



## COLORADO

Division of Reclamation,  
Mining and Safety

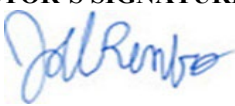
Department of Natural Resources

### 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.

<b>MINE NAME:</b> Dill Pit	<b>MINE/PROSPECTING ID#:</b> M-2009-077	<b>MINERAL:</b> Borrow material for construction, gravel and sand	<b>COUNTY:</b> Elbert
<b>INSPECTION TYPE:</b> Monitoring	<b>WEATHER:</b> Clear	<b>INSP. DATE:</b> June 15, 2023	<b>INSP. TIME:</b> 10:45
<b>OPERATOR:</b> Tracy and Ed Grimes	<b>OPERATOR REPRESENTATIVE:</b> Ed Grimes	<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> \$35,257.00
<b>DATE OF COMPLAINT:</b> NA	<b>POST INSP. CONTACTS:</b> None	<b>JOINT INSP. AGENCY:</b> None
<b>INSPECTOR(S):</b> Joel Renfro Amy Eschberger	<b>INSPECTOR'S SIGNATURE:</b> 	<b>SIGNATURE DATE:</b> August 12, 2023

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

#### **INSPECTION TOPIC:** Off-site Damage

**PROBLEM #1:** The Division found that 1.9 acres of land, immediately east of the operation, have been affected outside of the approved permit boundary. Imported silty clay has been stockpiled outside of the permit boundary with the intent to use for reclamation. The stockpiles are stored on property owned by the operator and have not yet been used in reclamation of the mining operation. Using these stockpiles in reclamation of the mining operation would result in a possible violation pursuant to C.R.S. 34-32.5-116(4)(i) for failure to protect areas outside of the affected land from slides or damages occurring during the mining operation.

**CORRECTIVE ACTIONS:** If the operator wishes to use any of the material stored outside of the permit boundary for the mining operation, an Amendment application must be submitted to expand the permit boundary to include the stockpile area. Alternatively, if the operator plans to use the material on their property, and not for reclamation of the mining operation, a written commitment shall be submitted stating as such. Either the above referenced Amendment application or the written commitment must be submitted to our office by the corrective action due date.

**CORRECTIVE ACTION DUE DATE:** September 15, 2023

#### **INSPECTION TOPIC:** Financial Warranty

**PROBLEM #2:** 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).

**CORRECTIVE ACTIONS:** The Division has re-evaluated the required financial warranty for reclaiming the site in accordance with the approved reclamation plan (see enclosed bond estimate). Any comments regarding the Division's bond estimate and/or evidence demonstrating reclamation work has been completed shall be submitted by the corrective action due date. If, by the corrective action due date, no comments or additional information has been received, a notice of surety increase will be mailed to the operator for the amount shown in the enclosed bond estimate. The operator will have 60 days from the date on the surety increase notice to post the additional financial warranty.

**CORRECTIVE ACTION DUE DATE:** September 15, 2023

## **OBSERVATIONS**

The Dill Pit was inspected by Joel Renfro and Amy Eschberger with the Division of Reclamation, Mining and Safety (Division/DRMS) as part of the Division's routine monitoring program. This site was previously inspected by the Division on June 30, 2017 as a pre-operation inspection before it's conversion to a 112c permit. Ed Grimes was present during the inspection. This operation mines for sand and is currently active. The site is located approximately 6 miles southwest of Limon, CO. This site is accessed from the north off of Hwy 24 via an access road through the landowner's property. The approved post-mining land use is rangeland. Photos 1-13 taken during the inspection are included with this report.

The Dill Pit is a 112c operation permitted for 19.4 acres, including the 18.2 acre mining area and the 1.2 acre access road (see enclosed Google Earth image of site showing approved permit area). This operation converted from a 110c permit to a 112c permit in January 2018 (see enclosed mining and reclamation plan maps). The Division estimates approximately 14.5 acres have been disturbed thus far. The pit has been mined generally from north to south and is approximately 20 feet deep. The mine plan states that slopes will be mined at 3H:1V; slopes around the pit range between 2H:1V to 3H:1V. A few stockpiles of mined material are stored on the pit floor. Topsoil is stockpiled around the pit on top of the highwalls. Mining equipment was present at the time of inspection. Mining had occurred earlier in the year and now the operation is hauling product off site according to demand. Boundary markers were inspected and metal post markers were found in every corner (see Photos 5-8); a fence marks the western boundary.

The operation is mining around an existing ephemeral drainage which, when carrying water, flows southwest to northeast across the permit area. The pit floor will be maintained no lower than the elevation of the drainage channel at all times. Stormwater management has been observed as effective as this region did experience significant storm events in the days leading up to the inspection, and there was no ponded water present at the time of inspection. However, a culvert installed under Co Rd 189 west of the site discharges stormwater into the natural drainage that crosses the permit area. This has caused severe erosion both inside and outside of the western edge of the permit area (see Photo 11). While the county is responsible for maintaining Co Rd 189 and its associated stormwater structures, the operator is responsible for stabilizing and protecting all surface areas of the affected land so as to effectively control erosion in accordance with C.R.S. 34.32.5-116(4)(j). However, it will be difficult to sufficiently address this issue within the permit area without some coordination with the county to modify and/or repair the stormwater structure for their road. Therefore, the Division recommends the operator reach out to the county at their earliest convenience to work on a solution. If the solution involves any changes to the approved mining and/or reclamation plans, such as the installation of an energy dissipation feature/structure that extends into the permit area, the operator can modify the applicable plans and maps through the submittal of a Technical Revision.

Reclamation has not yet started at this site. The approved reclamation plan includes grading all disturbed slopes to 3H:1V, except for the western pit wall, which will be graded to 4H:1V. The pit floor will be graded at an approximate 1% grade sloping away from the toe of the slopes, toward the intersected drainage. This will ensure no ponding of rain or snow runoff and prevent excessive site erosion. Any compacted areas (e.g., pit floor, stockpile areas, internal haul roads) will need to be ripped prior to replacing topsoil. On February 24, 2017, the Division approved the operator's request to import up to 7,000 cubic yards of silty clay to the site to place on graded slopes prior to replacing topsoil. The operator believes placing the silty clay on top of the sand will help stabilize the topsoil while the slopes are undergoing revegetation. The site will have topsoil replaced over all disturbed areas anywhere from 3 to 6 inches deep. The seedbed will be scarified and then drilled or broadcast seeded, depending on the slope gradient. Revegetation will include a seed mix of native grasses and forbs. Fertilizer and mulch will be used for revegetation. The pit floor and the flatter graded western pit wall

will not be mulched. The main access road will remain after reclamation for continued use by the landowner.

Vegetation throughout the site consists primarily of native grasses, forbs, and shrubs. Small patches of cheatgrass were found in and around the permit area, but no other state-listed noxious weeds were identified. The operator should continue to monitor these weeds and implement the approved weed management plan as appropriate, in accordance with Rule 3.1.10(6).

The Division observed silty clay stockpiles stored east of the operation, right outside of the permit boundary. This stockpile pad covers approximately 2 acres on land owned by the operator (see enclosed Google Earth images of site showing offsite damage). As mentioned above, the Division approved an Import Fill Notice in 2017, which allowed the operator to import up to 7,000 cubic yards of silty clay to the site for use in reclamation. Based on discussions with the operator during the inspection, it was the operator's understanding this imported material could be stored on his property adjacent to the permit area. The operator should be advised, any disturbances created at the site in association with the operation, including stockpiling of material to be used in reclamation of the site, is considered affected land. Pursuant to C.R.S. 34-32.5-103(1), "affected land" means the surface of an area within the state where a mining operation is being or will be conducted, which surface is disturbed as a result of an operation. Affected land include, but shall not be limited to, private ways, roads; land excavations, exploration sites; drill sites or workings; refuse banks or spoil piles; evaporation or settling ponds; work, parking, storage, or waste discharge areas; and areas in which structures, facilities, equipment, machines, tools, or other materials or property that result from or are used in such operations are situated. The off-site damage appears to have begun at least in June, 2017 after the Division's approval of the Import Fill Notice.

