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: Miller Gravel Pit	**MINE/PROSPECTING ID#:** M-1982-112	**MINERAL:** Sand and gravel	**COUNTY:** Elbert
INSPECTION TYPE: Monitoring	**INSPECTOR(S):** Amy Eschberger	**INSP. DATE:** February 18, 2016	**INSP. TIME:** 12:00
OPERATOR: Estate of Rick L Hunt	**OPERATOR REPRESENTATIVE:** Mark Heifner, Don Opheim, Jake Mateer	**TYPE OF OPERATION:** 112c - Construction Regular Operation	

REASON FOR INSPECTION: Normal I&E Program	**BOND CALCULATION TYPE:** Complete Bond	**BOND AMOUNT:** $44,146.00
DATE OF COMPLAINT: NA	**POST INSP. CONTACTS:** None	**JOINT INSP. AGENCY:** None
WEATHER: Clear	**INSPECTOR'S SIGNATURE:** Amy Eschberger	**SIGNATURE DATE:** February 1, 2017

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 and gives a categorical evaluation of each

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

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

INSPECTION TOPIC: Hydrologic Balance
PROBLEM: The Division has no evidence that the operator has a valid well permit, substitute water supply plan, or approved water augmentation plan for the exposed groundwater at the site. This is a problem related to C.R.S. 34-32.5-116(4)(h) and Construction Materials Rule 3.1.6(1)(a) governing injury to existing water rights.
CORRECTIVE ACTIONS: The operator shall demonstrate that the operation is in compliance with the Office of the State Engineer (SEO), show evidence that the operator is taking measures to bring the site into compliance with the SEO, or backfill the ponds to at least two feet above the groundwater surface by the corrective action date specified.
CORRECTIVE ACTION DUE DATE: 03/03/2017

INSPECTION TOPIC: Gen. Compliance With Mine Plan
PROBLEM: The current mine plan needs to be updated and clarified pursuant to C.R.S. 34-32.5-112(1)(c)(VI). Specifically, the operator has disturbed more than the maximum allowed disturbed acreage of 30 acres. The operator must provide sufficient information to describe or identify how the operator intends to conduct the operation.
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. Specifically, the operator shall increase the maximum allowed disturbed acreage to at least the current amount of disturbed land, which the Division estimates to be 64.5 acres.
CORRECTIVE ACTION DUE DATE: 03/03/2017

INSPECTION TOPIC: Financial Warranty
PROBLEM: 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).
CORRECTIVE ACTIONS: The operator shall submit adequate financial warranty, as determined by the Division. The Division will send a separate surety increase notice to the operator regarding the increase of the financial warranty. The operator will have 60 days from the date on the surety increase notice to post the additional financial warranty.
CORRECTIVE ACTION DUE DATE: 04/02/2017

OBSERVATIONS

This was a normal monitoring inspection of the Miller Gravel Pit (Permit No. M-1982-112) conducted by Amy Eschberger of the Division of Reclamation, Mining and Safety (Division). The site is located approximately 13 miles north of Elizabeth, Colorado in Elbert County. The site can be accessed from the west via Hunt Circle, which intersects Co Rd 21 to the west. The site can also be accessed from the south via Hunt Circle, which intersects Co Rd 29 to the east. It should be noted the southern permit boundary is directly adjacent to a 110c permit held by the same operator, called Big R Pit, Permit No. M-1988-052. In scheduling the inspection, the Division learned the permittee, Rick L. Hunt, was deceased as of August 2015. Mr. Jake Mateer of Hunt Construction, and consultant Mr. Mark Heifner represented the permittee during the inspection. Also present for the inspection was Mr. Dan Opheim of Schmidt Construction Company, which operates the site.

This is a 112c operation permitted for 130.2 acres to mine sand and gravel (see enclosed Google Earth image showing permit area). The site is situated immediately east of Running Creek. The operation commenced in the northwestern portion of the permit area, and proceeded in a southward direction. The permit area was increased by 69.2 acres to the east with approval of Amendment No. 1 in 2007. The approved maximum allowed disturbed area at any time is 30 acres. The approved maximum mining depth is approximately 30 feet. A mobile material processing plant will operate on site. Salvaged topsoil will be stockpiled at the northern end of the site. The southwestern portion of the site will be used for storage of equipment and materials by Hunt Construction, owned by Rick L. Hunt. The main office for Hunt Construction is located just south of the permit area. The operation will eventually mine through the southern storage area, then will begin mining the amended area to the east. A small wash pond will exist at the northwestern edge of the permit area. The permittee will maintain a substitute water supply plan with the Division of Water Resources that covers evaporative losses for the wash pond.

The approved post-mining land use for the site is rangeland. The approved reclamation plan calls for grading all disturbed slopes to 3H:1V or flatter, replacing a minimum depth of 6 inches of topsoil on disturbed land, and revegetating the land with alfalfa. The final pit floor will slope gently toward the west as to create positive drainage toward Running Creek. No structures will require demolition for final reclamation. The private dirt road that crosses the permit area will be relocated during mining, and will remain after reclamation for use by the landowner. Any fences located within the permit area will be removed or relocated during mining and reclamation.

At the time of the inspection, it was sunny and cool with some snow remaining on the ground. A permit sign was posted at the southern entrance to the site off of Hunt Circle. Four-strand barbed wire fencing delineates the affected land boundary. The site was not active during the inspection. The Division observed the equipment and materials storage area at the southern end of the permit area. This area included several stockpiles of concrete rubble and rock, pipes, hoses, culverts, used tires, concrete blocks, metal beams, demolished fencing, wooden pallets, and miscellaneous scrap parts (**Photos 1-4**). The Division estimates the storage area to cover approximately 14 acres. Mr. Mateer indicated the handler of Rick L. Hunt's Estate has requested an inventory be completed of the equipment and materials stored on site, to determine what might be sold and what might need to be hauled off to a disposal facility. The Division requested a copy of the completed inventory. Although the approved mining plan allows for the storage area and its use by Hunt Construction, the approved reclamation plan does not indicate the area will continue to be used for this purpose after reclamation. Therefore, if the materials have not been removed by the next inspection, the Division will need to add costs for completing this task in the required financial warranty amount.

The primary working face in the pit is oriented northeast-southwest, with a northwesterly aspect. The main

highwall ranges from 20-30 feet in height, with slope gradients of near vertical to 1H:1V (**Photos 5-7**). The cut and fill method could be used to reclaim this highwall to the approved final configuration of 3H:1V. The easternmost section of the main highwall (approximately 450 feet in linear length) has already been graded to 3H:1V or flatter (**Photo 8**). Where the pit was expanded to the west, a shorter mined wall that is up to approximately 10 feet in height exists along the western edge of the permit area (**Photos 9 and 10**). The western mined wall has slope gradients of approximately 1H:1V. As this wall is adjacent to the western permit boundary, it will need to be backfilled for reclamation. It appears that adequate backfill material is available just east of this wall.

A stockpiling and processing area is located near the center of the disturbed area (**Photos 11 and 12**). Stockpiles of processed material were stored on both sides of the main access road which runs roughly east-west in this portion of the permit area. Mobile screening equipment was present in the processing area. Salvaged topsoil was stored at the northern end of the permit area, north of the main haul road (**Photos 13 and 14**). The topsoil stockpiles appeared to be stable with vegetative cover. Three wash ponds are present on site, including one located at the northwestern edge of the site (approximately 0.3 acre in size; **Photo 15**), and two located just north of the main haul road (each approximately 0.14 acre in size). The wash ponds appear to be exposed groundwater. The Division estimates the combined surface area of the three ponds to be 0.58 acre. This appears to be consistent with TR-3, which limits total groundwater exposure to 1 acre. However, the Division could not find an up-to-date substitute water supply plan in the permit record that covers the amount of groundwater exposed on site. Therefore, this is cited as a problem in the report (see pages 1 and 2), and will require the operator to either demonstrate that the operation is in compliance with the Office of the State Engineer (SEO), show evidence that the operator is taking measures to bring the site into compliance with the SEO, or backfill the ponds to at least two feet above the groundwater surface by the corrective action date specified.

The Division estimates the operation has disturbed a total of 64.5 acres at the site, including the storage area, the pit area, the processing and stockpiling areas, the topsoil storage area, and the ponds (see enclosed Google Earth image showing permit area, disturbed area, and pond surface area). This amount of disturbance exceeds the approved maximum allowed disturbance at any time of 30 acres by 34.5 acres. Therefore, this is cited as a problem in the report (see pages 1 and 2), and will require the operator to submit a Technical Revision to increase the maximum allowed disturbed area from 30 acres to a minimum of 64.5 acres. The Division recommends the operator overshoot the maximum allowed disturbance enough to cover any additional disturbance that may occur during mining or reclamation activities within the next year. For example, with a current disturbance of 64.5 acres, the operator might increase the maximum allowed disturbance to 65-70 acres.

After conducting the inspection, the Division recalculated the required financial warranty for the site to account for 64.5 acres of disturbance. The bond estimate (see enclosed) includes costs for grading all highwalls to a final slope configuration of 3H:1V, ripping a total of 48.61 acres that were utilized for stockpiling, equipment storage, or haul roads (not including the main access road), replacing 6 inches of topsoil on a total of 64.5 acres, revegetating 64.5 acres with alfalfa, and mobilizing/demobilizing the equipment. The Division has calculated the required financial warranty for this site to be in the amount of $146,646.00, which is $102,500.00 more than the currently held bond of $44,146.00. This is cited as a problem in the report (see pages 1 and 2), and will require the operator to submit the additional required financial warranty within 60 days of the signature date of this report.

During the inspection, the Division inquired about who is handling Rick L. Hunt's affairs since he passed away. Mr. Heifner and Mr. Mateer informed the Division that MidFirst Bank in Denver was handling Rick L. Hunt's Estate, which includes all of the affected land for this permit. After the inspection, the Division contacted Ms. Jennifer Sherman of MidFirst Bank and confirmed they were appointed as Personal Representative by the

District Court of Elbert County to oversee the Estate of Rick L. Hunt. Ms. Sherman also informed the Division that Mr. Robert A. Lembke was appointed as Special Administrator in the Estate to operate the businesses of Rick L. Hunt, and would be the person to contact about any mining permits held in the name of the deceased. The Division met with Mr. Lembke and Mr. Heifner on April 1, 2016 to discuss the matter. During this meeting, potential paths forward were discussed including, transferring the permit to an authorized entity of the Estate, or transferring the permit to another entity such as Schmidt Construction Company which operates the pit. The Division recommended that the appropriate authority for the Estate of Rick L. Hunt submit documentation to the Division confirming that Rick L. Hunt is deceased, and proving that said entity is authorized to act on behalf of the Estate. Additionally, to keep the permit active, the authorized entity would need to continue filing the required annual reports, and maintain the financial warranty for the permit. The Division explained that failure to submit the required annual reports or maintain the required financial warranty may lead to revocation of the permit and forfeiture of the financial warranty. Mr. Lembke indicated his intention to maintain the permit until the handlers of the Estate decide what to do with the property, including the mine site.

