



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

1313 Sherman Street, Room 215
Denver, CO 80203

May 16, 2019

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

RE: Nacholite Project, Permit No. M-1983-194, Technical Revision (TR-42) Approval

Dear Mr. Daehling:

On May 16, 2019 the Division of Reclamation, Mining and Safety (Division) approved the Technical Revision request (TR-42) submitted on May 3, 2019, addressing the following:

Addition of wells 14H-1V and DS-10 and associated pads

The terms of the TR-42 approved by the Division are hereby incorporated into Permit No. M-1983-194. All other conditions and requirements of the permit remain in full force and effect.

Division calculations estimate the cost to reclaim the above referenced site to be \$7,429,753.00. This is an increase of \$3,271,412.32 over the \$4,158,340.68 currently held by the Division. ***Pursuant to Section 34-32-117(4) of the Colorado Land Reclamation Act, adequate Financial Warranty must be submitted to the Division within 60 days of the mailing date of this letter.*** The additional amount needs to be accepted prior **Monday, July 15, 2019**. Please review the enclosed figures as soon as possible and contact our office if any calculation errors are noted. The revision will not be final until the bond is approved by the Division.

Please make arrangements with Barbara Coria at the Division of Reclamation, Mining and Safety Denver Office, phone no. 303.866.3567, ext. 8148 for submittal of the financial warranty. Any questions regarding completion, execution and/or submittal of financial warranty forms should also be directed to Barbara Coria.

If you require additional information, or have questions or concerns, please feel free to contact me. Amy Yeldell at the Division of Reclamation, Mining and Safety, 1313 Sherman St., Room 215, Denver, CO 80203. Direct contact can be made by phone at 970-254-8511 or via email at amy.yeldell@state.co.us



Sincerely,



Amy Yeldell

Environmental Protection Specialist

Enclosures:

Reclamation Cost Estimate
TR-42 Reclamation Cost Estimate-Changes to Bond
BLM-Natural Soda, 2015 Mine Plan Modification 500,000 Tons Per Year, Volume 4, Section 8.0,
Reclamation Plan
TR-42 Adequacy Responses from Daub and Associates, Inc.

Ec:

Travis Marshall, Senior EPS, Grand Junction DRMS
Paul Daggett, White River Field Office, BLM
Gerry Deschaine, Natural Soda EH&S Manager
Gerald Daub, Consultant

COST SUMMARY WORK

Task description: TR-42 Update

Site: Nahcolite Project

Permit Action: TR-42

Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #: ACY

State: Colorado

Abbreviation: None

Date: 5/6/2019

County: Rio Blanco

Filename: M194-ACY

User: ACY

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
01a	Demo of Plant, pipelines, power lines and parking lot	DEMOLISH	1	160.00	\$5,106,446
02a	Borehole P&A	BOREHOLE	1	580.00	\$530,432
03a	Regrade Process Ponds	DOZER	2	133.65	\$55,729
03b	Decompact Process Pond	RIPPER	2	6.85	\$3,086
03c	Topsoil Process Pond	DOZER	2	14.06	\$5,863
03d	Reveg Process Pond	REVEGE	1	28.50	\$35,938
04a	Regrade Plant Area	DOZER	2	23.69	\$9,879
04b	Decompact Plant Area	RIPPER	2	7.02	\$3,163
04c	Topsoil Plant Area	DOZER	2	6.07	\$2,530
04d	Reveg Plant Area	REVEGE	1	12.30	\$15,510
05a	Regrade Well Pads	DOZER	2	140.83	\$58,723
05b	Topsoil Well Pads	DOZER	2	28.92	\$12,059
05c	Reveg Well Pads	REVEGE	1	58.62	\$73,919
06a	Decompact Roads	RIPPER	2	4.95	\$2,233
06b	Topsoil roads	DOZER	2	4.56	\$1,901
06c	Reveg Roads	REVEGE	1	9.24	\$11,652
12a	Initial Mobilization	MOBILIZE	1	8.00	\$14,224
12b	Secondary Mobilization	MOBILIZE	1	8.00	\$2,742
<u>SUBTOTALS:</u>				1235.26	\$5,946,029

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02
Performance bond: 1.05
Job superintendent: 617.63
Profit: 10.00

Total = \$120,110

Total = \$62,433

Total = \$45,118

Total = \$594,603

TOTAL O & P = \$822,264

CONTRACT AMOUNT (direct + O & P) = \$6,768,293

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	<u>\$500</u>	Total =	<u>\$500</u>
Engineering work and/or contract/bid preparation:	<u>4.00</u>	Total =	<u>\$270,732</u>
Reclamation management and/or administration:	<u>3.13</u>		<u>\$211,848</u>

CONTINGENCY:	3.00	Total =	<u>\$178,381</u>
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TOTAL INDIRECT COST =	<u>\$1,483,724</u>
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TOTAL BOND AMOUNT (direct + indirect) =	<u>\$7,429,753</u>
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DEMOLITION WORK

Task description: Demo of Plant, pipelines, power lines and parking lot

Site: Nahcolite Project

Permit Action: TR-42

Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #: 01A

State: Colorado

Abbreviation: None

Date: 5/6/2019

County: Rio Blanco

Filename: M194-01a

User: ACY

Agency or organization name: DRMS

UNIT COSTS

Location adjustment: 95.50 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
NSI Plant	200'L x 175'W x 50'H	Plant (3S) demo./off-site disposal in approved landfill - Max. 30 mile haul	1,750,000.00	CF	\$0.70	\$1,221,500.00
Product Storage Dome	100'L x 100'W x 50'H	Plant (3S) demo./off-site disposal in approved landfill - Max. 30 mile haul	500,000.00	CF	\$0.70	\$349,000.00
Removal of NSI Plant Slab	200'L x 175'W x 8"	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	35,000.00	SF	\$1.14	\$39,830.00
Removal of Storage Dome Slab	100'L x 100'W x 8"	Demo. and on-site disposal in excavated pit, 8 in. thick - Max. 200 ft. push	10,000.00	SF	\$1.14	\$11,380.00
Scale Building	20'W x 100'L x 10'H	Plant (1S) demo./off-site disposal in approved landfill - Max. 30 mile haul	30,000.00	CF	\$0.70	\$21,000.00
Removal of Scale Building Slab	20'W x 100'L x 6"	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	2,000.00	SF	\$0.85	\$1,706.00
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 Flagpole/Monument	70 Sq Ft	USER PROVIDED ITEM	70.00	Ft^2	\$5.00	\$350.00
TR-36 Processing Building 1	165' x 79' x 60'	Plant (3S) demo./off-site disposal in approved landfill - Max. 30 mile haul	782,100.00	CF	\$0.70	\$545,905.80
TR-36 Processing Building 2	105' x 36' x 170'	Plant (3S) demo./off-site disposal in approved landfill - Max. 30 mile haul	642,600.00	CF	\$0.70	\$448,534.80
TR-36 Dry handling, Screening and Storage	90' x 65' x 160'	Plant (3S) demo./off-site disposal in approved landfill - Max. 30 mile haul	936,000.00	CF	\$0.70	\$653,328.00
TR-36 Warehouse and Packaging Building	400' x 150' x 22'	Plant (3S) demo./off-site disposal in approved landfill - Max. 30 mile	273,000.00	CF	\$0.70	\$190,554.00

