STATE OF COLORADO

Simmons - DNR, Leigh <leigh.simmons@state.co.us>

RN-08 Cost Estimate

Simmons - DNR, Leigh <leigh.simmons@state.co.us> Wed, May 11, 2022 at 11:38 AM
To: "Poulos, Nicki" <npoulos@archrsc.com>

Nicki,

I have completed the site-wide reclamation cost estimate for RN-08, and have attached it for your review.

The structure of the estimate is the same as for RN-07, so it is in five parts (A-E) which correspond to different areas of the mine. The idea of this is to make the estimate more manageable.

Each part begins with a cost summary sheet, showing a list of all the tasks included, with the job hours and direct cost - this is like a table of contents. Itemised task sheets follow the summary and include all of the factors and unit costs and assumptions that make up the direct cost for that task.

A top-level cost summary sheet is given right up front which brings together parts A-E to come up with a total for direct costs and job hours. The indirect costs for the entire estimate are calculated from these totals and added to the direct costs to come up with the total.

To help you (as well as me, and anyone who cares to review the estimate in the future) understand what's going on I have kept track of my notes on a google sheet which you can view here: https://docs.google.com/spreadsheets/d/1dABwCJ5CKy0S9-_PMOw69Xa3n-oaoO9JiuFEPwmxvDg/edit?usp=sharing

You'll see that most of the tasks are unchanged from RN-07. Changes in the dollar amount are generally the result of changes in unit costs. It's no surprise that these normally increase (for example, the cost of concrete seems to have increased which has had an impact on "Mineseal" and "Borehole" tasks), but in some cases they have decreased slightly ("Dozer" tasks are an example).

I have incorporated some new tasks (from MR-450, MR-452 and MR-456), and have removed or reduced some tasks (from SL-11, SL-12, SL-13 and SL-14). I was also able to reduce tasks 437 and 438, which have to do with MVBs on the SS3 and SS4 panels, since MR-456 changed the permit to reduce the number of MVBs that could be constructed before any of the construction had begun.

Part D is the most complicated part to keep straight, and I rely on some extra support material to help me stay on top of it. Firstly, the attached excel sheet is an edited version of the inventory that Mike Peacock painstakingly put together before he retired. It is formatted to allow me to reference the permitting actions and cost estimate task associated with every hole. This sheet is critical and is the result of many hours of work. **Would you please review it and then submit a minor revision to add a copy of it to Exhibit 80**.

Tasks in Part D are broken into four parts, a-d. Parts a and b are associated with Phase I, part c is associated with Phase II and part d with Phase III. It's set up this way to make it easier to incorporate partial bond release applications as they are approved. There is one more link between the Peacock spreadsheet and Part D of the cost estimate, which is another google sheet that has a separate tab for each task. https://docs.google.com/spreadsheets/d/1gUPXlYD4LLCSgPOVCwHjE3qhI0dmAC0_w98KAmoHYCw/edit?usp=sharing
This sheet allows me to calculate all the inputs I need for the cost estimating software and it gives me a place to record the assumptions that were made as well as any changes. I've included the link so that you can see how everything works, but I don't think it's necessary for you to review it in any detail.

This is a lot, I know. The bottom line is that the total dollar amount for the site-wide estimate has gone from $12,300,856 with RN-07 to $11,371,768 with RN-08.

Please let me know if you have any issues with the cost estimate. I'll be finalising the written findings over the next days/weeks and will be ready to approve RN-08 shortly.

Leigh Simmons
Environmental Protection Specialist

COLORADO
Division of Reclamation, Mining and Safety
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2 attachments

BoreholesPadsRoadsInventory_2022_05_11.xlsx
56K

RN8_CompliedCostEstimate.pdf
11582K

COST SUMMARY WORK

Task description: **Compilation of parts A-E, with indirect costs**

Site: **West Elk Mine** Permit Action: RN8 - Total Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 08T State: Colorado Abbreviation: None
Date: 5/11/2022 County: Delta Filename: C007-08T
User: LDS

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
08A	Part A: Main Facilities, Loadout, Bear #1	NA	1	2,467.24	$3,867,110
08B	Part B: RPE, RPEE, NSSA	NA	1	519.12	$573,975
08C	Part C: Sylvester Gulch	NA	1	2,382.31	$2,839,988
08D	Part D: Boreholes plus associated pads and roads	NA	1	3,414.80	$1,649,193
08E	Part E: Deer Creek, Minnesota Creek	NA	1	83.57	$174,811
	SUBTOTALS:			**8867.04**	**$9,105,077**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$183,923
Performance bond:	1.05	Total =	$95,603
Job superintendent:	4,433.52	Total =	$319,346
Profit:	10.00	Total =	$910,508
		TOTAL O & P =	$1,509,380
		CONTRACT AMOUNT (direct + O & P) =	$10,614,457

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	$500	Total =	$500
Engineering work and/or contract/bid preparation:	4.00	Total =	$424,578
Reclamation management and/or administration:	3.13		$332,233
CONTINGENCY:	0.00	Total =	$0
		TOTAL INDIRECT COST =	$2,266,691
		TOTAL BOND AMOUNT (direct + indirect) =	**$11,371,768**

COST SUMMARY WORK

Task description: **Part A: Main Facilities, Loadout, Bear #1**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 08A State: Colorado Abbreviation: None
Date: 4/25/2022 County: Delta Filename: C007-08A
User: LDS

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Demo structures in Main Surface Facilities Area	DEMOLISH	1	1,349.50	$2,508,905
002	Rip drill pad for water tank boreholes-Main Facilities Area	RIPPER	4	0.12	$166
003	Rip drill pad for water tank boreholes	RIPPER	4	0.17	$244
004	Regrade 1.2 million gallon water tank pad	DOZER	4	0.80	$989
005	Distribute topsoil at1.2 million gallon water tank pad	DOZER	4	0.46	$569
006	Regrade topsoil 1.2 million gallon water tank pad	DOZER	4	0.46	$569
008	Replace topsoil from stockpile #5	TRUCK1	1	0.31	$312
011	Haul fill from SubsoilPile#1 to TrainLO Pond MB-4 & Sed Trap	TRUCK1	1	0.59	$666
012	Backfill/regrade Pond MB-4 (Loadout Pond)	EXCAVATE	1	0.61	$120
013	Regrade ramp from Hwy 133 to Loadout	EXCAVATE	1	2.56	$500
018	Rip stockpile at stacker tube and reclaim system	RIPPER	4	2.33	$3,174
019	Regrade ROM expansion area	DOZER	4	61.71	$83,794
020	Compact backfill at ROM pile expansion	COMPACT	2	10.98	$7,251
021	Regrade ditch DCW-7	DOZER	4	0.16	$216
022	Regrade Stacker Tube Access Road	EXCAVATE	1	13.67	$2,666
023	Replace topsoil from stockpile to ROM pad expansion	SCRAPER1	1	15.48	$13,871
024	Finish-grade ROM Pile Expansion	GRADER	1	1.60	$297
028	Cover refuse pile with subsoil	TRUCK1	1	64.51	$64,344
029	Replace topsoil from water tank stockpile to LRP	TRUCK1	1	38.77	$43,881
030	Backfill/regrade powder magazine	DOZER	4	0.44	$599
031	Backfill/grade substation	DOZER	4	0.63	$853
036	Regrade light use roads for water tank topsoil pile	DOZER	4	0.67	$908
037	Backfill/grade water storage tank and road	DOZER	4	0.37	$501
038	Backfill portal bench to final contours	TRUCK1	1	64.11	$72,560
039	Backfill and grade storage bench	SCRAPER1	1	165.86	$148,662
040	Push cut material from west fill on to bench	DOZER	4	39.07	$53,049
041	Push west fill to base of cut slope bench	DOZER	4	44.41	$60,303
042	Push fill material back on to cut slope	DOZER	4	36.76	$49,909
043	Move fill material from portal storage bench to base of cut	DOZER	4	19.13	$25,977
044	Move portal storage bench material on to cut slope	DOZER	4	7.42	$10,078
045	Compact fill replaced material at MSB excavation site	COMPACT	2	11.71	$7,735
046	Rip storage bench access road	RIPPER	4	0.16	$230
048	Rip portal access road (east of portals)	RIPPER	4	0.21	$293
050	Rip Materials Storage Bench	RIPPER	4	1.31	$1,782
051	Replace topsoil from stockpile to Materials Storage Bench	SCRAPER1	1	30.87	$27,666
052	Replace topsoil from stockpile #5 to MSB cutslope	SCRAPER1	1	7.88	$7,060
053	Replace topsoil from stockpile #5 to west fill area	SCRAPER1	1	2.72	$2,436
054	Rip Truck Pull-out Lane	RIPPER	4	0.03	$49
055	Regrade mine access road from office to portals	EXCAVATE	1	26.54	$5,174
056	Rip Main Surface Facilities Area	RIPPER	4	4.67	$6,348
057	Backfill/grade shop and warehouse area	DOZER	4	3.60	$4,893

058	Backfill/grade office/bathhouse area	DOZER	4	7.11	$9,661
059	Backfill/grade parking lot	DOZER	4	10.88	$14,778
061	Backfill Ponds MB-1 and FW-1	DOZER	4	1.02	$1,383
062	Regrade Pond MB-1	DOZER	4	33.43	$45,394
063	Regrade freshwater pond FW-1	DOZER	4	16.59	$22,525
067	Regrade Pond MB-3	DOZER	4	2.48	$3,361
070	Regrade diversion ditches DCW-1A, DCW-1B, and D1-6	EXCAVATE	1	13.17	$2,568
071	Regrade all sediment ditches	EXCAVATE	1	1.29	$253
072	Rip new light use and access roads	RIPPER	4	0.43	$591
073	Regrade Middle Mine Facilities Road	EXCAVATE	1	10.77	$2,099
074	Distribute Main Topsoil Stockpile	SCRAPER1	1	132.44	$118,710
075	Spread topsoil on parking lot expansion, approved MR-317	DOZER	4	0.82	$1,113
076	Finish grade backfilled areas	DOZER	4	19.37	$26,300
077	Rip expanded mine entrance area	RIPPER	4	0.14	$195
078	Regrade mine entrance expansion area	DOZER	4	1.15	$1,563
079	Replace topsoil f/stockpile to add'l disturb. at mine entran	TRUCK1	1	1.68	$1,906
080	Rip Bear #1 Mine area (Pond MB-5E)	RIPPER	4	1.79	$2,442
081	Haul Bear Mine area riprap stockpile to base of fill	TRUCK1	1	4.26	$4,823
083	Regrade access road from Sylvester Gulch Rd to office	EXCAVATE	1	19.98	$3,896
084	Rip access road from Hwy 133 to Sylvester Gulch Road	RIPPER	4	0.21	$293
085	Regrade haul/access road from Hwy 133 to Syl. Gulch Fan Rd.	DOZER	4	8.20	$11,140
087	Regrade P-2 conveyor bench	DOZER	4	4.30	$5,839
088	Regrade Pond MB-5E	DOZER	4	11.86	$16,110
089	Regrade HR/AR from Sylvester Gulch Rd to office	EXCAVATE	1	14.58	$2,842
090	Seal all Mine portals (formerly task 702)	MINESEAL	1	99.93	$305,269
091	Mobilize/demobilze equipment for updated parts A-E	MOBILIZE	1	12.00	$42,014
095	Remove skid mounted shed to Delta (MR-447)	MISCTRUK	1	4.00	$443
		SUBTOTALS:		**2467.24**	**$3,867,110**

DEMOLITION WORK

Task description: **Demo structures in Main Surface Facilities Area**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 001 State: Colorado Abbreviation: None
Date: 4/25/2022 County: Gunnison Filename: RN8A-001
User: LDS

Agency or organization name: DRMS

UNIT COSTS **Location adjustment: 91.30 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Warehouse - Superstructure	80 ft X 60 ft X 28ft	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	134,000.00	CF	$0.22	$28,810.00
-Floor	80 ft X 60 ft X 8 in	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	4,800.00	SF	$1.40	$6,739.20
-Footings	1 ft X 2 ft X 280 lf	Demo. and on-site disposal in excavated pit, 1.0 ft. x 2 ft. - Max. 200 ft. push	280.00	LF	$4.21	$1,178.80
Warehouse/office addition - Superstructure	80 ft X 18 ft X 12ft	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	17,280.00	CF	$0.22	$3,715.20
-Floor	80 ft X 18 ft X 10 in	Demo. and on-site disposal in excavated pit, 10 in. thick - Max. 200 ft. push	1,440.00	SF	$1.76	$2,527.20
-Footings	1.5 ft X 2 ft X 38 lf	Demo. and on-site disposal in excavated pit, 1.5 ft. x 2 ft. - Max. 200 ft. push	38.00	LF	$6.32	$240.16
Three-sided warehouse - Superstructure	125 ft X 25 ft X 15ft	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	46,875.00	CF	$0.22	$10,078.13
-Floor	125 ft X 25 ft X 18 in	Floor, concrete, demolition only, 10 in. thick - Rod reinforcing	3,125.00	SF	$5.63	$17,604.06
-Footings	1 ft X 2ft X 300 ft	Demo. and on-site disposal in existing pit, 1.0 ft. x 2 ft. - Max. 200 ft. push	600.00	LF	$4.03	$2,418.00
Office and bathhouse - Superstructure	122 ft X 115 ft X 28ft	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	392,840.00	CF	$0.22	$84,460.60
-Floor	122 ft X 115 ft X 6 in	Demo. and on-site disposal in existing pit, 6 in. thick - Max. 200 ft. push	14,030.00	SF	$1.01	$14,142.24
-Footings	2 ft X 3 ft X	Demo. and on-site	434.00	LF	$12.10	$5,251.40

	434 lf	disposal in existing pit, 2.0 ft. x 3 ft. - Max. 200 ft. push				
Garage - Superstructure	57 ft X 33 ft X 14ft	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	26,334.00	CF	$0.22	$5,661.81
-Floor	57 ft X 33 ft	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	1,881.00	SF	$1.05	$1,980.69
Loading/unloading dock - Floor	5 ft X 10 ft X 8 in	Floor, concrete, demolition only, 8 in. thick - No reinforcing	500.00	SF	$2.16	$1,080.00
-Walls	20 ft X 8 ft	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	360.00	SF	$1.84	$662.40
Bulk fuel storage building - Superstructure	73 ft X 39 ft X 23ft	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	65,841.00	CF	$0.22	$14,155.82
-Floor	73 ft X 39 ft X 15 in	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	2,847.00	SF	$1.05	$2,997.89
-Containment wall	10 ft X 437 ft X 6 in	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	4,370.00	SF	$1.11	$4,850.70
Maintenance shop - Superstructure	181 ft X 61 ft X 30ft	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	331,230.00	CF	$0.22	$71,214.45
-Stem walls	464 ft X 8 ft X 8 in	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	3,712.00	SF	$1.84	$6,830.08
-Footings	3 ft X 2 ft	Demo. and on-site disposal in excavated pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	316.00	LF	$12.64	$3,994.24
Barrel storage yard - floor	25 ft X 25 ft X 6 in	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	625.00	SF	$1.05	$658.13
-Walls	75 ft X 6 in H	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	38.00	SF	$1.11	$42.18
-Fence	75 ft L X 8 ft H	Fencing, chain link, including posts and fabric - 8 ft. to 10 ft. high	75.00	LF	$3.08	$231.00
Heated storage - Walls	56 ft X 8 in H	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	38.00	SF	$1.11	$42.18
Rock dust bin -	20 ft X 16 ft X	Bldg. (SN) demo./on-	3,840.00	CF	$0.22	$825.60

Superstructure	12 ft	site disposal in excavated pit - Max. 10,000 ft. haul				
-Floor	20 ft X 16 ft X 4 in	Demo. and on-site disposal in excavated pit, 4 in. thick - Max. 200 ft. push	320.00	SF	$0.70	$224.64
-Footings	1 ft X 2 ft X 96 ft	Demo. and on-site disposal in excavated pit, 1.0 ft. x 2 ft. - Max. 200 ft. push	96.00	LF	$4.21	$404.16
Rock dust bin - Superstructure	12 X 18 X 10	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	2,160.00	CF	$0.22	$464.40
-Floor	12 X 8 X 0.33	Demo. and on-site disposal in excavated pit, 4 in. thick - Max. 200 ft. push	96.00	SF	$0.70	$67.39
-Footings	1 X 2 X 96	Demo. and on-site disposal in excavated pit, 1.0 ft. x 2 ft. - Max. 200 ft. push	96.00	LF	$4.21	$404.16
Water treatment plant - Superstructure	30 X 24 X 16	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 200 ft. push	11,520.00	CF	$0.22	$2,511.36
-Floor	36 X 24 X 6 in	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	864.00	SF	$1.05	$909.79
-Footings	2 X 3 X 34	Demo. and on-site disposal in excavated pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	34.00	LF	$12.64	$429.76
Water intake building - Superstructure	14 X 14 X 12	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	2,352.00	CF	$0.22	$505.68
-Floor	14 X 14 X 6 in	Floor, concrete, demolition only, 4 in. thick - No reinforcing	196.00	SF	$1.08	$211.68
-Footings	1X2X56	Demo. and on-site disposal in excavated pit, 1.0 ft. x 2 ft. - Max. 200 ft. push	56.00	LF	$4.21	$235.76
Waster water treatment plant-Superstructure	55X20X12	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	13,200.00	CF	$0.22	$2,838.00
-Floor	55X20X12in	Floor, concrete, demolition only, 12 in. thick - Mesh reinforcing	1,100.00	SF	$3.70	$4,070.00
-Footings	1X3X15LF	Demo. and on-site disposal in excavated pit, 1.5 ft. x 3 ft. - Max. 200 ft. push	150.00	LF	$9.48	$1,422.00
Water storage tank - Superstructure	24X36	Bldg. (SN) demo./on-site disposal in	24,238.00	CF	$0.22	$5,211.17

		excavated pit - Max. 10,000 ft. haul				
-Floor	24X36	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	1,018.00	SF	$1.40	$1,429.27
-Footings	3X36	Demo. and on-site disposal in excavated pit, 1.0 ft. x 2 ft. - Max. 200 ft. push	113.00	LF	$4.21	$475.73
Surface shop - Superstructure	150X50X17.5	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	131,250.00	CF	$0.22	$28,218.75
-Floor	150X50	Demo. and on-site disposal in excavated pit, 4 in. thick - Max. 200 ft. push	7,500.00	SF	$0.70	$5,265.00
-Footings	1X2X49	Demo. and on-site disposal in excavated pit, 1.0 ft. x 2 ft. - Max. 200 ft. push	400.00	LF	$4.21	$1,684.00
Fire building north - Superstructure	14X10.5X8	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	1,176.00	CF	$0.22	$252.84
-Floor	14X10.5	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	147.00	SF	$1.05	$154.79
-Footings	1X2	Demo. and on-site disposal in excavated pit, 1.0 ft. x 2 ft. - Max. 200 ft. push	40.00	LF	$4.21	$168.40
MCC-5 - Superstructure	15X10X8	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	1,200.00	CF	$0.22	$258.00
-Floor	15X10	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	150.00	SF	$1.05	$157.95
-Footings	1X2	Demo. and on-site disposal in excavated pit, 1.0 ft. x 2 ft. - Max. 200 ft. push	50.00	LF	$4.21	$210.50
MCC-2	12X8X8	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	768.00	CF	$0.22	$165.12
-Floor	12X8	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	96.00	SF	$1.05	$101.09
-Footings	1X2	Demo. and on-site disposal in excavated pit, 1.0 ft. x 2 ft. - Max. 200 ft. push	80.00	LF	$4.21	$336.80
Gaurd shack -	12X12X10	Bldg. (SN) demo./on-	1,440.00	CF	$0.22	$309.60

Superstructure		site disposal in excavated pit - Max. 10,000 ft. haul				
Substation - Superstructure	80X50X20	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	80,000.00	CF	$0.22	$17,200.00
-Floor	80X50	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	4,000.00	SF	$1.40	$5,616.00
-Footings	1.5X3	Demo. and on-site disposal in excavated pit, 1.5 ft. x 3 ft. - Max. 200 ft. push	260.00	LF	$9.48	$2,464.80
Takeup tower - Superstructure	25x21	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	12,075.00	CF	$0.22	$2,596.13
-Floor	25x21	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	525.00	SF	$1.11	$580.65
-Footings	2x3	Demo. and on-site disposal in existing pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	92.00	LF	$12.10	$1,113.20
Screening facility - Superstructure	62x52x36	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	116,064.00	CF	$0.22	$24,953.76
-Floor	52x36	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	1,872.00	SF	$1.05	$1,971.22
-Footings	1.5x2	Demo. and on-site disposal in excavated pit, 1.5 ft. x 2 ft. - Max. 200 ft. push	2,389.00	LF	$6.32	$15,098.48
Crusher building - Superstructure	25x20x42	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	21,000.00	CF	$0.22	$4,515.00
-Floor	25x20	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	500.00	SF	$1.05	$526.50
-Footings	3x2	Demo. and on-site disposal in excavated pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	366.00	LF	$12.64	$4,626.24
Reclaim tunnel - Roof	16x400x1	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	6,400.00	CF	$0.22	$1,376.00
-Walls	12x400x3	Wall, concrete, demolition only, average reinforcing - 24 in. thick	6,400.00	SF	$4.45	$28,480.00

-Floor	16x400x3	Demo. and on-site disposal in excavated pit, 4 in. thick - Max. 200 ft. push	711.00	SF	$0.70	$499.12
Escapeway tunnel	6	Pipe, corrugated metal (CMP) - 48 in. diameter pipe	6.00	LF	$16.51	$99.06
Feed conveyor drive tower-Superstructure	21x19x60	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	23,940.00	CF	$0.22	$5,147.10
-Floor	19x13.5	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	257.00	SF	$1.05	$270.62
-Footings	2x3	Demo. and on-site disposal in excavated pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	967.00	LF	$12.64	$12,222.88
Transfer structures - Superstructures (3)	57x13x38	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	28,158.00	CF	$0.22	$6,053.97
-Floor	39x10	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	390.00	SF	$1.05	$410.67
Stacking tube 1	94x12x12 in diam	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	10,630.00	CF	$0.22	$2,285.45
Stacking tube 2	93x12x 12 in diam	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	10,517.00	CF	$0.22	$2,261.16
Stacking tube 3	91x12x 12 in diam	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	10,291.00	CF	$0.22	$2,212.57
Tunnel - Floor	505x12 x 36 in th	Pavement, concrete, demolition only, 7 in. to 24 in. thick - Reinforced	36.00	CY	$133.50	$4,806.00
-Roof	505x12x 36 in th	Pavement, concrete, demolition only, 7 in. to 24 in. thick - Reinforced	36.00	CY	$133.50	$4,806.00
-Walls	505x12x3	Pavement, concrete, demolition only, 7 in. to 24 in. thick - Reinforced	36.00	CY	$133.50	$4,806.00
Run-of-mine conveyor	1100 x 8 x 10	Conveyor, demolition, on-site disposal, existing pit, 10,000 ft. haul	88,000.00	CF	$0.30	$26,400.00
Transfer conveyor	100 x 8 x 10	Conveyor, demolition, on-site disposal, existing pit, 10,000 ft. haul	8,000.00	CF	$0.30	$2,400.00
Silo-to-silo conveyor	150 x 8 x 10	Conveyor, demolition, on-site disposal, existing pit, 10,000 ft.	12,000.00	CF	$0.30	$3,600.00

		haul				
Breaker-to-silo conveyor	800 x 8 x 10	Conveyor, demolition, on-site disposal, existing pit, 10,000 ft. haul	64,000.00	CF	$0.30	$19,200.00
Silo-to-loadout conveyor	500 x 8 x 10	Conveyor, demolition, on-site disposal, existing pit, 10,000 ft. haul	40,000.00	CF	$0.30	$12,000.00
Overhead conveyor	225 x 8 x 10	Conveyor, demolition, on-site disposal, existing pit, 10,000 ft. haul	18,000.00	CF	$0.30	$5,400.00
Reclaim conveyor	555 x 8 x 10	Conveyor, demolition, on-site disposal, existing pit, 10,000 ft. haul	44,400.00	CF	$0.30	$13,320.00
Overhead conveyor	225 x 8 x 10	Conveyor, demolition, on-site disposal, existing pit, 10,000 ft. haul	18,000.00	CF	$0.30	$5,400.00
Reclaim conveyor	555 x 8 x 10	Conveyor, demolition, on-site disposal, existing pit, 10,000 ft. haul	44,400.00	CF	$0.30	$13,320.00
Topside discharge structure	15x15x33	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	7,425.00	CF	$0.22	$1,596.38
Dozer trap push wall	4x20x10	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	800.00	SF	$1.11	$888.00
Escape tunnel	180	Pipe, reinforced concrete (RCP) - 48 in. diameter pipe	180.00	LF	$53.02	$9,543.96
Stacking tube 4 - Superstructure	106x1x12	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	11,989.00	CF	$0.22	$2,577.64
-Footings	2x3	Demo. and on-site disposal in excavated pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	38.00	LF	$12.64	$480.32
Overhead conveyor	555 x 8 x 10	Conveyor, demolition, on-site disposal, existing pit, 10,000 ft. haul	44,400.00	CF	$0.30	$13,320.00
Reclaim conveyor	555 x 8 x 10	Conveyor, demolition, on-site disposal, existing pit, 10,000 ft. haul	44,400.00	CF	$0.30	$13,320.00
Topside discharge structure	15x15x33	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	7,425.00	CF	$0.22	$1,596.38
Dozer trap push wall - Superstructure	2x3x10	Demo. and on-site disposal in excavated pit, 12 in. thick - Max.	800.00	SF	$2.21	$1,768.00

		200 ft. push				
-Footings	2x3	Demo. and on-site disposal in excavated pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	80.00	LF	$12.64	$1,011.20
Escape tunnel	180	Pipe, reinforced concrete (RCP) - 48 in. diameter pipe	180.00	LF	$53.02	$9,543.96
Silo #1 - Superstructure	145x60	Bldg. (MN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	409,995.00	CF	$0.24	$96,758.82
-Topside transfer building	20x20x30	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	12,000.00	CF	$0.22	$2,580.00
-Floor	60	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	3,100.00	SF	$1.11	$3,428.60
-Footings	2x3	Demo. and on-site disposal in excavated pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	189.00	LF	$12.64	$2,388.96
Silo #2 - Superstructure	175x80	Bldg. (MN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	879,952.00	CF	$0.24	$207,668.67
-Topside transfer building	20x20x30	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	12,000.00	CF	$0.22	$2,580.00
-Floor	80	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	5,530.00	SF	$1.11	$6,116.18
-Footings	2x3x25	Demo. and on-site disposal in excavated pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	150.00	LF	$12.64	$1,896.00
Silo pad wall - Superstructure	N/A	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	70,558.00	CF	$0.22	$15,169.97
-Foundation	N/A	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	459.00	SF	$1.11	$507.65
Old Portal B Fan - Floor	40x25	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	1,000.00	CF	$0.22	$215.00
-Footings	2x3	Demo. and on-site disposal in excavated pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	130.00	LF	$12.64	$1,643.20
Breaker Facility - Superstructure	20x18x40	Bldg. (SN) demo./on-site disposal in excavated pit - Max.	14,400.00	CF	$0.22	$3,096.00

		10,000 ft. haul				
-Floor	20x18	Demo. and on-site disposal in excavated pit, 10 in. thick - Max. 200 ft. push	360.00	SF	$1.76	$631.80
-Footings	2x3	Demo. and on-site disposal in excavated pit, 1.5 ft. x 3 ft. - Max. 200 ft. push	76.00	LF	$9.48	$720.48
Explosives magazine	5x5x4	Bldg. (SC) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	100.00	CF	$0.27	$27.10
Cap magazine	5x5x4	Bldg. (SC) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	100.00	CF	$0.27	$27.10
Miscellaneous 6" piping (water line)	6174 lf	Pipe, corrugated metal (CMP) - 8 in. diameter pipe	6,174.00	LF	$3.12	$19,281.40
-Railroad - Segments 1, 3, and 6	22 x 370	Metal bin retaining wall, 10' wide, 16-28' high	8,140.00	SF	$3.29	$26,780.60
-Railroad - Segments 2 and 7	18 x 410	Metal bin retaining wall, 10' wide, 16-28' high	7,380.00	SF	$3.29	$24,280.20
-Railroad - Segments 4 and 5	28 x180	Metal bin retaining wall, 10' wide, 16-28' high	5,040.00	SF	$3.29	$16,581.60
-Loadout pond - Segment 1	4 x 10	Metal bin retaining wall, 10' wide, 4-12' high	40.00	SF	$2.74	$109.60
-Loadout pond - Segment 2	8 x 100	Metal bin retaining wall, 10' wide, 4-12' high	800.00	SF	$2.74	$2,192.00
-Substation pad and access road	14 x 573	Metal bin retaining wall, 10' wide, 16-28' high	8,022.00	SF	$3.29	$26,392.38
-Water storage tank access road	12 x 210	Metal bin retaining wall, 10' wide, 4-12' high	2,520.00	SF	$2.74	$6,904.80
-Shop/warehouse pad	12 x 145	Metal bin retaining wall, 10' wide, 4-12' high	1,740.00	SF	$2.74	$4,767.60
-Portal bench and access road cut slope	24 x 635	Metal bin retaining wall, 10' wide, 16-28' high	15,240.00	SF	$3.29	$50,139.60
-Portal bench and access road fill slope	12 x 1289	Metal bin retaining wall, 10' wide, 4-12' high	15,468.00	SF	$2.74	$42,382.32
-Original access road fill (Design A)	4 x 248	Metal bin retaining wall, 10' wide, 4-12' high	992.00	SF	$2.74	$2,718.08
-Original access road fill (Design B)	12 x 2050	Metal bin retaining wall, 10' wide, 4-12' high	24,600.00	SF	$2.74	$67,404.00
Pond FW-3 (formerly MB-1)-Control Tower	8.7x6.7x22	Demo. and on-site disposal in excavated pit, 12 in. thick - Max.	308.00	SF	$1.11	$340.65

		200 ft. push				
-Outlet structure	8.1x5.8x10	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	227.00	SF	$1.40	$318.71
-Catwlk	24x4.7x5	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	508.00	CF	$0.22	$109.22
-Spillway cut-off wall	60x10.8	Demo. and on-site disposal in excavated pit, 10 in. thick - Max. 200 ft. push	308.00	SF	$1.85	$569.80
-Energy dissipator	4.3x54.5	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	234.00	SF	$1.40	$328.54
-Energy dissipator	8.6x54.5	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	469.00	SF	$1.40	$658.48
Pond MB-2R - Bridge	50x30x4	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	6,000.00	CF	$0.22	$1,290.00
-Inlet sediment trap floors/walls	36.7x7	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	257.00	SF	$1.11	$284.24
-Inlet sediment trap floors/walls	36.7x14`	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	514.00	SF	$1.11	$568.48
-Inlet sediment trap floors/walls	36.7x14	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	514.00	SF	$1.11	$568.48
-Weir box	133	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	133.00	SF	$1.05	$140.05
Pond MB-3 - Bridge	50x30x3	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	4,500.00	CF	$0.22	$967.50
-Inlet sediment trap floors/walls (1)	36.7x7	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	606.00	SF	$1.11	$670.24
-Inlet sediment trap floors/walls (2)	36.7x14	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	1,000.00	SF	$1.11	$1,106.00
Pond FW-1 - Control tower	7.5x6.7x22	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	1,106.00	CF	$0.22	$237.79
-Outlet structure	34 sf	Demo. and on-site disposal in excavated	34.00	SF	$1.05	$35.80

		pit, 6 in. thick - Max. 200 ft. push				
-Catwalk	5.3x4.7x5	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	112.00	CF	$0.22	$24.08
-Spillway cut-off wall	40x10	Demo. and on-site disposal in excavated pit, 10 in. thick - Max. 200 ft. push	400.00	SF	$1.85	$740.00
-Principal spillway	60 lf	Pipe, corrugated metal (CMP) - 8 in. diameter pipe	60.00	LF	$3.12	$187.38
Train loadout - Superstructure	39x22x24	Bldg. (MN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	20,592.00	CF	$0.24	$4,859.71
-Floor	39x29	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	1,131.00	SF	$1.11	$1,250.89
-Footer	2x3	Demo. and on-site disposal in excavated pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	122.00	LF	$12.64	$1,542.08
Railroad track	4,100 lf	Railroad track - Ties and track	4,100.00	LF	$9.98	$40,918.00
-Railroad track ballast	7,175 cyds	Railroad track - Ballast	7,175.00	CY	$4.90	$35,157.50
Road retaining wall	10x451	Wall, concrete, demolition only, average reinforcing - 12 in. thick	4,510.00	SF	$2.23	$10,057.30
Trash dumpster walls and floor	511 sf	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	511.00	SF	$1.40	$717.44
Gravel bunkers walls and floor	2,466 sf	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	2,466.00	SF	$2.21	$5,449.86
Chain-link fence	7200 lf	Fencing, chain link, including posts and fabric - 8 ft. to 10 ft. high	7,200.00	LF	$3.08	$22,176.00
Barbed wire fence - 2 strand	2,700 lf	Fencing, barbed wire, - 3 strand	2,700.00	LF	$1.65	$4,455.00
Exterior stairway - Stairway foor	6x11	Demo. and on-site disposal in excavated pit, 10 in. thick - Max. 200 ft. push	66.00	SF	$1.76	$115.83
-Stairway floor	6x11	Demo. and on-site disposal in excavated pit, 10 in. thick - Max. 200 ft. push	66.00	SF	$1.76	$115.83
-Stairway supports	9.5x4x10	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	380.00	CF	$0.22	$81.70

-Stairway supports	4x4x18	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	288.00	CF	$0.22	$61.92
-Structure	50x4x9	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	1,800.00	CF	$0.22	$387.00
Road pavement	10369x20	Pavement, bituminous, demolition only - 4 in. to 6 in. thick	23,042.00	SY	$7.66	$176,501.72
Office/bathouse parking lot	200x100	Pavement, bituminous, demolition only - 4 in. to 6 in. thick	741.00	SY	$7.66	$5,676.06
Tanks - 2	8,000 gal	Excavate and load tank onto trailer, non-leaking - 6,000 gal. to 8,000 gal.	2.00	EA	$880.00	$1,760.00
Tanks - 3	12,000 gal	Excavate and load tank onto trailer, non-leaking - 9,000 gal. to 12,000 gal.	3.00	EA	$1,050.00	$3,150.00
Tank -antifreeze	9,000 gal	Comprehensive storage tank removal, non-leaking - 9,000 to 12,000 gal. tank	1.00	EA	$7,335.93	$7,335.93
Tank - antifreeze	3,000 gal	Comprehensive storage tank removal, non-leaking - 3,000 to 5,000 gal. tank	1.00	EA	$3,455.40	$3,455.40
Remove sludge from all tank bottoms	7 tanks	Remove sludge, water, and rem. product from tank - 9,000 to 12,000 gal.	7.00	EA	$397.00	$2,779.00
Dispose sludge off-site	7000 gal	Dispose of tank sludge off-site - Average	7,000.00	GAL	$6.80	$47,600.00
Clean tanks	960 lbs	Insert dry ice (CO2) into tank to produce inert gas - 1.5 lbs./100 gal.	960.00	LB	$1.71	$1,641.60
Transport 3,000 gal tank	1	Haul tank to certified salvage dump - 3,000 to 5,000 gal. tank	1.00	EA	$760.00	$760.00
Transport 2 - 8,000 gal tanks	2	Haul tank to certified salvage dump - 6,000 to 8,000 gal. tank	2.00	EA	$880.00	$1,760.00
Transport 4 - 9-12,000 gal tanks	4	Haul tank to certified salvage dump - 9,000 to 12,000 gal. tank	4.00	EA	$1,050.00	$4,200.00
Waste oil tank walls and floor	412	Demo. and on-site disposal in excavated pit, 10 in. thick - Max. 200 ft. push	412.00	SF	$1.76	$723.06
Hazardous waste pick-up	20	Hazardous waste removal - Drum solids/liquids, per drum, (7+ drum job)	20.00	DRUM	$572.93	$11,458.60
Hazardous waste sampling	20	Hazardous waste sampling and analysis, per sample	20.00	EA	$224.61	$4,492.20

Hazardous waste transportation	20	Solid transport, large truck (max. 80 drums, 25 cy, or 18 tons) - Average	300.00	MI	$5.60	$1,680.00
Hazardous waste disposal	5	Dumpsite disposal charge - Average	5.00	TON	$277.50	$1,387.50
Barrel storage area (expansion)-structure	46x39x16	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	28,704.00	CF	$0.22	$6,171.36
-Floor	46X39	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	1,794.00	SF	$1.05	$1,889.08
-Footers	1.5x3	Demo. and on-site disposal in excavated pit, 1.5 ft. x 3 ft. - Max. 200 ft. push	18.00	LF	$9.48	$170.64
-Curbs, ramps, sump wall and sump pad	13x13 (2)	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	338.00	SF	$1.11	$375.18
-Fence	124 lf	Fencing, chain link, including posts and fabric - 8 ft. to 10 ft. high	124.00	LF	$3.08	$381.92
Hydraulic compressor building-Structure	18x25x45	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	6,300.00	CF	$0.22	$1,354.50
-Floor	18x25	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	450.00	SF	$1.40	$631.80
-Footings	1	Demo. and on-site disposal in excavated pit, 1.0 ft. x 2 ft. - Max. 200 ft. push	86.00	LF	$4.21	$362.06
Containment structure-walls, floor, curb	34x4	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	136.00	SF	$1.84	$250.24
Water tank-Superstructure	28x86	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	162,637.00	CF	$0.22	$34,966.96
-Steel ring for foundation	270 cf	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	270.00	CF	$0.22	$58.05
Shower trailer	12x40x10	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	4,800.00	CF	$0.22	$1,032.00
Shower trailer	12x40x10	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	4,800.00	CF	$0.22	$1,032.00
Materials storage	130x30x17	Bldg. (SN) demo./on-	64,350.00	CF	$0.22	$13,835.25

building-Superstructure		site disposal in excavated pit - Max. 10,000 ft. haul				
-Floor	130x30	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	1,300.00	SF	$1.40	$1,825.20
-Footings	130x10	Demo. and on-site disposal in excavated pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	266.00	LF	$12.64	$3,362.24
-Apron	130x10	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	1,300.00	SF	$1.40	$1,825.20
Office/bathhouse parking lot expansion	1,460 sq yds	Pavement, bituminous, demolition only - 4 in. to 6 in. thick	1,460.00	SY	$7.66	$11,183.60
Warehouse - Superstructure	33x30x11	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	10,890.00	CF	$0.22	$2,341.35
-Floor	33x30	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	990.00	SF	$1.40	$1,389.96
-Footer	126 lf	Demo. and on-site disposal in excavated pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	126.00	LF	$12.64	$1,592.64
-Wall	(33+30)x2	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	126.00	SF	$1.11	$139.86
Concrete barriers for benches and roads	10x2 (120)	Railing, roadside guiderail posts only	120.00	EA	$5.71	$685.20
TLO conveyor/pulley - Enclosures	23x54x17	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	21,114.00	CF	$0.22	$4,539.51
-Floor site 1	23x54	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	1,242.00	SF	$1.40	$1,743.77
-Floor site 2	18x6	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	108.00	SF	$1.40	$151.63
Site 1 headhouse extension	8,044 cf	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	8,044.00	CF	$0.22	$1,729.46
Site 2 headhouse extension	34x15x15	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	7,650.00	CF	$0.22	$1,644.75
Guardrails at mine entrance and RPE road	750 lf	Railing, roadside guiderail and posts (posts on 20 ft. centers)	750.00	LF	$2.85	$2,137.50