It should be noted that on April 1, 2016, Mr. Lembke submitted the required Annual Report for this permit, and with it included documentation from the District Court of Elbert County which proves that Mr. Lembke is authorized to act as Special Administrator of Rick L. Hunt's businesses. Additionally, on August 18, 2016, Ms. Sherman with MidFirst Bank submitted documentation from the Elbert County District Court which proves that MidFirst Bank is authorized to act on behalf of the Estate of Rick L. Hunt. Also included was a certificate of authority which authorizes Ms. Sherman to act on behalf of MidFirst Bank, and a certificate of death for Rick L. Hunt.

As of the signature date of this report, the Division has not received a Succession of Operators application for this permit. However, given the documentation provided (described above), the Division recognizes the Estate of Rick L. Hunt as the permittee, and the authorization of Robert Lembke, Jennifer Sherman, and MidFirst Bank to act on behalf of the Estate. Therefore, all documents submitted to the Division for this permit, including corrective action requirements, must be received from one of the above authorized entities.

PHOTOGRAPHS

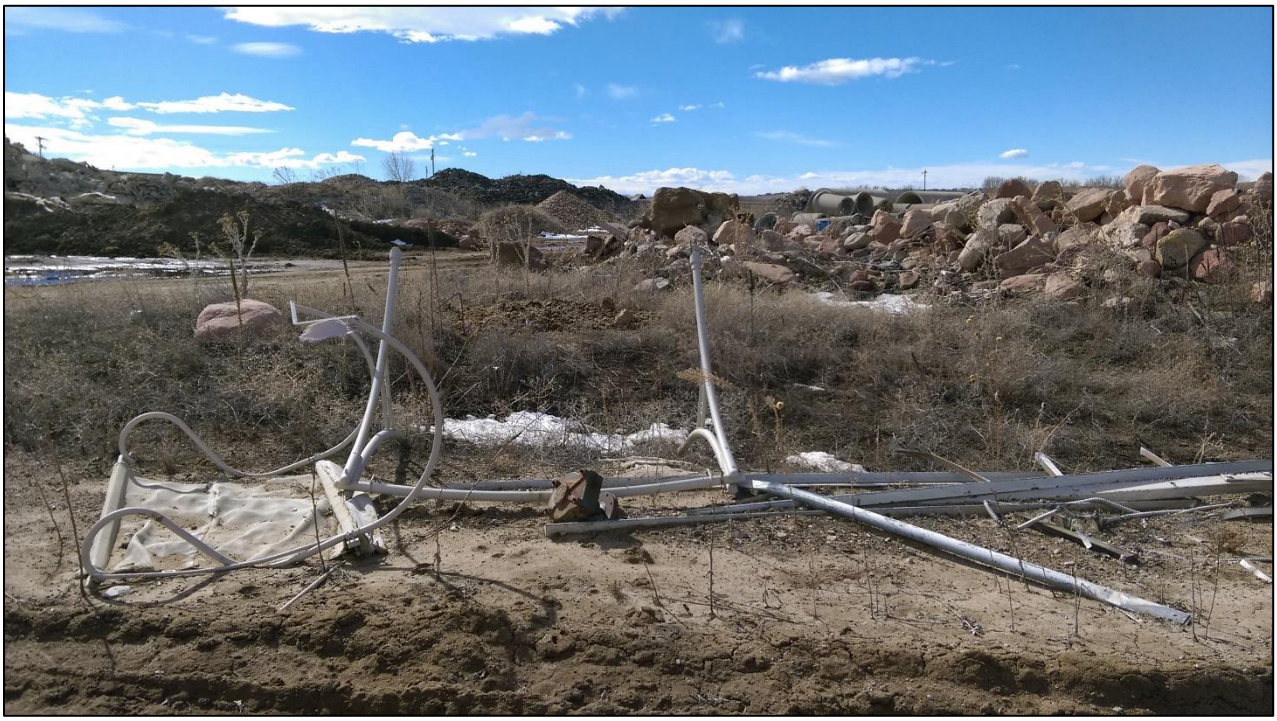


Photo 1. View of various equipment, materials, and scrap parts stored in southwestern portion of permit area. Note several material and rock stockpiles in background.

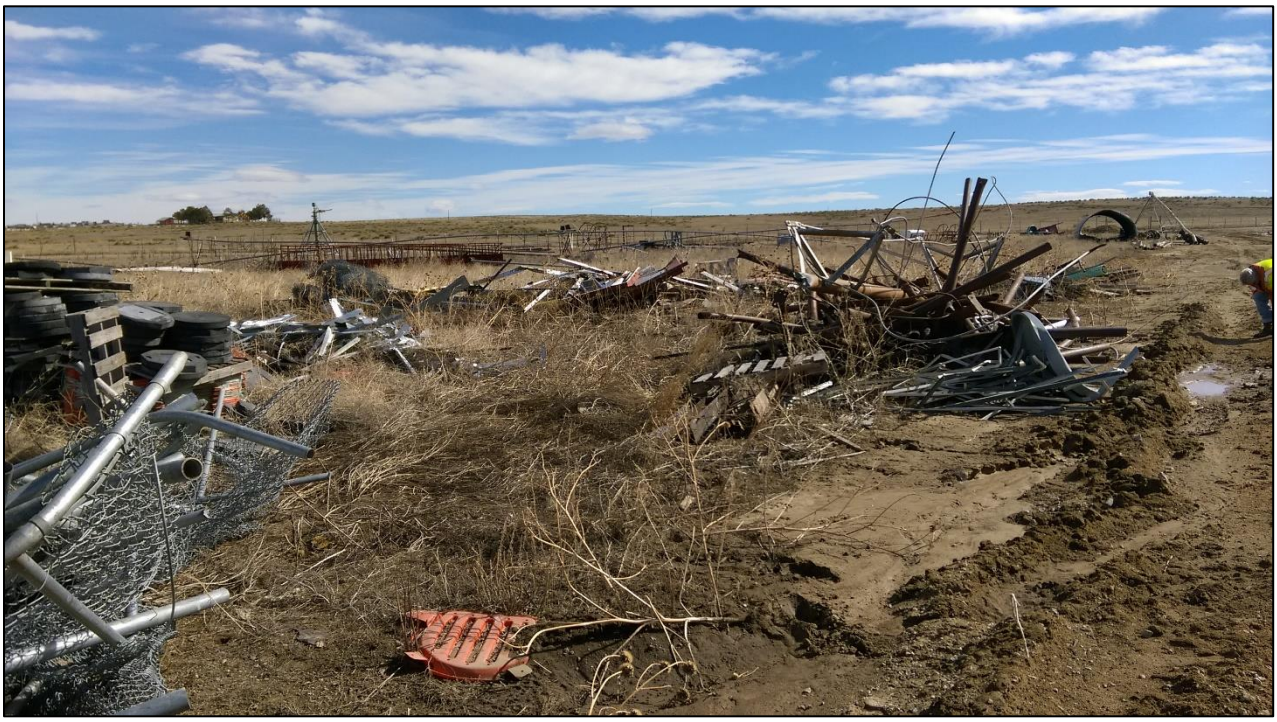


Photo 2. View of various equipment, materials, and scrap parts stored in southwestern portion of permit area.

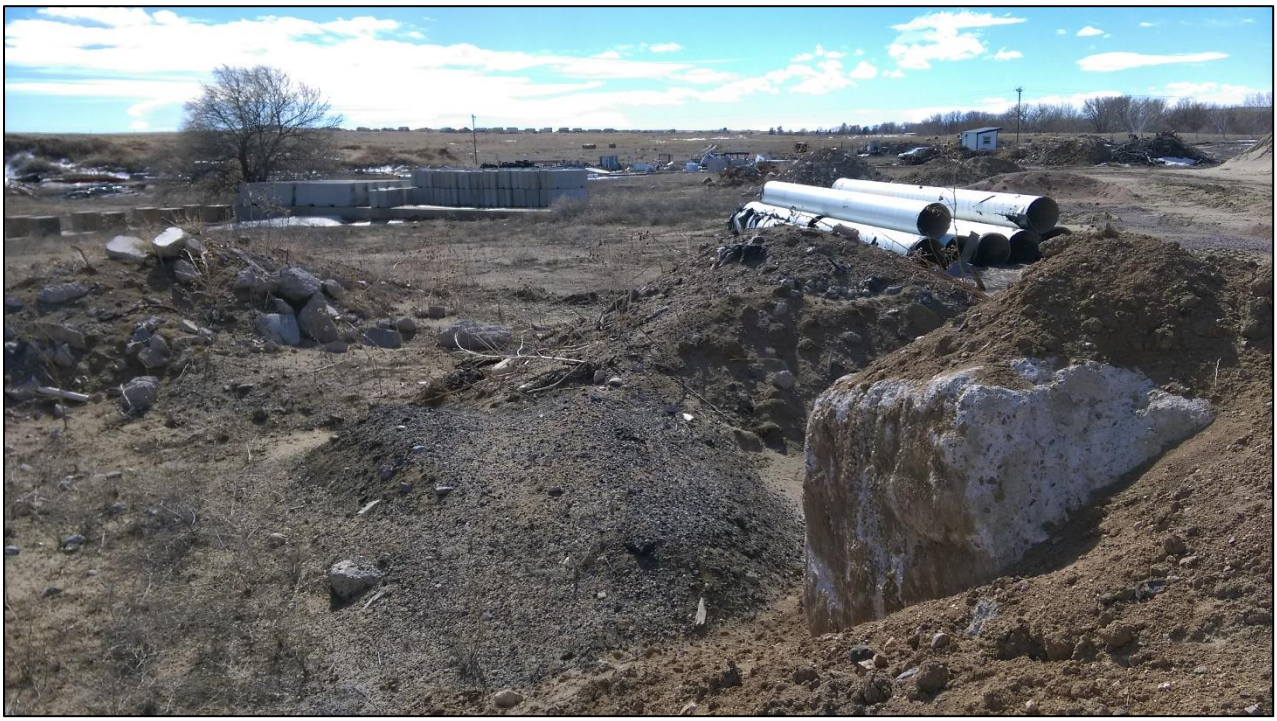


Photo 3. View of various equipment, materials, and scrap parts stored in southwestern portion of permit area.