		haul				
TR-36 Warehouse Building	400' x 150' x 22'	Plant (1C) demo./off-site disposal in approved landfill - Max. 30 mile haul	1,320,000.00	CF	\$0.79	\$1,038,840.00
TR-36 Removal of concrete foundations	101285 sq. ft.,	Demo. and on-site disposal in excavated pit, 6 in. thick - Max. 200 ft. push	101,285.00	SF	\$0.85	\$86,396.11
TR-36 Asphalt Parking Removal	133' x 182'	Pavement, bituminous, demolition only - 4 in. to 6 in. thick	897.00	SY	\$7.00	\$6,279.00
Off Site removal of asphalt-Loading	12,103 Cu Ft	Loading and 2 mile haul, no salvage - Machine loading	448.00	CY	\$17.20	\$7,705.60
Off site removal of asphalt-Hauling	448 CY @ 19 mi a trip	Hauling only, per mile, 12-18 CY truck - 50 mph average speed	473.00	MI	\$3.08	\$1,456.84
Off site removal of asphalt-dump fee	448 CY	Dump fees - Building construction materials.	448.00	CY	\$11.10	\$4,972.80
Demolition of Screening and Magnet System	120' x 160' x 40'	Plant (3S) demo./off-site disposal in approved landfill - Max. 30 mile haul	672,000.00	CF	\$0.70	\$469,056.00
Pipelines averaged to 10" diam.	36, 050 LF	Pipe, steel, welded connections - 10 in. diameter pipe	36,050.00	LF	\$6.33	\$228,196.50
Overhead Power line Removal-Pole	57 poles	Utility Poles, Wood 35' - 45' high (each pole)	57.00	EA	\$258.00	\$14,706.00
Overhead Power line Removal-Cross Arms	57 Arms	Utility Pole Cross Arm	27.00	EA	\$93.00	\$2,511.00
Disposal of Power Poles	57 @ 45'	Disposal of utility pole and hardware surplus material	2,565.00	LF	\$0.02	\$51.30
Disposal of Cross Arms	57 @ 8 ft. wide each	Disposal of utility pole cross arms and hardware surplus material	456.00	LF	\$0.01	\$4.56

Job Hours: 160.00Subtotal
(unadjusted): \$5,347,064.31Total Cost
(adjusted for location): \$5,106,446.42

BOREHOLE SEALING WORK

Task description: Borehole P&A

Site: Nahcolite Project

Permit Action: TR-42

Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #: 02A
Date: 5/10/2019
User: ACY

State: Colorado
County: Rio Blanco

Abbreviation: None
Filename: M194-02a

Agency or organization name: DRMS

UNIT COSTS

Borehole Description	Sealing/Item Method	Diameter	Length	Quantity	Unit	Unit Cost	Total Cost
3M-TDR	Portland cement grout - 4 in. (labor, equip, materials)	4	1876	1,876.00	LF	\$4.68	\$8,779.68
89-1	Portland cement grout - 4 in. (labor, equip, materials)	4	1627	1,627.00	LF	\$4.68	\$7,614.36
89-2	Portland cement grout - 4 in. (labor, equip, materials)	4	1417	1,417.00	LF	\$4.68	\$6,631.56
89-3	Portland cement grout - 4 in. (labor, equip, materials)	4	347	347.00	LF	\$4.68	\$1,623.96
90-1	Portland cement grout - 8 in. (labor, equip, materials)	8.9	1417	1,417.00	LF	\$5.95	\$8,431.15
90-3	Portland cement grout - 4 in. (labor, equip, materials)	4	1627	1,627.00	LF	\$4.68	\$7,614.36
90-4	Portland cement grout - 4 in. (labor, equip, materials)	4	1417	1,417.00	LF	\$4.68	\$6,631.56
BG-1	Portland cement grout - 4 in. (labor, equip, materials)	4	1627	1,627.00	LF	\$4.68	\$7,614.36
BG-4	Portland cement grout - 4 in. (labor, equip, materials)	4	1627	1,627.00	LF	\$4.68	\$7,614.36
DS-2	Portland cement grout - 4 in. (labor, equip, materials)	4	1876	1,876.00	LF	\$4.68	\$8,779.68
DS-3	Portland cement grout - 4 in. (labor, equip, materials)	4	1876	1,876.00	LF	\$4.68	\$8,779.68
EX-2	Portland cement grout - 4 in. (labor, equip, materials)	4	1876	1,876.00	LF	\$4.68	\$8,779.68
IRI-1	Portland cement grout - 4 in. (labor, equip, materials)	4	347	347.00	LF	\$4.68	\$1,623.96
IRI-4	Portland cement grout - 4 in. (labor, equip, materials)	4	1417	1,417.00	LF	\$4.68	\$6,631.56

IRI-5	Portland cement grout - 4 in. (labor, equip, materials)	4.1	347	347.00	LF	\$4.68	\$1,623.96
IRI-6	Portland cement grout - 4 in. (labor, equip, materials)	4	1627	1,627.00	LF	\$4.68	\$7,614.36
IRI-7	Portland cement grout - 4 in. (labor, equip, materials)	4	1876	1,876.00	LF	\$4.68	\$8,779.68
IRI-8	Portland cement grout - 4 in. (labor, equip, materials)	4	347	347.00	LF	\$4.68	\$1,623.96
12H-I	Portland cement grout - 8 in. (labor, equip, materials)	7	2100	2,100.00	LF	\$5.95	\$12,495.00
12H-I Bridge Plug	PVC plug - 8 in. diameter borehole	7	1	1.00	EA	\$79.19	\$79.19
12H-R	Portland cement grout - 8 in. (labor, equip, materials)	7	2100	2,100.00	LF	\$5.95	\$12,495.00
12H-R Bridge Plug	PVC plug - 8 in. diameter borehole	7	1	1.00	EA	\$79.19	\$79.19
10H-I	Portland cement grout - 8 in. (labor, equip, materials)	7	1935	1,935.00	LF	\$5.95	\$11,513.25
10H-I Bridge Plug	PVC plug - 8 in. diameter borehole	7	1	1.00	EA	\$79.19	\$79.19
10H-R	Portland cement grout - 8 in. (labor, equip, materials)	7	1935	1,935.00	LF	\$5.95	\$11,513.25
10H-R Bridge Plug	PVC plug - 8 in. diameter borehole	7	1	1.00	EA	\$79.19	\$79.19
BG-5	Portland cement grout - 4 in. (labor, equip, materials)	4	1645	1,645.00	LF	\$4.68	\$7,698.60
DS-5 (BG-9)	Portland cement grout - 4 in. (labor, equip, materials)	4	1902	1,902.00	LF	\$4.68	\$8,901.36
BG-6	Portland cement grout - 4 in. (labor, equip, materials)	4	1639	1,639.00	LF	\$4.68	\$7,670.52
WSW-2	Portland cement grout - 8 in. (labor, equip, materials)	7	1460	1,460.00	LF	\$5.95	\$8,687.00
DVPW-1(A)	Portland cement grout - 6 in. (labor, equip, materials)	6.4	1900	1,900.00	LF	\$5.33	\$10,127.00
DVPW-1(A) Bridge Plug	PVC plug - 6 in. diameter borehole	6.4	1	1.00	EA	\$57.81	\$57.81
DVPW-1(B)	Portland cement grout - 6 in. (labor, equip, materials)	6.4	1900	1,900.00	LF	\$5.33	\$10,127.00
DVPW-1(B) Bridge Plug	PVC plug - 6 in. diameter borehole	6.4	1	1.00	EA	\$57.81	\$57.81
10H-IV	Portland cement grout - 8 in. (labor, equip, materials)	7	1950	1,950.00	LF	\$5.95	\$11,602.50
13H-I	Portland cement grout - 8 in. (labor, equip, materials)	8	2335	2,335.00	LF	\$5.95	\$13,893.25

