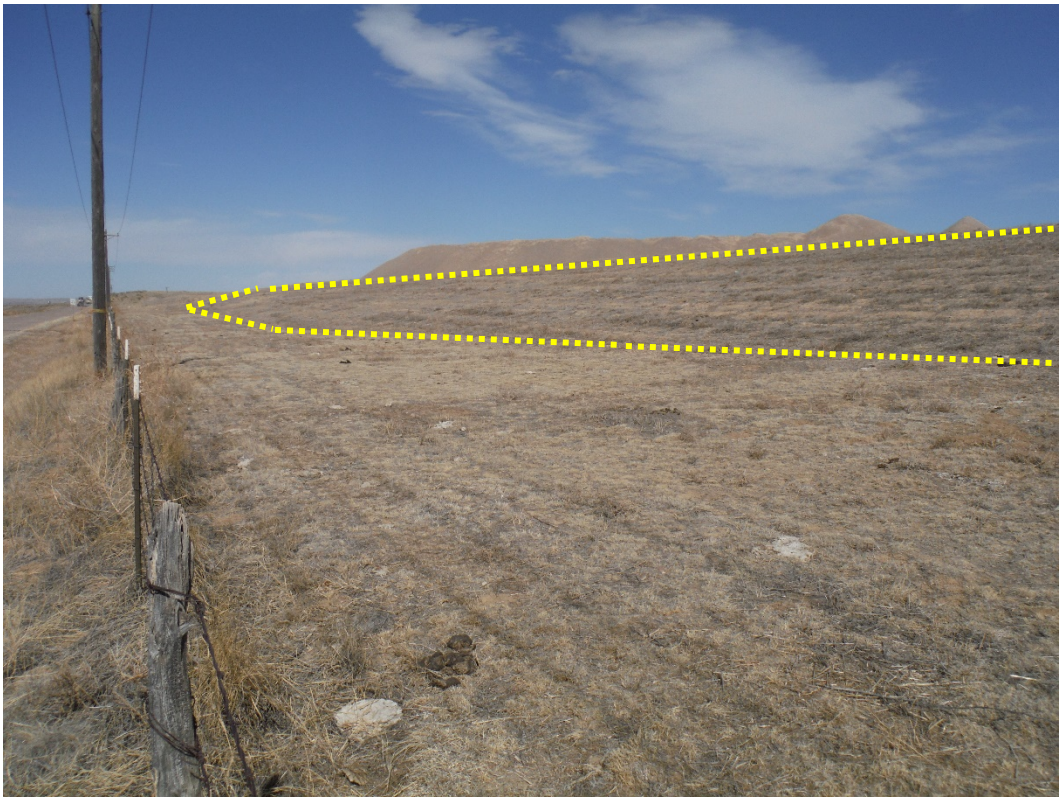


Photo 7. Backfilled and seeded area (circled in dotted yellow) along western portion of the site; looking northeast.

Photo 8. Backfilled and seeded area along western portion of the site; looking south from on top of the backfilled and seeded area.

Photo 9. Backfilled and seeded area in need of improved erosion control BMPs; looking east.

Photo 10. Drainage located to the south of the backfilled and seeded areas, 36th Lane culvert headwall in foreground; looking east.

Photo 11. Active operation overview; looking northwest from the southern portion of the permit.

Photo 12. Active mining face along east side of the pit; looking southeast.

Photo 13. Inward facing slope of the backfilled area south of the active mining and processing areas; looking northeast.

Photo 14. Various product stockpiles located west of the active pit and processing area; looking east.

Photo 15. Permit identification sign posted at the entrance to the site along 36th Lane; looking south.

