



**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.

<b>MINE NAME:</b> Glacier Rock	<b>MINE/PROSPECTING ID#:</b> M-1994-096	<b>MINERAL:</b> Gravel	<b>COUNTY:</b> Larimer
<b>INSPECTION TYPE:</b> Monitoring	<b>INSPECTOR(S):</b> Amy Eschberger, Rob Zuber	<b>INSP. DATE:</b> February 13, 2020	<b>INSP. TIME:</b> 10:00
<b>OPERATOR:</b> Glacier Rock Company	<b>OPERATOR REPRESENTATIVE:</b> Roger Hageman	<b>TYPE OF OPERATION:</b> 112c - Construction Regular Operation	

<b>REASON FOR INSPECTION:</b> Normal I&E Program	<b>BOND CALCULATION TYPE:</b> Complete Bond	<b>BOND AMOUNT:</b> \$20,000.00
<b>DATE OF COMPLAINT:</b> NA	<b>POST INSP. CONTACTS:</b> None	<b>JOINT INSP. AGENCY:</b> None
<b>WEATHER:</b> Clear	<b>INSPECTOR'S SIGNATURE:</b> 	<b>SIGNATURE DATE:</b> March 19, 2020

**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.**

<p><b>INSPECTION TOPIC:</b> Gen. Compliance With Mining Plan</p> <p><b>PROBLEM:</b> The current mining 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. Specifically, the operator has disturbed more than the approved maximum allowed disturbance of 10 acres.</p> <p><b>CORRECTIVE ACTIONS:</b> By the corrective action date, the operator shall submit a Technical Revision (see enclosed form), with the required \$216 revision fee, to update and clarify the current approved mining plan to reflect existing and proposed activities. Specifically, the revision shall propose an increase in the maximum allowed disturbance at any time from 10 acres to, at a minimum, the existing disturbance (estimated by the Division to consist of approximately 20 acres).</p> <p><b>CORRECTIVE ACTION DUE DATE:</b> May 18, 2020</p> <p><b>INSPECTION TOPIC:</b> Financial Warranty</p> <p><b>PROBLEM:</b> The financial warranty is not adequate to reclaim the site in accordance with the approved reclamation plan. This is a failure to maintain the proper financial warranty amount to complete reclamation of the affected lands pursuant to C.R.S. 34-32.5-117(4)(b) and Rule 4.2.1(1).</p>
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**CORRECTIVE ACTIONS:** The Division has re-evaluated the required financial warranty for reclaiming the site in accordance with the approved reclamation plan (see enclosed cost estimate). On the corrective action date, the Division will send the operator a notice of surety increase for the amount provided in the cost estimate. The operator will have 60 days from the date on the surety increase notice to post the additional financial warranty. Any comments regarding the Division's bond estimate and/or evidence demonstrating reclamation work has been completed (including photographs and a detailed description of work completed), shall be submitted by the corrective action date.

**CORRECTIVE ACTION DUE DATE:** May 18, 2020

## OBSERVATIONS

This was a normal monitoring inspection of the Glacier Rock mine site (Permit No. M-1994-096) conducted by Amy Eschberger and Rob Zuber of the Division of Reclamation, Mining and Safety (Division). The operator was represented by Roger Hageman during the inspection. The site is located approximately 5 miles north of Wellington, CO near the eastern edge of Larimer County. The site is situated adjacent to and east of I-25. Access to the site is from the west off the I-25 frontage road. **Photos 1-20** taken during the inspection are included with this report.

This is a 112c operation permitted for 49 acres to mine gravel and fill dirt. Historic mining activities occurred at the site. The site was originally permitted for 6 acres under a 110c permit, then was converted to the current permit in 2005 through Conversion No. 1 (CN-1). The permit has been transferred three times, the last of which occurred in 2014 with Succession of Operators No. 3 (SO-3). Through SO-3, Glacier Rock Company took over the permit from High Plains Sand and Gravel, LLC, and the site name was changed from Russell Gravel Pit to Glacier Rock. The owner of the affected lands is now Dry Gulch Land LLC. At the time of CN-1 approval, approximately 13 acres had been mined in the northwestern portion of the site.

The mining plan includes mining the site in four primary phases, starting in the previously mined northwestern area, then working generally counter-clockwise through the site. Phase 1 consists of approximately 13 acres, and Phases 2 through 4 each consist of approximately 10 acres. The approved maximum disturbed area at any time is 10 acres. The site will be dry mined to a maximum depth of approximately 20 feet. Mined material will be crushed and screened on site. No explosives will be used by the operation. Salvaged topsoil and overburden will be stored separately on site for reclamation. The existing access road may be relocated further north prior to final reclamation. Several existing structures are present on site, including a house, a few sheds, and other residential structures located at the northeastern edge of the site, and a transmission tower located at the western edge of the site. The operator committed to maintaining a minimum 100 foot mining buffer from the residence and associated structures, and a minimum 50 foot buffer from the transmission tower (per the structure agreement).

The approved post-mining land use for the site is rangeland. The reclamation plan calls for grading all disturbed land to 3H:1V or flatter, replacing 6-12 inches of topsoil, and revegetating the land with a grass seed mixture consisting of Western Wheatgrass, Sideoats Grama, Blue Grama, Switchgrass, Green Needlegrass, Big Bluestem, and Indiangrass. In its approval of CN-1, the Division calculated a required financial warranty for the proposed operation in the amount of \$33,900.00. This amount was reduced to \$8,000.00 in 2010, after the Division inspected the site and found all required earthwork to have been completed, and only revegetation remaining. The operator of the site during that time had completed mining and was working to reclaim the site for final release. However, when the current operator took over the permit in 2014, mining operations recommenced at the site (in Phase 2), and a financial warranty of \$20,000.00 was posted with the Division.