**A problem is cited in this report (see Problem #1) pursuant to C.R.S. 34-32.5-116(4)(i) for failure to protect areas outside of the affected land from slides or damages occurring during the mining operation and reclamation.** If the operator wishes to utilize the off-site material for the operation, an Amendment application must be submitted to expand the permit boundary to include the stockpile area. Alternatively, if the operator plans to use the material on their property, and not for reclamation of the mining operation, a written commitment shall be submitted stating as such. Either the above referenced Amendment application or the written commitment must be submitted to our office by the corrective action due date. The operator should be advised, if a written commitment is submitted, and the Division finds during a subsequent inspection that the off-site material is being used for the operation in any way, or the off-site area is being used for another purpose associated with the operation, enforcement actions will be pursued.

The Division re-evaluated the required financial warranty for reclaiming the site in accordance with the approved reclamation plan (see enclosed Bond Estimate), and found this amount to be \$53,570.00, which is \$18,313.00 more than the currently held amount of \$35,257.00. **This is cited as a problem in this report (see Problem #2) for failure to maintain the proper financial warranty amount to complete reclamation of the affected lands in accordance with the approved reclamation plan.** The operator is encouraged to review the enclosed bond estimate and submit any comments or evidence of reclamation work completed within 30 days of the date of this inspection report. If, by the 30-day corrective action deadline, the Division has not received any comments from the operator, a notice of Surety Increase will be issued for the amount calculated in the enclosed bond estimate. The operator will then have 60 days from the date of such notice to post the additional required financial warranty.

This concludes the report.

*Any questions or comments regarding this inspection report should be forwarded to Joel Renfro at the Colorado Division of Reclamation, Mining and Safety, 1313 Sherman Street, Room 215, Denver, CO 80203, via telephone at (303) 866-3567 ext. 8147, or email at joel.renfro@state.co.us.*



## **PHOTOGRAPHS**



**Photo 1.** Dill Pit permit sign.



**Photo 2.** Access road leading into mined pit, looking west.





**Photo 3.** Access road leading into mined pit, looking south.



**Photo 4.** Recent mining with product stockpiles, looking south.





**Photo 5.** East boundary marker near access road, looking south.



**Photo 6.** North east corner boundary marker, looking west.





**Photo 7.** South eastern corner boundary marker, looking north.



**Photo 8.** South western corner boundary marker and fence marking western boundary, looking north.





**Photo 9.** Recently mined part of pit with product stockpile, looking north.



**Photo 10.** Product stockpile, looking south.





**Photo 11.** Culvert that discharges stormwater into natural drainage crossing mine site, looking west.



**Photo 12.** Imported silty clay stockpiled outside of permit boundary, circled in red, looking east.





**Photo 13.** Imported silty clay stockpiled outside of permit boundary, circled in red, looking east.

### GENERAL INSPECTION TOPICS

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

(AR) RECORDS----- <u>N</u>	(FN) FINANCIAL WARRANTY----- <b><u>PB</u></b>	(RD) ROADS----- <u>Y</u>
(HB) HYDROLOGIC BALANCE----- <u>N</u>	(BG) BACKFILL & GRADING----- <u>Y</u>	(EX) EXPLOSIVES----- <u>N</u>
(PW) PROCESSING WASTE/TAILING---- <u>N</u>	(SF) PROCESSING FACILITIES----- <u>N</u>	(TS) TOPSOIL----- <u>Y</u>
(MP) GENL MINE PLAN COMPLIANCE- <u>Y</u>	(FW) FISH & WILDLIFE----- <u>N</u>	(RV) REVEGETATION---- <u>N</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) EROSION/SEDIMENTATION--- <u>N</u>	(ST) STIPULATIONS----- <u>N</u>
(AT) ACID OR TOXIC MATERIALS----- <u>N</u>	(OD) OFF-SITE DAMAGE----- <b><u>PB</u></b>	

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

#### Inspection Contact Address

Ed Grimes  
Tracy and Ed Grimes  
47570 Hwy. 24  
Limon, CO 80828

Enclosures: (4) Google Earth images of site  
Approved mining plan map  
Approved reclamation plan map  
Division's Bond Estimate

CC: Amy Eschberger, DRMS

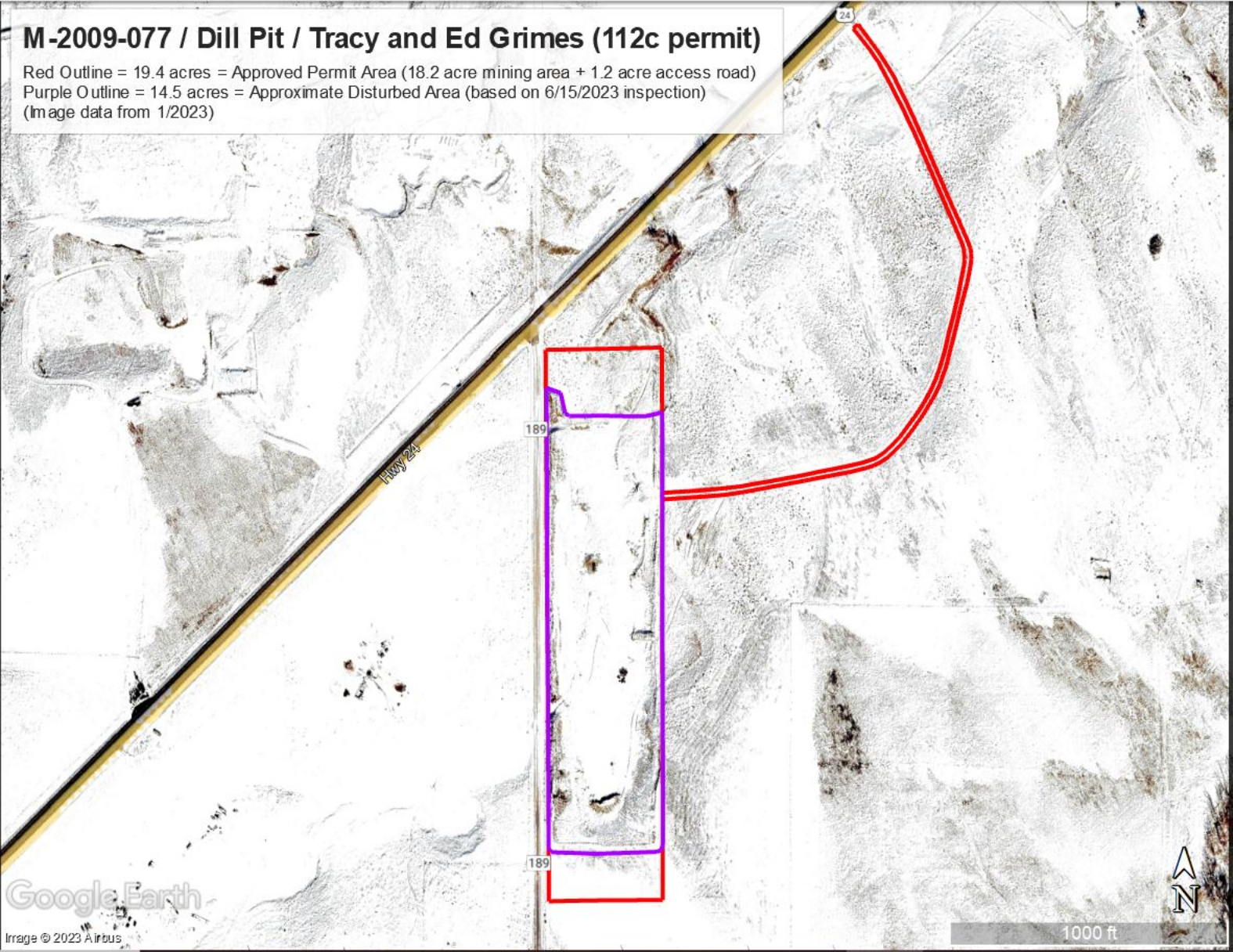


## M-2009-077 / Dill Pit / Tracy and Ed Grimes (112c permit)

Red Outline = 19.4 acres = Approved Permit Area (18.2 acre mining area + 1.2 acre access road)

Purple Outline = 14.5 acres = Approximate Disturbed Area (based on 6/15/2023 inspection)

(Image data from 1/2023)



