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: Larimer Pit	**MINE/PROSPECTING ID#:** M-1974-069	**MINERAL:** Sand and gravel	**COUNTY:** Larimer
INSPECTION TYPE: Monitoring	**INSPECTOR(S):** Amy Eschberger	**INSP. DATE:** January 16, 2020	**INSP. TIME:** 13:00
OPERATOR: Loveland Ready-Mix Concrete, Inc.	**OPERATOR REPRESENTATIVE:** Stephanie Fancher	**TYPE OF OPERATION:** 112c - Construction Regular Operation	

REASON FOR INSPECTION: Normal I&E Program	**BOND CALCULATION TYPE:** Complete Bond	**BOND AMOUNT:** $546,800.00
DATE OF COMPLAINT: NA	**POST INSP. CONTACTS:** None	**JOINT INSP. AGENCY:** None
WEATHER: Clear	**INSPECTOR'S SIGNATURE:** Amy Eschberger	**SIGNATURE DATE:** February 20, 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.

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) 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 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: March 21, 2020

OBSERVATIONS

This was a normal monitoring inspection of the Larimer Pit (Permit No. M-1974-069) conducted by Amy Eschberger of the Division of Reclamation, Mining and Safety (Division). The operator was represented by Stephanie Fancher during the inspection. The site is located at the southwestern edge of Loveland, CO in Larimer County. The site is situated between Namaqua Ave. (to the west) and Wilson Ave. (to the east), and the Barnes Ditch (to the north) and W Co Rd 20 (to the south). Access to the site is from the west off Namaqua Avenue. **Photos 1-26** taken during the inspection are included with this report.

This is a 112c operation permitted for 224.25 acres (see enclosed Google Earth image of site) to mine sand and gravel for use as concrete aggregate/structural fill. The affected lands are owned by the operator and Big Thompson Farms. The site is bisected by the Big Thompson River. The northern portion of the permit area is accessed via one bridge crossing on the river. The site was mined through a series of 20 cells/pits, some of which have been released from the permit area. At this time, the portion of the permit area located north of the river encompasses five cells (7, 8, 14, 18, 19), and the portion of the permit area located south of the river encompasses seven cells (1, 2, 3, 4, 5, 6, 20). Amendment No. 3 (AM-3; approved on February 24, 2016) added 32.78 acres to the southern edge of the permit area (below cell 20) to add cell 21. An approximately 33 acre area located in the western portion of the permit area, south of the river, includes a concrete batch plant, a scale, office buildings, a material processing plant, and stockpiling/equipment storage areas. One must pass through this area to access the rest of the permit area.

The operation has completed mining in the majority of the site. The most recent mining activities occurred in cell 20 from 2015 through 2018. According to the 2019 annual report, ongoing reclamation efforts continue in cells 8, 14, 18, and 19 (north of the river) and in cell 20 (south of the river). The maximum mining depth at the site is approximately 24 feet. The operator committed to storing salvaged topsoil and overburden no more than 250 feet from where it will be placed for final reclamation. Prior to mining cell 21, a 4-foot berm will be constructed along Wilson Ave. and W Co Rd 20 (east and south of the cell) to act as a natural screening/visual berm per City of Loveland's buffer requirements. This berm will be seeded with natural grasses and planted with shrubs and trees. A 3-strand barbed wire fence with adequate signage will be maintained along the southern property line adjacent to Wilson Ave. and W Co Rd 20, and along the mining boundary between Tracts A and B. The operation will maintain a 200 foot mining setback from the residential neighborhood located south of the permit area (on the other side of W Co Rd 20).

Prior to mining cell 21, groundwater will be pumped from dewatering trenches constructed in this cell then discharged into cell 20 to percolate into the groundwater system. No water will be returned directly to the river, therefore, no discharge permit will be required from CDPHE. Water is pumped from cell 3 at a rate of approximately 1,700 gpm for washing, and returned to the existing settling ponds (cells 3, 4, 5, and 6) located south of the river. No water from the washing operation is discharged to the river. Mined material is directly hauled by truck to the existing crushing, washing, and sizing plant using internal haul roads. Processed material is temporarily stockpiled on site until needed. The site was impacted by the September 2013 flooding, particularly cells 7, 18, and 19 (north of the river), and cells 5 and 6 (south of the river). The flood damage has been repaired, and the areas regraded and seeded. Revegetation efforts continue in these areas.

The approved post-mining land use for the site is a combination of developed water resources, industrial/commercial, recreation, and wildlife habitat. The reclamation plan (see enclosed reclamation plan map) includes leaving a series of open meadows, wetlands, and ponds interconnected by landmasses for roadways, open areas, and areas for camping, hiking, and fishing. South of the river, cells 1 and 2 will be left as lined ponds (liner completed many years ago), the settling ponds (cells 3-6) and cell 20 will be partially backfilled leaving small groundwater ponds ranging from 1 acre (cell 6) to 4 acres (cell 20) in size, and cell 21

will be clay-lined for potential future water storage, but reclaimed to dry meadow. The 4-foot berms to be installed along Wilson Ave and W Co Rd 20 prior to mining cell 21 will remain in place for final reclamation. The 33 acre batch plant/office building/storage area will remain for industrial/commercial use (a non-conforming land use approved by the county). No structures will be demolished for reclamation.

North of the river, cell 8 and a portion of cell 14 will be backfilled with waste concrete, fines, and imported inert material, then reclaimed to dry meadow. No more than 5,000 cubic yards of inert fill and/or waste concrete will be stored on site at any time prior to backfilling. A single unlined groundwater pond will remain in cells 7 and 14. Cells 18 and 19 will be completely backfilled and reclaimed to dry meadow. Cells to remain as open groundwater ponds will have slopes graded 3H:1V down to 10 feet below the water line, with remaining slopes to the pit floor graded 2H:1V. All other disturbed land on site, including the entire slopes of cells left as dry meadow, will be graded to 3H:1V or flatter. All disturbed land (outside of the industrial/commercial area), including pond slopes down to the anticipated water line, will be retopsoiled at a depth of 6 inches, and revegetated with a drought-tolerant native grass seed mixture. Existing haul roads will remain after reclamation for continued access to ponds and property maintenance.

The operator maintains a valid Substitute Water Supply Plan (SWSP) for the site through the Division of Water Resources. The current (amended) SWSP for the site, dated October 22, 2019, covers the period of October 22, 2019 through July 31, 2021. This SWSP states the original site consisted of 20 gravel pits, five of which were completed prior to 1981, seven that are augmented under Case No. W-7412, four that have been backfilled, two that have been lined and decreed for storage, and five unlined pits that are partially augmented under Case No. 00CW142. Pit 21 (added in AM-3) is not included as an augmented structure in Case No. 00CW142. Depletions resulting from evaporation and on-going production at five of the pits will continue to be replaced by the augmentation plan decreed in Case No. 00CW142. Additional depletions that result from the discontinuation of dewatering at pit 20 and from the "first fill" of pit 20 through groundwater infiltration or delivery of out-of-priority surface water diversions are covered by the August 5, 2019 SWSP. The amended SWSP includes additional depletions that will result from dewatering of pit 21, and from water consumed in mining operations at pit 20. The site operates under a total of three well permits. The Division estimates (based on aerial imagery from July 17, 2019) current ponded water on site to consist of approximately 47 acres, of which, approximately 16 acres of ponded water lies in the lined cells 1 and 2. It appears the operation is in compliance with DWR with respect to the amount of exposed groundwater and water uses that occur at the site.

At the time of the inspection, a permit sign was posted at the main site entrance off of Namaqua Ave. The permit boundary was delineated with a combination of fencing and metal or wooden posts. The site was active during the inspection, primarily in the industrial/commercial area, where material processing was occurring. The operator also leases out portions of this area for staging and equipment storage. Several workers, trucks, and pieces of equipment were observed in these areas during the inspection. No mining was occurring on site during the inspection. The operation has completed mining cell 20. The slopes of cell 20 have been graded to 3H:1V and the pit was filled with water. According to the approved reclamation plan, a portion of this pit will be backfilled to leave only a 4 acre pond.

The operation is beginning to strip the northeastern portion of cell 21 to create the required visual berm. Mining is expected to commence in cell 21 later this year. Lined cells 1 and 2 located directly west of the batch plant area have been reclaimed with 3H:1V or flatter slopes and vegetative cover consisting of grasses and trees. A small pit approximately 1 acre in size and approximately 10 feet deep was present between cells 5 and 6, and had some ponded water. Mrs. Fancher indicated this is a test pit which will be backfilled soon. Cells 5 and 6 are partially backfilled groundwater ponds with vegetative cover along their northern, western, and eastern edges. According to the approved reclamation plan, these ponds will require additional backfilling to leave the 2 and 1 acre groundwater ponds specified. An area south of cell 5 (approximately 2.7 acres in size) consists of bare

ground which will require retopsoiling and revegetating for final reclamation.

North of the river, cells 8, 18, and 19 have been backfilled and are undergoing revegetation. Cell 14 is partially backfilled along its southwestern edge, and will continue being backfilled (generally south to north) with inert materials per the approved reclamation plan. Several material stockpiles were stored at the southern edge of cell 14 to be backfilled into this cell. A channel dug at the eastern edge of cell 14 connects this cell to the cell 7 unlined groundwater pond. Cell 7 has been reclaimed with 3H:1V or flatter slopes and vegetative cover consisting of grasses, shrubs, and trees. The Division observed the northern river bank (south of cell 19) which was restabilized, seeded, and irrigated by the Big Thompson Watershed Coalition after the September 2013 flooding. According to the operator, this project was completed in early 2019.