	in. (labor, equip, materials)						
13H-RI-E (13H-R)	Portland cement grout - 8 in. (labor, equip, materials)	7	2100	2,100.00	LF	\$5.95	\$12,495.00
13H-RI-E Bridge Plug	PVC plug - 8 in. diameter borehole	7	1	1.00	EA	\$79.19	\$79.19
8H-1	Portland cement grout - 8 in. (labor, equip, materials)	7	2110	2,110.00	LF	\$5.95	\$12,554.50
8H-R	Portland cement grout - 8 in. (labor, equip, materials)	7	2110	2,110.00	LF	\$5.95	\$12,554.50
14H-I	Portland cement grout - 8 in. (labor, equip, materials)	7	2050	2,050.00	LF	\$5.95	\$12,197.50
14H-I Bridge Plug	PVC plug - 8 in. diameter borehole	7	1	1.00	EA	\$79.19	\$79.19
14H-RI-E (14H-R)	Portland cement grout - 8 in. (labor, equip, materials)	7	2110	2,110.00	LF	\$5.95	\$12,554.50
14H-RI-E Bridge Plug	PVC plug - 8 in. diameter borehole	7	1	1.00	EA	\$79.19	\$79.19
WSW-3	Portland cement grout - 8 in. (labor, equip, materials)	7	1420	1,420.00	LF	\$5.95	\$8,449.00
WSW-4	Portland cement grout - 8 in. (labor, equip, materials)	7	1431	1,431.00	LF	\$5.95	\$8,514.45
DS-8 (I, Phase 1)	Portland cement grout - 4 in. (labor, equip, materials)	4	1882	1,882.00	LF	\$4.68	\$8,807.76
AG-1 (J, Phase 1)	Portland cement grout - 4 in. (labor, equip, materials)	4	1487	1,487.00	LF	\$4.68	\$6,959.16
BG-7 (K, Phase 1)	Portland cement grout - 4 in. (labor, equip, materials)	4	1593	1,593.00	LF	\$4.68	\$7,455.24
DS-9 (M, Phase 1)	Portland cement grout - 4 in. (labor, equip, materials)	4	1917	1,917.00	LF	\$4.68	\$8,971.56
DS-7	Portland cement grout - 4 in. (labor, equip, materials)	4	1897	1,897.00	LF	\$4.68	\$8,877.96
O-GWM-A (O, Phase 2)	Portland cement grout - 8 in. (labor, equip, materials)	7	1294	1,294.00	LF	\$5.95	\$7,699.30
DS-6	Portland cement grout - 4 in. (labor, equip, materials)	4	1882	1,882.00	LF	\$4.68	\$8,807.76
IRI-9	Portland cement grout - 4 in. (labor, equip, materials)	4	1710	1,710.00	LF	\$4.68	\$8,002.80
IRI-11	Portland cement grout - 4 in. (labor, equip, materials)	4	1550	1,550.00	LF	\$4.68	\$7,254.00
15H-I	Portland cement grout - 6 in. (labor, equip,	6.4	1960	1,960.00	LF	\$5.33	\$10,446.80

	materials)						
15H-1 Bridge Plug	PVC plug - 6 in. diameter borehole	6.4	1	1.00	EA	\$57.81	\$57.81
15H-RI (15H-R)	Portland cement grout - 6 in. (labor, equip, materials)	6.4	1960	1,960.00	LF	\$5.33	\$10,446.80
15H-RI Bridge Plug	PVC plug - 6 in. diameter borehole	6.4	1	1.00	EA	\$57.81	\$57.81
16H-I	Portland cement grout - 6 in. (labor, equip, materials)	6.4	1960	1,960.00	LF	\$5.33	\$10,446.80
16H-I Bridge Plug	PVC plug - 6 in. diameter borehole	6.4	1	1.00	EA	\$57.81	\$57.81
16H-R	Portland cement grout - 8 in. (labor, equip, materials)	8.9	1960	1,960.00	LF	\$5.95	\$11,662.00
16H-R Bridge Plug	PVC plug - 8 in. diameter borehole	8.9	1	1.00	EA	\$79.19	\$79.19
17H-I	Portland cement grout - 6 in. (labor, equip, materials)	6.4	1960	1,960.00	LF	\$5.33	\$10,446.80
17H-I Bridge Plug	PVC plug - 6 in. diameter borehole	6.4	1	1.00	EA	\$57.81	\$57.81
17H-R (17R-I)	Portland cement grout - 10 in. (labor, equip, materials)	9	2000	2,000.00	LF	\$6.80	\$13,600.00
17H-R Bridge Plug	PVC plug - 10 in. diameter borehole	9	1	1.00	EA	\$108.49	\$108.49
12H-IR	Portland cement grout - 10 in. (labor, equip, materials)	9	2100	2,100.00	LF	\$6.80	\$14,280.00
12H-IRBridge Plug	PVC plug - 10 in. diameter borehole	9	1	1.00	EA	\$108.49	\$108.49
13H-IR	Portland cement grout - 10 in. (labor, equip, materials)	9	2100	2,100.00	LF	\$6.80	\$14,280.00
13H-IR Bridge Plug	PVC plug - 10 in. diameter borehole	9	1	1.00	EA	\$108.49	\$108.49
15H-SSMW	Portland cement grout - 4 in. (labor, equip, materials)	4	1760	1,760.00	LF	\$4.68	\$8,236.80
17H-SSMW	Portland cement grout - 4 in. (labor, equip, materials)	4	1720	1,720.00	LF	\$4.68	\$8,049.60
DS-10	Portland cement grout - 4 in. (labor, equip, materials)	4	1882	1,882.00	LF	\$4.68	\$8,807.76
14H-1V	Portland cement grout - 8 in. (labor, equip, materials)	8.9	2130	2,130.00	LF	\$5.95	\$12,673.50
14H-1V Bridge Plug	PVC plug - 8 in. diameter borehole	8.9	1	1.00	EA	\$79.19	\$79.19

Job Hours: 580.00Total Cost: \$530,432.00

BULLDOZER WORKTask description: **Regrade Process Ponds**Site: **Nahcolite Project** Permit Action: **TR-42** Permit/Job#: **M1983194****PROJECT IDENTIFICATION**

Task #: **03A** State: **Colorado** Abbreviation: **None**
 Date: **5/7/2019** County: **Rio Blanco** Filename: **M194-03a**
 User: **ACY**

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

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

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: **\$208.49**
 Total Fleet Cost/Hour: **\$416.99**

MATERIAL QUANTITIES

Initial Volume: **66,147**
 Swell factor: **1.115**
 Loose volume: **73,754 LCY**

Source of estimated volume: **TR-42**
 Source of estimated swell factor: **Cat Handbook**

HOURLY PRODUCTION

Average push distance: **175 feet**
 Unadjusted hourly production: **562.2 LCY/hr**

Materials consistency description: **Compacted fill or embankment 0.9**

Average push gradient: **0 %**
 Average site altitude: **6,600 feet**

Material weight: **2,100 lbs/LCY**Weight description: **Earth - Loam****Job Condition Correction Factor**

		<u>Source</u>
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:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4908

Adjusted unit production: 275.93 LCY/hr

Adjusted fleet production: **551.86** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$0.756/LCY

Total job time: **133.65** Hours

Total job cost: **\$55,729**

BULLDOZER RIPPING WORK

Task description: Decompact Process Pond

Site: Nahcolite Project Permit Action: TR-42 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #: 03B State: Colorado Abbreviation: None
Date: 5/15/2019 County: Rio Blanco Filename: M194-03b
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

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

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper Ownership Cost/Hour:	\$8.93	NA
Ripper Operating Cost/Hour:	\$7.78	100
Operator Cost/Hour:	\$41.52	NA
Total Unit Cost/Hour:	\$225.20	
Total Fleet Cost/Hour:	\$450.40	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 8.00 acres Rip Depth (ft): 2.00 Volume: 25,813 BCY or CCY

Source of estimated quantity: TR-42

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 2.56 feet/pass
Average Ripping Width: 7.08 feet/pass
Average Ripping Length: 100.00 feet/pass
Average Dozer Speed: 88.00 feet/minute
Average Maneuver Time: 0.25 minutes/pass
Production per unit area: 0.703 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.703 Acres/hr
Site Altitude: 6,600 feet
Altitude Adj: 1.00 (CAT HB)
Job Efficiency: 0.83 (1 shift/day)
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.58 Acres/hr
Adjusted Hourly Fleet Production: 1.17 Acres/hr