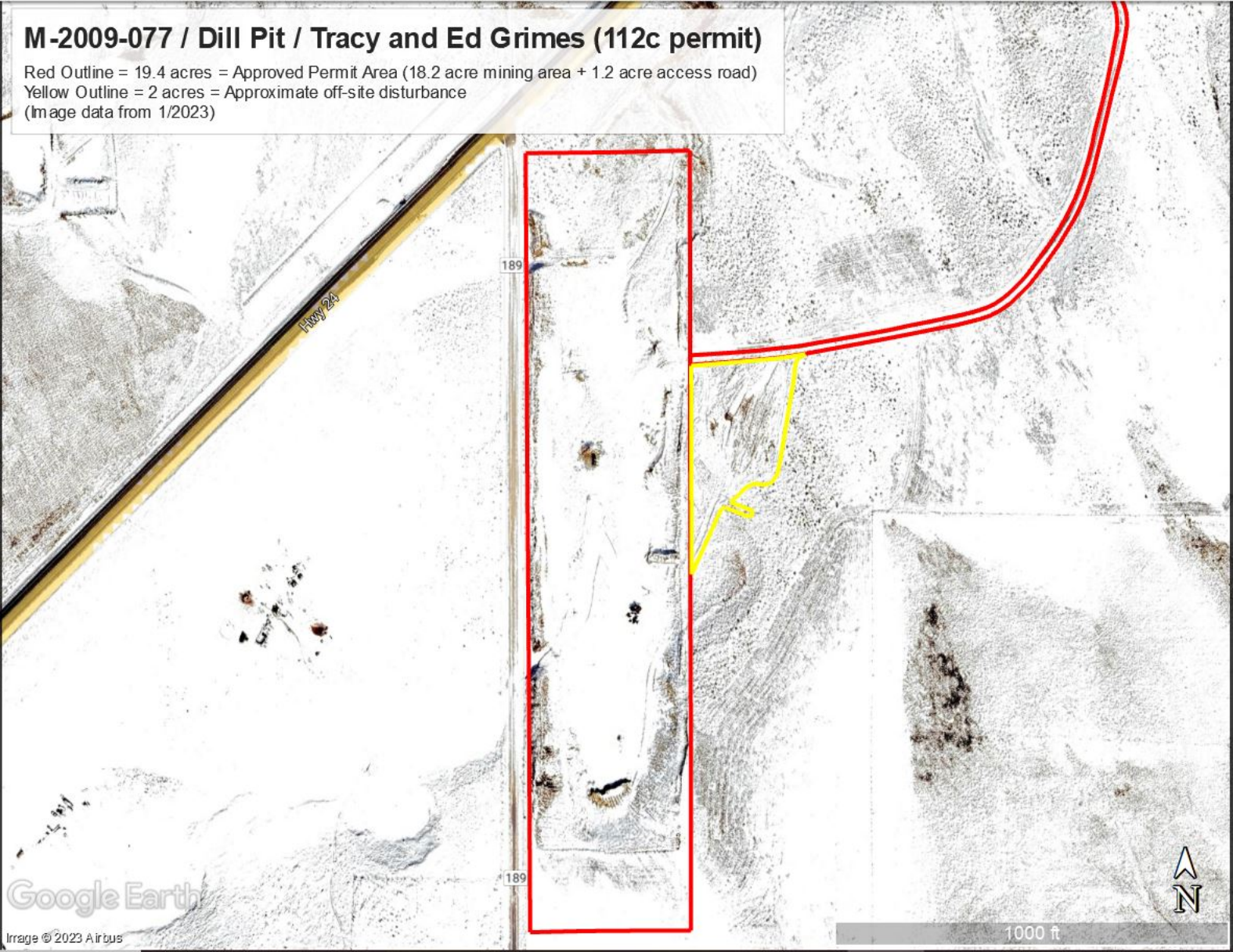


## M-2009-077 / Dill Pit / Tracy and Ed Grimes (112c permit)

Red Outline = 19.4 acres = Approved Permit Area (18.2 acre mining area + 1.2 acre access road)

Yellow Outline = 2 acres = Approximate off-site disturbance

(Image data from 1/2023)

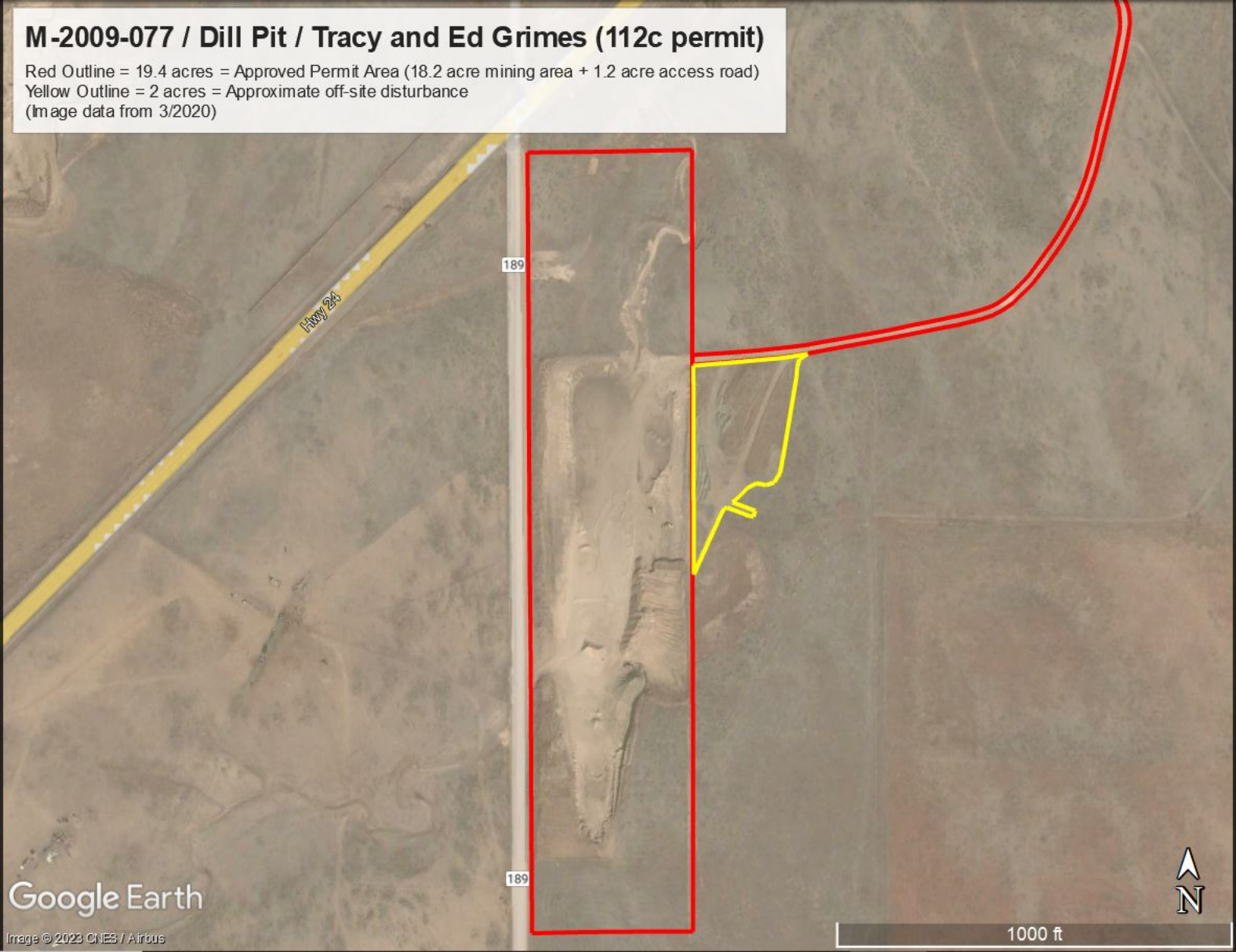


## M-2009-077 / Dill Pit / Tracy and Ed Grimes (112c permit)

Red Outline = 19.4 acres = Approved Permit Area (18.2 acre mining area + 1.2 acre access road)

Yellow Outline = 2 acres = Approximate off-site disturbance

(Image data from 3/2020)