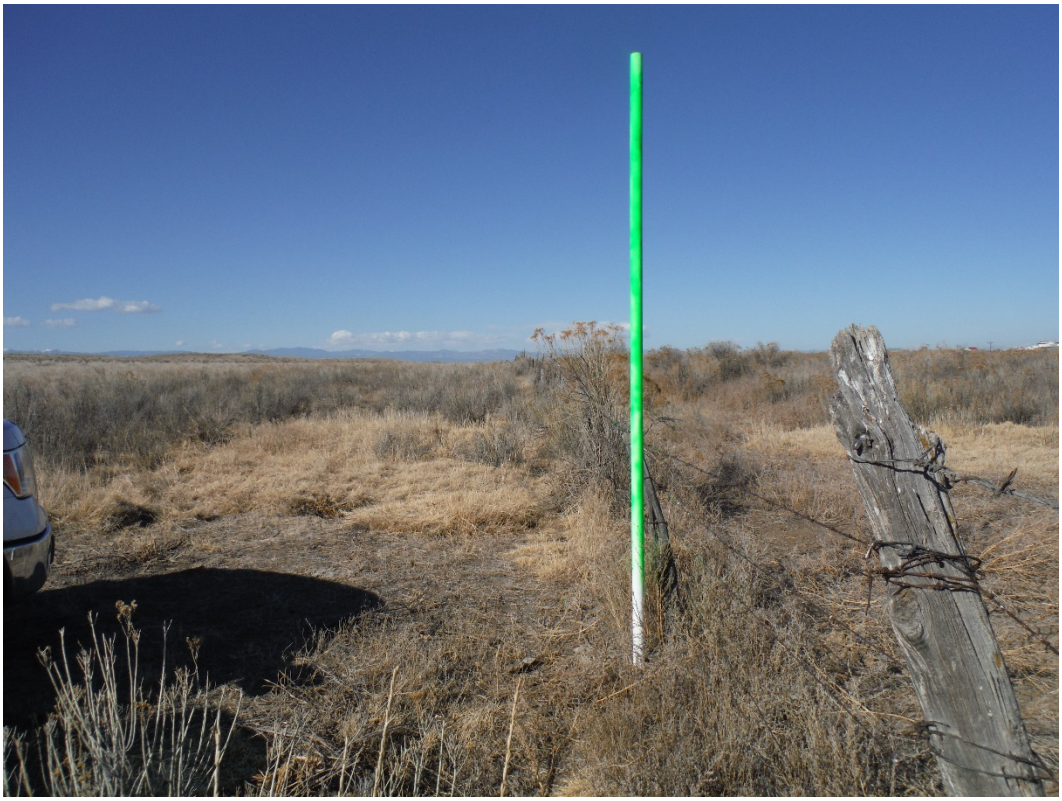


Photo 16. Sample photo of the affected area boundary markers; looking west.

Photo 17. Tamarisk infestation (circled in red) in northern portion of the site; looking northwest.

Inspection Contact Address
Jodi Schrieber
Fremont Paving & Redi-Mix, Inc.
839 MacKenzie Avenue
Canon City, CO 81212

Attachment: DRMS 2-28-18 Inspection Map M1990112

Enclosure: Reclamation Cost Estimate M1990112

CC: Wally Erickson with Division of Reclamation, Mining, and Safety
Phillip Courtney with State Land Board
Al Stafford with CDPHE Water Quality Control Division
Wendi Kern

DRMS 2-28-18 Inspection Map M1990112

Aerial Image Date: 8/28/13
Prepared by ERR on 4/6/18

38th Ln
38
39th Ln
Olson Rd
331
36th Ln
323
40th Ln

N

Legend

- Approximate Active Disturbance
- Approximate Permit Boundary
- Delinated Affected Area Boundary
- Possible Reseeding Area
- State Pit (M-1990-112) Entrance
- Weed Treatment Required Prior to Release

4000 ft

Google Earth

© 2018 Google

COST SUMMARY WORK

Task description: **Cost Summary of Reclamation Tasks**

Site: **State Pit** Permit Action: 2018 Update Permit/Job#: M1990112

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 4/5/2018 County: Pueblo Filename: M112-000
User: ERR

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Grade Highwall and Misc. Slopes	DOZER	2	15.42	$6,329.00
002	Replace Subsoil and Topsoil	SCRAPER1	1	31.97	$113,623.00
003	Revegetate the Active Mining Area	REVEGE	1	50.00	$131,610.00
004	Reseed the 56-acre Area	REVEGE	1	28.00	$73,701.00
005	Mob/Demob Reclamation Equipment	MOBILIZE	1	1.96	$11,378.00
		SUBTOTALS:		**127.35**	**$336,641**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$6,800.15
Performance bond:	1.05	Total =	$3,534.73
Job superintendent:	63.67	Total =	$4,651.09
Profit:	10.00	Total =	$33,664.10
		TOTAL O & P =	$48,650.07
		CONTRACT AMOUNT (direct + O & P) =	$385,291.07

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	0.00	Total =	0.00
Engineering work and/or contract/bid preparation:	0.00	Total =	$0.00
Reclamation management and/or administration:	5.00		$19,264.55
CONTINGENCY:	0.00	Total =	$0.00
		TOTAL INDIRECT COST =	$67,914.62
		TOTAL BOND AMOUNT (direct + indirect) =	**$404,555.62**

BULLDOZER WORK

Task description: **Grade Highwall and Misc. Slopes**

Site: **State Pit** Permit Action: 2018 Update Permit/Job#: M1990112

PROJECT IDENTIFICATION

Task #: 001 State: Colorado Abbreviation: None
Date: 4/5/2018 County: Pueblo Filename: M112-001
User: ERR