The city has recently completed a road widening project along Wilson Ave, creating a small paved parking lot and a concrete walkway along the eastern edge of the permit area. A wooden fence was constructed along the western edge of these features. The operator indicated an Acreage Reduction request would be submitted to remove these features from the mine permit. If the Acreage Reduction request (see enclosed form) is submitted within 60 days of the date of this inspection, an additional inspection will not be necessary. The operator will also need to submit an executed structure agreement with the city for any new structures constructed on or within 200 feet of the approved permit area.

The Division currently holds a financial warranty for the site in the amount of $546,800.00. 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 backfilling portions of cells 5, 6, 14, and 20 (to leave the pond size specified in the reclamation plan), backfilling a one acre pit located between cells 5 and 6, retopsoiling and revegetating backfilled areas, interseeding cells 8, 18, 19, and the southern shoreline of cell 7, ripping, retopsoiling, and revegetating an area located south of cell 5 (outside of the industrial/commercial designated area), and costs for reclaiming cell 21 (added in AM-3), including installing the shalestone liner, grading, retopsoiling, and revegetating this cell.

The Division estimates the required financial warranty for the site to be in the amount of $2,410,332.00, which is $1,863,532.00 more than the currently held financial warranty. Therefore, a problem is cited in this report (see page 1) 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.

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.

PHOTOGRAPHS

Photo 1. View looking east at concrete batch plant in industrial/commercial area south of the river.

Photo 2. View looking east across industrial/commercial area south of the river.

Photo 3. View looking north across industrial/commercial area south of the river.

Photo 4. View looking northeast at material processing plant in industrial/commercial area south of the river.

Photo 5. View looking north across eastern portion of industrial/commercial area leased out for staging and equipment storage.

Photo 6. View looking north across eastern portion of industrial/commercial area leased out for staging and equipment storage.

Photo 7. View looking northwest across reclaimed cell 1 located west of industrial/commercial area.

Photo 8. View looking southeast across reclaimed cell 1 located west of industrial/commercial area.

Photo 9. View looking south across most recently mined cell 20 located in southern portion of permit area.

Photo 10. View looking southwest across eastern shoreline of cell 20, showing slopes graded 3H:1V or flatter.

Photo 11. View looking southeast across northeastern corner of cell 21 which operation is stripping to create required visual berm along its eastern and southern edges prior to mining.

Photo 12. View looking south across undisturbed cell 21 area to be mined next.

Photo 13. View looking north across bare ground area located south of cell 5 (outside industrial/commercial area).

Photo 14. View looking northeast across small pit located south of (and between) cells 5 and 6, approximately 10 feet in depth.

Photo 15. View looking northeast showing material stockpiled along southwestern edge of cell 14, located north of river.

Photo 16. View looking east across backfilled southwestern portion of cell 14.

Photo 17. View looking southeast across cell 14 from its northwestern corner, showing backfill (in background) advancing northward.

Photo 18. View looking northwest across northern river bank, showing erosion blanket, straw wattles, and irrigation pipeline (at right) installed by Big Thompson Watershed Coalition as part of river restoration project completed after September 2013 flooding.

Photo 19. View looking west across southern portion of cell 19, which was reclaimed many years ago, but is undergoing revegetation efforts after being redisturbed by the September 2013 flooding.

Photo 20. View looking west across cell 18 which was also impacted by the September 2013 flooding, and is undergoing revegetation efforts.

Photo 21. View looking south across cell 8 area which is undergoing revegetation efforts.

Photo 22. View looking west across reclaimed eastern edge of permit area, east of cell 7, north of river.

Photo 23. View looking northwest across reclaimed cell 7 groundwater pond.

Photo 24. View looking southwest across reclaimed cell 7 groundwater pond.

Photo 25. View looking northeast showing small paved parking lot and wooden fence constructed by city along eastern edge of permit area, north of river.

Photo 26. View looking southeast showing concrete walkway and wooden fence constructed by city along eastern edge of permit area, north of river.

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---------- Y	**(BG) BACKFILL & GRADING---------- Y**	**(EX) EXPLOSIVES--------- N**
(PW) PROCESSING WASTE/TAILING---- Y	**(SF) PROCESSING FACILITIES------- Y**	**(TS) TOPSOIL---------- Y**
(MP) GENL MINE PLAN COMPLIANCE- Y	**(FW) FISH & WILDLIFE---------- N**	**(RV) REVEGETATION---- Y**
(SM) SIGNS AND MARKERS---------- Y	**(SP) STORM WATER MGT PLAN---- Y**	**(RS) RECL PLAN/COMP-- Y**
(ES) OVERBURDEN/DEV. WASTE--------- N	**(SC) EROSION/SEDIMENTATION--- Y**	**(ST) STIPULATIONS------- N**
(AT) ACID OR TOXIC MATERIALS------- N	**(OD) OFF-SITE DAMAGE----------N**	

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

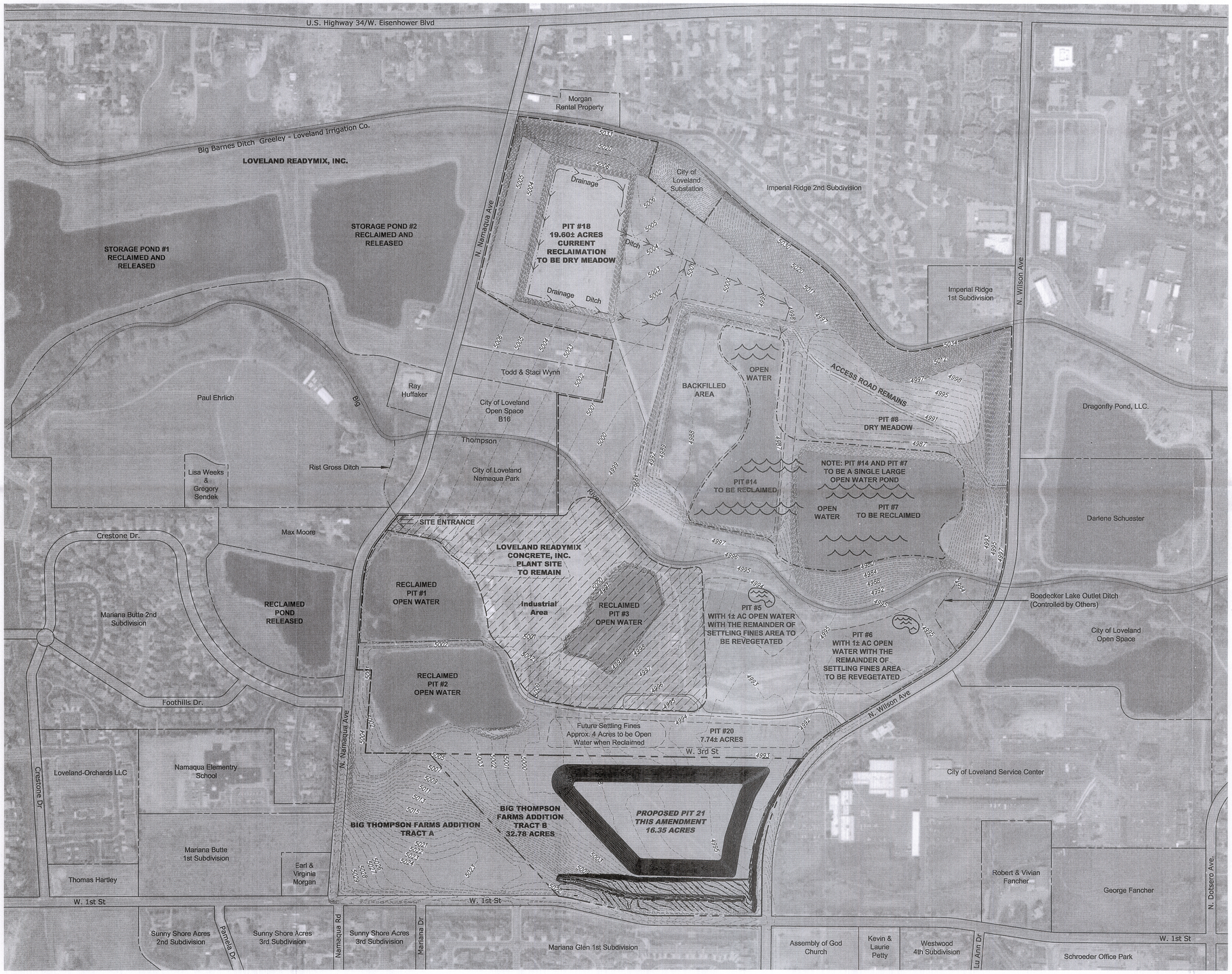
Inspection Contact Address
Stephanie Fancher
Loveland Ready-Mix Concrete, Inc.
P.O. Box 299
Loveland, CO 80537

Encls: Google Earth image of site
Reclamation plan map
Acreage Reduction form
Division's bond estimate

CC: Brad Fancher, Loveland Ready-Mix Concrete, Inc.
Michael Cunningham, DRMS

M-1974-069 / Larimer Pit / Loveland Ready-Mix Concrete, Inc. (112c)

Red Outline = 224.25 acres = Approved Permit Area (location approximated based on approved permit maps)
Orange Outline = 33 acres = Industrial/Commercial Area (batch plant, material processing plant, office buildings, scale, and material/equipment storage)
(Image data from 7/17/2019)



RECEIVED
JAN 21 2016
DIVISION OF RECLAMATION MINING AND SAFETY

Note: Reclaimed areas, excluding Industrial/Plant Area and Open Water area to be seeded with approved dry land grass mix.