At the time of the inspection, the weather was clear and the ground was partially covered with snow. A permit sign was posted at the main site entrance off the I-25 frontage road. A barbed wire fence delineates the 49 acre property boundaries. The operator has also placed T-posts along the mining boundary, which is offset from the southern property boundary by approximately 50 feet. The site was not active during the inspection. However, the operator indicated the site is active every year in accordance with its intermittent status. The operation has completed mining Phases 1 and 2, and is currently mining in Phases 3 and 4. Processing equipment was present in the Phase 3 area. Several material stockpiles were stored on the pit floor. The pit is approximately 12 feet in depth. The southeastern, eastern, and northeastern pit walls have near vertical slopes. The Division estimates the total length of the steep pit walls to be approximately 2,000 feet. Phase 1 has been reclaimed for some time now, with pit walls graded to 3H:1V or flatter, and established grass cover, as well as a few trees. The pit walls

in Phase 2 have also been graded to 3H:1V or flatter, and some vegetative cover exists in this area consisting of grasses and annual weeds. The most recently mined southeastern edge of the pit (in Phase 3) is currently approximately 60 feet from the fence marking the southern property boundary. Therefore, the current pit has nearly reached its limits to the south. There is room to expand the pit eastward in Phases 3 and 4. Overburden stockpiles are bermed along the top of the northern and southern pit walls. Two topsoil stockpiles are stored in the pit near the eastern edge of the reclaimed Phase 1 area. An additional overburden/topsoil stockpiling area is located outside of the mining area, near the eastern edge of the site. The overburden material from this area was used to reclaim Phase 1 about 10 years ago. However, a large topsoil stockpile remains in this area. All overburden and topsoil stockpiles appeared to be stable with varying amounts of vegetative cover.

The Division estimates a total of approximately 26.5 acres have been disturbed at the site, including 6.7 acres of reclaimed land in Phase 1, 17.3 acres of disturbed land in Phases 2 through 4, and 2.5 acres of disturbed land in the overburden/topsoil storage area located at the eastern edge of the site (see enclosed Google Earth image of site). Of the total disturbance, approximately 19.8 acres have not yet been fully reclaimed in accordance with the approved reclamation plan. This amount of unreclaimed disturbance exceeds the approved maximum disturbance at any time of 10 acres. Therefore, a problem is cited in this report (see page 1), requiring the operator to submit a Technical Revision (see enclosed form) to increase the maximum allowed disturbance to include, at a minimum, existing unreclaimed disturbance at the site (estimated by the Division to consist of approximately 20 acres).

The Division currently holds a financial warranty for the site in the amount of \$20,000.00. After conducting the inspection, the Division recalculated the required financial warranty for completing reclamation of the site in accordance with the approved plan (see enclosed bond estimate). This estimate includes costs for grading 2,000 feet of highwall to 3H:1V, ripping compacted areas including the pit floor and stockpiling areas, retopsoiling 19.8 acres at an average depth of 9 inches, and revegetating 19.8 acres with the approved seed mixture.

The Division estimates the required financial warranty for the site to be in the amount of \$45,355.00, which is \$25,355.00 more than the currently held financial warranty of \$20,000.00. Therefore, a problem is cited in this report (see pages 1 and 2) for failure to maintain the proper financial warranty amount to complete reclamation of the affected lands pursuant to C.R.S. 34-32.5-117(4)(b) and Rule 4.2.1(1). On the corrective action date, the Division will send the operator a notice of surety increase for the amount provided in the cost estimate. The operator will have 60 days from the date on the surety increase notice to post the additional financial warranty. Any comments regarding the Division's bond estimate and/or evidence demonstrating reclamation work has been completed (including photographs and a detailed description of work completed), shall be submitted by the corrective action date. At that time, the Division will determine whether any information submitted warrants a recalculation of the required financial warranty.

During the inspection, the operator inquired about how much farther the southern pit wall can be expanded. There was some uncertainty over whether the southern property line or the T-posts marking the 50 foot buffer represent the southern permit boundary. In review of the permit file, the Division found an error presented in CN-1 which is the cause for this confusion. In CN-1, the operator proposed a new permit area of 49 acres. However, it appears the 49 acres referred to the property acreage, and did not correspond with the "Mining Permit Boundary" portrayed on the mining and reclamation plan maps (see enclosed maps), which covers only 43 acres of the property. The Division believes the operator meant to indicate the proposed affected area with the mining permit boundary shown on CN-1 maps. However, the differentiation between permit area and affected area acreage was not discussed in the application.

Because the operation is approved for the full acreage of the property, the mine permit boundaries should technically align with the property boundaries (delineated by property fencing), and not with the mining permit

boundaries portrayed on the CN-1 maps. This error needs to be corrected to prevent any future confusion. However, the Division is not citing a problem for this matter since the error was part of an approved application. To resolve this issue, the Division recommends the operator submit updated mining and reclamation plan maps, with the Technical Revision required for the problem cited above, which portray the approved 49 acre permit area. All required mining setbacks should continue to be maintained by the operation regardless of the corrected permit boundary.

This concludes the report.

*Any questions or comments regarding this inspection report should be forwarded to Amy Eschberger at the Colorado Division of Reclamation, Mining and Safety, 1313 Sherman Street, Room 215, Denver, CO 80203, via telephone at 303-866-3567, ext. 8129, or via email at [amy.eschberger@state.co.us](mailto:amy.eschberger@state.co.us).*

**PHOTOGRAPHS**



**Photo 1.** View looking west across Phase 2 mining area, showing slopes graded to 3H:1V or flatter and some grasses and annual weeds present in this area. Note transmission tower (at background right) located at western edge of permit area.



**Photo 2.** View looking north across pit from its southwestern edge, showing several material stockpiles stored on pit floor.



**Photo 3.** View looking east across southwestern pit wall in Phase 2 mining area, which has been graded to 3H1V.



**Photo 4.** View looking southwest at overburden stockpile bermed along southern edge of pit in Phase 3 mining area.



**Photo 5.** View looking southwest showing T-post (circled) delineating southern mining boundary (approximately 50 feet from southern property boundary).