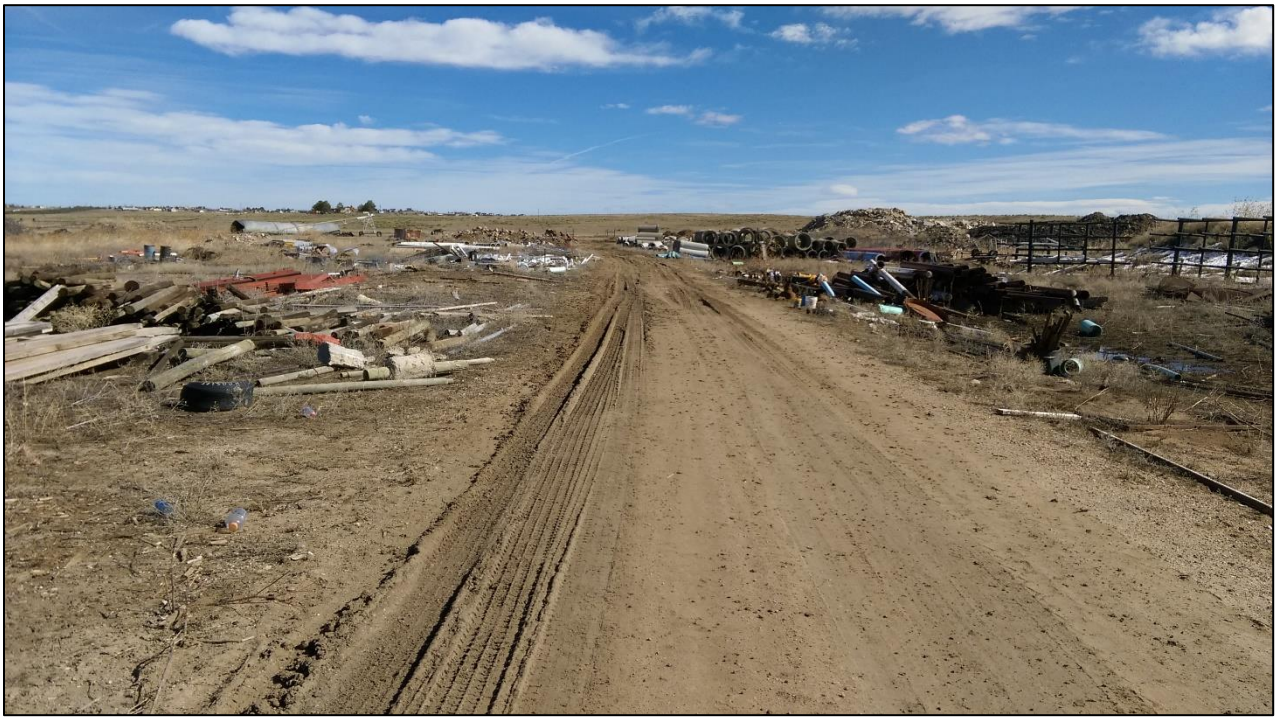


Photo 4. View of various equipment, materials, and scrap parts stored in southwestern portion of permit area.

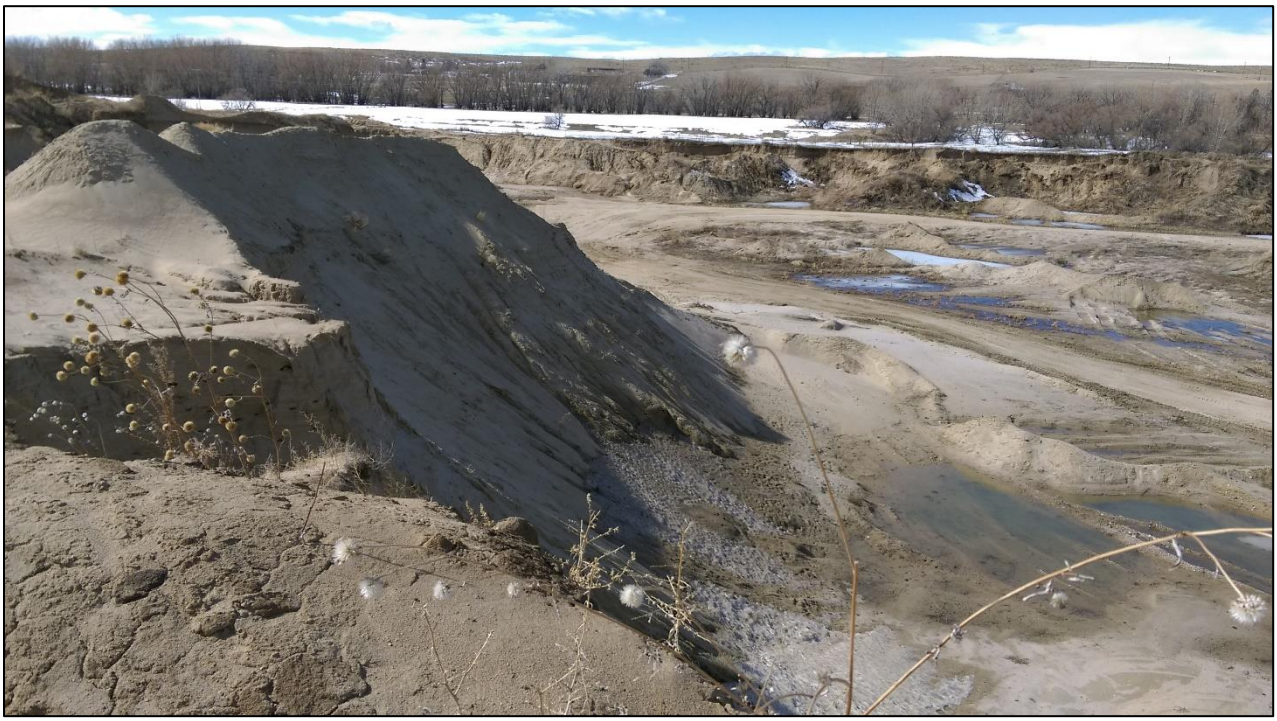


Photo 5. View of portion of primary working face with height of approximately 25 feet and slope gradients of approximately 1H:1V.

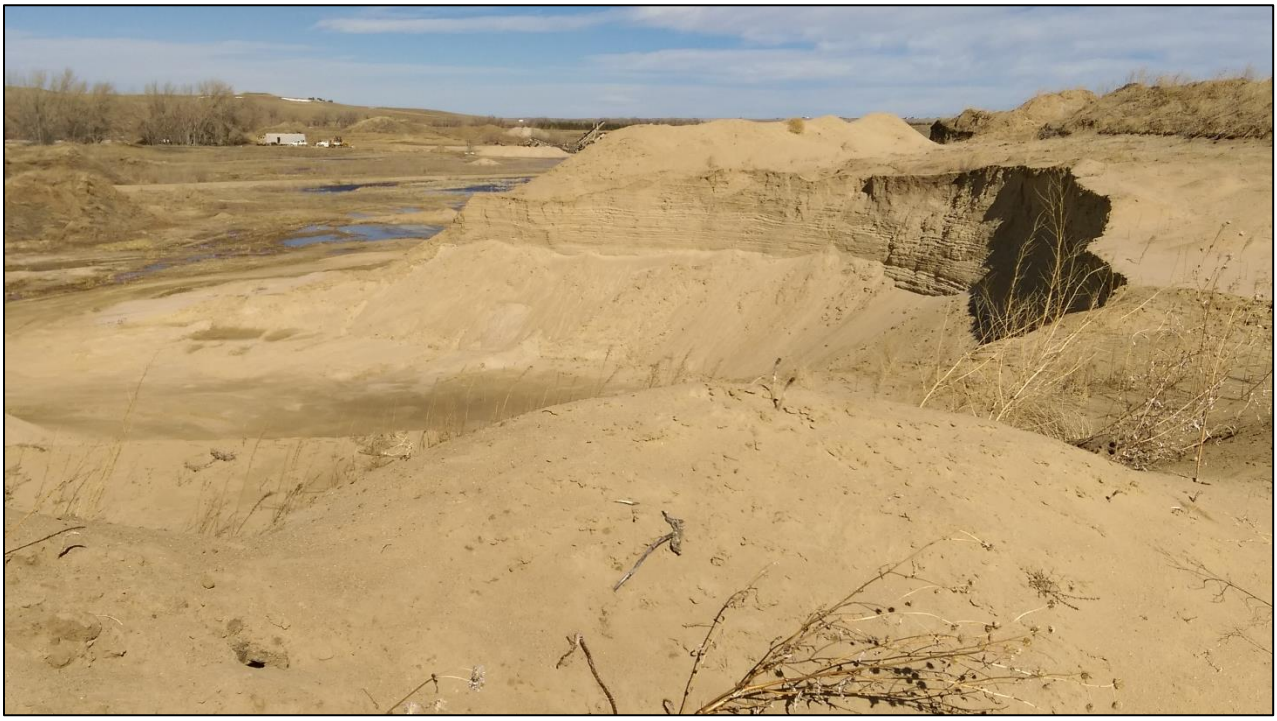


Photo 6. View of portion of primary working face with height of approximately 25 feet and slope gradients of near vertical to 1H:1V.