Mine entrance gate 1	4x30	Fencing, chain link, including posts and fabric - to 6 ft. high	30.00	LF	$2.68	$80.40
Mine entrance gate 2	4x30	Fencing, chain link, including posts and fabric - to 6 ft. high	30.00	LF	$2.68	$80.40
Fence at NSS (3-strand)	2,100 lf	Fencing, barbed wire, - 3 strand	2,100.00	LF	$1.65	$3,465.00
Remove additional entrance road pavement	1936 sy	Pavement, bituminous, demolition only - 3 in. thick	1,936.00	SY	$4.66	$9,021.76
Dozer service facility - Superstructure	30x42.6x50	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	63,900.00	CF	$0.22	$13,738.50
-Floor	42.6x50	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	2,130.00	SF	$1.05	$2,242.89
-Footings	2x3	Demo. and on-site disposal in existing pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	73.00	LF	$12.10	$883.30
-Retaining walls	8x25	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	200.00	SF	$2.21	$442.00
-Retaining walls	12x72	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	864.00	SF	$2.21	$1,909.44
-Apron	8x12 (24 in thick)	Pavement, concrete, demolition only, 7 in. to 24 in. thick - Reinforced	4.00	CY	$133.50	$534.00
-Apron	8x12 (24 in thick)	Pavement, concrete, demolition only, 7 in. to 24 in. thick - Reinforced	5.00	CY	$133.50	$667.50
Materials storage bench-Concrete ditches	1,626 sf	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	1,626.00	SF	$1.40	$2,282.90
-Surface area asphalt	14,520 syds	Pavement, bituminous, demolition only - 4 in. to 6 in. thick	14,250.00	SY	$7.66	$109,155.00
-Building walls	320 sf	Demo. and on-site disposal in excavated pit, 10 in. thick - Max. 200 ft. push	320.00	SF	$1.85	$592.00
Locker room addition - Superstructure	10x61	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	51,240.00	CF	$0.22	$11,016.60
-Floor	10x84	Demo. and on-site disposal in excavated pit, 4 in. thick - Max. 200 ft. push	840.00	SF	$0.70	$589.68
-Footings	1x2	Demo. and on-site disposal in excavated pit, 1.0 ft. x 2 ft. - Max.	188.00	LF	$4.21	$791.48

		200 ft. push				
-Curb	188 lf	Curbing, concrete, demolition only - Reinforced	188.00	LF	$4.99	$938.12
Culverts	12"	Pipe, corrugated metal (CMP) - 12 in. diameter pipe	1,699.00	LF	$4.10	$6,960.80
Culverts	14"	Pipe, corrugated metal (CMP) - 15 in. diameter pipe	144.00	LF	$4.81	$693.07
Culverts	16"	Pipe, corrugated metal (CMP) - 15 in. diameter pipe	40.00	LF	$4.81	$192.52
Culverts	18"	Pipe, corrugated metal (CMP) - 18 in. diameter pipe	1,120.00	LF	$5.57	$6,242.88
Culverts	20"	Pipe, corrugated metal (CMP) - 21 in. diameter pipe	60.00	LF	$6.39	$383.52
Culverts	21"	Pipe, corrugated metal (CMP) - 21 in. diameter pipe	935.00	LF	$6.39	$5,976.52
Culverts	30"	Pipe, corrugated metal (CMP) - 30 in. diameter pipe	975.00	LF	$9.35	$9,116.25
Culverts	36"	Pipe, corrugated metal (CMP) - 36 in. diameter pipe	870.00	LF	$11.32	$9,846.66
Culverts	42"	Pipe, corrugated metal (CMP) - 48 in. diameter pipe	359.00	LF	$16.51	$5,927.09
Culverts	48"	Pipe, corrugated metal (CMP) - 48 in. diameter pipe	1,428.00	LF	$16.51	$23,576.28
Culverts	54"	Pipe, corrugated metal (CMP) - 60 in. diameter pipe	2,230.00	LF	$22.20	$49,497.08
Culverts	24"	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	1,266.00	LF	$7.25	$9,183.56
Scalping sta. oversize mat. concr. pit	60x8	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	480.00	SF	$1.11	$530.88
Stack tube #5 (ST-5)	12x12x109	Bldg. (MN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	15,696.00	CF	$0.24	$3,704.26
ST-5 head house	20x14x40	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	11,200.00	CF	$0.22	$2,408.00
PR-4 conveyor	350 x 8 x 10	Conveyor, demolition, on-site disposal, existing pit, 10,000 ft. haul	28,000.00	CF	$0.30	$8,400.00
TC-1/PR-2 transfer tower & scalping sta.	40xx20x50	Bldg. (MN) demo./on-site disposal in excavated pit - Max.	40,000.00	CF	$0.24	$9,440.00

		10,000 ft. haul				
-Foundation	40x20x1	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	800.00	SF	$1.11	$884.80
R-5 conveyor extension in reclaim tunnel	200 x 8 x 10	Conveyor, demolition, on-site disposal, existing pit, 10,000 ft. haul	16,000.00	CF	$0.30	$4,800.00
P3/P5 conveyor	950 x 8 x 10	Conveyor, demolition, on-site disposal, existing pit, 10,000 ft. haul	76,000.00	CF	$0.30	$22,800.00
-Bent foundations	45x2x4	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	360.00	SF	$1.11	$398.16
R-5 conveyor reclaim tunnel walls	600x10x1.5	Pavement, concrete, demolition only, 7 in. to 24 in. thick - Reinforced	333.00	CY	$133.50	$44,455.50
-Floor and roof	600x20x2	Pavement, concrete, demolition only, 7 in. to 24 in. thick - Reinforced	889.00	CY	$133.50	$118,681.50
Coal prep. plant - Structure	109x40x148	Plant (3S) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	645,280.00	CF	$0.34	$220,040.48
-Floor	84x112x2	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	9,408.00	SF	$1.11	$10,405.25
-Footers	1x2x308 lf	Demo. and on-site disposal in excavated pit, 1.0 ft. x 2 ft. - Max. 200 ft. push	616.00	LF	$4.21	$2,593.36
-Water supply line	2300x 8 in	Pipe, sewer/water - 12 in. diameter pipe	2,300.00	LF	$4.57	$10,511.00
-Water discharge line	300x 12 in diam	Pipe, sewer/water - 12 in. diameter pipe	300.00	LF	$4.57	$1,371.00
Control/lab building - Superstructure	50x40x30	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	60,000.00	CF	$0.22	$12,900.00
-Floor	42x52x12 in	Floor, concrete, demolition only, average reinforcing - 12 in. thick	2,184.00	SF	$1.92	$4,193.28
-Footers	1x2x308 lf	Demo. and on-site disposal in excavated pit, 1.0 ft. x 2 ft. - Max. 200 ft. push	308.00	LF	$4.21	$1,296.68
TC-1 conveyor	350 x 8 x 10	Conveyor, demolition, on-site disposal, existing pit, 10,000 ft. haul	28,000.00	CF	$0.30	$8,400.00
-Bent foundation	8x2x4	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	64.00	SF	$1.11	$70.78

PR-2 conveyor - Superstructure	2000 x 8 x 10	Conveyor, demolition, on-site disposal, existing pit, 10,000 ft. haul	160,000.00	CF	$0.30	$48,000.00
-Bent foundations	160x6x4	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	3,840.00	SF	$1.11	$4,247.04
-Micro piles	240x2x2	Demo. and on-site disposal in excavated pit, 1.5 ft. x 3 ft. - Max. 200 ft. push	960.00	LF	$9.48	$9,100.80
-Take-up tower	24x20x80	Bldg. (MN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	38,400.00	CF	$0.24	$9,062.40
TC-1/PR-2 transfer structure	20x20x40	Bldg. (MN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	16,000.00	CF	$0.24	$3,776.00
-Foundation	20x20x 12 in	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	400.00	SF	$1.11	$442.40
P-6 conveyor	200 x 8 x 10	Conveyor, demolition, on-site disposal, existing pit, 10,000 ft. haul	16,000.00	CF	$0.30	$4,800.00
PP-4 conveyor	550 x 8 x 10	Conveyor, demolition, on-site disposal, existing pit, 10,000 ft. haul	44,000.00	CF	$0.30	$13,200.00
-Bent foundations	10x2x4	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	80.00	SF	$1.11	$88.48
Shaft 3 exhaust fan (MR-337)-Superstructure	120x20x10	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	24,000.00	CF	$0.22	$5,160.00
-Floor	130x31x8 in	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	4,030.00	SF	$1.40	$5,658.12
-Footings	2x3	Demo. and on-site disposal in excavated pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	280.00	LF	$12.64	$3,539.20
FW-2 pond HDPE pipe (MR-371)	830 ft X 8" diam	Pipe, corrugated metal (CMP) - 8 in. diameter pipe	830.00	LF	$3.12	$2,592.09
-Walkway extension (MR-371)	4x12x12	Bldg. (MN) demo./on-site disposal in excavated pit - Max. 200 ft. push	576.00	CF	$0.24	$137.09
Helipad @ LRP, Map 53	60' x40'	Demo. and on-site disposal in existing pit, 6 in. thick - Max. 200 ft. push	2,400.00	SF	$1.01	$2,419.20

Powerlines around MB-5E pond to loadout	1802 ft, 11 poles, Map 53	Utility Poles, Wood 35' - 45' high (each pole)	11.00	EA	$292.00	$3,212.00
Powerlines around MB-5E pond to loadout	1802 ft	Disposal of utility pole and hardware surplus material	1,802.00	LF	$0.02	$36.04
Powerlines around stockpile pad	687 ft, 5 poles, Map 53	Utility Poles, Wood 35' - 45' high (each pole)	5.00	EA	$292.00	$1,460.00
Powerlines around stockpile pad	687 ft	Disposal of utility pole and hardware surplus material	687.00	LF	$0.02	$13.74
12.47KV Powerline from Portals to Warehouse	2078 ft, 9 poles, Map 53	Utility Poles, Wood 35' - 45' high (each pole)	9.00	EA	$292.00	$2,628.00
12.47KV Powerline from Portals to Warehouse	2078 ft	Disposal of utility pole and hardware surplus material	2,078.00	LF	$0.02	$41.56
Powerline to Prep Plant	1668 ft, 9 poles, Map 53	Utility Poles, Wood 35' - 45' high (each pole)	9.00	EA	$292.00	$2,628.00
Powerline to Prep Plant	1668 ft	Disposal of utility pole and hardware surplus material	1,668.00	LF	$0.02	$33.36
Sylvester Gulch 46KV Tap Line (DMEA)	3832 ft, 9 poles, Map53B	Utility Poles, Wood 35' - 45' high (each pole)	9.00	EA	$292.00	$2,628.00
Sylvester Gulch 46KV Tap Line (DMEA)	3832 ft	Disposal of utility pole and hardware surplus material	3,832.00	LF	$0.02	$76.64
Sylvester Gulch Fan 12.47KV Distribution Line	1296 ft, 7 poles, Map 53B	Utility Poles, Wood 35' - 45' high (each pole)	7.00	EA	$292.00	$2,044.00
Sylvester Gulch Fan 12.47KV Distribution Line	1296 ft	Disposal of utility pole and hardware surplus material	1,296.00	LF	$0.02	$25.92
12.47KV Powerline from fan to portals	4984 ft, 17 poles, Map 53	Utility Poles, Wood 35' - 45' high (each pole)	17.00	EA	$292.00	$4,964.00
12.47KV Powerline from fan to portals	4984 ft	Disposal of utility pole and hardware surplus material	4,984.00	LF	$0.02	$99.68
Shaft site 12.47KV Distribution Line	3631 ft, 15 poles, Map53B	Utility Poles, Wood 35' - 45' high (each pole)	15.00	EA	$292.00	$4,380.00
Shaft site 12.47KV Distribution Line	3631 ft	Disposal of utility pole and hardware surplus material	3,631.00	LF	$0.02	$72.62
Electric Borehole 12.47KV Distribution Line	2398 ft, 12 poles, Map53B	Utility Poles, Wood 35' - 45' high (each pole)	12.00	EA	$292.00	$3,504.00
Electric Borehole 12.47KV Distribution Line	2398 ft	Disposal of utility pole and hardware surplus material	2,398.00	LF	$0.02	$47.96
Assorted power/utility poles around main facilities (see Map 53 for	37 poles	Utility Poles, Wood 35' - 45' high (each pole)	37.00	EA	$292.00	$10,804.00
Chlorine Meter Shed (MR-390)	8' x 8' x 8'	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 50 ft. push	512.00	CF	$0.19	$96.77
Remove 1,500	1,500 Gallon	Excavate and load tank	1.00	EA	$614.00	$614.00

Gallon Septic Tank (MR-387)		onto trailer, non-leaking - 3,000 gal. to 5,000 gal.				
-Haul Septic Tank offsite	1,500 Gallon Poly Tank	Haul tank to certified salvage dump - 3,000 to 5,000 gal. tank	1.00	EA	$760.00	$760.00
-Remove sludge from tank	10% of tank volume	Remove sludge, water, and rem. product from tank - 3,000 to 5,000 gal.	0.50	EA	$238.00	$119.00
Office propane tank (MR-430)	3000 gallon	Excavate and load tank onto trailer, non-leaking - 3,000 gal. to 5,000 gal.	1.00	EA	$614.00	$614.00
-Haul propane tank offsite	3000 gallon	Haul tank to certified salvage dump - 3,000 to 5,000 gal. tank	1.00	EA	$760.00	$760.00
-Demo propane tank support bases	2 @ 3' x 7' x 1'	Footing, concrete, average reinforcing - 1.0 ft. x 2 ft.	21.00	LF	$3.83	$80.43
MB-5E pump building demo (MR-437)	15' x 15' x 15'	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	33,750.00	CF	$0.22	$7,256.25
-MB-5E pump building 6" concrete slab	15' x 15' x 6"	Demo. and on-site disposal in existing pit, 6 in. thick - Max. 10,000 ft. haul	225.00	SF	$1.00	$225.23

Job Hours: **1,349.50** **Subtotal (unadjusted)**: **$2,747,979.71** **Total Cost (adjusted for location)**: **$2,508,905.48**

BULLDOZER RIPPING WORK

Task description: **Rip drill pad for water tank boreholes-Main Facilities Area**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 002 State: Colorado Abbreviation: None
Date: 4/29/2022 County: Gunnison Filename: RN8A-002
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper Ownership Cost/Hour:	$19.26	NA
Ripper Operating Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$339.46	

Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 0.34 acres Rip Depth (ft): 2.00 Volume: 1,097 BCY or CCY

Source of estimated quantity: MR-126

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	200.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.838	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.838 Acres/hr

Site Altitude:	6,300	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.70 Acres/hr
Adjusted Hourly Fleet Production: **2.78** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **0.12** Hours

Unit cost: $488.306 Per acre Total job cost: **$166**

BULLDOZER RIPPING WORK

Task description: **Rip drill pad for water tank boreholes**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 003 State: Colorado Abbreviation: None
Date: 4/29/2022 County: Gunnison Filename: RN8A-003
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper Ownership Cost/Hour:	$19.26	NA
Ripper Operating Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$339.46	

Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 0.50 acres Rip Depth (ft): 2.00 Volume: 1,613 BCY or CCY

Source of estimated quantity: TR-70

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	200.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.838	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.838 Acres/hr

Site Altitude:	6,300	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.70 Acres/hr
Adjusted Hourly Fleet Production: **2.78** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **0.18** Hours

Unit cost: $488.306 Per acre Total job cost: **$244**

BULLDOZER WORK

Task description: **Regrade 1.2 million gallon water tank pad**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 004 State: Colorado Abbreviation: None
Date: 4/29/2022 County: Gunnison Filename: RN8A-004
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $308.72
Total Fleet Cost/Hour: **$1,234.89**

MATERIAL QUANTITIES

Initial Volume: 1,032
Swell factor: 1.165
Loose volume: **1,202** LCY

Source of estimated volume: TR-70
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 1,055.6 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 7,380 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3554

Adjusted unit production: 375.16 LCY/hr
Adjusted fleet production: **1500.64** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.823/LCY

Total job time: **0.80** Hours
Total job cost: **$989**

BULLDOZER WORK

Task description: **Distribute topsoil at1.2 million gallon water tank pad**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 005 State: Colorado Abbreviation: None
Date: 4/29/2022 County: Gunnison Filename: RN8A-005
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: NA
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $308.72
Total Fleet Cost/Hour: **$1,234.89**

MATERIAL QUANTITIES

Initial Volume: 1,032
Swell factor: 1.215
Loose volume: **1,254** LCY

Source of estimated volume: TR-70
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 1,055.6 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 7,380 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6445

Adjusted unit production: 680.33 LCY/hr
Adjusted fleet production: **2721.32** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.454/LCY

Total job time: **0.46** Hours
Total job cost: **$569**

BULLDOZER WORK

Task description: **Regrade topsoil 1.2 million gallon water tank pad**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	006	State:	Colorado	Abbreviation:	None
Date:	4/29/2022	County:	Gunnison	Filename:	RN8A-006
User:	LDS				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	NA
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $308.72
Total Fleet Cost/Hour: **$1,234.89**

MATERIAL QUANTITIES

Initial Volume:	1,032
Swell factor:	1.215
Loose volume:	**1,254** LCY

Source of estimated volume: TR-70
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 1,055.6 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 7,380 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6445

Adjusted unit production: 680.33 LCY/hr
Adjusted fleet production: **2721.32** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.454/LCY

Total job time: **0.46** Hours
Total job cost: **$569**

TRUCK/LOADER TEAM WORK

Task description: **Replace topsoil from stockpile #5**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 008 State: Colorado Abbreviation: None
Date: 4/29/2022 County: Gunnison Filename: RN8A-008
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	100	NA	NA
Ownership cost/hour:	$22.87	$59.72	$126.01	$126.01	NA	NA
Operating cost/hour:	$44.28	$55.20	$141.41	$141.41	NA	NA
%Utilization-riper:	NA	0	100	100	NA	NA
Ripper own. cost/hour:	NA	$0.00	$19.26	$19.26	NA	NA
Ripper op. cost/hour:	NA	$0.00	$11.48	$11.48	NA	NA
Operator cost/hour:	$0.00	$40.71	$41.30	$41.30	NA	NA
Unit Subtotals:	$67.15	$155.63	$320.20	$320.20	NA	NA
Number of Units:	3	1	1	1	0	0
Group Subtotals:	Work:	$357.08	Support:	$640.40	Maint:	$0.00

Total work team cost/hour: **$997.48**

MATERIAL QUANTITIES

Initial volume: 120 CCY Swell factor: 1.125
Loose volume: **135** LCY

Source of estimated volume: Page 2.05-53
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: 2,550 Pounds/LCY
Description: Earth - Dry packed
Rated Payload: 35,400 Pounds
Payload Capacity: 13.88 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **9.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	0.900	Other - soil, boulders, roots (80 -100%) 0.900
Adjusted Capacity:	**4.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 6300 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: 2 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:	**0.540**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.540	Minutes	Adjusted for site altitude:	0.540	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) 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	600.00	8.30	3.00	11.30	1018	0.602

Haul Time: **0.602** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	600.00	-8.30	3.00	-5.30	2938	0.265

Return Time: **0.265** minutes
Total Truck Cycle Time: **2.807** minutes

Loading Tool unit Production 519.23 LCY/Hour Adjusted for job efficiency: 430.96 LCY/Hour

Truck Unit Production 192.38 LCY/Hour Adjusted for job efficiency: 159.67 LCY/Hour

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

Adjusted hourly truck team production: 479.02 LCY/Hour
Adjusted single truck/loader team production: 430.96 LCY/Hour
Adjusted multiple truck/loader team production: **430.96** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **0.31** Hours

Unit cost: $2.315 /LCY Total job cost: **$312**

TRUCK/LOADER TEAM WORK

Task description: **Haul fill from SubsoilPile#1 to TrainLO Pond MB-4 & Sed Trap**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 011 State: Colorado Abbreviation: None
Date: 4/29/2022 County: Gunnison Filename: RN8A-011
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	100	NA	NA
Ownership cost/hour:	$22.87	$59.72	$126.01	$126.01	NA	NA
Operating cost/hour:	$44.28	$55.20	$141.41	$141.41	NA	NA
%Utilization-riper:	NA	0	100	100	NA	NA
Ripper own. cost/hour:	NA	$0.00	$19.26	$19.26	NA	NA
Ripper op. cost/hour:	NA	$0.00	$11.48	$11.48	NA	NA
Operator cost/hour:	$0.00	$40.71	$41.30	$41.30	NA	NA
Unit Subtotals:	$67.15	$155.63	$320.20	$320.20	NA	NA
Number of Units:	5	1	1	1	0	0
Group Subtotals:	Work:	$491.38	Support:	$640.40	Maint:	$0.00

Total work team cost/hour: **$1,131.78**

MATERIAL QUANTITIES

Initial volume: 215 CCY Swell factor: 1.125
Loose volume: **242** LCY

Source of estimated volume: TR-82, Drawing 3
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: 2,550 Pounds/LCY
Description: Earth - Dry packed
Rated Payload: 35,400 Pounds
Payload Capacity: 13.88 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **9.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	0.900	Other - soil, boulders, roots (80 -100%) 0.900
Adjusted Capacity:	**4.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 6300 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: 2 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 3/4" to 6" diameter 0.00	0.000	(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:	-0.080	minutes
	Adjusted Loader Cycle Time:	**0.420**	minutes
	Net Load Time per Truck:	**0.520**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.520	Minutes	Adjusted for site altitude:	0.520	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) 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	1600.00	-9.00	3.00	-6.00	2938	0.601
2	2200.00	-4.50	3.00	-1.50	2938	0.798

Haul Time: **1.399** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2200.00	4.50	3.00	7.50	2202	1.015
2	1600.00	9.00	3.00	12.00	1440	1.118

Return Time: **2.133** minutes
Total Truck Cycle Time: **5.452** minutes

Loading Tool unit Production 529.41 LCY/Hour Adjusted for job efficiency: 439.41 LCY/Hour

Truck Unit Production 99.05 LCY/Hour Adjusted for job efficiency: 82.21 LCY/Hour

Optimal No. of Trucks: 5 Truck(s) Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production: 411.04 LCY/Hour
Adjusted single truck/loader team production: 411.04 LCY/Hour
Adjusted multiple truck/loader team production: **411.04** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **0.59** Hours

Unit cost: $2.753 /LCY Total job cost: **$666**

HYDRAULIC EXCAVATOR WORK

Task description: **Backfill/regrade Pond MB-4 (Loadout Pond)**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 012 State: Colorado Abbreviation: None
Date: 4/29/2022 County: Gunnison Filename: RN8A-012
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat 336D L 10'-6" Stick
Attachment 1: ROPS Cab

Horsepower: 268
Weight (MT): 29.30
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$83.42	NA
Operating Cost/Hour:	$74.14	100
Operator Cost/Hour:	$37.32	NA
Total Unit Cost/Hour:	$194.88	

Total Fleet Cost/Hour: $194.88

MATERIAL QUANTITIES

Initial volume: 130 CCY Swell factor: 1.165
Loose volume: **151** LCY

Source of estimated volume: Permit Volume 8A, Exhibit 66
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Excavator Cycle Time (load bucket, swing loaded, dump bucket, swing empty):

Basic Job Condition Description: BELOW AVERAGE
Secondary Job Condition within Basic Description: SEVERE
Cycle Time Value: 0.390 minutes

Load Bucket Capacity

Bucket Size Class: Medium

Rated Capacity: 2.26 LCY (heaped)
Bucket Fill Factor: 0.850 Hard, tough clay (80% - 90%) 0.850
Adjusted Capacity: **1.92** LCY

Job Condition Correction Factors

Site Altitude: 6300 feet

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

Unadjusted Hourly Unit Production: 295.54 LCY/Hour
Adjusted Hourly Unit Production: 245.30 LCY/Hour
Adjusted Hourly Fleet Production: **245.30** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Excavator Total job time: **0.62** Hours

Unit cost: $0.794 /LCY Total job cost: **$120**

HYDRAULIC EXCAVATOR WORK

Task description: **Regrade ramp from Hwy 133 to Loadout**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 013 State: Colorado Abbreviation: None
Date: 4/29/2022 County: Gunnison Filename: RN8A-013
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat 336D L 10'-6" Stick
Attachment 1: ROPS Cab

Horsepower: 268
Weight (MT): 29.30
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$83.42	NA
Operating Cost/Hour:	$74.14	100
Operator Cost/Hour:	$37.32	NA
Total Unit Cost/Hour:	$194.88	

Total Fleet Cost/Hour: $194.88

MATERIAL QUANTITIES

Initial volume: 540 CCY Swell factor: 1.165
Loose volume: **629** LCY

Source of estimated volume: Map 53
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Excavator Cycle Time (load bucket, swing loaded, dump bucket, swing empty):

Basic Job Condition Description: BELOW AVERAGE
Secondary Job Condition within Basic Description: SEVERE
Cycle Time Value: 0.390 minutes

Load Bucket Capacity

Bucket Size Class: Medium

Rated Capacity: 2.26 LCY (heaped)
Bucket Fill Factor: 0.850 Hard, tough clay (80% - 90%) 0.850
Adjusted Capacity: **1.92** LCY

Job Condition Correction Factors

Site Altitude: 6300 feet

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

Unadjusted Hourly Unit Production: 295.54 LCY/Hour
Adjusted Hourly Unit Production: 245.30 LCY/Hour
Adjusted Hourly Fleet Production: **245.30** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Excavator Total job time: **2.56** Hours

Unit cost: $0.794 /LCY Total job cost: **$500**

BULLDOZER RIPPING WORK

Task description: **Rip stockpile at stacker tube and reclaim system**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 018 State: Colorado Abbreviation: None
Date: 4/29/2022 County: Gunnison Filename: RN8A-018
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper Ownership Cost/Hour:	$19.26	NA
Ripper Operating Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$339.46	

Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 6.50 acres Rip Depth (ft): 2.00 Volume: 20,973 BCY or CCY

Source of estimated quantity: TR-58

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	200.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.838	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.838 Acres/hr

Site Altitude:	6,300	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.70 Acres/hr
Adjusted Hourly Fleet Production: **2.78** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **2.34** Hours

Unit cost: $488.306 Per acre Total job cost: **$3,174**

BULLDOZER WORK

Task description: **Regrade ROM expansion area**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 019 State: Colorado Abbreviation: None
Date: 4/29/2022 County: Gunnison Filename: RN8A-019
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume: 15,000
Swell factor: 1.330
Loose volume: **19,950** LCY

Source of estimated volume: MR-240
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 185 feet
Unadjusted hourly production: 763.2 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 30 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.298	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.1059

Adjusted unit production: 80.82 LCY/hr

Adjusted fleet production: **323.28** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: $4.200/LCY

Total job time: **61.71** Hours

Total job cost: **$83,794**

COMPACTION WORK

Task description: **Compact backfill at ROM pile expansion**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	020	State:	Colorado	Abbreviation:	None
Date:	4/29/2022	County:	Gunnison	Filename:	RN8A-020
User:	LDS				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	CAT 825H	Horsepower:	354
Compactor Type:	Soil - tamping foot	Shift Basis:	1 per day
		Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$201.17	NA
Operating Cost/Hour:	$102.80	100
Operator Cost/Hour:	$26.02	NA
Total Unit Cost/Hour:	$329.99	
Total Fleet Cost/Hour:	**$659.99**	

MATERIAL QUANTITIES

Loose volume:	19,950	LCY	Shrinkage factor:	0.875
Compacted volume:	**17,456**	CCY		

Source of estimated volume: MR-240

Source of estimated shrinkage factor: Cat Handbook

HOURLY PRODUCTION

Unadjusted hourly production = (W x S x L x C) / P

Compacted width per pass (W):	7.34	feet
Average Compactor Speed (S):	4.00	mph
Compacted thickness of each lift (L):	10.00	inches
Conversion Constant (C):	16.3	(5,280ft./12in./27cu.ft.)
Required number of machine passes (P):	5	passes
Unadjusted Hourly Unit Production:	957.14	CCY/hour

Job Condition Correction Factors — Site Altitude: 6,300 feet

		Source
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.8300	multiplier

Adjusted Hourly Unit Production:	794.42	CCY/Hour
Adjusted Hourly Fleet Production:	**1,588.85**	CCY/Hour

JOB TIME AND COST

Fleet size:	2	Compactor(s)	Total job time:	**10.99**	Hours
Unit cost:	$0.415	per CCY	Total job cost:	**$7,251**	

BULLDOZER WORK

Task description: **Regrade ditch DCW-7**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 021 State: Colorado Abbreviation: None
Date: 4/29/2022 County: Gunnison Filename: RN8A-021
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume: 50
Swell factor: 1.330
Loose volume: **67** LCY

Source of estimated volume: Maps 54 and 97010-104
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 400 feet
Unadjusted hourly production: 305.6 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.600	(POOR)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3412

Adjusted unit production: 104.27 LCY/hr
Adjusted fleet production: **417.08** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $3.256/LCY

Total job time: **0.16** Hours
Total job cost: **$216**

HYDRAULIC EXCAVATOR WORK

Task description: **Regrade Stacker Tube Access Road**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	022	State:	Colorado	Abbreviation:	None
Date:	4/29/2022	County:	Gunnison	Filename:	RN8A-022
User:	LDS				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat 336D L 10'-6" Stick	Horsepower:	268
Attachment 1:	ROPS Cab	Weight (MT):	29.30
		Shift Basis:	1 per day
		Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$83.42	NA
Operating Cost/Hour:	$74.14	100
Operator Cost/Hour:	$37.32	NA
Total Unit Cost/Hour:	$194.88	

Total Fleet Cost/Hour: $194.88

MATERIAL QUANTITIES

Initial volume: 2,880 CCY Swell factor: 1.165

Loose volume: **3,355** LCY

Source of estimated volume: Map 53

Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Excavator Cycle Time (load bucket, swing loaded, dump bucket, swing empty):

Basic Job Condition Description: BELOW AVERAGE

Secondary Job Condition within Basic Description: SEVERE

Cycle Time Value: 0.390 minutes

Load Bucket Capacity

Bucket Size Class: Medium

Rated Capacity:	2.26	LCY (heaped)
Bucket Fill Factor:	0.850	Hard, tough clay (80% - 90%) 0.850
Adjusted Capacity:	**1.92**	LCY

Job Condition Correction Factors Site Altitude: 6300 feet

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

Unadjusted Hourly Unit Production:	295.54	LCY/Hour
Adjusted Hourly Unit Production:	245.30	LCY/Hour
Adjusted Hourly Fleet Production:	**245.30**	LCY/Hour

JOB TIME AND COST

Fleet size: 1 Excavator Total job time: **13.68** Hours

Unit cost: $0.794 /LCY Total job cost: **$2,666**

SCRAPER TEAM WORK

Task description: **Replace topsoil from stockpile to ROM pad expansion**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 023 State: Colorado Abbreviation: None
Date: 4/29/2022 County: Gunnison Filename: RN8A-023
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G w/push-pull
-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:	$223.48	NA	NA	NA	NA	NA
Operating cost/hour:	$193.77	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:	$30.90	NA	NA	NA	NA	NA
Unit Subtotals:	$448.15	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	$896.30	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$896.30**

MATERIAL QUANTITIES

Initial volume: 6,000 CCY Swell factor: 1.250
Loose volume: **7,500** LCY

Source of estimated volume: MR-240
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Material weight: 2,550 lbs/LCY
Material description: Earth - Dry packed
Rated Payload: 81,600 pounds
Payload Capacity: 32.00 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: 1.00 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 6300 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: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4200.00	-6.40	4.00	-2.40	2972	1.46

Haul Time: **1.46** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4200.00	6.40	4.00	10.40	1476	2.90

Return Time: **2.90** minutes

Total Scraper team cycle time: **5.96** minutes
Adjusted for job conditions: 484.63 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 484.63 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **484.63** LCY/Hour

Unadjusted unit production/hour: 583.89 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **15.48** Hours

Unit cost: $1.849 /LCY Total job cost: **$13,871**

MOTOR GRADER WORK

Task description: **Finish-grade ROM Pile Expansion**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 024 State: Colorado Abbreviation: None
Date: 4/29/2022 County: Gunnison Filename: RN8A-024
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 14M Horsepower: 259
Ripper Attachment: Multi-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$85.80	NA
Operating Cost/Hour:	$60.40	100
Ripper Ownership Cost/Hour:	$5.52	NA
Ripper Operating Cost/Hour:	$4.85	100
Operator Cost/Hour:	$28.56	NA
Total Unit Cost/Hour:	$185.13	
Total Fleet Cost/Hour:	**$185.13**	

MATERIAL QUANTITIES

Total Area to be graded or ripped: 2.50 acres

Source of estimated acreage: Map 53

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: 12.10 feet
Width of blade overlap per pass: 2.00 feet
Net grading or ripping width per pass: 10.10 feet
Unadjusted Hourly Unit Production: 1.8364 acres/hour

Job Condition Correction Factors Site Altitude: 6300 feet

		Source
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.85	(1sh/d, mod.)
Net Correction:	0.8500	multiplier

Adjusted Hourly Unit Production: 1.5609 acres/Hour
Adjusted Hourly Fleet Production: **1.5609** acres/Hour

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **1.60** Hours

Unit cost: $118.60 per acre Total job cost: **$297**

TRUCK/LOADER TEAM WORK

Task description: **Cover refuse pile with subsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 028 State: Colorado Abbreviation: None
Date: 4/29/2022 County: Gunnison Filename: RN8A-028
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	100	NA	NA
Ownership cost/hour:	$22.87	$59.72	$126.01	$126.01	NA	NA
Operating cost/hour:	$44.28	$55.20	$141.41	$141.41	NA	NA
%Utilization-riper:	NA	0	100	100	NA	NA
Ripper own. cost/hour:	NA	$0.00	$19.26	$19.26	NA	NA
Ripper op. cost/hour:	NA	$0.00	$11.48	$11.48	NA	NA
Operator cost/hour:	$0.00	$40.71	$41.30	$41.30	NA	NA
Unit Subtotals:	$67.15	$155.63	$320.20	$320.20	NA	NA
Number of Units:	3	1	1	1	0	0
Group Subtotals:	Work:	$357.08	Support:	$640.40	Maint:	$0.00

Total work team cost/hour: **$997.48**

MATERIAL QUANTITIES

Initial volume: 27,800 CCY Swell factor: 1.000
Loose volume: **27,800** LCY

Source of estimated volume: Permit volume 1, Map 51, Table 47, MR-110
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: 2,550 Pounds/LCY
Description: Earth - Dry packed
Rated Payload: 35,400 Pounds
Payload Capacity: 13.88 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **9.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	0.900	Other - soil, boulders, roots (80 -100%) 0.900
Adjusted Capacity:	**4.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 6300 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: 2 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:	**0.540**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.540	Minutes	Adjusted for site altitude:	0.540	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	-5.00	5.00	0.00	2938	0.426

Haul Time: **0.426** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	5.00	5.00	10.00	1768	0.575

Return Time: **0.575** minutes
Total Truck Cycle Time: **2.941** minutes

Loading Tool unit Production 519.23 LCY/Hour Adjusted for job efficiency: 430.96 LCY/Hour

Truck Unit Production 183.61 LCY/Hour Adjusted for job efficiency: 152.40 LCY/Hour

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

Adjusted hourly truck team production: 457.19 LCY/Hour
Adjusted single truck/loader team production: 430.96 LCY/Hour
Adjusted multiple truck/loader team production: **430.96** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **64.51** Hours

Unit cost: $2.315 /LCY Total job cost: **$64,344**

TRUCK/LOADER TEAM WORK

Task description: **Replace topsoil from water tank stockpile to LRP**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 029 State: Colorado Abbreviation: None
Date: 4/29/2022 County: Gunnison Filename: RN8A-029
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	100	NA	NA
Ownership cost/hour:	$22.87	$59.72	$126.01	$126.01	NA	NA
Operating cost/hour:	$44.28	$55.20	$141.41	$141.41	NA	NA
%Utilization-riper:	NA	0	100	100	NA	NA
Ripper own. cost/hour:	NA	$0.00	$19.26	$19.26	NA	NA
Ripper op. cost/hour:	NA	$0.00	$11.48	$11.48	NA	NA
Operator cost/hour:	$0.00	$40.71	$41.30	$41.30	NA	NA
Unit Subtotals:	$67.15	$155.63	$320.20	$320.20	NA	NA
Number of Units:	5	1	1	1	0	0
Group Subtotals:	Work:	$491.38	Support:	$640.40	Maint:	$0.00

Total work team cost/hour: **$1,131.78**

MATERIAL QUANTITIES

Initial volume: 11,500 CCY Swell factor: 1.125
Loose volume: **12,938** LCY

Source of estimated volume: Operator estimate
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: 2,550 Pounds/LCY
Description: Earth - Dry packed
Rated Payload: 35,400 Pounds
Payload Capacity: 13.88 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **9.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	0.900	Other - soil, boulders, roots (80 -100%) 0.900
Adjusted Capacity:	**4.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 6300 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: 2 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:	**0.540**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.540	Minutes	Adjusted for site altitude:	0.540	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) 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	5200.00	-7.20	3.00	-4.20	2938	1.825

Haul Time: **1.825** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	5200.00	7.20	3.00	10.20	1768	2.951

Return Time: **2.951** minutes
Total Truck Cycle Time: **6.716** minutes

Loading Tool unit Production 519.23 LCY/Hour Adjusted for job efficiency: 430.96 LCY/Hour

Truck Unit Production 80.41 LCY/Hour Adjusted for job efficiency: 66.74 LCY/Hour

Optimal No. of Trucks: 6 Truck(s) Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production: 333.68 LCY/Hour
Adjusted single truck/loader team production: 333.68 LCY/Hour
Adjusted multiple truck/loader team production: **333.68** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **38.77** Hours

Unit cost: $3.392 /LCY Total job cost: **$43,881**

BULLDOZER WORK

Task description: **Backfill/regrade powder magazine**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 030 State: Colorado Abbreviation: None
Date: 4/29/2022 County: Gunnison Filename: RN8A-030
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume: 1,028
Swell factor: 1.165
Loose volume: **1,198** LCY

Source of estimated volume: Permit Volume 7, Exhibit 43
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.900	(AB.AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3218

Adjusted unit production: 679.16 LCY/hr
Adjusted fleet production: **2716.64** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.500/LCY

Total job time: **0.44** Hours
Total job cost: **$599**

BULLDOZER WORK

Task description: **Backfill/grade substation**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 031 State: Colorado Abbreviation: None
Date: 4/29/2022 County: Gunnison Filename: RN8A-031
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume: 635
Swell factor: 1.165
Loose volume: **740** LCY

Source of estimated volume: Permit volume 7, Exhibit 43
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 85 feet
Unadjusted hourly production: 1,405.9 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.600	(FND-SF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2095

Adjusted unit production: 294.54 LCY/hr
Adjusted fleet production: **1178.16** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $1.153/LCY

Total job time: **0.63** Hours
Total job cost: **$853**

BULLDOZER WORK

Task description: **Regrade light use roads for water tank topsoil pile**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	036	State:	Colorado	Abbreviation:	None
Date:	4/29/2022	County:	Gunnison	Filename:	RN8A-036
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	889
Swell factor:	1.330
Loose volume:	**1,182** LCY

Source of estimated volume: Division estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 100 feet
Unadjusted hourly production: 1,243.2 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3554

Adjusted unit production: 441.83 LCY/hr
Adjusted fleet production: **1767.32** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.768/LCY

Total job time: **0.67** Hours
Total job cost: **$908**

BULLDOZER WORK

Task description: **Backfill/grade water storage tank and road**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	037	State:	Colorado	Abbreviation:	None
Date:	4/29/2022	County:	Gunnison	Filename:	RN8A-037
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	401
Swell factor:	1.165
Loose volume:	**467** LCY

Source of estimated volume: Permit volume 7, Exhibit 43
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 25 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.422	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.1500

Adjusted unit production: 316.58 LCY/hr
Adjusted fleet production: **1266.32** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $1.072/LCY

Total job time: **0.37** Hours
Total job cost: **$501**

TRUCK/LOADER TEAM WORK

Task description: **Backfill portal bench to final contours**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 038 State: Colorado Abbreviation: None
Date: 4/29/2022 County: Gunnison Filename: RN8A-038
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	100	NA	NA
Ownership cost/hour:	$22.87	$59.72	$126.01	$126.01	NA	NA
Operating cost/hour:	$44.28	$55.20	$141.41	$141.41	NA	NA
%Utilization-riper:	NA	0	100	100	NA	NA
Ripper own. cost/hour:	NA	$0.00	$19.26	$19.26	NA	NA
Ripper op. cost/hour:	NA	$0.00	$11.48	$11.48	NA	NA
Operator cost/hour:	$0.00	$40.71	$41.30	$41.30	NA	NA
Unit Subtotals:	$67.15	$155.63	$320.20	$320.20	NA	NA
Number of Units:	5	1	1	1	0	0
Group Subtotals:	Work:	$491.38	Support:	$640.40	Maint:	$0.00

Total work team cost/hour: **$1,131.78**

MATERIAL QUANTITIES

Initial volume: 8,723 CCY Swell factor: 1.330
Loose volume: **11,602** LCY

Source of estimated volume: Permit volume 3, Exhibit 14; Permit volume 11, Exhibit 54
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: 35,400 Pounds
Payload Capacity: 12.21 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **9.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	0.900	Other - soil, boulders, roots (80 -100%) 0.900
Adjusted Capacity:	**4.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 6300 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: 2 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:	**0.540**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.540	Minutes	Adjusted for site altitude:	0.540	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	8150.00	5.00	5.00	10.00	1068	7.645