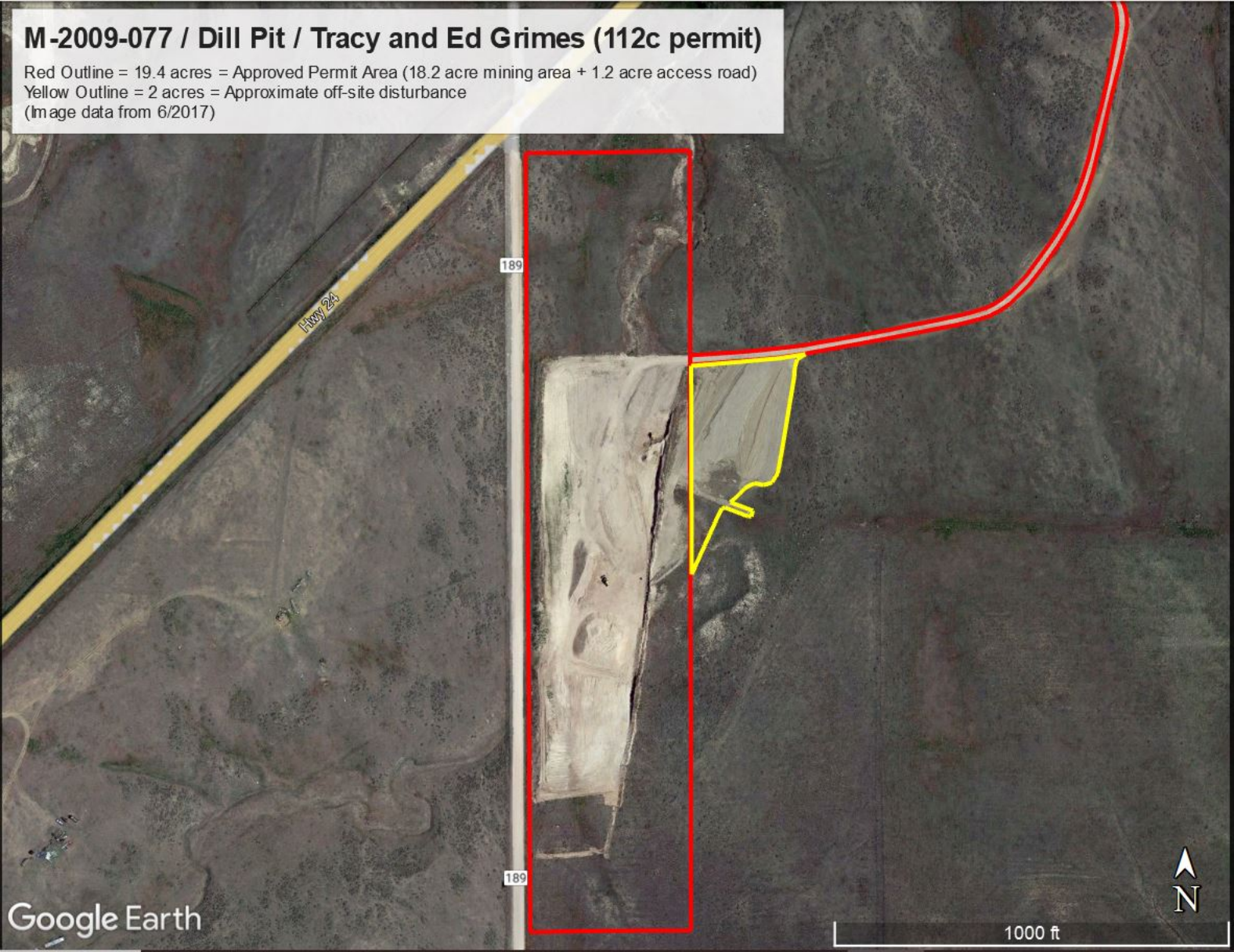


## M-2009-077 / Dill Pit / Tracy and Ed Grimes (112c permit)

Red Outline = 19.4 acres = Approved Permit Area (18.2 acre mining area + 1.2 acre access road)

Yellow Outline = 2 acres = Approximate off-site disturbance

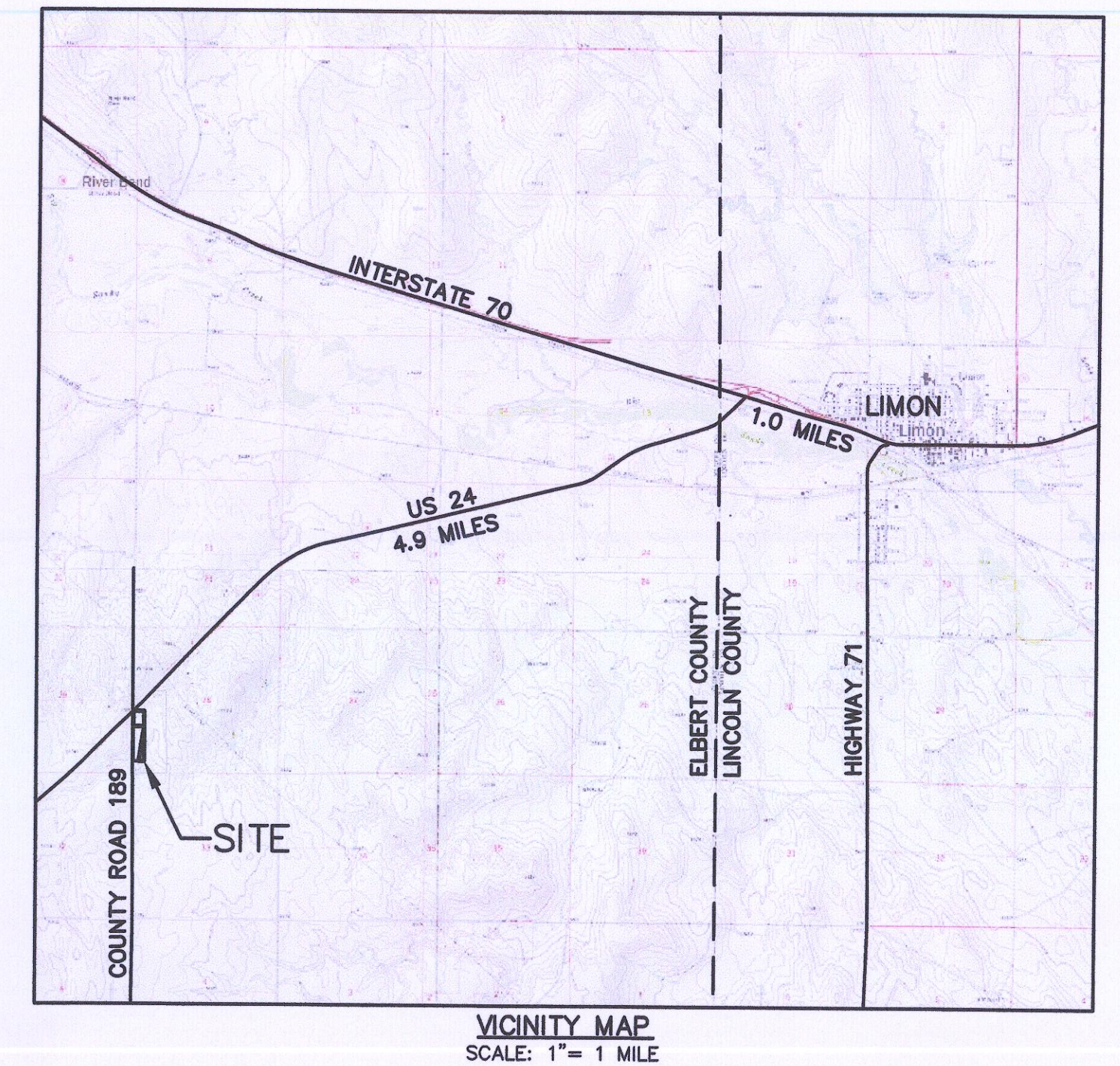
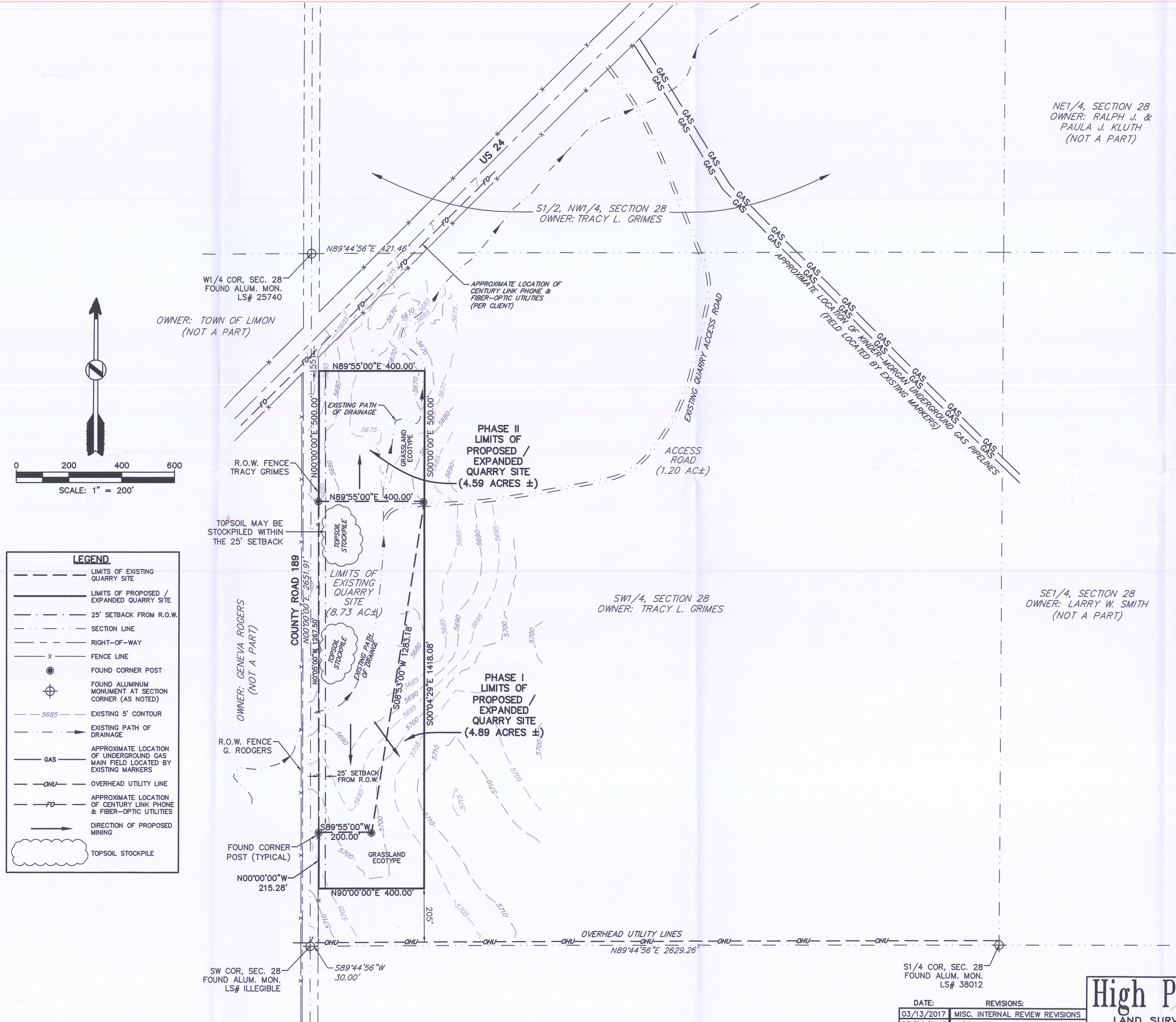
(Image data from 6/2017)





