

1313 Sherman Street, Room 215 Denver, CO 80203

September 6, 2017

Mr. Kirk Daehling Natural Soda LLC 3200 CR 31 Rifle, CO 81650

Re: Nahcolite Project, Permit No. M-1983-194, Amendment Approval and Updated Reclamation Cost Estimate, Revision No. AM-4

Dear Mr. Daehling:

On September 6, 2017 the Division of Reclamation, Mining and Safety (DRMS) approved the Amendment application submitted to the Division on May 23, 2017, addressing the following:

 Amendment to increase the permit acreage to 12,248 acres to be consistent with the EPA UIC permit area. Also to allow for construction of a new loadout area which includes a new elevator, conveyance system, a new electrical room and a baghouse. Amendment also incorporates a total of seven new wells. Total allowed maximum disturbance remains at 260 acres.

The terms of the Amendment No. 4 approved by the Division are hereby incorporated into Permit No. M-1983-194. All other conditions and requirements of Permit No. M-1983-194 remain in full force and effect.

If the revised liability amount exceeds the performance bond currently held (see below), please submit additional bond. The revision will not be final until the bond is approved by the Division.

Bond Held:

\$4,158,340.68

Prior Liability:

\$4,158,340.68

Change in Liability:

\$469,149.61

Revised Liability:

\$4,627,490.29

If you need additional information, please contact me at the Division of Reclamation, Mining and Safety, Grand Junction Field Office, 101 S. 3rd St., Suite 301, Grand Junction, Colorado 81501, telephone no. 970.241.2042.

Sincerely,



Mr. Kirk Daehling Page 2 September 7, 2017

Travis Marshall

Environmental Protection Specialist

Enclosure - Updated Reclamation Cost Estimate

cc:

Paul Daggett

2.0 Zull

BLM - White River Field Office

220 East Market Street Meeker, CO 81641

Gerald Daub

Daub & Associates, Inc. 1985 ½ South Broadway Grand Junction, CO 81507

COST SUMMARY WORK

Task description:

Final Reclamation Cost Estimate

Site: Nahcolite Project

Permit Action: AM-4

Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #:

001 State:

Colorado

Abbreviation:

None

Date:

9/7/2017

County: Rio Blanco

Filename:

M194-001

User: **THM**

Agency or organization name:

DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
Ola	Demo. of NSI Plant, Pipelines and Powerlines and Parking Lot	DEMOLISH	1	160.00	\$1,738,278.58
02a	Borehole P&A	BOREHOLE	1	460.00	\$1,526,114.17
03a	Re-grade Process Ponds	DOZER	2	141.43	\$54,261.00
04a	Re-grade Plant Area	DOZER	2	83.95	\$32,206.00
05a	Re-grade Well Pads	DOZER	2	117.84	\$45,210.00
06a	Distribute 6" of topsoil over 8 acre process pond area	DOZER	2	5.92	\$2,271.00
07a	Distribute 6" topsoil over 16 acre plant/process area	DOZER	2	11.84	\$4,541.00
08a	Replace topsoil over re-graded well pads and access roads	DOZER	2	28.50	\$10,933.00
09a	Rip compacted areas	RIPPER	2	20.87	\$8,623.00
10a	Distribute 6" topsoil over 27.7 acres of de- compacted area	DOZER	2	15.22	\$5,838.00
11a	Revegetate 90.5 acres	REVEGE	1	87.76	\$186,285.00
12a	Mobilization	MOBILIZE	1	8.00	\$6,307.00
		SUBTO	TALS:	1141.33	\$3,620,868

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02 Performance bond: 1.05 570.67 Job superintendent:

Total = \$73,141.53 Total = \$38,019.11 Total = \$41,687.08

Profit: 10.00

Total = \$362,086.80

TOTAL O & P =\$514,934.52

CONTRACT AMOUNT (direct + O & P) = \$4,135,802.52

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): Engineering work and/or contract/bid preparation:

500.00 4.25

Total = 500.00

Reclamation management and/or administration:

5.00

Total = \$175,771.61 \$206,790.13

CONTINGENCY:

3.00

Total = \$108,626.04

TOTAL INDIRECT COST = \$1,006,622.29

TOTAL BOND AMOUNT (direct + indirect) = \$4,627,490.29

DEMOLITION WORK

Task description:	Demo. of NSI Plant, Pipelines and Powerlines and Parking Lot

Site: Nahcolite Project Permit Action: AM-4 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #:01AState:ColoradoAbbreviation:NoneDate:9/6/2017County:Rio BlancoFilename:01aRemoval of 16"

User: THM

Agency or organization name: DRMS

UNIT COSTS

Location adjustment: 91.30 %

Structure or Item Description	D:		Quantity	Unit	Unit Cost	Total Cost	
NSI Plant	200'L x 175'W x 50'H	Plant (3S) demo./on-site disposal in excavated pit - Max. 200 ft. push	1,750,000.00	CF	\$0.24	\$425,250.00	
Product Storage Dome	100'L x 100'W x 50'H	Plant (3S) demo./on-site disposal in excavated pit - Max. 200 ft. push	500,000.00	CF	\$0.24	\$121,500.00	
Removal of NSI Plant Slab	200'L x 175'W	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	35,000.00	SF	\$0.87	\$30,415.00	
Removal of Storage Dome slab	100'L x 100'W	Demo. and on-site disposal in existing pit, 8 in. thick - Max. 200 ft. push	10,000.00	SF	\$0.81	\$8,140.00	
Scale Building	20'W x 100'L x 15'H	Plant (1S) demo./on-site disposal in excavated pit - Max. 200 ft. push	30,000.00	CF	\$0.22	\$6,510.00	
Removal of Scale Building Slab	20'W x 100'L	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	2,000.00	SF	\$0.65	\$1,304.00	
Removal of Conveyor System	200'L	OBSOLETE-Conveyor, elevated, including supports - 5 ft. W x 6 ft. H housing	200.00	LF	\$44.51	\$8,901.80	
Removal of Overhead Powerline	2100'L	Powerline or utility line, overhead, wood - Double or "H" pole	2,100.00	LF	\$0.23	\$483.00	
Tank Farm	30'W x 50'H	Haul tank to certified salvage dump - 3,000 to 5,000 gal. tank	5.00	EA	\$760.00	\$3,800.00	
Removal of Pipeline	3600	Pipe, steel, welded connections - 10 in. diameter pipe	3,600.00	LF	\$6.56	\$23,616.00	
Removal of Flagpoles/Monument	70 sq feet	USER PROVIDED ITEM	70.00	FT^2	\$5.00	\$350.00	
Removal of 12" barren liquor pileline	5050 LF	Pipe, steel, welded connections - 10 in. diameter pipe	5,050.00	LF	\$6.56	\$33,128.00	
TR-36 Process Building 1	165' x 79' x 60'	Plant (3S) demo./on-site disposal in existing pit or cut - Max. 200 ft. push	782,100.00	CF	\$0.23	\$178,318.80	
TR-36 Process Building 2	105' x 36' x 170'	Plant (3S) demo./on-site disposal in existing pit or	642,600.00	CF	\$0.23	\$146,512.80	