**Photo 6.** View looking northeast across undisturbed eastern portion of permit area. Note house and other structures (in background) located at northeastern edge of property.



**Photo 7.** View looking southwest across most recently mined southeastern edge of pit (in mining Phase 3). Note highwall is approximately 12 feet in height with near vertical slopes.



**Photo 8.** View looking west across mining Phase 3, showing material stockpiled on pit floor and processing equipment present (at background, right).



**Photo 9.** View looking north along eastern pit wall in mining Phases 3 and 4. Note pit wall approximately 12 feet in height with near vertical slopes.



**Photo 10.** View looking east at residential structures and large topsoil stockpile (indicated) present at northeastern edge of site.



**Photo 11.** View looking northwest across reclaimed mining Phase 1, with slopes graded 3H:1V or flatter and established vegetation.



**Photo 12.** View looking southwest across reclaimed mining Phase 1, with slopes graded 3H:1V or flatter and established vegetation.



**Photo 13.** View looking southeast at topsoil stockpile stored at eastern edge of reclaimed mining Phase 1.



**Photo 14.** View looking southeast across pit floor in mining Phase 3.



**Photo 15.** View looking east at processing equipment present on pit floor in mining Phase 3.



**Photo 16.** View looking northwest across pit floor of mining Phase 4, showing several material stockpiles stored in this area.



**Photo 17.** View looking southeast at southern edge of mining Phase 3, showing pit walls approximately 12 feet in height with near vertical slopes.



**Photo 18.** View looking east at eastern edge of mining Phases 3 and 4, showing pit walls approximately 12 feet in height with near vertical slopes.



**Photo 19.** View looking east from western property line across center of reclaimed mining Phase 1.



**Photo 20.** View looking east from western property line across northern edge of reclaimed mining Phase 1. Note slopes graded 3H:1V or flatter.

**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----- <b>PB</b>	(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>N</u>	(TS) TOPSOIL----- <u>Y</u>
<b>(MP) GENL MINE PLAN COMPLIANCE- <b>PB</b></b>	(FW) FISH & WILDLIFE----- <u>N</u>	(RV) REVEGETATION---- <u>Y</u>
(SM) SIGNS AND MARKERS----- <u>Y</u>	(SP) STORM WATER MGT PLAN---- <u>Y</u>	(RS) RECL PLAN/COMP-- <u>Y</u>
(ES) OVERBURDEN/DEV. WASTE----- <u>N</u>	(SC) EROSION/SEDIMENTATION--- <u>Y</u>	(ST) STIPULATIONS----- <u>N</u>
(AT) ACID OR TOXIC MATERIALS----- <u>NA</u>	(OD) OFF-SITE DAMAGE----- <u>N</u>	

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

**Inspection Contact Address**

Roger Hagerman  
Glacier Rock Company  
3501 E. Prospect Rd.  
Ft. Collins, CO 80525

Encls: Google Earth image of site  
Mining Plan Map, approved in CN-1  
Reclamation Plan Map, approved in CN-1  
Division's Bond Estimate  
Technical Revision form

CC: Rob Zuber, DRMS  
Michael Cunningham, DRMS

# M-1994-096 / Glacier Rock / Glacier Rock Company (112c)

Yellow Outline = 49 acres = Property Boundary

Red Outline = 43 acres = Mining Permit Boundary (location approximated based on CN-1 maps)

Purple Outline = 26.5 acres = Total Disturbed Area (including reclaimed area)

Green Outline = 6.7 acres = Reclaimed Area

(Image data from 7/17/2019)

I-25 Frontage Rd

N Co Rd 5



800 ft

MINING MAP

NOTE:  
THE EXISTING ACCESS ROAD WILL BE RELOCATED AS SHOWN UPON COMPLETION OF MINING ACTIVITIES IF AN ALTERNATIVE ROAD LOCATION IS CHOSEN THE DIVISION OF MINERALS AND GEOLOGY MUST BE NOTIFIED AND THIS DOCUMENT SHALL BE AMENDED TO SHOW THE ULTIMATE ROAD LOCATION.

