



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

|                                             |                                                                                                             |                                  |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------|
| REASON FOR INSPECTION:<br>Citizen Complaint | BOND CALCULATION TYPE:<br>Complete Bond                                                                     | BOND AMOUNT:<br>\$103,925.00     |
| DATE OF COMPLAINT:<br>NA                    | POST INSP. CONTACTS:<br>None                                                                                | JOINT INSP. AGENCY:<br>None      |
| WEATHER:<br>Clear                           | INSPECTOR'S SIGNATURE:<br> | SIGNATURE DATE:<br>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----- <u>Y</u>                 | (FN) FINANCIAL WARRANTY----- <u>Y</u>    | (RD) ROADS----- <u>Y</u>        |
| (HB) HYDROLOGIC BALANCE----- <u>Y</u>      | (BG) BACKFILL & GRADING----- <u>Y</u>    | (EX) EXPLOSIVES----- <u>NA</u>  |
| (PW) PROCESSING WASTE/TAILING---- <u>N</u> | (SF) PROCESSING FACILITIES----- <u>Y</u> | (TS) TOPSOIL----- <u>Y</u>      |
| (MP) GENL MINE PLAN COMPLIANCE- <u>PB</u>  | (FW) FISH & WILDLIFE----- <u>Y</u>       | (RV) REVEGETATION---- <u>PB</u> |
| (SM) SIGNS AND MARKERS----- <u>Y</u>       | (SP) STORM WATER MGT PLAN---- <u>N</u>   | (RS) RECL PLAN/COMP-- <u>Y</u>  |
| (ES) OVERBURDEN/DEV. WASTE----- <u>N</u>   | (SC) SEDIMENT CONTROL----- <u>PB</u>     | (ST) STIPULATIONS----- <u>N</u> |
| (AT) ACID OR TOXIC MATERIALS----- <u>N</u> | (OD) OFF-SITE DAMAGE----- <u>N</u>       |                                 |

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 16<sup>th</sup> and 28<sup>th</sup> which were added to the original complaint 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 36<sup>th</sup> 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 complaint 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 from 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 36<sup>th</sup> 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 36<sup>th</sup> 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 activating 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 36<sup>th</sup> 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.

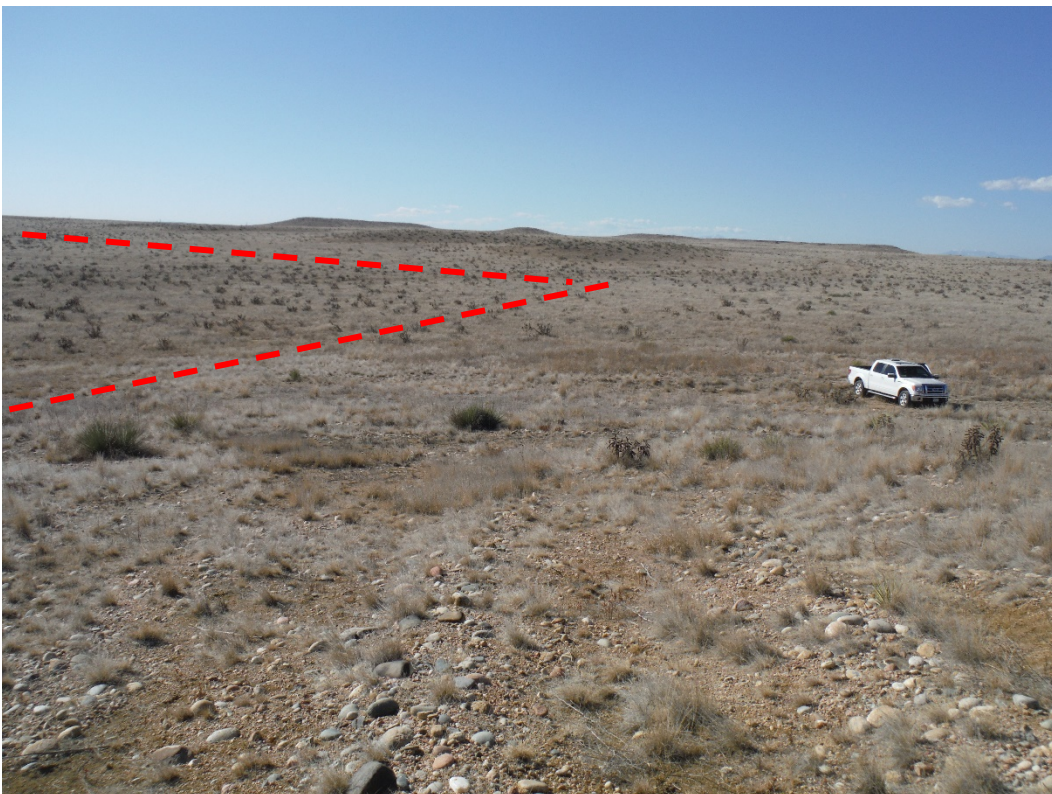
Revegetation: As discussed above, the northern portion of the site, approximately 122 acres has been mined and is in final reclamation. The southern half of this area (approximately 56 acres) has yet establish appropriate vegetative cover and may need to be re-seeded. The northern half of this area (approximately 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 disturbance. 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 12<sup>th</sup> 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](mailto: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](mailto: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.