Haul Time: **7.645** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	8150.00	-5.00	5.00	0.00	2938	2.799

Return Time: **2.799** minutes
Total Truck Cycle Time: **12.384** minutes

Loading Tool unit Production 519.23 LCY/Hour Adjusted for job efficiency: 430.96 LCY/Hour

Truck Unit Production 43.60 LCY/Hour Adjusted for job efficiency: 36.19 LCY/Hour

Optimal No. of Trucks: 12 Truck(s) Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production: 180.96 LCY/Hour
Adjusted single truck/loader team production: 180.96 LCY/Hour
Adjusted multiple truck/loader team production: **180.96** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **64.11** Hours

Unit cost: $6.254 /LCY Total job cost: **$72,560**

SCRAPER TEAM WORK

Task description: **Backfill and grade storage bench**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 039 State: Colorado Abbreviation: None
Date: 4/29/2022 County: Gunnison Filename: RN8A-039
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G w/push-pull
-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:	$223.48	NA	NA	NA	NA	NA
Operating cost/hour:	$193.77	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:	$30.90	NA	NA	NA	NA	NA
Unit Subtotals:	$448.15	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	$896.30	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$896.30**

MATERIAL QUANTITIES

Initial volume: 140,000 CCY Swell factor: 1.165
Loose volume: **163,100** LCY

Source of estimated volume: Map 58A
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Scraper Bowl (volume) Basis:

Material weight: 2,900 lbs/LCY
Material description: Decomposed rock - 50% Rock, 50% Earth
Rated Payload: 81,600 pounds
Payload Capacity: 28.14 LCY

Struck Volume: 24.00 LCY
Heaped Volume: 34.00 LCY
Average Volume: 29.00 LCY
Adjusted Capacity: **28.14** LCY

Cycle Time:

Scraper Loading Time: 1.00 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 6300 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: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	250.00	25.00	5.00	30.00	267	0.94

Haul Time: **0.94** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	250.00	-25.00	5.00	-20.00	1201	0.31

Return Time: **0.31** minutes

Total Scraper team cycle time: **2.85** minutes
Adjusted for job conditions: 983.35 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 983.35 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **983.35** LCY/Hour

Unadjusted unit production/hour: 1,184.75 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **165.86** Hours

Unit cost: $0.911 /LCY Total job cost: **$148,662**

BULLDOZER WORK

Task description: **Push cut material from west fill on to bench**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	040	State:	Colorado	Abbreviation:	None
Date:	4/29/2022	County:	Gunnison	Filename:	RN8A-040
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	13,000
Swell factor:	1.330
Loose volume:	**17,290** LCY

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

HOURLY PRODUCTION

Average push distance: 100 feet
Unadjusted hourly production: 1,243.2 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 30 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.600	(POOR)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	0.298	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.0890

Adjusted unit production: 110.64 LCY/hr
Adjusted fleet production: **442.56** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $3.068/LCY

Total job time: **39.07** Hours
Total job cost: **$53,049**

BULLDOZER WORK

Task description: **Push west fill to base of cut slope bench**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	041	State:	Colorado	Abbreviation:	None
Date:	4/29/2022	County:	Gunnison	Filename:	RN8A-041
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	13,000
Swell factor:	1.330
Loose volume:	**17,290** LCY

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

HOURLY PRODUCTION

Average push distance: 400 feet
Unadjusted hourly production: 305.6 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.600	(POOR)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.200	(SLOT)
Visibility:	0.800	(POOR)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3185

Adjusted unit production: 97.33 LCY/hr

Adjusted fleet production: **389.32** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: $3.488/LCY

Total job time: **44.41** Hours

Total job cost: **$60,303**

BULLDOZER WORK

Task description: **Push fill material back on to cut slope**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	042	State:	Colorado	Abbreviation:	None
Date:	4/29/2022	County:	Gunnison	Filename:	RN8A-042
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	13,000
Swell factor:	1.330
Loose volume:	**17,290** LCY

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

HOURLY PRODUCTION

Average push distance: 200 feet
Unadjusted hourly production: 700.0 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 25 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.200	(SLOT)
Visibility:	0.800	(POOR)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	0.422	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.1680

Adjusted unit production: 117.60 LCY/hr
Adjusted fleet production: **470.4** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $2.887/LCY

Total job time: **36.76** Hours
Total job cost: **$49,909**

BULLDOZER WORK

Task description: **Move fill material from portal storage bench to base of cut**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	043	State:	Colorado	Abbreviation:	None
Date:	4/29/2022	County:	Gunnison	Filename:	RN8A-043
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	3,000
Swell factor:	1.330
Loose volume:	**3,990** LCY

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

HOURLY PRODUCTION

Average push distance: 400 feet
Unadjusted hourly production: 305.6 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.600	(POOR)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.000	(GEN.)
Visibility:	0.800	(POOR)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.600	(FND-SF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.1706

Adjusted unit production: 52.14 LCY/hr
Adjusted fleet production: **208.56** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $6.511/LCY

Total job time: **19.13** Hours
Total job cost: **$25,977**

BULLDOZER WORK

Task description: **Move portal storage bench material on to cut slope**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 044 State: Colorado Abbreviation: None
Date: 4/29/2022 County: Gunnison Filename: RN8A-044
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume: 3,000
Swell factor: 1.330
Loose volume: **3,990** LCY

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

HOURLY PRODUCTION

Average push distance: 200 feet
Unadjusted hourly production: 700.0 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 25 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.600	(POOR)
Material consistency:	1.200	(CAT HB)
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.422	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.1920

Adjusted unit production: 134.40 LCY/hr
Adjusted fleet production: **537.6** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $2.526/LCY

Total job time: **7.42** Hours
Total job cost: **$10,078**

COMPACTION WORK

Task description: **Compact fill replaced material at MSB excavation site**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	045	State:	Colorado	Abbreviation:	None
Date:	5/5/2022	County:	Gunnison	Filename:	RN8A-045
User:	LDS				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	CAT 825H	Horsepower:	354
Compactor Type:	Soil - tamping foot	Shift Basis:	1 per day
		Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$201.17	NA
Operating Cost/Hour:	$102.80	100
Operator Cost/Hour:	$26.02	NA
Total Unit Cost/Hour:	$329.99	
Total Fleet Cost/Hour:	**$659.99**	

MATERIAL QUANTITIES

Loose volume:	21,280	LCY	Shrinkage factor:	0.875
Compacted volume:	**18,620**	CCY		

Source of estimated volume: Operator estimate
Source of estimated shrinkage factor: Cat Handbook

HOURLY PRODUCTION

Unadjusted hourly production = (W x S x L x C) / P

Compacted width per pass (W):	7.34	feet
Average Compactor Speed (S):	4.00	mph
Compacted thickness of each lift (L):	10.00	inches
Conversion Constant (C):	16.3	(5,280ft./12in./27cu.ft.)
Required number of machine passes (P):	5	passes
Unadjusted Hourly Unit Production:	957.14	CCY/hour

Job Condition Correction Factors — Site Altitude: 6,300 feet

		Source
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.8300	multiplier

Adjusted Hourly Unit Production:	794.42	CCY/Hour
Adjusted Hourly Fleet Production:	**1,588.85**	CCY/Hour

JOB TIME AND COST

Fleet size:	2	Compactor(s)	Total job time:	**11.72**	Hours
Unit cost:	$0.415	per CCY	Total job cost:	**$7,735**	

BULLDOZER RIPPING WORK

Task description: **Rip storage bench access road**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 046 State: Colorado Abbreviation: None
Date: 5/5/2022 County: Gunnison Filename: RN8A-046
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper Ownership Cost/Hour:	$19.26	NA
Ripper Operating Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$339.46	

Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 0.47 acres Rip Depth (ft): 2.00 Volume: 1,517 BCY or CCY

Source of estimated quantity: SB-101 and SB-102

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	200.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.838	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.838 Acres/hr

Site Altitude:	6,300	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.70 Acres/hr
Adjusted Hourly Fleet Production: **2.78** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **0.17** Hours

Unit cost: $488.306 Per acre Total job cost: **$230**

BULLDOZER RIPPING WORK

Task description: **Rip portal access road (east of portals)**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 048 State: Colorado Abbreviation: None
Date: 5/5/2022 County: Gunnison Filename: RN8A-048
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper Ownership Cost/Hour:	$19.26	NA
Ripper Operating Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$339.46	

Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 0.60 acres Rip Depth (ft): 2.00 Volume: 1,936 BCY or CCY

Source of estimated quantity: SB-101 and SB-102

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	200.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.838	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.838 Acres/hr

Site Altitude:	6,300	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.70 Acres/hr
Adjusted Hourly Fleet Production: **2.78** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **0.22** Hours

Unit cost: $488.306 Per acre Total job cost: **$293**

BULLDOZER RIPPING WORK

Task description: **Rip Materials Storage Bench**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 050 State: Colorado Abbreviation: None
Date: 5/5/2022 County: Gunnison Filename: RN8A-050
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper Ownership Cost/Hour:	$19.26	NA
Ripper Operating Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$339.46	

Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 3.65 acres Rip Depth (ft): 2.00 Volume: 11,777 BCY or CCY

Source of estimated quantity: SB-101 and SB-102

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	200.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.838	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.838 Acres/hr

Site Altitude:	6,300	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.70 Acres/hr
Adjusted Hourly Fleet Production: **2.78** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **1.31** Hours

Unit cost: $488.306 Per acre Total job cost: **$1,782**

SCRAPER TEAM WORK

Task description: **Replace topsoil from stockpile to Materials Storage Bench**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 051 State: Colorado Abbreviation: None
Date: 5/5/2022 County: Gunnison Filename: RN8A-051
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G w/push-pull
-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:	$223.48	NA	NA	NA	NA	NA
Operating cost/hour:	$193.77	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:	$30.90	NA	NA	NA	NA	NA
Unit Subtotals:	$448.15	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	$896.30	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$896.30**

MATERIAL QUANTITIES

Initial volume: 25,000 CCY Swell factor: 1.125
Loose volume: **28,125** LCY

Source of estimated volume: SB-101 and SB-102
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Material weight: 2,550 lbs/LCY
Material description: Earth - Dry packed
Rated Payload: 81,600 pounds
Payload Capacity: 32.00 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: 1.00 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 6300 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: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	450.00	-26.00	4.00	-22.00	889	0.70

Haul Time: **0.70** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	450.00	26.00	4.00	30.00	523	0.87

Return Time: **0.87** minutes

Total Scraper team cycle time: **3.17** minutes
Adjusted for job conditions: 911.17 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 911.17 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **911.17** LCY/Hour

Unadjusted unit production/hour: 1,097.79 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **30.87** Hours

Unit cost: $0.984 /LCY Total job cost: **$27,666**

SCRAPER TEAM WORK

Task description: **Replace topsoil from stockpile #5 to MSB cutslope**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 052 State: Colorado Abbreviation: None
Date: 5/5/2022 County: Gunnison Filename: RN8A-052
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

	Equipment Description
-Scraper:	Cat 637G w/push-pull
-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:	$223.48	NA	NA	NA	NA	NA
Operating cost/hour:	$193.77	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:	$30.90	NA	NA	NA	NA	NA
Unit Subtotals:	$448.15	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	$896.30	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$896.30**

MATERIAL QUANTITIES

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

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

HOURLY PRODUCTION

Material weight: 2,550 lbs/LCY
Material description: Earth - Dry packed
Rated Payload: 81,600 pounds
Payload Capacity: 32.00 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: 1.00 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 6300 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: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2625.00	-7.60	4.00	-3.60	2972	0.93

Haul Time: **0.93** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2625.00	7.60	4.00	11.60	1327	2.02

Return Time: **2.02** minutes

Total Scraper team cycle time: **4.55** minutes
Adjusted for job conditions: 634.81 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 634.81 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **634.81** LCY/Hour

Unadjusted unit production/hour: 764.84 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **7.88** Hours

Unit cost: $1.412 /LCY Total job cost: **$7,060**

SCRAPER TEAM WORK

Task description: **Replace topsoil from stockpile #5 to west fill area**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 053 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-053
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G w/push-pull
-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:	$223.48	NA	NA	NA	NA	NA
Operating cost/hour:	$193.77	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:	$30.90	NA	NA	NA	NA	NA
Unit Subtotals:	$448.15	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	$896.30	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$896.30**

MATERIAL QUANTITIES

Initial volume: 1,000 CCY Swell factor: 1.250
Loose volume: **1,250** LCY

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

HOURLY PRODUCTION

Material weight: 2,550 lbs/LCY
Material description: Earth - Dry packed
Rated Payload: 81,600 pounds
Payload Capacity: 32.00 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: 1.00 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 6300 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: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2100.00	-16.70	4.00	-12.70	1201	1.87

Haul Time: **1.87** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2100.00	16.70	4.00	20.70	751	2.81

Return Time: **2.81** minutes

Total Scraper team cycle time: **6.28** minutes
Adjusted for job conditions: 459.94 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 459.94 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **459.94** LCY/Hour

Unadjusted unit production/hour: 554.14 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **2.72** Hours

Unit cost: $1.949 /LCY Total job cost: **$2,436**

BULLDOZER RIPPING WORK

Task description: **Rip Truck Pull-out Lane**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 054 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-054
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper Ownership Cost/Hour:	$19.26	NA
Ripper Operating Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$339.46	

Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 0.10 acres Rip Depth (ft): 2.00 Volume: 323 BCY or CCY

Source of estimated quantity: SB-101 and SB-102

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	200.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.838	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.838 Acres/hr

Site Altitude:	6,300	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.70 Acres/hr
Adjusted Hourly Fleet Production: **2.78** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **0.04** Hours

Unit cost: $488.306 Per acre Total job cost: **$49**

HYDRAULIC EXCAVATOR WORK

Task description: **Regrade mine access road from office to portals**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 055 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-055
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat 336D L 10'-6" Stick
Attachment 1: ROPS Cab

Horsepower: 268
Weight (MT): 29.30
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$83.42	NA
Operating Cost/Hour:	$74.14	100
Operator Cost/Hour:	$37.32	NA
Total Unit Cost/Hour:	$194.88	

Total Fleet Cost/Hour: $194.88

MATERIAL QUANTITIES

Initial volume: 5,940 CCY Swell factor: 1.165
Loose volume: **6,920** LCY

Source of estimated volume: Map 53
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Excavator Cycle Time (load bucket, swing loaded, dump bucket, swing empty):

Basic Job Condition Description: BELOW AVERAGE
Secondary Job Condition within Basic Description: AVERAGE
Cycle Time Value: 0.367 minutes

Load Bucket Capacity

Bucket Size Class: Medium

Rated Capacity: 2.26 LCY (heaped)
Bucket Fill Factor: 0.850 Hard, tough clay (80% - 90%) 0.850
Adjusted Capacity: **1.92** LCY

Job Condition Correction Factors Site Altitude: 6300 feet

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

Unadjusted Hourly Unit Production: 314.06 LCY/Hour
Adjusted Hourly Unit Production: 260.67 LCY/Hour
Adjusted Hourly Fleet Production: **260.67** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Excavator Total job time: **26.55** Hours

Unit cost: $0.748 /LCY Total job cost: **$5,174**

BULLDOZER RIPPING WORK

Task description: **Rip Main Surface Facilities Area**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 056 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-056
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper Ownership Cost/Hour:	$19.26	NA
Ripper Operating Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$339.46	

Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 13.00 acres Rip Depth (ft): 2.00 Volume: 41,947 BCY or CCY

Source of estimated quantity: Map 53

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	200.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.838	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.838 Acres/hr

Site Altitude:	6,300	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.70 Acres/hr
Adjusted Hourly Fleet Production: **2.78** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **4.68** Hours

Unit cost: $488.306 Per acre Total job cost: **$6,348**

BULLDOZER WORK

Task description: **Backfill/grade shop and warehouse area**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	057	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8A-057
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	1,913
Swell factor:	1.165
Loose volume:	**2,229** LCY

Source of estimated volume: Permit Volume 7, Exhibit 43
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 80 feet
Unadjusted hourly production: 1,460.1 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 30 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.298	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.1059

Adjusted unit production: 154.62 LCY/hr
Adjusted fleet production: **618.48** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $2.195/LCY

Total job time: **3.60** Hours
Total job cost: **$4,893**

BULLDOZER WORK

Task description: **Backfill/grade office/bathhouse area**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	058	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8A-058
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	6,447
Swell factor:	1.165
Loose volume:	**7,511** LCY

Source of estimated volume: Permit Volume 7, Exhibit 43
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 95 feet
Unadjusted hourly production: 1,297.5 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 20 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	0.545	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2034

Adjusted unit production: 263.91 LCY/hr
Adjusted fleet production: **1055.64** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $1.286/LCY

Total job time: **7.11** Hours
Total job cost: **$9,661**

BULLDOZER WORK

Task description: **Backfill/grade parking lot**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	059	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8A-059
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	15,015
Swell factor:	1.165
Loose volume:	**17,492** LCY

Source of estimated volume: Permit Volume 7, Exhibit 43
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 115 feet
Unadjusted hourly production: 1,130.6 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3554

Adjusted unit production: 401.82 LCY/hr
Adjusted fleet production: **1607.28** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.845/LCY

Total job time: **10.88** Hours
Total job cost: **$14,778**

BULLDOZER WORK

Task description: **Backfill Ponds MB-1 and FW-1**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	061	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8A-061
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	4,200
Swell factor:	1.165
Loose volume:	**4,893** LCY

Source of estimated volume: Map 54, Permit Volume 8A, Exhibit 66
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: -30 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.601	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5690

Adjusted unit production: 1,200.87 LCY/hr
Adjusted fleet production: **4803.48** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.283/LCY

Total job time: **1.02** Hours
Total job cost: **$1,383**

BULLDOZER WORK

Task description: **Regrade Pond MB-1**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 062 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-062
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume: 30,193
Swell factor: 1.165
Loose volume: **35,175** LCY

Source of estimated volume: Map 53, Division estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 150 feet
Unadjusted hourly production: 910.5 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 5 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.600	(FND-SF)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2889

Adjusted unit production: 263.04 LCY/hr
Adjusted fleet production: **1052.16** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $1.291/LCY

Total job time: **33.43** Hours
Total job cost: **$45,394**

BULLDOZER WORK

Task description: **Regrade freshwater pond FW-1**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 063 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-063
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume: 14,719
Swell factor: 1.165
Loose volume: **17,148** LCY

Source of estimated volume: Permit Volume 7, Exhibit 43
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 175 feet
Unadjusted hourly production: 805.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 5 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3209

Adjusted unit production: 258.42 LCY/hr
Adjusted fleet production: **1033.68** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $1.314/LCY

Total job time: **16.59** Hours
Total job cost: **$22,525**

BULLDOZER WORK

Task description: **Regrade Pond MB-3**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 067 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-067
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume: 5,655
Swell factor: 1.165
Loose volume: **6,588** LCY

Source of estimated volume: Permit Volume 8A, Exhibit 66
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 60 feet
Unadjusted hourly production: 1,872.0 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3554

Adjusted unit production: 665.31 LCY/hr
Adjusted fleet production: **2661.24** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.510/LCY

Total job time: **2.48** Hours
Total job cost: **$3,361**

HYDRAULIC EXCAVATOR WORK

Task description: **Regrade diversion ditches DCW-1A, DCW-1B, and D1-6**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 070 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-070
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat 336D L 10'-6" Stick
Attachment 1: ROPS Cab

Horsepower: 268
Weight (MT): 29.30
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$83.42	NA
Operating Cost/Hour:	$74.14	100
Operator Cost/Hour:	$37.32	NA
Total Unit Cost/Hour:	$194.88	

Total Fleet Cost/Hour: $194.88

MATERIAL QUANTITIES

Initial volume: 2,775 CCY Swell factor: 1.165
Loose volume: **3,233** LCY

Source of estimated volume: Map 54, Table 44 and Exhibit 66
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Excavator Cycle Time (load bucket, swing loaded, dump bucket, swing empty):

Basic Job Condition Description: BELOW AVERAGE
Secondary Job Condition within Basic Description: SEVERE
Cycle Time Value: 0.390 minutes

Load Bucket Capacity

Bucket Size Class: Medium

Rated Capacity: 2.26 LCY (heaped)
Bucket Fill Factor: 0.850 Hard, tough clay (80% - 90%) 0.850
Adjusted Capacity: **1.92** LCY

Job Condition Correction Factors Site Altitude: 6300 feet

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

Unadjusted Hourly Unit Production: 295.54 LCY/Hour
Adjusted Hourly Unit Production: 245.30 LCY/Hour
Adjusted Hourly Fleet Production: **245.30** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Excavator Total job time: **13.18** Hours

Unit cost: $0.794 /LCY Total job cost: **$2,568**

HYDRAULIC EXCAVATOR WORK

Task description: **Regrade all sediment ditches**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	071	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8A-071
User:	LDS				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat 336D L 10'-6" Stick	Horsepower:	268
Attachment 1:	ROPS Cab	Weight (MT):	29.30
		Shift Basis:	1 per day
		Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$83.42	NA
Operating Cost/Hour:	$74.14	100
Operator Cost/Hour:	$37.32	NA
Total Unit Cost/Hour:	$194.88	

Total Fleet Cost/Hour: $194.88

MATERIAL QUANTITIES

Initial volume: 273 CCY Swell factor: 1.165

Loose volume: **318** LCY

Source of estimated volume: Map 54, Table 44 and Exhibit 66

Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Excavator Cycle Time (load bucket, swing loaded, dump bucket, swing empty):

Basic Job Condition Description: BELOW AVERAGE

Secondary Job Condition within Basic Description: SEVERE

Cycle Time Value: 0.390 minutes

Load Bucket Capacity

Bucket Size Class: Medium

Rated Capacity:	2.26	LCY (heaped)
Bucket Fill Factor:	0.850	Hard, tough clay (80% - 90%) 0.850
Adjusted Capacity:	**1.92**	LCY

Job Condition Correction Factors

Site Altitude: 6300 feet

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

Unadjusted Hourly Unit Production:	295.54	LCY/Hour
Adjusted Hourly Unit Production:	245.30	LCY/Hour
Adjusted Hourly Fleet Production:	**245.30**	LCY/Hour

JOB TIME AND COST

Fleet size: 1 Excavator Total job time: **1.30** Hours

Unit cost: $0.794 /LCY Total job cost: **$253**

BULLDOZER RIPPING WORK

Task description: **Rip new light use and access roads**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 072 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-072
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper Ownership Cost/Hour:	$19.26	NA
Ripper Operating Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$339.46	

Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 1.21 acres Rip Depth (ft): 2.00 Volume: 3,904 BCY or CCY

Source of estimated quantity: TR-65, drawing G101

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	200.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.838	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.838 Acres/hr

Site Altitude:	6,300	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.70 Acres/hr
Adjusted Hourly Fleet Production: **2.78** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **0.44** Hours

Unit cost: $488.306 Per acre Total job cost: **$591**

HYDRAULIC EXCAVATOR WORK

Task description: **Regrade Middle Mine Facilities Road**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	073	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8A-073
User:	LDS				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat 336D L 10'-6" Stick	Horsepower:	268
Attachment 1:	ROPS Cab	Weight (MT):	29.30
		Shift Basis:	1 per day
		Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$83.42	NA
Operating Cost/Hour:	$74.14	100
Operator Cost/Hour:	$37.32	NA
Total Unit Cost/Hour:	$194.88	

Total Fleet Cost/Hour: $194.88

MATERIAL QUANTITIES

Initial volume: 2,268 CCY Swell factor: 1.165

Loose volume: **2,642** LCY

Source of estimated volume: Map 54, Table 44 and Exhibit 66

Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Excavator Cycle Time (load bucket, swing loaded, dump bucket, swing empty):

Basic Job Condition Description: BELOW AVERAGE

Secondary Job Condition within Basic Description: SEVERE

Cycle Time Value: 0.390 minutes

Load Bucket Capacity

Bucket Size Class: Medium

Rated Capacity:	2.26	LCY (heaped)
Bucket Fill Factor:	0.850	Hard, tough clay (80% - 90%) 0.850
Adjusted Capacity:	**1.92**	LCY

Job Condition Correction Factors

Site Altitude: 6300 feet

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

Unadjusted Hourly Unit Production:	295.54	LCY/Hour
Adjusted Hourly Unit Production:	245.30	LCY/Hour
Adjusted Hourly Fleet Production:	**245.30**	LCY/Hour

JOB TIME AND COST

Fleet size: 1 Excavator Total job time: **10.77** Hours

Unit cost: $0.794 /LCY Total job cost: **$2,099**

SCRAPER TEAM WORK

Task description: **Distribute Main Topsoil Stockpile**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 074 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-074
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G w/push-pull
-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:	$223.48	NA	NA	NA	NA	NA
Operating cost/hour:	$193.77	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:	$30.90	NA	NA	NA	NA	NA
Unit Subtotals:	$448.15	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	$896.30	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$896.30**

MATERIAL QUANTITIES

Initial volume: 84,800 CCY Swell factor: 1.125
Loose volume: **95,400** LCY

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

HOURLY PRODUCTION

Material weight: 2,550 lbs/LCY
Material description: Earth - Dry packed
Rated Payload: 81,600 pounds
Payload Capacity: 32.00 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: 1.00 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 6300 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: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1600.00	5.00	5.00	10.00	922	1.76

Haul Time: **1.76** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1600.00	-5.00	5.00	0.00	2965	0.65

Return Time: **0.65** minutes

Total Scraper team cycle time: **4.01** minutes
Adjusted for job conditions: 720.30 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 720.30 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **720.30** LCY/Hour

Unadjusted unit production/hour: 867.83 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **132.44** Hours

Unit cost: $1.244 /LCY Total job cost: **$118,710**

BULLDOZER WORK

Task description: **Spread topsoil on parking lot expansion, approved MR-317**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	075	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8A-075
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	2,549
Swell factor:	1.000
Loose volume:	**2,549** LCY

Source of estimated volume: MR-317 submittal (1.58 acres X 1 ft thick)
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 115 feet
Unadjusted hourly production: 1,130.6 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: 0 %
Average site altitude: 6,300 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction Factor		Source
Operator Skill:	0.600	(POOR)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6875

Adjusted unit production: 777.29 LCY/hr
Adjusted fleet production: **3109.16** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.437/LCY

Total job time: **0.82** Hours
Total job cost: **$1,113**

BULLDOZER WORK

Task description: **Finish grade backfilled areas**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	076	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8A-076
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	43,262
Swell factor:	1.165
Loose volume:	**50,400** LCY

Source of estimated volume: Map 53
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 60 feet
Unadjusted hourly production: 1,872.0 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: 0 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.000	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	0.800	(POOR)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3475

Adjusted unit production: 650.52 LCY/hr
Adjusted fleet production: **2602.08** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.522/LCY

Total job time: **19.37** Hours
Total job cost: **$26,300**

BULLDOZER RIPPING WORK

Task description: **Rip expanded mine entrance area**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 077 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-077
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper Ownership Cost/Hour:	$19.26	NA
Ripper Operating Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$339.46	

Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 0.40 acres Rip Depth (ft): 2.00 Volume: 1,291 BCY or CCY

Source of estimated quantity: Figure A-1

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	200.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.838	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.838 Acres/hr

Site Altitude:	6,300	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.70 Acres/hr
Adjusted Hourly Fleet Production: **2.78** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **0.14** Hours

Unit cost: $488.306 Per acre Total job cost: **$195**

BULLDOZER WORK

Task description: **Regrade mine entrance expansion area**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 078 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-078
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume: 1,465
Swell factor: 1.330
Loose volume: **1,948** LCY

Source of estimated volume: Map B-1
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 75 feet
Unadjusted hourly production: 1,514.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2794

Adjusted unit production: 423.10 LCY/hr
Adjusted fleet production: **1692.4** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.802/LCY

Total job time: **1.15** Hours
Total job cost: **$1,563**

TRUCK/LOADER TEAM WORK

Task description: **Replace topsoil f/stockpile to add'l disturb. at mine entran**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 079 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-079
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	100	NA	NA
Ownership cost/hour:	$22.87	$59.72	$126.01	$126.01	NA	NA
Operating cost/hour:	$44.28	$55.20	$141.41	$141.41	NA	NA
%Utilization-riper:	NA	0	100	100	NA	NA
Ripper own. cost/hour:	NA	$0.00	$19.26	$19.26	NA	NA
Ripper op. cost/hour:	NA	$0.00	$11.48	$11.48	NA	NA
Operator cost/hour:	$0.00	$40.71	$41.30	$41.30	NA	NA
Unit Subtotals:	$67.15	$155.63	$320.20	$320.20	NA	NA
Number of Units:	5	1	1	1	0	0
Group Subtotals:	Work:	$491.38	Support:	$640.40	Maint:	$0.00

Total work team cost/hour: **$1,131.78**

MATERIAL QUANTITIES

Initial volume: 645 CCY Swell factor: 1.125
Loose volume: **726** LCY

Source of estimated volume: Permit volume 3, Exhibit 14; Permit volume 11, Exhibit 54
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: 2,550 Pounds/LCY
Description: Earth - Dry packed
Rated Payload: 35,400 Pounds
Payload Capacity: 13.88 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **9.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	0.900	Other - soil, boulders, roots (80 -100%) 0.900
Adjusted Capacity:	**4.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 6300 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: 2 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:	**0.540**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.540	Minutes	Adjusted for site altitude:	0.540	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	500.00	0.00	3.00	3.00	2824	0.279

Haul Time: **0.279** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	500.00	0.00	3.00	3.00	2874	0.199

Return Time: **0.199** minutes
Total Truck Cycle Time: **2.418** minutes

Loading Tool unit Production 519.23 LCY/Hour Adjusted for job efficiency: 430.96 LCY/Hour

Truck Unit Production 223.33 LCY/Hour Adjusted for job efficiency: 185.36 LCY/Hour

Optimal No. of Trucks: 2 Truck(s) Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production: 926.80 LCY/Hour
Adjusted single truck/loader team production: 430.96 LCY/Hour
Adjusted multiple truck/loader team production: **430.96** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **1.68** Hours

Unit cost: $2.626 /LCY Total job cost: **$1,906**

BULLDOZER RIPPING WORK

Task description: **Rip Bear #1 Mine area (Pond MB-5E)**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 080 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-080
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper Ownership Cost/Hour:	$19.26	NA
Ripper Operating Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$339.46	

Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 5.00 acres Rip Depth (ft): 2.00 Volume: 16,133 BCY or CCY

Source of estimated quantity: Map 53

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	200.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.838	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.838 Acres/hr

Site Altitude:	6,300	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.70 Acres/hr
Adjusted Hourly Fleet Production: **2.78** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **1.80** Hours

Unit cost: $488.306 Per acre Total job cost: **$2,442**

TRUCK/LOADER TEAM WORK

Task description: **Haul Bear Mine area riprap stockpile to base of fill**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 081 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-081
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	100	NA	NA
Ownership cost/hour:	$22.87	$59.72	$126.01	$126.01	NA	NA
Operating cost/hour:	$44.28	$55.20	$141.41	$141.41	NA	NA
%Utilization-riper:	NA	0	100	100	NA	NA
Ripper own. cost/hour:	NA	$0.00	$19.26	$19.26	NA	NA
Ripper op. cost/hour:	NA	$0.00	$11.48	$11.48	NA	NA
Operator cost/hour:	$0.00	$40.71	$41.30	$41.30	NA	NA
Unit Subtotals:	$67.15	$155.63	$320.20	$320.20	NA	NA
Number of Units:	5	1	1	1	0	0
Group Subtotals:	Work:	$491.38	Support:	$640.40	Maint:	$0.00

Total work team cost/hour: **$1,131.78**

MATERIAL QUANTITIES

Initial volume: 1,852 CCY Swell factor: 1.000
Loose volume: **1,852** LCY

Source of estimated volume: DRMS estimate
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: 2,550 Pounds/LCY
Description: Sandstone
Rated Payload: 35,400 Pounds
Payload Capacity: 13.88 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **9.25** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	0.925	Shale, Sandstone-Standing Bank (85%-100%) 0.925
Adjusted Capacity:	**4.625**	LCY

Job Condition Corrections: Site Altitude (ft.): 6300 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: 2 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:	Dumped by truck 0.02	0.020	(Cat HB)
Truck Ownership:	Common ownership of trucks and loaders -0.04	-0.040	(Cat HB)
Operation:	Constant operation -0.04	-0.040	(Cat HB)
Dump Target:	Nominal target 0.00	0.000	(Cat HB)
	Net Cycle Time Adjustment:	-0.040	minutes
	Adjusted Loader Cycle Time:	**0.460**	minutes
	Net Load Time per Truck:	**0.560**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.560	Minutes	Adjusted for site altitude:	0.560	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) 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	2400.00	0.00	3.00	3.00	2824	0.951

Haul Time: **0.951** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2400.00	0.00	3.00	3.00	2874	0.861

Return Time: **0.861** minutes
Total Truck Cycle Time: **3.772** minutes

Loading Tool unit Production 523.58 LCY/Hour Adjusted for job efficiency: 434.58 LCY/Hour
Truck Unit Production 147.14 LCY/Hour Adjusted for job efficiency: 122.12 LCY/Hour

Optimal No. of Trucks: 4 Truck(s) Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production: 610.62 LCY/Hour
Adjusted single truck/loader team production: 434.58 LCY/Hour
Adjusted multiple truck/loader team production: **434.58** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **4.26** Hours

Unit cost: $2.604 /LCY Total job cost: **$4,823**

HYDRAULIC EXCAVATOR WORK

Task description: **Regrade access road from Sylvester Gulch Rd to office**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 083 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-083
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat 336D L 10'-6" Stick
Attachment 1: ROPS Cab

Horsepower: 268
Weight (MT): 29.30
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$83.42	NA
Operating Cost/Hour:	$74.14	100
Operator Cost/Hour:	$37.32	NA
Total Unit Cost/Hour:	$194.88	

Total Fleet Cost/Hour: $194.88

MATERIAL QUANTITIES

Initial volume: 4,209 CCY Swell factor: 1.165
Loose volume: **4,903** LCY

Source of estimated volume: Map 53
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Excavator Cycle Time (load bucket, swing loaded, dump bucket, swing empty):

Basic Job Condition Description: BELOW AVERAGE
Secondary Job Condition within Basic Description: SEVERE
Cycle Time Value: 0.390 minutes

Load Bucket Capacity

Bucket Size Class: Medium

Rated Capacity: 2.26 LCY (heaped)
Bucket Fill Factor: 0.850 Hard, tough clay (80% - 90%) 0.850
Adjusted Capacity: **1.92** LCY

Job Condition Correction Factors Site Altitude: 6300 feet

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

Unadjusted Hourly Unit Production: 295.54 LCY/Hour
Adjusted Hourly Unit Production: 245.30 LCY/Hour
Adjusted Hourly Fleet Production: **245.30** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Excavator Total job time: **19.99** Hours

Unit cost: $0.794 /LCY Total job cost: **$3,896**

BULLDOZER RIPPING WORK

Task description: **Rip access road from Hwy 133 to Sylvester Gulch Road**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 084 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-084
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper Ownership Cost/Hour:	$19.26	NA
Ripper Operating Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$339.46	

Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 0.60 acres Rip Depth (ft): 2.00 Volume: 1,936 BCY or CCY

Source of estimated quantity: Map 53

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	200.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.838	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.838 Acres/hr

Site Altitude:	6,300	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.70 Acres/hr
Adjusted Hourly Fleet Production: **2.78** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **0.22** Hours

Unit cost: $488.306 Per acre Total job cost: **$293**

BULLDOZER WORK

Task description: **Regrade haul/access road from Hwy 133 to Syl. Gulch Fan Rd.**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	085	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8A-085
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	16,610
Swell factor:	1.165
Loose volume:	**19,351** LCY

Source of estimated volume: MR-75
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2794

Adjusted unit production: 589.67 LCY/hr
Adjusted fleet production: **2358.68** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.576/LCY

Total job time: **8.20** Hours
Total job cost: **$11,140**

BULLDOZER WORK

Task description: **Regrade P-2 conveyor bench**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	087	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8A-087
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

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

Source of estimated volume: TR-118 submittal
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 5 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3209

Adjusted unit production: 677.26 LCY/hr
Adjusted fleet production: **2709.04** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.501/LCY

Total job time: **4.30** Hours
Total job cost: **$5,839**

BULLDOZER WORK

Task description: **Regrade Pond MB-5E**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 088 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-088
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume: 30,555
Swell factor: 1.165
Loose volume: **35,597** LCY

Source of estimated volume: Exhibit 66, Pond MB-5E, drawing CPP-L0-05.dwg
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3554

Adjusted unit production: 750.07 LCY/hr
Adjusted fleet production: **3000.28** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.453/LCY

Total job time: **11.86** Hours
Total job cost: **$16,110**

HYDRAULIC EXCAVATOR WORK

Task description: **Regrade HR/AR from Sylvester Gulch Rd to office**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 089 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-089
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat 336D L 10'-6" Stick
Attachment 1: ROPS Cab

Horsepower: 268
Weight (MT): 29.30
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$83.42	NA
Operating Cost/Hour:	$74.14	100
Operator Cost/Hour:	$37.32	NA
Total Unit Cost/Hour:	$194.88	

Total Fleet Cost/Hour: $194.88

MATERIAL QUANTITIES

Initial volume: 2,690 CCY Swell factor: 1.330
Loose volume: **3,578** LCY

Source of estimated volume: Figure N-1
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Excavator Cycle Time (load bucket, swing loaded, dump bucket, swing empty):

Basic Job Condition Description: BELOW AVERAGE
Secondary Job Condition within Basic Description: SEVERE
Cycle Time Value: 0.390 minutes

Load Bucket Capacity

Bucket Size Class: Medium

Rated Capacity: 2.26 LCY (heaped)
Bucket Fill Factor: 0.850 Hard, tough clay (80% - 90%) 0.850
Adjusted Capacity: **1.92** LCY

Job Condition Correction Factors

Site Altitude: 6300 feet

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

Unadjusted Hourly Unit Production: 295.54 LCY/Hour
Adjusted Hourly Unit Production: 245.30 LCY/Hour
Adjusted Hourly Fleet Production: **245.30** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Excavator Total job time: **14.59** Hours

Unit cost: $0.794 /LCY Total job cost: **$2,842**

SAFEGUARDING UNDERGROUND OPENINGS

Task description: **Seal all Mine portals (formerly task 702)**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 090 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-090
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
1 Portal Seal	160 sq. ft.	Adit closure - bulkhead seal, >= 36 sq. ft. (per sq. ft.)	160.00	SF	$192.07	$30,731.20
1 Portal drain pipe	165 lin. ft.	PVC drain pipe, 6 in. diameter (per ln. ft. incl. mat. & labor)	165.00	LF	$11.74	$1,937.10
1 Portal Backfill	593 cu. yd.	Adit closure - backfilling (per cu. yd.)	593.00	CY	$25.00	$14,825.00
2 Portal Seal	160 sq. ft.	Adit closure - bulkhead seal, >= 36 sq. ft. (per sq. ft.)	160.00	SF	$192.07	$30,731.20
2 Portal drain pipe	190 lin. ft.	PVC drain pipe, 6 in. diameter (per ln. ft. incl. mat. & labor)	190.00	LF	$11.74	$2,230.60
2 Portal Backfill	741 cu. yd.	Adit closure - backfilling (per cu. yd.)	741.00	CY	$25.00	$18,525.00
3 Portal Seal	184 sq. ft.	Adit closure - bulkhead seal, >= 36 sq. ft. (per sq. ft.)	184.00	SF	$192.07	$35,340.88
3 Portal drain pipe	230 lin. ft.	PVC drain pipe, 6 in. diameter (per ln. ft. incl. mat. & labor)	230.00	LF	$11.74	$2,700.20
3 Portal Backfill	1124 cu. yd.	Adit closure - backfilling (per cu. yd.)	1,124.00	CY	$25.00	$28,100.00
4 Portal Seal	160 sq. ft.	Adit closure - bulkhead seal, >= 36 sq. ft. (per sq. ft.)	160.00	SF	$192.07	$30,731.20
4 Portal drain pipe	150 lin. ft.	PVC drain pipe, 6 in. diameter (per ln. ft. incl. mat. & labor)	150.00	LF	$11.74	$1,761.00
4 Portal Backfill	563 cu. ft.	Adit closure - backfilling (per cu. yd.)	563.00	CY	$25.00	$14,075.00
5 Portal Seal	160 sq. ft.	Adit closure - bulkhead seal, >= 36 sq. ft. (per sq. ft.)	160.00	SF	$192.07	$30,731.20
5 Portal drain pipe	175 lin. ft.	PVC drain pipe, 6 in. diameter (per ln. ft. incl. mat. & labor)	175.00	LF	$11.74	$2,054.50
5 Portal Backfill	563 cu. yd.	Adit closure - backfilling (per cu. yd.)	563.00	CY	$25.00	$14,075.00
6 Portal Seal	160 sq. ft.	Adit closure - bulkhead seal, >= 36 sq. ft. (per sq. ft.)	160.00	SF	$192.07	$30,731.20
6 Portal drain pipe	163 lin. ft.	PVC drain pipe, 6 in. diameter (per ln. ft. incl. mat. & labor)	163.00	LF	$11.74	$1,913.62