LANDOWNERS:  
84030-00-015  
WILLIAM & MANDA  
HILDENBERG

LANDOWNERS:  
89030-00-010  
EDWIN & OPAL TURNER

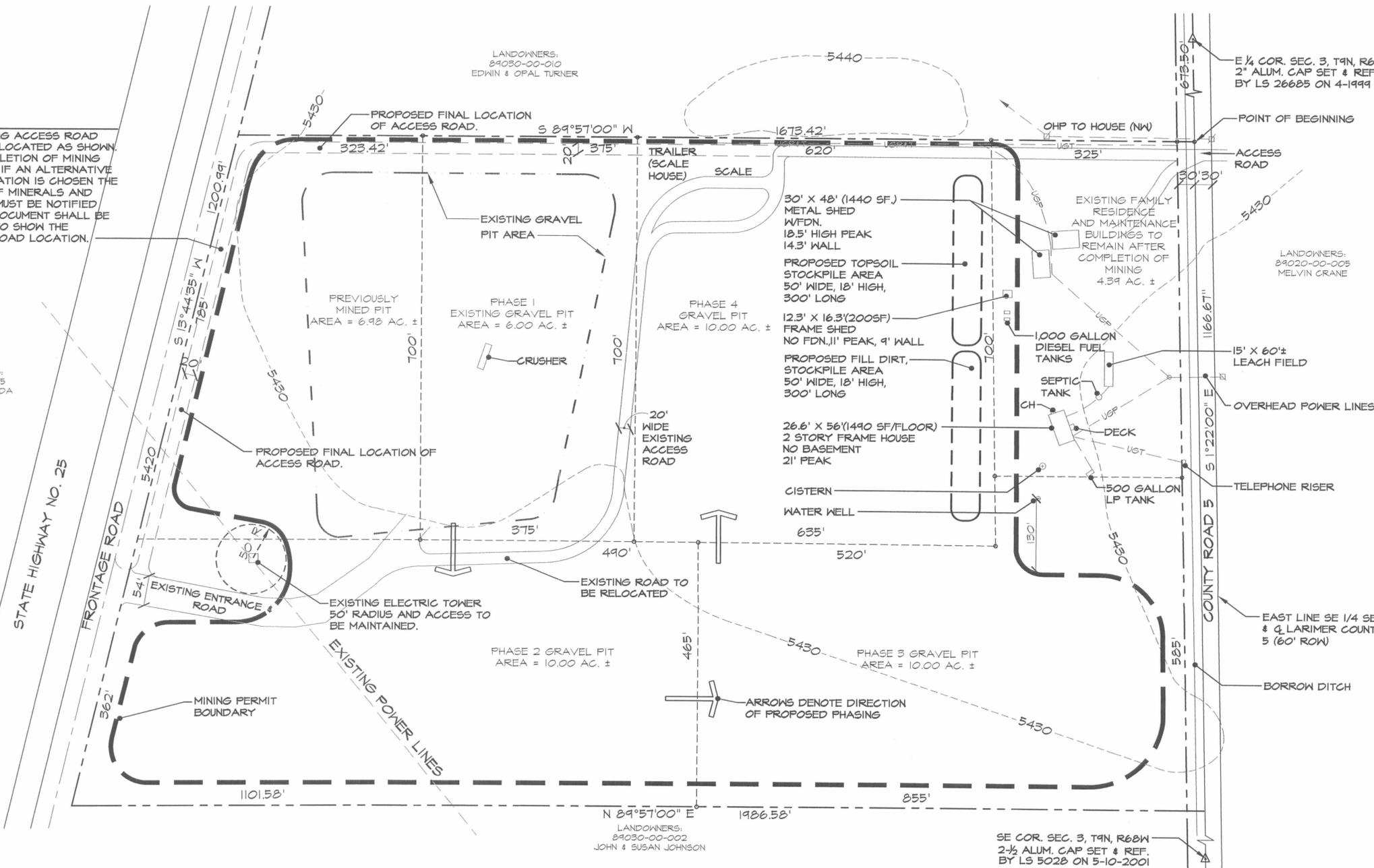
E 1/4 COR. SEC. 3, T9N, R68W  
2" ALUM. CAP SET & REF.  
BY LS 26685 ON 4-1999

LANDOWNERS:  
89020-00-005  
MELVIN CRANE

LANDOWNERS:  
89030-00-002  
JOHN & SUSAN JOHNSON

SE COR. SEC. 3, T9N, R68W  
2-1/2" ALUM. CAP SET & REF.  
BY LS 5028 ON 5-10-2001

Permit #: MM-1994-096 Confidential?: N  
Class: (M-01) Type-Seq.:  
From: High Plains Sand & Gravel, DMB  
Doc. Name: Mining Plan Map (revised)  
Doc. Date (if no date stamp): 3-10-05



LEGEND

- EXISTING BUILDINGS
- SECTION CORNER MARKER
- DIRECTIONAL PHASING ARROWS
- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING OVERHEAD POWER LINES
- PROPERTY BOUNDARY
- EXISTING GRAVEL PIT BOUNDARY
- TOPSOIL AND FILL DIRT STOCKPILES
- UNDERGROUND TELEPHONE LINES
- UNDERGROUND POWER LINES
- MINING PERMIT BOUNDARY

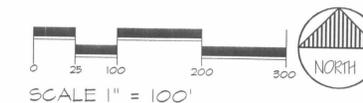
NOTE

REFER TO EXHIBIT FOR DETAILED NARRATIVE OF MINING PLAN.

SIGNATURE BLOCK

I, Ken Merritt, do hereby state that the exhibit shown hereon was created using existing maps provided by the client. It does not represent a boundary survey nor should it be construed as a monumented land survey by this office.

By:   
Ken Merritt  
Senior Vice President  
Landmark Engineering Ltd.