Legend

- Mining Permit Boundary - Proposed Addition
- Mining Permit Boundary - Existing
- Pit Boundary
- Haul Road
- Lot Line
- Roadway
- Waterway

Current Mining Permit M1974-069

Area:	224.25 AC
Area of Ammendment - Pit 21	32.78 AC
Total Area of Ammended Pit	257.03 AC

GRAPHIC SCALE
300 0 150 300 600
(IN FEET)
1 inch = 300 ft.

REVISIONS

Description	By	Date

Landmark Engineering
Engineers Planners Surveyors Geotechnical
3521 West Eisenhower Blvd., Loveland, Colorado 80537
(970) 667-6286 • Toll Free 1-866-379-6252 • Fax (970) 667-6298
www.landmarkltd.com

DATE: DEC. 14, 2015
SCALE: 1"=300'
DRAWN: BRW
DESIGNED: RAH
APPROVED: RAH

CLIENT: LOVELAND READY MIX CONCRETE, INC.

TITLE: LARIMER PITS – PERMIT M1974-069-AM03
EXHIBIT F-1 – ENTIRE PERMIT RECLAMATION MAP
DIVISION OF RECLAMATION MINING & SAFETY

JOB NO.: LOVREA
2F6B-57-330

SHEET F1 OF F2

F:\Projects\LOVELAND-READYMIX\Civil\Drawings\SHT-EXHIBIT C.dwg, Layout2, 01/14/16 3:42:10PM, bethany

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

1313 Sherman Street, Room 215
Denver, CO 80203

REQUEST FOR FULL OR PARTIAL RELEASE OF PERMIT AREA/SURETY REDUCTION

Please indicate if you are requesting:

FULL/FINAL RELEASE OF ENTIRE PERMITTED AREA (per Rule 4.17) ☐

ACREAGE REDUCTION (PARTIAL RELEASE per Rule 4.17) ☐

I wish to release _____ acres at this time.

You will need to submit with this request: a map showing the acreage to be released from the current permit and updated mining and reclamation plan maps that will accurately depict the new permit boundary if the release is approved.

SURETY (Bond) REDUCTION (per Rule 4.14) ☐

If you are requesting a surety (bond) reduction you will need to include with this request a new estimate of the actual cost to reclaim the site based on what it would cost an independent contractor to complete reclamation, including unit costs for reclamation activities as appropriate to the operation to comply with the provisions of Rule 3.1 and the Permit's approved Reclamation Plan.

File No.: M _____ Site Name: _____

County: _____

Permittee: _____

Permittee Address: _____
(Street Address)

_____ _____ _____
(City) (State) (Zip)

Operator (If Other than Permittee): _____

Permittee Representative: _____

Certified Mail # _____

In accordance with Rule 4.17.1(2) the Operator shall include the names, addresses and phone numbers of all owners of record to the affected land. Please attach additional sheets for this information if required.

Name	**Address**	**Phone Number**

In accordance with Rule 4.17.1(4), if requesting a partial acreage release the Operator or their agent MUST sign that they have complied with the following statement: "All applicable portions of the Reclamation Plan requirements have been satisfied in accordance with these Rules and all applicable requirements under the Act."

_____ _____

Signature of Permittee, Operator or their authorized agent Date

Important: In accordance with Rules 4.14.2(a) and 4.17.1(3) This release request must be submitted to the Division via certified mail and separate from any other correspondence to the Division.

COST SUMMARY WORK

Task description: **Cost Summary**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-000
User: AME

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Backfill 4 acres Cell 14	TRUCK1	1	504.37	$355,754
002	Grade Cell 14 backfill area	DOZER	1	8.59	$1,942
003	Retopsoil Cell 14 backfill area	SCRAPER1	1	9.60	$12,097
004	Revegetate Cell 14 backfill area	REVEGE	1	11.60	$26,706
005	Interseed Cell 18	REVEGE	1	29.00	$28,093
006	Interseed Cell 19	REVEGE	1	2.60	$5,037
007	Revegetate Cell 8	REVEGE	1	15.00	$35,713
008	Revegetate Cell 7 southern shoreline	REVEGE	1	2.50	$5,378
009	Backfill 1 acre Cell 5	TRUCK1	1	114.46	$80,732
010	Retopsoil Cell 5 backfill area	SCRAPER1	1	0.93	$1,172
011	Revegetate Cell 5 backfill area	REVEGE	1	3.80	$8,174
012	Backfill 1 acre Cell 6	TRUCK1	1	129.99	$91,686
013	Retopsoil Cell 6 backfill area	SCRAPER1	1	1.11	$1,398
014	Revegetate Cell 6 backfill area	REVEGE	1	3.65	$7,851
015	Backfill 1 acre pit south of Cell 6	TRUCK1	1	82.22	$57,992
016	Retopsoil 1.35 acre pit area south of Cell 6	SCRAPER1	1	1.39	$1,754
017	Revegetate 1.35 acre pit area south of Cell 6	REVEGE	1	1.35	$2,904
018	Rip 2.7 acre storage area south of Cell 5	RIPPER	1	4.34	$1,065
019	Retopsoil 2.7 acre storage area south of Cell 5	SCRAPER1	1	2.51	$3,162
020	Revegetate 2.7 acre storage area south of Cell 5	REVEGE	1	2.70	$5,808
021	Backfill 11 acres Cell 20	TRUCK1	1	1,210.36	$853,731
022	Retopsoil 11 acres Cell 20	SCRAPER1	1	9.67	$12,176
023	Revegetate 11 acres Cell 20	REVEGE	1	11.00	$25,325
024	Backfill Cell 21 overburden (from AM-3)	SCRAPER1	1	35.04	$27,486
025	Shalestone lining Cell 21 (from AM-3)	SCRAPER1	1	6.37	$4,997
026	Retopsoil Cell 21 (from AM-3)	SCRAPER1	1	1.58	$1,243
027	Final grading Cell 21 (from AM-3)	GRADER	1	13.86	$2,837
028	Revegetate 28 acres Cell 21 (from AM-3)	REVEGE	1	28.00	$62,968
029	Compact/QC OB Lining Cell 21 - 55,000cy (from AM-3)	NA	1	16.00	$165,000
030	Mobilization/Demobilization	MOBILIZE	1	18.24	$50,823
		SUBTOTALS:		**2281.83**	**$1,941,004**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$39,208
Performance bond:	1.05	Total =	$20,381
Job superintendent:	160.00	Total =	$11,102
Profit:	10.00	Total =	$194,100
		TOTAL O & P =	$264,792
		CONTRACT AMOUNT (direct + O & P) =	$2,205,796

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	$500	Total =	$500
Engineering work and/or contract/bid preparation:	4.25	Total =	$93,746
Reclamation management and/or administration:	5.00		$110,290
CONTINGENCY:	0.00	Total =	$0
		TOTAL INDIRECT COST =	$469,328
		TOTAL BOND AMOUNT (direct + indirect) =	**$2,410,332**

TRUCK/LOADER TEAM WORK

Task description: **Backfill 4 acres Cell 14**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 001 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-001
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 730
-Loader:	CAT 966H
Support Equipment -Load Area:	NA
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	75	100	100
Ownership cost/hour:	$58.61	$41.17	NA	$103.86	$82.71	$13.51
Operating cost/hour:	$48.24	$50.45	NA	$61.70	$70.09	$28.95
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Operator cost/hour:	$24.79	$35.93	NA	$39.98	$45.39	$0.00
Unit Subtotals:	$131.63	$127.54	NA	$205.54	$198.18	$42.46
Number of Units:	1	1	0	1	1	1
Group Subtotals:	Work:	$259.17	Support:	$205.54	Maint:	$240.64

Total work team cost/hour: **$705.35**

MATERIAL QUANTITIES

Initial volume: 96,800 CCY Swell factor: 1.165
Loose volume: **112,772** LCY

Source of estimated volume: 4 ac x 15 ft h
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight: 2,900 Pounds/LCY
Description: Decomposed rock - 50% Rock, 50% Earth
Rated Payload: 62,000 Pounds

Payload Capacity: 21.38 LCY

Truck Bed (volume) Basis:

Struck Volume:	17.10	LCY
Heaped Volume:	22.10	LCY
Average Volume:	19.60	LCY
Adjusted Volume:	21.38	LCY

Final Truck Volume Based on Number of Loader Passes: **16.50** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	**5.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 5000 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.830**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 3 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Mixed material 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 0.00	0.000	(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:	-0.060	minutes
	Adjusted Loader Cycle Time:	**0.440**	minutes
	Net Load Time per Truck:	**0.980**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	0.980	Minutes	Adjusted for site altitude:	0.980	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time: maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	850.00	1.00	3.00	4.00	1774	0.669

Haul Time: **0.669** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	850.00	-1.00	3.00	2.00	3040	0.426