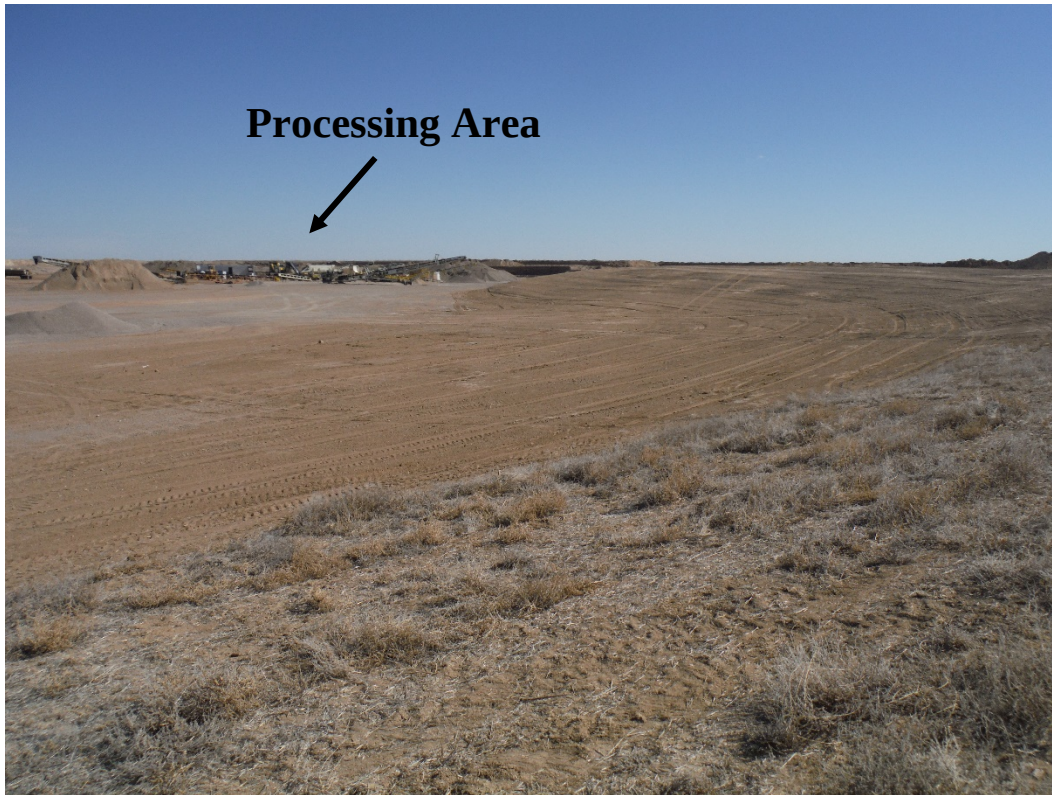
**Photo 10.** Drainage located to the south of the backfilled and seeded areas, 36<sup>th</sup> Lane culvert headwall in foreground; looking east.