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: 6.85 Hours

Unit cost: \$385.719 Per acre Total job cost: \$3,086

BULLDOZER WORKTask description: **Topsoil Process Pond**Site: **Nahcolite Project**Permit Action: **TR-42**Permit/Job#: **M1983194****PROJECT IDENTIFICATION**Task #: **03C**State: **Colorado**Abbreviation: **None**Date: **5/15/2019**County: **Rio Blanco**Filename: **M194-03c**User: **ACY**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D8T - 8SU**Horsepower: **310**Blade Type: **Semi-Universal**Attachment: **NA**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: **\$208.49**Total Fleet Cost/Hour: **\$416.99****MATERIAL QUANTITIES**Initial Volume: **15,327**Swell factor: **1.000**Loose volume: **15,327 LCY**Source of estimated volume: **19 ac @ 6" depth**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **150 feet**Unadjusted hourly production: **634.3 LCY/hr**Materials consistency description: **Loose stockpile 1.2**Average push gradient: **0 %**Average site altitude: **6,600 feet**Material weight: **1,600 lbs/LCY**Weight description: **Top Soil****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(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:	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: \$0.383/LCY

Total job time: **14.06** Hours

Total job cost: **\$5,863**

REVEGETATION WORKTask description: **Reveg Process Pond**Site: **Nahcolite Project**Permit Action: TR-42Permit/Job#: M1983194**PROJECT IDENTIFICATION**Task #: 03DState: ColoradoAbbreviation: NoneDate: 5/15/2019County: Rio BlancoFilename: M194-03dUser: ACYAgency 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)	\$193.60
Total Tilling Cost/Acre	\$299.89

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.10	3.90	\$2.90
Crested Wheatgrass - Ephraim	4.00	18.37	\$15.00
Blue Wildrye - Arlington or Elkton	1.50	5.17	\$9.99
Russian Wildrye - Bozoiisky	1.50	6.03	\$9.72
Hard Fescue - Discovery	1.00	12.97	\$3.80
Pubescent Wheatgrass - Luna	1.50	3.10	\$6.26
Yellow Sweet Clover - Madrid	0.50	2.98	\$1.45
Tall Wheatgrass - Jose	1.80	3.26	\$4.46
Thickspike Wheatgrass - Critana	4.30	15.20	\$25.24

Sweetvetch, Utah or Northern	0.10	0.05	\$7.68
Western Wheatgrass - Barton	1.50	3.79	\$11.66
Yarrow, Western	0.20	12.16	\$8.56
Totals Seed Mix	18.00	86.97	\$106.71

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
Herbicide - 2,4D @ 1.0 pt/ac	2.00	ACRE	\$2.81	\$5.61
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$288.00	\$576.00
Total Mulch Materials Cost/Acre				\$581.61

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$68.78
Power mulcher (MEANS 32 91 13.16 0350)	\$92.78
Weed spray, truck, non-aquatic area, nox. [DMG]	\$73.22
Total Mulch Application Cost/Acre	\$234.78

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
 Estimated Failure Rate: 30%
 *Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Cost /Acre: \$1,454.99

Cost /Acre*: \$1,454.99

Initial Job Cost: **\$27,644.81**
 Reseeding Job Cost: **\$8,293.44**
 Total Job Cost: **\$35,938**
 Job Hours: **28.50**

BULLDOZER WORKTask description: **Regrade Plant Area**Site: **Nahcolite Project**Permit Action: **TR-42**Permit/Job#: **M1983194****PROJECT IDENTIFICATION**Task #: **04A**State: **Colorado**Abbreviation: **None**Date: **5/7/2019**County: **Rio Blanco**Filename: **M194-04a**User: **ACY**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D8T - 8SU**Horsepower: **310**Blade Type: **Semi-Universal**Attachment: **NA**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: **\$208.49**Total Fleet Cost/Hour: **\$416.99****MATERIAL QUANTITIES**Initial Volume: **13,229**Swell factor: **1.115**Loose volume: **14,750 LCY**Source of estimated volume: **TR-2 8.2 ac @ 12"**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: **0 %**Average site altitude: **6,600 feet**Material weight: **2,100 lbs/LCY**Weight description: **Earth - Loam****Job Condition Correction Factor**

		<u>Source</u>
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:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4908

Adjusted unit production: 311.31 LCY/hr

Adjusted fleet production: **622.62** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$0.670/LCY

Total job time: **23.69** Hours

Total job cost: **\$9,879**

BULLDOZER RIPPING WORK

Task description: Decompact Plant Area

Site: Nahcolite Project Permit Action: TR-42 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #: 04B State: Colorado Abbreviation: None
Date: 5/15/2019 County: Rio Blanco Filename: M194-04b
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

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

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$93.62</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$73.35</u>	<u>100</u>
Ripper Ownership Cost/Hour:	<u>\$8.93</u>	<u>NA</u>
Ripper Operating Cost/Hour:	<u>\$7.78</u>	<u>100</u>
Operator Cost/Hour:	<u>\$41.52</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$225.20</u>	
Total Fleet Cost/Hour:	<u>\$450.40</u>	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 8.20 acres Rip Depth (ft): 2.00 Volume: 26,459 BCY or CCY

Source of estimated quantity: TR-42

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth:	<u>2.56</u>	<u>feet/pass</u>
Average Ripping Width:	<u>7.08</u>	<u>feet/pass</u>
Average Ripping Length:	<u>100.00</u>	<u>feet/pass</u>
Average Dozer Speed:	<u>88.00</u>	<u>feet/minute</u>
Average Maneuver Time:	<u>0.25</u>	<u>minutes/pass</u>
Production per unit area:	<u>0.703</u>	<u>acres/hour</u>

Job Condition Correction Factors

Unadjusted Hourly Unit Production:	<u>0.703</u>	<u>Acres/hr</u>
Site Altitude:	<u>6,600</u>	<u>feet</u>
Altitude Adj:	<u>1.00</u>	<u>(CAT HB)</u>
Job Efficiency:	<u>0.83</u>	<u>(1 shift/day)</u>
Net Correction:	<u>0.83</u>	<u>multiplier</u>

Adjusted Hourly Unit Production: 0.58 Acres/hr
Adjusted Hourly Fleet Production: 1.17 Acres/hr

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: 7.02 Hours

Unit cost: \$385.719 Per acre Total job cost: \$3,163

BULLDOZER WORKTask description: Topsoil Plant AreaSite: Nahcolite ProjectPermit Action: TR-42Permit/Job#: M1983194**PROJECT IDENTIFICATION**Task #: 04CState: ColoradoAbbreviation: NoneDate: 5/15/2019County: Rio BlancoFilename: M194-04cUser: ACYAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D8T - 8SUHorsepower: 310Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: \$208.49Total Fleet Cost/Hour: **\$416.99****MATERIAL QUANTITIES**Initial Volume: 6,615Swell factor: 1.000Loose volume: **6,615** LCYSource of estimated volume: 8.2 ac @ 6" depthSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 150 feetUnadjusted hourly production: 634.3 LCY/hrMaterials consistency description: Loose stockpile 1.2Average push gradient: 0 %Average site altitude: 6,600 feetMaterial weight: 1,600 lbs/LCYWeight description: Top Soil**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(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:	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: \$0.383/LCY

Total job time: **6.07** Hours

Total job cost: **\$2,530**

REVEGETATION WORKTask description: Reveg Plant AreaSite: Nahcolite ProjectPermit Action: TR-42Permit/Job#: M1983194**PROJECT IDENTIFICATION**Task #: 04DState: ColoradoAbbreviation: NoneDate: 5/15/2019County: Rio BlancoFilename: M194-04dUser: ACYAgency 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)	\$193.60
Total Tilling Cost/Acre	\$299.89

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.10	3.90	\$2.90
Crested Wheatgrass - Ephraim	4.00	18.37	\$15.00
Blue Wildrye - Arlington or Elkton	1.50	5.17	\$9.99
Russian Wildrye - Bozoiisky	1.50	6.03	\$9.72
Hard Fescue - Discovery	1.00	12.97	\$3.80
Pubescent Wheatgrass - Luna	1.50	3.10	\$6.26
Yellow Sweet Clover - Madrid	0.50	2.98	\$1.45
Tall Wheatgrass - Jose	1.80	3.26	\$4.46
Thickspike Wheatgrass - Critana	4.30	15.20	\$25.24