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$83.81	NA
Operating Cost/Hour:	$66.17	100
Ripper own. Cost/Hour:	$7.55	NA
Ripper op. Cost/Hour:	$7.21	100
Operator Cost/Hour:	$40.52	NA

Total unit Cost/Hour: $205.26
Total Fleet Cost/Hour: **$410.52**

MATERIAL QUANTITIES

Initial Volume: 15,625
Swell factor: 1.250
Loose volume: **19,531** LCY

Source of estimated volume: DRMS Observations: 25' H x 1800' L highwall
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 75 feet
Unadjusted hourly production: 1,017.1 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: -30 %
Average site altitude: 4,800 feet

Material weight: 2,650 lbs/LCY

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

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

Material consistency:	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:	1.601	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6228

Adjusted unit production: 633.45 LCY/hr

Adjusted fleet production: **1266.9** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: $0.324/LCY

Total job time: **15.42** Hours

Total job cost: **$6,329**

SCRAPER TEAM WORK

Task description: **Replace Subsoil and Topsoil**

Site: **State Pit** Permit Action: 2018 Update Permit/Job#: M1990112

PROJECT IDENTIFICATION

Task #: 002 State: Colorado Abbreviation: None
Date: 4/5/2018 County: Pueblo Filename: M112-002
User: ERR

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 657G
-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	100	100	100	50
Ownership cost/hour:	$154.79	NA	$83.81	$83.81	$28.02	$7.88
Operating cost/hour:	$184.57	NA	$66.17	$66.17	$28.28	$7.37
%Utilization-ripper:	NA	NA	0	0	NA	NA
Ripper own. cost/hour:	NA	NA	$7.55	$7.55	$0.00	$0.00
Ripper op. cost/hour:	NA	NA	$0.00	$0.00	$0.00	$0.00
Operator cost/hour:	$41.67	NA	$40.52	$40.52	$38.16	$0.00
Unit Subtotals:	$381.03	NA	$198.05	$198.05	$94.46	$15.25
Number of Units:	8	0	1	1	1	1
Group Subtotals:	Work:	$3,048.24	Support:	$396.10	Maint:	$109.71

Total work team cost/hour: **$3,554.05**

MATERIAL QUANTITIES

Initial volume: 161,333 CCY Swell factor: 1.000
Loose volume: **161,333** LCY

Source of estimated volume: Application: 6" subsoil. ~6"topsoil. 100 acres
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Scraper Bowl (volume) Basis:

Material weight: 2,650 lbs/LCY
Material description: Decomposed rock - 25% Rock, 75% Earth
Rated Payload: 104,000 pounds
Payload Capacity: 39.25 LCY

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: 1.00 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 4800 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	0.73

Haul Time: **0.73** 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: **3.00** minutes
Adjusted for job conditions: 630.80 LCY/Hour
Selected Number of Scrapers: 8 Scraper(s)
Adjusted single scraper team (unit) hourly production: 5,046.40 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **5,046.40** LCY/Hour

Unadjusted unit production/hour: 760.00 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **31.97** Hours

Unit cost: $0.704 /LCY Total job cost: **$113,623**

REVEGETATION WORK

Task description: **Revegetate the Active Mining Area**

Site: **State Pit** Permit Action: 2018 Update Permit/Job#: M1990112

PROJECT IDENTIFICATION

Task #: 003 State: Colorado Abbreviation: None
Date: 4/5/2018 County: Pueblo Filename: M112-003
User: ERR

Agency or organization name: DRMS

FERTILIZING

Materials

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

Application

Description	Cost /Acre
Truck whirlwind spreader (MEANS 32 01 90.13 0140)	$111.08
Total Fertilizer Application Cost/Acre	**$111.08**

TILLING

Description	Cost /Acre
Chisel plowing {DMG}	$90.60
Weed control spraying (MEANS 31 31 16.13 3100)	$242.00
Total Tilling Cost/Acre	**$332.60**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	0.40	6.53	$6.51
Crested Wheatgrass - Hy-Crest	2.00	9.18	$8.84
Sideoats Grama - El Reno	1.50	4.92	$14.51
Intermediate Wheatgrass - Oahe	2.50	5.34	$9.60
Pubescent Wheatgrass - Luna	2.50	5.17	$10.18
White Sweet Clover	0.25	1.49	$1.03
Western Wheatgrass - Arriba	3.00	7.58	$24.24
Totals Seed Mix	12.15	40.21	**$74.90**

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}	1.00	TON	$261.00	$261.00
Total Mulch Materials Cost/Acre				**$261.00**

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	$66.02
Total Mulch Application Cost/Acre	**$66.02**