6 Portal Backfill	563 cu. ft.	Adit closure - backfilling (per cu. yd.)	563.00	CY	$25.00	$14,075.00

Job Hours: **99.93** **Total Cost**: **$305,268.90**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Mobilize/demobilze equipment for updated parts A-E**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 091 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-091
User: LDS

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:	$21.28	$37.94	$47.67
Operating Cost/Hour:	$26.55	$50.48	$56.21
Operator Cost/Hour:	$20.54	$20.54	$20.54
Helper Cost/Hour:	$0.00	$23.53	$23.53
Total Unit Cost/Hour:	$68.37	$132.49	$147.95

NON ROADABLE EQUIPMENT:

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Cat D9T - 9SU	66.13	$145.27	$147.95	4	$1,172.88	$591.80	$1,000.00
Cat 336D L 10'-6" Stick	32.23	$83.42	$132.49	1	$215.91	$132.49	$250.00
Grove AP415. 41' 13.6MT	14.38	$24.54	$68.37	1	$92.91	$68.37	$250.00
Cat 637G w/push-pull	59.59	$223.48	$147.95	1	$371.43	$147.95	$500.00
CAT 825H	36.08	$201.17	$132.49	2	$667.32	$264.98	$250.00
CAT 966H	25.80	$59.72	$68.37	2	$256.18	$136.74	$500.00
CAT 14M	23.57	$85.80	$68.37	1	$154.17	$68.37	$250.00
Cat D8T - 8SU	53.08	$112.65	$147.95	1	$260.60	$147.95	$250.00
Drill/Broadcast Seeder with Tractor	25.00	$7.98	$68.37	1	$76.35	$68.37	$250.00
Power Mulcher (Bowie LD-90)	6.00	$14.98	$68.37	1	$83.35	$68.37	$250.00
Subtotals:					**$3,351.10**	**$1,695.39**	**$3,750.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Generic 10-12 cy, 6x4	$99.06	1	$99.06	$99.06
Water Tanker, 3,500 Gal.	$46.35	1	$46.35	$46.35
Fuel Tanker, 4x2, 170 HP	$29.70	1	$29.70	$29.70
Lube Truck, 4x2, 190 HP	$35.20	1	$35.20	$35.20
Light Duty Pickup, 4x4, 1 T. Crew	$20.51	1	$20.51	$20.51
		Subtotals:	**$230.82**	**$230.82**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	GRAND JUNCTION	
Total one-way travel distance:	80.00	miles
Average Travel Speed:	40.00	mph

Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$41,090.36
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$923.28

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	2.00	2.00
Return Time (Hours):	2.00	2.00
Loading Time (Hours):	1.00	NA
Unloading Time (Hours):	1.00	NA
Subtotals:	6.00	4.00

JOB TIME AND COST

Total job time:	**12.00**	Hours
Total job cost:	**$42,014**	

MISCELLANEOUS TRUCK WORK

Task description: **Remove skid mounted shed to Delta (MR-447)**

Site: **West Elk Mine** Permit Action: RN8 - Part A Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	095	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Delta	Filename:	RN8A-095
User:	LDS				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Make and Model:	Light Duty Pickup, 4x4, 1 T. Crew	Horsepower:	340
Attachment 1:	Fixed Gooseneck Trailer,120 Ton	Shift Basis:	1 per day
Attachment 2:		Weight:	2.45
Labor Unit 1:	Specialty Truck Driver		(US Tons)
Labor Unit 2:	General Laborer		

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$27.30	NA
Operating Cost/Hour:	$28.13	100
Operator Cost/Hour:	$55.23	NA
Total Unit Cost/Hour:	$110.66	
Total Fleet Cost/Hour:	$110.66	

JOB TIME AND COST

Fleet size: 1 Truck(s) Total job time: **4.00** Hours

Unit cost: $110.66 /Hour Total job cost: **$443**

COST SUMMARY WORK

Task description: **Part B: RPE, RPEE, NSSA**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 08B State: Colorado Abbreviation: None
Date: 5/6/2022 County: Delta Filename: C007-08B
User: LDS

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
201	Demolish/remove structures in RPE, RPEE, and NSSA	DEMOLISH	1	16.00	$27,855
202	Compact remaining refuse at RPEE	COMPACT	2	5.50	$3,635
203	Haul cover material to RPE area	TRUCK1	1	73.03	$77,755
204	Regrade RPE sediment control ditches	DOZER	4	0.26	$346
205	Remove RPE ponds - Haul fill to top of refuse pile	SCRAPER1	1	32.80	$29,402
206	Rip RPE road	RIPPER	4	0.11	$156
208	Regrade RPE sediment control ditches	DOZER	4	3.98	$5,407
209	Compact RPE road backfill	COMPACT	2	1.57	$1,040
210	Haul remaining waste rock from prep. plant to RPEE	TRUCK1	1	62.76	$66,813
211	Grade remaining coal waste rock into <24" lifts on RPEE	DOZER	4	3.54	$4,801
212	Replace topsoil from stockpile to RPE ponds	TRUCK1	1	6.20	$6,601
213	Replace topsoil from stockpile to RPE road	TRUCK1	1	1.38	$1,472
214	Regrade NSS pond	DOZER	4	0.40	$549
215	Regrade NSS area (TS footprint 6.2 acres)	DOZER	4	3.82	$5,188
216	Regrade NSS area entrance road	DOZER	4	0.07	$96
219	Rip light use road and auger drill sites (MR-354)	RIPPER	4	0.27	$380
220	Regrade light use road and auger rig drill sites (MR-354)	DOZER	4	0.81	$1,095
221	Haul topsoil from RPEE soil storage areas to RPEE	TRUCK1	1	134.33	$143,007
222	Reveg RPEE (40 acres) incl. weed control	REVEGE	1	60.00	$121,038
223	Reveg RPE (16.5 ac), NSS Area (6.2 ac)	REVEGE	1	45.40	$41,734
224	Grade RPEE ditches to final configuration	DOZER	4	0.61	$827
225	Use RPEE roadbase for portion of road regrading	DOZER	1	8.79	$2,902
226	Rip RPEE roads (TR-133 legth)	RIPPER	4	2.01	$2,772
227	Grade RPEE haul roads to AOC (TR133 changes)	DOZER	4	3.91	$5,303
228	Haul topsoil from RPEE soil storage to reclaimed RPEE road	TRUCK1	1	51.57	$23,801
		SUBTOTALS:		**519.12**	**$573,975**

DEMOLITION WORK

Task description: **Demolish/remove structures in RPE, RPEE, and NSSA**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 201 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8B-201
User: LDS

Agency or organization name: DRMS

UNIT COSTS **Location adjustment: 91.30 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Culverts	12" diam	Pipe, corrugated metal (CMP) - 12 in. diameter pipe	45.00	LF	$4.10	$184.37
Culvert CRPE-2	15" diam	Pipe, corrugated metal (CMP) - 15 in. diameter pipe	20.00	LF	$4.81	$96.26
Culverts	21" diam	Pipe, corrugated metal (CMP) - 21 in. diameter pipe	55.00	LF	$6.39	$351.56
Culverts	24" diam	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	200.00	LF	$7.25	$1,450.80
Culvert HR2	30" diam	Pipe, corrugated metal (CMP) - 30 in. diameter pipe	80.00	LF	$9.35	$748.00
Field, lab geotech testing of RPEE lifts	6 samples	USER PROVIDED ITEM	6.00	EA	$250.00	$1,500.00
1/4ly eng. insp. RPEE (exh.82 sec.4.8.2)	4 times/yr X 10 yrs	USER PROVIDED ITEM	40.00	EA	$500.00	$20,000.00
Refuse truck bin - Superstructure	20x20x60	Bldg. (MN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	24,000.00	CF	$0.24	$5,664.00
refuse truck bin foundation	20x20x1	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	400.00	SF	$1.11	$442.40
Culvert CRPE-1	10" dia. x 20 'L	Pipe, corrugated metal (CMP) - 10 in. diameter pipe	20.00	LF	$3.60	$71.94

Job Hours: **16.00** **Subtotal (unadjusted)**: **$30,509.33** **Total Cost (adjusted for location)**: **$27,855.02**

COMPACTION WORK

Task description: **Compact remaining refuse at RPEE**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 202 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-202
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 825H Horsepower: 354
Compactor Type: Soil - tamping foot Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$201.17	NA
Operating Cost/Hour:	$102.80	100
Operator Cost/Hour:	$26.02	NA
Total Unit Cost/Hour:	$329.99	
Total Fleet Cost/Hour:	**$659.99**	

MATERIAL QUANTITIES

Loose volume: 10,000 LCY Shrinkage factor: 0.875
Compacted volume: **8,750** CCY

Source of estimated volume: Sec. 7, Exh 82, assumed 10,000 cyds = 670 2-ft lifts
Source of estimated shrinkage factor: Cat Handbook

HOURLY PRODUCTION

Unadjusted hourly production = (W x S x L x C) / P

Compacted width per pass (W):	7.34	feet
Average Compactor Speed (S):	4.00	mph
Compacted thickness of each lift (L):	10.00	inches
Conversion Constant (C):	16.3	(5,280ft./12in./27cu.ft.)
Required number of machine passes (P):	5	passes
Unadjusted Hourly Unit Production:	957.14	CCY/hour

Job Condition Correction Factors Site Altitude: 6,300 feet

		Source
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.8300	multiplier

Adjusted Hourly Unit Production: 794.42 CCY/Hour
Adjusted Hourly Fleet Production: **1,588.85** CCY/Hour

JOB TIME AND COST

Fleet size: 2 Compactor(s) Total job time: **5.51** Hours

Unit cost: $0.415 per CCY Total job cost: **$3,635**

TRUCK/LOADER TEAM WORK

Task description: **Haul cover material to RPE area**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 203 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8B-203
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	100	NA	NA
Ownership cost/hour:	$22.87	$59.72	$126.01	$126.01	NA	NA
Operating cost/hour:	$44.28	$55.20	$141.41	$141.41	NA	NA
%Utilization-riper:	NA	0	100	100	NA	NA
Ripper own. cost/hour:	NA	$0.00	$19.26	$19.26	NA	NA
Ripper op. cost/hour:	NA	$0.00	$11.48	$11.48	NA	NA
Operator cost/hour:	$0.00	$40.71	$41.30	$41.30	NA	NA
Unit Subtotals:	$67.15	$155.63	$320.20	$320.20	NA	NA
Number of Units:	4	1	1	1	0	0
Group Subtotals:	Work:	$424.23	Support:	$640.40	Maint:	$0.00

Total work team cost/hour: **$1,064.63**

MATERIAL QUANTITIES

Initial volume: 24,433 CCY Swell factor: 1.165
Loose volume: **28,464** LCY

Source of estimated volume: DRMS estimate
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: 35,400 Pounds
Payload Capacity: 12.21 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **9.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	0.900	Other - soil, boulders, roots (80 -100%) 0.900
Adjusted Capacity:	**4.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 6300 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: 2 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:	**0.540**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.540	Minutes	Adjusted for site altitude:	0.540	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) 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	2640.00	3.80	3.00	6.80	1568	1.716

Haul Time: **1.716** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2640.00	-3.80	3.00	-0.80	2938	0.944

Return Time: **0.944** minutes
Total Truck Cycle Time: **4.600** minutes

Loading Tool unit Production 519.23 LCY/Hour Adjusted for job efficiency: 430.96 LCY/Hour

Truck Unit Production 117.39 LCY/Hour Adjusted for job efficiency: 97.43 LCY/Hour

Optimal No. of Trucks: 4 Truck(s) Selected Number of Trucks: 4 Truck(s)

Adjusted hourly truck team production: 389.74 LCY/Hour
Adjusted single truck/loader team production: 389.74 LCY/Hour
Adjusted multiple truck/loader team production: **389.74** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **73.03** Hours

Unit cost: $2.732 /LCY Total job cost: **$77,755**

BULLDOZER WORK

Task description: **Regrade RPE sediment control ditches**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 204 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8B-204
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume: 150
Swell factor: 1.330
Loose volume: **200** LCY

Source of estimated volume: Division estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
Unadjusted hourly production: 700.0 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2794

Adjusted unit production: 195.58 LCY/hr
Adjusted fleet production: **782.32** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $1.736/LCY

Total job time: **0.26** Hours
Total job cost: **$346**

SCRAPER TEAM WORK

Task description: **Remove RPE ponds - Haul fill to top of refuse pile**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 205 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8B-205
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G w/push-pull
-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:	$223.48	NA	NA	NA	NA	NA
Operating cost/hour:	$193.77	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:	$30.90	NA	NA	NA	NA	NA
Unit Subtotals:	$448.15	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	$896.30	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$896.30**

MATERIAL QUANTITIES

Initial volume: 15,795 CCY Swell factor: 1.115
Loose volume: **17,611** LCY

Source of estimated volume: Division estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Material weight: 2,500 lbs/LCY
Material description: Clay - Dry
Rated Payload: 81,600 pounds
Payload Capacity: 32.64 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: 1.00 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 6300 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: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2000.00	10.00	4.00	14.00	657	3.06

Haul Time: **3.06** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2000.00	-10.00	4.00	-6.00	2972	0.72

Return Time: **0.72** minutes

Total Scraper team cycle time: **5.38** minutes
Adjusted for job conditions: 536.88 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 536.88 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **536.88** LCY/Hour

Unadjusted unit production/hour: 646.84 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **32.80** Hours

Unit cost: $1.669 /LCY Total job cost: **$29,402**

BULLDOZER RIPPING WORK

Task description: **Rip RPE road**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 206 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8B-206
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper Ownership Cost/Hour:	$19.26	NA
Ripper Operating Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$339.46	

Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 0.32 acres Rip Depth (ft): 2.00 Volume: 1,033 BCY or CCY

Source of estimated quantity: Figure N-1

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	200.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.838	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.838 Acres/hr

Site Altitude:	6,300	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.70 Acres/hr
Adjusted Hourly Fleet Production: **2.78** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **0.12** Hours

Unit cost: $488.306 Per acre Total job cost: **$156**

BULLDOZER WORK

Task description: **Regrade RPE sediment control ditches**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 208 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8B-208
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume: 2,690
Swell factor: 1.330
Loose volume: **3,578** LCY

Source of estimated volume: Map N-1
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
Unadjusted hourly production: 700.0 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 5 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3209

Adjusted unit production: 224.63 LCY/hr
Adjusted fleet production: **898.52** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $1.511/LCY

Total job time: **3.98** Hours
Total job cost: **$5,407**

COMPACTION WORK

Task description: **Compact RPE road backfill**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 209 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8A-209
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 825H Horsepower: 354
Compactor Type: Soil - tamping foot Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$201.17	NA
Operating Cost/Hour:	$102.80	100
Operator Cost/Hour:	$26.02	NA
Total Unit Cost/Hour:	$329.99	
Total Fleet Cost/Hour:	**$659.99**	

MATERIAL QUANTITIES

Loose volume: 3,578 LCY Shrinkage factor: 0.875
Compacted volume: **3,131** CCY

Source of estimated volume: Map N-1
Source of estimated shrinkage factor: Cat Handbook

HOURLY PRODUCTION

Unadjusted hourly production = (W x S x L x C) / P

Compacted width per pass (W):	7.34	feet
Average Compactor Speed (S):	4.00	mph
Compacted thickness of each lift (L):	10.00	inches
Conversion Constant (C):	16.3	(5,280ft./12in./27cu.ft.)
Required number of machine passes (P):	4	passes
Unadjusted Hourly Unit Production:	1,196.42	CCY/hour

Job Condition Correction Factors Site Altitude: 6,300 feet

		Source
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.8300	multiplier

Adjusted Hourly Unit Production: 993.03 CCY/Hour
Adjusted Hourly Fleet Production: **1,986.06** CCY/Hour

JOB TIME AND COST

Fleet size: 2 Compactor(s) Total job time: **1.58** Hours

Unit cost: $0.332 per CCY Total job cost: **$1,040**

TRUCK/LOADER TEAM WORK

Task description: **Haul remaining waste rock from prep. plant to RPEE**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 210 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8B-210
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	100	NA	NA
Ownership cost/hour:	$22.87	$59.72	$126.01	$126.01	NA	NA
Operating cost/hour:	$44.28	$55.20	$141.41	$141.41	NA	NA
%Utilization-riper:	NA	0	100	100	NA	NA
Ripper own. cost/hour:	NA	$0.00	$19.26	$19.26	NA	NA
Ripper op. cost/hour:	NA	$0.00	$11.48	$11.48	NA	NA
Operator cost/hour:	$0.00	$40.71	$41.30	$41.30	NA	NA
Unit Subtotals:	$67.15	$155.63	$320.20	$320.20	NA	NA
Number of Units:	4	1	1	1	0	0
Group Subtotals:	Work:	$424.23	Support:	$640.40	Maint:	$0.00

Total work team cost/hour: **$1,064.63**

MATERIAL QUANTITIES

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

Source of estimated volume: TR-120, DRMS estimate
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: 35,400 Pounds
Payload Capacity: 12.21 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **9.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	0.900	Other - soil, boulders, roots (80 -100%) 0.900
Adjusted Capacity:	**4.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 6300 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: 2 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:	**0.540**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.540	Minutes	Adjusted for site altitude:	0.540	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) 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	15840.00	3.00	3.00	6.00	1855	8.586

Haul Time: **8.586** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1980.00	-6.00	3.00	-3.00	2938	0.725

Return Time: **0.725** minutes
Total Truck Cycle Time: **11.251** minutes

Loading Tool unit Production 519.23 LCY/Hour Adjusted for job efficiency: 430.96 LCY/Hour

Truck Unit Production 48.00 LCY/Hour Adjusted for job efficiency: 39.84 LCY/Hour

Optimal No. of Trucks: 11 Truck(s) Selected Number of Trucks: 4 Truck(s)

Adjusted hourly truck team production: 159.35 LCY/Hour
Adjusted single truck/loader team production: 159.35 LCY/Hour
Adjusted multiple truck/loader team production: **159.35** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **62.76** Hours

Unit cost: $6.681 /LCY Total job cost: **$66,813**

BULLDOZER WORK

Task description: **Grade remaining coal waste rock into <24" lifts on RPEE**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 211 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8B-211
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

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

Source of estimated volume: Assumed 10,000 cyds of remaining waste
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 100 feet
Unadjusted hourly production: 1,243.2 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 0 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5687

Adjusted unit production: 707.01 LCY/hr
Adjusted fleet production: **2828.04** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.480/LCY

Total job time: **3.54** Hours
Total job cost: **$4,801**

TRUCK/LOADER TEAM WORK

Task description: **Replace topsoil from stockpile to RPE ponds**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 212 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8B-212
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	100	NA	NA
Ownership cost/hour:	$22.87	$59.72	$126.01	$126.01	NA	NA
Operating cost/hour:	$44.28	$55.20	$141.41	$141.41	NA	NA
%Utilization-riper:	NA	0	100	100	NA	NA
Ripper own. cost/hour:	NA	$0.00	$19.26	$19.26	NA	NA
Ripper op. cost/hour:	NA	$0.00	$11.48	$11.48	NA	NA
Operator cost/hour:	$0.00	$40.71	$41.30	$41.30	NA	NA
Unit Subtotals:	$67.15	$155.63	$320.20	$320.20	NA	NA
Number of Units:	4	1	1	1	0	0
Group Subtotals:	Work:	$424.23	Support:	$640.40	Maint:	$0.00

Total work team cost/hour: **$1,064.63**

MATERIAL QUANTITIES

Initial volume: 2,338 CCY Swell factor: 1.125
Loose volume: **2,630** LCY

Source of estimated volume: TR-79, DRMS estimate
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: 2,550 Pounds/LCY
Description: Earth - Dry packed
Rated Payload: 35,400 Pounds
Payload Capacity: 13.88 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **9.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	0.900	Other - soil, boulders, roots (80 -100%) 0.900
Adjusted Capacity:	**4.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 6300 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: 2 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:	**0.540**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.540	Minutes	Adjusted for site altitude:	0.540	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) 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	3000.00	1.50	3.00	4.50	2665	1.228

Haul Time: **1.228** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	3000.00	-1.50	3.00	1.50	2905	1.058

Return Time: **1.058** minutes
Total Truck Cycle Time: **4.226** minutes

Loading Tool unit Production 519.23 LCY/Hour Adjusted for job efficiency: 430.96 LCY/Hour

Truck Unit Production 127.78 LCY/Hour Adjusted for job efficiency: 106.06 LCY/Hour

Optimal No. of Trucks: 4 Truck(s) Selected Number of Trucks: 4 Truck(s)

Adjusted hourly truck team production: 424.23 LCY/Hour
Adjusted single truck/loader team production: 424.23 LCY/Hour
Adjusted multiple truck/loader team production: **424.23** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **6.20** Hours

Unit cost: $2.510 /LCY Total job cost: **$6,601**

TRUCK/LOADER TEAM WORK

Task description: **Replace topsoil from stockpile to RPE road**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 213 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8B-213
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	100	NA	NA
Ownership cost/hour:	$22.87	$59.72	$126.01	$126.01	NA	NA
Operating cost/hour:	$44.28	$55.20	$141.41	$141.41	NA	NA
%Utilization-riper:	NA	0	100	100	NA	NA
Ripper own. cost/hour:	NA	$0.00	$19.26	$19.26	NA	NA
Ripper op. cost/hour:	NA	$0.00	$11.48	$11.48	NA	NA
Operator cost/hour:	$0.00	$40.71	$41.30	$41.30	NA	NA
Unit Subtotals:	$67.15	$155.63	$320.20	$320.20	NA	NA
Number of Units:	4	1	1	1	0	0
Group Subtotals:	Work:	$424.23	Support:	$640.40	Maint:	$0.00

Total work team cost/hour: **$1,064.63**

MATERIAL QUANTITIES

Initial volume: 516 CCY Swell factor: 1.125
Loose volume: **581** LCY

Source of estimated volume: TR-79, DRMS estimate
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: 2,550 Pounds/LCY
Description: Earth - Dry packed
Rated Payload: 35,400 Pounds
Payload Capacity: 13.88 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **9.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	0.900	Other - soil, boulders, roots (80 -100%) 0.900
Adjusted Capacity:	**4.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 6300 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: 2 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:	**0.540**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.540	Minutes	Adjusted for site altitude:	0.540	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) 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	1980.00	6.00	3.00	9.00	1249	1.605

Haul Time: **1.605** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1980.00	-6.00	3.00	-3.00	2938	0.725

Return Time: **0.725** minutes
Total Truck Cycle Time: **4.270** minutes

Loading Tool unit Production 519.23 LCY/Hour Adjusted for job efficiency: 430.96 LCY/Hour

Truck Unit Production 126.46 LCY/Hour Adjusted for job efficiency: 104.96 LCY/Hour

Optimal No. of Trucks: 4 Truck(s) Selected Number of Trucks: 4 Truck(s)

Adjusted hourly truck team production: 419.86 LCY/Hour
Adjusted single truck/loader team production: 419.86 LCY/Hour
Adjusted multiple truck/loader team production: **419.86** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **1.38** Hours

Unit cost: $2.536 /LCY Total job cost: **$1,472**

BULLDOZER WORK

Task description: **Regrade NSS pond**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 214 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8B-214
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume: 613
Swell factor: 1.165
Loose volume: **714** LCY

Source of estimated volume: Division estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 100 feet
Unadjusted hourly production: 1,243.2 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3554

Adjusted unit production: 441.83 LCY/hr
Adjusted fleet production: **1767.32** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.768/LCY

Total job time: **0.40** Hours
Total job cost: **$549**

BULLDOZER WORK

Task description: **Regrade NSS area (TS footprint 6.2 acres)**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	215	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8B-215
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	5,001
Swell factor:	1.125
Loose volume:	**5,626** LCY

Source of estimated volume: TS footprint, 6.2 acres X 0.5'deep
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 150 feet
Unadjusted hourly production: 910.5 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 6,300 feet

Material weight: 2,550 lbs/LCY

Weight description: Earth - Dry packed

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4043

Adjusted unit production: 368.12 LCY/hr
Adjusted fleet production: **1472.48** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.922/LCY

Total job time: **3.82** Hours
Total job cost: **$5,188**

BULLDOZER WORK

Task description: **Regrade NSS area entrance road**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	216	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8B-216
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	107
Swell factor:	1.165
Loose volume:	**125** LCY

Source of estimated volume: Division estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 100 feet
Unadjusted hourly production: 1,243.2 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3554

Adjusted unit production: 441.83 LCY/hr
Adjusted fleet production: **1767.32** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.768/LCY

Total job time: **0.07** Hours
Total job cost: **$96**

BULLDOZER RIPPING WORK

Task description: **Rip light use road and auger drill sites (MR-354)**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 219 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8B-219
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper Ownership Cost/Hour:	$19.26	NA
Ripper Operating Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$339.46	

Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 0.60 acres Rip Depth (ft): 2.00 Volume: 1,936 BCY or CCY

Source of estimated quantity: MR-352 submittal, Table 2, 0.6 acre

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	50.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.646	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.646 Acres/hr

Site Altitude:	6,300	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.54 Acres/hr
Adjusted Hourly Fleet Production: **2.14** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **0.28** Hours

Unit cost: $633.478 Per acre Total job cost: **$380**

BULLDOZER WORK

Task description: **Regrade light use road and auger rig drill sites (MR-354)**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	220	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8B-220
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	968
Swell factor:	1.330
Loose volume:	**1,287** LCY

Source of estimated volume: 0.6 acre x 1 ft deep
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 100 feet
Unadjusted hourly production: 1,243.2 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 5 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3209

Adjusted unit production: 398.94 LCY/hr
Adjusted fleet production: **1595.76** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.851/LCY

Total job time: **0.81** Hours
Total job cost: **$1,095**

TRUCK/LOADER TEAM WORK

Task description: **Haul topsoil from RPEE soil storage areas to RPEE**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 221 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8B-221
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	100	NA	NA
Ownership cost/hour:	$22.87	$59.72	$126.01	$126.01	NA	NA
Operating cost/hour:	$44.28	$55.20	$141.41	$141.41	NA	NA
%Utilization-riper:	NA	0	100	100	NA	NA
Ripper own. cost/hour:	NA	$0.00	$19.26	$19.26	NA	NA
Ripper op. cost/hour:	NA	$0.00	$11.48	$11.48	NA	NA
Operator cost/hour:	$0.00	$40.71	$41.30	$41.30	NA	NA
Unit Subtotals:	$67.15	$155.63	$320.20	$320.20	NA	NA
Number of Units:	4	1	1	1	0	0
Group Subtotals:	Work:	$424.23	Support:	$640.40	Maint:	$0.00

Total work team cost/hour: **$1,064.63**

MATERIAL QUANTITIES

Initial volume: 64,533 CCY Swell factor: 1.000
Loose volume: **64,533** LCY

Source of estimated volume: 10 acres X 2ft thick
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: 35,400 Pounds
Payload Capacity: 12.21 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **11.00** 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.): 6300 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: 2 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:	**0.540**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.540	Minutes	Adjusted for site altitude:	0.540	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Hard, smooth, stabilized, surfaced, watered, maintained 2.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2600.00	5.00	2.00	7.00	1568	1.691

Haul Time: **1.691** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2600.00	-5.00	2.00	-3.00	2938	0.930

Return Time: **0.930** minutes
Total Truck Cycle Time: **4.561** minutes

Loading Tool unit Production 634.62 LCY/Hour Adjusted for job efficiency: 526.73 LCY/Hour
Truck Unit Production 144.71 LCY/Hour Adjusted for job efficiency: 120.11 LCY/Hour

Optimal No. of Trucks: 4 Truck(s) Selected Number of Trucks: 4 Truck(s)

Adjusted hourly truck team production: 480.42 LCY/Hour
Adjusted single truck/loader team production: 480.42 LCY/Hour
Adjusted multiple truck/loader team production: **480.42** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **134.33** Hours

Unit cost: $2.216 /LCY Total job cost: **$143,007**

REVEGETATION WORK

Task description: **Reveg RPEE (40 acres) incl. weed control**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 222 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8B-222
User: LDS

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium sulfate, 21-0-0 with 24% S	50.00	pound	$0.36	$18.00
			Total Fertilizer Materials Cost/Acre	**$18.00**

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	$38.77
Total Fertilizer Application Cost/Acre	**$38.77**

TILLING

Description	Cost /Acre
Chisel plowing {DMG}	$96.50
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$114.56
Total Tilling Cost/Acre	**$211.06**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Beardless Wheatgrass - Whitmar	6.00	19.56	$70.35
Arizona Fescue - Redondo	1.00	11.48	$9.25
Bluebunch Wheatgrass - Secar	6.00	19.28	$65.25
Aster, Engleman's	1.00	4.76	$194.00
Indian Ricegrass - Native	3.00	9.71	$19.50
Sand Dropseed	0.20	23.88	$1.95
Mountain Brome - Bromar	8.00	12.86	$30.40
Kentucky Bluegrass - Lato	6.00	296.14	$20.10
Burnett, Small (or Little) - Delar	1.00	1.26	$2.50
Pubescent Wheatgrass - VNS	6.00	12.40	$18.90

Streambank Wheatgrass - Sodar	6.00	19.56	$34.20
Thickspike Wheatgrass - Critana	6.00	21.21	$41.25
Coreopsis, Plains	1.00	31.72	$143.20
Western Wheatgrass - Arriba	6.00	15.15	$39.00
Vetch, American	2.00	0.91	$199.85
Flax, Lewis Blue	0.50	3.32	$8.25
Globemallow, Scarlet (or copper)	1.00	11.32	$135.50
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Totals Seed Mix	61.20	522.35	**$1,048.20**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Herbicide - Banvel @ 1.0 pt/ac	1.00	ACRE	$8.83	$8.83
Straw, delivered {MEANS 31 25 14.16 1200}	1.25	TON	$307.02	$383.78
Total Mulch Materials Cost/Acre				**$395.59**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 40 Cost /Acre: $2,339.86
Estimated Failure Rate: 50% Cost /Acre*: $1,372.19
*Selected Replanting Work Items: FERTILIZING,SEEDING,NURSERY

Initial Job Cost: **$93,594.40**
Reseeding Job Cost: **$27,443.80**
Total Job Cost: **$121,038**

Job Hours: **60.00**

REVEGETATION WORK

Task description: **Reveg RPE (16.5 ac), NSS Area (6.2 ac)**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 223 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8B-223
User: LDS

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium sulfate, 21-0-0 with 24% S	50.00	pound	$0.36	$18.00
			Total Fertilizer Materials Cost/Acre	**$18.00**

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	$38.77
Total Fertilizer Application Cost/Acre	**$38.77**

TILLING

Description	Cost /Acre
Chisel plowing {DMG}	$96.50
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$114.56
Total Tilling Cost/Acre	**$211.06**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Beardless Wheatgrass - Whitmar	3.00	9.78	$35.18
Arizona Fescue - Redondo	0.50	5.74	$4.63
Bluebunch Wheatgrass - Secar	3.00	9.64	$32.63
Aster, Engleman's	0.50	2.38	$97.00
Indian Ricegrass - Native	1.50	4.86	$9.75
Sand Dropseed	0.10	11.94	$0.98
Mountain Brome - Bromar	4.00	6.43	$15.20
Kentucky Bluegrass - Lato	3.00	148.07	$10.05
Burnett, Small (or Little) - Delar	0.50	0.63	$1.25
Pubescent Wheatgrass - VNS	3.00	6.20	$9.45

Streambank Wheatgrass - Sodar	3.00	9.78	$17.10
Thickspike Wheatgrass - Critana	3.00	10.61	$20.63
Coreopsis, Plains	0.50	15.86	$71.60
Western Wheatgrass - Arriba	3.00	7.58	$19.50
Vetch, American	1.00	0.45	$99.93
Flax, Lewis Blue	0.25	1.66	$4.13
Globemallow, Scarlet (or copper)	0.50	5.66	$67.75
Penstemon, Rocky Mountain	0.25	3.92	$7.38
Totals Seed Mix	30.60	261.18	**$524.10**

Application

Description	**Cost /Acre**
Drill Seeding (DRMS Survey Cost)	$232.00
Total Seed Application Cost/Acre	**$232.00**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Straw, delivered {MEANS 31 25 14.16 1200}	0.75	TON	$307.02	$230.27
Total Mulch Materials Cost/Acre				**$230.27**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Total Mulch Application Cost/Acre	**$177.86**

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: 22.7 Cost /Acre: $1,432.06
Estimated Failure Rate: 50% Cost /Acre*: $812.87
*Selected Replanting Work Items: FERTILIZING,SEEDING,NURSERY

Initial Job Cost: **$32,507.76**
Reseeding Job Cost: **$9,226.07**
Total Job Cost: **$41,734**
Job Hours: **45.40**

BULLDOZER WORK

Task description: **Grade RPEE ditches to final configuration**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	224	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8B-224
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	1,200
Swell factor:	1.330
Loose volume:	**1,596** LCY

Source of estimated volume: 0.6 acre x 1 ft deep
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: 10 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3104

Adjusted unit production: 655.10 LCY/hr
Adjusted fleet production: **2620.4** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.518/LCY

Total job time: **0.61** Hours
Total job cost: **$827**

BULLDOZER WORK

Task description: **Use RPEE roadbase for portion of road regrading**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	225	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8B-225
User:	LDS				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$2.30	20
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $330.28
Total Fleet Cost/Hour: **$330.28**

MATERIAL QUANTITIES

Initial Volume:	5,540
Swell factor:	1.090
Loose volume:	**6,039** LCY

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

HOURLY PRODUCTION

Average push distance: 100 feet
Unadjusted hourly production: 1,243.2 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: -5 %
Average site altitude: 7,350 feet

Material weight: 2,600 lbs/LCY

Weight description: Clay and gravel - Wet

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.885	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5528

Adjusted unit production: 687.24 LCY/hr
Adjusted fleet production: **687.24** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.481/LCY

Total job time: **8.79** Hours
Total job cost: **$2,902**

BULLDOZER RIPPING WORK

Task description: **Rip RPEE roads (TR-133 legth)**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 226 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8B-226
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 1-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper Ownership Cost/Hour:	$22.17	NA
Ripper Operating Cost/Hour:	$12.36	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$343.25	

Total Fleet Cost/Hour: **$1,373.01**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 3.43 acres Rip Depth (ft): 3.00 Volume: 16,601 BCY or CCY

Source of estimated quantity: 8,800 ft L X 17 ft. wide(Drawing C-05 Exhibit 82)

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	4.05	feet/pass
Average Ripping Width:	6.08	feet/pass
Average Ripping Length:	50.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.512	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.512 Acres/hr

Site Altitude:	6,300	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.42 Acres/hr
Adjusted Hourly Fleet Production: **1.70** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **2.02** Hours

Unit cost: $808.063 Per acre Total job cost: **$2,772**

BULLDOZER WORK

Task description: **Grade RPEE haul roads to AOC (TR133 changes)**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	227	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8B-227
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	5,541
Swell factor:	1.330
Loose volume:	**7,369** LCY

Source of estimated volume: 0.6 acre x 1 ft deep
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.000	(GEN.)
Visibility:	0.800	(POOR)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2235

Adjusted unit production: 471.70 LCY/hr
Adjusted fleet production: **1886.8** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.720/LCY

Total job time: **3.91** Hours
Total job cost: **$5,303**

TRUCK/LOADER TEAM WORK

Task description: **Haul topsoil from RPEE soil storage to reclaimed RPEE road**

Site: **West Elk Mine** Permit Action: RN8 - Part B Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 228 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8B-228
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance –Motor Grader:	NA
-Water Truck:	Water Tanker, 2,500 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	NA	NA	25
Ownership cost/hour:	$22.87	$59.72	NA	NA	NA	$11.70
Operating cost/hour:	$44.28	$55.20	NA	NA	NA	$4.50
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	$0.00	NA	NA	NA	$0.00
Ripper op. cost/hour:	NA	$0.00	NA	NA	NA	$0.00
Operator cost/hour:	$0.00	$40.71	NA	NA	NA	$21.12
Unit Subtotals:	$67.15	$155.63	NA	NA	NA	$37.32
Number of Units:	4	1	0	0	0	1
Group Subtotals:	Work:	$424.23	Support:	$0.00	Maint:	$37.32

Total work team cost/hour: **$461.55**

MATERIAL QUANTITIES

Initial volume: 24,933 CCY Swell factor: 1.000
Loose volume: **24,933** LCY

Source of estimated volume: 8800 ft. long X 17 ft wide X1.5 ft thick
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: 35,400 Pounds
Payload Capacity: 13.36 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **11.00** 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.): 6300 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: 2 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:	**0.540**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.540	Minutes	Adjusted for site altitude:	0.540	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2000.00	5.00	5.00	10.00	1068	1.886

Haul Time: **1.886** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2000.00	-5.00	5.00	0.00	2938	0.706

Return Time: **0.706** minutes
Total Truck Cycle Time: **4.532** minutes

Loading Tool unit Production 634.62 LCY/Hour Adjusted for job efficiency: 526.73 LCY/Hour
Truck Unit Production 145.63 LCY/Hour Adjusted for job efficiency: 120.87 LCY/Hour

Optimal No. of Trucks: 4 Truck(s) Selected Number of Trucks: 4 Truck(s)

Adjusted hourly truck team production: 483.50 LCY/Hour
Adjusted single truck/loader team production: 483.50 LCY/Hour
Adjusted multiple truck/loader team production: **483.50** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **51.57** Hours

Unit cost: $0.955 /LCY Total job cost: **$23,801**

COST SUMMARY WORK

Task description: **Part C: Sylvester Gulch**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 08C State: Colorado Abbreviation: None
Date: 5/6/2022 County: Delta Filename: C007-08C
User: LDS

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
301	Demolish/remove structures: Slyvester G., Shaft #3, Syl. G.	DEMOLISH	1	311.03	$190,921
301a	Seal Sly Gulch Vent Shafts	MINESEAL	1	40.00	$192,590
301b	Seal Sly Gulch Boreholes (Electric, De-gas, Concrete)	BOREHOLE	1	13.88	$26,610
301c	Seal Sly Gulch Dewatering Wells 1-4	BOREHOLE	1	0.22	$1,743
302	Rip substation road	RIPPER	4	0.02	$39
303	Regrade main access road to substation	DOZER	4	2.24	$3,047
304	Rip Sylvester Gulch fan pad and road	RIPPER	4	0.26	$366
305	Backfill Sylvester Gulch fan pad	DOZER	4	0.86	$1,173
307	Replace topsoil f/ stockpile to Shaft #3 pad & light use rd.	SCRAPER1	1	17.90	$16,043
307a	push topsoil at Shaft #3 area back on Shaft #3 pad	DOZER	4	1.09	$1,438
308	Regrade shaft #3 pad and roads	DOZER	4	435.68	$591,584
309	Compact backfilled material at Shaft #3 pad and roads	COMPACT	2	88.47	$58,396
310	Rip shaft #3 and roads	RIPPER	4	1.25	$1,709
311	Haul Shaft #3 backfill from Shafts #1 & #2 (Task 228, PR-7)	TRUCK1	1	432.06	$470,666
313	Regrade material at Sylvester Gulch light-use road upgrade	DOZER	4	2.71	$3,680
314	Replace topsoil f/ stockpile to fill light use rd. expansion	SCRAPER1	1	0.73	$653
315	Compact backfill on widened portion of Syl. G. light use rd	COMPACT	2	3.23	$2,135
316	Backfill and regrade DMEA powerline road	DOZER	4	0.31	$414
317	Replace topsoil f/ stockpile to power pole roads 9 and 11-16	SCRAPER1	1	0.53	$471
318	Reveg RPE, Haul Rd., NSS Area, all Syl. Gul. fac.&ext rd	REVEGE	1	193.56	$468,030
319	Move topsoil f/stockpile to shaft site and electric b.h. rd	TRUCK1	1	120.08	$119,778
320	Replace topsoil f/stockpile #1	TRUCK1	1	29.24	$29,166
321	Replace topsoil f/stockpile #3	TRUCK1	1	102.75	$102,491
322	Replace topsoil f/stockpile 4	TRUCK1	1	5.22	$5,909
323	Haul backfill material to Main Access Road Stations 58-92	TRUCK1	1	31.08	$31,004
325	Regrade ventilation shaft site	DOZER	4	94.77	$128,682
326	Regrade light use roads from PR-7	DOZER	4	41.08	$55,775
327	Regrade main access road from stations 58-92	DOZER	4	28.78	$39,083
328	Regrade main road from stations 7-58	DOZER	4	38.39	$52,130
329	Regrade substation access road, PR-7	DOZER	4	10.00	$13,579
330	Rip all SGFA disturbance areas	GRADER	1	18.77	$3,475
331	Pull up material for light use road reclamation	EXCAVATE	1	108.28	$21,103
332	Compact shaft backfill material	COMPACT	2	17.62	$11,631
333	Compact substation backfill	COMPACT	2	1.41	$932
334	Compact light use road material	COMPACT	2	11.70	$7,728
335	Compact substation road material	COMPACT	2	2.15	$1,423
336	Compact main access road backfill material	COMPACT	2	5.36	$3,538