Sweetvetch, Utah or Northern	0.10	0.05	\$7.68
Western Wheatgrass - Barton	1.50	3.79	\$11.66
Yarrow, Western	0.20	12.16	\$8.56
Totals Seed Mix	18.00	86.97	\$106.71

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
Herbicide - 2,4D @ 1.0 pt/ac	2.00	ACRE	\$2.81	\$5.61
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$288.00	\$576.00
Total Mulch Materials Cost/Acre				\$581.61

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$68.78
Power mulcher (MEANS 32 91 13.16 0350)	\$92.78
Weed spray, truck, non-aquatic area, nox. [DMG]	\$73.22
Total Mulch Application Cost/Acre	\$234.78

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: 30%
 *Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Cost /Acre: \$1,454.99

Cost /Acre*: \$1,454.99

Initial Job Cost: **\$11,930.92**
 Reseeding Job Cost: **\$3,579.28**
 Total Job Cost: **\$15,510**
 Job Hours: **12.30**

BULLDOZER WORKTask description: **Regrade Well Pads**Site: **Nahcolite Project**Permit Action: **TR-42**Permit/Job#: **M1983194****PROJECT IDENTIFICATION**Task #: **05A**State: **Colorado**Abbreviation: **None**Date: **5/7/2019**County: **Rio Blanco**Filename: **M194-05a**User: **ACY**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D8T - 8SU**Horsepower: **310**Blade Type: **Semi-Universal**Attachment: **NA**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: **\$208.49**Total Fleet Cost/Hour: **\$416.99****MATERIAL QUANTITIES**Initial Volume: **126,098**Swell factor: **1.115**Loose volume: **140,599 LCY**Source of estimated volume: **39.08 ac of pads grade 24" depth**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: **Compacted fill or embankment 0.9**Average push gradient: **0 %**Average site altitude: **6,600 feet**Material weight: **2,100 lbs/LCY**Weight description: **Earth - Loam****Job Condition Correction Factor**

		<u>Source</u>
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:	1.095	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4908

Adjusted unit production: 499.19 LCY/hr

Adjusted fleet production: **998.38** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$0.418/LCY

Total job time: **140.83** Hours

Total job cost: **\$58,723**

BULLDOZER WORKTask description: Topsoil Well PadsSite: Nahcolite ProjectPermit Action: TR-42Permit/Job#: M1983194**PROJECT IDENTIFICATION**Task #: 05BState: ColoradoAbbreviation: NoneDate: 5/15/2019County: Rio BlancoFilename: M194-05bUser: ACYAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D8T - 8SUHorsepower: 310Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: \$208.49Total Fleet Cost/Hour: \$416.99**MATERIAL QUANTITIES**Initial Volume: 31,524Swell factor: 1.000Loose volume: 31,524 LCYSource of estimated volume: 39.08 ac @ 6" depthSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 150 feetUnadjusted hourly production: 634.3 LCY/hrMaterials consistency description: Loose stockpile 1.2Average push gradient: 0 %Average site altitude: 6,600 feetMaterial weight: 1,600 lbs/LCYWeight description: Top Soil**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(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:	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: \$0.383/LCY

Total job time: **28.92** Hours

Total job cost: **\$12,059**

REVEGETATION WORKTask description: Reveg Well PadsSite: Nahcolite ProjectPermit Action: TR-42Permit/Job#: M1983194**PROJECT IDENTIFICATION**Task #: 05CState: ColoradoAbbreviation: NoneDate: 5/15/2019County: Rio BlancoFilename: M194-05cUser: ACYAgency 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)	\$193.60
Total Tilling Cost/Acre	\$299.89

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.10	3.90	\$2.90
Crested Wheatgrass - Ephraim	4.00	18.37	\$15.00
Blue Wildrye - Arlington or Elkton	1.50	5.17	\$9.99
Russian Wildrye - Bozoiisky	1.50	6.03	\$9.72
Hard Fescue - Discovery	1.00	12.97	\$3.80
Pubescent Wheatgrass - Luna	1.50	3.10	\$6.26
Yellow Sweet Clover - Madrid	0.50	2.98	\$1.45
Tall Wheatgrass - Jose	1.80	3.26	\$4.46
Thickspike Wheatgrass - Critana	4.30	15.20	\$25.24

Sweetvetch, Utah or Northern	0.10	0.05	\$7.68
Western Wheatgrass - Barton	1.50	3.79	\$11.66
Yarrow, Western	0.20	12.16	\$8.56
Totals Seed Mix	18.00	86.97	\$106.71

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
Herbicide - 2,4D @ 1.0 pt/ac	2.00	ACRE	\$2.81	\$5.61
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$288.00	\$576.00
Total Mulch Materials Cost/Acre				\$581.61

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$68.78
Power mulcher (MEANS 32 91 13.16 0350)	\$92.78
Weed spray, truck, non-aquatic area, nox. [DMG]	\$73.22
Total Mulch Application Cost/Acre	\$234.78

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: 39.08
 Estimated Failure Rate: 30%
 *Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Cost /Acre: \$1,454.99

Cost /Acre*: \$1,454.99

Initial Job Cost: **\$56,861.01**
 Reseeding Job Cost: **\$17,058.30**
 Total Job Cost: **\$73,919**
 Job Hours: **58.62**

BULLDOZER RIPPING WORK

Task description: Decompact Roads

Site: Nahcolite Project Permit Action: TR-42 Permit/Job#: M1983194

PROJECT IDENTIFICATION

Task #: 06A State: Colorado Abbreviation: None
Date: 5/15/2019 County: Rio Blanco Filename: M194-06a
User: ACY

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

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

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$93.62</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$73.35</u>	<u>100</u>
Ripper Ownership Cost/Hour:	<u>\$8.93</u>	<u>NA</u>
Ripper Operating Cost/Hour:	<u>\$7.78</u>	<u>100</u>
Operator Cost/Hour:	<u>\$41.52</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$225.20</u>	
Total Fleet Cost/Hour:	<u>\$450.40</u>	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 6.16 acres Rip Depth (ft): 2.00 Volume: 19,876 BCY or CCY

Source of estimated quantity: TR-42

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 2.56 feet/pass
Average Ripping Width: 7.08 feet/pass
Average Ripping Length: 150.00 feet/pass
Average Dozer Speed: 88.00 feet/minute
Average Maneuver Time: 0.25 minutes/pass
Production per unit area: 0.748 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.748 Acres/hr
Site Altitude: 6,600 feet
Altitude Adj: 1.00 (CAT HB)
Job Efficiency: 0.83 (1 shift/day)
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.62 Acres/hr
Adjusted Hourly Fleet Production: 1.24 Acres/hr

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: 4.96 Hours

Unit cost: \$362.534 Per acre Total job cost: \$2,233

BULLDOZER WORKTask description: Topsoil roadsSite: Nahcolite ProjectPermit Action: TR-42Permit/Job#: M1983194**PROJECT IDENTIFICATION**Task #: 06BState: ColoradoAbbreviation: NoneDate: 5/15/2019County: Rio BlancoFilename: M194-06bUser: ACYAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D8T - 8SUHorsepower: 310Blade Type: Semi-UniversalAttachment: NAShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$93.62	NA
Operating Cost/Hour:	\$73.35	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.52	NA

Total unit Cost/Hour: \$208.49Total Fleet Cost/Hour: **\$416.99****MATERIAL QUANTITIES**Initial Volume: 4,969Swell factor: 1.000Loose volume: **4,969** LCYSource of estimated volume: 6.16 ac @ 6" depthSource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 150 feetUnadjusted hourly production: 634.3 LCY/hrMaterials consistency description: Loose stockpile 1.2Average push gradient: 0 %Average site altitude: 6,600 feetMaterial weight: 1,600 lbs/LCYWeight description: Top Soil**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(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:	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: \$0.383/LCY