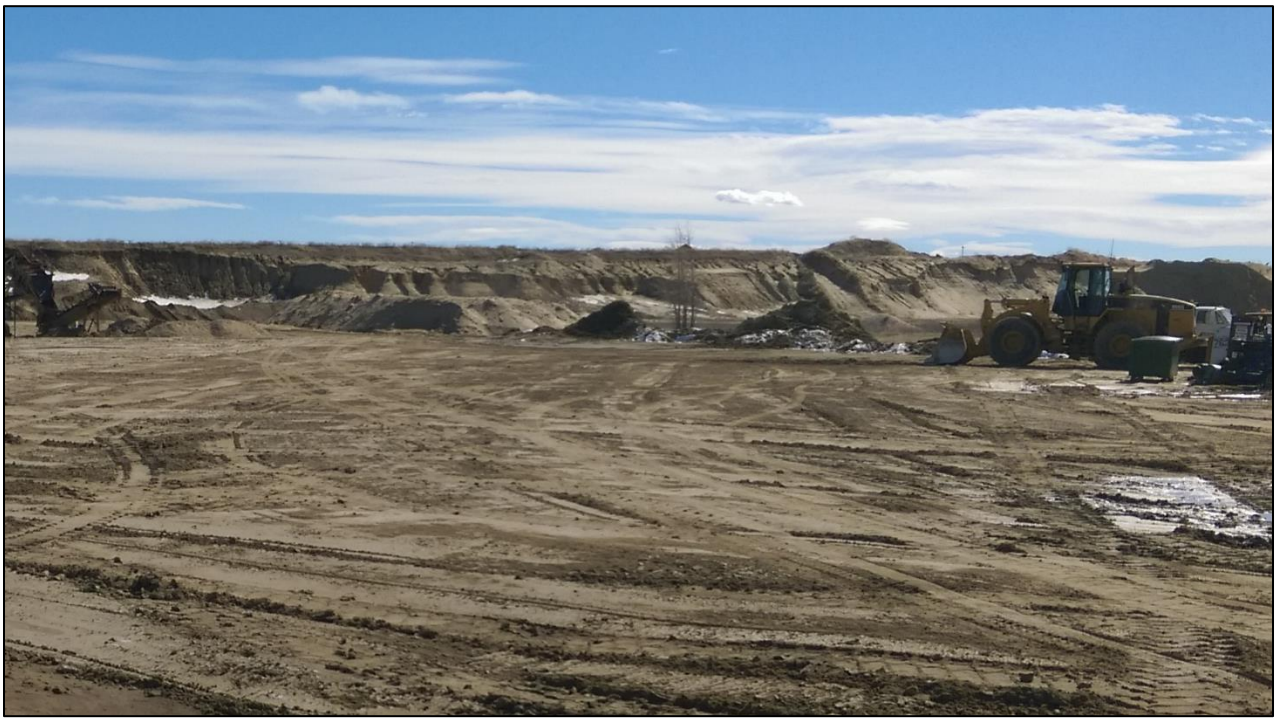


Photo 7. View of primary working face (in background) with height of approximately 25-30 feet and slope gradients of near vertical to 1H:1V.

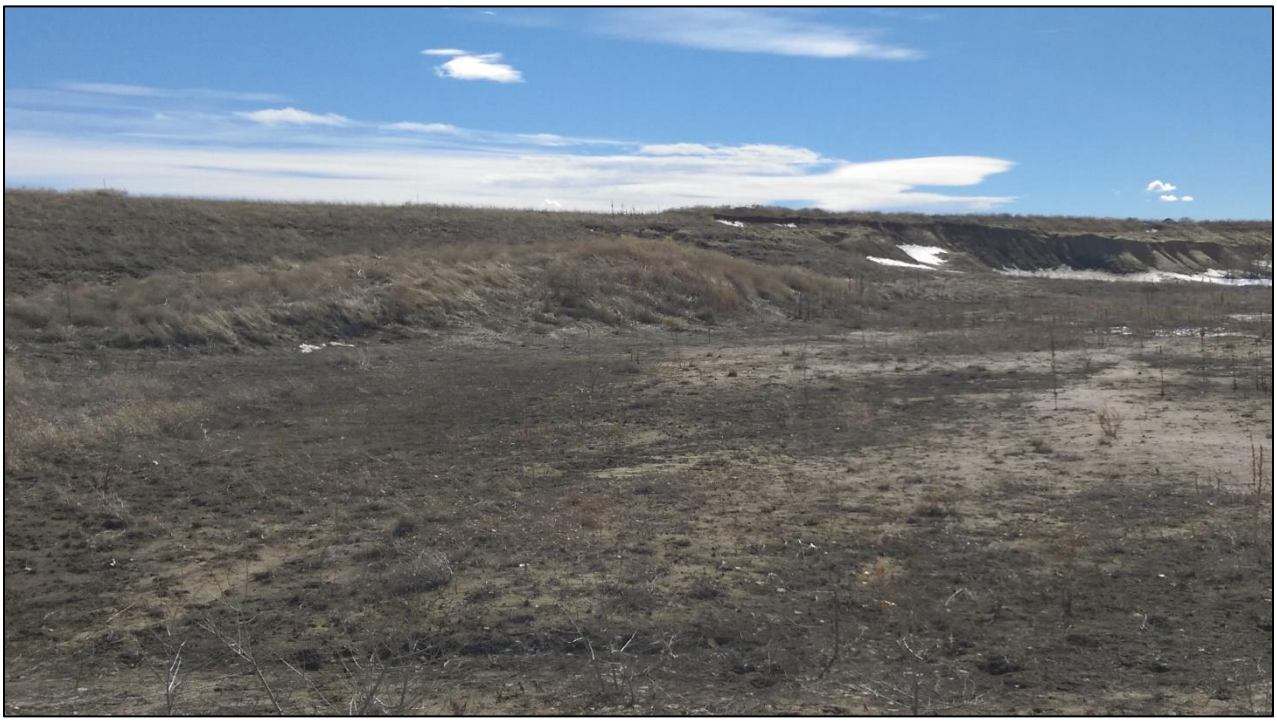


Photo 8. View of eastern portion of primary highwall that has been graded to 3H:1V or flatter.

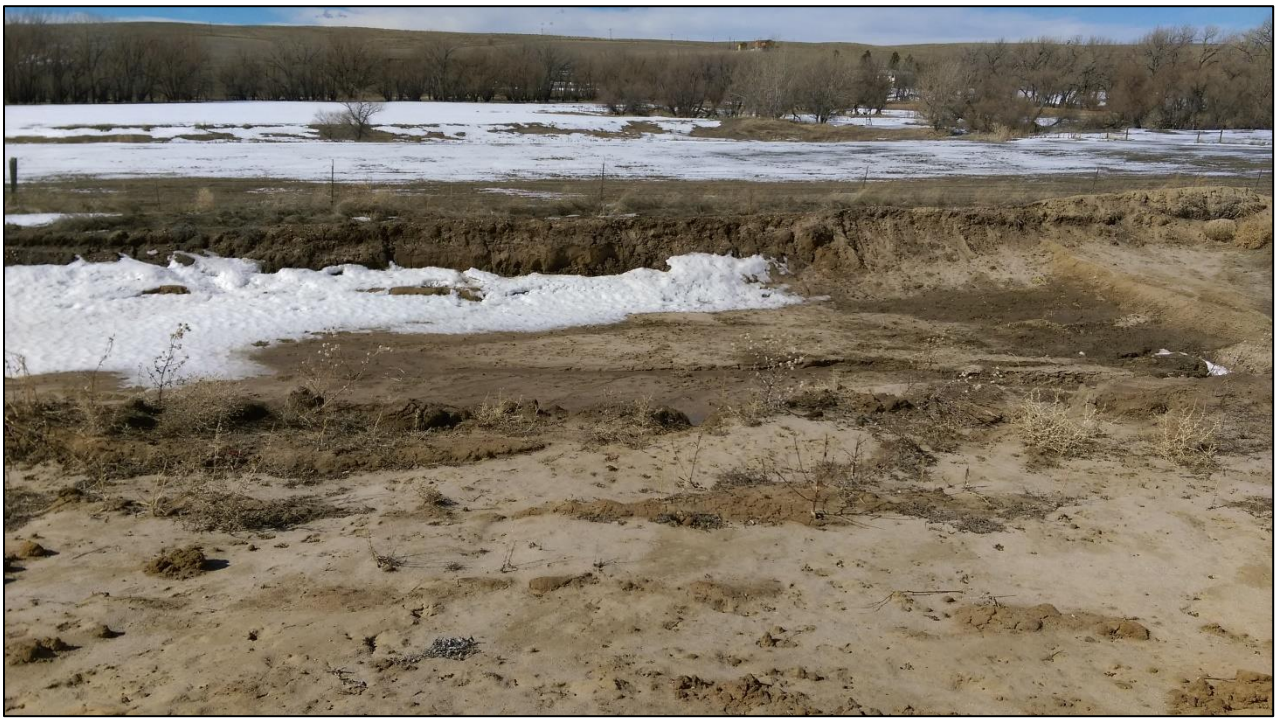


Photo 9. View of mined wall along western edge of site with height of up to 10 feet and slope gradients near 1H:1V. Note fenceline behind wall delineating western permit boundary.

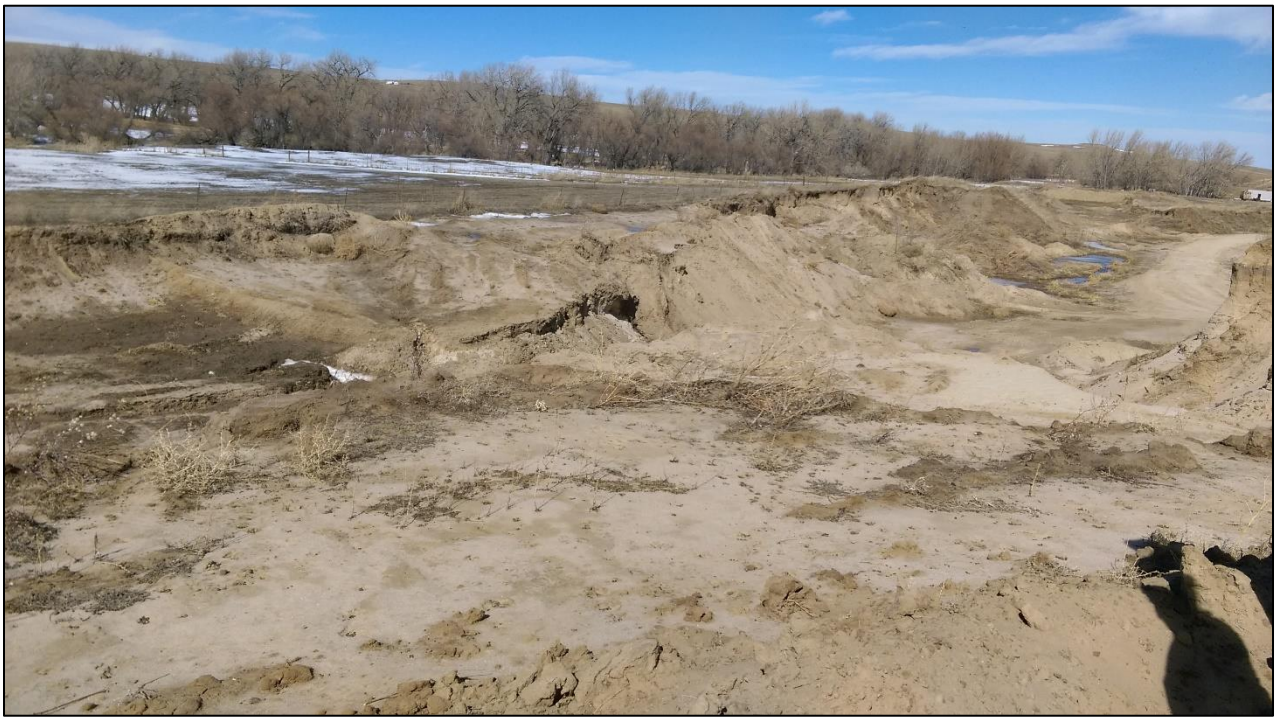


Photo 10. View of mined wall along western edge of site with height of up to 10 feet and slope gradients near 1H:1V. Note material available near wall that could be used for backfill.