337	Backfill intake and exhaust shafts, PR-7	DOZER	4	0.25	$336
338	Regrade road to drill hole #4, MR-236	DOZER	4	0.42	$574
339	Replace topsoil from stockpile to dirll pad #4, MR-236	DOZER	4	0.19	$262
340	Regrade SGFA dewatering facility structures	DOZER	4	32.69	$44,394
341	Replace topsoil f/ stockpile to SGFA dewatering facilities	SCRAPER1	1	3.96	$3,548
342	Rip dewater. borehole pad, rd., rd. powerlines/switchgear,	RIPPER	4	0.35	$488
343	Regrade access road to powerlines and switchgears	DOZER	4	1.65	$2,238
344	Remove base from light use roads to powerline/switchgear	SCRAPER1	1	0.60	$541
345	Remove topsoil f/stockpile to l.use rd. for powerpoles 7 and	SCRAPER1	1	0.19	$167
346	Replace topsoil f/stockpile to french drains and trenches	SCRAPER1	1	6.55	$5,874
347	Haul subsoil f/ live subsoil pile #1 to CSLY-4 excavation	SCRAPER1	1	2.21	$1,982
348	Replace topsoil from stockpile to CSLY-4 excavation	SCRAPER1	1	1.61	$1,439
349	Replace topsoil from stockpile to roads and powerpoles 9-17	DOZER	4	0.14	$184
352	Regrade dewatering boreholes and access roads (MR-212)	DOZER	4	0.59	$803
353	Regrade dewatering borehole drill pads (MR-212)	DOZER	4	8.91	$12,097
354	Regrade ditch DCW-7	DOZER	4	0.16	$219
355	Replace topsoil from stockpile to CSLY-4 excavation	SCRAPER1	1	0.65	$582
356	Remove roadbase from dewatering borehole road to pad	SCRAPER1	1	0.15	$137
357	Remove and replace topsoil to remove water pipeline (MR-209)	DOZER	4	0.23	$316
358	Regrade access roads (MR-244)	DOZER	4	0.79	$1,067
359	Replace topsoil on roads (MR-247)	DOZER	4	0.17	$233
362	Excavate 1500' HDPE pipe-f/heater bldg at Shaft 1 -- MDW2308	EXCAVATE	1	1.30	$254
363	Rip aggregate road base on Syl. Gulch rd extension	RIPPER	4	2.27	$3,091
364	Load/haul offsite aggregate f/Syl Gulch Rd extension	TRUCK1	1	31.50	$35,650
365	Backfill cuttings into additional MDW at Vent Shaft #3	EXCAVATE	1	0.18	$36
366	Haul offsite excavated embankment material f/Syl G. Rd exten	TRUCK1	1	44.98	$35,705
367	Compact regraded Sylvester G. road extension	COMPACT	2	5.24	$3,459
368	Replace topsoil on Sylvester Gulch road extension (TR-99)	TRUCK1	1	18.88	$21,371
369	Rip Syl. Gulch mine water treatment ponds and ramps	RIPPER	4	0.24	$338
370	L. mine wtr trmt pond: Push embankment into pond, regrade	DOZER	4	2.55	$3,468
		SUBTOTALS:		**2382.31**	**$2,839,988**

DEMOLITION WORK

Task description: **Demolish/remove structures: Slyvester G., Shaft #3, Syl. G.**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 301 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-301
User: LDS

Agency or organization name: DRMS

UNIT COSTS **Location adjustment: 91.30 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Sylvester Gulch Fan - Superstructure	120x20x10	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	24,000.00	CF	$0.22	$5,160.00
-Floor	120x20	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 50 ft. push	2,400.00	SF	$2.04	$4,900.80
-Footings	2x3	Demo. and on-site disposal in existing pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	280.00	LF	$12.10	$3,388.00
Shaft #3 - Collar	12x12x2	Pavement, concrete, demolition only, 7 in. to 24 in. thick - Reinforced	10.60	CY	$133.50	$1,415.10
-Screen enclosure	12x12x6	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	864.00	CF	$0.22	$185.76
-Concrete barriers	15x10	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	64.00	CF	$0.22	$13.76
Emergency escape capsule facility-Buiilding	10x16x10	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	1,600.00	CF	$0.22	$344.00
-Foundation	6x6	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	36.00	SF	$1.05	$37.91
Ventilation facility intake shaft-Collar	34 ft diam x 15 in th	Pavement, concrete, demolition only, 7 in. to 24 in. thick - Reinforced	4.00	CY	$133.50	$534.00
-Collar base/footer	43x40x4.0	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	255.00	CF	$0.22	$54.83
-Exhaust shaft collar	28 diam. x 12 in th	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 200 ft. push	88.00	SF	$2.02	$177.41
-Base/footer	34x42x4	Pavement, concrete, demolition only, 7 in. to	212.00	CY	$133.50	$28,302.00

		24 in. thick - Reinforced				
-Main fans/motor houses	8x10x4	Pavement, concrete, demolition only, 7 in. to 24 in. thick - Reinforced	12.00	CY	$133.50	$1,602.00
-Main fans/motor houses	8x10x4	Pavement, concrete, demolition only, 7 in. to 24 in. thick - Reinforced	12.00	CY	$133.50	$1,602.00
-Fans ducting	4x10x560	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	22,400.00	CF	$0.22	$4,816.00
Main road - Barriers	350	Railing, roadside guiderail posts only	350.00	EA	$5.71	$1,998.50
-Guardrail	1760	Railing, roadside guiderail and posts (posts on 20 ft. centers)	1,750.00	LF	$2.85	$4,987.50
Syl. Gulch Bulk Rock Dust Storage/Supply Fac. (MR-297) - Support building	12x20xx10	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	2,400.00	CF	$0.22	$516.00
-Concrete pad	12x20x6"	Demo. and on-site disposal in existing pit, 6 in. thick - Max. 200 ft. push	240.00	SF	$1.01	$241.92
Syl. Gulch Vent Shaft #1-Remove fence	8x12x40	Fencing, chain link, including posts and fabric - 8 ft. to 10 ft. high	40.00	LF	$3.08	$123.20
-Remove 10,000-gal. water tank	10,000 gal.	Excavate and load tank onto trailer, non-leaking - 9,000 gal. to 12,000 gal.	1.00	EA	$1,050.00	$1,050.00
-Remove 10,000-gal. septic tank	10,000 gal.	Excavate and load tank onto trailer, non-leaking - 9,000 gal. to 12,000 gal.	1.00	EA	$1,050.00	$1,050.00
-Remove raw sewage from tank	5,000	Remove sludge, water, and rem. product from tank - 3,000 to 5,000 gal.	1.00	EA	$238.00	$238.00
-Transport sew. tank to landfill	10,000 gal.	Haul tank to certified salvage dump - 9,000 to 12,000 gal. tank	1.00	EA	$1,050.00	$1,050.00
-Remove 4 bath houses	2x40x10 (4)	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	3,200.00	CF	$0.22	$688.00
-Remove office	12x55x10	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	6,600.00	CF	$0.22	$1,419.00
Shaft #2 compressor bldg. addition (MR-310)-Building	15x40x12	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	7,200.00	CF	$0.22	$1,548.00
-Pad	15x47	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	705.00	SF	$1.11	$779.73

Above-ground steel water line in Syl. Gulch (MR-323)-Cut into 30-lengths	2,610 lf x 1-ft diam.	Pipe, sewer/water - 12 in. diameter pipe	2,610.00	LF	$4.57	$11,927.70
-Load and haul offsite	30x80x1ft	Loading and 5 mile haul, salvage allowed - Steel frame structures	97.00	CY	$10.85	$1,052.45
Above-ground HDPE water in Syl. Gulch (MR-323)-Cut into 30-lengths	4980 lf	Pipe, sewer/water - 12 in. diameter pipe	4,980.00	LF	$4.57	$22,758.60
-Load and haul offsite	4,980x1x1	Loading and 5 mile haul, salvage allowed - Masonry structures	184.00	CY	$10.55	$1,941.20
2 Water pumps in Syl. Gulch (MR-323)	37 cyds	Loading and 5 mile haul, salvage allowed - Steel frame structures	37.00	CY	$10.85	$401.45
Syl. Gulch Rd. extension (TR-99)-Barbed wire fence with posts	96 lf	Fencing, barbed wire, - 5 strand	96.00	LF	$2.54	$243.84
-16-ft long steel gate	16 lf	Fencing, chain link, including posts and fabric - to 6 ft. high	16.00	LF	$2.68	$42.88
-Headwall - inlet of 84-inch culvert	11x11x12 inches	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 10,000 ft. haul	125.00	SF	$3.77	$471.25
-Headwall - outlet of 84-inch culvert	11x11x12 inches	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 10,000 ft. haul	125.00	SF	$3.77	$471.25
-Silt fence	4,518 lf	Fencing, barbed wire, - 5 strand	4,518.00	LF	$2.54	$11,475.72
-Geotextile	7,510 cf	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	7,510.00	CF	$0.22	$1,614.65
-4 manhole covers	20 syds	Pavement, concrete, demolition only, to 6 in. thick - Rod reinforcing	20.00	SY	$16.10	$322.00
Vent shaft 1 compressor building (MR-339)-Superstructure	30x45.1x14	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	18,950.00	CF	$0.22	$4,074.25
-Concrete floor	64.5 sf	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	65.00	SF	$1.11	$71.89
-Remove 2 compressors	37 cyds each	Loading and 5 mile haul, salvage allowed - Steel frame structures	74.00	CY	$10.85	$802.90
1800-fet of 8-inch diam. HDPE in Syl. Gulch rd. extension	1400 lf	Pipe, corrugated metal (CMP) - 8 in. diameter pipe	1,400.00	LF	$3.12	$4,372.20
Load and haul 1400 ft of 8-inch diam. HDPE f/Syl. Gulch rd. extension	92 cyds	Loading and 2 mile haul, no salvage - Machine loading	92.00	CY	$18.25	$1,679.00

Dump fees HDPE f/Syl. Gulch rd. extension	92 cyds	Dump fees - Building construction materials.	92.00	CY	$11.10	$1,021.20
Ductile steel pipe, Nitrogen at #2 shaft (MR-349)-Removal	6-in diam x 280 lf	Pipe, corrugated metal (CMP) - 8 in. diameter pipe	280.00	LF	$3.12	$874.44
-Load/haul	16 cyds	Loading and 2 mile haul, no salvage - Machine loading	16.00	CY	$18.25	$292.00
-Dump fee	16 cyds	Dump fees - Building construction materials.	16.00	CY	$11.10	$177.60
Vent shaft 1 modifications (MR-353)-2,500 hp fan equip. and ducting	12,000 cf	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	12,000.00	CF	$0.22	$2,580.00
-Concrete slab	20x40x12	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	800.00	SF	$1.11	$884.80
-Footers	2x3x115 lf	Demo. and on-site disposal in excavated pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	115.00	LF	$12.64	$1,453.60
-Fan motor building	16x22x24	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 200 ft. push	8,448.00	CF	$0.22	$1,841.66
--Concrete slab	16x22x12" th	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	352.00	SF	$1.11	$389.31
--Footers	100 lf	Demo. and on-site disposal in excavated pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	100.00	LF	$12.64	$1,264.00
-Fan lubrication unit building	12x12x10	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	1,440.00	CF	$0.22	$309.60
--Concrete slab	12x12	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	144.00	SF	$1.11	$159.26
--Footers	2x3x67lf	Demo. and on-site disposal in excavated pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	67.00	LF	$12.64	$846.88
-Fan MCC building	12x16x12	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	2,304.00	CF	$0.22	$495.36
--Concrete slab	12x16x1	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	192.00	SF	$1.11	$212.35
--Footers	2x3x81 lf	Demo. and on-site disposal in excavated pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	81.00	LF	$12.64	$1,023.84

-Transformers	2 each	NON-PCB Transformer Removal	2.00	EA	$2,238.20	$4,476.40
--Transformer pad	12x16x1	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	192.00	SF	$1.11	$212.35
--Footers	2x3x81 lf	Demo. and on-site disposal in excavated pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	81.00	LF	$12.64	$1,023.84
-Shaft #1 heater building	20x10x10	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	2,000.00	CF	$0.22	$430.00
--Equipment	10x5x5	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	250.00	CF	$0.22	$53.75
--Slab	20x20x 6 in	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	400.00	SF	$1.05	$421.20
--Footers	80 lf x1	Demo. and on-site disposal in excavated pit, 1.0 ft. x 2 ft. - Max. 200 ft. push	80.00	LF	$4.21	$336.80
--Buried HDPE pipe	20 lf x 8 in diam	Pipe, corrugated metal (CMP) - 8 in. diameter pipe	20.00	LF	$3.12	$62.46
Shaft 2 modifications (MR-353) - Building	20x20x10	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	4,000.00	CF	$0.22	$860.00
-Slab	20x20x6 in	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	400.00	SF	$1.05	$421.20
-Footers	12 lf x 1 ft	Demo. and on-site disposal in excavated pit, 1.0 ft. x 2 ft. - Max. 200 ft. push	12.00	LF	$4.21	$50.52
-Buried HDPE pipe	60 lf x 8 in diam	Pipe, corrugated metal (CMP) - 8 in. diameter pipe	60.00	LF	$3.12	$187.38
Nitrogen supply facility - Building (MR-353)	36x72x12	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	31,882.00	CF	$0.22	$6,854.63
-Slab	36x72x1	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	2,592.00	SF	$1.11	$2,866.75
-Footers	2x3x268 lf	Demo. and on-site disposal in excavated pit, 1.0 ft. x 2 ft. - Max. 200 ft. push	268.00	LF	$4.21	$1,128.28
-Buried aluminum pipe	60 lf x 6 in diam	Pipe, corrugated metal (CMP) - 8 in. diameter pipe	60.00	LF	$3.12	$187.38

Culverts	12" diam	Pipe, corrugated metal (CMP) - 12 in. diameter pipe	57.00	LF	$4.10	$233.53
Culverts	15" diam	Pipe, corrugated metal (CMP) - 15 in. diameter pipe	30.00	LF	$4.81	$144.39
Culverts	18" diam	Pipe, corrugated metal (CMP) - 18 in. diameter pipe	253.00	LF	$5.57	$1,410.22
Culverts	21" diam	Pipe, corrugated metal (CMP) - 21 in. diameter pipe	151.00	LF	$6.39	$965.19
Culverts	24" diam	Pipe, corrugated metal (CMP) - 24 in. diameter pipe	324.00	LF	$7.25	$2,350.30
Culverts	30" diam	Pipe, corrugated metal (CMP) - 30 in. diameter pipe	860.00	LF	$9.35	$8,041.00
Culverts	36" diam	Pipe, corrugated metal (CMP) - 36 in. diameter pipe	36.00	LF	$11.32	$407.45
Culverts	48" diam	Pipe, corrugated metal (CMP) - 48 in. diameter pipe	140.00	LF	$16.51	$2,311.40
Culverts	60" diam	Pipe, corrugated metal (CMP) - 60 in. diameter pipe	54.00	LF	$22.20	$1,198.58
Culverts	72" diam	Pipe, corrugated metal (CMP) - 72 in. diameter pipe	122.00	LF	$29.03	$3,541.90
Culverts	84" diam	Pipe, corrugated metal (CMP) - 84 in. diameter pipe	234.00	LF	$35.72	$8,358.25
Concrete pad, 2250 kw generator (MR-362)	78x15x1.5	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	1,170.00	SF	$1.11	$1,294.02
Steel housing, 2250 kw generator (MR-362)	31x10.5x12.3	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 200 ft. push	3,987.00	CF	$0.22	$869.17
Steel fuel tanks, 2250 kw generator (MR-362)	34x10.67x4.8	Haul tank to certified salvage dump - 9,000 to 12,000 gal. tank	1.00	EA	$1,050.00	$1,050.00
Steel housing for transformer/control unit (MR-362)	40x8x10	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 200 ft. push	3,040.00	CF	$0.22	$662.72
Concrete pad for 50 kw generator (MR-362)	11x4x1	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	44.00	SF	$1.11	$48.66
Fuel tanks for 50 kw generator	10.8x3.33x6.75	Haul tank to certified salvage dump - 3,000 to 5,000 gal. tank	1.00	EA	$760.00	$760.00
Syl. G. Substation slab, added in MR-370	8x32x1	Demo. and on-site disposal in excavated pit, 12 in. thick - Max. 200 ft. push	256.00	SF	$1.11	$283.14

Lower mine water treatment pond-Fence	900 lf	Fencing, chain link, including posts and fabric - to 6 ft. high	900.00	LF	$2.68	$2,412.00
-Electrical controls building	12x12x8	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	1,152.00	CF	$0.22	$247.68
-Inlet pipe	33x 48 in diam	Pipe, reinforced concrete (RCP) - 48 in. diameter pipe	33.00	LF	$53.02	$1,749.73
-Outlet pipe	280x 12 in diam	Pipe, corrugated metal (CMP) - 12 in. diameter pipe	280.00	LF	$4.10	$1,147.16
Demolish addition to NiGen building (MR-393)	16' x 58' x 15'	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 10,000 ft. haul	13,920.00	CF	$0.22	$2,992.80
-Demolish and dispose of floor	16' x 58' x 0.42'	Demo. and on-site disposal in existing pit, 6 in. thick - Max. 10,000 ft. haul	928.00	SF	$1.00	$928.93
-Demolish and dispose of footers	16' x 58' x 16"	Demo. and on-site disposal in existing pit, 1.0 ft. x 2 ft. - Max. 10,000 ft. haul	90.00	LF	$4.00	$360.00

Job Hours: **311.03** **Subtotal (unadjusted)**: **$209,113.71** **Total Cost (adjusted for location)**: **$190,920.82**

SAFEGUARDING UNDERGROUND OPENINGS

Task description: **Seal Sly Gulch Vent Shafts**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 301A State: Colorado Abbreviation: None
Date: 5/6/2022 County: Delta Filename: RN8C-301a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
Shaft #1 steel beams (see Ex 69)	34ft dia, beams @3ft c-c	Steel Support Beam W 14X30	303.00	LF	$49.11	$14,880.33
Shaft #2 steel beams	28ft dia, beams @3ft c-c	Steel Support Beam W 14X30	205.00	LF	$49.11	$10,067.55
Shaft #3 steel beams	10ft dia, beams @2ft c-c	Steel Support Beam W 10X15	39.00	LF	$30.41	$1,185.99
Shaft #1 concrete plug	34ft dia x 7ft depth	Shaft closure - concrete cap, poured-in-place (per Cubic Feet)	6,355.00	CF	$13.89	$88,270.95
Shaft #2 concrete plug	28ft dia x 7ft depth	Shaft closure - concrete cap, poured-in-place (per Cubic Feet)	4,310.00	CF	$13.89	$59,865.90
Shaft #3 concrete plug	10ft dia x 7ft depth	Shaft closure - concrete cap, poured-in-place (per Cubic Feet)	550.00	CF	$13.89	$7,639.50
Shaft #1 backfill	34ft dia x 3ft depth	Shaft closure - backfilling, Machine Backfill	303.00	CY	$20.00	$6,060.00
Shaft #2 backfill	28ft dia x 3ft depth	Shaft closure - backfilling, Machine Backfill	205.00	CY	$20.00	$4,100.00
Shaft #3 backfill	10ft dia x 3ft depth	Shaft closure - backfilling, Machine Backfill	26.00	CY	$20.00	$520.00

Job Hours: **40.00** **Total Cost**: **$192,590.22**

BOREHOLE SEALING WORK

Task description: **Seal Sly Gulch Boreholes (Electric, De-gas, Concrete)**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 301B State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-301b
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug (Electric, De-Gas)	PVC plug - 12 in. diameter borehole	11"	NA	2.00	EA	$157.96	$315.92
Fill Holes with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	11"	1305'	849.00	bag	$19.95	$16,937.55
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	14"	NA	11.00	LF	$3.26	$35.86
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	3.00	EA	$37.50	$112.50
Drill Rig Time	SCHRAMM T450WS	NA	NA	13.88	EA	$606.54	$8,418.78
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	13.88	EA	$50.82	$705.38
Bottom Plug (Concrete delivery)	PVC plug - 8 in. diameter borehole	7"	NA	1.00	EA	$84.15	$84.15

Job Hours: **13.88** **Total Cost**: **$26,610.00**

BOREHOLE SEALING WORK

Task description: **Seal Sly Gulch Dewatering Wells 1-4**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 301C State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-301c
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Plug @ 10' (1, 2, 3)	PVC plug - 12 in. diameter borehole	18"	NA	3.00	EA	$157.96	$473.88
Cement plug 10' - 3'	Portland cement grout (Bag, material cost only...94 lb. bag)	18"	7'	37.00	bag	$19.95	$738.15
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	24"	NA	24.00	LF	$3.26	$78.24
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	4.00	EA	$37.50	$150.00
Drill Rig Time	SCHRAMM T450WS	NA	NA	0.22	EA	$606.54	$133.44
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	0.22	EA	$50.82	$11.18
Plug @ 10' (4)	PVC plug - 12 in. diameter borehole	12"	NA	1.00	EA	$157.96	$157.96

Job Hours: **0.22** **Total Cost**: **$1,743.00**

BULLDOZER RIPPING WORK

Task description: **Rip substation road**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 302 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-302
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper Ownership Cost/Hour:	$19.26	NA
Ripper Operating Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$339.46	

Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 0.08 acres Rip Depth (ft): 2.00 Volume: 258 BCY or CCY

Source of estimated quantity: Map 53

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	200.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.838	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.838 Acres/hr

Site Altitude:	6,300	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.70 Acres/hr
Adjusted Hourly Fleet Production: **2.78** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **0.03** Hours

Unit cost: $488.306 Per acre Total job cost: **$39**

BULLDOZER WORK

Task description: **Regrade main access road to substation**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	303	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-303
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	1,722
Swell factor:	1.165
Loose volume:	**2,006** LCY

Source of estimated volume: Permit volume 7, Exhibit 43d
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 30 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.298	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.1059

Adjusted unit production: 223.50 LCY/hr

Adjusted fleet production: **894** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: $1.519/LCY

Total job time: **2.24** Hours

Total job cost: **$3,047**

BULLDOZER RIPPING WORK

Task description: **Rip Sylvester Gulch fan pad and road**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 304 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-304
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper Ownership Cost/Hour:	$19.26	NA
Ripper Operating Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$339.46	

Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 0.75 acres Rip Depth (ft): 2.00 Volume: 2,420 BCY or CCY

Source of estimated quantity: Map 53

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	200.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.838	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.838 Acres/hr

Site Altitude:	6,300	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.70 Acres/hr
Adjusted Hourly Fleet Production: **2.78** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **0.27** Hours

Unit cost: $488.306 Per acre Total job cost: **$366**

BULLDOZER WORK

Task description: **Backfill Sylvester Gulch fan pad**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 305 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-305
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume: 2,099
Swell factor: 1.165
Loose volume: **2,445** LCY

Source of estimated volume: Permit volume 7, Exhibit 43f
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3352

Adjusted unit production: 707.44 LCY/hr
Adjusted fleet production: **2829.76** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.480/LCY

Total job time: **0.86** Hours
Total job cost: **$1,173**

SCRAPER TEAM WORK

Task description: **Replace topsoil f/ stockpile to Shaft #3 pad & light use rd.**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 307 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-307
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G w/push-pull
-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:	$223.48	NA	NA	NA	NA	NA
Operating cost/hour:	$193.77	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:	$30.90	NA	NA	NA	NA	NA
Unit Subtotals:	$448.15	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	$896.30	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$896.30**

MATERIAL QUANTITIES

Initial volume: 5,500 CCY Swell factor: 1.250
Loose volume: **6,875** LCY

Source of estimated volume: Exhibit 69 haul TS from SGTS pile 1, p. 5
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Material weight: 2,550 lbs/LCY
Material description: Earth - Dry packed
Rated Payload: 81,600 pounds
Payload Capacity: 32.00 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: 1.00 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 6300 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: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4500.00	4.60	4.00	8.60	1042	4.36

Haul Time: **4.36** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	4500.00	-4.60	4.00	-0.60	2972	1.56

Return Time: **1.56** minutes

Total Scraper team cycle time: **7.52** minutes
Adjusted for job conditions: 384.10 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 384.10 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **384.10** LCY/Hour

Unadjusted unit production/hour: 462.77 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **17.90** Hours

Unit cost: $2.334 /LCY Total job cost: **$16,043**

BULLDOZER WORK

Task description: **Push topsoil at Shaft #3 area back on Shaft #3 pad**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	307A	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-307a
User:	LDS				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$2.30	20
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $330.28
Total Fleet Cost/Hour: **$1,321.11**

MATERIAL QUANTITIES

Initial Volume:	4,500
Swell factor:	1.125
Loose volume:	**5,063** LCY

Source of estimated volume: Exhibit 69, Shaft #3 description
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Partly consolidated stockpile 1.1

Average push gradient: -5 %
Average site altitude: 7,000 feet

Material weight: 2,550 lbs/LCY

Weight description: Earth - Dry packed

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5509

Adjusted unit production: 1,162.67 LCY/hr
Adjusted fleet production: **4650.68** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.284/LCY

Total job time: **1.09** Hours
Total job cost: **$1,438**

BULLDOZER WORK

Task description: **Regrade shaft #3 pad and roads**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	308	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-308
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	151,000
Swell factor:	1.330
Loose volume:	**200,830** LCY

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

HOURLY PRODUCTION

Average push distance: 100 feet
Unadjusted hourly production: 1,243.2 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 30 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	0.298	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.0927

Adjusted unit production: 115.24 LCY/hr
Adjusted fleet production: **460.96** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $2.946/LCY

Total job time: **435.68** Hours
Total job cost: **$591,584**

COMPACTION WORK

Task description: **Compact backfilled material at Shaft #3 pad and roads**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	309	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-309
User:	LDS				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	CAT 825H	Horsepower:	354
Compactor Type:	Soil - tamping foot	Shift Basis:	1 per day
		Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$201.17	NA
Operating Cost/Hour:	$102.80	100
Operator Cost/Hour:	$26.02	NA
Total Unit Cost/Hour:	$329.99	
Total Fleet Cost/Hour:	**$659.99**	

MATERIAL QUANTITIES

Loose volume:	200,830	LCY	Shrinkage factor:	0.875
Compacted volume:	**175,726**	CCY		

Source of estimated volume: Operator estimate
Source of estimated shrinkage factor: Cat Handbook

HOURLY PRODUCTION

Unadjusted hourly production = (W x S x L x C) / P

Compacted width per pass (W):	7.34	feet
Average Compactor Speed (S):	4.00	mph
Compacted thickness of each lift (L):	10.00	inches
Conversion Constant (C):	16.3	(5,280ft./12in./27cu.ft.)
Required number of machine passes (P):	4	passes
Unadjusted Hourly Unit Production:	1,196.42	CCY/hour

Job Condition Correction Factors — Site Altitude: 6,300 feet

		Source
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.8300	multiplier

Adjusted Hourly Unit Production:	993.03	CCY/Hour
Adjusted Hourly Fleet Production:	**1,986.06**	CCY/Hour

JOB TIME AND COST

Fleet size:	2	Compactor(s)	Total job time:	**88.48**	Hours
Unit cost:	$0.332	per CCY	Total job cost:	**$58,396**	

BULLDOZER RIPPING WORK

Task description: **Rip shaft #3 and roads**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 310 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-310
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper Ownership Cost/Hour:	$19.26	NA
Ripper Operating Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$339.46	

Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 3.50 acres Rip Depth (ft): 2.00 Volume: 11,293 BCY or CCY

Source of estimated quantity: Map 53

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	200.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.838	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.838 Acres/hr

Site Altitude:	6,300	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.70 Acres/hr
Adjusted Hourly Fleet Production: **2.78** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **1.26** Hours

Unit cost: $488.306 Per acre Total job cost: **$1,709**

TRUCK/LOADER TEAM WORK

Task description: **Haul Shaft #3 backfill from Shafts #1 & #2 (Task 228, PR-7)**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 311 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-311
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	70	100	NA	NA
Ownership cost/hour:	$22.87	$59.72	$126.01	$126.01	NA	NA
Operating cost/hour:	$44.28	$55.20	$98.99	$141.41	NA	NA
%Utilization-riper:	NA	0	100	100	NA	NA
Ripper own. cost/hour:	NA	$0.00	$19.26	$19.26	NA	NA
Ripper op. cost/hour:	NA	$0.00	$11.48	$11.48	NA	NA
Operator cost/hour:	$0.00	$40.71	$41.30	$41.30	NA	NA
Unit Subtotals:	$67.15	$155.63	$277.78	$320.20	NA	NA
Number of Units:	5	1	1	1	0	0
Group Subtotals:	Work:	$491.38	Support:	$597.98	Maint:	$0.00

Total work team cost/hour: **$1,089.36**

MATERIAL QUANTITIES

Initial volume: 140,000 CCY Swell factor: 1.330
Loose volume: **186,200** LCY

Source of estimated volume: Exhibit 69 p.14, Map 53B
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: 35,400 Pounds
Payload Capacity: 12.21 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **9.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	0.900	Other - soil, boulders, roots (80 -100%) 0.900
Adjusted Capacity:	**4.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 6300 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: 2 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:	**0.540**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.540	Minutes	Adjusted for site altitude:	0.540	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) 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	2400.00	6.50	3.00	9.50	1068	2.261

Haul Time: **2.261** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2400.00	-6.50	3.00	-3.50	2938	0.864

Return Time: **0.864** minutes
Total Truck Cycle Time: **5.065** minutes

Loading Tool unit Production 519.23 LCY/Hour Adjusted for job efficiency: 430.96 LCY/Hour

Truck Unit Production 106.61 LCY/Hour Adjusted for job efficiency: 88.49 LCY/Hour

Optimal No. of Trucks: 5 Truck(s) Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production: 442.45 LCY/Hour
Adjusted single truck/loader team production: 430.96 LCY/Hour
Adjusted multiple truck/loader team production: **430.96** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **432.06** Hours

Unit cost: $2.528 /LCY Total job cost: **$470,666**

BULLDOZER WORK

Task description: **Regrade material at Sylvester Gulch light-use road upgrade**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	313	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-313
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	5,520
Swell factor:	1.330
Loose volume:	**7,342** LCY

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

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 5 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3209

Adjusted unit production: 677.26 LCY/hr
Adjusted fleet production: **2709.04** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.501/LCY

Total job time: **2.71** Hours
Total job cost: **$3,680**

SCRAPER TEAM WORK

Task description: **Replace topsoil f/ stockpile to fill light use rd. expansion**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 314 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-314
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G w/push-pull
-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:	$223.48	NA	NA	NA	NA	NA
Operating cost/hour:	$193.77	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:	$30.90	NA	NA	NA	NA	NA
Unit Subtotals:	$448.15	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	$896.30	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$896.30**

MATERIAL QUANTITIES

Initial volume: 833 CCY Swell factor: 1.250
Loose volume: **1,041** LCY

Source of estimated volume: Division estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Material weight: 2,550 lbs/LCY
Material description: Earth - Dry packed
Rated Payload: 81,600 pounds
Payload Capacity: 32.00 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: 1.00 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 6300 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: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	200.00	4.60	5.00	9.60	922	0.24

Haul Time: **0.24** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	200.00	-4.60	5.00	0.40	2965	0.18

Return Time: **0.18** minutes

Total Scraper team cycle time: **2.02** minutes
Adjusted for job conditions: 1,429.90 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 1,429.90 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **1,429.90** LCY/Hour

Unadjusted unit production/hour: 1,722.77 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **0.73** Hours

Unit cost: $0.627 /LCY Total job cost: **$653**

COMPACTION WORK

Task description: **Compact backfill on widened portion of Syl. G. light use rd**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 315 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-315
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 825H Horsepower: 354
Compactor Type: Soil - tamping foot Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$201.17	NA
Operating Cost/Hour:	$102.80	100
Operator Cost/Hour:	$26.02	NA
Total Unit Cost/Hour:	$329.99	
Total Fleet Cost/Hour:	**$659.99**	

MATERIAL QUANTITIES

Loose volume: 7,342 LCY Shrinkage factor: 0.875
Compacted volume: **6,424** CCY

Source of estimated volume: Division estimate
Source of estimated shrinkage factor: Cat Handbook

HOURLY PRODUCTION

Unadjusted hourly production = (W x S x L x C) / P

Compacted width per pass (W):	7.34	feet
Average Compactor Speed (S):	4.00	mph
Compacted thickness of each lift (L):	10.00	inches
Conversion Constant (C):	16.3	(5,280ft./12in./27cu.ft.)
Required number of machine passes (P):	4	passes
Unadjusted Hourly Unit Production:	1,196.42	CCY/hour

Job Condition Correction Factors Site Altitude: 6,300 feet

		Source
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.8300	multiplier

Adjusted Hourly Unit Production: 993.03 CCY/Hour
Adjusted Hourly Fleet Production: **1,986.06** CCY/Hour

JOB TIME AND COST

Fleet size: 2 Compactor(s) Total job time: **3.23** Hours

Unit cost: $0.332 per CCY Total job cost: **$2,135**

BULLDOZER WORK

Task description: **Backfill and regrade DMEA powerline road**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	316	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-316
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	270
Swell factor:	1.330
Loose volume:	**359** LCY

Source of estimated volume: MR-240
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 100 feet
Unadjusted hourly production: 1,243.2 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 15 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.666	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2367

Adjusted unit production: 294.27 LCY/hr
Adjusted fleet production: **1177.08** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $1.154/LCY

Total job time: **0.31** Hours
Total job cost: **$414**

SCRAPER TEAM WORK

Task description: **Replace topsoil f/ stockpile to power pole roads 9 and 11-16**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 317 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-317
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G w/push-pull
-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:	$223.48	NA	NA	NA	NA	NA
Operating cost/hour:	$193.77	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:	$30.90	NA	NA	NA	NA	NA
Unit Subtotals:	$448.15	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	$896.30	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$896.30**

MATERIAL QUANTITIES

Initial volume: 470 CCY Swell factor: 1.125
Loose volume: **529** LCY

Source of estimated volume: Exhibit 69, Table 2
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Material weight: 2,550 lbs/LCY
Material description: Earth - Dry packed
Rated Payload: 81,600 pounds
Payload Capacity: 32.00 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: 1.00 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 6300 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: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	200.00	5.00	5.00	10.00	922	0.25
2	400.00	-15.00	5.00	-10.00	1628	0.34

Haul Time: **0.59** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	400.00	15.00	5.00	20.00	772	0.53
2	200.00	-5.00	5.00	0.00	2965	0.15

Return Time: **0.68** minutes

Total Scraper team cycle time: **2.87** minutes
Adjusted for job conditions: 1,006.41 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 1,006.41 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **1,006.41** LCY/Hour

Unadjusted unit production/hour: 1,212.54 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **0.53** Hours

Unit cost: $0.891 /LCY Total job cost: **$471**

REVEGETATION WORK

Task description: **Reveg RPE, Haul Rd., NSS Area, all Syl. Gul. fac.&ext rd**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 318 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-318
User: LDS

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium sulfate, 21-0-0 with 24% S	50.00	pound	$0.36	$18.00
			Total Fertilizer Materials Cost/Acre	**$18.00**

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	$38.77
Total Fertilizer Application Cost/Acre	**$38.77**

TILLING

Description	Cost /Acre
Chisel plowing {DMG}	$96.50
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	$114.56
Total Tilling Cost/Acre	**$211.06**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Beardless Wheatgrass - Whitmar	3.00	9.78	$35.18
Arizona Fescue - Redondo	0.50	5.74	$4.63
Bluebunch Wheatgrass - Secar	3.00	9.64	$32.63
Aster, Engleman's	0.50	2.38	$97.00
Indian Ricegrass - Native	1.50	4.86	$9.75
Sand Dropseed	0.10	11.94	$0.98
Mountain Brome - Bromar	4.00	6.43	$15.20
Kentucky Bluegrass - Lato	3.00	148.07	$10.05
Burnett, Small (or Little) - Delar	0.50	0.63	$1.25
Pubescent Wheatgrass - VNS	3.00	6.20	$9.45

Streambank Wheatgrass - Sodar	3.00	9.78	$17.10
Thickspike Wheatgrass - Critana	3.00	10.61	$20.63
Coreopsis, Plains	0.50	15.86	$71.60
Western Wheatgrass - Arriba	3.00	7.58	$19.50
Vetch, American	1.00	0.45	$99.93
Flax, Lewis Blue	0.25	1.66	$4.13
Globemallow, Scarlet (or copper)	0.50	5.66	$67.75
Penstemon, Rocky Mountain	0.25	3.92	$7.38
Totals Seed Mix	30.60	261.18	**$524.10**

Application

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

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	$307.02	$614.04
Total Mulch Materials Cost/Acre				**$614.04**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Total Mulch Application Cost/Acre	**$177.86**

NURSERY STOCK PLANTING

Common Name	**No / Acre**	**Type and Size**	**Planting Cost**	**Fertilizer Pellet Cost**	**Cost /Acre**
Chokecherry	250	Tubling, 10 cu. in. container {(MEANS)	$2.03	$0.00	$507.50
Oak, Gambel's	150	Tubling, 10 cu. in. container {(MEANS)	$2.33	$0.00	$349.50
Rabbitbrush, Rubber	50	Tubling, 10 cu. in. container {(MEANS)	$2.05	$0.00	$102.50
Rose, Wood's	250	Tubling, 10 cu. in. container {(MEANS)	$2.03	$0.00	$507.50
Serviceberry	250	Tubling, 10 cu. in. container {(MEANS)	$2.03	$0.00	$507.50
Totals Nursery Stock Cost / Acre					**$1,974.50**

JOB TIME AND COST

No. of Acres: 96.78 Cost /Acre: $3,558.33

Estimated Failure Rate:	50%	Cost /Acre*:	$2,555.37
*Selected Replanting Work Items:	FERTILIZING,SEEDING,NURSERY		

Initial Job Cost:	**$344,375.18**
Reseeding Job Cost:	**$123,654.35**
Total Job Cost:	**$468,030**
Job Hours:	**193.56**

TRUCK/LOADER TEAM WORK

Task description: **Move topsoil f/stockpile to shaft site and electric b.h. rd**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 319 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-319
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	100	NA	NA
Ownership cost/hour:	$22.87	$59.72	$126.01	$126.01	NA	NA
Operating cost/hour:	$44.28	$55.20	$141.41	$141.41	NA	NA
%Utilization-riper:	NA	0	100	100	NA	NA
Ripper own. cost/hour:	NA	$0.00	$19.26	$19.26	NA	NA
Ripper op. cost/hour:	NA	$0.00	$11.48	$11.48	NA	NA
Operator cost/hour:	$0.00	$40.71	$41.30	$41.30	NA	NA
Unit Subtotals:	$67.15	$155.63	$320.20	$320.20	NA	NA
Number of Units:	3	1	1	1	0	0
Group Subtotals:	Work:	$357.08	Support:	$640.40	Maint:	$0.00

Total work team cost/hour: **$997.48**

MATERIAL QUANTITIES

Initial volume: 46,000 CCY Swell factor: 1.125
Loose volume: **51,750** LCY

Source of estimated volume: Page 2.02-53
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: 2,550 Pounds/LCY
Description: Earth - Dry packed
Rated Payload: 35,400 Pounds
Payload Capacity: 13.88 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **9.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	0.900	Other - soil, boulders, roots (80 -100%) 0.900
Adjusted Capacity:	**4.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 6300 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: 2 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:	**0.540**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.540	Minutes	Adjusted for site altitude:	0.540	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) 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	900.00	0.00	3.00	3.00	2824	0.420

Haul Time: **0.420** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	900.00	0.00	3.00	3.00	2874	0.339