REVISIONS	By	Date
Description	JCD	1-31-05
REVISED PER COMMENTS		

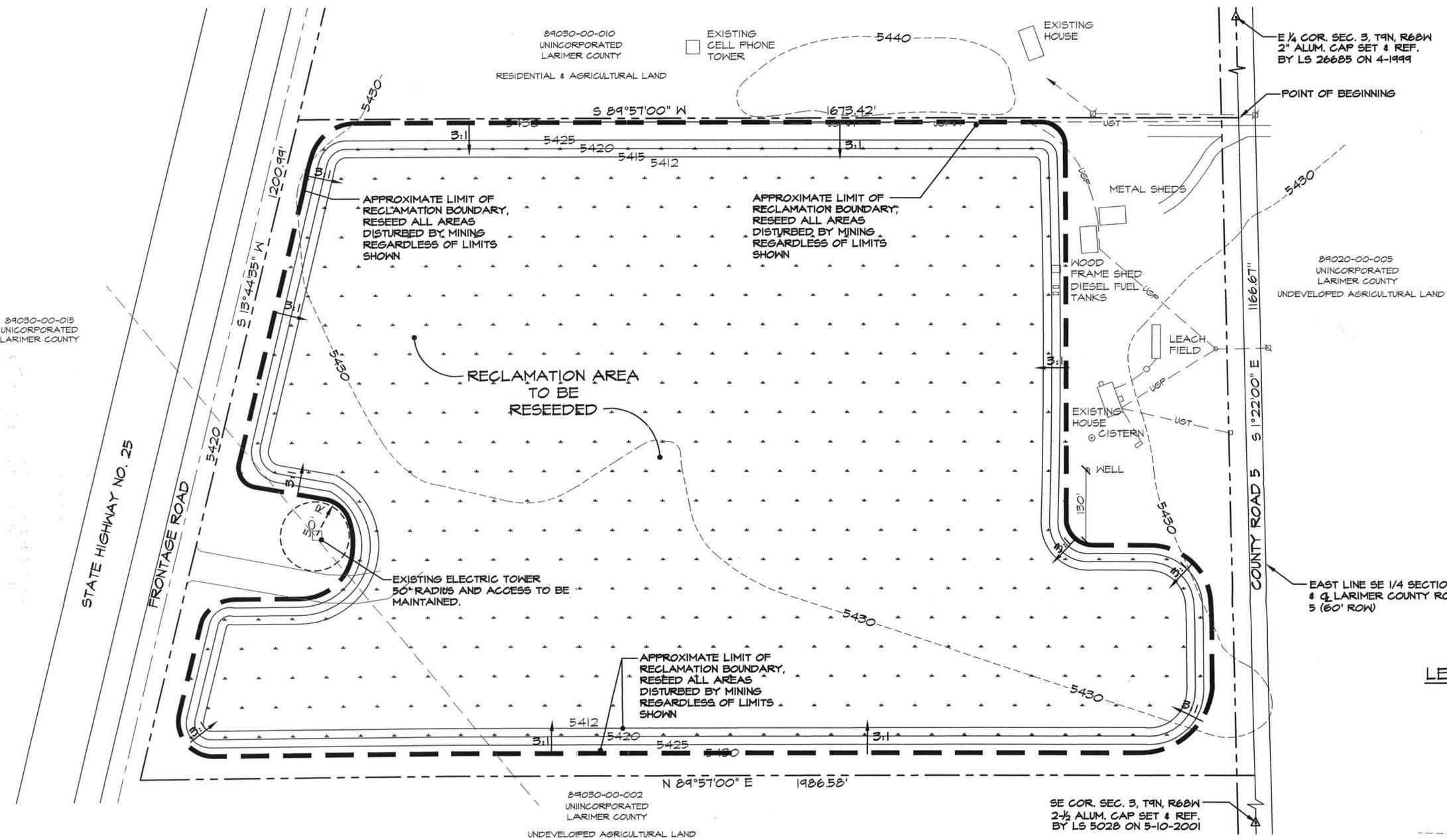
**Landmark ENGINEERING Ltd.**  
ENGINEERS/ARCHITECTS/PLANNERS/SURVEYORS  
3521 West Eisenhower Blvd., Loveland, Colorado 80537  
(970) 667-6286 Denver (303) 629-7124 Fax (970) 667-6298

DATE: SEP. 2004  
SCALE: 1" = 100'  
DRAWN: JCD  
CHECKED: KM  
APPROVED:

CLIENT: **BOBBY PITTINGTON**  
TITLE: **RUSSELL GRAVEL PIT MINING PLAN MINING MAP (EXHIBIT C)**  
JOB NO.: HIGHPL-4H4B-01  
SHEET: 1 OF 1

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RECLAMATION MAP



Permit #: M-1994-096 Confidential?: N  
 Class: CN-01 Type-Seq:  
 From: *Ken Merritt* Date: DMG  
 Doc. Name: Reclamation Plan Map (revised)  
 Doc. Date (if no date stamp): 3-10-05

FEB 11 2005  
 Division of Records & Information

EAST LINE SE 1/4 SECTION 3  
 & 4 LARIMER COUNTY ROAD  
 5 (60' ROW)

LEGEND

- EXISTING BUILDINGS
- DIRECTIONAL SLOPE ARROWS
- SECTION CORNER MARKER
- 5430 EXISTING CONTOURS
- 5430 PROPOSED CONTOURS
- EXISTING OVERHEAD POWER LINES
- PROPERTY BOUNDARY
- EXISTING GRAVEL PIT BOUNDARY
- UGT EXISTING UNDERGROUND TELEPHONE LINES
- UGP EXISTING UNDERGROUND POWER LINES
- RECLAMATION SEEDING AREA
- MINING PERMIT BOUNDARY

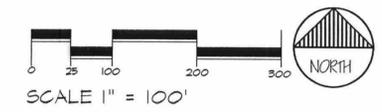
NOTE

REFER TO EXHIBIT D FOR DETAILED NARRATIVE OF MINING PLAN.

SIGNATURE BLOCK

I, Ken Merritt, do hereby state that the exhibit shown hereon was created using existing maps provided by the client. It does not represent a boundary survey nor should it be construed as a monumented land survey by this office.

By: *Ken Merritt*  
 Ken Merritt  
 Senior Vice President  
 Landmark Engineering Ltd.



REVISIONS	By	Date
Description	JCD	11-31-05
REVISED PER COMMENTS		

**Landmark Engineering Ltd.**  
 ENGINEERS/ARCHITECTS/PLANNERS/SURVEYORS  
 3521 West Eisenhower Blvd., Loveland, Colorado 80537  
 (970) 687-6286 Denver (303) 628-7124 Fax (970) 687-6288

DATE: SEP. 2004  
 SCALE: 1" = 100'  
 DRAWN: JCD  
 CHECKED: KM  
 APPROVED:

CLIENT: BOBBY PITTINGTON  
 TITLE: RUSSELL GRAVEL PIT RECLAMATION PLAN MAP (EXHIBIT F) RECLAMATION MAP

JOB No.: HIGHPL-4H4B-01

SHEET 1 OF 1

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## COST SUMMARY WORK

Task description: Cost Summary

Site: Glacier Rock

Permit Action: 2/13/2020 Inspection

Permit/Job#: M1994096

### PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 3/18/2020

County: Larimer

Filename: M096-000

User: AME

Agency or organization name: DRMS

### TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Grade pit wall to 3H:1V	DOZER	1	5.63	\$991
002	Rip pit floor	RIPPER	1	17.56	\$3,290
003	Rip topsoil/overburden stockpiling area	RIPPER	1	4.24	\$795
004	Retopsoil 19.8 acres at 9 inch depth	SCRAPER1	1	22.88	\$22,469
005	Revegetate 19.8 acres	REVEGE	1	20.00	\$0
006	Mobilization/Demobilization	MOBILIZE	1	6.49	\$8,038
<b><u>SUBTOTALS:</u></b>				<b>76.8</b>	<b>\$35,583</b>