Total job time: **4.56** Hours

Total job cost: **\$1,901**

REVEGETATION WORKTask description: Reveg RoadsSite: Nahcolite ProjectPermit Action: TR-42Permit/Job#: M1983194PROJECT IDENTIFICATIONTask #: 06CState: ColoradoAbbreviation: NoneDate: 5/15/2019County: Rio BlancoFilename: M194-06cUser: ACYAgency or organization name: DRMSFERTILIZING**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)	\$193.60
Total Tilling Cost/Acre	\$299.89

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.10	3.90	\$2.90
Crested Wheatgrass - Ephraim	4.00	18.37	\$15.00
Blue Wildrye - Arlington or Elkton	1.50	5.17	\$9.99
Russian Wildrye - Bozoiisky	1.50	6.03	\$9.72
Hard Fescue - Discovery	1.00	12.97	\$3.80
Pubescent Wheatgrass - Luna	1.50	3.10	\$6.26
Yellow Sweet Clover - Madrid	0.50	2.98	\$1.45
Tall Wheatgrass - Jose	1.80	3.26	\$4.46
Thickspike Wheatgrass - Critana	4.30	15.20	\$25.24

Sweetvetch, Utah or Northern	0.10	0.05	\$7.68
Western Wheatgrass - Barton	1.50	3.79	\$11.66
Yarrow, Western	0.20	12.16	\$8.56
Totals Seed Mix	18.00	86.97	\$106.71

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
Herbicide - 2,4D @ 1.0 pt/ac	2.00	ACRE	\$2.81	\$5.61
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$288.00	\$576.00
Total Mulch Materials Cost/Acre				\$581.61

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$68.78
Power mulcher (MEANS 32 91 13.16 0350)	\$92.78
Weed spray, truck, non-aquatic area, nox. [DMG]	\$73.22
Total Mulch Application Cost/Acre	\$234.78

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: 6.16
 Estimated Failure Rate: 30%
 *Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: **\$8,962.74**
 Reseeding Job Cost: **\$2,688.82**
 Total Job Cost: **\$11,652**
 Job Hours: **9.24**

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Initial Mobilization**Site: **Nahcolite Project**Permit Action: **TR-42**Permit/Job#: **M1983194****PROJECT IDENTIFICATION**

Task #: **12A** State: **Colorado** Abbreviation: **None**
 Date: **5/7/2019** County: **Rio Blanco** Filename: **M194-12a**
 User: **ACY**

Agency or organization name: **DRMS****EQUIPMENT TRANSPORT RIG COST**

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

Truck Tractor Description: **GENERIC ON-HIGHWAY TRUCK TRACTOR, 6X4, DIESEL POWERED, 400 HP (2ND HALF, 2006)**Truck Trailer Description: **GENERIC FOLDING GOOSENECK, DROP DECK EQUIPMENT TRAILER (25T, 50T, AND 100T)****Cost Breakdown:**

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

NON ROADABLE EQUIPMENT:

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Cat D8T - 8SU	53.08	\$102.55	\$125.45	2	\$456.00	\$250.90	\$500.00
Drill/Broadcast Seeder with Tractor	25.00	\$15.54	\$88.67	1	\$104.21	\$88.67	\$250.00
Power Mulcher (Bowie LD-90)	6.00	\$8.33	\$88.67	1	\$97.00	\$88.67	\$250.00
Grove RT650E, 105', 45.4 MT	28.74	\$49.93	\$117.55	1	\$167.48	\$117.55	\$250.00
Broderson IC-200-2F, 45', 13.6MT	8.68	\$15.37	\$88.67	1	\$104.04	\$88.67	\$250.00
Cat 345D L 12'-10" Stick	54.31	\$66.64	\$125.45	1	\$192.09	\$125.45	\$250.00
CAT 973D	29.07	\$63.94	\$117.55	1	\$181.49	\$117.55	\$250.00

Subtotals: **\$1,302.31** **\$877.46** **\$2,000.00**

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.	\$67.83	1	\$67.83	\$67.83
Generic 12-18 cy, 6x4	\$97.40	3	\$292.20	\$292.20

Subtotals:

\$360.03	\$360.03
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EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region: RIFLE
 Total one-way travel distance: 60.00 miles
 Average Travel Speed: 40.00 mph

Total Non-Roadable Mob/Demob Cost * \$13,143.93
 * two round trips with haul rig:
 Total Roadable Mob/Demob Cost ** \$1,080.09
 ** one round trip, no haul rig:

Transportation Cycle Time:

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

JOB TIME AND COST

Total job time: 8.00 Hours

Total job cost: \$14,224

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Secondary Mobilization**Site: **Nahcolite Project**Permit Action: **TR-42**Permit/Job#: **M1983194****PROJECT IDENTIFICATION**Task #: **12B**State: **Colorado**Abbreviation: **None**Date: **5/7/2019**County: **Rio Blanco**Filename: **M194-12b**User: **ACY**Agency or organization name: **DRMS****EQUIPMENT TRANSPORT RIG COST**Shift basis: **1 per day**Cost Data Source: **CRG Data**Truck Tractor Description: **GENERIC ON-HIGHWAY TRUCK TRACTOR, 6X4, DIESEL POWERED,
400 HP (2ND HALF, 2006)**Truck Trailer Description: **GENERIC FOLDING GOOSENECK, DROP DECK EQUIPMENT
TRAILER (25T, 50T, AND 100T)****Cost Breakdown:**

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

NON ROADABLE EQUIPMENT:

Machine Description	Weight/ Unit (TONS)	Owner ship Cost/hr/ unit	Haul Rig Cost/hr/unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet	DOT Permit Cost/ fleet
Drill/Broadcast Seeder with Tractor	25.00	\$15.54	\$88.67	1	\$104.21	\$88.67	\$250.00
Power Mulcher (Bowie LD-90)	6.00	\$8.33	\$88.67	1	\$97.00	\$88.67	\$250.00
Subtotals:					\$201.21	\$177.34	\$500.00

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.	\$67.83	1	\$67.83	\$67.83
Subtotals:			\$67.83	\$67.83

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	<u>RIFLE</u>	
Total one-way travel distance:	<u>60.00</u>	miles
Average Travel Speed:	<u>40.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$2,538.07</u>
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 '* two round trips with haul rig:

Total Roadable Mob/Demob Cost **	<u>\$203.49</u>
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 ** one round trip, no haul rig:

Transportation Cycle Time:

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

JOB TIME AND COST

Total job time:	<u>8.00</u>	Hours
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Total job cost:	<u>\$2,742</u>
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determination that desired plant species are established and fertilizer is necessary to meet ROD vegetative production or species mixture goals.

8.3.3. Well Field and Plant Decommissioning

Production and monitoring wells associated with the well field will be plugged and capped in accordance with procedures described herein and permit stipulations. In some cases only the lower portion of the well casings will be cemented in place during operations, therefore the casings can be cut off at the top of the cement column and reused in other wells. All abandoned wells will be filled with cement and other acceptable plugging materials from the bottom of the hole to the surface per Section 6.6.7 Well Abandonment.