		cut - Max. 200 ft. push				
TR-36 Dry handling, Screening and Storage	90' x 65' x 160'	Plant (3S) demo./on-site disposal in existing pit or cut - Max. 200 ft. push	936,000.00	CF	\$0.23	\$213,408.00
TR-36 Warehouse and Packaging Building	70' x 65' x 60'	Plant (3S) demo./on-site disposal in existing pit or cut - Max. 200 ft. push	273,000.00	CF	\$0.23	\$62,244.00
TR-36 Warehouse Building	400' x 150' x 22'	Plant (1C) demo./on-site disposal in existing pit or cut - Max. 200 ft. push	1,320,000.00	CF	\$0.27	\$353,760.00
TR-36 Removal of concrete foundations	101285 sq. ft	Demo. and on-site disposal in existing pit, 6 in. thick - Max. 200 ft. push	101,285.00	SF	\$0.61	\$61,885.14
TR-36 Asphalt Paarking Removal	133' x 182'	Pavement, bituminous, demolition only - 4 in. to 6 in. thick	897.00	SY	\$7.12	\$6,386.64
Removal of 2 x 16" Production Pipelines	8,340 LF	Pipe, steel, welded connections - 10 in. diameter pipe	8,340.00	LF	\$6.56	\$54,710.40
Demolition of Screening and Magnet System	120'x160'x40'	Plant (3S) demo./on-site disposal in excavated pit - Max. 200 ft. push	672,000.00	CF	\$0.24	\$163,296.00

				Total Cost	
		Subtotal		(adjusted for	
Job Hours:	160.00	(unadjusted):	\$1,903,919.58	location):	\$1,738,278.58

BOREHOLE SEALING WORK

Task description: Borehole P&A

Site: Nahcolite Project Permit Action: AM-4 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #:02AState:ColoradoAbbreviation:NoneDate:9/6/2017County:Rio BlancoFilename:02a

User: THM

Agency or organization name: DRMS

UNIT COSTS

Borehole	Sealing/Item Method					Unit	Total Cost
Description		Diameter	Length	Quantity	Unit	Cost	Total Cost
3M-TDR	Portland cement grout - 4 in. (labor, equip, materials)	4.5"	1876	1,876.00	LF	\$7.69	\$14,426.44
89-1	Portland cement grout - 4 in. (labor, equip, materials)	4.5"	1627	1,627.00	LF	\$7.69	\$12,511.63
89-2	Portland cement grout - 4 in. (labor, equip, materials)	4.5"	1417	1,417.00	LF	\$7.69	\$10,896.73
89-3	Portland cement grout - 4 in. (labor, equip, materials)	4.5"	347	347.00	LF	\$7.69	\$2,668.43
90-1	Portland cement grout - 10 in. (labor, equip, materials)	9.625"	1417	1,417.00	LF	\$16.68	\$23,640.09
90-3	Portland cement grout - 4 in. (labor, equip, materials)	4.5"	1627	1,627.00	LF	\$7.69	\$12,511.63
90-4	Portland cement grout - 4 in. (labor, equip, materials)	4.5"	1417	1,417.00	LF	\$7.69	\$10,896.73
94-1M	Portland cement grout - 6 in. (labor, equip, materials)	5"	2200	2,200.00	LF	\$10.65	\$23,430.00
BG-1	Portland cement grout - 4 in. (labor, equip, materials)	4.5"	1627	1,627.00	LF	\$7.69	\$12,511.63
BG-4	Portland cement grout - 4 in. (labor, equip, materials)	4.5	1627	1,627.00	LF	\$7.69	\$12,511.63
DS-2	Portland cement grout - 4 in. (labor, equip, materials)	4.5"	1876	1,876.00	LF	\$7.69	\$14,426.44
DS-3	Portland cement grout - 4 in. (labor, equip, materials)	4.5"	1876	1,876.00	LF	\$7.69	\$14,426.44
EX-2	Portland cement grout - 4 in. (labor, equip, materials)	4.5"	1876	1,876.00	LF	\$7.69	\$14,426.44
IRI-1	Portland cement grout - 4 in. (labor, equip, materials)	4"	347	347.00	LF	\$7.69	\$2,668.43

IRI-4	Portland cement grout - 4 in. (labor, equip, materials)	4"	1417	1,417.00	LF	\$7.69	\$10,896.73
IRI-5	Portland cement grout - 4 in. (labor, equip, materials)	4.625"	347	347.00	LF	\$7.69	\$2,668.43
IRI-6	Portland cement grout - 4 in. (labor, equip, materials)	4"	1627	1,627.00	LF	\$7.69	\$12,511.63
IRI-7	Portland cement grout - 4 in. (labor, equip, materials)	4.5"	1876	1,876.00	LF	\$7.69	\$14,426.44
IRI-8	Portland cement grout - 4 in. (labor, equip, materials)	4.5"	347	347.00	LF	\$7.69	\$2,668.43
MU-2	Portland cement grout - 6 in. (labor, equip, materials)	5"	1876	1,876.00	LF	\$10.65	\$19,979.40
MWA-2	Portland cement grout - 8 in. (labor, equip, materials)	7.625"	347	347.00	LF	\$11.21	\$3,889.87
MWB-2	Portland cement grout - 6 in. (labor, equip, materials)	5"	1627	1,627.00	LF	\$10.65	\$17,327.55
MWD-1	Portland cement grout - 6 in. (labor, equip, materials)	5"	1876	1,876.00	LF	\$10.65	\$19,979.40
MWD-2	Portland cement grout - 6 in. (labor, equip, materials)	5"	1876	1,876.00	LF	\$10.65	\$19,979.40
12H-I	Portland cement grout - 8 in. (labor, equip, materials)	7.625"	1935	1,935.00	LF	\$11.21	\$21,691.35
12H-R	Portland cement grout - 8 in. (labor, equip, materials)	7.625"	1935	1,935.00	LF	\$11.21	\$21,691.35
10H-I	Portland cement grout - 8 in. (labor, equip, materials)	7.625"	1935	1,935.00	LF	\$11.21	\$21,691.35
10H-R	Portland cement grout - 8 in. (labor, equip, materials)	7.625"	1935	1,935.00	LF	\$11.21	\$21,691.35
BG-5	Portland cement grout - 4 in. (labor, equip, materials)	4.5"	1645	1,645.00	LF	\$7.69	\$12,650.05
DS-5	Portland cement grout - 4 in. (labor, equip, materials)	4.5"	1902	1,902.00	LF	\$7.69	\$14,626.38
BG-6	Portland cement grout - 4 in. (labor, equip, materials)	4.5"	1639	1,639.00	LF	\$7.69	\$12,603.91
WSW-2	Portland cement grout - 8 in. (labor, equip, materials)	7.625"	1460	1,460.00	LF	\$11.21	\$16,366.60
DVPW-1(A)	Portland cement grout - 8 in. (labor, equip, materials)	7"	2350	2,350.00	LF	\$11.21	\$26,343.50
DVPW-(B)	Portland cement grout - 8	7"	2350	2,350.00	LF	\$11.21	\$26,343.50