Return Time: **0.426** minutes
Total Truck Cycle Time: **3.675** minutes

Loading Tool unit Production 626.58 LCY/Hour Adjusted for job efficiency: 520.06 LCY/Hour

Truck Unit Production 269.39 LCY/Hour Adjusted for job efficiency: 223.59 LCY/Hour

Optimal No. of Trucks: 2 Truck(s) Selected Number of Trucks: 1 Truck(s)

Adjusted hourly truck team production: 223.59 LCY/Hour
Adjusted single truck/loader team production: 223.59 LCY/Hour
Adjusted multiple truck/loader team production: **223.59** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **504.37** Hours

Unit cost: $3.155 /LCY Total job cost: **$355,754**

BULLDOZER WORK

Task description: **Grade Cell 14 backfill area**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 002 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-002
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:

		Utilization %
Ownership Cost/Hour:	$103.86	NA
Operating Cost/Hour:	$82.26	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$39.98	NA

Total unit Cost/Hour: $226.10
Total Fleet Cost/Hour: **$226.10**

MATERIAL QUANTITIES

Initial Volume: 10,000
Swell factor: 1.165
Loose volume: **11,650** LCY

Source of estimated volume: Backfilled eastern slope = 1,200 ft L x 15 ft H
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: Partly consolidated stockpile 1.1

Average push gradient: -5 %
Average site altitude: 5,000 feet

Material weight: 2,900 lbs/LCY

Weight description: Decomposed rock - 50% Rock, 50% Earth

Job Condition Correction Factor Source

Operator Skill:	1.000	(EXCL.)
Material consistency:	1.100	(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:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.9687

Adjusted unit production: 1,356.18 LCY/hr

Adjusted fleet production: **1356.18** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.167/LCY

Total job time: **8.59** Hours
Total job cost: **$1,942**

SCRAPER TEAM WORK

Task description: **Retopsoil Cell 14 backfill area**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 003 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-003
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 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:	$162.02	NA	NA	$103.86	$82.71	$13.51
Operating cost/hour:	$184.64	NA	NA	$82.26	$70.09	$28.95
%Utilization-ripper:	NA	NA	NA	NA	100	NA
Ripper own. cost/hour:	NA	NA	NA	$0.00	$4.44	$0.00
Ripper op. cost/hour:	NA	NA	NA	$0.00	$3.92	$0.00
Operator cost/hour:	$45.58	NA	NA	$39.98	$45.39	$0.00
Unit Subtotals:	$392.24	NA	NA	$226.10	$206.54	$42.46
Number of Units:	2	0	0	1	1	1
Group Subtotals:	Work:	$784.48	Support:	$226.10	Maint:	$249.00

Total work team cost/hour: **$1,259.58**

MATERIAL QUANTITIES

Initial volume: 9,357 CCY Swell factor: 1.215
Loose volume: **11,369** LCY

Source of estimated volume: 11.6 ac x 6 in depth
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: 0.60 Minutes

Job Condition Correction: Site Altitude: 5000 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	1000.00	1.00	3.00	4.00	2394	0.58

Haul Time: **0.58** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	-1.00	3.00	2.00	2960	0.46

Return Time: **0.46** minutes

Total Scraper team cycle time: **2.44** minutes
Adjusted for job conditions: 591.89 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 1,183.77 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **1,183.77** LCY/Hour

Unadjusted unit production/hour: 713.11 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **9.60** Hours

Unit cost: $1.064 /LCY Total job cost: **$12,097**

REVEGETATION WORK

Task description: **Revegetate Cell 14 backfill area**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 004 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-004
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
Chisel plowing {DMG}	$94.63
Total Tilling Cost/Acre	**$94.63**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	1.00	16.32	$15.98
Indian Ricegrass - Nespar	1.00	3.24	$8.88
Blue Wildrye - Arlington or Elkton	1.00	3.44	$6.66
Little Bluestem - Cimarron	1.00	5.97	$12.48
Sandberg Bluegrass - VNS	1.00	21.24	$8.40
Slender Wheatgrass - Pryor	1.00	3.65	$4.25
Needle and Thread	1.00	2.64	$41.85
Needlegrass, Green - Lodorm	1.00	4.16	$11.78
Prairie Junegrass	1.00	53.15	$26.00

Totals Seed Mix	9.00	113.81	**$136.27**

Application

Description	**Cost /Acre**
Hydro seeding (MEANS 32 92 19.14 0200)	$947.43
Total Seed Application Cost/Acre	**$947.43**

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
Total Mulch Materials Cost/Acre				**$590.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$70.17
Weed spray, truck, aquatic area, annuals [DMG]	$27.30
Weed spray, truck, aquatic area, nox. [DMG]	$68.50
Total Mulch Application Cost/Acre	**$165.97**

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: 11.6 Cost /Acre: $1,934.30
Estimated Failure Rate: 20% Cost /Acre*: $1,839.67
*Selected Replanting Work Items: SEEDING,MULCHING

Initial Job Cost: **$22,437.88**
Reseeding Job Cost: **$4,268.03**
Total Job Cost: **$26,706**
Job Hours: **11.60**

REVEGETATION WORK

Task description: **Interseed Cell 18**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 005 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-005
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)	$193.60
Total Tilling Cost/Acre	**$193.60**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	1.00	16.32	$15.98
Indian Ricegrass - Nespar	1.00	3.24	$8.88
Blue Wildrye - Arlington or Elkton	1.00	3.44	$6.66
Little Bluestem - Cimarron	1.00	5.97	$12.48
Sandberg Bluegrass - VNS	1.00	21.24	$8.40
Slender Wheatgrass - Pryor	1.00	3.65	$4.25
Needle and Thread	1.00	2.64	$41.85
Needlegrass, Green - Lodorm	1.00	4.16	$11.78
Prairie Junegrass	1.00	53.15	$26.00

Totals Seed Mix	9.00	113.81	**$136.27**

Application

Description	**Cost /Acre**
Hydro seeding (MEANS 32 92 19.14 0200)	$947.43
Total Seed Application Cost/Acre	**$947.43**

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: 14.5
Estimated Failure Rate: 0%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,277.30
Cost /Acre*: $1,083.70

Initial Job Cost: **$18,520.85**
Reseeding Job Cost: **$0.00**
Total Job Cost: **$18,521**
Job Hours: **14.50**

REVEGETATION WORK

Task description: **Interseed Cell 19**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 006 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-006
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)	$193.60
Total Tilling Cost/Acre	**$193.60**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	1.00	16.32	$15.98
Indian Ricegrass - Nespar	1.00	3.24	$8.88
Blue Wildrye - Arlington or Elkton	1.00	3.44	$6.66
Little Bluestem - Cimarron	1.00	5.97	$12.48
Sandberg Bluegrass - VNS	1.00	21.24	$8.40
Slender Wheatgrass - Pryor	1.00	3.65	$4.25
Needle and Thread	1.00	2.64	$41.85
Needlegrass, Green - Lodorm	1.00	4.16	$11.78
Prairie Junegrass	1.00	53.15	$26.00

Totals Seed Mix	9.00	113.81	**$136.27**

Application

Description	**Cost /Acre**
Hydro seeding (MEANS 32 92 19.14 0200)	$947.43
Total Seed Application Cost/Acre	**$947.43**

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: 2.6
Estimated Failure Rate: 0%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,277.30
Cost /Acre*: $1,083.70

Initial Job Cost: **$3,320.98**
Reseeding Job Cost: **$0.00**
Total Job Cost: **$3,321**
Job Hours: **2.60**

REVEGETATION WORK

Task description: **Revegetate Cell 8**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 007 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-007
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
Chisel plowing {DMG}	$94.63
Weed control spraying (MEANS 31 31 16.13 3100)	$193.60
Total Tilling Cost/Acre	**$288.23**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	1.00	16.32	$15.98
Indian Ricegrass - Nespar	1.00	3.24	$8.88
Blue Wildrye - Arlington or Elkton	1.00	3.44	$6.66
Little Bluestem - Cimarron	1.00	5.97	$12.48
Sandberg Bluegrass - VNS	1.00	21.24	$8.40
Slender Wheatgrass - Pryor	1.00	3.65	$4.25
Needle and Thread	1.00	2.64	$41.85
Needlegrass, Green - Lodorm	1.00	4.16	$11.78
Prairie Junegrass	1.00	53.15	$26.00

Totals Seed Mix	9.00	113.81	**$136.27**

Application

Description	**Cost /Acre**
Hydro seeding (MEANS 32 92 19.14 0200)	$947.43
Total Seed Application Cost/Acre	**$947.43**

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
Total Mulch Materials Cost/Acre				**$590.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$70.17
Total Mulch Application Cost/Acre	**$70.17**

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: 15 Cost /Acre: $2,032.10
Estimated Failure Rate: 20% Cost /Acre*: $1,743.87
*Selected Replanting Work Items: SEEDING,MULCHING

Initial Job Cost: **$30,481.50**
Reseeding Job Cost: **$5,231.61**
Total Job Cost: **$35,713**
Job Hours: **15.00**

REVEGETATION WORK

Task description: **Revegetate Cell 7 southern shoreline**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 008 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-008
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)	$193.60
Total Tilling Cost/Acre	**$193.60**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	1.00	16.32	$15.98
Indian Ricegrass - Nespar	1.00	3.24	$8.88
Blue Wildrye - Arlington or Elkton	1.00	3.44	$6.66
Little Bluestem - Cimarron	1.00	5.97	$12.48
Sandberg Bluegrass - VNS	1.00	21.24	$8.40
Slender Wheatgrass - Pryor	1.00	3.65	$4.25
Needle and Thread	1.00	2.64	$41.85
Needlegrass, Green - Lodorm	1.00	4.16	$11.78
Prairie Junegrass	1.00	53.15	$26.00