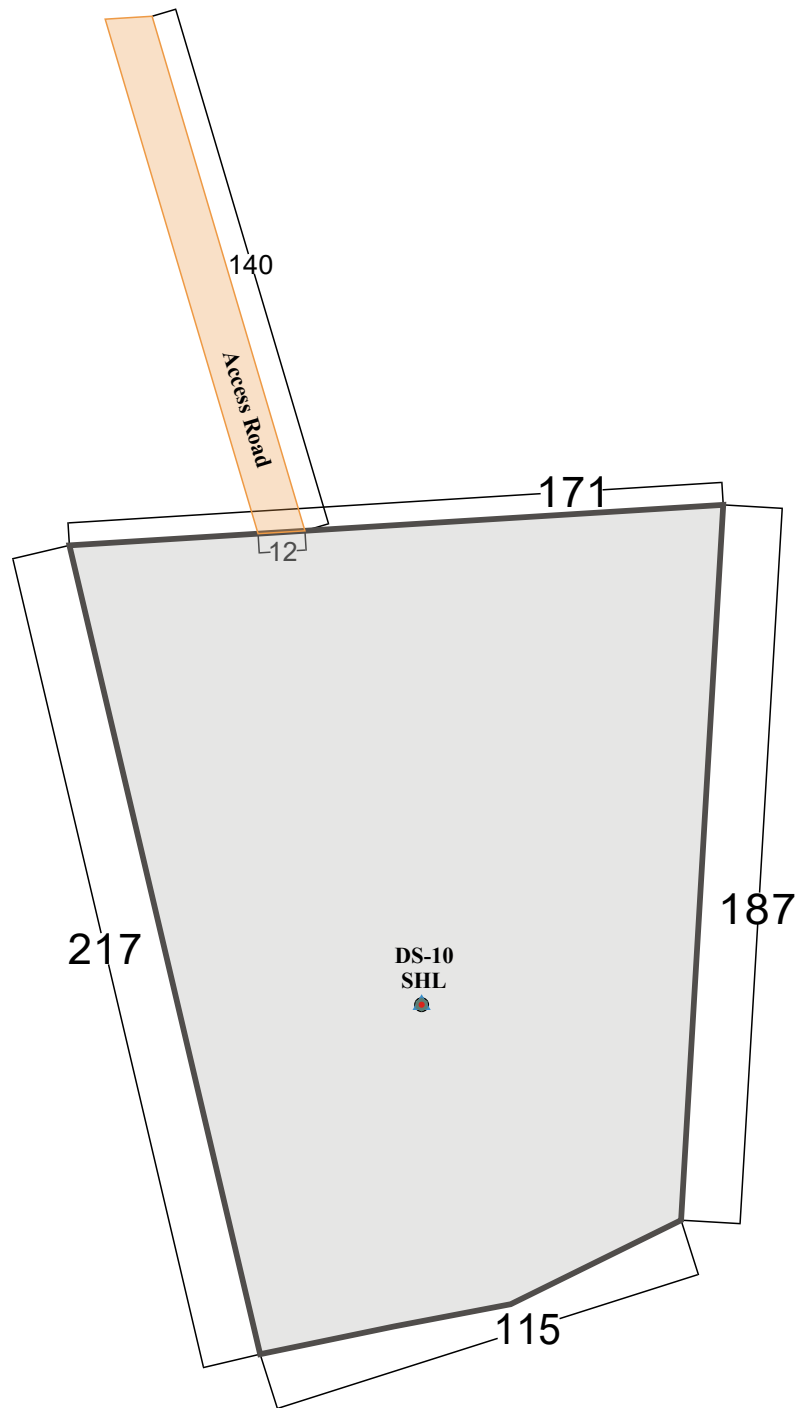
At the completion of commercial mining operations, all surface facilities will be dismantled. Areas previously occupied by these facilities, and any remaining areas associated with the well field, will be reclaimed and revegetated according to procedures described in this section.

Surface facilities include the process plant building, product storage and load-out facility, roads, parking lots, pipelines, power lines, retention ponds, and the evaporation pond. These facilities will be dismantled and either salvaged or removed for disposal. Concrete foundations and road pavement will be broken up and buried on-site minimum of three feet below final grade. Salts remaining in the evaporation pond will be removed from the pond and disposed of either in a mined-out cavity or at an approved off-site disposal location. The evaporation pond liner will be removed and disposed of at an approved off-site landfill. The natural gas and water pipelines will be disconnected and purged; they will be left in place because these areas will have already been reclaimed and revegetated.

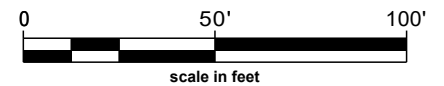
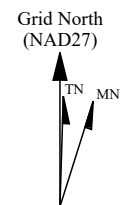
8.4. Reclamation Schedule³

During the operational phase of the mine, NS will conduct on-going reclamation activities in order to maintain a minimal impact to the ground surface. As of 2014, all well pads have undergone reclamation to some extent. Monitoring well locations are

³ Revised December 2015



-  Subsurface Subsidence Well, Proposed
-  Well - Monitoring, Proposed
-  Well - Core, Proposed
-  Pad - Proposed
-  Road - Proposed



Natural Soda LLC
DS-10 Pad Dimensions
 Section 35, T1S, R98W
 Rio Blanco County, CO

Date: May 8, 2019

Daub & Associates, Inc.



Natural Soda LLC DRMS May 2019 - Well P&A Inventory and Data

Permit # M1983-194					
Borehole Description	Sealing/Item Method	Diameter (inch)	Length (feet)	Bridge Plug at Indicated Depth (feet)	Comments
3M-TDR	Portland cement grout	4.0	1876		
89-1	Portland cement grout	4.0	1627		
89-2	Portland cement grout	4.0	1417		
89-3	Portland cement grout	4.0	347		
90-1	Portland cement grout	8.9	1417		
90-3	Portland cement grout	4.0	1627		
90-4	Portland cement grout	4.0	1417		
BG-1	Portland cement grout	4.0	1627		
BG-4	Portland cement grout	4.0	1627		
DS-2	Portland cement grout	4.0	1876		
DS-3	Portland cement grout	4.0	1876		
EX-2	Portland cement grout	4.0	1876		
IRI-1	Portland cement grout	4.0	347		
IRI-4	Portland cement grout	4.0	1417		
IRI-5	Portland cement grout	4.1	347		
IRI-6	Portland cement grout	4.0	1627		
IRI-7	Portland cement grout	4.0	1876		
IRI-8	Portland cement grout	4.0	347		
12H-I	Portland cement grout	7.0	2100	2100	
12H-R	Portland cement grout	7.0	2100	2010	
10H-I	Portland cement grout	7.0	1935	1935	
10H-R	Portland cement grout	7.0	1935	1935	
BG-5	Portland cement grout	4.0	1645		
DS-5	Portland cement grout	4.0	1902		DRMS should change name to BG-9 (DS-5)
BG-6	Portland cement grout	4.0	1639		
WSW-2	Portland cement grout	7.0	1460		
DVPW-1(A)	Portland cement grout	6.4	1900	1900	
DVPW-1(B)	Portland cement grout	6.4	1900	1900	
10H-IV	Portland cement grout	7.0	1950		
13H-I	Portland cement grout	8.0	2335		P&A process is ongoing, to be completed by 5/24/19
13H-R	Portland cement grout	7.0	2100	2100	DRMS should change name to 13H-RI-E
8H-I	Portland cement grout	7.0	2110		P&A process is ongoing, to be completed by 5/24/19
8H-R	Portland cement grout	7.0	2110		P&A process is ongoing, to be completed by 5/24/19
14H-I	Portland cement grout	7.0	2050	2050	
14H-R	Portland cement grout	7.0	2110	2110	DRMS should change name to 14H-RI-E
WSW-3	Portland cement grout	7.0	1420		
WSW-4	Portland cement grout	7.0	1431		
I (Phase 1)	Portland cement grout	4.0	1882		DRMS should change name to DS-8
J (Phase 1)	Portland cement grout	4.0	1487		DRMS should change name to AG-1
K(Phase 1)	Portland cement grout	4.0	1593		DRMS should change name to BG-7
M (Phase 1)	Portland cement grout	4.0	1917		DRMS should change name to DS-9
DS-7	Portland cement grout	4.0	1897		
O (Phase 2)	Portland cement grout	7.0	1294		DRMS should change name to O-GMW-A
DS-6	Portland cement grout	4.0	1882		
IRI-9	Portland cement grout	4.0	1710		
IRI-11	Portland cement grout	4.0	1550		
15H-I	Portland cement grout	6.4	1960	1960	
15H-R	Portland cement grout	6.4	1960	1960	DRMS should change name to 15H-RI
16H-I	Portland cement grout	6.4	1960	1960	
16H-R	Portland cement grout	8.9	1960	1960	
17H-I	Portland cement grout	6.4	1960	1960	
17H-R	Portland cement grout	9.0	2000	2000	DRMS should change name from 17R-I to 17H-R
401H-I	Portland cement grout	6.4	2094		NS will not drill this well (similar to 9H and 2014 RDP wells, see Travis M. for additional details)
401H-R	Portland cement grout	8.8	2094		NS will not drill this well (similar to 9H and 2014 RDP wells, see Travis M. for additional details)
402H-I	Portland cement grout	6.4	2097		NS will not drill this well (similar to 9H and 2014 RDP wells, see Travis M. for additional details)
402H-R	Portland cement grout	8.8	2097		NS will not drill this well (similar to 9H and 2014 RDP wells, see Travis M. for additional details)
403H-I	Portland cement grout	6.4	2095		NS will not drill this well (similar to 9H and 2014 RDP wells, see Travis M. for additional details)
403H-R	Portland cement grout	8.8	2095		NS will not drill this well (similar to 9H and 2014 RDP wells, see Travis M. for additional details)
12H-IR	Portland cement grout	9.0	2100	2010	
13H-IR	Portland cement grout	9.0	2100	2010	
15H-SSMW	Portland cement grout	4.0	1760		
17H-SSMW	Portland cement grout	4.0	1720		
DS-10	Portland cement grout	4.0	1882		
14H-1V	Portland cement grout	8.9	2130	2130	