	in. (labor, equip,						
1077 177	materials)	G11	2010	201000	1.5	011.01	000 500 10
10H-1V	Portland cement grout - 8 in. (labor, equip, materials)	7"	2010	2,010.00	LF	\$11.21	\$22,532.10
13H-I	Portland cement grout - 8 in. (labor, equip, materials)	8"	2335	2,335.00	LF	\$11.21	\$26,175.35
13H-R	Portland cement grout - 8 in. (labor, equip, materials)	8"	2310	2,310.00	LF	\$11.21	\$25,895.10
8H-I	Portland cement grout - 8 in. (labor, equip, materials)	7"	2110	2,110.00	LF	\$11.21	\$23,653.10
8H-R	Portland cement grout - 8 in. (labor, equip, materials)	7"	2110	2,110.00	LF	\$11.21	\$23,653.10
14H-I	Portland cement grout - 8 in. (labor, equip, materials)	7"	2110	2,110.00	LF	\$11.21	\$23,653.10
14H-R	Portland cement grout - 8 in. (labor, equip, materials)	7" .	2110	2,110.00	LF	\$11.21	\$23,653.10
WSW-3	Portland cement grout - 8 in. (labor, equip, materials)	7"	1420	1,431.00	LF	\$11.21	\$16,041.51
WSW-4	Portland cement grout - 8 in. (labor, equip, materials)	7"	1431	1,431.00	LF	\$11.21	\$16,041.51
A (Phase 1)	Portland cement grout - 8 in. (labor, equip, materials)	6.5"	1844	1,844.00	LF	\$11.21	\$20,671.24
B (Phase 1)	Portland cement grout - 8 in. (labor, equip, materials)	6.5"	1879	1,879.00	LF	\$11.21	\$21,063.59
C (Phase 1)	Portland cement grout - 8 in. (labor, equip, materials)	6.5"	1898	1,898.00	LF	\$11.21	\$21,276.58
D (Phase 1)	Portland cement grout - 8 in. (labor, equip, materials)	6.5"	1949	1,949.00	LF	\$11.21	\$21,848.29
E (Phase 1)	Portland cement grout - 8 in. (labor, equip, materials)	6.5"	1967	1,967.00	LF	\$11.21	\$22,050.07
F (Phase 1)	Portland cement grout - 8 in. (labor, equip, materials)	6.5"	1933	1,933.00	LF	\$11.21	\$21,668.93
G (Phase 1)	Portland cement grout - 8 in. (labor, equip, materials)	6.5"	2012	2,012.00	LF	\$11.21	\$22,554.52
H (Phase 1)	Portland cement grout - 8 in. (labor, equip, materials)	6.5"	1983	1,983.00	LF	\$11.21	\$22,229.43
I (Phase 1)	Portland cement grout - 8 in. (labor, equip, materials)	6.5"	1986	1,986.00	LF	\$11.21	\$22,263.06
J (Phase 1)	Portland cement grout - 8 in. (labor, equip,	6.5"	2038	2,038.00	LF	\$11.21	\$22,845.98

	materials)						
K (Phase 1)	Portland cement grout - 8 in. (labor, equip, materials)	6.5"	1963	1,963.00	LF	\$11.21	\$22,005.23
L (Phase 1)	Portland cement grout - 8 in. (labor, equip, materials)	6.5"	1901	1,901.00	LF	\$11.21	\$21,310.21
M (Phase 1)	Portland cement grout - 8 in. (labor, equip, materials)	6.5"	1917	1,917.00	LF	\$11.21	\$21,489.57
DS-7 (Phase 1)	Portland cement grout - 8 in. (labor, equip, materials)	6.5"	1897	1,897.00	LF	\$11.21	\$21,265.37
N (Phase 2)	Portland cement grout - 8 in. (labor, equip, materials)	6.5	1859	1,859.00	LF	\$11.21	\$20,839.39
O (Phase 2)	Portland cement grout - 8 in. (labor, equip, materials)	6.5	1807	1,807.00	LF	\$11.21	\$20,256.47
P (Phase 2)	Portland cement grout - 8 in. (labor, equip, materials)	6.5"	1817	1,817.00	LF	\$11.21	\$20,368.57
Q (Phase 2)	Portland cement grout - 8 in. (labor, equip, materials)	6.5"	1836	1,836.00	LF	\$11.21	\$20,581.56
R (Phase 2)	Portland cement grout - 8 in. (labor, equip, materials)	6.5"	1835	1,835.00	LF	\$11.21	\$20,570.35
S (Phase 2)	Portland cement grout - 8 in. (labor, equip, materials)	6.5"	1744	1,744.00	LF	\$11.21	\$19,550.24
T (Phase 2)	Portland cement grout - 8 in. (labor, equip, materials)	6.5"	1739	1,739.00	LF	\$11.21	\$19,494.19
U (Phase 2)	Portland cement grout - 8 in. (labor, equip, materials)	6.5"	1694	1,694.00	LF	\$11.21	\$18,989.74
DS-6 (Phase 3)	Portland cement grout - 4 in. (labor, equip, materials)	4"	1882	1,882.00	LF	\$7.69	\$14,472.58
9H-I	Portland cement grout - 8 in. (labor, equip, materials)	7"	2110	2,110.00	LF	\$11.21	\$23,653.10
9H-R	Portland cement grout - 8 in. (labor, equip, materials)	7"	2110	2,110.00	LF	\$11.21	\$23,653.10
15H-I	Portland cement grout - 8 in. (labor, equip, materials)	7"	1960	1,960.00	LF	\$11.21	\$21,971.60
15H-R	Portland cement grout - 8 in. (labor, equip, materials)	7"	1960	1,960.00	LF	\$11.21	\$21,971.60
16H-I	Portland cement grout - 8 in. (labor, equip, materials)	7"	1960	1,960.00	LF	\$11.21	\$21,971.60
16H-R	Portland cement grout - 8 in. (labor, equip, materials)	7"	1960	1,960.00	LF	\$11.21	\$21,971.60