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

Cost /Acre: $1,156.22
Cost /Acre*: $639.50

Initial Job Cost: **$115,622.00**
Reseeding Job Cost: **$15,987.50**
Total Job Cost: **$131,610**
Job Hours: **50.00**

REVEGETATION WORK

Task description: **Reseed the 56-acre Area**

Site: **State Pit** Permit Action: 2018 Update Permit/Job#: M1990112

PROJECT IDENTIFICATION

Task #: 004 State: Colorado Abbreviation: None
Date: 4/5/2018 County: Pueblo Filename: M112-004
User: ERR

Agency or organization name: DRMS

FERTILIZING

Materials

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

Application

Description	Cost /Acre
Truck whirlwind spreader (MEANS 32 01 90.13 0140)	$111.08
Total Fertilizer Application Cost/Acre	**$111.08**

TILLING

Description	Cost /Acre
Chisel plowing {DMG}	$90.60
Weed control spraying (MEANS 31 31 16.13 3100)	$242.00
Total Tilling Cost/Acre	**$332.60**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	0.40	6.53	$6.51
Crested Wheatgrass - Hy-Crest	2.00	9.18	$8.84
Sideoats Grama - El Reno	1.50	4.92	$14.51
Intermediate Wheatgrass - Oahe	2.50	5.34	$9.60
Pubescent Wheatgrass - Luna	2.50	5.17	$10.18
White Sweet Clover	0.25	1.49	$1.03
Western Wheatgrass - Arriba	3.00	7.58	$24.24
Totals Seed Mix	12.15	40.21	**$74.90**

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}	1.00	TON	$261.00	$261.00
Total Mulch Materials Cost/Acre				**$261.00**

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	$66.02
Total Mulch Application Cost/Acre	**$66.02**

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: 56
Estimated Failure Rate: 25%
*Selected Replanting Work Items: TILLING,SEEDING

Cost /Acre: $1,156.22
Cost /Acre*: $639.50

Initial Job Cost: **$64,748.32**
Reseeding Job Cost: **$8,953.00**
Total Job Cost: **$73,701**
Job Hours: **28.00**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Mob/Demob Reclamation Equipment**

Site: **State Pit** Permit Action: 2018 Update Permit/Job#: M1990112

PROJECT IDENTIFICATION

Task #: 005 State: Colorado Abbreviation: None
Date: 4/5/2018 County: Pueblo Filename: M112-005
User: ERR

Agency or organization name: DRMS

EQUIPMENT TRANSPORT RIG COST

Shift basis: 1 per day
Cost Data Source: CRG Data

Truck Tractor Description: GENERIC ON-HIGHWAY TRUCK TRACTOR, 6X4, DIESEL POWERED, 400 HP (2ND HALF, 2006)

Truck Trailer Description: GENERIC FOLDING GOOSENECK, DROP DECK EQUIPMENT TRAILER (25T, 50T, AND 100T)

Cost Breakdown:

Available Rig Capacities	0-25 Tons	26-50 Tons	51+ Tons
Ownership Cost/Hour:	$16.63	$18.37	$22.33
Operating Cost/Hour:	$44.38	$46.13	$50.07
Operator Cost/Hour:	$27.66	$27.66	$27.66
Helper Cost/Hour:	$0.00	$25.39	$25.39
Total Unit Cost/Hour:	$88.67	$117.55	$125.45

NON ROADABLE EQUIPMENT:

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Cat D8T - 8SU	53.08	$91.36	$125.45	2	$433.62	$250.90	$500.00
Cat 657G	78.88	$154.79	$125.45	8	$2,241.92	$1,003.60	$2,000.00
CAT 12M	16.01	$30.01	$88.67	1	$118.68	$88.67	$250.00
Drill/Broadcast Seeder with Tractor	25.00	$12.22	$88.67	1	$100.89	$88.67	$250.00
Power Mulcher (Bowie LD-90)	6.00	$7.03	$88.67	1	$95.70	$88.67	$250.00
Subtotals:					**$2,990.81**	**$1,520.51**	**$3,250.00**

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.	$22.62	1	$22.62	$22.62
Subtotals:			**$22.62**	**$22.62**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	PUEBLO	
Total one-way travel distance:	17.00	miles
Average Travel Speed:	50.00	mph

Total Non-Roadable Mob/Demob Cost * ‘* two round trips with haul rig:	$11,362.18
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$15.38

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.34	0.34
Return Time (Hours):	0.34	0.34
Loading Time (Hours):	0.15	NA
Unloading Time (Hours):	0.15	NA
Subtotals:	0.98	0.68

JOB TIME AND COST

Total job time:	**1.96**	Hours
Total job cost:	**$11,378**	