### INDIRECT COSTS

#### OVERHEAD AND PROFIT:

Liability insurance: 2.02  
Performance bond: 1.05  
Job superintendent: 30.00  
Profit: 10.00

Total = \$719

Total = \$374

Total = \$2,082

Total = \$3,558

TOTAL O & P = \$6,732

CONTRACT AMOUNT (direct + O & P) = \$42,315

#### LEGAL - ENGINEERING - PROJECT MANAGEMENT:

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

Total = \$500

Engineering work and/or contract/bid preparation: 1.00

Total = \$423

Reclamation management and/or administration: 5.00

\$2,116

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$9,772

**TOTAL BOND AMOUNT (direct + indirect) = \$45,355**

**BULLDOZER WORK**Task description: Grade pit wall to 3H:1VSite: Glacier Rock Permit Action: 2/13/2020 Inspection Permit/Job#: M1994096**PROJECT IDENTIFICATION**

Task #: 001 State: Colorado Abbreviation: None  
 Date: 3/18/2020 County: Larimer Filename: M096-001  
 User: AME

Agency or organization name: DRMS**HOURLY EQUIPMENT COST**

Basic Machine: Cat D7R DS XR Series II  
 Horsepower: 240  
 Blade Type: Semi-Universal  
 Attachment: NA  
 Shift Basis: 1 per day  
 Data Source: (CRG)

**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$71.52</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$64.34</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$39.98</u>	<u>NA</u>

Total unit Cost/Hour: \$175.84  
 Total Fleet Cost/Hour: **\$175.84**

**MATERIAL QUANTITIES**

Initial Volume: 4,000  
 Swell factor: 1.250  
 Loose volume: **5,000 LCY**

Source of estimated volume: Division of Reclamation, Mining & Safety  
 Source of estimated swell factor: Cat Handbook

**HOURLY PRODUCTION**

Average push distance: 50 feet  
 Unadjusted hourly production: 1,022.9 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: -5 %  
 Average site altitude: 5,430 feet

Material weight: 2,650 lbs/LCYWeight description: Decomposed rock - 25% Rock, 75% Earth**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	<u>1.000</u>	<u>(EXCL.)</u>
Material consistency:	<u>0.900</u>	<u>(CAT HB)</u>
Dozing method:	<u>1.200</u>	<u>(SLOT)</u>
Visibility:	<u>1.000</u>	<u>(AVG.)</u>
Job efficiency:	<u>0.830</u>	<u>(1 SHIFT/DAY)</u>

Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8676

Adjusted unit production: 887.47 LCY/hr

Adjusted fleet production: **887.47** LCY/hr

### **JOB TIME AND COST**

Fleet size: 1 Dozer(s)

Unit cost: \$0.198/LCY

Total job time: **5.63** Hours

Total job cost: **\$991**

## BULLDOZER RIPPING WORK

Task description: Rip pit floor

Site: Glacier Rock Permit Action: 2/13/2020 Inspection Permit/Job#: M1994096

### PROJECT IDENTIFICATION

Task #: 002 State: Colorado Abbreviation: None  
Date: 3/18/2020 County: Larimer Filename: M096-002  
User: AME

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS XR Series II Horsepower: 240  
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day  
Data Source: (CRG)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$71.52</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$64.34</u>	<u>100</u>
Ripper Ownership Cost/Hour:	<u>\$6.80</u>	<u>NA</u>
Ripper Operating Cost/Hour:	<u>\$4.69</u>	<u>100</u>
Operator Cost/Hour:	<u>\$39.98</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$187.32</u>	
Total Fleet Cost/Hour:	<u><b>\$187.32</b></u>	

### MATERIAL QUANTITIES

Selected estimating method: Area

#### Alternate Methods:

Seismic: NA Bank Volume: NA BCY: NA  
Area: 11.00 acres Rip Depth (ft): 1.50 Volume: 26,620 BCY or CCY

Source of estimated quantity: DRMS

### HOURLY PRODUCTION

#### Seismic:

Seismic Velocity: NA feet/second

#### Area:

Average Ripping Depth:	<u>2.45</u>	<u>feet/pass</u>
Average Ripping Width:	<u>6.50</u>	<u>feet/pass</u>
Average Ripping Length:	<u>500.00</u>	<u>feet/pass</u>
Average Dozer Speed:	<u>88.00</u>	<u>feet/minute</u>
Average Maneuver Time:	<u>0.25</u>	<u>minutes/pass</u>
Production per unit area:	<u>0.755</u>	<u>acres/hour</u>

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production:	<u>0.755</u>	<u>Acres/hr</u>
Site Altitude:	<u>5,430</u>	<u>feet</u>
Altitude Adj:	<u>1.00</u>	<u>(CAT HB)</u>
Job Efficiency:	<u>0.83</u>	<u>(1 shift/day)</u>
Net Correction:	<u>0.83</u>	<u>multiplier</u>

Adjusted Hourly Unit Production:	<u>0.63</u>	<u>Acres/hr</u>
Adjusted Hourly Fleet Production:	<u><b>0.63</b></u>	<u>Acres/hr</u>

### JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **17.56** Hours

Unit cost: \$299.052 Per acre Total job cost: **\$3,290**

## BULLDOZER RIPPING WORK

Task description: Rip topsoil/overburden stockpiling area

Site: Glacier Rock Permit Action: 2/13/2020 Inspection Permit/Job#: M1994096

### PROJECT IDENTIFICATION

Task #: 003 State: Colorado Abbreviation: None  
Date: 3/18/2020 County: Larimer Filename: M096-003  
User: AME

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS XR Series II Horsepower: 240  
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day  
Data Source: (CRG)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$71.52</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$64.34</u>	<u>100</u>
Ripper Ownership Cost/Hour:	<u>\$6.80</u>	<u>NA</u>
Ripper Operating Cost/Hour:	<u>\$4.69</u>	<u>100</u>
Operator Cost/Hour:	<u>\$39.98</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$187.32</u>	
Total Fleet Cost/Hour:	<u><b>\$187.32</b></u>	