Return Time: **0.339** minutes
Total Truck Cycle Time: **2.699** minutes

Loading Tool unit Production 519.23 LCY/Hour Adjusted for job efficiency: 430.96 LCY/Hour

Truck Unit Production 200.07 LCY/Hour Adjusted for job efficiency: 166.06 LCY/Hour

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

Adjusted hourly truck team production: 498.18 LCY/Hour
Adjusted single truck/loader team production: 430.96 LCY/Hour
Adjusted multiple truck/loader team production: **430.96** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **120.08** Hours

Unit cost: $2.315 /LCY Total job cost: **$119,778**

TRUCK/LOADER TEAM WORK

Task description: **Replace topsoil f/stockpile #1**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 320 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-320
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	100	NA	NA
Ownership cost/hour:	$22.87	$59.72	$126.01	$126.01	NA	NA
Operating cost/hour:	$44.28	$55.20	$141.41	$141.41	NA	NA
%Utilization-riper:	NA	0	100	100	NA	NA
Ripper own. cost/hour:	NA	$0.00	$19.26	$19.26	NA	NA
Ripper op. cost/hour:	NA	$0.00	$11.48	$11.48	NA	NA
Operator cost/hour:	$0.00	$40.71	$41.30	$41.30	NA	NA
Unit Subtotals:	$67.15	$155.63	$320.20	$320.20	NA	NA
Number of Units:	3	1	1	1	0	0
Group Subtotals:	Work:	$357.08	Support:	$640.40	Maint:	$0.00

Total work team cost/hour: **$997.48**

MATERIAL QUANTITIES

Initial volume: 11,000 CCY Swell factor: 1.125
Loose volume: **12,375** LCY

Source of estimated volume: Page 2.02-53
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: 2,550 Pounds/LCY
Description: Earth - Dry packed
Rated Payload: 35,400 Pounds
Payload Capacity: 13.88 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **9.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	0.900	Other - soil, boulders, roots (80 -100%) 0.900
Adjusted Capacity:	**4.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 6300 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: 2 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:	**0.540**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.540	Minutes	Adjusted for site altitude:	0.540	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) 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	-10.00	3.00	-7.00	2367	0.509

Haul Time: **0.509** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	10.00	3.00	13.00	1384	0.728

Return Time: **0.728** minutes
Total Truck Cycle Time: **3.177** minutes

Loading Tool unit Production 519.23 LCY/Hour Adjusted for job efficiency: 430.96 LCY/Hour

Truck Unit Production 169.97 LCY/Hour Adjusted for job efficiency: 141.08 LCY/Hour

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

Adjusted hourly truck team production: 423.23 LCY/Hour
Adjusted single truck/loader team production: 423.23 LCY/Hour
Adjusted multiple truck/loader team production: **423.23** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **29.24** Hours

Unit cost: $2.357 /LCY Total job cost: **$29,166**

TRUCK/LOADER TEAM WORK

Task description: **Replace topsoil f/stockpile #3**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 321 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-321
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	100	NA	NA
Ownership cost/hour:	$22.87	$59.72	$126.01	$126.01	NA	NA
Operating cost/hour:	$44.28	$55.20	$141.41	$141.41	NA	NA
%Utilization-riper:	NA	0	100	100	NA	NA
Ripper own. cost/hour:	NA	$0.00	$19.26	$19.26	NA	NA
Ripper op. cost/hour:	NA	$0.00	$11.48	$11.48	NA	NA
Operator cost/hour:	$0.00	$40.71	$41.30	$41.30	NA	NA
Unit Subtotals:	$67.15	$155.63	$320.20	$320.20	NA	NA
Number of Units:	3	1	1	1	0	0
Group Subtotals:	Work:	$357.08	Support:	$640.40	Maint:	$0.00

Total work team cost/hour: **$997.48**

MATERIAL QUANTITIES

Initial volume: 35,710 CCY Swell factor: 1.125
Loose volume: **40,174** LCY

Source of estimated volume: Page 2.02-53
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: 2,550 Pounds/LCY
Description: Earth - Dry packed
Rated Payload: 35,400 Pounds
Payload Capacity: 13.88 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **9.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	0.900	Other - soil, boulders, roots (80 -100%) 0.900
Adjusted Capacity:	**4.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 6300 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: 2 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:	**0.540**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.540	Minutes	Adjusted for site altitude:	0.540	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) 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	1950.00	-3.80	3.00	-0.80	2938	0.714

Haul Time: **0.714** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1950.00	3.80	3.00	6.80	2555	0.785

Return Time: **0.785** minutes
Total Truck Cycle Time: **3.439** minutes

Loading Tool unit Production 519.23 LCY/Hour Adjusted for job efficiency: 430.96 LCY/Hour

Truck Unit Production 157.02 LCY/Hour Adjusted for job efficiency: 130.33 LCY/Hour

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

Adjusted hourly truck team production: 390.99 LCY/Hour
Adjusted single truck/loader team production: 390.99 LCY/Hour
Adjusted multiple truck/loader team production: **390.99** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **102.75** Hours

Unit cost: $2.551 /LCY Total job cost: **$102,491**

TRUCK/LOADER TEAM WORK

Task description: **Replace topsoil f/stockpile 4**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 322 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-322
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	100	NA	NA
Ownership cost/hour:	$22.87	$59.72	$126.01	$126.01	NA	NA
Operating cost/hour:	$44.28	$55.20	$141.41	$141.41	NA	NA
%Utilization-riper:	NA	0	100	100	NA	NA
Ripper own. cost/hour:	NA	$0.00	$19.26	$19.26	NA	NA
Ripper op. cost/hour:	NA	$0.00	$11.48	$11.48	NA	NA
Operator cost/hour:	$0.00	$40.71	$41.30	$41.30	NA	NA
Unit Subtotals:	$67.15	$155.63	$320.20	$320.20	NA	NA
Number of Units:	5	1	1	1	0	0
Group Subtotals:	Work:	$491.38	Support:	$640.40	Maint:	$0.00

Total work team cost/hour: **$1,131.78**

MATERIAL QUANTITIES

Initial volume: 2,000 CCY Swell factor: 1.125
Loose volume: **2,250** LCY

Source of estimated volume: Page 2.02-53
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: 2,550 Pounds/LCY
Description: Earth - Dry packed
Rated Payload: 35,400 Pounds
Payload Capacity: 13.88 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **9.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	0.900	Other - soil, boulders, roots (80 -100%) 0.900
Adjusted Capacity:	**4.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 6300 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: 2 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:	**0.540**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.540	Minutes	Adjusted for site altitude:	0.540	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) 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	14.20	3.00	17.20	650	1.543

Haul Time: **1.543** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2100.00	-14.20	3.00	-11.20	2367	0.950

Return Time: **0.950** minutes
Total Truck Cycle Time: **4.433** minutes

Loading Tool unit Production 519.23 LCY/Hour Adjusted for job efficiency: 430.96 LCY/Hour
Truck Unit Production 121.81 LCY/Hour Adjusted for job efficiency: 101.11 LCY/Hour

Optimal No. of Trucks: 4 Truck(s) Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production: 505.53 LCY/Hour
Adjusted single truck/loader team production: 430.96 LCY/Hour
Adjusted multiple truck/loader team production: **430.96** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **5.22** Hours

Unit cost: $2.626 /LCY Total job cost: **$5,909**

TRUCK/LOADER TEAM WORK

Task description: **Haul backfill material to Main Access Road Stations 58-92**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 323 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-323
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	100	NA	NA
Ownership cost/hour:	$22.87	$59.72	$126.01	$126.01	NA	NA
Operating cost/hour:	$44.28	$55.20	$141.41	$141.41	NA	NA
%Utilization-riper:	NA	0	100	100	NA	NA
Ripper own. cost/hour:	NA	$0.00	$19.26	$19.26	NA	NA
Ripper op. cost/hour:	NA	$0.00	$11.48	$11.48	NA	NA
Operator cost/hour:	$0.00	$40.71	$41.30	$41.30	NA	NA
Unit Subtotals:	$67.15	$155.63	$320.20	$320.20	NA	NA
Number of Units:	3	1	1	1	0	0
Group Subtotals:	Work:	$357.08	Support:	$640.40	Maint:	$0.00

Total work team cost/hour: **$997.48**

MATERIAL QUANTITIES

Initial volume: 10,444 CCY Swell factor: 1.125
Loose volume: **11,750** LCY

Source of estimated volume: Table 2, Exhibit 69
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: 2,550 Pounds/LCY
Description: Earth - Dry packed
Rated Payload: 35,400 Pounds
Payload Capacity: 13.88 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **9.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	0.900	Other - soil, boulders, roots (80 -100%) 0.900
Adjusted Capacity:	**4.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 6300 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: 2 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:	**0.540**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.540	Minutes	Adjusted for site altitude:	0.540	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) 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	10.00	3.00	13.00	834	1.207

Haul Time: **1.207** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	-10.00	3.00	-7.00	2938	0.410

Return Time: **0.410** minutes
Total Truck Cycle Time: **3.557** minutes

Loading Tool unit Production 519.23 LCY/Hour Adjusted for job efficiency: 430.96 LCY/Hour

Truck Unit Production 151.81 LCY/Hour Adjusted for job efficiency: 126.01 LCY/Hour

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

Adjusted hourly truck team production: 378.02 LCY/Hour
Adjusted single truck/loader team production: 378.02 LCY/Hour
Adjusted multiple truck/loader team production: **378.02** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **31.08** Hours

Unit cost: $2.639 /LCY Total job cost: **$31,004**

BULLDOZER WORK

Task description: **Regrade ventilation shaft site**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 325 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-325
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume: 40,000
Swell factor: 1.165
Loose volume: **46,600** LCY

Source of estimated volume: Exhibit 69, Table 2
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 300 feet
Unadjusted hourly production: 437.8 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 5 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2808

Adjusted unit production: 122.93 LCY/hr
Adjusted fleet production: **491.72** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $2.761/LCY

Total job time: **94.77** Hours
Total job cost: **$128,682**

BULLDOZER WORK

Task description: **Regrade light use roads from PR-7**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	326	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-326
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	22,815
Swell factor:	1.165
Loose volume:	**26,579** LCY

Source of estimated volume: Exhibit 69, Table 2
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
Unadjusted hourly production: 700.0 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 5 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.600	(POOR)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.600	(FND-SF)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2311

Adjusted unit production: 161.77 LCY/hr
Adjusted fleet production: **647.08** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $2.098/LCY

Total job time: **41.08** Hours
Total job cost: **$55,775**

BULLDOZER WORK

Task description: **Regrade main access road from stations 58-92**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	327	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-327
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	10,444
Swell factor:	1.165
Loose volume:	**12,167** LCY

Source of estimated volume: Exhibit 69, Table 2
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 300 feet
Unadjusted hourly production: 437.8 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.900	(AB.AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(S-BY-S)
Visibility:	0.800	(POOR)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.600	(FND-SF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2414

Adjusted unit production: 105.68 LCY/hr
Adjusted fleet production: **422.72** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $3.212/LCY

Total job time: **28.78** Hours
Total job cost: **$39,083**

BULLDOZER WORK

Task description: **Regrade main road from stations 7-58**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	328	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-328
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	18,519
Swell factor:	1.165
Loose volume:	**21,575** LCY

Source of estimated volume: Exhibit 69, Table 2
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 300 feet
Unadjusted hourly production: 437.8 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 5 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3209

Adjusted unit production: 140.49 LCY/hr
Adjusted fleet production: **561.96** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $2.416/LCY

Total job time: **38.39** Hours
Total job cost: **$52,130**

BULLDOZER WORK

Task description: **Regrade substation access road, PR-7**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	329	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-329
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	4,200
Swell factor:	1.165
Loose volume:	**4,893** LCY

Source of estimated volume: Exhibit 69, Table 2
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 300 feet
Unadjusted hourly production: 437.8 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2794

Adjusted unit production: 122.32 LCY/hr
Adjusted fleet production: **489.28** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $2.775/LCY

Total job time: **10.00** Hours
Total job cost: **$13,579**

MOTOR GRADER WORK

Task description: **Rip all SGFA disturbance areas**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 330 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-330
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 14M Horsepower: 259
Ripper Attachment: Multi-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$85.80	NA
Operating Cost/Hour:	$60.40	100
Ripper Ownership Cost/Hour:	$5.52	NA
Ripper Operating Cost/Hour:	$4.85	100
Operator Cost/Hour:	$28.56	NA
Total Unit Cost/Hour:	$185.13	
Total Fleet Cost/Hour:	**$185.13**	

MATERIAL QUANTITIES

Total Area to be graded or ripped: 29.30 acres

Source of estimated acreage: Exhibit 69, Table 2

HOURLY PRODUCTION

Average Grader Speed: 1.50 mph
Selected Application: Ripping (0-3 mph) - 1.50
Selected Blade Angle: 30 degrees
Effective Blade Length: 12.10 feet
Width of blade overlap per pass: 2.00 feet
Net grading or ripping width per pass: 10.10 feet
Unadjusted Hourly Unit Production: 1.8364 acres/hour

Job Condition Correction Factors Site Altitude: 6300 feet

		Source
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.85	(1sh/d, mod.)
Net Correction:	0.8500	multiplier

Adjusted Hourly Unit Production: 1.5609 acres/Hour
Adjusted Hourly Fleet Production: **1.5609** acres/Hour

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **18.77** Hours

Unit cost: $118.60 per acre Total job cost: **$3,475**

HYDRAULIC EXCAVATOR WORK

Task description: **Pull up material for light use road reclamation**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 331 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-331
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat 336D L 10'-6" Stick
Attachment 1: ROPS Cab

Horsepower: 268
Weight (MT): 29.30
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$83.42	NA
Operating Cost/Hour:	$74.14	100
Operator Cost/Hour:	$37.32	NA
Total Unit Cost/Hour:	$194.88	

Total Fleet Cost/Hour: $194.88

MATERIAL QUANTITIES

Initial volume: 22,800 CCY Swell factor: 1.165
Loose volume: **26,562** LCY

Source of estimated volume: Exhibit 69, Table 2
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Excavator Cycle Time (load bucket, swing loaded, dump bucket, swing empty):

Basic Job Condition Description: BELOW AVERAGE
Secondary Job Condition within Basic Description: SEVERE
Cycle Time Value: 0.390 minutes

Load Bucket Capacity

Bucket Size Class: Medium

Rated Capacity: 2.26 LCY (heaped)
Bucket Fill Factor: 0.850 Hard, tough clay (80% - 90%) 0.850
Adjusted Capacity: **1.92** LCY

Job Condition Correction Factors Site Altitude: 6300 feet

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

Unadjusted Hourly Unit Production: 295.54 LCY/Hour
Adjusted Hourly Unit Production: 245.30 LCY/Hour
Adjusted Hourly Fleet Production: **245.30** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Excavator Total job time: **108.29** Hours

Unit cost: $0.794 /LCY Total job cost: **$21,103**

COMPACTION WORK

Task description: **Compact shaft backfill material**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 332 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-332
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 825H Horsepower: 354
Compactor Type: Soil - tamping foot Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$201.17	NA
Operating Cost/Hour:	$102.80	100
Operator Cost/Hour:	$26.02	NA
Total Unit Cost/Hour:	$329.99	
Total Fleet Cost/Hour:	**$659.99**	

MATERIAL QUANTITIES

Loose volume: 40,000 LCY Shrinkage factor: 0.875
Compacted volume: **35,000** CCY

Source of estimated volume: Exhibit 69, Table 2
Source of estimated shrinkage factor: Cat Handbook

HOURLY PRODUCTION

Unadjusted hourly production = (W x S x L x C) / P

Compacted width per pass (W):	7.34	feet
Average Compactor Speed (S):	4.00	mph
Compacted thickness of each lift (L):	10.00	inches
Conversion Constant (C):	16.3	(5,280ft./12in./27cu.ft.)
Required number of machine passes (P):	4	passes
Unadjusted Hourly Unit Production:	1,196.42	CCY/hour

Job Condition Correction Factors Site Altitude: 6,300 feet

		Source
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.8300	multiplier

Adjusted Hourly Unit Production: 993.03 CCY/Hour
Adjusted Hourly Fleet Production: **1,986.06** CCY/Hour

JOB TIME AND COST

Fleet size: 2 Compactor(s) Total job time: **17.62** Hours

Unit cost: $0.332 per CCY Total job cost: **$11,631**

COMPACTION WORK

Task description: **Compact substation backfill**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 333 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-333
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 825H Horsepower: 354
Compactor Type: Soil - tamping foot Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$201.17	NA
Operating Cost/Hour:	$102.80	100
Operator Cost/Hour:	$26.02	NA
Total Unit Cost/Hour:	$329.99	
Total Fleet Cost/Hour:	**$659.99**	

MATERIAL QUANTITIES

Loose volume: 3,204 LCY Shrinkage factor: 0.875
Compacted volume: **2,804** CCY

Source of estimated volume: Exhibit 69, Table 2
Source of estimated shrinkage factor: Cat Handbook

HOURLY PRODUCTION

Unadjusted hourly production = (W x S x L x C) / P

Compacted width per pass (W):	7.34	feet
Average Compactor Speed (S):	4.00	mph
Compacted thickness of each lift (L):	10.00	inches
Conversion Constant (C):	16.3	(5,280ft./12in./27cu.ft.)
Required number of machine passes (P):	4	passes
Unadjusted Hourly Unit Production:	1,196.42	CCY/hour

Job Condition Correction Factors Site Altitude: 6,300 feet

		Source
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.8300	multiplier

Adjusted Hourly Unit Production: 993.03 CCY/Hour
Adjusted Hourly Fleet Production: **1,986.06** CCY/Hour

JOB TIME AND COST

Fleet size: 2 Compactor(s) Total job time: **1.41** Hours

Unit cost: $0.332 per CCY Total job cost: **$932**

COMPACTION WORK

Task description: **Compact light use road material**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 334 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-334
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 825H Horsepower: 354
Compactor Type: Soil - tamping foot Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$201.17	NA
Operating Cost/Hour:	$102.80	100
Operator Cost/Hour:	$26.02	NA
Total Unit Cost/Hour:	$329.99	
Total Fleet Cost/Hour:	**$659.99**	

MATERIAL QUANTITIES

Loose volume: 26,579 LCY Shrinkage factor: 0.875
Compacted volume: **23,257** CCY

Source of estimated volume: Exhibit 69, Table 2
Source of estimated shrinkage factor: Cat Handbook

HOURLY PRODUCTION

Unadjusted hourly production = (W x S x L x C) / P

Compacted width per pass (W):	7.34	feet
Average Compactor Speed (S):	4.00	mph
Compacted thickness of each lift (L):	10.00	inches
Conversion Constant (C):	16.3	(5,280ft./12in./27cu.ft.)
Required number of machine passes (P):	4	passes
Unadjusted Hourly Unit Production:	1,196.42	CCY/hour

Job Condition Correction Factors Site Altitude: 6,300 feet

		Source
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.8300	multiplier

Adjusted Hourly Unit Production: 993.03 CCY/Hour
Adjusted Hourly Fleet Production: **1,986.06** CCY/Hour

JOB TIME AND COST

Fleet size: 2 Compactor(s) Total job time: **11.71** Hours

Unit cost: $0.332 per CCY Total job cost: **$7,728**

COMPACTION WORK

Task description: **Compact substation road material**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 335 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-335
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 825H Horsepower: 354
Compactor Type: Soil - tamping foot Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$201.17	NA
Operating Cost/Hour:	$102.80	100
Operator Cost/Hour:	$26.02	NA
Total Unit Cost/Hour:	$329.99	
Total Fleet Cost/Hour:	**$659.99**	

MATERIAL QUANTITIES

Loose volume: 4,893 LCY Shrinkage factor: 0.875
Compacted volume: **4,281** CCY

Source of estimated volume: Exhibit 69, Table 2
Source of estimated shrinkage factor: Cat Handbook

HOURLY PRODUCTION

Unadjusted hourly production = (W x S x L x C) / P

Compacted width per pass (W):	7.34	feet
Average Compactor Speed (S):	4.00	mph
Compacted thickness of each lift (L):	10.00	inches
Conversion Constant (C):	16.3	(5,280ft./12in./27cu.ft.)
Required number of machine passes (P):	4	passes
Unadjusted Hourly Unit Production:	1,196.42	CCY/hour

Job Condition Correction Factors Site Altitude: 6,300 feet

		Source
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.8300	multiplier

Adjusted Hourly Unit Production: 993.03 CCY/Hour
Adjusted Hourly Fleet Production: **1,986.06** CCY/Hour

JOB TIME AND COST

Fleet size: 2 Compactor(s) Total job time: **2.16** Hours

Unit cost: $0.332 per CCY Total job cost: **$1,423**

COMPACTION WORK

Task description: **Compact main access road backfill material**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 336 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-336
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 825H Horsepower: 354
Compactor Type: Soil - tamping foot Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$201.17	NA
Operating Cost/Hour:	$102.80	100
Operator Cost/Hour:	$26.02	NA
Total Unit Cost/Hour:	$329.99	
Total Fleet Cost/Hour:	**$659.99**	

MATERIAL QUANTITIES

Loose volume: 12,167 LCY Shrinkage factor: 0.875
Compacted volume: **10,646** CCY

Source of estimated volume: Division estimate
Source of estimated shrinkage factor: Cat Handbook

HOURLY PRODUCTION

Unadjusted hourly production = (W x S x L x C) / P

Compacted width per pass (W):	7.34	feet
Average Compactor Speed (S):	4.00	mph
Compacted thickness of each lift (L):	10.00	inches
Conversion Constant (C):	16.3	(5,280ft./12in./27cu.ft.)
Required number of machine passes (P):	4	passes
Unadjusted Hourly Unit Production:	1,196.42	CCY/hour

Job Condition Correction Factors Site Altitude: 6,300 feet

		Source
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.8300	multiplier

Adjusted Hourly Unit Production: 993.03 CCY/Hour
Adjusted Hourly Fleet Production: **1,986.06** CCY/Hour

JOB TIME AND COST

Fleet size: 2 Compactor(s) Total job time: **5.36** Hours

Unit cost: $0.332 per CCY Total job cost: **$3,538**

BULLDOZER WORK

Task description: **Backfill intake and exhaust shafts, PR-7**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	337	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-337
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	169
Swell factor:	1.165
Loose volume:	**197** LCY

Source of estimated volume: Division estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
Unadjusted hourly production: 700.0 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.000	(GEN.)
Visibility:	0.800	(POOR)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2843

Adjusted unit production: 199.01 LCY/hr
Adjusted fleet production: **796.04** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $1.706/LCY

Total job time: **0.25** Hours
Total job cost: **$336**

BULLDOZER WORK

Task description: **Replace topsoil from stockpile to dirll pad #4, MR-236**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	339	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-339
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	506
Swell factor:	1.250
Loose volume:	**633** LCY

Source of estimated volume: Division estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 6,300 feet

Material weight: 2,550 lbs/LCY

Weight description: Earth - Dry packed

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.200	(SLOT)
Visibility:	0.800	(POOR)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3881

Adjusted unit production: 819.09 LCY/hr
Adjusted fleet production: **3276.36** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.414/LCY

Total job time: **0.19** Hours
Total job cost: **$262**

BULLDOZER WORK

Task description: **Regrade SGFA dewatering facility structures**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	340	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-340
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	15,000
Swell factor:	1.330
Loose volume:	**19,950** LCY

Source of estimated volume: Division estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 250 feet
Unadjusted hourly production: 546.0 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.2794

Adjusted unit production: 152.55 LCY/hr

Adjusted fleet production: **610.2** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)

Unit cost: $2.225/LCY

Total job time: **32.69** Hours

Total job cost: **$44,394**

SCRAPER TEAM WORK

Task description: **Replace topsoil f/ stockpile to SGFA dewatering facilities**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 341 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-341
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G w/push-pull
-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:	$223.48	NA	NA	NA	NA	NA
Operating cost/hour:	$193.77	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:	$30.90	NA	NA	NA	NA	NA
Unit Subtotals:	$448.15	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	$896.30	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$896.30**

MATERIAL QUANTITIES

Initial volume: 4,200 CCY Swell factor: 1.125
Loose volume: **4,725** LCY

Source of estimated volume: Table 2
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Scraper Bowl (volume) Basis:

Material weight: 2,550 lbs/LCY
Material description: Earth - Dry packed
Rated Payload: 81,600 pounds
Payload Capacity: 32.00 LCY

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: 1.00 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 6300 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: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	575.00	-10.00	5.00	-5.00	2972	0.25

Haul Time: **0.25** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	575.00	10.00	5.00	15.00	1047	0.57

Return Time: **0.57** minutes

Total Scraper team cycle time: **2.42** minutes
Adjusted for job conditions: 1,193.55 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 1,193.55 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **1,193.55** LCY/Hour

Unadjusted unit production/hour: 1,438.02 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **3.96** Hours

Unit cost: $0.751 /LCY Total job cost: **$3,548**

BULLDOZER RIPPING WORK

Task description: **Rip dewater. borehole pad, rd., rd. powerlines/switchgear,**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 342 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-342
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper Ownership Cost/Hour:	$19.26	NA
Ripper Operating Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$339.46	

Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 1.00 acres Rip Depth (ft): 2.00 Volume: 3,227 BCY or CCY

Source of estimated quantity: Map 53

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	200.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.838	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.838 Acres/hr

Site Altitude:	6,300	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.70 Acres/hr
Adjusted Hourly Fleet Production: **2.78** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **0.36** Hours

Unit cost: $488.306 Per acre Total job cost: **$488**

BULLDOZER WORK

Task description: **Regrade access road to powerlines and switchgears**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	343	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-343
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	2,500
Swell factor:	1.165
Loose volume:	**2,913** LCY

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

HOURLY PRODUCTION

Average push distance: 100 feet
Unadjusted hourly production: 1,243.2 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3554

Adjusted unit production: 441.83 LCY/hr
Adjusted fleet production: **1767.32** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.768/LCY

Total job time: **1.65** Hours
Total job cost: **$2,238**

SCRAPER TEAM WORK

Task description: **Remove base from light use roads to powerline/switchgear**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 344 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-344
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G w/push-pull
-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:	$223.48	NA	NA	NA	NA	NA
Operating cost/hour:	$193.77	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:	$30.90	NA	NA	NA	NA	NA
Unit Subtotals:	$448.15	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	$896.30	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$896.30**

MATERIAL QUANTITIES

Initial volume: 250 CCY Swell factor: 1.000
Loose volume: **250** LCY

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

HOURLY PRODUCTION

Material weight: 2,550 lbs/LCY
Material description: Earth - Dry packed
Rated Payload: 81,600 pounds
Payload Capacity: 32.00 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: 1.00 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 6300 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: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	5100.00	-5.80	5.00	-0.80	2972	1.77

Haul Time: **1.77** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	5100.00	5.80	5.00	10.80	1434	3.61

Return Time: **3.61** minutes

Total Scraper team cycle time: **6.98** minutes
Adjusted for job conditions: 413.81 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 413.81 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **413.81** LCY/Hour

Unadjusted unit production/hour: 498.57 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **0.60** Hours

Unit cost: $2.166 /LCY Total job cost: **$541**

SCRAPER TEAM WORK

Task description: **Remove topsoil f/stockpile to l.use rd. for powerpoles 7 and**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 345 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-345
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G w/push-pull
-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:	$223.48	NA	NA	NA	NA	NA
Operating cost/hour:	$193.77	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:	$30.90	NA	NA	NA	NA	NA
Unit Subtotals:	$448.15	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	$896.30	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$896.30**

MATERIAL QUANTITIES

Initial volume: 178 CCY Swell factor: 1.250
Loose volume: **223** LCY

Source of estimated volume: Page 2.05-53
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Material weight: 2,550 lbs/LCY
Material description: Earth - Dry packed
Rated Payload: 81,600 pounds
Payload Capacity: 32.00 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: 1.00 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 6300 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: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	550.00	-2.70	5.00	2.30	2939	0.45

Haul Time: **0.45** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	550.00	2.70	5.00	7.70	1931	0.37

Return Time: **0.37** minutes

Total Scraper team cycle time: **2.42** minutes
Adjusted for job conditions: 1,193.55 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 1,193.55 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **1,193.55** LCY/Hour

Unadjusted unit production/hour: 1,438.02 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **0.19** Hours

Unit cost: $0.751 /LCY Total job cost: **$167**

SCRAPER TEAM WORK

Task description: **Replace topsoil f/stockpile to french drains and trenches**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 346 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-346
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G w/push-pull
-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:	$223.48	NA	NA	NA	NA	NA
Operating cost/hour:	$193.77	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:	$30.90	NA	NA	NA	NA	NA
Unit Subtotals:	$448.15	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	$896.30	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$896.30**

MATERIAL QUANTITIES

Initial volume: 3,388 CCY Swell factor: 1.250
Loose volume: **4,235** LCY

Source of estimated volume: Division estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Material weight: 2,550 lbs/LCY
Material description: Earth - Dry packed
Rated Payload: 81,600 pounds
Payload Capacity: 32.00 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: 1.00 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 6300 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: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2000.00	-10.00	4.00	-6.00	2192	0.98

Haul Time: **0.98** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	2000.00	10.00	4.00	14.00	1073	1.89

Return Time: **1.89** minutes

Total Scraper team cycle time: **4.47** minutes
Adjusted for job conditions: 646.17 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 646.17 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **646.17** LCY/Hour

Unadjusted unit production/hour: 778.52 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **6.55** Hours

Unit cost: $1.387 /LCY Total job cost: **$5,874**

SCRAPER TEAM WORK

Task description: **Haul subsoil f/ live subsoil pile #1 to CSLY-4 excavation**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 347 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-347
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G w/push-pull
-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:	$223.48	NA	NA	NA	NA	NA
Operating cost/hour:	$193.77	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:	$30.90	NA	NA	NA	NA	NA
Unit Subtotals:	$448.15	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	$896.30	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$896.30**

MATERIAL QUANTITIES

Initial volume: 592 CCY Swell factor: 1.250
Loose volume: **740** LCY

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

HOURLY PRODUCTION

Material weight: 2,550 lbs/LCY
Material description: Earth - Dry packed
Rated Payload: 81,600 pounds
Payload Capacity: 32.00 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: 1.00 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 6300 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	6750.00	2.70	3.00	5.70	1477	4.64

Haul Time: **4.64** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	6750.00	-2.70	3.00	0.30	2965	2.39

Return Time: **2.39** minutes

Total Scraper team cycle time: **8.63** minutes
Adjusted for job conditions: 334.69 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 334.69 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **334.69** LCY/Hour

Unadjusted unit production/hour: 403.24 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **2.21** Hours

Unit cost: $2.678 /LCY Total job cost: **$1,982**

SCRAPER TEAM WORK

Task description: **Replace topsoil from stockpile to CSLY-4 excavation**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 348 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-348
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G w/push-pull
-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:	$223.48	NA	NA	NA	NA	NA
Operating cost/hour:	$193.77	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:	$30.90	NA	NA	NA	NA	NA
Unit Subtotals:	$448.15	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	$896.30	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$896.30**

MATERIAL QUANTITIES

Initial volume: 333 CCY Swell factor: 1.250
Loose volume: **416** LCY

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

HOURLY PRODUCTION

Material weight: 2,550 lbs/LCY
Material description: Earth - Dry packed
Rated Payload: 81,600 pounds
Payload Capacity: 32.00 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: 1.00 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 6300 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	8750.00	4.10	3.00	7.10	1362	6.50

Haul Time: **6.50** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	8750.00	-4.10	3.00	-1.10	2972	3.04

Return Time: **3.04** minutes

Total Scraper team cycle time: **11.14** minutes
Adjusted for job conditions: 259.28 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 259.28 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **259.28** LCY/Hour

Unadjusted unit production/hour: 312.39 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **1.61** Hours

Unit cost: $3.457 /LCY Total job cost: **$1,439**

BULLDOZER WORK

Task description: **Replace topsoil from stockpile to roads and powerpoles 9-17**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	349	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-349
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	412
Swell factor:	1.250
Loose volume:	**515** LCY

Source of estimated volume: Page 2.05-53
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: 0 %
Average site altitude: 6,300 feet

Material weight: 2,550 lbs/LCY

Weight description: Earth - Dry packed

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4492

Adjusted unit production: 948.04 LCY/hr
Adjusted fleet production: **3792.16** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.358/LCY

Total job time: **0.14** Hours
Total job cost: **$184**

BULLDOZER WORK

Task description: **Regrade dewatering boreholes and access roads (MR-212)**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	352	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-352
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	1,204
Swell factor:	1.330
Loose volume:	**1,601** LCY

Source of estimated volume: Division estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 5 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3209

Adjusted unit production: 677.26 LCY/hr
Adjusted fleet production: **2709.04** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.501/LCY

Total job time: **0.59** Hours
Total job cost: **$803**

BULLDOZER WORK

Task description: **Regrade dewatering borehole drill pads (MR-212)**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	353	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-353
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	6,666
Swell factor:	1.330
Loose volume:	**8,866** LCY

Source of estimated volume: Division estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 200 feet
Unadjusted hourly production: 700.0 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3554

Adjusted unit production: 248.78 LCY/hr
Adjusted fleet production: **995.12** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $1.365/LCY

Total job time: **8.91** Hours
Total job cost: **$12,097**

BULLDOZER WORK

Task description: **Regrade ditch DCW-7**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	354	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-354
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	444
Swell factor:	1.330
Loose volume:	**591** LCY

Source of estimated volume: Division estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Partly consolidated stockpile 1.1

Average push gradient: 0 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4344

Adjusted unit production: 916.80 LCY/hr
Adjusted fleet production: **3667.2** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.370/LCY

Total job time: **0.16** Hours
Total job cost: **$219**

SCRAPER TEAM WORK

Task description: **Replace topsoil from stockpile to CSLY-4 excavation**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 355 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-355
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G w/push-pull
-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:	$223.48	NA	NA	NA	NA	NA
Operating cost/hour:	$193.77	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:	$30.90	NA	NA	NA	NA	NA
Unit Subtotals:	$448.15	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	$896.30	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$896.30**

MATERIAL QUANTITIES

Initial volume: 778 CCY Swell factor: 1.250
Loose volume: **973** LCY

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

HOURLY PRODUCTION

Material weight: 2,550 lbs/LCY
Material description: Earth - Dry packed
Rated Payload: 81,600 pounds
Payload Capacity: 32.00 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: 1.00 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 6300 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: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	225.00	-8.80	4.00	-4.80	2972	0.11

Haul Time: **0.11** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	225.00	8.80	4.00	12.80	1201	0.22

Return Time: **0.22** minutes

Total Scraper team cycle time: **1.93** minutes
Adjusted for job conditions: 1,496.58 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 1,496.58 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **1,496.58** LCY/Hour

Unadjusted unit production/hour: 1,803.11 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **0.65** Hours

Unit cost: $0.599 /LCY Total job cost: **$582**

SCRAPER TEAM WORK

Task description: **Remove roadbase from dewatering borehole road to pad**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 356 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-356
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G w/push-pull
-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:	$223.48	NA	NA	NA	NA	NA
Operating cost/hour:	$193.77	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:	$30.90	NA	NA	NA	NA	NA
Unit Subtotals:	$448.15	NA	NA	NA	NA	NA
Number of Units:	2	0	0	0	0	0
Group Subtotals:	Work:	$896.30	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$896.30**

MATERIAL QUANTITIES

Initial volume: 216 CCY Swell factor: 1.000
Loose volume: **216** LCY

Source of estimated volume: Division estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Material weight: 2,550 lbs/LCY
Material description: Earth - Dry packed
Rated Payload: 81,600 pounds
Payload Capacity: 32.00 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: 1.00 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction: Site Altitude: 6300 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: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	225.00	8.80	4.00	12.80	710	0.33

Haul Time: **0.33** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	225.00	-8.80	4.00	-4.80	2972	0.11

Return Time: **0.11** minutes

Total Scraper team cycle time: **2.04** minutes
Adjusted for job conditions: 1,415.88 LCY/Hour
Selected Number of Scrapers: 2 Scraper(s)
Adjusted single scraper team (unit) hourly production: 1,415.88 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **1,415.88** LCY/Hour

Unadjusted unit production/hour: 1,705.88 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **0.15** Hours

Unit cost: $0.633 /LCY Total job cost: **$137**

BULLDOZER WORK

Task description: **Remove and replace topsoil to remove water pipeline (MR-209)**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	357	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-357
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	636
Swell factor:	1.250
Loose volume:	**795** LCY

Source of estimated volume: Division estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 0 %
Average site altitude: 6,300 feet

Material weight: 2,550 lbs/LCY

Weight description: Earth - Dry packed

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4043

Adjusted unit production: 853.28 LCY/hr
Adjusted fleet production: **3413.12** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.398/LCY

Total job time: **0.23** Hours
Total job cost: **$316**

BULLDOZER WORK

Task description: **Regrade access roads (MR-244)**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	358	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-358
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	1,585
Swell factor:	1.165
Loose volume:	**1,847** LCY

Source of estimated volume: Division estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 100 feet
Unadjusted hourly production: 1,243.2 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: -15 %
Average site altitude: 6,300 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.329	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4724

Adjusted unit production: 587.29 LCY/hr
Adjusted fleet production: **2349.16** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.578/LCY

Total job time: **0.79** Hours
Total job cost: **$1,067**

BULLDOZER WORK

Task description: **Replace topsoil on roads (MR-247)**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	359	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-359
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine:	Cat D9T - 9SU
Horsepower:	405
Blade Type:	Semi-Universal
Attachment:	3-shank ripper
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume:	508
Swell factor:	1.125
Loose volume:	**572** LCY

Source of estimated volume: Division estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 75 feet
Unadjusted hourly production: 1,514.3 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: -10 %
Average site altitude: 6,300 feet

Material weight: 2,550 lbs/LCY

Weight description: Earth - Dry packed

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.225	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.902	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5503

Adjusted unit production: 833.32 LCY/hr
Adjusted fleet production: **3333.28** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.407/LCY

Total job time: **0.17** Hours
Total job cost: **$233**

HYDRAULIC EXCAVATOR WORK

Task description: **Excavate 1500' HDPE pipe-f/heater bldg at Shaft 1 --MDW2308**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 362 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-362
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat 336D L 10'-6" Stick
Attachment 1: ROPS Cab

Horsepower: 268
Weight (MT): 29.30
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$83.42	NA
Operating Cost/Hour:	$74.14	100
Operator Cost/Hour:	$37.32	NA
Total Unit Cost/Hour:	$194.88	

Total Fleet Cost/Hour: $194.88

MATERIAL QUANTITIES

Initial volume: 333 CCY Swell factor: 1.165
Loose volume: **388** LCY

Source of estimated volume: Exhibit 69, Table 2
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Excavator Cycle Time (load bucket, swing loaded, dump bucket, swing empty):

Basic Job Condition Description: AVERAGE
Secondary Job Condition within Basic Description: AVERAGE
Cycle Time Value: 0.321 minutes

Load Bucket Capacity

Bucket Size Class: Medium

Rated Capacity: 2.26 LCY (heaped)
Bucket Fill Factor: 0.850 Hard, tough clay (80% - 90%) 0.850
Adjusted Capacity: **1.92** LCY

Job Condition Correction Factors Site Altitude: 6300 feet

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

Unadjusted Hourly Unit Production: 359.07 LCY/Hour
Adjusted Hourly Unit Production: 298.02 LCY/Hour
Adjusted Hourly Fleet Production: **298.02** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Excavator Total job time: **1.30** Hours

Unit cost: $0.654 /LCY Total job cost: **$254**

BULLDOZER RIPPING WORK

Task description: **Rip aggregate road base on Syl. Gulch rd extension**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 363 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-363
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper Ownership Cost/Hour:	$19.26	NA
Ripper Operating Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$339.46	

Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 6.33 acres Rip Depth (ft): 2.00 Volume: 20,425 BCY or CCY

Source of estimated quantity: Volume 15, TR-99

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	2.63	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	200.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.838	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.838 Acres/hr

Site Altitude:	6,300	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.70 Acres/hr
Adjusted Hourly Fleet Production: **2.78** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **2.28** Hours

Unit cost: $488.306 Per acre Total job cost: **$3,091**

TRUCK/LOADER TEAM WORK

Task description: **Load/haul offsite aggregate f/Syl Gulch Rd extension**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 364 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-364
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	100	NA	NA
Ownership cost/hour:	$22.87	$59.72	$126.01	$126.01	NA	NA
Operating cost/hour:	$44.28	$55.20	$141.41	$141.41	NA	NA
%Utilization-riper:	NA	0	100	100	NA	NA
Ripper own. cost/hour:	NA	$0.00	$19.26	$19.26	NA	NA
Ripper op. cost/hour:	NA	$0.00	$11.48	$11.48	NA	NA
Operator cost/hour:	$0.00	$40.71	$41.30	$41.30	NA	NA
Unit Subtotals:	$67.15	$155.63	$320.20	$320.20	NA	NA
Number of Units:	5	1	1	1	0	0
Group Subtotals:	Work:	$491.38	Support:	$640.40	Maint:	$0.00