17H-I	Portland cement grout - 8 in. (labor, equip, materials)	7"	1960	1,960.00	LF	\$11.21	\$21,971.60
17R-1	Portland cement grout - 8 in. (labor, equip, materials)	7"	1960	1,960.00	LF	\$11.21	\$21,971.60
401H-I SHL	Portland cement grout - 8 in. (labor, equip, materials)	6.366"	2094	2,094.00	LF	\$11.21	\$23,473.74
401H-R SHL	Portland cement grout - 8 in. (labor, equip, materials)	8.835	2094	2,094.00	LF	\$11.21	\$23,473.74
402H-I SHL	Portland cement grout - 8 in. (labor, equip, materials)	6.366	2097	2,097.00	LF	\$11.21	\$23,507.37
402H-R	Portland cement grout - 8 in. (labor, equip, materials)	8.835	2097	2,097.00	LF	\$11.21	\$23,507.37
403H-I SHL	Portland cement grout - 8 in. (labor, equip, materials)	6.366	2095	2,095.00	LF	\$11.21	\$23,484.95
403H-R SHL	Portland cement grout - 8 in. (labor, equip, materials)	8.835	2095	2,095.00	LF	\$11.21	\$23,484.95
12H-IR SHL	Portland cement grout - 8 in. (labor, equip, materials)	8.835	2061	2,061.00	LF	\$11.21	\$23,103.81

Job Hours:	460.00	Total Cost:	\$1,526,114.00
------------	--------	-------------	----------------

Material consistency:
Dozing method:
Visibility:

0.900 1.000

1.000

(GEN.)

(AVG.)

BULLDOZER WORK

: Nahcolite Project	Permit Action:	AM-4	Permit/Job#:	M1983194
PROJECT IDENTIFICATION	<u>N</u>			
Task #: 03A	State: Colorado		Abbreviation:	None
Date: $9/7/2017$	County: Rio Blance	0	Filename:	03a
User: THM			-	
Agency or organization n	ame: DRMS		:	
HOURLY EQUIPMENT CO	<u>ST</u>			
Basic Machine: Cat D8T - 85	SU			
Horsepower: 310		_		
Blade Type: Semi-Univer	sal			
Attachment: NA	11.0	_		
Shift Basis: 1 per day		_		
Data Source: (CRG)		=		
Cost Breakdown:		Utilization %		
Ownership Cost/Hour:	\$83.81	NA		
Operating Cost/Hour:	\$66.17	100		
Ripper own. Cost/Hour:	\$0.00	NA		
Ripper op. Cost/Hour:	\$0.00	0		
Operator Cost/Hour:	\$41.85	NA		
Total unit Cost/Hour: \$191.8 Total Fleet Cost/Hour: \$383.6				
MATERIAL QUANTITIES Initial Volume: 52,723 Swell factor: 1.110				
Loose volume: 58,523 LCY				
Source of estimated volume: Source of estimated swell factor:	Division of Reclamati Cat Handbook	on, Mining & Safety		
HOURLY PRODUCTION				
0 1	175 feet 562.2 LCY/hr			
Materials consistency description:	Compacted fill or en	mhankment () ()		
•	Compacted in or c	modikiicii (.)	<u> </u>	
Average push gradient: 0 %				
Average site altitude: 6,600 f	eet			
Material weight: 2,800 l	bs/LCY		_	
Weight description: Clay - 1	Natural bed			
I-b Condition Commention Footon		Source		
Job Condition Correction Factor		Doutee		
Operator Skill: Material consistency:	0.750 0.900	(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:	0.821	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.3680

Adjusted unit production: 206.89 LCY/hr Adjusted fleet production: 413.78 LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

\$0.927/LCY Unit cost:

Total job time: _ Total job cost: _ 141.43 Hours

\$54,261

Task description:

Re-grade Plant Area

Site: Nahcolite Project

Permit Action: AM-4

Utilization %

NA

100

NA

0

NA

Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #:

04A

State:

Colorado

Abbreviation:

None

Date: User: 9/7/2017 THM

County:

Rio Blanco

\$83.81

\$66.17

\$0.00

\$0.00

\$41.85

Filename:

04a

Agency or organization name:

DRMS

HOURLY EQUIPMENT COST

Basic Machine:

Cat D8T - 8SU

Horsepower:

310

Blade Type:

Semi-Universal

Attachment:

NA

Shift Basis:

Data Source:

1 per day (CRG)

Cost Breakdown:

Ownership Cost/Hour:

Operating Cost/Hour: Ripper own. Cost/Hour: Ripper op. Cost/Hour:

Operator Cost/Hour: Total unit Cost/Hour:

\$191.83

Total Fleet Cost/Hour:

\$383.65

MATERIAL QUANTITIES

Initial Volume:

39,364 1.110

Swell factor: Loose volume:

43,694 LCY

Source of estimated volume:

Division of Reclamation, Mining & Safety

Source of estimated swell factor:

Cat Handbook

HOURLY PRODUCTION

Average push distance:

150 feet

Unadjusted hourly production:

634.3 LCY/hr

Materials consistency description:

Compacted fill or embankment 0.9

Average push gradient:

-5 %

Average site altitude:

6,600 feet

Material weight:

2,800 lbs/LCY

Weight description:

Clay - Natural bed

Job Condition Correction Factor

Operator Skill:

0.750 0.900

Material consistency: Dozing method:

(AVG.) (CAT HB))

Source

Visibility:

1.000 (GEN.) 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:	0.821	(CAT HB)
Blade type:	1.000	(PAT)

Net correction:

0.4103

Adjusted unit production:

260.25 LCY/hr

Adjusted fleet production:

520.5 LCY/hr

JOB TIME AND COST

Fleet size:

2 Dozer(s)

Unit cost:

\$0.737/LCY

Total job time:

83.95 Hours

Total job cost:

\$32,206

Task description: Re-grade Well Pads Site: Nahcolite Project Permit Action: AM-4 Permit/Job#: M1983194 PROJECT IDENTIFICATION Task #: Colorado 05A State: Abbreviation: None Date: 9/7/2017 County: Rio Blanco Filename: 05a User: THM 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: \$83.81 NA Operating Cost/Hour: \$66.17 100 Ripper own. Cost/Hour: \$0.00 NA Ripper op. Cost/Hour: \$0.00 0 Operator Cost/Hour: \$41.85 NA Total unit Cost/Hour: \$191.83 Total Fleet Cost/Hour: \$383.65 **MATERIAL QUANTITIES** Initial Volume: 87,700 Swell factor: 1.110 Loose volume: 97,347 LCY Source of estimated volume: Division of Reclamation, Mining & Safety Source of estimated swell factor: Cat Handbook **HOURLY PRODUCTION** Average push distance: 75 feet Unadjusted hourly production: 1,017.1 LCY/hr Materials consistency description: Partly consolidated stockpile 1.1 Average push gradient: 5 % Average site altitude: 6,600 feet Material weight: 2,800 lbs/LCY