### MATERIAL QUANTITIES

Selected estimating method: Area

#### Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA  
Area: 2.50 acres Rip Depth (ft): 1.50 Volume: 6,050 BCY or CCY

Source of estimated quantity: DRMS

### HOURLY PRODUCTION

#### Seismic:

Seismic Velocity: NA feet/second

#### Area:

Average Ripping Depth: 2.45 feet/pass  
Average Ripping Width: 6.50 feet/pass  
Average Ripping Length: 200.00 feet/pass  
Average Dozer Speed: 88.00 feet/minute  
Average Maneuver Time: 0.25 minutes/pass  
Production per unit area: 0.710 acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.710 Acres/hr  
Site Altitude: 5,430 feet  
Altitude Adj: 1.00 (CAT HB)  
Job Efficiency: 0.83 (1 shift/day)  
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.59 Acres/hr  
Adjusted Hourly Fleet Production: **0.59** Acres/hr

### JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **4.24** Hours

Unit cost: \$317.958 Per acre Total job cost: **\$795**

**SCRAPER TEAM WORK**

Task description: Retopsoil 19.8 acres at 9 inch depth

Site: Glacier Rock Permit Action: 2/13/2020 Inspection Permit/Job#: M1994096

**PROJECT IDENTIFICATION**

Task #: 004 State: Colorado Abbreviation: None  
 Date: 3/18/2020 County: Larimer Filename: M096-004  
 User: AME

Agency or organization name: DRMS

**HOURLY EQUIPMENT**

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 631G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	Cat D7R DS XR Series II
Road Maintenance -Motor Grader:	CAT 14M
-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	NA	100	100	100
Ownership cost/hour:	\$125.39	NA	NA	\$71.52	\$64.10	\$9.27
Operating cost/hour:	\$132.67	NA	NA	\$64.34	\$56.17	\$17.75
%Utilization-ripper:	NA	NA	NA	NA	50	NA
Ripper own. cost/hour:	NA	NA	NA	\$0.00	\$4.44	\$0.00
Ripper op. cost/hour:	NA	NA	NA	\$0.00	\$1.96	\$0.00
Operator cost/hour:	\$45.58	NA	NA	\$39.98	\$45.39	\$0.00
Unit Subtotals:	\$303.64	NA	NA	\$175.84	\$172.05	\$27.01
Number of Units:	2	0	0	1	1	1
Group Subtotals:	Work: \$607.28		Support: \$175.84		Maint: \$199.06	

Total work team cost/hour: **\$982.18**

**MATERIAL QUANTITIES**

Initial volume: 23,958 CCY Swell factor: 1.215  
 Loose volume: 29,109 LCY

Source of estimated volume: 19.8 acres x 9 inch depth  
 Source of estimated swell factor: Cat Handbook

**HOURLY PRODUCTION**

		<u>Scraper Bowl (volume) Basis:</u>	
Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>24.00</u> LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>34.00</u> LCY
Rated Payload:	<u>81,600 pounds</u>	Average Volume:	<u>29.00</u> LCY
Payload Capacity:	<u>51.00 LCY</u>	Adjusted Capacity:	<u>29.00</u> LCY

Cycle Time:

Scraper Loading Time: 0.80 Minutes  
 Maneuver and Spread Time: 0.70 Minutes

Job Condition Correction:

Site Altitude: 5430 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: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	500.00	1.00	3.00	4.00	1667	0.41

Haul Time: 0.41 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	500.00	-1.00	3.00	2.00	2914	0.36

Return Time: 0.36 minutes

Total Scraper team cycle time: 2.27 minutes  
 Adjusted for job conditions: 636.21 LCY/Hour  
 Selected Number of Scrapers: 2 Scraper(s)  
 Adjusted single scraper team (unit) hourly production: 1,272.42 LCY/Hour  
 Adjusted multiple scraper team (fleet) hourly production: 1,272.42 LCY/Hour

Unadjusted unit production/hour: 766.52 LCY/Hour  
 Optimal Number of Scrapers per push dozer: \_\_\_\_\_

**JOB TIME AND COST**

Fleet size: 1 Team(s) Total job time: 22.88 Hours  
 Unit cost: \$0.772 /LCY Total job cost: \$22,469

**REVEGETATION WORK**Task description: Revegetate 19.8 acresSite: Glacier RockPermit Action: 2/13/2020 InspectionPermit/Job#: M1994096**PROJECT IDENTIFICATION**Task #: 005State: ColoradoAbbreviation: NoneDate: 3/18/2020County: LarimerFilename: M096-005User: AMEAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$0.00</b>

**Application**

Description	Cost /Acre
	\$
<b>Total Fertilizer Application Cost/Acre</b>	
	<b>\$0.00</b>

**TILLING**

Description	Cost /Acre
Chisel plowing {DMG}	\$94.63
Weed control spraying (MEANS 31 31 16.13 3100)	\$193.60
<b>Total Tilling Cost/Acre</b>	
	<b>\$288.23</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Big Bluestem - Kaw	0.44	1.31	\$5.87
Indiangrass - Cheyenne	0.35	1.07	\$3.96
Switchgrass - Blackwell	0.25	2.23	\$2.88
Blue Grama - Lovington	0.15	2.45	\$2.40
Sideoats Grama - Vaughn	0.68	2.23	\$5.70
Western Wheatgrass - Arriba	3.20	8.08	\$20.80
Needlegrass, Green - Lodorm	0.50	2.08	\$5.89
		19.45	<b>\$47.48</b>

<b>Totals Seed Mix</b>	5.57		
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**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 / Acre	Unit	Cost / Unit	Cost /Acre
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$295.00	\$590.00
<b>Total Mulch Materials Cost/Acre</b>				<b>\$590.00</b>

**Application**

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$70.17
<b>Total Mulch Application Cost/Acre</b>	<b>\$70.17</b>