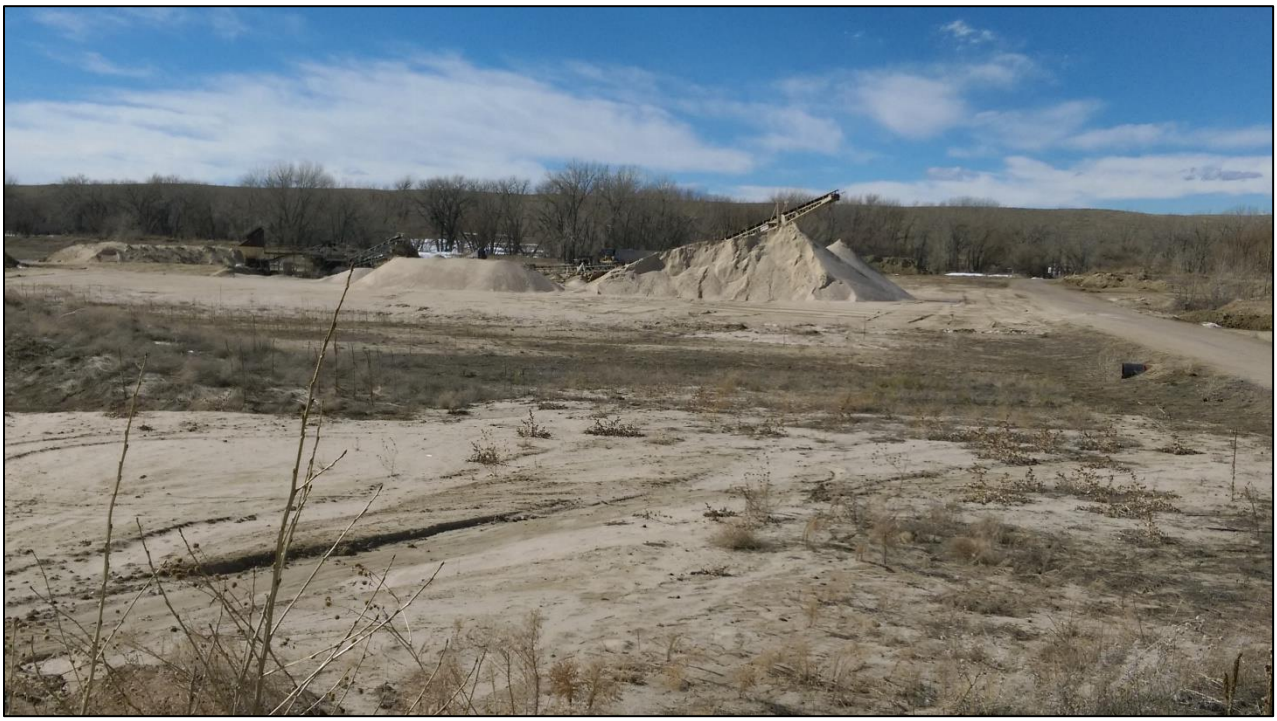


Photo 11. View looking northwest across processing and stockpiling area located near center of disturbed area. Note main access road at right.

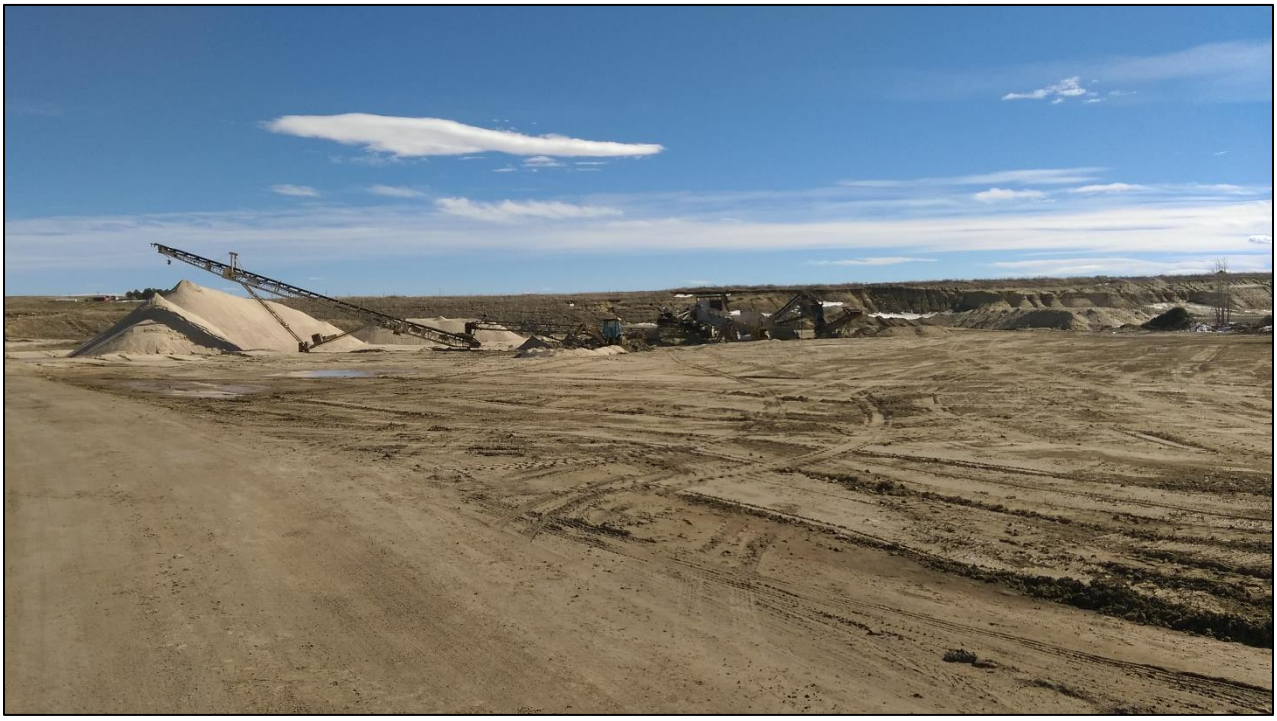


Photo 12. View looking southeast across processing and stockpiling area located near center of disturbed area. Note main access road at left.

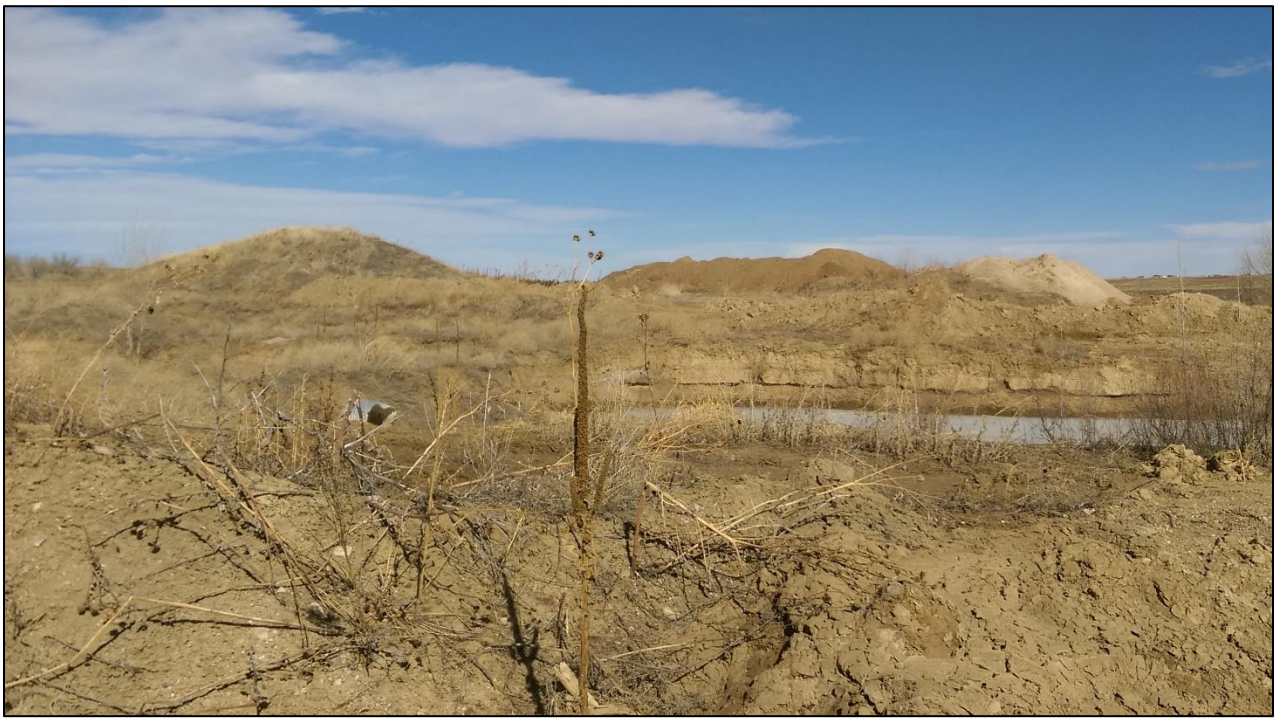


Photo 13. View of topsoil stockpiles (in background) stored at northern end of permit area, north of access road.