Inh	Condition	n Correction	Factor

Weight description:

<u> </u>		504144
Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

Source

Clay - Natural bed

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:	0.821	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4061

Adjusted unit production:

413.04 LCY/hr

Adjusted fleet production:

826.08 LCY/hr

JOB TIME AND COST

Fleet size:

2 Dozer(s)

Unit cost:

\$0.464/LCY

Total job time: 117.84 Hours
Total job cost: \$45,210

: Nahcolite Projec	et	Permit Action: A	M-4	Permit/Job#:	M1983194
PROJECT IDEN	TIFICATION		-		
Task #: 06A		State: Colorado		Abbreviation:	None
Date: 9/7/20	017 C	county: Rio Blanco		Filename:	06a
User: THM		•	3,16,	-	
Agency or	organization nam	e: DRMS		2	
HOURLY EQUI	PMENT COST				
Basic Machine:	Cat D8T - 8SU				
Horsepower:	310				
Blade Type:	Semi-Universal		S .		
Attachment:	NA				
Shift Basis:	1 per day				
Data Source:	(CRG)	0			
Cost Breakdown:		ī	****		
Ownership Cost/H	lour:	\$83.81	Utilization % NA		
Operating Cost/H		\$66.17	100		
Ripper own. Cost/H		\$0.00	NA		
Ripper op. Cost/H		\$0.00	0		
Operator Cost/H		\$41.85	NA		
Total unit Cost/Hou Total Fleet Cost/Ho MATERIAL QU	ur: \$383.65				
	ur: \$383.65				
Total Fleet Cost/Ho MATERIAL QU Initial Volume: _	ANTITIES 6,453				
MATERIAL QU Initial Volume: Swell factor: Loose volume: Source of estimated	ANTITIES 6,453 1.000 6,453 LCY volume: D	Pivision of Reclamation,	Mining & Safety		
MATERIAL QU Initial Volume: Swell factor: Loose volume:	ANTITIES 6,453 1.000 6,453 LCY volume: D	Division of Reclamation,	Mining & Safety		
MATERIAL QU Initial Volume: Swell factor: Loose volume: Source of estimated	ANTITIES 6,453 1.000 6,453 LCY volume: D swell factor: C		Mining & Safety		
MATERIAL QU Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROD Average push distant	### ### ##############################		Mining & Safety		
MATERIAL QU Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated	### ### ##############################	at Handbook	Mining & Safety		
MATERIAL QU Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROD Average push distant	### ### ##############################	at Handbook feet	Mining & Safety		
MATERIAL QU Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROD Average push distan Unadjusted hourly p	### ### ### ### #### #################	feet .3 LCY/hr	Mining & Safety		
MATERIAL QU Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROD Average push distant Unadjusted hourly p	### ### ##############################	feet .3 LCY/hr Loose stockpile 1.2	Mining & Safety		
MATERIAL QU Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROD Average push distant Unadjusted hourly published Average push gradie	### ### ##############################	feet .3 LCY/hr Loose stockpile 1.2	Mining & Safety		
MATERIAL QU Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROD Average push distan Unadjusted hourly p Materials consistence Average push gradic Average site altitude	### ### ### ### #### #################	feet .3 LCY/hr Loose stockpile 1.2	Mining & Safety		
MATERIAL QU Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROD Average push distant Unadjusted hourly publication Materials consistence Average push gradie Average site altitude Material weight: Weight description: Job Condition Corre	### ### ### ### ### ### ### ### ### ##	feet .3 LCY/hr Loose stockpile 1.2	Source		
MATERIAL QU Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROD Average push distant Unadjusted hourly publication Materials consistence Average push gradie Average site altitude Material weight: Weight description: Job Condition Corre	### ### ### ### ### #### #### ########	feet .3 LCY/hr Loose stockpile 1.2			

(AVG.)

Visibility:

1.000

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:

0.8593

Adjusted unit production:

545.05 LCY/hr

Adjusted fleet production:

1090.1 LCY/hr

JOB TIME AND COST

Fleet size:

2 Dozer(s)

Unit cost:

\$0.352/LCY

Total job time:

5.92 Hours

Total job cost:

\$2,271

Task description:	Distrib	ute 6" topsoil over 16 ac	re piant/process area	<u> </u>	
: Nahcolite Projec	t	Permit Action: A	M-4	_ Permit/Job#:	M1983194
PROJECT IDEN	TIFICATIO	<u>N</u>			
Task #: 07A		State: Colorado		Abbreviation:	None
Date: 9/7/20	17	County: Rio Blanco		Filename:	07a
User: THM					
Agency or	organization na	ame: DRMS			
HOURLY EQUI	PMENT COS	<u>ST</u>			
Basic Machine:	Cat D8T - 8S	U			
Horsepower:	310				
Blade Type:	Semi-Univers	sal			
Attachment:	NA				
Shift Basis:	1 per day				
Data Source:	(CRG)				
Cost Breakdown:					
			Utilization %		
Ownership Cost/Ho	our:	\$83.81	NA		
Operating Cost/Ho		\$66.17	100		
Ripper own. Cost/Ho		\$0.00	NA		
Ripper op. Cost/He		\$0.00	0		
Operator Cost/Ho		\$41.85	NA		
~ F		\$11.05	INA		
Total unit Cost/Hour Total Fleet Cost/Hou MATERIAL OU	ar: \$383.65		_		
MATERIAL QUA Initial Volume: Swell factor:	ANTITIES 12,903 1.000				
MATERIAL QUA Initial Volume: Swell factor:	ANTITIES 12,903				
MATERIAL QUA Initial Volume: Swell factor:	ANTITIES 12,903 1.000 12,903 LCY volume:		Mining & Safety		
MATERIAL QUA Initial Volume: Swell factor: Loose volume: Source of estimated	ANTITIES 12,903 1.000 12,903 LCY volume: swell factor:	Division of Reclamation,	Mining & Safety		
MATERIAL QUA Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated	ANTITIES 12,903 1.000 12,903 LCY volume: swell factor:	Division of Reclamation, Cat Handbook	Mining & Safety		
MATERIAL QUA Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROD Average push distant	### \$383.65 ### ### ### ### #### ###############	Division of Reclamation, Cat Handbook	Mining & Safety		
MATERIAL QUA Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated	### ### ##############################	Division of Reclamation, Cat Handbook	Mining & Safety		
MATERIAL QUA Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROD Average push distant Unadjusted hourly processors	### \$383.65 ### ### ### ### ### #### #### ########	Division of Reclamation, Cat Handbook 50 feet 34.3 LCY/hr	Mining & Safety		
MATERIAL QUA Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROD Average push distant Unadjusted hourly pu	### \$383.65 ### ### ### ### ### #### #### ########	Division of Reclamation, Cat Handbook 50 feet 34.3 LCY/hr Loose stockpile 1.2	Mining & Safety		
MATERIAL QUA Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROD Average push distant Unadjusted hourly pu	### \$383.65 ### ### ### ### ### #### #### ########	Division of Reclamation, Cat Handbook 50 feet 34.3 LCY/hr Loose stockpile 1.2	Mining & Safety		
MATERIAL QUA Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROD Average push distant Unadjusted hourly pu Materials consistence Average push gradie Average site altitude	### ### ### ### ### #### #### ########	Division of Reclamation, Cat Handbook 50 feet 34.3 LCY/hr Loose stockpile 1.2	Mining & Safety		
MATERIAL QUA Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROD Average push distant Unadjusted hourly pu Materials consistence Average push gradie Average site altitude Material weight: Weight description:	\$383.65 ANTITIES 12,903 1.000 12,903 LCY volume: swell factor: UCTION	Division of Reclamation, Cat Handbook 50 feet 34.3 LCY/hr Loose stockpile 1.2			
MATERIAL QUA Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROD Average push distant Unadjusted hourly pu Materials consistence Average push gradie Average site altitude Material weight: Weight description: Job Condition Corre	\$383.65 ANTITIES 12,903 1.000 12,903 LCY volume: swell factor: UCTION Ce: 1 foduction: 6 foduction: 6 foduction: 1,600 foduction Top Soint Color Factor foduction fodu	Division of Reclamation, Cat Handbook 50 feet 34.3 LCY/hr Loose stockpile 1.2	Source		
MATERIAL QUA Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROD Average push distant Unadjusted hourly pu Materials consistence Average push gradie Average site altitude Material weight: Weight description: Job Condition Corre	### ### ### ### ### ### #### #### #### ####	Division of Reclamation, Cat Handbook 50 feet 34.3 LCY/hr Loose stockpile 1.2	Source (AVG.)		
MATERIAL QUA Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated Source of estimated HOURLY PROD Average push distant Unadjusted hourly push Materials consistence Average push gradie Average site altitude Material weight: Weight description: Job Condition Corre Oper Material co	### ### ### ### ### ### #### #### #### ####	Division of Reclamation, Cat Handbook 50 feet 34.3 LCY/hr Loose stockpile 1.2 set s/LCY	Source		

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:

0.8593

Adjusted unit production:

545.05 LCY/hr

Adjusted fleet production:

1090.1 LCY/hr

JOB TIME AND COST

Fleet size:

2 Dozer(s)

Unit cost:

\$0.352/LCY

Total job time:

11.84 Hours

Total job cost:

\$4,541

Nahcolite Proje	ct	Permit Action: A	M-4	Permit/Job#:	M1983194
PROJECT IDEN	NTIFICATIO	<u>N</u>			
Task #: 08A		State: Colorado		Abbreviation:	None
Date: 9/7/2	017	County: Rio Blanco		Filename:	08a
User: THM	I	•	A	-	
Agency of	r organization na	ame: DRMS			
HOURLY EQUI					
					
Basic Machine:	Cat D8T - 8S	U			
Horsepower:	310	1			
Blade Type: Attachment:	Semi-Univers	Sal			
	NA				
Shift Basis:	1 per day				
Data Source:	(CRG)				
Cost Breakdown:					
		Ĭ	Utilization %		
Ownership Cost/F	Hour:	\$83.81	NA		
Operating Cost/F		\$66.17	100		
Ripper own. Cost/F		\$0.00	NA		
Ripper op. Cost/I-		\$0.00	0		
Operator Cost/I-		\$41.85	NA		
•		7 1 1 1 1	1421		
Total unit Cost/Hou	ır: \$191.83	;			
Total Fleet Cost/Ho	our: \$383.65		_		
	1				
MATERIAL OF	IANTITIES				
MATERIAL QU					
Initial Volume:	31,801				
Initial Volume: Swell factor:	31,801 1.000				
Initial Volume:	31,801				
Initial Volume: Swell factor: Loose volume:	31,801 1.000 31,801 LCY	Division of Reclamation	Mining & Safaty		
Initial Volume: Swell factor: Loose volume: Source of estimated	31,801 1.000 31,801 LCY	Division of Reclamation	, Mining & Safety		
Initial Volume: Swell factor: Loose volume:	31,801 1.000 31,801 LCY	Division of Reclamation Cat Handbook	Mining & Safety		
Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated	31,801 1.000 31,801 LCY d volume: d swell factor:		, Mining & Safety		
Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated	31,801 1.000 31,801 LCY d volume: d swell factor:	Cat Handbook	, Mining & Safety		
Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROI	31,801 1.000 31,801 LCY d volume: d swell factor:	Cat Handbook 00 feet	Mining & Safety		
Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated	31,801 1.000 31,801 LCY d volume: d swell factor:	Cat Handbook	, Mining & Safety		
Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROI	31,801 1.000 31,801 LCY d volume: d swell factor: DUCTION nce: production: 8	Cat Handbook 00 feet	, Mining & Safety		
Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROI Average push dista Unadjusted hourly Materials consisten	31,801 1.000 31,801 LCY d volume: d swell factor: DUCTION nce: production: 2 2 31,801 1.000 31,801 1.000	Cat Handbook 00 feet 52.6 LCY/hr	Mining & Safety		
Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROI Average push distar Unadjusted hourly	31,801 1.000 31,801 LCY d volume: d swell factor: DUCTION nce: production: cy description: dent: 0 %	Cat Handbook 00 feet 52.6 LCY/hr Loose stockpile 1.2	Mining & Safety		
Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROI Average push dista Unadjusted hourly Materials consisten Average push gradi Average site altitud	31,801 1.000 31,801 LCY d volume: d swell factor: DUCTION nce: production: cy description: dient: 0 %	Cat Handbook 00 feet 52.6 LCY/hr Loose stockpile 1.2	, Mining & Safety		
Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROI Average push dista Unadjusted hourly Materials consisten Average push gradi Average site altitud	31,801 1.000 31,801 LCY d volume: d swell factor: DUCTION nce: production: cy description: dent: 0 %	Cat Handbook 00 feet 52.6 LCY/hr Loose stockpile 1.2	, Mining & Safety		
Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROI Average push distar Unadjusted hourly Materials consisten Average push gradi	31,801 1.000 31,801 LCY d volume: d swell factor: DUCTION nce: production: cy description: de: 6,600 fe 2,100 lb	Cat Handbook 00 feet 52.6 LCY/hr Loose stockpile 1.2 eet	Mining & Safety		
Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROI Average push distar Unadjusted hourly Materials consisten Average push gradi Average site altitud Material weight: Weight description	31,801 1.000 31,801 LCY d volume: d swell factor: DUCTION nce: production: etc. 0 % de: 6,600 fe 2,100 lb	Cat Handbook 00 feet 52.6 LCY/hr Loose stockpile 1.2 eet			
Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROI Average push distar Unadjusted hourly Materials consisten Average push gradi Average site altitud Material weight: Weight description: Job Condition Corr	31,801 1.000 31,801 LCY d volume: d swell factor: DUCTION nce: production: et: 6,600 fe 2,100 lb Earth -	Cat Handbook 00 feet 52.6 LCY/hr Loose stockpile 1.2 eet os/LCY Loam	Source		
Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROI Average push dista: Unadjusted hourly Materials consisten Average push gradi Average site altitud Material weight: Weight description: Job Condition Corr	31,801 1.000 31,801 LCY I volume: I swell factor: DUCTION nce:	Cat Handbook 00 feet 52.6 LCY/hr Loose stockpile 1.2 eet os/LCY Loam 0.750	Source (AVG.)		
Initial Volume: Swell factor: Loose volume: Source of estimated Source of estimated HOURLY PROI Average push distar Unadjusted hourly Materials consisten Average push gradi Average site altitud Material weight: Weight description: Ope Material c	31,801 1.000 31,801 LCY d volume: d swell factor: DUCTION nce: production: et: 6,600 fe 2,100 lb Earth -	Cat Handbook 00 feet 52.6 LCY/hr Loose stockpile 1.2 eet os/LCY Loam	Source		