Totals Seed Mix	9.00	113.81	**$136.27**

Application

Description	**Cost /Acre**
Hydro seeding (MEANS 32 92 19.14 0200)	$947.43
Total Seed Application Cost/Acre	**$947.43**

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
Total Mulch Materials Cost/Acre				**$590.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$70.17
Total Mulch Application Cost/Acre	**$70.17**

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: 2.5
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,937.47
Cost /Acre*: $1,083.70

Initial Job Cost: **$4,843.68**
Reseeding Job Cost: **$541.85**
Total Job Cost: **$5,386**
Job Hours: **2.50**

TRUCK/LOADER TEAM WORK

Task description: **Backfill 1 acre Cell 5**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 009 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-009
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 730
-Loader:	CAT 966H
Support Equipment -Load Area:	NA
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	75	100	100
Ownership cost/hour:	$58.61	$41.17	NA	$103.86	$82.71	$13.51
Operating cost/hour:	$48.24	$50.45	NA	$61.70	$70.09	$28.95
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Operator cost/hour:	$24.79	$35.93	NA	$39.98	$45.39	$0.00
Unit Subtotals:	$131.63	$127.54	NA	$205.54	$198.18	$42.46
Number of Units:	1	1	0	1	1	1
Group Subtotals:	Work:	$259.17	Support:	$205.54	Maint:	$240.64

Total work team cost/hour: **$705.35**

MATERIAL QUANTITIES

Initial volume: 24,200 CCY Swell factor: 1.125
Loose volume: **27,225** LCY

Source of estimated volume: 1 ac x 15 ft (leave 2 ac pond per rec plan)
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight: 2,650 Pounds/LCY
Description: Decomposed rock - 25% Rock, 75% Earth
Rated Payload: 62,000 Pounds

Payload Capacity: 23.40 LCY

Truck Bed (volume) Basis:

Struck Volume:	17.10	LCY
Heaped Volume:	22.10	LCY
Average Volume:	19.60	LCY
Adjusted Volume:	22.10	LCY

Final Truck Volume Based on Number of Loader Passes: **22.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	**5.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 5000 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.830**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 4 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Material up to 1/8" diameter 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 0.00	0.000	(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:	-0.060	minutes
	Adjusted Loader Cycle Time:	**0.440**	minutes
	Net Load Time per Truck:	**1.420**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.420	Minutes	Adjusted for site altitude:	1.420	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time: maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1400.00	1.00	3.00	4.00	1774	0.979

Haul Time: **0.979** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1400.00	-1.00	3.00	2.00	3040	0.607

Return Time: **0.607** minutes
Total Truck Cycle Time: **4.606** minutes

Loading Tool unit Production 653.47 LCY/Hour Adjusted for job efficiency: 542.38 LCY/Hour

Truck Unit Production 286.58 LCY/Hour Adjusted for job efficiency: 237.86 LCY/Hour

Optimal No. of Trucks: 2 Truck(s) Selected Number of Trucks: 1 Truck(s)

Adjusted hourly truck team production: 237.86 LCY/Hour
Adjusted single truck/loader team production: 237.86 LCY/Hour
Adjusted multiple truck/loader team production: **237.86** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **114.46** Hours

Unit cost: $2.965 /LCY Total job cost: **$80,732**

SCRAPER TEAM WORK

Task description: **Retopsoil Cell 5 backfill area**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 010 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-010
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 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:	$162.02	NA	NA	$103.86	$82.71	$13.51
Operating cost/hour:	$184.64	NA	NA	$82.26	$70.09	$28.95
%Utilization-ripper:	NA	NA	NA	NA	100	NA
Ripper own. cost/hour:	NA	NA	NA	$0.00	$4.44	$0.00
Ripper op. cost/hour:	NA	NA	NA	$0.00	$3.92	$0.00
Operator cost/hour:	$45.58	NA	NA	$39.98	$45.39	$0.00
Unit Subtotals:	$392.24	NA	NA	$226.10	$206.54	$42.46
Number of Units:	2	0	0	1	1	1
Group Subtotals:	Work:	$784.48	Support:	$226.10	Maint:	$249.00

Total work team cost/hour: **$1,259.58**

MATERIAL QUANTITIES

Initial volume: 807 CCY Swell factor: 1.215
Loose volume: **981** LCY

Source of estimated volume: 1 ac x 6 in depth
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: 0.60 Minutes

Job Condition Correction: Site Altitude: 5000 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	1400.00	1.00	3.00	4.00	2394	0.74

Haul Time: **0.74** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1400.00	-1.00	3.00	2.00	2960	0.60

Return Time: **0.60** minutes

Total Scraper team cycle time: **2.74** minutes
Adjusted for job conditions: 527.08 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 1,054.16 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **1,054.16** LCY/Hour

Unadjusted unit production/hour: 635.04 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **0.93** Hours

Unit cost: $1.195 /LCY Total job cost: **$1,172**

REVEGETATION WORK

Task description: **Revegetate Cell 5 backfill area**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 011 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-011
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
Chisel plowing {DMG}	$94.63
Weed control spraying (MEANS 31 31 16.13 3100)	$193.60
Total Tilling Cost/Acre	**$288.23**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	1.00	16.32	$15.98
Indian Ricegrass - Nespar	1.00	3.24	$8.88
Blue Wildrye - Arlington or Elkton	1.00	3.44	$6.66
Little Bluestem - Cimarron	1.00	5.97	$12.48
Sandberg Bluegrass - VNS	1.00	21.24	$8.40
Slender Wheatgrass - Pryor	1.00	3.65	$4.25
Needle and Thread	1.00	2.64	$41.85
Needlegrass, Green - Lodorm	1.00	4.16	$11.78
Prairie Junegrass	1.00	53.15	$26.00

Totals Seed Mix	9.00	113.81	**$136.27**

Application

Description	**Cost /Acre**
Hydro seeding (MEANS 32 92 19.14 0200)	$947.43
Total Seed Application Cost/Acre	**$947.43**

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
Total Mulch Materials Cost/Acre				**$590.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$70.17
Total Mulch Application Cost/Acre	**$70.17**

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: 3.8
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $2,032.10
Cost /Acre*: $1,083.70

Initial Job Cost: **$7,721.98**
Reseeding Job Cost: **$823.61**
Total Job Cost: **$8,546**
Job Hours: **3.80**

TRUCK/LOADER TEAM WORK

Task description: **Backfill 1 acre Cell 6**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 012 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-012
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 730
-Loader:	CAT 966H
Support Equipment -Load Area:	NA
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	75	100	100
Ownership cost/hour:	$58.61	$41.17	NA	$103.86	$82.71	$13.51
Operating cost/hour:	$48.24	$50.45	NA	$61.70	$70.09	$28.95
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Operator cost/hour:	$24.79	$35.93	NA	$39.98	$45.39	$0.00
Unit Subtotals:	$131.63	$127.54	NA	$205.54	$198.18	$42.46
Number of Units:	1	1	0	1	1	1
Group Subtotals:	Work:	$259.17	Support:	$205.54	Maint:	$240.64

Total work team cost/hour: **$705.35**

MATERIAL QUANTITIES

Initial volume: 24,200 CCY Swell factor: 1.125
Loose volume: **27,225** LCY

Source of estimated volume: 1 ac x 15 ft (leave 1 acre pond per rec plan)
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight: 2,650 Pounds/LCY
Description: Decomposed rock - 25% Rock, 75% Earth
Rated Payload: 62,000 Pounds

Payload Capacity: 23.40 LCY

Truck Bed (volume) Basis:

Struck Volume:	17.10	LCY
Heaped Volume:	22.10	LCY
Average Volume:	19.60	LCY
Adjusted Volume:	22.10	LCY

Final Truck Volume Based on Number of Loader Passes: **22.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	**5.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 5000 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.830**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 4 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Material up to 1/8" diameter 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 0.00	0.000	(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:	-0.060	minutes
	Adjusted Loader Cycle Time:	**0.440**	minutes
	Net Load Time per Truck:	**1.420**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.420	Minutes	Adjusted for site altitude:	1.420	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time: maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2100.00	1.00	3.00	4.00	1774	1.373

Haul Time: **1.373** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2100.00	-1.00	3.00	2.00	3040	0.838

Return Time: **0.838** minutes
Total Truck Cycle Time: **5.231** minutes

Loading Tool unit Production 653.47 LCY/Hour Adjusted for job efficiency: 542.38 LCY/Hour

Truck Unit Production 252.34 LCY/Hour Adjusted for job efficiency: 209.44 LCY/Hour

Optimal No. of Trucks: 3 Truck(s) Selected Number of Trucks: 1 Truck(s)

Adjusted hourly truck team production: 209.44 LCY/Hour
Adjusted single truck/loader team production: 209.44 LCY/Hour
Adjusted multiple truck/loader team production: **209.44** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **129.99** Hours