**NURSERY STOCK PLANTING**

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

**JOB TIME AND COST**

No. of Acres: <u>19.8</u>	Cost /Acre: <u>\$1,227.88</u>
Estimated Failure Rate: <u>25%</u>	Cost /Acre*: <u>\$279.48</u>
*Selected Replanting Work Items: <u>SEEDING</u>	
Initial Job Cost: <u>\$24,312.02</u>	
Reseeding Job Cost: <u>\$1,383.43</u>	
Total Job Cost: <u>\$25,695</u>	
Job Hours: <u>20.00</u>	

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: Mobilization/DemobilizationSite: Glacier RockPermit Action: 2/13/2020 InspectionPermit/Job#: M1994096PROJECT IDENTIFICATION

Task #: 006 State: Colorado Abbreviation: None  
 Date: 3/18/2020 County: Larimer Filename: M096-006  
 User: AME

Agency or organization name: DRMSEQUIPMENT TRANSPORT RIG COSTShift basis: 1 per dayCost Data Source: CRG DataTruck 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:

<u>Available Rig Capacities</u>	<u>0-25 Tons</u>	<u>26-50 Tons</u>	<u>51+ Tons</u>
Ownership Cost/Hour:	\$17.20	\$29.63	\$38.69
Operating Cost/Hour:	\$26.56	\$47.02	\$55.69
Operator Cost/Hour:	\$23.63	\$23.63	\$23.63
Helper Cost/Hour:	\$0.00	\$23.53	\$23.53
Total Unit Cost/Hour:	\$67.39	\$123.81	\$141.54

NON ROADABLE EQUIPMENT:

<u>Machine Description</u>	<u>Weight/ Unit (TONS)</u>	<u>Owner ship Cost/hr/ unit</u>	<u>Haul Rig Cost/hr/unit</u>	<u>Fleet Size</u>	<u>Haul Trip Cost/hr/ fleet</u>	<u>Return Trip Cost/hr/ fleet</u>	<u>DOT Permit Cost/ fleet</u>
Cat D7R DS XR Series II	32.01	\$71.52	\$123.81	1	\$195.33	\$123.81	\$250.00
Cat D7R DS XR Series II	35.93	\$78.32	\$123.81	1	\$202.13	\$123.81	\$250.00
CAT 14M	23.57	\$68.54	\$67.39	1	\$135.93	\$67.39	\$250.00
Cat 631G	52.50	\$125.39	\$141.54	1	\$266.93	\$141.54	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$18.15	\$67.39	1	\$85.54	\$67.39	\$250.00

Subtotals: **\$885.86** **\$523.94** **\$1,250.00**ROADABLE EQUIPMENT:

<u>Machine Description</u>	<u>Total Cost/hr/ unit</u>	<u>Fleet Size</u>	<u>Haul Trip Cost/hr/ fleet</u>	<u>Return Trip Cost/hr/ fleet</u>
Water Tanker, 2,500 Gal.	\$27.02	1	\$27.02	\$27.02

Subtotals: **\$27.02** **\$27.02**

**EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region: FORT COLLINS  
 Total one-way travel distance: 16.20 miles  
 Average Travel Speed: 50.00 mph

Total Non-Roadable Mob/Demob Cost \* \$8,020.02  
 \* \* two round trips with haul rig:  
 Total Roadable Mob/Demob Cost \*\* \$17.51  
 \*\* one round trip, no haul rig:

**Transportation Cycle Time:**

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.32	0.32
Return Time (Hours):	0.32	0.32
Loading Time (Hours):	1.30	NA
Unloading Time (Hours):	1.30	NA
Subtotals:	3.25	0.65

**JOB TIME AND COST**

Total job time: 6.50 Hours

Total job cost: \$8,038



# COLORADO DIVISION OF RECLAMATION, MINING AND SAFETY

1313 Sherman Street, Room 215, Denver, Colorado 80203 ph(303) 866-3567

## REQUEST FOR TECHNICAL REVISION (TR) COVER SHEET

File No.: M- \_\_\_\_\_ Site Name: \_\_\_\_\_

County \_\_\_\_\_ TR# \_\_\_\_\_ (DRMS Use only)

Permittee: \_\_\_\_\_

Operator (If Other than Permittee): \_\_\_\_\_

Permittee Representative: \_\_\_\_\_

Please provide a brief description of the proposed revision: \_\_\_\_\_

As defined by the Minerals Rules, a Technical Revision (TR) is: “a change in the permit or application which does not have more than a minor effect upon the approved or proposed Reclamation or Environmental Protection Plan.” The Division is charged with determining if the revision as submitted meets this definition. If the Division determines that the proposed revision is beyond the scope of a TR, the Division may require the submittal of a permit amendment to make the required or desired changes to the permit.

The request for a TR is not considered “filed for review” until the appropriate fee is received by the Division (as listed below by permit type). Please submit the appropriate fee with your request to expedite the review process. After the TR is submitted with the appropriate fee, the Division will determine if it is approvable within 30 days. If the Division requires additional information to approve a TR, you will be notified of specific deficiencies that will need to be addressed. If at the end of the 30 day review period there are still outstanding deficiencies, the Division must deny the TR unless the permittee requests additional time, in writing, to provide the required information.

There is no pre-defined format for the submittal of a TR; however, it is up to the permittee to provide sufficient information to the Division to approve the TR request, including updated mining and reclamation plan maps that accurately depict the changes proposed in the requested TR.

Required Fees for Technical Revision by Permit Type - Please mark the correct fee and submit it with your request for a Technical Revision.

<u>Permit Type</u>	<u>Required TR Fee</u>	<u>Submitted</u> (mark only one)
110c, 111, 112 construction materials, and 112 quarries	\$216	<input type="checkbox"/>
112 hard rock (not DMO)	\$175	<input type="checkbox"/>
110d, 112d(1, 2 or 3)	\$1006	<input type="checkbox"/>