Total work team cost/hour: **$1,131.78**

MATERIAL QUANTITIES

Initial volume: 6,351 CCY Swell factor: 1.000
Loose volume: **6,351** LCY

Source of estimated volume: 8130 tons @3200 lbs/cyd, swelled 25%
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: 2,550 Pounds/LCY
Description: Gravel - Dry
Rated Payload: 35,400 Pounds
Payload Capacity: 13.88 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **8.75** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	0.875	Loose material - 1/2" to 3/4" (85 - 90%) 0.875
Adjusted Capacity:	**4.375**	LCY

Job Condition Corrections: Site Altitude (ft.): 6300 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: 2 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:	**0.540**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.540	Minutes	Adjusted for site altitude:	0.540	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) 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	10000.00	3.00	3.00	6.00	1855	5.437

Haul Time: **5.437** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	10000.00	-3.00	3.00	0.00	2938	3.429

Return Time: **3.429** minutes
Total Truck Cycle Time: **10.806** minutes

Loading Tool unit Production 504.81 LCY/Hour Adjusted for job efficiency: 418.99 LCY/Hour

Truck Unit Production 48.58 LCY/Hour Adjusted for job efficiency: 40.32 LCY/Hour

Optimal No. of Trucks: 10 Truck(s) Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production: 201.62 LCY/Hour
Adjusted single truck/loader team production: 201.62 LCY/Hour
Adjusted multiple truck/loader team production: **201.62** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **31.50** Hours

Unit cost: $5.613 /LCY Total job cost: **$35,650**

HYDRAULIC EXCAVATOR WORK

Task description: **Backfill cuttings into additional MDW at Vent Shaft #3**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	365	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8C-365
User:	LDS				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat 336D L 10'-6" Stick	Horsepower:	268
Attachment 1:	ROPS Cab	Weight (MT):	29.30
		Shift Basis:	1 per day
		Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$83.42	NA
Operating Cost/Hour:	$74.14	100
Operator Cost/Hour:	$37.32	NA
Total Unit Cost/Hour:	$194.88	

Total Fleet Cost/Hour: $194.88

MATERIAL QUANTITIES

Initial volume: 34 CCY Swell factor: 1.330

Loose volume: **45** LCY

Source of estimated volume: Exhibit 69, Table 2

Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Excavator Cycle Time (load bucket, swing loaded, dump bucket, swing empty):

Basic Job Condition Description: BELOW AVERAGE

Secondary Job Condition within Basic Description: SEVERE

Cycle Time Value: 0.390 minutes

Load Bucket Capacity

Bucket Size Class: Medium

Rated Capacity:	2.26	LCY (heaped)
Bucket Fill Factor:	0.850	Hard, tough clay (80% - 90%) 0.850
Adjusted Capacity:	**1.92**	LCY

Job Condition Correction Factors Site Altitude: 6300 feet

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

Unadjusted Hourly Unit Production:	295.54	LCY/Hour
Adjusted Hourly Unit Production:	245.30	LCY/Hour
Adjusted Hourly Fleet Production:	**245.30**	LCY/Hour

JOB TIME AND COST

Fleet size: 1 Excavator Total job time: **0.18** Hours

Unit cost: $0.794 /LCY Total job cost: **$36**

TRUCK/LOADER TEAM WORK

Task description: **Haul offsite excavated embankment material f/Syl G. Rd exten**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 366 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-366
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	0	0	0	NA	NA
Ownership cost/hour:	$22.87	$59.72	$126.01	$126.01	NA	NA
Operating cost/hour:	$44.28	$0.00	$0.00	$0.00	NA	NA
%Utilization-riper:	NA	0	100	100	NA	NA
Ripper own. cost/hour:	NA	$0.00	$19.26	$19.26	NA	NA
Ripper op. cost/hour:	NA	$0.00	$11.48	$11.48	NA	NA
Operator cost/hour:	$0.00	$40.71	$41.30	$41.30	NA	NA
Unit Subtotals:	$67.15	$100.43	$178.79	$178.79	NA	NA
Number of Units:	5	1	1	1	0	0
Group Subtotals:	Work:	$436.18	Support:	$357.58	Maint:	$0.00

Total work team cost/hour: **$793.76**

MATERIAL QUANTITIES

Initial volume: 8,834 CCY Swell factor: 1.000
Loose volume: **8,834** LCY

Source of estimated volume: Assume 25% of 31,331 cyds material (Vol. 15), swelled 16.5%
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: 35,400 Pounds
Payload Capacity: 12.21 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **9.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	0.900	Other - soil, boulders, roots (80 -100%) 0.900
Adjusted Capacity:	**4.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 6300 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: 2 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:	**0.540**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.540	Minutes	Adjusted for site altitude:	0.540	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) Time: Road Condition: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	10560.00	1.00	5.00	6.00	1855	5.739

Haul Time: **5.739** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	10560.00	-1.00	5.00	4.00	2849	3.732

Return Time: **3.732** minutes
Total Truck Cycle Time: **11.411** minutes

Loading Tool unit Production 519.23 LCY/Hour Adjusted for job efficiency: 430.96 LCY/Hour

Truck Unit Production 47.32 LCY/Hour Adjusted for job efficiency: 39.28 LCY/Hour

Optimal No. of Trucks: 11 Truck(s) Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production: 196.39 LCY/Hour
Adjusted single truck/loader team production: 196.39 LCY/Hour
Adjusted multiple truck/loader team production: **196.39** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **44.98** Hours

Unit cost: $4.042 /LCY Total job cost: **$35,705**

COMPACTION WORK

Task description: **Compact regraded Sylvester G. road extension**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 367 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-367
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 825H Horsepower: 354
Compactor Type: Soil - tamping foot Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$201.17	NA
Operating Cost/Hour:	$102.80	100
Operator Cost/Hour:	$26.02	NA
Total Unit Cost/Hour:	$329.99	
Total Fleet Cost/Hour:	**$659.99**	

MATERIAL QUANTITIES

Loose volume: 11,897 LCY Shrinkage factor: 0.875
Compacted volume: **10,410** CCY

Source of estimated volume: 6.33 acres x 1 ft deep, swelled 16.5%
Source of estimated shrinkage factor: Cat Handbook

HOURLY PRODUCTION

Unadjusted hourly production = (W x S x L x C) / P

Compacted width per pass (W):	7.34	feet
Average Compactor Speed (S):	4.00	mph
Compacted thickness of each lift (L):	10.00	inches
Conversion Constant (C):	16.3	(5,280ft./12in./27cu.ft.)
Required number of machine passes (P):	4	passes
Unadjusted Hourly Unit Production:	1,196.42	CCY/hour

Job Condition Correction Factors Site Altitude: 6,300 feet

		Source
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.8300	multiplier

Adjusted Hourly Unit Production: 993.03 CCY/Hour
Adjusted Hourly Fleet Production: **1,986.06** CCY/Hour

JOB TIME AND COST

Fleet size: 2 Compactor(s) Total job time: **5.24** Hours

Unit cost: $0.332 per CCY Total job cost: **$3,459**

TRUCK/LOADER TEAM WORK

Task description: **Replace topsoil on Sylvester Gulch road extension (TR-99)**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 368 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-368
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 10-12 cy, 6x4
-Loader:	CAT 966H
Support Equipment -Load Area:	Cat D9T - 9SU
-Dump Area:	Cat D9T - 9SU
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	100	100	NA	NA
Ownership cost/hour:	$22.87	$59.72	$126.01	$126.01	NA	NA
Operating cost/hour:	$44.28	$55.20	$141.41	$141.41	NA	NA
%Utilization-riper:	NA	0	100	100	NA	NA
Ripper own. cost/hour:	NA	$0.00	$19.26	$19.26	NA	NA
Ripper op. cost/hour:	NA	$0.00	$11.48	$11.48	NA	NA
Operator cost/hour:	$0.00	$40.71	$41.30	$41.30	NA	NA
Unit Subtotals:	$67.15	$155.63	$320.20	$320.20	NA	NA
Number of Units:	5	1	1	1	0	0
Group Subtotals:	Work:	$491.38	Support:	$640.40	Maint:	$0.00

Total work team cost/hour: **$1,131.78**

MATERIAL QUANTITIES

Initial volume: 5,652 CCY Swell factor: 1.125
Loose volume: **6,359** LCY

Source of estimated volume: Section 3.0 of permit Exhibit 75
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: 2,550 Pounds/LCY
Description: Earth - Dry packed
Rated Payload: 35,400 Pounds
Payload Capacity: 13.88 LCY

Truck Bed (volume) Basis:

Struck Volume:	10.00	LCY
Heaped Volume:	12.00	LCY
Average Volume:	11.00	LCY
Adjusted Volume:	12.00	LCY

Final Truck Volume Based on Number of Loader Passes: **9.00** LCY

Loading Tool Capacity

Bucket Size Class: NA

Rated Capacity:	5.000	LCY (heaped)
Bucket Fill Factor:	0.900	Other - soil, boulders, roots (80 -100%) 0.900
Adjusted Capacity:	**4.500**	LCY

Job Condition Corrections: Site Altitude (ft.): 6300 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: 2 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:	**0.540**	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	0.540	Minutes	Adjusted for site altitude:	0.540	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) 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	5280.00	3.00	3.00	6.00	1855	2.893

Haul Time: **2.893** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	5280.00	-3.00	3.00	0.00	2938	1.822

Return Time: **1.822** minutes
Total Truck Cycle Time: **6.655** minutes

Loading Tool unit Production 519.23 LCY/Hour Adjusted for job efficiency: 430.96 LCY/Hour

Truck Unit Production 81.14 LCY/Hour Adjusted for job efficiency: 67.35 LCY/Hour

Optimal No. of Trucks: 6 Truck(s) Selected Number of Trucks: 5 Truck(s)

Adjusted hourly truck team production: 336.74 LCY/Hour
Adjusted single truck/loader team production: 336.74 LCY/Hour
Adjusted multiple truck/loader team production: **336.74** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **18.88** Hours

Unit cost: $3.361 /LCY Total job cost: **$21,371**

BULLDOZER RIPPING WORK

Task description: **Rip Syl. Gulch mine water treatment ponds and ramps**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 369 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-369
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU Horsepower: 405
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper Ownership Cost/Hour:	$19.26	NA
Ripper Operating Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA
Total Unit Cost/Hour:	$339.46	

Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 0.63 acres Rip Depth (ft): 2.00 Volume: 2,033 BCY or CCY

Source of estimated quantity: Exhibit 69, plan view drawings

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	1.00	feet/pass
Average Ripping Width:	7.67	feet/pass
Average Ripping Length:	100.00	feet/pass
Average Dozer Speed:	88.00	feet/minute
Average Maneuver Time:	0.25	minutes/pass
Production per unit area:	0.762	acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.762 Acres/hr

Site Altitude:	6,800	feet
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.83	multiplier

Adjusted Hourly Unit Production: 0.63 Acres/hr
Adjusted Hourly Fleet Production: **2.53** Acres/hr

JOB TIME AND COST

Fleet size: 4 Grader(s) Total job time: **0.25** Hours

Unit cost: $536.697 Per acre Total job cost: **$338**

BULLDOZER WORK

Task description: **L. mine wtr trmt pond: Push embankment into pond, regrade**

Site: **West Elk Mine** Permit Action: RN8 - Part C Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 370 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8C-370
User: LDS

Agency or organization name: Division of Reclamation, Mining and Safety

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
Horsepower: 405
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$126.01	NA
Operating Cost/Hour:	$141.41	100
Ripper own. Cost/Hour:	$19.26	NA
Ripper op. Cost/Hour:	$11.48	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $339.46
Total Fleet Cost/Hour: **$1,357.85**

MATERIAL QUANTITIES

Initial Volume: 5,939
Swell factor: 1.165
Loose volume: **6,919** LCY

Source of estimated volume: Division estimate
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 5 %
Average site altitude: 6,800 feet

Material weight: 2,900 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3209

Adjusted unit production: 677.26 LCY/hr
Adjusted fleet production: **2709.04** LCY/hr

JOB TIME AND COST

Fleet size: 4 Dozer(s)
Unit cost: $0.501/LCY

Total job time: **2.55** Hours
Total job cost: **$3,468**

COST SUMMARY WORK

Task description: **Part D: Boreholes plus associated pads and roads**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 08D State: Colorado Abbreviation: None
Date: 5/6/2022 County: Delta Filename: C007-08D
User: LDS

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
401a	RPEE geotech boreholes, permitted with MR-35: plug and seal	BOREHOLE	1	3.68	$6,497
401b	RPEE geotech boreholes, permitted with MR-354: regrade	DOZER	1	4.09	$966
401c	RPEE geotech boreholes, permitted with MR-354: topsoil	DOZER	1	2.97	$702
401d	RPEE geotech boreholes MR354: broadcast PRD mt shrb seed mix	REVEGE	1	2.70	$1,028
402a	93 Inclinometers: plug and seal	BOREHOLE	1	48.36	$45,129
403a	15 x 1" open stand pipes: plug and seal	BOREHOLE	1	10.20	$7,769
404a	24 x 2" open stand pipes: plug and seal	BOREHOLE	1	19.58	$15,334
405a	1 x 3" open stand pipe: plug and seal	BOREHOLE	1	0.62	$545
406a	49 x 4" open stand pipes: plug and seal	BOREHOLE	1	34.10	$32,531
407a	2 x 8" open stand pipes: plug and seal	BOREHOLE	1	1.98	$3,057
408a	81 x 1" piezometers: plug and seal	BOREHOLE	1	33.05	$27,221
409a	25 x 2" piezometers: plug and seal	BOREHOLE	1	12.20	$10,193
410a	10 x 4" piezometers: plug and seal	BOREHOLE	1	18.08	$16,044
411a	2 x 4" inclinometers: plug and seal	BOREHOLE	1	1.04	$1,033
412a	1 x 6" pumping well: plug and seal	BOREHOLE	1	1.14	$1,336
413d	15 Exp. holes & MVBs SL-04: broadcast PRD mt shrb seed mix	REVEGE	1	52.35	$73,615
414d	26 MVBs included in SL-05: broadcast PRD mt shrb seed mix	REVEGE	1	13.85	$19,476
415c	15-06: topsoil	DOZER	1	2.48	$586
415d	3 MVBs in SL03 but not 04: broadcast PRD mt shrb seed mix	REVEGE	1	1.50	$2,109
416c	E2-34 access road: topsoil	DOZER	1	4.60	$1,089
416d	21 MVBs etc in SL07: broadcast PRD mt shrb seed mix	REVEGE	1	19.23	$27,041
417c	E364/65 and E368/72: topsoil	DOZER	1	12.14	$2,869
417d	19 MVBs included in SL-08: broadcast PRD mt shrb seed mix	REVEGE	1	10.05	$14,132
418c	E3-29: topsoil	DOZER	1	5.20	$1,229
418d	21 MVBs/Exp in SL-10: broadcast PRD mt shrb seed mix	REVEGE	1	9.97	$14,020
419c	35 MVBs/Exp in SL-12: topsoil	DOZER	1	153.79	$36,355
419d	35 MVBs/Exp in SL-12: broadcast PRD mt shrb seed mix	REVEGE	1	22.58	$31,752
420a	4 B-seam MVBs, 15-17: plug and seal	BOREHOLE	1	8.80	$16,859
420b	4 B-seam MVBs, 15-17: regrade	DOZER	1	40.87	$9,660
420c	4 B-seam MVBs, 15-17: topsoil	DOZER	1	13.62	$3,220
420d	4 B-seam MVBs, 15-17: broadcast PRD mt shrb seed mix	REVEGE	1	2.00	$2,812
421a	7 Exp & 11 B-seam MVBs, 18-25: plug and seal	BOREHOLE	1	39.60	$75,839
421b	7 Exp & 11 B-seam MVBs, 18-25: regrade	DOZER	1	310.17	$73,322
421c	7 Exp & 11 B-seam MVBs, 18-25: topsoil	DOZER	1	103.39	$24,440

421d	7 Exp & 11 B-seam MVBs,18-25: broadcast PRD mt shrb seed mix	REVEGE	1	15.18	$21,346
422a	6 Exp holes, 2009 D-I: plug and seal	BOREHOLE	1	13.20	$14,709
422b	6 Exp holes, 2009 D-I: regrade	DOZER	1	10.01	$2,367
422c	6 Exp holes, 2009 D-I: topsoil	DOZER	1	3.34	$789
422d	6 Exp holes, 2009 D-I: broadcast PRD mt shrb seed mix	REVEGE	1	0.49	$689
423c	6 Exp holes, Lick Creek A-F: topsoil	DOZER	1	13.62	$3,220
423d	6 Exp holes, Lick Creek A-F: broadcast PRD mt shrb seed mix	REVEGE	1	2.00	$2,812
424a	4 Exp holes, E seam: plug and seal	BOREHOLE	1	8.80	$9,576
424b	4 Exp holes, E seam: regrade	DOZER	1	10.22	$2,415
424c	4 Exp holes, E seam: topsoil	DOZER	1	3.41	$805
424d	4 Exp holes, E seam: broadcast PRD mt shrb seed mix	REVEGE	1	0.50	$703
425a	2 E-seam MVBs, ESM-1 & -2: plug and seal	BOREHOLE	1	4.40	$8,428
425b	2 E-seam MVBs, ESM-1 & -2: regrade	DOZER	1	20.43	$4,830
425c	2 E-seam MVBs, ESM-1 & -2: topsoil	DOZER	1	6.81	$1,610
425d	2 E-seam MVBs, ESM-1 & -2: broadcast PRD mt shrb seed mix	REVEGE	1	1.00	$1,406
426a	7 E-seam MVBs, panels 2-6, P&A pre2020: plug and seal	BOREHOLE	1	15.40	$29,492
426b	7 E-seam MVBs, panels 2-6, P&A pre2020: regrade	DOZER	1	69.68	$16,471
426c	7 E-seam MVBs, panels 2-6, P&A pre2020: topsoil	DOZER	1	23.22	$5,490
426d	7E-seamMVBs, panels 2-6, P&Apre20: broadcastPRDmtshrbseedmix	REVEGE	1	3.41	$4,795
427a	6 of 7 E-seam MVBs, panels 2-6, open2020: plug and seal	BOREHOLE	1	13.20	$25,286
427b	6 of 7 E-seam MVBs, panels 2-6, open2020: regrade	DOZER	1	125.05	$29,561
427c	7 E-seam MVBs, panels 2-6, open2020: topsoil	DOZER	1	47.20	$11,157
427d	7E-seamMVBs, panels 2-6, open2020: broadcastPRDmtshrbseedmix	REVEGE	1	6.93	$9,745
428a	4 of 12 E-seam MVBs, panel 7: plug and seal	BOREHOLE	1	8.80	$16,859
428b	4 of 12 E-seam MVBs, panel 7: regrade	DOZER	1	58.03	$13,718
428c	12 E-seam MVBs, panel 7: topsoil	DOZER	1	49.64	$11,734
428d	12 E-seam MVBs, panel 7: broadcastPRDmtshrbseedmix	REVEGE	1	8.20	$11,531
429a	2 of 8 E-seam MVBs, panel 8: plug and seal	BOREHOLE	1	4.40	$8,428
429b	2 of 8 E-seam MVBs, panel 8: regrade	DOZER	1	48.63	$11,496
429c	8 E-seam MVBs, panel 8: topsoil	DOZER	1	48.60	$11,490
429d	8 E-seam MVBs, panel 8: broadcastPRDmtshrbseedmix	REVEGE	1	7.14	$10,040
430a	9 E-seam MVBs, panel 9: plug and seal	BOREHOLE	1	19.80	$37,920
430b	9 E-seam MVBs, panel 9: regrade	DOZER	1	101.80	$24,064
430c	9 E-seam MVBs, panel 9: topsoil	DOZER	1	33.93	$8,022
430d	9 E-seam MVBs, panel 9: broadcastPRDmtshrbseedmix	REVEGE	1	4.98	$7,003
431a	6 E-seam MVBs, panel 10: plug and seal	BOREHOLE	1	13.20	$25,286
431b	6 E-seam MVBs, panel 10: regrade	DOZER	1	94.12	$22,250
431c	6 E-seam MVBs, panel 10: topsoil	DOZER	1	31.38	$7,417
431d	6 E-seam MVBs, panel 10: broadcastPRDmtshrbseedmix	REVEGE	1	4.61	$6,483
432a	7 E-seam MVBs, panel 11: plug and seal	BOREHOLE	1	15.40	$29,492
432b	7 E-seam MVBs, panel 11: regrade	DOZER	1	82.12	$19,412
432c	7 E-seam MVBs, panel 11: topsoil	DOZER	1	27.37	$6,471
432d	7 E-seam MVBs, panel 11: broadcastPRDmtshrbseedmix	REVEGE	1	4.02	$5,653
433a	8 E-seam MVBs, panel 12: plug and seal	BOREHOLE	1	17.60	$33,694
433b	8 E-seam MVBs, panel 12: regrade	DOZER	1	162.28	$38,363
433c	8 E-seam MVBs, panel 12: topsoil	DOZER	1	47.34	$11,191
433d	8 E-seam MVBs, panel 12: broadcastPRDmtshrbseedmix	REVEGE	1	6.95	$9,773
434a	2 E-seam MVBs, panel 14: plug and seal	BOREHOLE	1	4.40	$8,428
434b	2 E-seam MVBs, panel 14: regrade	DOZER	1	33.30	$7,871
434c	2 E-seam MVBs, panel 14: topsoil	DOZER	1	11.10	$2,624
434d	2 E-seam MVBs, panel 14: broadcastPRDmtshrbseedmix	REVEGE	1	1.63	$2,292
435a	11 SS1 MVBs: plug and seal	BOREHOLE	1	24.20	$43,288

435b	11 SS1 MVBs: regrade	DOZER	1	201.18	$47,557
435c	11 SS1 MVBs: topsoil	DOZER	1	89.43	$21,141
435d	11 SS1 MVBs: broadcastPRDmtshrbseedmix	REVEGE	1	13.13	$18,463
436a	12 SS2 MVBs: plug and seal	BOREHOLE	1	26.40	$47,215
436b	12 SS2 MVBs: regrade	DOZER	1	296.04	$69,981
436c	12 SS2 MVBs: topsoil	DOZER	1	98.68	$23,327
436d	12 SS2 MVBs: broadcastPRDmtshrbseedmix	REVEGE	1	14.49	$20,376
437a	4 SS3 MVBs: plug and seal	BOREHOLE	1	8.80	$15,746
437b	4 SS3 MVBs: regrade	DOZER	1	36.93	$8,730
437c	4 SS3 MVBs: topsoil	DOZER	1	12.31	$2,910
437d	4 SS3 MVBs: broadcastPRDmtshrbseedmix	REVEGE	1	1.81	$2,545
438a	4 SS4 MVBs: plug and seal	BOREHOLE	1	8.80	$15,746
438b	4 SS4 MVBs: regrade	DOZER	1	48.12	$11,375
438c	4 SS4 MVBs: topsoil	DOZER	1	16.04	$3,791
438d	4 SS4 MVBs: broadcastPRDmtshrbseedmix	REVEGE	1	2.35	$3,305
439c	5 Exploration holes, MR423: topsoil	DOZER	1	9.63	$2,275
439d	5 Exploration holes, MR423: broadcastPRDmtshrbseedmix	REVEGE	1	1.41	$1,983
440c	3 Exploration holes, MR424: regrade	DOZER	1	7.92	$1,873
440d	3 Exploration holes, MR424: broadcastPRDmtshrbseedmix	REVEGE	1	1.16	$1,631
441a	22 of 33 Monitoring wells: plug and seal	BOREHOLE	1	87.12	$64,457
460	Removal of temporary pipe, S Prong Creek	DEMOLISH	1	4.00	$1,161
461	S Prong Creek subsidence repair: BroadcastPRDmtshrbseedmix	REVEGE	1	0.60	$844
462	Removal of 2 temporary bridges	DEMOLISH	1	8.00	$1,905
463	Transport 2 temporary bridges	MISCTRUK	1	8.00	$1,051
		SUBTOTALS:		**3414.8**	**$1,649,193**

BOREHOLE SEALING WORK

Task description: **RPEE geotech boreholes, permitted with MR-35: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 401A State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8D-401a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 8 in. diameter borehole	8"	46	10.00	EA	$84.15	$841.50
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	8"	460	140.00	bag	$19.95	$2,793.00
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	8"	21	21.00	LF	$3.26	$68.46
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	10.00	EA	$37.50	$375.00
Drill Rig Time	SCHRAMM T450WS	NA	NA	3.68	EA	$606.54	$2,232.07
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	3.68	EA	$50.82	$187.02

Job Hours: **3.68** **Total Cost**: **$6,497.00**

BULLDOZER WORK

Task description: **RPEE geotech boreholes, permitted with MR-354: regrade**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	401B	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-401b
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	968
Swell factor:	1.125
Loose volume:	**1,089** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 7,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **4.09** Hours
Total job cost: **$966**

BULLDOZER WORK

Task description: **RPEE geotech boreholes, permitted with MR-354: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	401C	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-401c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	968
Swell factor:	1.000
Loose volume:	**968** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Partly consolidated stockpile 1.1

Average push gradient: 10 %
Average site altitude: 7,000 feet

Material weight: 2,650 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.900	(AB.AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4485

Adjusted unit production: 325.75 LCY/hr
Adjusted fleet production: **325.75** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.726/LCY

Total job time: **2.97** Hours
Total job cost: **$702**

REVEGETATION WORK

Task description: **RPEE geotech boreholes MR354: broadcast PRD mt shrb seed mix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 401D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-401d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	$307.02	$614.04
Total Mulch Materials Cost/Acre				**$617.02**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 0.6
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,590.69
Cost /Acre*: $612.65

Initial Job Cost: **$954.41**
Reseeding Job Cost: **$73.52**
Total Job Cost: **$1,028**
Job Hours: **2.70**

BOREHOLE SEALING WORK

Task description: **93 Inclinometers: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 402A State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8D-402a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 4 in. diameter borehole	3.35"	0	93.00	EA	$33.98	$3,160.14
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	3.35"	6045	322.00	bag	$19.95	$6,423.90
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	3.35"	82	82.00	LF	$3.26	$267.32
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	93.00	EA	$37.50	$3,487.50
Drill Rig Time	SCHRAMM T450WS	NA	NA	48.36	EA	$606.54	$29,332.27
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	48.36	EA	$50.82	$2,457.66

Job Hours: **48.36** **Total Cost**: **$45,129.00**

BOREHOLE SEALING WORK

Task description: **15 x 1" open stand pipes: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 403A State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8D-403a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 2 in. diameter borehole	1"	0	15.00	EA	$24.59	$368.85
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	1"	1275	6.00	bag	$19.95	$119.70
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	1"	4	4.00	LF	$3.26	$13.04
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	15.00	EA	$37.50	$562.50
Drill Rig Time	SCHRAMM T450WS	NA	NA	10.20	EA	$606.54	$6,186.71
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	10.20	EA	$50.82	$518.36

Job Hours: **10.20** **Total Cost**: **$7,769.00**

BOREHOLE SEALING WORK

Task description: **24 x 2" open stand pipes: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 404A State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8D-404a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 2 in. diameter borehole	2"	0	24.00	EA	$24.59	$590.16
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	2"	2448	46.00	bag	$19.95	$917.70
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	2"	13	13.00	LF	$3.26	$42.38
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	24.00	EA	$37.50	$900.00
Drill Rig Time	SCHRAMM T450WS	NA	NA	19.60	EA	$606.54	$11,888.18
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	19.60	EA	$50.82	$996.07

Job Hours: **19.58** **Total Cost**: **$15,334.00**

BOREHOLE SEALING WORK

Task description: **1 x 3" open stand pipe: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 405A State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8D-405a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 4 in. diameter borehole	3"	0	1.00	EA	$33.98	$33.98
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	3"	78	3.00	bag	$19.95	$59.85
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	3"	1	1.00	LF	$3.26	$3.26
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	1.00	EA	$37.50	$37.50
Drill Rig Time	SCHRAMM T450WS	NA	NA	0.62	EA	$606.54	$378.48
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	0.62	EA	$50.82	$31.51

Job Hours: **0.62** **Total Cost**: **$545.00**

BOREHOLE SEALING WORK

Task description: **49 x 4" open stand pipes: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 406A State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8D-406a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 4 in. diameter borehole	4"	0	49.00	EA	$33.98	$1,665.02
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	4"	4263	323.00	bag	$19.95	$6,443.85
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	4"	51	51.00	LF	$3.26	$166.26
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	49.00	EA	$37.50	$1,837.50
Drill Rig Time	SCHRAMM T450WS	NA	NA	34.10	EA	$606.54	$20,685.44
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	34.10	EA	$50.82	$1,732.96

Job Hours: **34.10** **Total Cost**: **$32,531.00**

BOREHOLE SEALING WORK

Task description: **2 x 8" open stand pipes: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 407A State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8D-407a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 8 in. diameter borehole	8"	0	2.00	EA	$84.15	$168.30
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	8"	248	75.00	bag	$19.95	$1,496.25
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	8"	4	4.00	LF	$3.26	$13.04
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	2.00	EA	$37.50	$75.00
Drill Rig Time	SCHRAMM T450WS	NA	NA	1.98	EA	$606.54	$1,203.38
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	1.98	EA	$50.82	$100.83

Job Hours: **1.98** **Total Cost**: **$3,057.00**

BOREHOLE SEALING WORK

Task description: **81 x 1" piezometers: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 408A State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8D-408a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 2 in. diameter borehole	1"	0	81.00	EA	$24.59	$1,991.79
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	1"	4131	20.00	bag	$19.95	$399.00
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	1"	21	21.00	LF	$3.26	$68.46
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	81.00	EA	$37.50	$3,037.50
Drill Rig Time	SCHRAMM T450WS	NA	NA	33.05	EA	$606.54	$20,044.93
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	33.05	EA	$50.82	$1,679.50

Job Hours: **33.05** **Total Cost**: **$27,221.00**

BOREHOLE SEALING WORK

Task description: **25 x 2" piezometers: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 409A State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8D-409a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 2 in. diameter borehole	2"	0	25.00	EA	$24.59	$614.75
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	2"	1525	29.00	bag	$19.95	$578.55
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	2"	13	13.00	LF	$3.26	$42.38
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	25.00	EA	$37.50	$937.50
Drill Rig Time	SCHRAMM T450WS	NA	NA	12.20	EA	$606.54	$7,399.79
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	12.20	EA	$50.82	$620.00

Job Hours: **12.20** **Total Cost**: **$10,193.00**

BOREHOLE SEALING WORK

Task description: **10 x 4" piezometers: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 410A State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8D-410a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 4 in. diameter borehole	4"	0	10.00	EA	$33.98	$339.80
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	4"	2260	171.00	bag	$19.95	$3,411.45
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	4"	10	10.00	LF	$3.26	$32.60
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	10.00	EA	$37.50	$375.00
Drill Rig Time	SCHRAMM T450WS	NA	NA	18.08	EA	$606.54	$10,966.24
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	18.08	EA	$50.82	$918.83

Job Hours: **18.08** **Total Cost**: **$16,044.00**

BOREHOLE SEALING WORK

Task description: **2 x 4" inclinometers: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 411A State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8D-411a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 4 in. diameter borehole	4"	0	2.00	EA	$33.98	$67.96
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	4"	130	10.00	bag	$19.95	$199.50
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	4"	2	2.00	LF	$3.26	$6.52
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	2.00	EA	$37.50	$75.00
Drill Rig Time	SCHRAMM T450WS	NA	NA	1.04	EA	$606.54	$630.80
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	1.04	EA	$50.82	$52.85

Job Hours: **1.04** **Total Cost**: **$1,033.00**

BOREHOLE SEALING WORK

Task description: **1 x 6" pumping well: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 412A State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8D-412a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 6 in. diameter borehole	6"	0	1.00	EA	$61.43	$61.43
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	6"	143	24.00	bag	$19.95	$478.80
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	6"	2	2.00	LF	$3.26	$6.52
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	1.00	EA	$37.50	$37.50
Drill Rig Time	SCHRAMM T450WS	NA	NA	1.14	EA	$606.54	$693.88
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	1.14	EA	$50.82	$58.14

Job Hours: **1.14** **Total Cost**: **$1,336.00**

REVEGETATION WORK

Task description: **15 Exp. holes & MVBs SL-04: broadcast PRD mt shrb seed mix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 413D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-413d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 52.35
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$67,200.12**
Reseeding Job Cost: **$6,414.45**
Total Job Cost: **$73,615**
Job Hours: **52.35**

REVEGETATION WORK

Task description: **26 MVBs included in SL-05: broadcast PRD mt shrb seed mix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 414D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-414d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 13.85
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$17,778.83**
Reseeding Job Cost: **$1,697.04**
Total Job Cost: **$19,476**
Job Hours: **13.85**

BULLDOZER WORK

Task description: **15-06: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	415C	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-415c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	807
Swell factor:	1.000
Loose volume:	**807** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Partly consolidated stockpile 1.1

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.900	(AB.AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4485

Adjusted unit production: 325.75 LCY/hr
Adjusted fleet production: **325.75** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.726/LCY

Total job time: **2.48** Hours
Total job cost: **$586**

REVEGETATION WORK

Task description: **3 MVBs in SL03 but not 04: broadcast PRD mt shrb seed mix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 415D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-415d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 1.5
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$1,925.51**
Reseeding Job Cost: **$183.80**
Total Job Cost: **$2,109**
Job Hours: **1.50**

BULLDOZER WORK

Task description: **E2-34 access road: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	416C	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-416c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	1,500
Swell factor:	1.000
Loose volume:	**1,500** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Partly consolidated stockpile 1.1

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.900	(AB.AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4485

Adjusted unit production: 325.75 LCY/hr
Adjusted fleet production: **325.75** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.726/LCY

Total job time: **4.60** Hours
Total job cost: **$1,089**

REVEGETATION WORK

Task description: **21 MVBs etc in SL07: broadcast PRD mt shrb seed mix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 416D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-416d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 19.23
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$24,684.97**
Reseeding Job Cost: **$2,356.25**
Total Job Cost: **$27,041**
Job Hours: **19.23**

BULLDOZER WORK

Task description: **E364/65 and E368/72: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	417C	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-417c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	3,953
Swell factor:	1.000
Loose volume:	**3,953** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Partly consolidated stockpile 1.1

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.900	(AB.AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4485

Adjusted unit production: 325.75 LCY/hr
Adjusted fleet production: **325.75** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.726/LCY

Total job time: **12.14** Hours
Total job cost: **$2,869**

REVEGETATION WORK

Task description: **19 MVBs included in SL-08: broadcast PRD mt shrb seed mix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 417D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-417d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 10.05
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$12,900.88**
Reseeding Job Cost: **$1,231.43**
Total Job Cost: **$14,132**
Job Hours: **10.05**

BULLDOZER WORK

Task description: **E3-29: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	418C	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-418c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	1,694
Swell factor:	1.000
Loose volume:	**1,694** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Partly consolidated stockpile 1.1

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

Job Condition Correction Factor		Source
Operator Skill:	0.900	(AB.AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4485

Adjusted unit production: 325.75 LCY/hr
Adjusted fleet production: **325.75** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.726/LCY

Total job time: **5.20** Hours
Total job cost: **$1,229**

BULLDOZER WORK

Task description: **35 MVBs/Exp in SL-12: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	419C	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-419c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	36,429
Swell factor:	1.125
Loose volume:	**40,983** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **153.79** Hours
Total job cost: **$36,355**

REVEGETATION WORK

Task description: **35 MVBs/Exp in SL-12: broadcast PRD mt shrb seed mix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 419D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-419d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 22.58
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$28,985.27**
Reseeding Job Cost: **$2,766.73**
Total Job Cost: **$31,752**
Job Hours: **22.58**

BOREHOLE SEALING WORK

Task description: **4 B-seam MVBs, 15-17: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 420A State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8D-420a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 10 in. diameter borehole	10"	0	4.00	EA	$115.29	$461.16
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	10"	1100	522.00	bag	$19.95	$10,413.90
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	14"	15	15.00	LF	$3.26	$48.90
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	4.00	EA	$37.50	$150.00
Drill Rig Time	SCHRAMM T450WS	NA	NA	8.80	EA	$606.54	$5,337.55
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	8.80	EA	$50.82	$447.22

Job Hours: **8.80** **Total Cost**: **$16,859.00**

BULLDOZER WORK

Task description: **4 B-seam MVBs, 15-17: regrade**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	420B	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-420b
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	9,680
Swell factor:	1.125
Loose volume:	**10,890** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **40.87** Hours
Total job cost: **$9,660**

BULLDOZER WORK

Task description: **4 B-seam MVBs, 15-17: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	420C	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-420c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	3,227
Swell factor:	1.125
Loose volume:	**3,630** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **13.62** Hours
Total job cost: **$3,220**

REVEGETATION WORK

Task description: **4 B-seam MVBs, 15-17: broadcast PRD mt shrb seed mix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 420D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-420d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$2,567.34**
Reseeding Job Cost: **$245.06**
Total Job Cost: **$2,812**
Job Hours: **2.00**

BOREHOLE SEALING WORK

Task description: **7 Exp & 11 B-seam MVBs, 18-25: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 421A State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8D-421a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 10 in. diameter borehole	10"	0	18.00	EA	$115.29	$2,075.22
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	10"	4950	2,348.00	bag	$19.95	$46,842.60
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	14"	66	66.00	LF	$3.26	$215.16
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	18.00	EA	$37.50	$675.00
Drill Rig Time	SCHRAMM T450WS	NA	NA	39.60	EA	$606.54	$24,018.98
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	39.60	EA	$50.82	$2,012.47

Job Hours: **39.60** **Total Cost**: **$75,839.00**

BULLDOZER WORK

Task description: **7 Exp & 11 B-seam MVBs, 18-25: regrade**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	421B	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-421b
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	73,471
Swell factor:	1.125
Loose volume:	**82,655** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **310.17** Hours
Total job cost: **$73,322**

BULLDOZER WORK

Task description: **7 Exp & 11 B-seam MVBs, 18-25: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	421C	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-421c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	24,490
Swell factor:	1.125
Loose volume:	**27,551** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **103.39** Hours
Total job cost: **$24,440**

REVEGETATION WORK

Task description: **7 Exp & 11 B-seam MVBs,18-25: broadcast PRD mt shrb seed mix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 421D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-421d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 15.18
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$19,486.11**
Reseeding Job Cost: **$1,860.01**
Total Job Cost: **$21,346**
Job Hours: **15.18**

BOREHOLE SEALING WORK

Task description: **6 Exp holes, 2009 D-I: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 422A State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8D-422a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 6 in. diameter borehole	5.875"	0	6.00	EA	$61.43	$368.58
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	5.875"	1650	270.00	bag	$19.95	$5,386.50
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	10"	16	16.00	LF	$3.26	$52.16
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	6.00	EA	$37.50	$225.00
Drill Rig Time	SCHRAMM T450WS	NA	NA	13.20	EA	$606.54	$8,006.33
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	13.20	EA	$50.82	$670.82

Job Hours: **13.20** **Total Cost**: **$14,709.00**

BULLDOZER WORK

Task description: **6 Exp holes, 2009 D-I: regrade**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	422B	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-422b
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	2,372
Swell factor:	1.125
Loose volume:	**2,669** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **10.01** Hours
Total job cost: **$2,367**

BULLDOZER WORK

Task description: **6 Exp holes, 2009 D-I: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	422C	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-422c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	791
Swell factor:	1.125
Loose volume:	**890** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **3.34** Hours
Total job cost: **$789**

REVEGETATION WORK

Task description: **6 Exp holes, 2009 D-I: broadcast PRD mt shrb seed mix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 422D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-422d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 0.49
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$629.00**
Reseeding Job Cost: **$60.04**
Total Job Cost: **$689**
Job Hours: **0.49**

BULLDOZER WORK

Task description: **6 Exp holes, Lick Creek A-F: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	423C	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-423c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	3,227
Swell factor:	1.125
Loose volume:	**3,630** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **13.62** Hours
Total job cost: **$3,220**

REVEGETATION WORK

Task description: **6 Exp holes, Lick Creek A-F: broadcast PRD mt shrb seed mix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 423D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-423d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$2,567.34**
Reseeding Job Cost: **$245.06**
Total Job Cost: **$2,812**
Job Hours: **2.00**