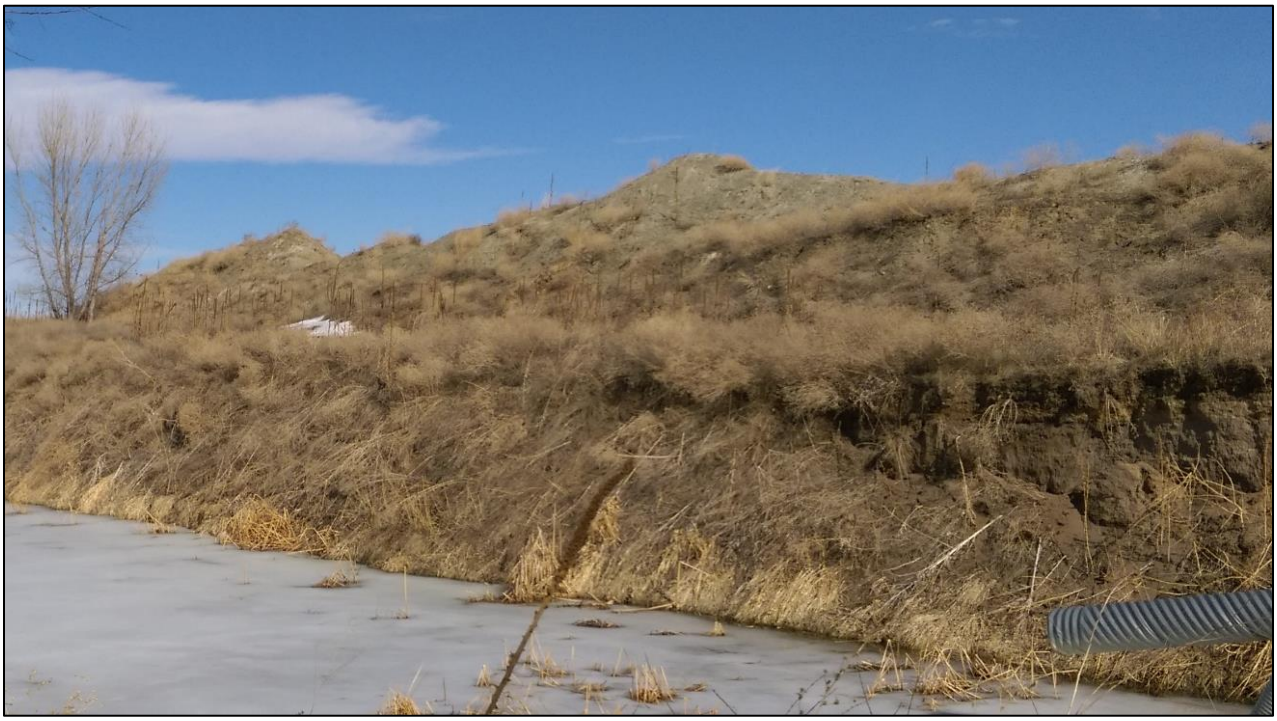


Photo 14. View of topsoil stockpiles (in background) stored at northern end of permit area, north of access road. Note stockpiles appear stable with vegetative cover.

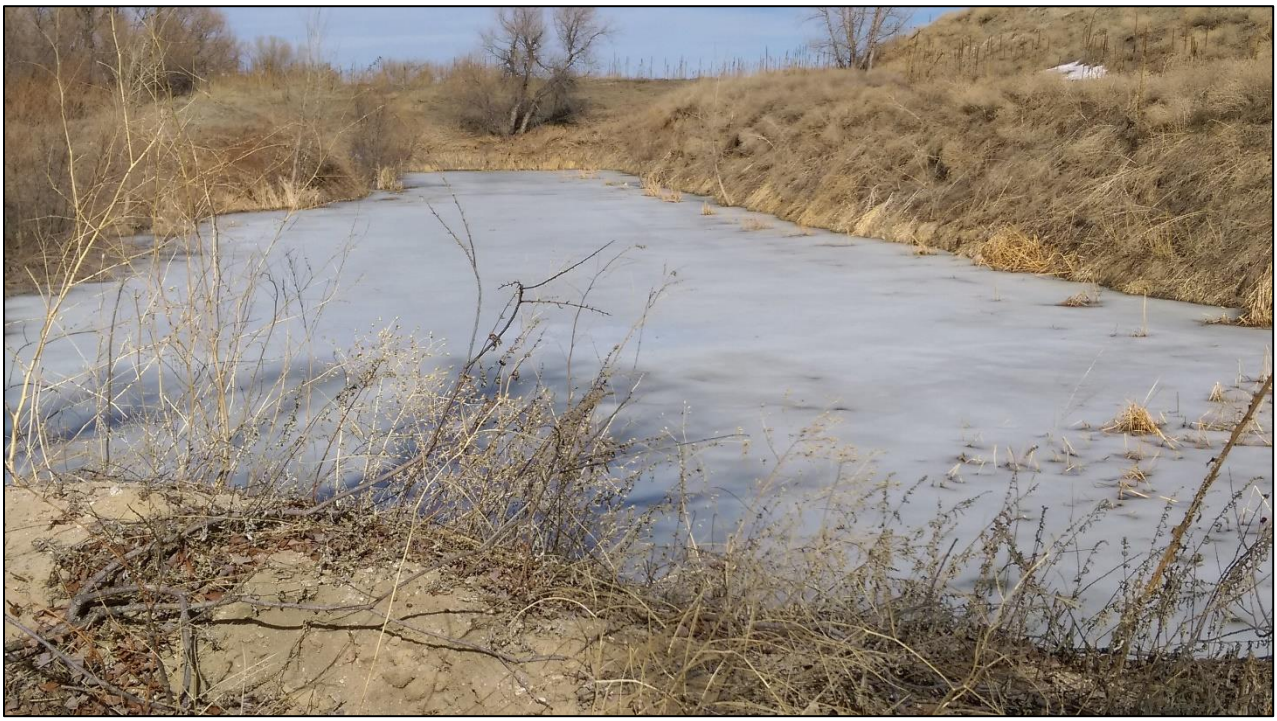


Photo 15. View of wash pond (0.3 acre in surface area) located at northwestern edge of permit area. Note top of pond was frozen at time of inspection.

Inspection Contact Address

Jake Mateer
43160 CR 17-21
Elizabeth, CO 80107

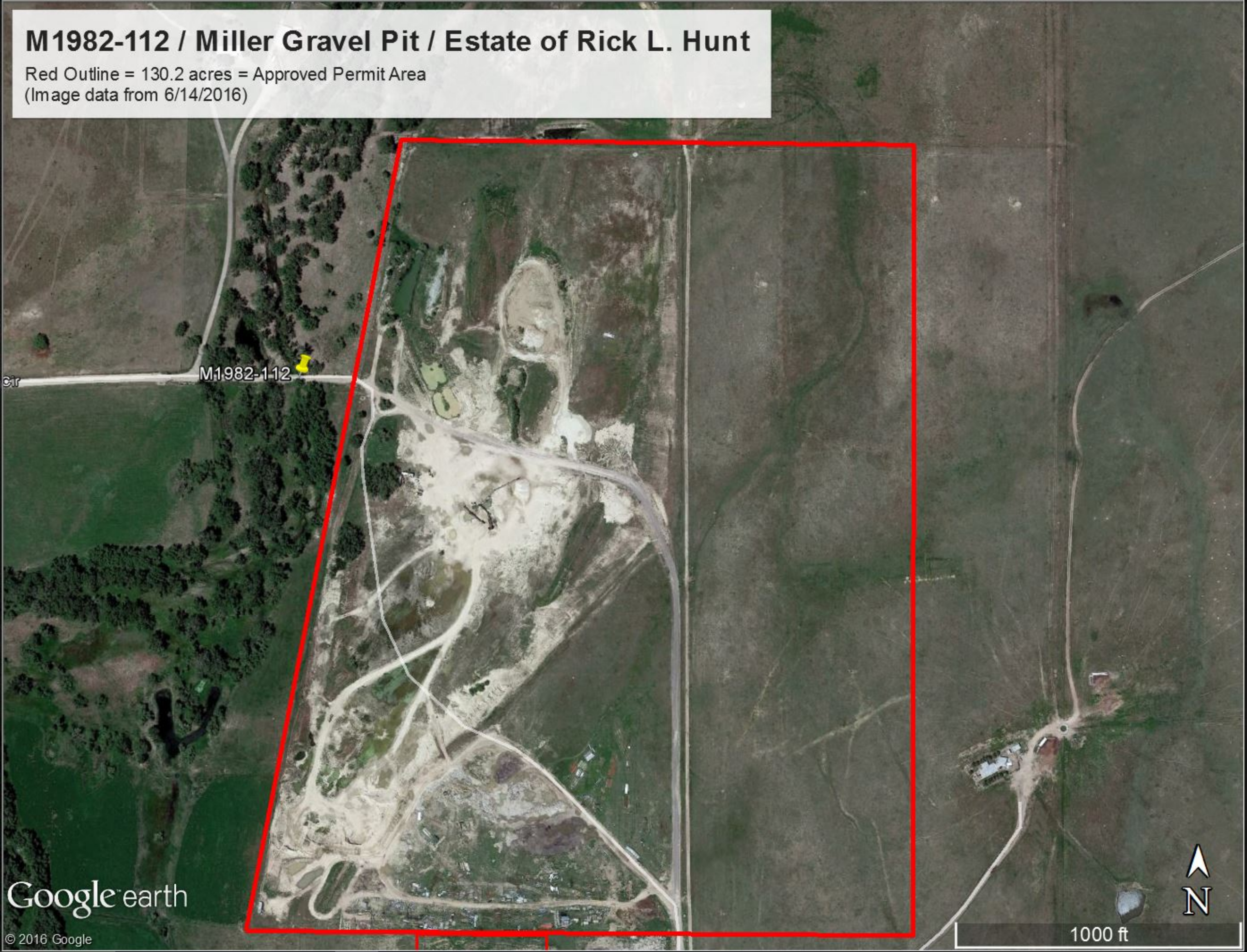
Robert A. Lembke
8301 E. Prentice Ave.
#100
Greenwood Village, CO 80111

Enclosures: Google Earth image showing permit area
Google Earth image showing permit area, disturbed area, and pond surface area
Division's bond estimate

EC: Jennifer Sherman, MidFirst Bank (jennifer.sherman@midfirst.com)
Peter Hays, DRMS (peter.hays@state.co.us)
Wally Erickson, DRMS (wally.erickson@state.co.us)