**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.



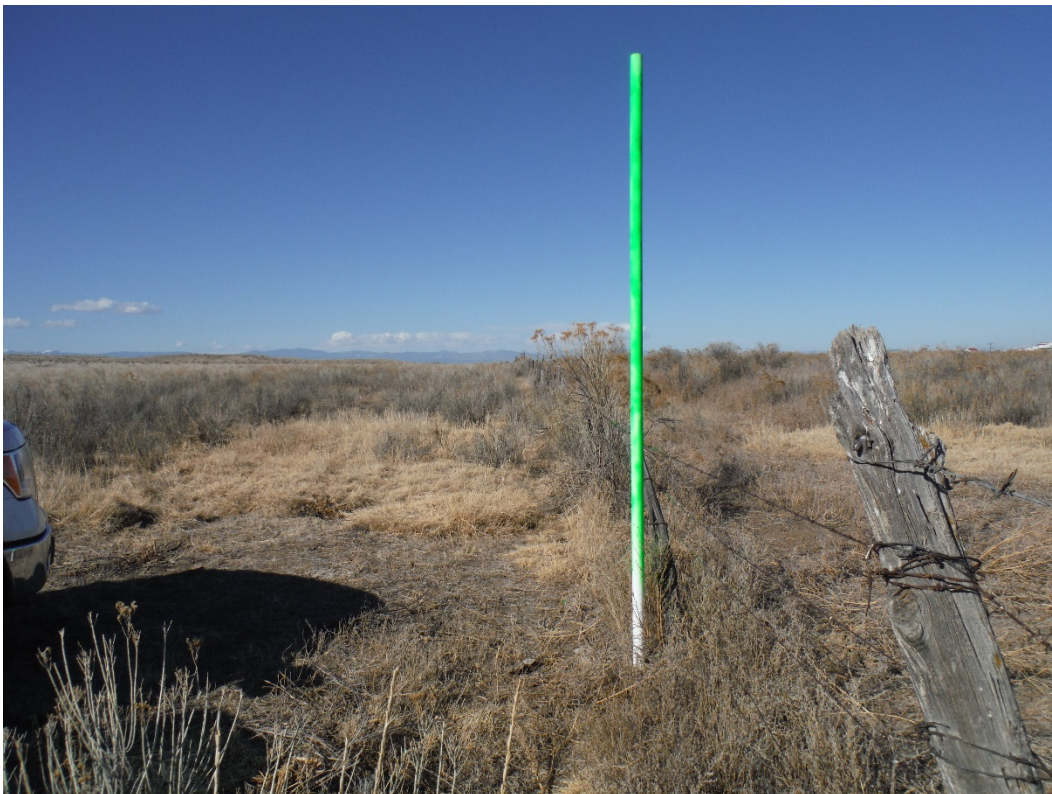
**Photo 13.** Inward facing slope of the backfilled area south of the active mining and processing areas; looking northeast.



**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 36<sup>th</sup> 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