# EXHIBIT C – PRE-MINING AND MINING PLAN MAP

PART OF SECTION 28, T. 9 S, R. 57 W, 6TH P.M.  
COUNTY OF ELBERT, STATE OF COLORADO



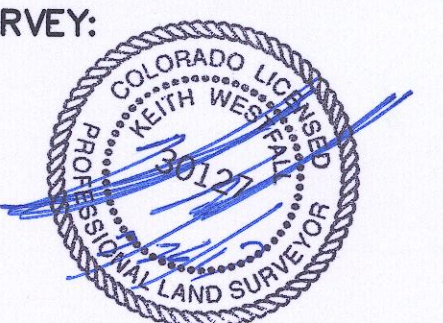
**LAND OWNER / SITE OPERATOR:**  
TRACY AND ED GRIMES  
PO BOX 399  
47570 US 24,  
LIMON, CO 80820  
719-740-1898

**OWNERS REPRESENTATIVE:**  
BRUCE HUMPHRIES,  
REGULATORY PERMITS MANAGEMENT, INC.  
22151 E. EUCLID PL.  
AURORA, CO 80016  
303-854-7499

- GENERAL NOTES:**
- THERE ARE NO NAMED CREEKS, BUILDINGS, OR OIL AND GAS WELLS WITHIN 200 FEET OF THE PROPOSED AFFECTED LAND. A PORTION OF PHASE 1 AND PHASE 2 ABUTS COUNTY ROAD 189. US HIGHWAY 24 IS WITHIN 200 FEET OF PHASE 2. TWO GAS PIPELINES ARE WITHIN 200 FEET OF THE MINE ACCESS ROAD. ALSO, AN UNDERGROUND PHONE LINE AND FIBER-OPTIC LINE ARE WITHIN 200 FEET OF PHASE 2 AFFECTED LANDS.
  - THE PHASE I, PROPOSED SITE AREA IS APPROXIMATELY 4.89 ACRES MORE OR LESS AND CONSISTS OF RANGE AND GRASS LAND. THE PHASE II, PROPOSED SITE AREA IS APPROXIMATELY 4.59 ACRES MORE OR LESS AND CONSISTS OF RANGE AND GRASS LAND.
  - FINAL MINED EAST FACING SLOPES IN PHASES 1 AND 2 SHALL NOT EXCEED A GRADE STEEPER THAN 4' HORIZONTAL TO 1' VERTICAL (4H:1V). ALL OTHER FINAL MINED SLOPES SHALL BE 3' HORIZONTAL TO 1' VERTICAL (3H:1V) OR LESS.
  - INDICATES DIRECTION OF PROPOSED MINING AS DEPICTED ON THE MINING PLAN GRAPHIC.

NGS BENCHMARK USED FOR TOPOGRAPHIC SURVEY:

DESIGNATION: WILLOW  
PID: KJ0525  
LAT: 39.24010  
LONG: 103.78943  
ELEVATION: 5718.0 FEET



DISCLAIMER: PLEASE NOTE THAT SURVEYING IS AN INEXACT SCIENCE AND IS SUBJECT TO A CERTAIN DEGREE OF INACCURACY AND OPINION.

DATE:	REVISIONS:
03/13/2017	MISC. INTERNAL REVIEW REVISIONS
03/20/2017	MISC. INTERNAL REVIEW REVISIONS
04/18/2017	MISC. INTERNAL REVIEW REVISIONS
07/25/2017	ADDRESS STATE COMMENTS

REFERENCE DWG: \_\_\_\_\_

**High Prairie Survey Co.**  
LAND SURVEYING CONSTRUCTION STAKING  
OIL AND GAS SURVEYING  
303-621-8672 FAX 303-621-7749  
P.O. BOX 384  
KIOWA, COLORADO 80117