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:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.6544

Adjusted unit production:

557.94 LCY/hr

Adjusted fleet production:

1115.88 LCY/hr

JOB TIME AND COST

Fleet size:

2 Dozer(s)

Unit cost:

\$0.344/LCY

Total job time:

28.50 Hours

Total job cost:

\$10,933

BULLDOZER RIPPING WORK

	Task description	Rip c	ompacted areas					
Site	: Nahcolite Pro	ject	Permit Action:	AM-4	P	ermit/Job#:	M19831	94
	PROJECT ID	ENTIFICATIO	<u>ON</u>					
	Task #: 09	A	State: Colorado		Abh	reviation:	None	
		7/2017	County: Rio Blanco)		Filename:	09a	·
	User: Th	IM						
	Agency	or organization i	name: DRMS					
	HOURLY EQ	UIPMENT CO	<u>OST</u>					
	Basic	Machine: Cat	D8T - 8SU		Horsepower:		310	
	Ripper At	tachment: 3-Sh	ank Ripper		Shift Basis:		er day	
				 (2	Data Source:		CRG)	
	Cost Breakdown	• •						6
		1			Utilization %			
		Ownership Co		\$83.81	NA	_		
	Dina	Operating Co		\$66.17	100	_		
		er Ownership Coper Operating Co		\$7.55 \$7.21	NA 100	_		
	Кір	Operator Co		\$41.85	NA	_		
		Total Unit Co		\$206.59	1411	_		
		Total Fleet Co	st/Hour: \$413	R 17				
	MATERIAL A							
	MATERIAL (Sele	ected estimating	g method: Are	a		
	Alternate Metho	ds:						
Seismic:	NA		Bank Volume:	NA	BCY _		NA	
Area:	27.70	acres	Rip Depth (ft):	2.00	Volume: _	89,379		BCY or CCY
		Source of estim	ated quantity: Staff E	stimate				
	HOURLY PR	ODUCTION						
	Seismic:							
		S	eismic Velocity:	NA	feet/sec	cond		
	Area:							
	Aica.	Average	Ripping Depth:	2.56	mph			
			Ripping Width:	7.08	degrees	S		
			Ripping Length:	300.00	feet			
		Avera	ge Dozer Speed:	88.00	feet			
			Maneuver Time:	0.25	feet			
		Producti	on per unit area:	0.800	acres/h	our		
	Job Condition Co	orrection Factors						
	Ur	adjusted Hourly	Unit Production:	0.800	Acres/h	ır		
			Site Altitude:	6,600	feet			
			Altitude Adj:	1.00	(CAT I	HB)		
			Job Efficiency:	0.83	(1 shift	• •		
			Net Correction:	0.83	multipl	ier		
		Adjusted I	Hourly Unit Production:	0.66	Acres/hr			
			Iourly Fleet Production:	1.33	Acres/hr			
	JOB TIME A	ND COST						
	Fleet size:	2	Grader(s)	Total job tim	ne:	20.87	Ho	urs
	Unit cost: _	\$311.305	Per acre	Total job co	st:	88,623		

	ject		Perr	nit Action: _A	M-4	Permit/Job#:	M1983194
PROJECT ID	ENTIFI	CATION					
Task #: 10.	A		State:	Colorado		Abbreviation:	None
	//2017		County:	Rio Blanco	-	Filename:	10a
User: TH	ΙM					_	
Agency	or organ	ization nar	ne: DR	MS			
HOURLY EQ	UIPME	NT COS	<u> </u>			h 2	
Basic Machine		D8T - 8SU	-				
Horsepowe	r: 310						
Blade Type	e: Sem	ni-Universa	1				
Attachmen							
Shift Basi		er day					
Data Source	e: (CR	.G)					
Cost Breakdown	:						
				1	Utilization %		
Ownership Cos	t/Hour:			\$83.81	NA		
Operating Cos	t/Hour:			\$66.17	100		
Ripper own. Cos				\$0.00	NA		
Ripper op. Cos	t/Hour:			\$0.00	0		
Operator Cos	t/Hour:			\$41.85	NA		
MATERIAL (Initial Volume: Swell factor:	22,29	97		_			
Loose volume:		7 LCY		_			
20000 (0:4::::0.							
Source of estimat			Division of Cat Handl		Mining & Safety		
Source of estimate Source of estimate	ted swell	factor:			Mining & Safety		
Source of estimate Source of estimate HOURLY PROMITE Average push dis	ted swell ODUCT stance:	factor:	Cat Handl O feet	oook	Mining & Safety		
Source of estimate Source of estimate of estimate HOURLY PROMITE PROPERTY PROMITE PROPERTY PR	DDUCT tance: y produc	FION 10 85	Cat Handl Ofeet 2.6 LCY/	nr	Mining & Safety		
Source of estimate Source of estimate of estimate HOURLY PROMITE PROPERTY PROMITE PROPERTY PR	DDUCT tance: y produc	FION 10 85	Cat Handl Ofeet 2.6 LCY/	oook	Mining & Safety		
Source of estimate Source of estimate HOURLY PRO	ODUCT tance: y product ency description	FION 10 85	O feet 2.6 LCY/L	nr	Mining & Safety		
Source of estimate Source of estimate HOURLY PROME Average push dis Unadjusted hourles Materials consisted Average push graft.	ODUCT tance: y product ency description	FION etion: 10 85 cription: 0 %	O feet 2.6 LCY/ Loose s	nr	Mining & Safety		
Source of estimate Source of estimate Source of estimate HOURLY PRODURLY PRODURCY PRODURLY PRODURCY PRODURCY PRODURLY PRODURCY PRODURLY PRODURLY PRODURCY PRODURCY PRODURCY PRODURCY PR	DDUCT stance: y produc ency desc adient: ude:	FION 10 85 cription: 0 % 6,600 fee	O feet 2.6 LCY/ Loose s	nr	Mining & Safety		
Source of estimate Source of estimate Source of estimate HOURLY PROTECTION PR	opuct stance: y produc ency desc adient: ude:	FION 10 85 10 85 1,600 lbs 1,600 lbs	O feet 2.6 LCY/ Loose s	nr			
Source of estimate Source of estimate Source of estimate HOURLY PRODURLY PRODURCY PRODURLY PRODURCY PR	opuct stance: y produc ency desc adient: ude:	Factor: 10 10 85 cription: 0 % 6,600 fee 1,600 lbs Top Soil Factor	O feet 2.6 LCY/ Loose s	nr	Source (AVG.)		
Source of estimate Source of estimate Source of estimate HOURLY PRODURLY PRODURCY PRODURLY PRODURCY PR	on:	factor:	O feet 2.6 LCY/ Loose s t /LCY	nr tockpile 1.2	Source		
Source of estimate Source of estimate Source of estimate HOURLY PRODURLY PRODURCY PRODURLY PRODURCY PR	DDUCT Itance: y product ency description adient: ude: prection perator S	10 10 85	O feet 2.6 LCY/ Loose s t /LCY	nr tockpile 1.2	Source (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: 0.8593