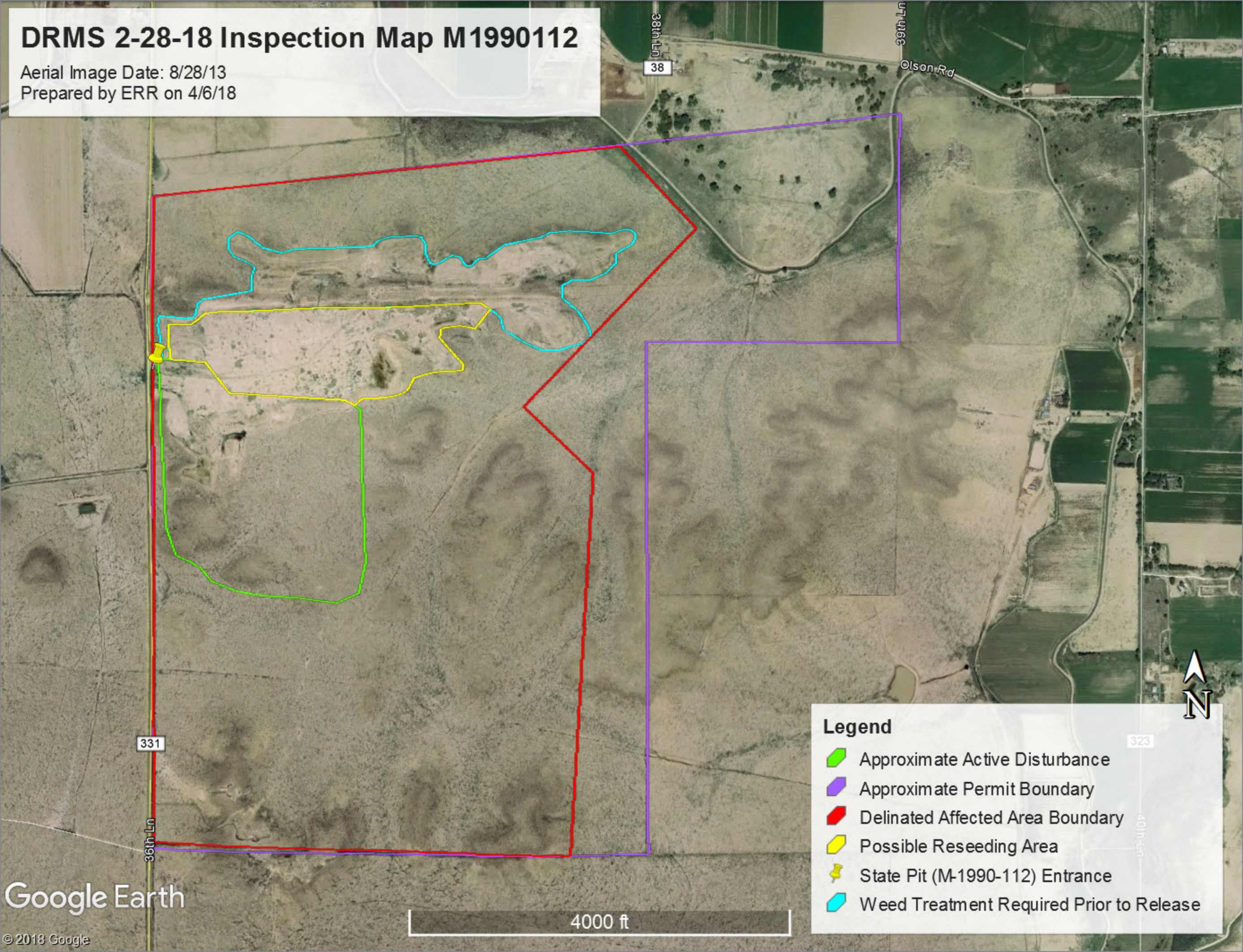
Attachment: DRMS 2-28-18 Inspection Map M1990112

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



**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

## 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      |
| <b><u>SUBTOTALS:</u></b> |                                   |           |            | <b>127.35</b> | <b>\$336,641</b> |

### 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:**

|                           |                 | <u>Utilization %</u> |
|---------------------------|-----------------|----------------------|
| Ownership Cost/Hour:      | \$83.81         | NA                   |
| Operating Cost/Hour:      | \$66.17         | 100                  |
| Ripper own.<br>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:    | <b>\$410.52</b> |                      |

**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**Operator Skill: **0.750**Source  
(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 MinutesManeuver and Spread Time: 0.60 MinutesJob 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 2.0Haul 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 minutesReturn 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 minutesTotal Scraper team cycle time: 3.00 minutesAdjusted for job conditions: 630.80 LCY/HourSelected Number of Scrapers: 8 Scraper(s)Adjusted single scraper team (unit) hourly production: 5,046.40 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 5,046.40 LCY/HourUnadjusted 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 HoursUnit cost: \$0.704 /LCYTotal job cost: \$113,623