SCALE: 1"=200'  
DATE: 03/07/2017  
DRAWN BY: D. COTTER

**TITLE:**  
PRE-MINING AND MINING PLAN MAP  
PART OF SEC. 28, T9S, R57W, 6TH P.M.  
ELBERT COUNTY, STATE OF COLORADO

**CLIENT:**  
TRACY & ED GRIMES

**SHEET:** 1 OF 1  
**JOB NUMBER:** 17050-MM



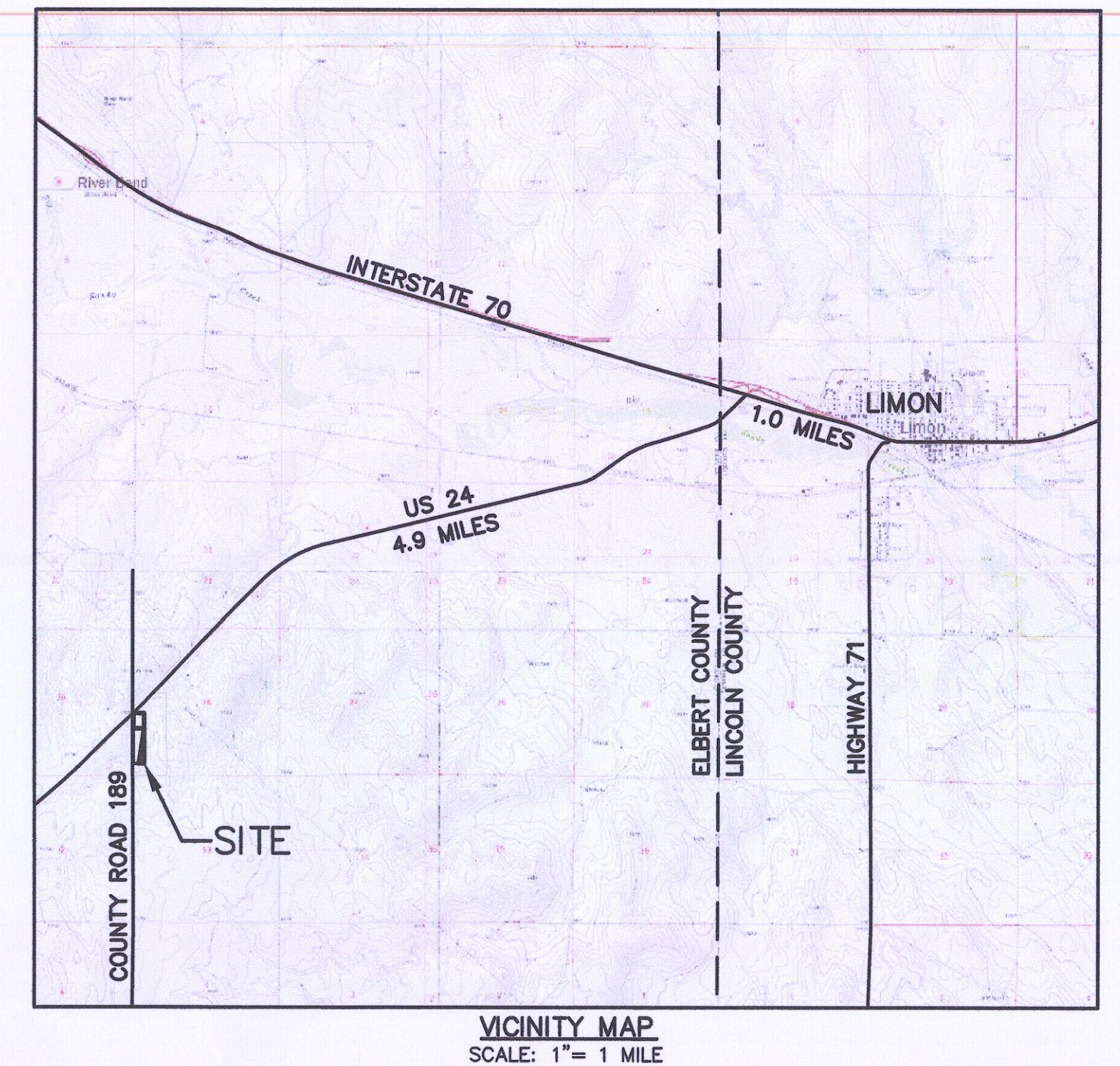
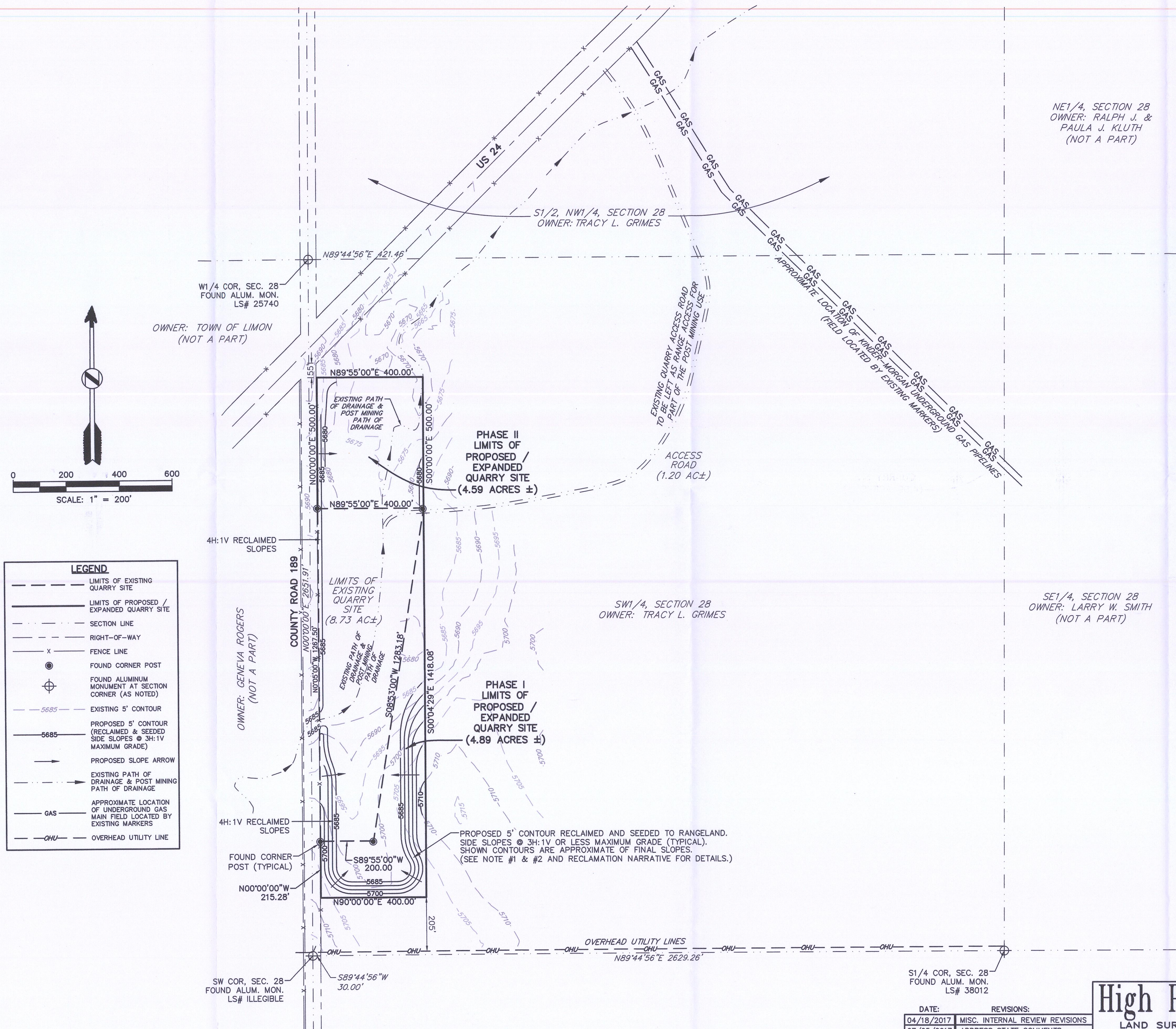
# EXHIBIT F – RECLAMATION PLAN MAP

PART OF SECTION 28, T. 9 S, R. 57 W, 6TH P.M.  
COUNTY OF ELBERT, STATE OF COLORADO

RECEIVED

JUL 28 2017

DIVISION OF RECLAMATION,  
MINING AND SAFETY



LAND OWNER / SITE OPERATOR:

TRACY AND ED GRIMES  
PO BOX 399  
47570 US 24,  
LIMON, CO 80820  
719-740-1898

OWNERS REPRESENTATIVE:

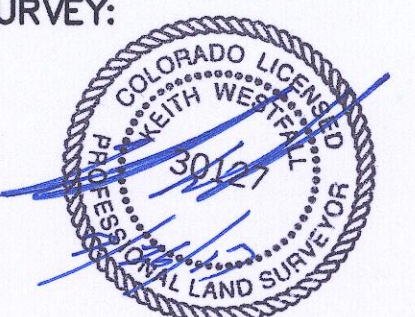
BRUCE HUMPHRIES,  
REGULATORY PERMITS MANAGEMENT, INC.  
22151 E. EUCLID PL.  
AURORA, CO 80016  
303-854-7499

GENERAL NOTES:

- THE GRADIENT OF RECLAIMED SLOPES OF ALL AFFECTED EAST FACING SLOPES IN PHASES 1 AND 2 SHALL NOT EXCEED A GRADE STEEPER THAN 4' HORIZONTAL TO 1' VERTICAL (4H:1V). ALL OTHER AFFECTED RECLAIMED SLOPES SHALL NOT EXCEED 3' HORIZONTAL TO 1' VERTICAL (3H:1V).
- SIDE SLOPES OF ALL RECLAIMED SLOPES OF ALL AFFECTED AREAS AS DEPICTED ON THIS RECLAMATION PLAN MAP WITHIN BOTH PHASE I AND PHASE II SHALL BE RE-SEED AND RESTORED TO THEIR PREVIOUS STATE OF NATIVE PRAIRIE AND RANGE GRASS. NO SHRUBS OR TREES ARE ANTICIPATED WITHIN THE RECLAIMED AREAS.
- THERE WILL BE NO PONDS AS A PART OF THE RECLAIMED AREAS.
- NO OVERBURDEN WILL BE REPLACED. THE FINAL RECLAIMED SLOPES WILL BE AS STATED IN NOTE #1 AND TOPSOIL REPLACED.
- THE AVERAGE THICKNESS OF REPLACED TOPSOIL FOR BOTH PHASE I AND PHASE II SHALL BE 3"-6" (3-6 INCHES).