Unit cost: $3.368 /LCY Total job cost: **$91,686**

SCRAPER TEAM WORK

Task description: **Retopsoil Cell 6 backfill area**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 013 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-013
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 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:	$162.02	NA	NA	$103.86	$82.71	$13.51
Operating cost/hour:	$184.64	NA	NA	$82.26	$70.09	$28.95
%Utilization-ripper:	NA	NA	NA	NA	100	NA
Ripper own. cost/hour:	NA	NA	NA	$0.00	$4.44	$0.00
Ripper op. cost/hour:	NA	NA	NA	$0.00	$3.92	$0.00
Operator cost/hour:	$45.58	NA	NA	$39.98	$45.39	$0.00
Unit Subtotals:	$392.24	NA	NA	$226.10	$206.54	$42.46
Number of Units:	2	0	0	1	1	1
Group Subtotals:	Work:	$784.48	Support:	$226.10	Maint:	$249.00

Total work team cost/hour: **$1,259.58**

MATERIAL QUANTITIES

Initial volume: 807 CCY Swell factor: 1.215
Loose volume: **981** LCY

Source of estimated volume: 1 ac x 6 in depth
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: 0.60 Minutes

Job Condition Correction: Site Altitude: 5000 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	2100.00	1.00	3.00	4.00	2394	1.04

Haul Time: **1.04** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2100.00	-1.00	3.00	2.00	2960	0.83

Return Time: **0.83** minutes

Total Scraper team cycle time: **3.27** minutes
Adjusted for job conditions: 441.65 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 883.30 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **883.30** LCY/Hour

Unadjusted unit production/hour: 532.11 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **1.11** Hours

Unit cost: $1.426 /LCY Total job cost: **$1,398**

REVEGETATION WORK

Task description: **Revegetate Cell 6 backfill area**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 014 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-014
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
Chisel plowing {DMG}	$94.63
Weed control spraying (MEANS 31 31 16.13 3100)	$193.60
Total Tilling Cost/Acre	**$288.23**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	1.00	16.32	$15.98
Indian Ricegrass - Nespar	1.00	3.24	$8.88
Blue Wildrye - Arlington or Elkton	1.00	3.44	$6.66
Little Bluestem - Cimarron	1.00	5.97	$12.48
Sandberg Bluegrass - VNS	1.00	21.24	$8.40
Slender Wheatgrass - Pryor	1.00	3.65	$4.25
Needle and Thread	1.00	2.64	$41.85
Needlegrass, Green - Lodorm	1.00	4.16	$11.78
Prairie Junegrass	1.00	53.15	$26.00

Totals Seed Mix	9.00	113.81	**$136.27**

Application

Description	**Cost /Acre**
Hydro seeding (MEANS 32 92 19.14 0200)	$947.43
Total Seed Application Cost/Acre	**$947.43**

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
Total Mulch Materials Cost/Acre				**$590.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$70.17
Total Mulch Application Cost/Acre	**$70.17**

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: 3.65
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $2,032.10
Cost /Acre*: $1,083.70

Initial Job Cost: **$7,417.17**
Reseeding Job Cost: **$791.10**
Total Job Cost: **$8,208**
Job Hours: **3.65**

TRUCK/LOADER TEAM WORK

Task description: **Backfill 1 acre pit south of Cell 6**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 015 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-015
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 730
-Loader:	CAT 966H
Support Equipment -Load Area:	NA
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	75	100	100
Ownership cost/hour:	$58.61	$41.17	NA	$103.86	$82.71	$13.51
Operating cost/hour:	$48.24	$50.45	NA	$61.70	$70.09	$28.95
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Operator cost/hour:	$24.79	$35.93	NA	$39.98	$45.39	$0.00
Unit Subtotals:	$131.63	$127.54	NA	$205.54	$198.18	$42.46
Number of Units:	1	1	0	1	1	1
Group Subtotals:	Work:	$259.17	Support:	$205.54	Maint:	$240.64

Total work team cost/hour: **$705.35**

MATERIAL QUANTITIES

Initial volume: 16,133 CCY Swell factor: 1.125
Loose volume: **18,150** LCY

Source of estimated volume: 1 ac x 10 ft
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight: 2,650 Pounds/LCY
Description: Decomposed rock - 25% Rock, 75% Earth
Rated Payload: 62,000 Pounds

Payload Capacity: 23.40 LCY

Truck Bed (volume) Basis:

Struck Volume:	17.10	LCY
Heaped Volume:	22.10	LCY
Average Volume:	19.60	LCY
Adjusted Volume:	22.10	LCY

Final Truck Volume Based on Number of Loader Passes: **22.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	**5.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 5000 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.830**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 4 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Material up to 1/8" diameter 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 0.00	0.000	(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:	-0.060	minutes
	Adjusted Loader Cycle Time:	**0.440**	minutes
	Net Load Time per Truck:	**1.420**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.420	Minutes	Adjusted for site altitude:	1.420	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time: maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1800.00	1.00	3.00	4.00	1774	1.204

Haul Time: **1.204** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1800.00	-1.00	3.00	2.00	3040	0.739

Return Time: **0.739** minutes
Total Truck Cycle Time: **4.963** minutes

Loading Tool unit Production 653.47 LCY/Hour Adjusted for job efficiency: 542.38 LCY/Hour

Truck Unit Production 265.97 LCY/Hour Adjusted for job efficiency: 220.75 LCY/Hour

Optimal No. of Trucks: 2 Truck(s) Selected Number of Trucks: 1 Truck(s)

Adjusted hourly truck team production: 220.75 LCY/Hour
Adjusted single truck/loader team production: 220.75 LCY/Hour
Adjusted multiple truck/loader team production: **220.75** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **82.22** Hours

Unit cost: $3.195 /LCY Total job cost: **$57,992**

SCRAPER TEAM WORK

Task description: **Retopsoil 1.35 acre pit area south of Cell 6**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 016 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-016
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 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:	$162.02	NA	NA	$103.86	$82.71	$13.51
Operating cost/hour:	$184.64	NA	NA	$82.26	$70.09	$28.95
%Utilization-ripper:	NA	NA	NA	NA	100	NA
Ripper own. cost/hour:	NA	NA	NA	$0.00	$4.44	$0.00
Ripper op. cost/hour:	NA	NA	NA	$0.00	$3.92	$0.00
Operator cost/hour:	$45.58	NA	NA	$39.98	$45.39	$0.00
Unit Subtotals:	$392.24	NA	NA	$226.10	$206.54	$42.46
Number of Units:	2	0	0	1	1	1
Group Subtotals:	Work:	$784.48	Support:	$226.10	Maint:	$249.00

Total work team cost/hour: **$1,259.58**

MATERIAL QUANTITIES

Initial volume: 1,089 CCY Swell factor: 1.215
Loose volume: **1,323** LCY

Source of estimated volume: 1.35 ac x 6 in depth
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: 0.60 Minutes

Job Condition Correction: Site Altitude: 5000 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	1800.00	1.00	3.00	4.00	2394	0.91

Haul Time: **0.91** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1800.00	-1.00	3.00	2.00	2960	0.73

Return Time: **0.73** minutes

Total Scraper team cycle time: **3.04** minutes
Adjusted for job conditions: 475.07 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 950.13 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **950.13** LCY/Hour

Unadjusted unit production/hour: 572.37 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **1.39** Hours

Unit cost: $1.326 /LCY Total job cost: **$1,754**

REVEGETATION WORK

Task description: **Revegetate 1.35 acre pit area south of Cell 6**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 017 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-017
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
Chisel plowing {DMG}	$94.63
Weed control spraying (MEANS 31 31 16.13 3100)	$193.60
Total Tilling Cost/Acre	**$288.23**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	1.00	16.32	$15.98
Indian Ricegrass - Nespar	1.00	3.24	$8.88
Blue Wildrye - Arlington or Elkton	1.00	3.44	$6.66
Little Bluestem - Cimarron	1.00	5.97	$12.48
Sandberg Bluegrass - VNS	1.00	21.24	$8.40
Slender Wheatgrass - Pryor	1.00	3.65	$4.25
Needle and Thread	1.00	2.64	$41.85
Needlegrass, Green - Lodorm	1.00	4.16	$11.78
Prairie Junegrass	1.00	53.15	$26.00

Totals Seed Mix	9.00	113.81	**$136.27**

Application

Description	**Cost /Acre**
Hydro seeding (MEANS 32 92 19.14 0200)	$947.43
Total Seed Application Cost/Acre	**$947.43**

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
Total Mulch Materials Cost/Acre				**$590.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$70.17
Total Mulch Application Cost/Acre	**$70.17**

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: 1.35
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $2,032.10
Cost /Acre*: $1,083.70

Initial Job Cost: **$2,743.34**
Reseeding Job Cost: **$292.60**
Total Job Cost: **$3,036**
Job Hours: **1.35**

BULLDOZER RIPPING WORK

Task description: **Rip 2.7 acre storage area south of Cell 5**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 018 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-018
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:	$103.86	NA
Operating Cost/Hour:	$82.26	100
Ripper Ownership Cost/Hour:	$10.43	NA
Ripper Operating Cost/Hour:	$8.38	100
Operator Cost/Hour:	$39.98	NA
Total Unit Cost/Hour:	$244.91	

Total Fleet Cost/Hour: **$244.91**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 2.70 acres Rip Depth (ft): 2.00 Volume: 8,712 BCY or CCY

Source of estimated quantity: 2.7 ac compacted storage area

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:	150.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.748	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.748 Acres/hr