REVEGETATION WORKTask description: Revegetate the Active Mining AreaSite: State PitPermit Action: 2018 UpdatePermit/Job#: M1990112PROJECT IDENTIFICATIONTask #: 003State: ColoradoAbbreviation: NoneDate: 4/5/2018County: PuebloFilename: M112-003User: ERRAgency or organization name: DRMSFERTILIZING**Materials**

| Description                   | Units /<br>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        |
|                               |                 |       | <b>Total Fertilizer<br/>Materials<br/>Cost/Acre</b> | <b>\$78.62</b> |

**Application**

| Description                                       | Cost /Acre      |
|---------------------------------------------------|-----------------|
| Truck whirlwind spreader (MEANS 32 01 90.13 0140) | \$111.08        |
| <b>Total Fertilizer Application Cost/Acre</b>     | <b>\$111.08</b> |

TILLING

| Description                                    | Cost /Acre      |
|------------------------------------------------|-----------------|
| Chisel plowing {DMG}                           | \$90.60         |
| Weed control spraying (MEANS 31 31 16.13 3100) | \$242.00        |
| <b>Total Tilling Cost/Acre</b>                 | <b>\$332.60</b> |

SEEDING

| Seed Mix                       | Rate –<br>PLS<br>LBS /<br>Acre | Seeds<br>per SQ.<br>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        |
| <b>Totals Seed Mix</b>         | <b>12.15</b>                   | <b>40.21</b>           | <b>\$74.90</b> |

**Application**

| Description                             | Cost /Acre      |
|-----------------------------------------|-----------------|
| Drill Seeding (DRMS Survey Cost)        | \$232.00        |
| <b>Total Seed Application Cost/Acre</b> | <b>\$232.00</b> |

**MULCHING and MISCELLANEOUS****Materials**

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

**Application**

| Description                              | Cost /Acre     |
|------------------------------------------|----------------|
| Crimping, with tractor {DMG survey data} | \$66.02        |
| <b>Total Mulch Application Cost/Acre</b> | <b>\$66.02</b> |

**NURSERY STOCK PLANTING**

| Common Name                             | No /<br>Acre | Type and Size | Planting<br>Cost | Fertilizer<br>Pellet Cost | Cost /Acre    |
|-----------------------------------------|--------------|---------------|------------------|---------------------------|---------------|
|                                         |              |               |                  |                           | \$            |
| <b>Totals Nursery Stock Cost / Acre</b> |              |               |                  |                           | <b>\$0.00</b> |

**JOB TIME AND COST**

|                                  |                     |              |            |
|----------------------------------|---------------------|--------------|------------|
| No. of Acres:                    | 100                 | Cost /Acre:  | \$1,156.22 |
| Estimated Failure Rate:          | 25%                 | Cost /Acre*: | \$639.50   |
| *Selected Replanting Work Items: | TILLING,SEEDING     |              |            |
| Initial Job Cost:                | <b>\$115,622.00</b> |              |            |
| Reseeding Job Cost:              | <b>\$15,987.50</b>  |              |            |
| Total Job Cost:                  | <b>\$131,610</b>    |              |            |
| Job Hours:                       | <b>50.00</b>        |              |            |

**REVEGETATION WORK**Task description: Reseed the 56-acre AreaSite: State PitPermit Action: 2018 UpdatePermit/Job#: M1990112**PROJECT IDENTIFICATION**Task #: 004State: ColoradoAbbreviation: NoneDate: 4/5/2018County: PuebloFilename: M112-004User: ERRAgency or organization name: DRMS**FERTILIZING****Materials**

| Description                   | Units /<br>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        |
|                               |                 |       | <b>Total Fertilizer<br/>Materials<br/>Cost/Acre</b> | <b>\$78.62</b> |

**Application**

| Description                                       | Cost /Acre      |
|---------------------------------------------------|-----------------|
| Truck whirlwind spreader (MEANS 32 01 90.13 0140) | \$111.08        |
| <b>Total Fertilizer Application Cost/Acre</b>     | <b>\$111.08</b> |

**TILLING**

| Description                                    | Cost /Acre      |
|------------------------------------------------|-----------------|
| Chisel plowing {DMG}                           | \$90.60         |
| Weed control spraying (MEANS 31 31 16.13 3100) | \$242.00        |
| <b>Total Tilling Cost/Acre</b>                 | <b>\$332.60</b> |