NGS BENCHMARK USED FOR TOPOGRAPHIC SURVEY:

DESIGNATION: WILLOW  
PID: KJ0525  
LAT: 39.24010  
LONG: 103.78943  
ELEVATION: 5718.0 FEET



DISCLAIMER: PLEASE NOTE THAT SURVEYING IS AN INEXACT SCIENCE AND IS SUBJECT TO A CERTAIN DEGREE OF INACCURACY AND OPINION.

DATE:	REVISIONS:
04/18/2017	MISC. INTERNAL REVIEW REVISIONS
07/25/2017	ADDRESS STATE COMMENTS.
REFERENCE DWG:	

**High Prairie Survey Co.**  
LAND SURVEYING CONSTRUCTION STAKING  
OIL AND GAS SURVEYING  
303-621-8672 FAX 303-621-7749  
P.O. BOX 384  
KIOWA, COLORADO 80117

SCALE: 1"=200'  
DATE: 03/20/2017  
DRAWN BY: D. COTTER

TITLE	RECLAMATION PLAN MAP PART OF SEC. 28, T9S, R57W, 6TH P.M. ELBERT COUNTY, STATE OF COLORADO
CLIENT	TRACY & ED GRIMES
JOB NUMBER	17050-RM
SHEET	1 OF 1



## COST SUMMARY WORK

Task description: Current disturbance estimation

Site: Dill Pit Permit Action: 2023 Calculation Permit/Job#: M2009077

### PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None  
Date: 7/19/2023 County: Elbert Filename: M077-000  
User: JR2

Agency or organization name: DRMS

### TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Grade pit slopes from 2.5H:1V to 3H:1V	DOZER	1	2.14	\$914
001b	Grade W pit slopes from 3H:1V to 4H:1V	DOZER	1	6.42	\$2,739
002	Replace 4.5 in topsoil on 14.5 acres	LOADER	1	43.02	\$5,586
003	Rip compacted areas - 8.5 acres	RIPPER	1	13.24	\$5,936
004	Revegetate 14.5 acres	REVEGE	1	7.25	\$18,316
004b	Mulch 4.3 acres (excluding pit floor and W pit wall)	REVEGE	1	2.00	\$4,016
005	Mobilization/Demobilization	MOBILIZE	1	6.92	\$5,284
<b><u>SUBTOTALS:</u></b>				<b>80.99</b>	<b>\$42,791</b>

### INDIRECT COSTS

#### OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	\$864
Performance bond:	1.05	Total =	\$449
Job superintendent:	40.50	Total =	\$2,635
Profit:	10.00	Total =	\$4,279
		TOTAL O & P =	\$8,228
		CONTRACT AMOUNT (direct + O & P) =	\$51,019

#### LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	\$0	Total =	\$0
Engineering work and/or contract/bid preparation:	0.00	Total =	\$0
Reclamation management and/or administration:	5.00		\$2,551

CONTINGENCY: 0.00 Total = \$0

TOTAL INDIRECT COST = \$10,779

**TOTAL BOND AMOUNT (direct + indirect) = \$53,570**

**BULLDOZER WORK**Task description: Grade pit slopes from 2.5H:1V to 3H:1VSite: Dill Pit Permit Action: 2023 Calculation Permit/Job#: M2009077**PROJECT IDENTIFICATION**

Task #: 001 State: Colorado Abbreviation: None  
 Date: 7/19/2023 County: Elbert Filename: M077-001  
 User: JR2

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

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

**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$241.38</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$143.92</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>\$41.30</u>	<u>NA</u>

Total unit Cost/Hour: \$426.60  
 Total Fleet Cost/Hour: **\$426.60**

**MATERIAL QUANTITIES**

Initial Volume: 1,390  
 Swell factor: 1.250  
 Loose volume: **1,738 LCY**

Source of estimated volume: 1500 ft L x 20 ft H, cut and fill  
 Source of estimated swell factor: Cat Handbook

**HOURLY PRODUCTION**

Average push distance: 60 feet  
 Unadjusted hourly production: 1,246.9 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: -5 %  
 Average site altitude: 5,700 feet

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

		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</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: 0.6507

Adjusted unit production: 811.36 LCY/hr

Adjusted fleet production: **811.36** LCY/hr

### **JOB TIME AND COST**

Fleet size: 1 Dozer(s)

Unit cost: \$0.526/LCY

Total job time: **2.14** Hours

Total job cost: **\$914**

**BULLDOZER WORK**Task description: Grade W pit slopes from 3H:1V to 4H:1VSite: Dill Pit Permit Action: 2023 Calculation Permit/Job#: M2009077**PROJECT IDENTIFICATION**

Task #: 001B State: Colorado Abbreviation: None  
 Date: 8/11/2023 County: Elbert Filename: M077-001b  
 User: AME

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

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

**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$241.38</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$143.92</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>\$41.30</u>	<u>NA</u>

Total unit Cost/Hour: \$426.60  
 Total Fleet Cost/Hour: **\$426.60**

**MATERIAL QUANTITIES**

Initial Volume: 4,167  
 Swell factor: 1.250  
 Loose volume: **5,209 LCY**

Source of estimated volume: 1500 ft L x 20 ft H, cut and fill  
 Source of estimated swell factor: Cat Handbook

**HOURLY PRODUCTION**

Average push distance: 60 feet  
 Unadjusted hourly production: 1,246.9 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: -5 %  
 Average site altitude: 5,700 feet

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

		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</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: 0.6507

Adjusted unit production: 811.36 LCY/hr

Adjusted fleet production: **811.36** LCY/hr

### **JOB TIME AND COST**

Fleet size: 1 Dozer(s)

Unit cost: \$0.526/LCY

Total job time: **6.42** Hours

Total job cost: **\$2,739**

**WHEEL LOADER – LOAD AND CARRY WORK**Task description: Replace 4.5 in topsoil on 14.5 acresSite: Dill Pit Permit Action: 2023 Calculation Permit/Job#: M2009077**PROJECT IDENTIFICATION**

Task #: 002 State: Colorado Abbreviation: None  
 Date: 8/2/2023 County: Elbert Filename: M077-002  
 User: JR2

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

Basic Machine: CAT 950H Horsepower: 197  
 Attachment 1: ROPS Cab Shift Basis: 1 per day  
 Data Source: (CRG)

**Cost Breakdown:**

		Utilization %
Ownership Cost/Hour:	<u>\$49.32</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$39.80</u>	<u>100</u>
Operator Cost/Hour:	<u>\$40.71</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$129.83</u>	
Total Fleet Cost/Hour:	<u>\$129.83</u>	

**MATERIAL QUANTITIES**

Initial volume: 8,773 CCY Swell factor: 1.215  
 Loose volume: 10,659 LCY

Source of estimated volume: 14.5 ac x 4.5 in depth  
 Source of estimated swell factor: Cat Handbook

**HOURLY PRODUCTION**Loader Cycle Time: Unadjusted Basic Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders -0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		<u>-0.040</u>	minutes
Adjusted Basic Cycle Time:		<u>0.460</u>	minutes

**Rolling Resistance – Road Conditions**

Haul: Soft, rutted dirt, no maintenance or water, 4" tire penetration 8.0  
 Return: Soft, rutted dirt, no maintenance or water, 4" tire penetration 8.0

**Haul and Return Time**

	Length (feet)	Grade Res. (%)	Rolling Res. (%)	Total Res. (%)	Travel Time (minutes)	Source
Haul Route:	200	5.00	8.00	13.00	0.3389	(Cat HB)
Return Route:	200	-5.00	8.00	3.00	0.1519	(Cat HB)