Adjusted unit production:

732.64 LCY/hr

Adjusted fleet production:

1465.28 LCY/hr

JOB TIME AND COST

Fleet size:

2 Dozer(s)

Unit cost:

\$0.262/LCY

Total job time:

15.22 Hours

Total job cost: \$5,838

REVEGETATION WORK

rask description. Revegetate 67.76 acres	Task description:	Revegetate 87.76 acres
--	-------------------	------------------------

Site: Nahcolite Project Permit Action: AM-4 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #:11AState:ColoradoAbbreviation:NoneDate:9/7/2017County:Rio BlancoFilename:11a

User: THM

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
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)		\$106.29
Weed control spraying (MEANS 31 31 16.13 3100)		\$242.00
	Total Tilling Cost/Acre	\$348.29

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.10	3.90	\$2.83
Crested Wheatgrass - Ephraim	4.00	18.37	\$14.68
Blue Wildrye - Arlington or Elkton	1.50	5.17	\$9.75
Russian Wildrye - Bozoisky	1.50	6.03	\$9.50
Hard Fescue - Discovery	1.00	12.97	\$3.71
Pubescent Wheatgrass - Luna	1.50	3.10	\$6.11
Yellow Sweet Clover - Madrid	0.50	2.98	\$1.42
Tall Wheatgrass - Jose	1.80	3.26	\$4.36
Thickspike Wheatgrass - Critana	4.30	15.20	\$24.68

Sweetvetch, Utah or Northern		0.10	0.05	\$7.50
Western Wheatgrass - Barton		1.50	3.79	\$11.39
Yarrow, Western		0.20	12.16	\$8.36
	Totals Seed Mix	18.00	86.97	
	Totals Seed Milk	10.00		\$104.27

Application

Description		Cost /Acre
Drill seeding (MEANS 32 92 19.13 0020)		\$438.00
	Total Seed Application Cost/Acre	\$438.00

MULCHING and MISCELLANEOUS

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - 2,4D @ 1.0 pt/ac	2.00	ACRE	\$2.74	\$5.48
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$261.00	\$522.00
Total Mulch Materials Cost/Acre			>	\$527.48

Application

Description		Cost /Acre
Crimping, with tractor {DMG survey data}		\$66.02
Power mulcher (MEANS 32 91 13.16 0350)		\$99.32
	Total Mulch Application Cost/Acre	\$165.34

NURSERY STOCK PLANTING

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
		То	tals Nursery Stoc	ek Cost / Acre	\$0.00

JOB TIME AND COST

No. of Acres: 90.5 Cost/Acre: \$1,583.38

Estimated Failure Rate: 30% Cost /Acre*: \$1,583.38

*Selected Replanting Work Items: TILLING, SEEDING, MULCHING

Initial Job Cost: \$143,295.89

Reseeding Job Cost: \$42,988.77

Total Job Cost: \$186,285

Job Hours: **87.76**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: Mobilization

Site: Nahcolite Project Permit Action: AM-4 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #: 12A State: Colorado Abbreviation: None

Date: 9/7/2017 County: Rio Blanco Filename: 12a
User: THM

Agency or organization name: DRMS

EQUIPMENT TRANSPORT RIG COST

Truck Tractor Description:

Shift basis: 1 per day

Cost Data Source: CRG Data

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

Truck Trailer Description: GENERIC FOLDING GOOSENECK, DROP DECK EQUIPMENT

TRAILER (25T, 50T, AND 100T)

Cost Breakdown:

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

NON ROADABLE EQUIPMENT:

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/uni	Fleet Size	Haul Trip Cost/hr/	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Cat D8T - 8SU	47.71	\$83.81	\$117.55	2	fleet \$402.72	\$235.10	\$500.00
Drill/Broadcast	25.00	\$12.22	\$88.67	1	\$100.89	\$88.67	\$250.00
Seeder with Tractor							
Power Mulcher (Bowie LD-90)	6.00	\$7.03	\$88.67	1	\$95.70	\$88.67	\$250.00

Subtotals: \$599.31 \$412.44 \$1,000.00

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 3/4 T.	\$12.26	2	\$24.52	\$24.52

Subtotals: \$24.52 \$24.52

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:

Total one-way travel distance:

Average Travel Speed:

RIFLE

60.00

miles

40.00

mph

Total Non-Roadable Mob/Demob Cost *

'* two round trips with haul rig:

'* two round trips with haul rig: Total Roadable Mob/Demob Cost **

** one round trip, no haul rig:

\$6,233.87 \$73.56

Transportation Cycle Time:

	Non-	
	Roadable	Roadable
	Equipment	Equipment
Haul Time (Hours):	1.50	1.50
Return Time (Hours):	1.50	1.50
Loading Time (Hours):	0.50	NA
Unloading Time (Hours):	0.50	NA
Subtotals:	4.00	3.00

JOB TIME AND COST

Total job cost: \$6,307 Hours