BOREHOLE SEALING WORK

Task description: **4 Exp holes, E seam: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 424A State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8D-424a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 4 in. diameter borehole	4"	0	2.00	EA	$33.98	$67.96
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	4"	550	42.00	bag	$19.95	$837.90
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	8"	4	4.00	LF	$3.26	$13.04
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	4.00	EA	$37.50	$150.00
Drill Rig Time	SCHRAMM T450WS	NA	NA	8.80	EA	$606.54	$5,337.55
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	8.80	EA	$50.82	$447.22
Bottom Plug	PVC plug - 8 in. diameter borehole	7"	NA	2.00	EA	$84.15	$168.30
Fill hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	7"	550	128.00	bag	$19.95	$2,553.60

Job Hours: **8.80** **Total Cost**: **$9,576.00**

BULLDOZER WORK

Task description: **4 Exp holes, E seam: regrade**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	424B	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-424b
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	2,420
Swell factor:	1.125
Loose volume:	**2,723** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **10.22** Hours
Total job cost: **$2,415**

BULLDOZER WORK

Task description: **4 Exp holes, E seam: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	424C	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-424c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	807
Swell factor:	1.125
Loose volume:	**908** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **3.41** Hours
Total job cost: **$805**

REVEGETATION WORK

Task description: **4 Exp holes, E seam: broadcast PRD mt shrb seed mix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 424D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-424d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 0.5
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$641.84**
Reseeding Job Cost: **$61.27**
Total Job Cost: **$703**
Job Hours: **0.50**

BOREHOLE SEALING WORK

Task description: **2 E-seam MVBs, ESM-1 & -2: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 425A State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8D-425a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 10 in. diameter borehole	10"	0	2.00	EA	$115.29	$230.58
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	10"	550	261.00	bag	$19.95	$5,206.95
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	14"	7	7.00	LF	$3.26	$22.82
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	2.00	EA	$37.50	$75.00
Drill Rig Time	SCHRAMM T450WS	NA	NA	4.40	EA	$606.54	$2,668.78
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	4.40	EA	$50.82	$223.61

Job Hours: **4.40** **Total Cost**: **$8,428.00**

BULLDOZER WORK

Task description: **2 E-seam MVBs, ESM-1 & -2: regrade**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	425B	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-425b
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	4,840
Swell factor:	1.125
Loose volume:	**5,445** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **20.43** Hours
Total job cost: **$4,830**

BULLDOZER WORK

Task description: **2 E-seam MVBs, ESM-1 & -2: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	425C	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-425c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	1,613
Swell factor:	1.125
Loose volume:	**1,815** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **6.81** Hours
Total job cost: **$1,610**

REVEGETATION WORK

Task description: **2 E-seam MVBs, ESM-1 & -2: broadcast PRD mt shrb seed mix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 425D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-425d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$1,283.67**
Reseeding Job Cost: **$122.53**
Total Job Cost: **$1,406**
Job Hours: **1.00**

BOREHOLE SEALING WORK

Task description: **7 E-seam MVBs, panels 2-6, P&A pre2020: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 426A State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8D-426a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 10 in. diameter borehole	10"	0	7.00	EA	$115.29	$807.03
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	10"	1925	913.00	bag	$19.95	$18,214.35
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	14"	26	26.00	LF	$3.26	$84.76
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	7.00	EA	$37.50	$262.50
Drill Rig Time	SCHRAMM T450WS	NA	NA	15.40	EA	$606.54	$9,340.72
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	15.40	EA	$50.82	$782.63

Job Hours: **15.40** **Total Cost**: **$29,492.00**

BULLDOZER WORK

Task description: **7 E-seam MVBs, panels 2-6, P&A pre2020: regrade**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	426B	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-426b
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	16,504
Swell factor:	1.125
Loose volume:	**18,567** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **69.68** Hours
Total job cost: **$16,471**

BULLDOZER WORK

Task description: **7 E-seam MVBs, panels 2-6, P&A pre2020: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	426C	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-426c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	5,501
Swell factor:	1.125
Loose volume:	**6,189** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **23.22** Hours
Total job cost: **$5,490**

REVEGETATION WORK

Task description: **7E-seamMVBs, panels 2-6, P&Apre20: broadcastPRDmtshrbseedmix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 426D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-426d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 3.41
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$4,377.31**
Reseeding Job Cost: **$417.83**
Total Job Cost: **$4,795**
Job Hours: **3.41**

BOREHOLE SEALING WORK

Task description: **6 of 7 E-seam MVBs, panels 2-6, open2020: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 427A State: Colorado Abbreviation: None
Date: 5/9/2022 County: Gunnison Filename: RN8D-427a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 10 in. diameter borehole	10"	0	6.00	EA	$115.29	$691.74
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	10"	1650	783.00	bag	$19.95	$15,620.85
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	14"	22	22.00	LF	$3.26	$71.72
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	6.00	EA	$37.50	$225.00
Drill Rig Time	SCHRAMM T450WS	NA	NA	13.20	EA	$606.54	$8,006.33
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	13.20	EA	$50.82	$670.82

Job Hours: **13.20** **Total Cost**: **$25,286.00**

BULLDOZER WORK

Task description: **6 of 7 E-seam MVBs, panels 2-6, open2020: regrade**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	427B	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-427b
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	29,621
Swell factor:	1.125
Loose volume:	**33,324** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **125.05** Hours
Total job cost: **$29,561**

BULLDOZER WORK

Task description: **7 E-seam MVBs, panels 2-6, open2020: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	427C	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-427c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	11,180
Swell factor:	1.125
Loose volume:	**12,578** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **47.20** Hours
Total job cost: **$11,157**

REVEGETATION WORK

Task description: **7E-seamMVBs, panels 2-6, open2020: broadcastPRDmtshrbseedmix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 427D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-427d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 6.93
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$8,895.83**
Reseeding Job Cost: **$849.13**
Total Job Cost: **$9,745**
Job Hours: **6.93**

BOREHOLE SEALING WORK

Task description: **4 of 12 E-seam MVBs, panel 7: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 428A State: Colorado Abbreviation: None
Date: 5/9/2022 County: Gunnison Filename: RN8D-428a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 10 in. diameter borehole	10"	0	4.00	EA	$115.29	$461.16
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	10"	1100	522.00	bag	$19.95	$10,413.90
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	14"	15	15.00	LF	$3.26	$48.90
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	4.00	EA	$37.50	$150.00
Drill Rig Time	SCHRAMM T450WS	NA	NA	8.80	EA	$606.54	$5,337.55
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	8.80	EA	$50.82	$447.22

Job Hours: **8.80** **Total Cost**: **$16,859.00**

BULLDOZER WORK

Task description: **4 of 12 E-seam MVBs, panel 7: regrade**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	428B	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-428b
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	13,746
Swell factor:	1.125
Loose volume:	**15,464** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **58.03** Hours
Total job cost: **$13,718**

BULLDOZER WORK

Task description: **12 E-seam MVBs, panel 7: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	428C	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-428c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	13,229
Swell factor:	1.125
Loose volume:	**14,883** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4128

Adjusted unit production: 299.82 LCY/hr
Adjusted fleet production: **299.82** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.788/LCY

Total job time: **49.64** Hours
Total job cost: **$11,734**

REVEGETATION WORK

Task description: **12 E-seam MVBs, panel 7: broadcastPRDmtshrbseedmix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 428D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-428d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 8.2
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$10,526.09**
Reseeding Job Cost: **$1,004.75**
Total Job Cost: **$11,531**
Job Hours: **8.20**

BOREHOLE SEALING WORK

Task description: **2 of 8 E-seam MVBs, panel 8: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 429A State: Colorado Abbreviation: None
Date: 5/9/2022 County: Gunnison Filename: RN8D-429a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 10 in. diameter borehole	10"	0	2.00	EA	$115.29	$230.58
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	10"	550	261.00	bag	$19.95	$5,206.95
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	14"	7	7.00	LF	$3.26	$22.82
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	2.00	EA	$37.50	$75.00
Drill Rig Time	SCHRAMM T450WS	NA	NA	4.40	EA	$606.54	$2,668.78
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	4.40	EA	$50.82	$223.61

Job Hours: **4.40** **Total Cost**: **$8,428.00**

BULLDOZER WORK

Task description: **2 of 8 E-seam MVBs, panel 8: regrade**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	429B	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-429b
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	11,519
Swell factor:	1.125
Loose volume:	**12,959** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **48.63** Hours
Total job cost: **$11,496**

BULLDOZER WORK

Task description: **8 E-seam MVBs, panel 8: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	429C	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-429c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	11,513
Swell factor:	1.125
Loose volume:	**12,952** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **48.60** Hours
Total job cost: **$11,490**

REVEGETATION WORK

Task description: **8 E-seam MVBs, panel 8: broadcastPRDmtshrbseedmix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 429D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-429d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 7.14
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$9,165.40**
Reseeding Job Cost: **$874.86**
Total Job Cost: **$10,040**
Job Hours: **7.14**

BOREHOLE SEALING WORK

Task description: **9 E-seam MVBs, panel 9: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 430A State: Colorado Abbreviation: None
Date: 5/9/2022 County: Gunnison Filename: RN8D-430a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 10 in. diameter borehole	10"	0	9.00	EA	$115.29	$1,037.61
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	10"	2475	1,174.00	bag	$19.95	$23,421.30
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	14"	33	33.00	LF	$3.26	$107.58
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	9.00	EA	$37.50	$337.50
Drill Rig Time	SCHRAMM T450WS	NA	NA	19.80	EA	$606.54	$12,009.49
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	19.80	EA	$50.82	$1,006.24

Job Hours: **19.80** **Total Cost**: **$37,920.00**

BULLDOZER WORK

Task description: **9 E-seam MVBs, panel 9: regrade**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 430B State: Colorado Abbreviation: None
Date: 5/9/2022 County: Gunnison Filename: RN8D-430b
User: LDS

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume: 24,113
Swell factor: 1.125
Loose volume: **27,127** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **101.80** Hours
Total job cost: **$24,064**

BULLDOZER WORK

Task description: **9 E-seam MVBs, panel 9: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	430C	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-430c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	8,038
Swell factor:	1.125
Loose volume:	**9,043** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **33.93** Hours
Total job cost: **$8,022**

REVEGETATION WORK

Task description: **9 E-seam MVBs, panel 9: broadcastPRDmtshrbseedmix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 430D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-430d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 4.98
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$6,392.68**
Reseeding Job Cost: **$610.20**
Total Job Cost: **$7,003**
Job Hours: **4.98**

BOREHOLE SEALING WORK

Task description: **6 E-seam MVBs, panel 10: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 431A State: Colorado Abbreviation: None
Date: 5/9/2022 County: Gunnison Filename: RN8D-431a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 10 in. diameter borehole	10"	0	6.00	EA	$115.29	$691.74
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	10"	1650	783.00	bag	$19.95	$15,620.85
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	14"	22	22.00	LF	$3.26	$71.72
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	6.00	EA	$37.50	$225.00
Drill Rig Time	SCHRAMM T450WS	NA	NA	13.20	EA	$606.54	$8,006.33
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	13.20	EA	$50.82	$670.82

Job Hours: **13.20** **Total Cost**: **$25,286.00**

BULLDOZER WORK

Task description: **6 E-seam MVBs, panel 10: regrade**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	431B	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-431b
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	22,295
Swell factor:	1.125
Loose volume:	**25,082** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **94.12** Hours
Total job cost: **$22,250**

BULLDOZER WORK

Task description: **6 E-seam MVBs, panel 10: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	431C	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-431c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	7,432
Swell factor:	1.125
Loose volume:	**8,361** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **31.38** Hours
Total job cost: **$7,417**

REVEGETATION WORK

Task description: **6 E-seam MVBs, panel 10: broadcastPRDmtshrbseedmix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 431D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-431d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 4.61
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$5,917.72**
Reseeding Job Cost: **$564.86**
Total Job Cost: **$6,483**
Job Hours: **4.61**

BOREHOLE SEALING WORK

Task description: **7 E-seam MVBs, panel 11: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 432A State: Colorado Abbreviation: None
Date: 5/9/2022 County: Gunnison Filename: RN8D-432a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 10 in. diameter borehole	10"	0	7.00	EA	$115.29	$807.03
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	10"	1925	913.00	bag	$19.95	$18,214.35
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	14"	26	26.00	LF	$3.26	$84.76
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	7.00	EA	$37.50	$262.50
Drill Rig Time	SCHRAMM T450WS	NA	NA	15.40	EA	$606.54	$9,340.72
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	15.40	EA	$50.82	$782.63

Job Hours: **15.40** **Total Cost**: **$29,492.00**

BULLDOZER WORK

Task description: **7 E-seam MVBs, panel 11: regrade**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	432B	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-432b
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	19,451
Swell factor:	1.125
Loose volume:	**21,882** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **82.12** Hours
Total job cost: **$19,412**

BULLDOZER WORK

Task description: **7 E-seam MVBs, panel 11: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	432C	State:	Colorado	Abbreviation:	None
Date:	5/9/2022	County:	Gunnison	Filename:	RN8D-432c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	6,484
Swell factor:	1.125
Loose volume:	**7,295** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **27.37** Hours
Total job cost: **$6,471**

REVEGETATION WORK

Task description: **7 E-seam MVBs, panel 11: broadcastPRDmtshrbseedmix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 432D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-432d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 4.02
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$5,160.35**
Reseeding Job Cost: **$492.57**
Total Job Cost: **$5,653**
Job Hours: **4.02**

BOREHOLE SEALING WORK

Task description: **8 E-seam MVBs, panel 12: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 433A State: Colorado Abbreviation: None
Date: 5/9/2022 County: Gunnison Filename: RN8D-433a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 10 in. diameter borehole	10"	0	8.00	EA	$115.29	$922.32
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	10"	2200	1,043.00	bag	$19.95	$20,807.85
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	14"	29	29.00	LF	$3.26	$94.54
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	8.00	EA	$37.50	$300.00
Drill Rig Time	SCHRAMM T450WS	NA	NA	17.60	EA	$606.54	$10,675.10
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	17.60	EA	$50.82	$894.43

Job Hours: **17.60** **Total Cost**: **$33,694.00**

BULLDOZER WORK

Task description: **8 E-seam MVBs, panel 12: regrade**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	433B	State:	Colorado	Abbreviation:	None
Date:	5/10/2022	County:	Gunnison	Filename:	RN8D-433b
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	33,641
Swell factor:	1.125
Loose volume:	**37,846** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.700	(FND-MF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3211

Adjusted unit production: 233.21 LCY/hr
Adjusted fleet production: **233.21** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $1.014/LCY

Total job time: **162.28** Hours
Total job cost: **$38,363**

BULLDOZER WORK

Task description: **8 E-seam MVBs, panel 12: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	433C	State:	Colorado	Abbreviation:	None
Date:	5/10/2022	County:	Gunnison	Filename:	RN8D-433c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	11,214
Swell factor:	1.125
Loose volume:	**12,616** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **47.34** Hours
Total job cost: **$11,191**

REVEGETATION WORK

Task description: **8 E-seam MVBs, panel 12: broadcastPRDmtshrbseedmix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 433D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-433d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 6.95
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$8,921.51**
Reseeding Job Cost: **$851.58**
Total Job Cost: **$9,773**
Job Hours: **6.95**

BOREHOLE SEALING WORK

Task description: **2 E-seam MVBs, panel 14: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 434A State: Colorado Abbreviation: None
Date: 5/9/2022 County: Gunnison Filename: RN8D-434a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 10 in. diameter borehole	10"	0	2.00	EA	$115.29	$230.58
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	10"	550	261.00	bag	$19.95	$5,206.95
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	14"	29	7.00	LF	$3.26	$22.82
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	2.00	EA	$37.50	$75.00
Drill Rig Time	SCHRAMM T450WS	NA	NA	4.40	EA	$606.54	$2,668.78
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	4.40	EA	$50.82	$223.61

Job Hours: **4.40** **Total Cost**: **$8,428.00**

BULLDOZER WORK

Task description: **2 E-seam MVBs, panel 14: regrade**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	434B	State:	Colorado	Abbreviation:	None
Date:	5/10/2022	County:	Gunnison	Filename:	RN8D-434b
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	7,887
Swell factor:	1.125
Loose volume:	**8,873** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **33.30** Hours
Total job cost: **$7,871**

BULLDOZER WORK

Task description: **2 E-seam MVBs, panel 14: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	434C	State:	Colorado	Abbreviation:	None
Date:	5/10/2022	County:	Gunnison	Filename:	RN8D-434c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	2,629
Swell factor:	1.125
Loose volume:	**2,958** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **11.10** Hours
Total job cost: **$2,624**

REVEGETATION WORK

Task description: **2 E-seam MVBs, panel 14: broadcastPRDmtshrbseedmix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 434D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-434d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 1.63
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$2,092.38**
Reseeding Job Cost: **$199.72**
Total Job Cost: **$2,292**
Job Hours: **1.63**

BOREHOLE SEALING WORK

Task description: **11 SS1 MVBs: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 435A State: Colorado Abbreviation: None
Date: 5/9/2022 County: Gunnison Filename: RN8D-435a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 10 in. diameter borehole	9"	NA	11.00	EA	$115.29	$1,268.19
Fill 9 5/8" inner casing with concrete to depth of 275'	Portland cement grout (Bag, material cost only...94 lb. bag)	10"	3025	1,435.00	bag	$19.95	$28,628.25
Cut 14" outer casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	14"	NA	40.00	LF	$3.26	$130.40
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	11.00	EA	$37.50	$412.50
Drill Rig Time	SCHRAMM T450WS	NA	NA	24.20	EA	$501.24	$12,130.01
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	24.20	EA	$29.70	$718.74

Job Hours: **24.20** **Total Cost**: **$43,288.00**

BULLDOZER WORK

Task description: **11 SS1 MVBs: regrade**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	435B	State:	Colorado	Abbreviation:	None
Date:	5/10/2022	County:	Gunnison	Filename:	RN8D-435b
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	63,551
Swell factor:	1.125
Loose volume:	**71,495** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Loose stockpile 1.2

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4893

Adjusted unit production: 355.38 LCY/hr
Adjusted fleet production: **355.38** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.665/LCY

Total job time: **201.18** Hours
Total job cost: **$47,557**

BULLDOZER WORK

Task description: **11 SS1 MVBs: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	435C	State:	Colorado	Abbreviation:	None
Date:	5/10/2022	County:	Gunnison	Filename:	RN8D-435c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	21,184
Swell factor:	1.125
Loose volume:	**23,832** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **89.43** Hours
Total job cost: **$21,141**

REVEGETATION WORK

Task description: **11 SS1 MVBs: broadcastPRDmtshrbseedmix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 435D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-435d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 13.13
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$16,854.59**
Reseeding Job Cost: **$1,608.82**
Total Job Cost: **$18,463**
Job Hours: **13.13**

BOREHOLE SEALING WORK

Task description: **12 SS2 MVBs: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 436A State: Colorado Abbreviation: None
Date: 5/9/2022 County: Gunnison Filename: RN8D-436a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 10 in. diameter borehole	9"	NA	12.00	EA	$115.29	$1,383.48
Fill 9 5/8" inner casing with concrete to depth of 275'	Portland cement grout (Bag, material cost only...94 lb. bag)	10"	3300	1,565.00	bag	$19.95	$31,221.75
Cut 14" outer casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	14"	NA	44.00	LF	$3.26	$143.44
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	12.00	EA	$37.50	$450.00
Drill Rig Time	SCHRAMM T450WS	NA	NA	26.40	EA	$501.24	$13,232.74
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	26.40	EA	$29.70	$784.08

Job Hours: **26.40** **Total Cost**: **$47,215.00**

BULLDOZER WORK

Task description: **12 SS2 MVBs: regrade**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 436B State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-436b
User: LDS

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume: 70,123
Swell factor: 1.125
Loose volume: **78,888** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **296.04** Hours
Total job cost: **$69,981**

BULLDOZER WORK

Task description: **12 SS2 MVBs: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	436C	State:	Colorado	Abbreviation:	None
Date:	5/10/2022	County:	Gunnison	Filename:	RN8D-436c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	23,374
Swell factor:	1.125
Loose volume:	**26,296** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **98.68** Hours
Total job cost: **$23,327**

REVEGETATION WORK

Task description: **12 SS2 MVBs: broadcastPRDmtshrbseedmix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 436D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-436d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 14.49
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$18,600.38**
Reseeding Job Cost: **$1,775.46**
Total Job Cost: **$20,376**
Job Hours: **14.49**

BOREHOLE SEALING WORK

Task description: **4 SS3 MVBs: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 437A State: Colorado Abbreviation: None
Date: 5/9/2022 County: Gunnison Filename: RN8D-437a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 10 in. diameter borehole	9"	NA	4.00	EA	$115.29	$461.16
Fill 9 5/8" inner casing with concrete to depth of 275'	Portland cement grout (Bag, material cost only...94 lb. bag)	10"	1100	522.00	bag	$19.95	$10,413.90
Cut 14" outer casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	14"	NA	15.00	LF	$3.26	$48.90
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	4.00	EA	$37.50	$150.00
Drill Rig Time	SCHRAMM T450WS	NA	NA	8.80	EA	$501.24	$4,410.91
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	8.80	EA	$29.70	$261.36

Job Hours: **8.80** **Total Cost**: **$15,746.00**

BULLDOZER WORK

Task description: **4 SS3 MVBs: regrade**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	437B	State:	Colorado	Abbreviation:	None
Date:	5/10/2022	County:	Gunnison	Filename:	RN8D-437b
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	8,748
Swell factor:	1.125
Loose volume:	**9,842** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **36.93** Hours
Total job cost: **$8,730**

BULLDOZER WORK

Task description: **4 SS3 MVBs: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	437C	State:	Colorado	Abbreviation:	None
Date:	5/10/2022	County:	Gunnison	Filename:	RN8D-437c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	2,916
Swell factor:	1.125
Loose volume:	**3,281** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **12.31** Hours
Total job cost: **$2,910**

REVEGETATION WORK

Task description: **4 SS3 MVBs: broadcastPRDmtshrbseedmix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 437D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-437d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 1.81
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$2,323.44**
Reseeding Job Cost: **$221.78**
Total Job Cost: **$2,545**
Job Hours: **1.81**

BOREHOLE SEALING WORK

Task description: **4 SS4 MVBs: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 438A State: Colorado Abbreviation: None
Date: 5/9/2022 County: Gunnison Filename: RN8D-438a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 10 in. diameter borehole	9"	NA	4.00	EA	$115.29	$461.16
Fill 9 5/8" inner casing with concrete to depth of 275'	Portland cement grout (Bag, material cost only...94 lb. bag)	10"	1100	522.00	bag	$19.95	$10,413.90
Cut 14" outer casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	14"	NA	15.00	LF	$3.26	$48.90
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	4.00	EA	$37.50	$150.00
Drill Rig Time	SCHRAMM T450WS	NA	NA	8.80	EA	$501.24	$4,410.91
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	8.80	EA	$29.70	$261.36

Job Hours: **8.80** **Total Cost**: **$15,746.00**

BULLDOZER WORK

Task description: **4 SS4 MVBs: regrade**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	438B	State:	Colorado	Abbreviation:	None
Date:	5/10/2022	County:	Gunnison	Filename:	RN8D-438b
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	11,398
Swell factor:	1.125
Loose volume:	**12,823** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **48.12** Hours
Total job cost: **$11,375**

BULLDOZER WORK

Task description: **4 SS4 MVBs: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	438C	State:	Colorado	Abbreviation:	None
Date:	5/10/2022	County:	Gunnison	Filename:	RN8D-438c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	3,799
Swell factor:	1.125
Loose volume:	**4,274** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **16.04** Hours
Total job cost: **$3,791**

REVEGETATION WORK

Task description: **4 SS4 MVBs: broadcastPRDmtshrbseedmix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 438D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-438d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 2.35
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$3,016.62**
Reseeding Job Cost: **$287.95**
Total Job Cost: **$3,305**
Job Hours: **2.35**

BULLDOZER WORK

Task description: **5 Exploration holes, MR423: topsoil**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	439C	State:	Colorado	Abbreviation:	None
Date:	5/10/2022	County:	Gunnison	Filename:	RN8D-439c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	2,280
Swell factor:	1.125
Loose volume:	**2,565** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **9.63** Hours
Total job cost: **$2,275**

REVEGETATION WORK

Task description: **5 Exploration holes, MR423: broadcastPRDmtshrbseedmix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 439D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-439d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 1.41
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$1,809.97**
Reseeding Job Cost: **$172.77**
Total Job Cost: **$1,983**
Job Hours: **1.41**

BULLDOZER WORK

Task description: **3 Exploration holes, MR424: regrade**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	440C	State:	Colorado	Abbreviation:	None
Date:	5/10/2022	County:	Gunnison	Filename:	RN8D-440c
User:	LDS				

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	1,877
Swell factor:	1.125
Loose volume:	**2,112** LCY

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

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: 10 %
Average site altitude: 8,000 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	0.786	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3669

Adjusted unit production: 266.48 LCY/hr
Adjusted fleet production: **266.48** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.887/LCY

Total job time: **7.92** Hours
Total job cost: **$1,873**

REVEGETATION WORK

Task description: **3 Exploration holes, MR424: broadcastPRDmtshrbseedmix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 440D State: Colorado Abbreviation: None
Date: 5/10/2022 County: Gunnison Filename: RN8D-440d
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 1.16
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$1,489.06**
Reseeding Job Cost: **$142.13**
Total Job Cost: **$1,631**
Job Hours: **1.16**

BOREHOLE SEALING WORK

Task description: **22 of 33 Monitoring wells: plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 441A State: Colorado Abbreviation: None
Date: 5/9/2022 County: Gunnison Filename: RN8D-441a
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 4 in. diameter borehole	4"	NA	22.00	EA	$33.98	$747.56
Fill 4" hole with concrete to full depth of hole	Portland cement grout (Bag, material cost only...94 lb. bag)	4"	10890	826.00	bag	$19.95	$16,478.70
Cut 8" outer casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	8"	NA	46.00	LF	$3.26	$149.96
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	22.00	EA	$37.50	$825.00
Drill Rig Time	SCHRAMM T450WS	NA	NA	87.12	EA	$501.24	$43,668.03
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	87.12	EA	$29.70	$2,587.46

Job Hours: **87.12** **Total Cost**: **$64,457.00**

DEMOLITION WORK

Task description: **Removal of temporary pipe, S Prong Creek**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 460 State: Colorado Abbreviation: None
Date: 5/11/2022 County: Delta Filename: RN8D-460
User: LDS

Agency or organization name: DRMS

UNIT COSTS **Location adjustment: 90.70 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Temporary pipe	280' x 6"	Pipe, sewer/water - 12 in. diameter pipe	280.00	LF	$4.57	$1,279.60

Job Hours: 4.00 **Subtotal (unadjusted): $1,279.60** **Total Cost (adjusted for location): $1,160.60**

REVEGETATION WORK

Task description: **S Prong Creek subsidence repair: BroadcastPRDmtshrbseedmix**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 461 State: Colorado Abbreviation: None
Date: 5/11/2022 County: Gunnison Filename: RN8D-461
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 0.6
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$770.20**
Reseeding Job Cost: **$73.52**
Total Job Cost: **$844**
Job Hours: **0.60**

DEMOLITION WORK

Task description: **Removal of 2 temporary bridges**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 462 State: Colorado Abbreviation: None
Date: 5/11/2022 County: Delta Filename: RN8D-462
User: LDS

Agency or organization name: DRMS

UNIT COSTS **Location adjustment: 90.70 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Removal of 2 temporary bridges	14' x 40'	Excavate and load tank onto trailer, non-leaking - 9,000 gal. to 12,000 gal.	2.00	EA	$1,050.00	$2,100.00

Job Hours: 8.00 **Subtotal (unadjusted): $2,100.00** **Total Cost (adjusted for location): $1,904.70**

MISCELLANEOUS TRUCK WORK

Task description: **Transport 2 temporary bridges**

Site: **West Elk Mine** Permit Action: RN8 - Part D Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	463	State:	Colorado	Abbreviation:	None
Date:	5/11/2022	County:	Delta	Filename:	RN8D-463
User:	LDS				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Make and Model:	Truck Tractor, 6x4, 75K GVW	Horsepower:	400
Attachment 1:	Tilt Deck Trailer, 20 ton	Shift Basis:	1 per day
Attachment 2:		Weight:	12.50
Labor Unit 1:	Transport Rig Driver		(US Tons)
Labor Unit 2:	Helper		

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$30.13	NA
Operating Cost/Hour:	$46.33	100
Operator Cost/Hour:	$54.86	NA
Total Unit Cost/Hour:	$131.32	
Total Fleet Cost/Hour:	$131.32	

JOB TIME AND COST

Fleet size: 1 Truck(s) Total job time: **8.00** Hours

Unit cost: $131.32 /Hour Total job cost: **$1,051**

COST SUMMARY WORK

Task description: **Part E: Deer Creek, Minnesota Creek**

Site: **West Elk Mine** Permit Action: RN8 - Part E Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 08E State: Colorado Abbreviation: None
Date: 5/6/2022 County: Delta Filename: C007-08E
User: LDS

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
601	Demolish/remove structures-Deer Creek/Minnesota Creek Are	DEMOLISH	1	10.10	$21,989
602	Regrade Deer Creek Vent Shaft pad & access rd (1.9 Acres)	DOZER	1	10.13	$2,396
603	Topsoil Deer Creek Vent Shaft pad & access rd (1.9 Acres)	DOZER	1	10.13	$2,396
604	Deer Creek Vent Shaft: broadcast PRD mt shrb seed mix	REVEGE	1	2.70	$2,672
605	Monument dam borrow area: broadcast PRD mt shrb seed mix	REVEGE	1	2.70	$2,672
610	Grade topsoil on Monument dam borrow area (1.9 Acres)	GRADER	1	1.21	$225
611	Seal Deer Creek Vent Shafts (See Ex. 77)	MINESEAL	1	40.00	$136,650
612	1 x 10" shaft (DC-3, Deer Creek Elec BH): plug and seal	BOREHOLE	1	6.60	$5,811
		SUBTOTALS:		**83.57**	**$174,811**

DEMOLITION WORK

Task description: **Demolish/remove structures-Deer Creek/Minnesota Creek Are**

Site: **West Elk Mine** Permit Action: RN8 - Part E Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 601 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8E-601
User: LDS

Agency or organization name: DRMS

UNIT COSTS **Location adjustment: 91.30 %**

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Deer Creek Shaft fence (TR-109)	700 lf x 6 ft high	Fencing, chain link, including posts and fabric - to 6 ft. high	700.00	LF	$2.68	$1,876.00
Deer Creek Shaft - Superstructure	30x30x10	Bldg. (SN) demo./on-site disposal in existing pit or cut - Max. 50 ft. push	9,000.00	CF	$0.19	$1,701.00
-Footings	2x3x75 lf	Demo. and on-site disposal in existing pit, 2.0 ft. x 3 ft. - Max. 50 ft. push	75.00	LF	$11.71	$878.25
-Collar	8x3x88 lf	Pavement, concrete, demolition only, 7 in. to 24 in. thick - Reinforced	78.00	CY	$133.50	$10,413.00
Deer Creek Emergency Shaft - Buliding	30x20x30	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	18,000.00	CF	$0.22	$3,870.00
-Floor	30x20x8 in	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 50 ft. push	600.00	SF	$1.36	$816.60
-Footings	2x3x24 lf	Demo. and on-site disposal in excavated pit, 2.0 ft. x 3 ft. - Max. 200 ft. push	24.00	LF	$12.64	$303.36
Deer Creek Shaft Generator Building (TR-109)-Superstructure	30x10x10	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	3,000.00	CF	$0.22	$645.00
-Floor	30x10x8 in th	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	300.00	SF	$1.40	$421.20
-Propane tank	1	Excavate and load tank onto trailer, non-leaking - 3,000 gal. to 5,000 gal.	1.00	EA	$614.00	$614.00
-Haul propane tank to dump	1	Haul tank to certified salvage dump - 3,000 to 5,000 gal. tank	1.00	EA	$760.00	$760.00
Deer Creek Emergency Shaft Collar	4x3x25 lf	Pavement, concrete, demolition only, 7 in. to 24 in. thick - Reinforced	11.00	CY	$133.50	$1,468.50
Minnesota Reservoir robotic monitoring station - building	10x10x11	Bldg. (SN) demo./on-site disposal in excavated pit - Max. 10,000 ft. haul	1,100.00	CF	$0.22	$236.50

-Gate at USFS Rd. 711.2B	30x4	Fencing, chain link, including posts and fabric - to 6 ft. high	30.00	LF	$2.68	$80.40

Job Hours: **10.10** **Subtotal (unadjusted)**: **$24,083.81** **Total Cost (adjusted for location)**: **$21,988.52**

BULLDOZER WORK

Task description: **Regrade Deer Creek Vent Shaft pad & access rd (1.9 Acres)**

Site: **West Elk Mine** Permit Action: RN8 - Part E Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	602	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8E-602
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	3,065
Swell factor:	1.250
Loose volume:	**3,831** LCY

Source of estimated volume: Ex. 77 (1.9 acres * 1ft)
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: -5 %
Average site altitude: 6,300 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5205

Adjusted unit production: 378.04 LCY/hr
Adjusted fleet production: **378.04** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.625/LCY

Total job time: **10.13** Hours
Total job cost: **$2,396**

BULLDOZER WORK

Task description: **Topsoil Deer Creek Vent Shaft pad & access rd (1.9 Acres)**

Site: **West Elk Mine** Permit Action: RN8 - Part E Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #:	603	State:	Colorado	Abbreviation:	None
Date:	5/6/2022	County:	Gunnison	Filename:	RN8E-603
User:	LDS				

Agency or organization name: Division of Reclamation, Mining and Safety

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:	$97.46	NA
Operating Cost/Hour:	$97.63	100
Ripper own. Cost/Hour:	$0.00	NA
Ripper op. Cost/Hour:	$0.00	100
Operator Cost/Hour:	$41.30	NA

Total unit Cost/Hour: $236.39
Total Fleet Cost/Hour: **$236.39**

MATERIAL QUANTITIES

Initial Volume:	3,065
Swell factor:	1.250
Loose volume:	**3,831** LCY

Source of estimated volume: Ex. 77 (1.9 acres * 1ft)
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 125 feet
Unadjusted hourly production: 726.3 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: -5 %
Average site altitude: 6,300 feet

Material weight: 2,650 lbs/LCY

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

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

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5205

Adjusted unit production: 378.04 LCY/hr
Adjusted fleet production: **378.04** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: $0.625/LCY

Total job time: **10.13** Hours
Total job cost: **$2,396**

REVEGETATION WORK

Task description: **Deer Creek Vent Shaft: broadcast PRD mt shrb seed mix**

Site: **West Elk Mine** Permit Action: RN8 - Part E Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 604 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8E-604
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 1.9
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$2,438.97**
Reseeding Job Cost: **$232.81**
Total Job Cost: **$2,672**
Job Hours: **2.70**

REVEGETATION WORK

Task description: **Monument dam borrow area: broadcast PRD mt shrb seed mix**

Site: **West Elk Mine** Permit Action: RN8 - Part E Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 605 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8E-605
User: LDS

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
	$
Total Tilling Cost/Acre	**$0.00**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Indian Ricegrass - Native	3.00	9.71	$19.50
Mountain Brome - Bromar	4.00	6.43	$15.20
Sandberg Bluegrass - VNS	3.00	63.71	$25.20
Lupine, Silver	1.00	0.59	$69.98
Western Wheatgrass - Arriba	4.00	10.10	$26.00
Prairie Junegrass	3.00	159.46	$78.00
Penstemon, Rocky Mountain	0.50	7.84	$14.75
Bluebunch Wheatgrass - Goldar	3.00	9.64	$13.80
Golden Banner	1.00	2.00	$83.00

Totals Seed Mix	22.50	269.47	**$345.43**

Application

Description	**Cost /Acre**
Broadcast seeding [DMG]	$267.22
Total Seed Application Cost/Acre	**$267.22**

MULCHING and MISCELLANEOUS

Materials

Description	**Units / Acre**	**Unit**	**Cost / Unit**	**Cost /Acre**
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	$2.98	$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	1.00	TON	$307.02	$307.02
Total Mulch Materials Cost/Acre				**$310.00**

Application

Description	**Cost /Acre**
Crimping, with tractor {DMG survey data}	$71.57
Power mulcher (MEANS 32 91 13.16 0350)	$106.29
Weed spray, hand, non-aquatic area, nox. [DMG]	$183.16
Total Mulch Application Cost/Acre	**$361.02**

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: 1.9
Estimated Failure Rate: 20%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $1,283.67
Cost /Acre*: $612.65

Initial Job Cost: **$2,438.97**
Reseeding Job Cost: **$232.81**
Total Job Cost: **$2,672**
Job Hours: **2.70**

MOTOR GRADER WORK

Task description: **Grade topsoil on Monument dam borrow area (1.9 Acres)**

Site: **West Elk Mine** Permit Action: RN8 - Part E Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 610 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8E-610
User: LDS

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 14M Horsepower: 259
Ripper Attachment: Multi-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$85.80	NA
Operating Cost/Hour:	$60.40	100
Ripper Ownership Cost/Hour:	$5.52	NA
Ripper Operating Cost/Hour:	$4.85	100
Operator Cost/Hour:	$28.56	NA
Total Unit Cost/Hour:	$185.13	
Total Fleet Cost/Hour:	**$185.13**	

MATERIAL QUANTITIES

Total Area to be graded or ripped: 1.90 acres

Source of estimated acreage: TR-108 submittal, Drawing C1.9

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: 12.10 feet
Width of blade overlap per pass: 2.00 feet
Net grading or ripping width per pass: 10.10 feet
Unadjusted Hourly Unit Production: 1.8364 acres/hour

Job Condition Correction Factors Site Altitude: 6300 feet

		Source
Altitude Adj:	1.00	(CAT HB)
Job Efficiency:	0.85	(1sh/d, mod.)
Net Correction:	0.8500	multiplier

Adjusted Hourly Unit Production: 1.5609 acres/Hour
Adjusted Hourly Fleet Production: **1.5609** acres/Hour

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **1.22** Hours

Unit cost: $118.60 per acre Total job cost: **$225**

SAFEGUARDING UNDERGROUND OPENINGS

Task description: **Seal Deer Creek Vent Shafts (See Ex. 77)**

Site: **West Elk Mine** Permit Action: RN8 - Part E Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 611 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8E-611
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Opening Description	Dimensions	Closure Method	Quantity	Unit	Unit Cost	Total Cost
Deer Creek Vent Shaft (concrete plug)	24ft*PI*50ft	Shaft closure - concrete cap, poured-in-place (per Cubic Feet)	3,770.00	CF	$13.89	$52,365.30
Deer Creek Vent Shaft (backfill, purchased)	24ft*PI*340ft	Shaft closure - backfilling, Machine Backfill	2,848.00	CY	$20.00	$56,960.00
Deer Creek Escape Shaft (concrete plug)	6ft*PI*50ft	Shaft closure - concrete cap, poured-in-place (per Cubic Feet)	942.00	CF	$13.89	$13,084.38
Deer Creek Escape Shaft (backfil, purchased)l	6ft*PI*340ft	Shaft closure - backfilling, Machine Backfill	712.00	CY	$20.00	$14,240.00

Job Hours: **40.00** **Total Cost**: **$136,649.68**

BOREHOLE SEALING WORK

Task description: **1 x 10" shaft (DC-3, Deer Creek Elec BH): plug and seal**

Site: **West Elk Mine** Permit Action: RN8 - Part E Permit/Job#: C1980007

PROJECT IDENTIFICATION

Task #: 612 State: Colorado Abbreviation: None
Date: 5/6/2022 County: Gunnison Filename: RN8E-612
User: LDS

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
Bottom Plug	PVC plug - 10 in. diameter borehole	10"	0	1.00	EA	$115.29	$115.29
Fill Hole with Cement	Portland cement grout (Bag, material cost only...94 lb. bag)	10"	383	182.00	bag	$19.95	$3,630.90
Cut Casing at Surface	Exposed casing removal - Calculate Circumference in Linear Feet	14"	4	4.00	LF	$3.26	$13.04
Borehole Marker	Borehole location/identification marker (EA, material cost only)	NA	NA	1.00	EA	$37.50	$37.50
Drill Rig Time	SCHRAMM T450WS	NA	NA	3.06	EA	$606.54	$1,858.44
Water Truck Time	Water Tanker, 2,500 Gal.	NA	NA	3.06	EA	$50.82	$155.51

Job Hours: **6.60** **Total Cost**: **$5,811.00**