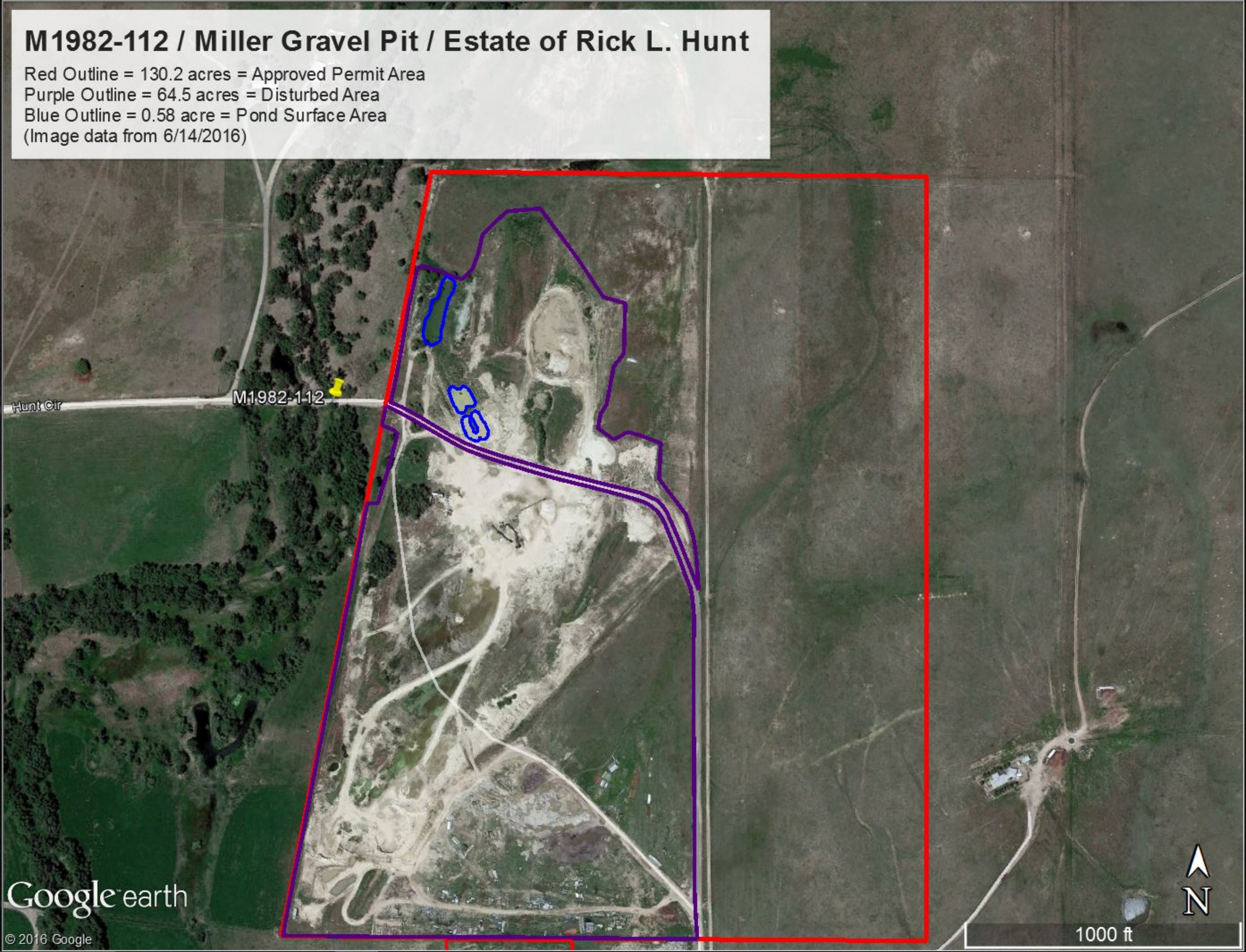
M1982-112 / Miller Gravel Pit / Estate of Rick L. Hunt

Red Outline = 130.2 acres = Approved Permit Area
(Image data from 6/14/2016)



M1982-112 / Miller Gravel Pit / Estate of Rick L. Hunt

Red Outline = 130.2 acres = Approved Permit Area
Purple Outline = 64.5 acres = Disturbed Area
Blue Outline = 0.58 acre = Pond Surface Area
(Image data from 6/14/2016)



COST SUMMARY WORK

Task description: **Cost Summary**

Site: **Miller Gravel Pit** Permit Action: 2/18/16 Inspection Permit/Job#: M1982112

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 5/5/2016 County: Elbert Filename: M112-000
User: AME

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Grade west highwall to 3H:1V	DOZER	2	3.80	$1,608.00
002	Grade south highwalls to 3H:1V	DOZER	2	11.36	$4,801.00
003	Rip stockpiling/processing area (North)	RIPPER	2	9.99	$4,279.00
004	Rip stockpiling/processing area (Central)	RIPPER	2	12.51	$5,361.00
005	Rip stockpiling and storage area (South)	RIPPER	2	12.90	$5,527.00
006	Replace 6 in topsoil on 14 acres (North)	SCRAPER1	1	9.88	$6,783.00
007	Replace 6 in topsoil on 50.5 acres (South)	SCRAPER1	1	42.15	$28,940.00
008	Revegetate 14 ac to rangeland (North)	REVEGE	1	42.00	$9,066.00
009	Revegetate 50.5 ac to rangeland (South)	REVEGE	1	152.00	$32,704.00
010	Mobilization/Demobilization	MOBILIZE	1	8.90	$13,967.00
		SUBTOTALS:		**305.49**	**$113,036**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$2,283.33
Performance bond:	1.05	Total =	$1,186.88
Job superintendent:	152.75	Total =	$11,376.45
Profit:	10.00	Total =	$11,303.60
		TOTAL O & P =	$26,150.26
		CONTRACT AMOUNT (direct + O & P) =	$139,186.26

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	500.00	Total =	500.00
Engineering work and/or contract/bid preparation:	0.00	Total =	$0.00
Reclamation management and/or administration:	5.00		$6,959.31
CONTINGENCY:	0.00	Total =	$0.00
		TOTAL INDIRECT COST =	$33,609.57
		TOTAL BOND AMOUNT (direct + indirect) =	**$146,645.57**

BULLDOZER WORK

Task description: **Grade west highwall to 3H:1V**

Site: **Miller Gravel Pit** Permit Action: 2/18/16 Inspection Permit/Job#: M1982112

PROJECT IDENTIFICATION

Task #: 001 State: Colorado Abbreviation: None
Date: 5/5/2016 County: Elbert Filename: M112-001
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

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

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$82.01	NA
Operating Cost/Hour:	$79.23	100
Ripper own. Cost/Hour:	$8.40	NA
Ripper op. Cost/Hour:	$2.81	50
Operator Cost/Hour:	$38.89	NA

Total unit Cost/Hour: $211.34
Total Fleet Cost/Hour: **$422.68**

MATERIAL QUANTITIES

Initial Volume: 3,704
Swell factor: 1.250
Loose volume: **4,630** LCY

Source of estimated volume: BF 1,000' L x 10' H = 3,704 CY
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 1,400.0 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 5 %
Average site altitude: 6,100 feet

Material weight: 2,650 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)

Spoil pile:	0.900	(SSD-FC)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4347

Adjusted unit production: 608.58 LCY/hr
Adjusted fleet production: **1217.16** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.347/LCY

Total job time: **3.80** Hours
Total job cost: **$1,608**

BULLDOZER WORK

Task description: **Grade south highwalls to 3H:1V**

Site: **Miller Gravel Pit** Permit Action: 2/18/16 Inspection Permit/Job#: M1982112

PROJECT IDENTIFICATION

Task #:	002	State:	Colorado	Abbreviation:	None
Date:	5/5/2016	County:	Elbert	Filename:	M112-002
User:	AME				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

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

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$82.01	NA
Operating Cost/Hour:	$79.23	100
Ripper own. Cost/Hour:	$8.40	NA
Ripper op. Cost/Hour:	$2.81	50
Operator Cost/Hour:	$38.89	NA

Total unit Cost/Hour: $211.34
Total Fleet Cost/Hour: **$422.68**

MATERIAL QUANTITIES

Initial Volume:	16,554
Swell factor:	1.250
Loose volume:	**20,693** LCY

Source of estimated volume: Cut & fill 1,907' L x 25' H = 16,554 CY (0H:1V to 3H:1V)
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 1,400.0 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: -5 %
Average site altitude: 6,100 feet

Material weight: 2,650 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
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: 910.98 LCY/hr
Adjusted fleet production: **1821.96** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: $0.232/LCY

Total job time: **11.36** Hours
Total job cost: **$4,801**

BULLDOZER RIPPING WORK

Task description: **Rip stockpiling/processing area (North)**

Site: **Miller Gravel Pit** Permit Action: 2/18/16 Inspection Permit/Job#: M1982112

PROJECT IDENTIFICATION

Task #: 003 State: Colorado Abbreviation: None
Date: 5/5/2016 County: Elbert Filename: M112-003
User: AME

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:	$82.01	NA
Operating Cost/Hour:	$79.23	100
Ripper Ownership Cost/Hour:	$8.40	NA
Ripper Operating Cost/Hour:	$5.62	100
Operator Cost/Hour:	$38.89	NA
Total Unit Cost/Hour:	$214.15	

Total Fleet Cost/Hour: **$428.30**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 13.80 acres Rip Depth (ft): 1.50 Volume: 33,396 BCY or CCY

Source of estimated quantity: Google Earth Pro image data from 6/14/16

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.56	mph
Average Ripping Width:	7.08	degrees
Average Ripping Length:	700.00	feet
Average Dozer Speed:	88.00	feet
Average Maneuver Time:	0.25	feet
Production per unit area:	0.832	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.832 Acres/hr

Site Altitude:	6,100	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.69 Acres/hr
Adjusted Hourly Fleet Production: **1.38** Acres/hr

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **9.99** Hours

Unit cost: $310.099 Per acre Total job cost: **$4,279**

BULLDOZER RIPPING WORK

Task description: **Rip stockpiling/processing area (Central)**

Site: **Miller Gravel Pit** Permit Action: 2/18/16 Inspection Permit/Job#: M1982112

PROJECT IDENTIFICATION

Task #: 004 State: Colorado Abbreviation: None
Date: 5/5/2016 County: Elbert Filename: M112-004
User: AME

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:	$82.01	NA
Operating Cost/Hour:	$79.23	100
Ripper Ownership Cost/Hour:	$8.40	NA
Ripper Operating Cost/Hour:	$5.62	100
Operator Cost/Hour:	$38.89	NA
Total Unit Cost/Hour:	$214.15	

Total Fleet Cost/Hour: **$428.30**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 17.20 acres Rip Depth (ft): 1.50 Volume: 41,624 BCY or CCY