Total Travel Time: 0.4908 minutes  
 Total Cycle Time: 0.9508 minutes

Load Bucket Capacity

Rated Capacity: 4.30 LCY (heaped)  
 Bucket Fill Factor: 1.100 Other - rock/dirt mixtures (100-120%) 1.100  
 Adjusted Capacity: 4.73 LCY

Job Condition Correction Factors

Site Altitude: 5700 feet

		Source
Altitude Adj:	<u>1.00</u>	(CAT HB)
Job Efficiency:	<u>0.83</u>	(1 shift/day)
Net Correction:	<u>0.83</u>	multiplier

Unadjusted Hourly Unit Production: 298.47 LCY/Hour  
 Adjusted Hourly Unit Production: 247.73 LCY/Hour  
 Adjusted Hourly Fleet Production: 247.73 LCY/Hour

JOB TIME AND COST

Fleet size: 1 Loader(s) Total job time: 43.03 Hours  
 Unit cost: \$0.524 /LCY Total job cost: \$5,586

## BULLDOZER RIPPING WORK

Task description: Rip compacted areas - 8.5 acres

Site: Dill Pit Permit Action: 2023 Calculation Permit/Job#: M2009077

### PROJECT IDENTIFICATION

Task #: 003 State: Colorado Abbreviation: None  
Date: 8/7/2023 County: Elbert Filename: M077-003  
User: JR2

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Basic Machine: Cat D8T - 8SU Horsepower: 310  
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day  
Data Source: (CRG)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$241.38	NA
Operating Cost/Hour:	\$143.92	100
Ripper Ownership Cost/Hour:	\$14.11	NA
Ripper Operating Cost/Hour:	\$7.45	100
Operator Cost/Hour:	\$41.30	NA
Total Unit Cost/Hour:	\$448.16	
Total Fleet Cost/Hour:	<b>\$448.16</b>	

### MATERIAL QUANTITIES

Selected estimating method: Area

#### Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA  
Area: 8.50 acres Rip Depth (ft): 1.50 Volume: 20,570 BCY or CCY

Source of estimated quantity: Pit floor and internal haul roads

### HOURLY PRODUCTION

#### Seismic:

Seismic Velocity: NA feet/second

#### Area:

Average Ripping Depth: 2.56 feet/pass  
Average Ripping Width: 7.08 feet/pass  
Average Ripping Length: 200.00 feet/pass  
Average Dozer Speed: 88.00 feet/minute  
Average Maneuver Time: 0.25 minutes/pass  
Production per unit area: 0.773 acres/hour

#### Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.773 Acres/hr  
Site Altitude: 5,700 feet  
Altitude Adj: 1.00 (CAT HB)  
Job Efficiency: 0.83 (1 shift/day)  
Net Correction: 0.83 multiplier

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

### JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **13.25** Hours

Unit cost: \$698.391 Per acre Total job cost: **\$5,936**

REVEGETATION WORKTask description: Revegetate 14.5 acresSite: Dill PitPermit Action: 2023 CalculationPermit/Job#: M2009077PROJECT IDENTIFICATIONTask #: 004State: ColoradoAbbreviation: NoneDate: 7/19/2023County: ElbertFilename: M077-004User: JR2Agency or organization name: DRMSFERTILIZING**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
0-20-20, 4-8-12, 10-10-10	40.00	pound	\$0.62	\$24.80
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$24.80</b>

**Application**

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$41.82
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$41.82</b>

TILLING

Description	Cost /Acre
Chisel plowing {DMG}	\$100.40
Weed control spraying (MEANS 31 31 16.13 3100)	\$338.80
<b>Total Tilling Cost/Acre</b>	<b>\$439.20</b>

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Native	1.00	16.32	\$13.73
Little Bluestem - Cimarron	2.00	11.94	\$24.97
Prairie Clover, Purple - Kaneb	2.00	13.66	\$113.05
Sideoats Grama - El Reno	1.50	4.92	\$12.56
Sand Bluestem - Woodward	2.00	5.19	\$42.33
Prairie Sandreed - Goshen	2.00	12.53	\$20.70
<b>Totals Seed Mix</b>	<b>10.50</b>	<b>64.57</b>	<b>\$227.34</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 / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
<b>Total Mulch Materials Cost/Acre</b>				<b>\$0.00</b>

**Application**

Description	Cost /Acre
Weed spray, hand, non-aquatic area, nox. [DMG]	\$183.16
<b>Total Mulch Application Cost/Acre</b>	<b>\$183.16</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: 14.5                      Cost /Acre: \$1,148.32  
 Estimated Failure Rate: 25%                      Cost /Acre\*: \$459.34  
 \*Selected Replanting Work Items: SEEDING

Initial Job Cost: \$16,650.64  
 Reseeding Job Cost: \$1,665.11  
 Total Job Cost: \$18,316  
 Job Hours: 7.25



REVEGETATION WORKTask description: Mulch 4.3 acres (excluding pit floor and W pit wall)Site: Dill PitPermit Action: 2023 CalculationPermit/Job#: M2009077PROJECT IDENTIFICATIONTask #: 004BState: ColoradoAbbreviation: NoneDate: 8/11/2023County: ElbertFilename: M077-004bUser: AMEAgency or organization name: DRMSFERTILIZING**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
	\$
<b>Total Tilling Cost/Acre</b>	<b>\$0.00</b>

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
			\$
<b>Totals Seed Mix</b>	<b>0.00</b>	<b>0.00</b>	<b>\$0.00</b>

**Application**

Description	Cost /Acre
	\$

<b>Total Seed Application Cost/Acre</b>	<b>\$0.00</b>
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**MULCHING and MISCELLANEOUS****Materials**

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

**Application**

<b>Description</b>	<b>Cost /Acre</b>
Crimping, with tractor {DMG survey data}	\$74.46
<b>Total Mulch Application Cost/Acre</b>	<b>\$74.46</b>

**NURSERY STOCK PLANTING**

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

**JOB TIME AND COST**

No. of Acres:	4.3	Cost /Acre:	\$934.03
Estimated Failure Rate:	0%	Cost /Acre*:	\$0.00
*Selected Replanting Work Items:	NONE		

Initial Job Cost:	<b>\$4,016.33</b>
Reseeding Job Cost:	<b>\$0.00</b>
Total Job Cost:	<b>\$4,016</b>
Job Hours:	<b>2.00</b>

**EQUIPMENT MOBILIZATION/DEMOBILIZATION**Task description: **Mobilization/Demobilization**Site: **Dill Pit**Permit Action: **2023 Calculation**Permit/Job#: **M2009077****PROJECT IDENTIFICATION**Task #: **005**State: **Colorado**Abbreviation: **None**Date: **7/19/2023**County: **Elbert**Filename: **M077-005**User: **JR2**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:	\$20.26	\$36.04	\$47.05
Operating Cost/Hour:	\$39.51	\$76.08	\$82.85
Operator Cost/Hour:	\$22.52	\$22.52	\$22.52
Helper Cost/Hour:	\$0.00	\$23.53	\$23.53
Total Unit Cost/Hour:	\$82.29	\$158.17	\$175.95

**NON ROADABLE EQUIPMENT:**

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Drill/Broadcast Seeder with Tractor	25.00	\$6.73	\$82.29	1	\$89.02	\$82.29	\$250.00
Cat D8T - 8SU	53.08	\$255.49	\$175.95	1	\$431.44	\$175.95	\$250.00
CAT 950H	20.13	\$49.32	\$82.29	1	\$131.61	\$82.29	\$250.00
Subtotals:					<b>\$652.07</b>	<b>\$340.53</b>	<b>\$750.00</b>

**ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x2, 1/2 T.	\$14.82	1	\$14.82	\$14.82
Subtotals:			<b>\$14.82</b>	<b>\$14.82</b>

**EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region:	<u>AURORA</u>	
Total one-way travel distance:	<u>80.00</u>	miles
Average Travel Speed:	<u>65.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$5,247.46</u>
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$36.48</u>
** one round trip, no haul rig:	

**Transportation Cycle Time:**

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>1.23</u>	<u>1.23</u>
Return Time (Hours):	<u>1.23</u>	<u>1.23</u>
Loading Time (Hours):	<u>0.50</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.50</u>	<u>NA</u>
Subtotals:	<u>3.46</u>	<u>2.46</u>

**JOB TIME AND COST**

Total job time:	<u>6.92</u>	Hours
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Total job cost:	<u>\$5,284</u>
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