Site Altitude:	5,000	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.62 Acres/hr
Adjusted Hourly Fleet Production: **0.62** Acres/hr

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **4.35** Hours

Unit cost: $394.263 Per acre Total job cost: **$1,065**

SCRAPER TEAM WORK

Task description: **Retopsoil 2.7 acre storage area south of Cell 5**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 019 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-019
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 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:	$162.02	NA	NA	$103.86	$82.71	$13.51
Operating cost/hour:	$184.64	NA	NA	$82.26	$70.09	$28.95
%Utilization-ripper:	NA	NA	NA	NA	100	NA
Ripper own. cost/hour:	NA	NA	NA	$0.00	$4.44	$0.00
Ripper op. cost/hour:	NA	NA	NA	$0.00	$3.92	$0.00
Operator cost/hour:	$45.58	NA	NA	$39.98	$45.39	$0.00
Unit Subtotals:	$392.24	NA	NA	$226.10	$206.54	$42.46
Number of Units:	2	0	0	1	1	1
Group Subtotals:	Work:	$784.48	Support:	$226.10	Maint:	$249.00

Total work team cost/hour: **$1,259.58**

MATERIAL QUANTITIES

Initial volume: 2,178 CCY Swell factor: 1.215
Loose volume: **2,646** LCY

Source of estimated volume: 2.7 ac x 6 in depth
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: 0.60 Minutes

Job Condition Correction: Site Altitude: 5000 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	1400.00	1.00	3.00	4.00	2394	0.74

Haul Time: **0.74** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1400.00	-1.00	3.00	2.00	2960	0.60

Return Time: **0.60** minutes

Total Scraper team cycle time: **2.74** minutes
Adjusted for job conditions: 527.08 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 1,054.16 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **1,054.16** LCY/Hour

Unadjusted unit production/hour: 635.04 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **2.51** Hours

Unit cost: $1.195 /LCY Total job cost: **$3,162**

REVEGETATION WORK

Task description: **Revegetate 2.7 acre storage area south of Cell 5**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 020 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-020
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
Chisel plowing {DMG}	$94.63
Weed control spraying (MEANS 31 31 16.13 3100)	$193.60
Total Tilling Cost/Acre	**$288.23**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	1.00	16.32	$15.98
Indian Ricegrass - Nespar	1.00	3.24	$8.88
Blue Wildrye - Arlington or Elkton	1.00	3.44	$6.66
Little Bluestem - Cimarron	1.00	5.97	$12.48
Sandberg Bluegrass - VNS	1.00	21.24	$8.40
Slender Wheatgrass - Pryor	1.00	3.65	$4.25
Needle and Thread	1.00	2.64	$41.85
Needlegrass, Green - Lodorm	1.00	4.16	$11.78
Prairie Junegrass	1.00	53.15	$26.00

Totals Seed Mix	9.00	113.81	**$136.27**

Application

Description	**Cost /Acre**
Hydro seeding (MEANS 32 92 19.14 0200)	$947.43
Total Seed Application Cost/Acre	**$947.43**

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
Total Mulch Materials Cost/Acre				**$590.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$70.17
Total Mulch Application Cost/Acre	**$70.17**

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: 2.7
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $2,032.10
Cost /Acre*: $1,083.70

Initial Job Cost: **$5,486.67**
Reseeding Job Cost: **$585.20**
Total Job Cost: **$6,072**
Job Hours: **2.70**

TRUCK/LOADER TEAM WORK

Task description: **Backfill 11 acres Cell 20**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 021 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-021
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Cat 730
-Loader:	CAT 966H
Support Equipment -Load Area:	NA
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	NA	75	100	100
Ownership cost/hour:	$58.61	$41.17	NA	$103.86	$82.71	$13.51
Operating cost/hour:	$48.24	$50.45	NA	$61.70	$70.09	$28.95
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Ripper op. cost/hour:	NA	$0.00	NA	$0.00	$0.00	$0.00
Operator cost/hour:	$24.79	$35.93	NA	$39.98	$45.39	$0.00
Unit Subtotals:	$131.63	$127.54	NA	$205.54	$198.18	$42.46
Number of Units:	1	1	0	1	1	1
Group Subtotals:	Work:	$259.17	Support:	$205.54	Maint:	$240.64

Total work team cost/hour: **$705.35**

MATERIAL QUANTITIES

Initial volume: 266,200 CCY Swell factor: 1.125
Loose volume: **299,475** LCY

Source of estimated volume: 11 ac x 15 ft
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: $0.00
Total Cost: $0.00

HOURLY PRODUCTION

Truck Capacity:

Truck Payload (weight) Basis:

Material weight: 2,650 Pounds/LCY
Description: Decomposed rock - 25% Rock, 75% Earth
Rated Payload: 62,000 Pounds

Payload Capacity: 23.40 LCY

Truck Bed (volume) Basis:

Struck Volume:	17.10	LCY
Heaped Volume:	22.10	LCY
Average Volume:	19.60	LCY
Adjusted Volume:	22.10	LCY

Final Truck Volume Based on Number of Loader Passes: **22.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	1.100	Other - rock/dirt mixtures (100-120%) 1.100
Adjusted Capacity:	**5.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 5000 feet

	Truck	Loader	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	**0.830**	**0.830**	

Loading Tool Cycle Time: Number of Loading Tool Passes Required to Fill Truck: 4 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
Selected Value within this Basic Rating: NA

Track Loaders – Material Description:

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	Material up to 1/8" diameter 0.02	0.020	(Cat HB)
Stockpile:	Conveyor or dozer piled 10 ft. high and up 0.00	0.000	(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:	-0.060	minutes
	Adjusted Loader Cycle Time:	**0.440**	minutes
	Net Load Time per Truck:	**1.420**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.60	Minutes	Adjusted for site altitude:	0.600	Minutes
Truck Load Time:	1.420	Minutes	Adjusted for site altitude:	1.420	Minutes
Truck Maneuver and Dump Time:	1.00	Minutes	Adjusted for site altitude:	1.000	Minutes

Truck Travel (Haul & Return) Time: maintained 3.0

Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	1.00	3.00	4.00	1774	0.866

Haul Time: **0.866** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	-1.00	3.00	2.00	3040	0.542

Return Time: **0.542** minutes
Total Truck Cycle Time: **4.428** minutes

Loading Tool unit Production 653.47 LCY/Hour Adjusted for job efficiency: 542.38 LCY/Hour

Truck Unit Production 298.10 LCY/Hour Adjusted for job efficiency: 247.43 LCY/Hour

Optimal No. of Trucks: 2 Truck(s) Selected Number of Trucks: 1 Truck(s)

Adjusted hourly truck team production: 247.43 LCY/Hour
Adjusted single truck/loader team production: 247.43 LCY/Hour
Adjusted multiple truck/loader team production: **247.43** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **1,210.36** Hours

Unit cost: $2.851 /LCY Total job cost: **$853,731**

SCRAPER TEAM WORK

Task description: **Retopsoil 11 acres Cell 20**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 022 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-022
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	Cat D8T - 8SU
Road Maintenance –Motor Grader:	CAT 16M
-Water Truck:	Water Tanker, 3,500 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:	$162.02	NA	NA	$103.86	$82.71	$13.51
Operating cost/hour:	$184.64	NA	NA	$82.26	$70.09	$28.95
%Utilization-ripper:	NA	NA	NA	NA	100	NA
Ripper own. cost/hour:	NA	NA	NA	$0.00	$4.44	$0.00
Ripper op. cost/hour:	NA	NA	NA	$0.00	$3.92	$0.00
Operator cost/hour:	$45.58	NA	NA	$39.98	$45.39	$0.00
Unit Subtotals:	$392.24	NA	NA	$226.10	$206.54	$42.46
Number of Units:	2	0	0	1	1	1
Group Subtotals:	Work:	$784.48	Support:	$226.10	Maint:	$249.00

Total work team cost/hour: **$1,259.58**

MATERIAL QUANTITIES

Initial volume: 8,873 CCY Swell factor: 1.215
Loose volume: **10,781** LCY

Source of estimated volume: 11 ac x 6 in depth
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: 0.60 Minutes

Job Condition Correction: Site Altitude: 5000 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	1200.00	1.00	3.00	4.00	2394	0.66

Haul Time: **0.66** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1200.00	-1.00	3.00	2.00	2960	0.53

Return Time: **0.53** minutes

Total Scraper team cycle time: **2.59** minutes
Adjusted for job conditions: 557.61 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 1,115.21 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **1,115.21** LCY/Hour

Unadjusted unit production/hour: 671.81 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **9.67** Hours

Unit cost: $1.129 /LCY Total job cost: **$12,176**

REVEGETATION WORK

Task description: **Revegetate 11 acres Cell 20**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 023 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-023
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
Chisel plowing {DMG}	$94.63
Weed control spraying (MEANS 31 31 16.13 3100)	$193.60
Total Tilling Cost/Acre	**$288.23**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	1.00	16.32	$15.98
Indian Ricegrass - Nespar	1.00	3.24	$8.88
Blue Wildrye - Arlington or Elkton	1.00	3.44	$6.66
Little Bluestem - Cimarron	1.00	5.97	$12.48
Sandberg Bluegrass - VNS	1.00	21.24	$8.40
Slender Wheatgrass - Pryor	1.00	3.65	$4.25
Needle and Thread	1.00	2.64	$41.85
Needlegrass, Green - Lodorm	1.00	4.16	$11.78
Prairie Junegrass	1.00	53.15	$26.00