Source of estimated quantity: Google Earth Pro image data from 6/14/16

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.56	mph
Average Ripping Width:	7.08	degrees
Average Ripping Length:	600.00	feet
Average Dozer Speed:	88.00	feet
Average Maneuver Time:	0.25	feet
Production per unit area:	0.828	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.828 Acres/hr

Site Altitude:	6,100	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.69 Acres/hr
Adjusted Hourly Fleet Production: **1.37** Acres/hr

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **12.52** Hours

Unit cost: $311.673 Per acre Total job cost: **$5,361**

BULLDOZER RIPPING WORK

Task description: **Rip stockpiling and storage area (South)**

Site: **Miller Gravel Pit** Permit Action: 2/18/16 Inspection Permit/Job#: M1982112

PROJECT IDENTIFICATION

Task #: 005 State: Colorado Abbreviation: None
Date: 5/5/2016 County: Elbert Filename: M112-005
User: AME

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:	$82.01	NA
Operating Cost/Hour:	$79.23	100
Ripper Ownership Cost/Hour:	$8.40	NA
Ripper Operating Cost/Hour:	$5.62	100
Operator Cost/Hour:	$38.89	NA
Total Unit Cost/Hour:	$214.15	

Total Fleet Cost/Hour: **$428.30**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 17.61 acres Rip Depth (ft): 1.50 Volume: 42,616 BCY or CCY

Source of estimated quantity: Google Earth Pro image data from 6/14/16

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.56	mph
Average Ripping Width:	7.08	degrees
Average Ripping Length:	500.00	feet
Average Dozer Speed:	88.00	feet
Average Maneuver Time:	0.25	feet
Production per unit area:	0.822	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.822 Acres/hr

Site Altitude:	6,100	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.68 Acres/hr
Adjusted Hourly Fleet Production: **1.36** Acres/hr

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **12.91** Hours

Unit cost: $313.878 Per acre Total job cost: **$5,527**

SCRAPER TEAM WORK

Task description: **Replace 6 in topsoil on 14 acres (North)**

Site: **Miller Gravel Pit** Permit Action: 2/18/16 Inspection Permit/Job#: M1982112

PROJECT IDENTIFICATION

Task #: 006 State: Colorado Abbreviation: None
Date: 5/5/2016 County: Elbert Filename: M112-006
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:	NA
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	NA	75	50
Ownership cost/hour:	$104.50	NA	NA	NA	$53.53	$7.71
Operating cost/hour:	$129.95	NA	NA	NA	$42.54	$9.53
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	NA	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	NA	NA	NA	$0.00	$0.00
Operator cost/hour:	$34.24	NA	NA	NA	$35.83	$0.00
Unit Subtotals:	$268.69	NA	NA	NA	$131.90	$17.24
Number of Units:	2	0	0	0	1	1
Group Subtotals:	Work:	$537.38	Support:	$0.00	Maint:	$149.14

Total work team cost/hour: **$686.52**

MATERIAL QUANTITIES

Initial volume: 11,293 CCY Swell factor: 1.215
Loose volume: **13,721** LCY

Source of estimated volume: 14 ac x 6 in depth = 11,293 CY
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Material weight: 1,600 lbs/LCY
Material description: Top Soil
Rated Payload: 81,600 pounds
Payload Capacity: 51.00 LCY

Scraper Bowl (volume) Basis:

Struck Volume: 24.00 LCY
Heaped Volume: 34.00 LCY
Average Volume: 29.00 LCY
Adjusted Capacity: **29.00** LCY

Cycle Time:

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

Job Condition Correction: Site Altitude: 6100 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	300.00	1.00	3.00	4.00	1667	0.29

Haul Time: **0.29** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	300.00	-1.00	3.00	2.00	2914	0.29

Return Time: **0.29** minutes

Total Scraper team cycle time: **2.08** minutes
Adjusted for job conditions: 694.33 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 1,388.65 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **1,388.65** LCY/Hour

Unadjusted unit production/hour: 836.54 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **9.88** Hours

Unit cost: $0.494 /LCY Total job cost: **$6,783**

SCRAPER TEAM WORK

Task description: **Replace 6 in topsoil on 50.5 acres (South)**

Site: **Miller Gravel Pit** Permit Action: 2/18/16 Inspection Permit/Job#: M1982112

PROJECT IDENTIFICATION

Task #: 007 State: Colorado Abbreviation: None
Date: 5/5/2016 County: Elbert Filename: M112-007
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:	NA
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	NA	75	50
Ownership cost/hour:	$104.50	NA	NA	NA	$53.53	$7.71
Operating cost/hour:	$129.95	NA	NA	NA	$42.54	$9.53
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	NA	NA	$0.00	$0.00
Ripper op. cost/hour:	NA	NA	NA	NA	$0.00	$0.00
Operator cost/hour:	$34.24	NA	NA	NA	$35.83	$0.00
Unit Subtotals:	$268.69	NA	NA	NA	$131.90	$17.24
Number of Units:	2	0	0	0	1	1
Group Subtotals:	Work:	$537.38	Support:	$0.00	Maint:	$149.14

Total work team cost/hour: **$686.52**

MATERIAL QUANTITIES

Initial volume: 40,737 CCY Swell factor: 1.215
Loose volume: **49,495** LCY

Source of estimated volume: 50.5 ac x 6 in depth = 40,737 CY
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Material weight: 1,600 lbs/LCY
Material description: Top Soil
Rated Payload: 81,600 pounds
Payload Capacity: 51.00 LCY

Scraper Bowl (volume) Basis:

Struck Volume: 24.00 LCY
Heaped Volume: 34.00 LCY
Average Volume: 29.00 LCY
Adjusted Capacity: **29.00** LCY

Cycle Time:

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

Job Condition Correction: Site Altitude: 6100 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	700.00	1.00	3.00	4.00	1667	0.53

Haul Time: **0.53** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	700.00	-1.00	3.00	2.00	2914	0.43

Return Time: **0.43** minutes

Total Scraper team cycle time: **2.46** minutes
Adjusted for job conditions: 587.07 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 1,174.15 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **1,174.15** LCY/Hour

Unadjusted unit production/hour: 707.32 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **42.15** Hours

Unit cost: $0.585 /LCY Total job cost: **$28,940**

REVEGETATION WORK

Task description: **Revegetate 14 ac to rangeland (North)**

Site: **Miller Gravel Pit** Permit Action: 2/18/16 Inspection Permit/Job#: M1982112

PROJECT IDENTIFICATION

Task #: 008 State: Colorado Abbreviation: None
Date: 5/5/2016 County: Elbert Filename: M112-008
User: AME

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			$	$
			Total Fertilizer Materials Cost/Acre	**$0.00**

Application

Description	Cost /Acre
	$
Total Fertilizer Application Cost/Acre	**$0.00**

TILLING

Description	Cost /Acre
Weed control spraying (MEANS 31 31 16.13 3100)	$242.00
Total Tilling Cost/Acre	**$242.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alfalfa - Common	15.00	72.31	$38.40
Totals Seed Mix	15.00	72.31	**$38.40**

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	$232.00
	$232.00

Total Seed Application Cost/Acre	

MULCHING and MISCELLANEOUS

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			$	$
Total Mulch Materials Cost/Acre				**$0.00**

Application

Description	Cost /Acre
	$
Total Mulch Application Cost/Acre	**$0.00**

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					$
Totals Nursery Stock Cost / Acre					**$0.00**

JOB TIME AND COST

No. of Acres: 14
Estimated Failure Rate: 50%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $512.40
Cost /Acre*: $270.40

Initial Job Cost: **$7,173.60**
Reseeding Job Cost: **$1,892.80**
Total Job Cost: **$9,066**
Job Hours: **42.00**

REVEGETATION WORK

Task description: **Revegetate 50.5 ac to rangeland (South)**

Site: **Miller Gravel Pit** Permit Action: 2/18/16 Inspection Permit/Job#: M1982112

PROJECT IDENTIFICATION

Task #: 009 State: Colorado Abbreviation: None
Date: 5/5/2016 County: Elbert Filename: M112-009
User: AME

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			$	$
			Total Fertilizer Materials Cost/Acre	**$0.00**

Application

Description	Cost /Acre
	$
Total Fertilizer Application Cost/Acre	**$0.00**

TILLING

Description	Cost /Acre
Weed control spraying (MEANS 31 31 16.13 3100)	$242.00
Total Tilling Cost/Acre	**$242.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alfalfa - Common	15.00	72.31	$38.40
Totals Seed Mix	15.00	72.31	**$38.40**

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	$232.00
	$232.00

Total Seed Application Cost/Acre	

MULCHING and MISCELLANEOUS

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			$	$
Total Mulch Materials Cost/Acre				**$0.00**

Application

Description	Cost /Acre
	$
Total Mulch Application Cost/Acre	**$0.00**

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					$
Totals Nursery Stock Cost / Acre					**$0.00**

JOB TIME AND COST

No. of Acres: 50.5
Estimated Failure Rate: 50%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $512.40
Cost /Acre*: $270.40

Initial Job Cost: **$25,876.20**
Reseeding Job Cost: **$6,827.60**
Total Job Cost: **$32,704**
Job Hours: **152.00**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Mobilization/Demobilization**

Site: **Miller Gravel Pit** Permit Action: 2/18/16 Inspection Permit/Job#: M1982112

PROJECT IDENTIFICATION

Task #: 010 State: Colorado Abbreviation: None
Date: 5/5/2016 County: Elbert Filename: M112-010
User: AME

Agency or organization name: DRMS

EQUIPMENT TRANSPORT RIG COST

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

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

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

Cost Breakdown:

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

NON ROADABLE EQUIPMENT:

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Cat D8T - 8SU	53.08	$73.32	$125.45	4	$795.06	$501.80	$500.00
Cat 631G	52.50	$91.86	$125.45	2	$434.62	$250.90	$500.00
CAT 14M	23.57	$50.42	$88.67	1	$139.09	$88.67	$250.00
Subtotals:					**$1,368.77**	**$841.37**	**$1,250.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Water Tanker, 2,500 Gal.	$27.11	1	$27.11	$27.11
Subtotals:			**$27.11**	**$27.11**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	DENVER	
Total one-way travel distance:	40.00	miles
Average Travel Speed:	55.00	mph

Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$13,927.37
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$39.43

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.73	0.73
Return Time (Hours):	0.73	0.73
Loading Time (Hours):	1.50	NA
Unloading Time (Hours):	1.50	NA
Subtotals:	4.45	1.45

JOB TIME AND COST

Total job time:	**8.91**	Hours
Total job cost:	**$13,967**	