**SEEDING**

| Seed Mix                       | Rate –<br>PLS<br>LBS /<br>Acre | Seeds<br>per SQ.<br>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        |
| <b>Totals Seed Mix</b>         | <b>12.15</b>                   | <b>40.21</b>           | <b>\$74.90</b> |

**Application**

| Description                             | Cost /Acre      |
|-----------------------------------------|-----------------|
| Drill Seeding (DRMS Survey Cost)        | \$232.00        |
| <b>Total Seed Application Cost/Acre</b> | <b>\$232.00</b> |

**MULCHING and MISCELLANEOUS****Materials**

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

**Application**

| Description                              | Cost /Acre     |
|------------------------------------------|----------------|
| Crimping, with tractor {DMG survey data} | \$66.02        |
| <b>Total Mulch Application Cost/Acre</b> | <b>\$66.02</b> |

**NURSERY STOCK PLANTING**

| Common Name                             | No /<br>Acre | Type and Size | Planting<br>Cost | Fertilizer<br>Pellet Cost | Cost /Acre    |
|-----------------------------------------|--------------|---------------|------------------|---------------------------|---------------|
|                                         |              |               |                  |                           | \$            |
| <b>Totals Nursery Stock Cost / Acre</b> |              |               |                  |                           | <b>\$0.00</b> |

**JOB TIME AND COST**

|                                  |                 |              |            |
|----------------------------------|-----------------|--------------|------------|
| No. of Acres:                    | 56              | Cost /Acre:  | \$1,156.22 |
| Estimated Failure Rate:          | 25%             | Cost /Acre*: | \$639.50   |
| *Selected Replanting Work Items: | TILLING,SEEDING |              |            |
| 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:**

| <b>Available Rig Capacities</b> | <b>0-25 Tons</b> | <b>26-50 Tons</b> | <b>51+ Tons</b> |
|---------------------------------|------------------|-------------------|-----------------|
| 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/<br>Unit<br>(TONS) | Owner ship<br>Cost/hr/ unit | Haul Rig<br>Cost/hr/unit | Fleet<br>Size | Haul Trip<br>Cost/hr/<br>fleet | Return Trip<br>Cost/hr/ fleet | DOT Permit<br>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<br>Seeder with<br>Tractor | 25.00                     | \$12.22                     | \$88.67                  | 1             | \$100.89                       | \$88.67                       | \$250.00                  |
| Power Mulcher<br>(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/<br>unit | Fleet Size | Haul Trip<br>Cost/hr/ fleet | Return Trip<br>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: | <u>PUEBLO</u> |       |
| Total one-way travel distance:                         | <u>17.00</u>  | miles |
| Average Travel Speed:                                  | <u>50.00</u>  | mph   |

|                                     |                    |
|-------------------------------------|--------------------|
| Total Non-Roadable Mob/Demob Cost * | <u>\$11,362.18</u> |
| '* two round trips with haul rig:   |                    |
| Total Roadable Mob/Demob Cost **    | <u>\$15.38</u>     |
| '** one round trip, no haul rig:    |                    |

**Transportation Cycle Time:**

|                         | Non-Roadable<br>Equipment | Roadable<br>Equipment |
|-------------------------|---------------------------|-----------------------|
| Haul Time (Hours):      | <u>0.34</u>               | <u>0.34</u>           |
| Return Time (Hours):    | <u>0.34</u>               | <u>0.34</u>           |
| Loading Time (Hours):   | <u>0.15</u>               | <u>NA</u>             |
| Unloading Time (Hours): | <u>0.15</u>               | <u>NA</u>             |
| Subtotals:              | <u>0.98</u>               | <u>0.68</u>           |

**JOB TIME AND COST**

|                 |             |       |
|-----------------|-------------|-------|
| Total job time: | <u>1.96</u> | Hours |
|-----------------|-------------|-------|

|                 |                 |
|-----------------|-----------------|
| Total job cost: | <u>\$11,378</u> |
|-----------------|-----------------|