Totals Seed Mix	9.00	113.81	**$136.27**

Application

Description	**Cost /Acre**
Hydro seeding (MEANS 32 92 19.14 0200)	$947.43
Total Seed Application Cost/Acre	**$947.43**

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
Total Mulch Materials Cost/Acre				**$590.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$70.17
Total Mulch Application Cost/Acre	**$70.17**

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: 11
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $2,032.10
Cost /Acre*: $1,083.70

Initial Job Cost: **$22,353.10**
Reseeding Job Cost: **$2,384.14**
Total Job Cost: **$24,737**
Job Hours: **11.00**

SCRAPER TEAM WORK

Task description: **Backfill Cell 21 overburden (from AM-3)**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 024 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-024
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

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	NA	NA
Ownership cost/hour:	$162.02	NA	NA	NA	NA	NA
Operating cost/hour:	$184.64	NA	NA	NA	NA	NA
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	NA	NA	NA	NA
Ripper op. cost/hour:	NA	NA	NA	NA	NA	NA
Operator cost/hour:	$45.58	NA	NA	NA	NA	NA
Unit Subtotals:	$392.24	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	$784.48	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$784.48**

MATERIAL QUANTITIES

Initial volume: 55,000 CCY Swell factor: 1.000
Loose volume: **55,000** LCY

Source of estimated volume: Operator Estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Material weight: 2,100 lbs/LCY
Material description: Shale
Rated Payload: 81,600 pounds
Payload Capacity: 38.86 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: 0.60 Minutes

Job Condition Correction: Site Altitude: 5010 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	250.00	2.00	3.00	5.00	1867	0.24

Haul Time: **0.24** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	250.00	-2.00	3.00	1.00	2963	0.20

Return Time: **0.20** minutes

Total Scraper team cycle time: **1.84** minutes
Adjusted for job conditions: 784.89 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 1,569.78 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **1,569.78** LCY/Hour

Unadjusted unit production/hour: 945.65 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **35.04** Hours

Unit cost: $0.500 /LCY Total job cost: **$27,486**

SCRAPER TEAM WORK

Task description: **Shalestone lining Cell 21 (from AM-3)**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 025 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-025
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

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	NA	NA
Ownership cost/hour:	$162.02	NA	NA	NA	NA	NA
Operating cost/hour:	$184.64	NA	NA	NA	NA	NA
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	NA	NA	NA	NA
Ripper op. cost/hour:	NA	NA	NA	NA	NA	NA
Operator cost/hour:	$45.58	NA	NA	NA	NA	NA
Unit Subtotals:	$392.24	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	$784.48	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$784.48**

MATERIAL QUANTITIES

Initial volume: 10,000 CCY Swell factor: 1.000
Loose volume: **10,000** LCY

Source of estimated volume: Operator Estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Material weight: 2,100 lbs/LCY
Material description: Shale
Rated Payload: 81,600 pounds
Payload Capacity: 38.86 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: 0.60 Minutes

Job Condition Correction: Site Altitude: 5010 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	250.00	2.00	3.00	5.00	1867	0.24

Haul Time: **0.24** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	250.00	-2.00	3.00	1.00	2963	0.20

Return Time: **0.20** minutes

Total Scraper team cycle time: **1.84** minutes
Adjusted for job conditions: 784.89 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 1,569.78 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **1,569.78** LCY/Hour

Unadjusted unit production/hour: 945.65 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **6.37** Hours

Unit cost: $0.500 /LCY Total job cost: **$4,997**

SCRAPER TEAM WORK

Task description: **Retopsoil Cell 21 (from AM-3)**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 026 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-026
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

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	NA	NA
Ownership cost/hour:	$162.02	NA	NA	NA	NA	NA
Operating cost/hour:	$184.64	NA	NA	NA	NA	NA
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	NA	NA	NA	NA
Ripper op. cost/hour:	NA	NA	NA	NA	NA	NA
Operator cost/hour:	$45.58	NA	NA	NA	NA	NA
Unit Subtotals:	$392.24	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	$784.48	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$784.48**

MATERIAL QUANTITIES

Initial volume: 2,500 CCY Swell factor: 1.000
Loose volume: **2,500** LCY

Source of estimated volume: Operator Estimate
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: 0.60 Minutes

Job Condition Correction: Site Altitude: 5010 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	250.00	2.00	3.00	5.00	1867	0.23

Haul Time: **0.23** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	250.00	-2.00	3.00	1.00	2963	0.20

Return Time: **0.20** minutes

Total Scraper team cycle time: **1.83** minutes
Adjusted for job conditions: 789.18 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 1,578.36 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **1,578.36** LCY/Hour

Unadjusted unit production/hour: 950.82 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **1.58** Hours

Unit cost: $0.497 /LCY Total job cost: **$1,243**

MOTOR GRADER WORK

Task description: **Final grading Cell 21 (from AM-3)**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 027 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-027
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 16M Horsepower: 297
Ripper Attachment: Multi-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$82.71	NA
Operating Cost/Hour:	$70.09	100
Ripper Ownership Cost/Hour:	$4.44	NA
Ripper Operating Cost/Hour:	$1.96	50
Operator Cost/Hour:	$45.39	NA
Total Unit Cost/Hour:	$204.58	

Total Fleet Cost/Hour: **$204.58**

MATERIAL QUANTITIES

Total Area to be graded or ripped: 27.00 acres

Source of estimated acreage: Operator Estimate

HOURLY PRODUCTION

Average Grader Speed: 1.50 mph
Selected Application: Finish grading (0-2.5 mph) - 1.5
Selected Blade Angle: 30 degrees
Effective Blade Length: 13.90 feet
Width of blade overlap per pass: 2.00 feet
Net grading or ripping width per pass: 11.90 feet
Unadjusted Hourly Unit Production: 2.1636 acres/hour

Job Condition Correction Factors Site Altitude: 5010 feet

		Source
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.90	(1sh/d, fav.)
Net Correction:	0.9000	multiplier

Adjusted Hourly Unit Production: 1.9473 acres/Hour
Adjusted Hourly Fleet Production: **1.9473** acres/Hour

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **13.87** Hours

Unit cost: $105.06 per acre Total job cost: **$2,837**

REVEGETATION WORK

Task description: **Revegetate 28 acres Cell 21 (from AM-3)**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 028 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-028
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
Chisel plowing {DMG}	$94.63
Weed control spraying (MEANS 31 31 16.13 3100)	$193.60
Total Tilling Cost/Acre	**$288.23**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	1.00	16.32	$15.98
Indian Ricegrass - Nespar	1.00	3.24	$8.88
Blue Wildrye - Arlington or Elkton	1.00	3.44	$6.66
Little Bluestem - Cimarron	1.00	5.97	$12.48
Sandberg Bluegrass - VNS	1.00	21.24	$8.40
Slender Wheatgrass - Pryor	1.00	3.65	$4.25
Needle and Thread	1.00	2.64	$41.85
Needlegrass, Green - Lodorm	1.00	4.16	$11.78
Prairie Junegrass	1.00	53.15	$26.00

Totals Seed Mix	9.00	113.81	**$136.27**

Application

Description	**Cost /Acre**
Hydro seeding (MEANS 32 92 19.14 0200)	$947.43
Total Seed Application Cost/Acre	**$947.43**

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
Total Mulch Materials Cost/Acre				**$590.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$70.17
Total Mulch Application Cost/Acre	**$70.17**

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: 28
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $2,032.10
Cost /Acre*: $1,083.70

Initial Job Cost: **$56,898.80**
Reseeding Job Cost: **$6,068.72**
Total Job Cost: **$62,968**
Job Hours: **28.00**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Mobilization/Demobilization**

Site: **Larimer Pit** Permit Action: 1/16/2020 Inspection Permit/Job#: M1974069

PROJECT IDENTIFICATION

Task #: 030 State: Colorado Abbreviation: None
Date: 2/19/2020 County: Larimer Filename: M069-030
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:	$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:

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	$114.29	$141.54	2	$511.66	$283.08	$1,000.00
CAT 16M	28.73	$87.15	$123.81	2	$421.92	$247.62	$500.00
Cat 637G	57.28	$162.02	$141.54	2	$607.12	$283.08	$500.00
CAT 966H	25.80	$41.17	$67.39	2	$217.12	$134.78	$500.00
Cat 730	25.19	$58.61	$67.39	4	$504.00	$269.56	$500.00
Hydroseeder with Tractor	28.00	$23.59	$123.81	1	$147.40	$123.81	$500.00
Subtotals:					**$2,409.22**	**$1,341.93**	**$3,500.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Water Tanker, 3,500 Gal.	$42.46	1	$42.46	$42.46
Light Duty Pickup, 4x4, 3/4 T.	$12.96	1	$12.96	$12.96
Subtotals:			**$55.42**	**$55.42**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	LOVELAND	
Total one-way travel distance:	3.00	miles
Average Travel Speed:	50.00	mph
Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$50,816.10	
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$6.65	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.06	0.06
Return Time (Hours):	0.06	0.06
Loading Time (Hours):	4.50	NA
Unloading Time (Hours):	4.50	NA
Subtotals:	9.12	0.12

JOB TIME AND COST

Total job time:	**18.24**	Hours
Total job cost:	**$50,823**	