Natural Soda, LLC
Well Pad & Road Acreage

WELL PADS												ROADS								
DISTURBED			UNDERGOING INTERIM RECLAMATION			UNDERGOING FINAL RECLAMATION			SUCCESSFULLY RECLAIMED (meets ROD goals)			DISTURBED			UNDERGOING INTERIM RECLAMATION			UNDERGOING FINAL RECLAMATION		
Description	Area, ft²	Acres	Description	Area, ft²	Acres	Description	Area, ft²	Acres	Description	Area, ft²	Acres	Description	Area, ft²	Acres	Description	Area, ft²	Acres	Description	Area, ft²	Acres
8H/3A-4H (2013)	88,287	2.03	2M-TDR, 3M-TDR	5,554	0.13	A (May 2016, Good Response)	24,345	0.56	1A-4HI (2013)	68,443	1.57	RD A	23,690	0.5	RD D	1,044	0.02	RD A rdp	928	0.02
5H	98,187	2.25	89-1	14,961	0.34	C (Aug 2015, Good Response)	28,725	0.66	1A-5HR (13,14,15)	68,443	1.57	RD B	45,832	1.1	RD G	8,168	0.19	RD E rdp	10,649	0.24
7H	76,787	1.76	90-1	38,490	0.88	D (Aug 2015, Good Response)	27,853	0.64	3A-5V (13,14,15)	68,443	1.57	RD C	18,711	0.4	RD H	6,168	0.14	RD G rdp	1,050	0.02
7H-1V	47,028	1.08	90-2	18,509	0.42	E (May 2016, Good Response)	25,379	0.58	4-3H(V) (2013)	39,927	0.92	RD E	778	0.0	RD I	1,528	0.04	RD H-C rdp	10,103	0.23
10H-13H	290,596	6.67	90-5H	8,791	0.20	G (May 2016, Good Response)	26,321	0.60	4-2V & 93-3V (13,14,15)	131,882	3.0	RD F	900	0.0	RD I rdp (DS-8)	1,476	0.03	RD H rdp	11,542	0.26
14H	98,457	2.26	94-1M	56,433	1.30	H (Aug 2015, Good Response)	28,880	0.66	91-1V (2013,14,15)	8,746	0.2	RD K	1,808	0.0	RD J	578	0.01	RD N-C rdp	10,196	0.23
88-1V	19,714	0.45	BG-4	20,343	0.47	N (Aug 2015, Good Response)	29,639	0.68	4A-5M, 4A-6V (13,14,15 chk w/ BLM)	26,122	0.60	RD 14H	421	0.0	RD M rdp (DS-9)	7,799	0.18	RD P rdp	4,607	0.11
15H-17H	207,133	4.76	BG-5 (see RR 2015 rept)	38,668	0.89	P (May 2016, Good Response)	24,581	0.56	91-2H (2017)	88,994	2.0	RD 15-17	13,252	0.3	RD M-K rdp (DS-9/BG-7)	8,651	0.20	RD Q rdp	30,284	0.70
12H-13H-IR (1-3A, 2B-3C)	74,053	1.7	BG-6 (see RR 2015 rept)	25,439	0.58	Q (May 2016, Good Response)	24,786	0.57	4A-1V (2018, 11yrs of rec)	57,885	1.3	RD 15H-SSMW	1,464	0.0	RD O rdp	11,436	0.26	RD U-T rdp	27,602	0.63
DS-10 2019 proposed	66,211	1.5	DS-2	6,659	0.15	R (May 2016, Good Response)	26,013	0.60			0.00			0.0	RD DS-6 rdp	453	0.01			0.0
14H-1V 2019 proposed	56,628	1.3	DS-3	6,524	0.15	T (May 2016, Good Response)	31,010	0.71			0.0			0.0	WSW-3 pipeline	21,521	0.49			0.0
		0.0	DS-5 (see RR 2015 rept)	29,973	0.69	U (May 2016, Good Response)	25,075	0.58			0.0			0.0	WSW-4 pipeline	53,675	1.23			0.0
		0.0	DS-6 (Aug 2015, Good Response)	25,160	0.58	MW-1, PW-1, PW-2 (RR to ck 07 or 08 2016)	24,278	0.56			0.0			0.0	RD WSW-3 rdp	2,405	0.06			0.0
		0.0	DS-7, 2A-2V (Aug 2015, Fair Response)	38,045	0.87	IRI-3 (P&A 2015, RR to ck 07 or 08 2016)	6,872	0.16			0.0			0.0	RD WSW-4 rdp	344	0.01			0.0
		0.0	I (DS-8) (Aug 2015, Good Response)	26,732	0.61	BG-8 (DS-4) P&A 2017, 2018 1st grow yr	45,021	1.03			0.0			0.0	RD 17H-SSMW	4,354	0.10			0.0
		0.0	K (BG-7) (Aug 2015, Good Response)	27,870	0.64	5H-1V (2012 & 2014)	35,862	0.82			0.0			0.0			0.00			0.0
		0.0	M (DS-9) (Aug 2015, Good Response)	29,224	0.67	93-2M (2011 & 2013)	12,505	0.29			0.0			0.0			0			0.0
		0.0	WSW-2	30,389	0.70			0.0			0.0			0.0			0			0.0
		0.0	WSW-3 (May 2016, Good Response)	32,647	0.75			0.0			0.0			0.0			0			0.0
		0.0	WSW-4 (Aug 2015, Good Response)	32,789	0.75			0.0			0.0			0.0			0			0.0
		0.0	WSW-5 (O-GMW-A) (Aug 2015, Good Response)	28,854	0.66			0.0			0.0			0.0			0			0.0
		0.0	15H-SSMW	24,594	0.56			0.0			0.0			0.0			0			0.0
		0.0	17H-SSMW Pad	12,791	0.3			0.0			0.0			0.0			0			0.0
		0.0			0.0			0.0			0.0			0.0			0			0.0
		0.0			0.0			0.0			0.0			0.0			0.0			0.0
TOTAL	1,123,081	25.78	TOTAL	579,439	13.30	TOTAL	447,145	10.27	TOTAL	558,885	12.83	TOTAL	106,856	2.45	TOTAL	129,600	2.98	TOTAL	106,961	2.46
TOTAL Pad & Road ACERAGE																				
DISTURBED		70.06																		
UNDERGOING INTERIM		28.24																		
UNDERGOING FINAL		16.28																		
SUCCESSFULLY RECLAIMED		12.72																		
Pad & Road Check sum (ac)		12.83																		
		70.06																		

STATE OF
COLORADO

Yeldell - DNR, Amy <amy.yeldell@state.co.us>

RE: Natural Soda TR-42 -Response #3

1 message

Randy Dean <randy.dean@daubandassociates.com>
To: amy.yeldell@state.co.us
Cc: Gerald Daub <gjdaub@daubandassociates.com>

Wed, May 15, 2019 at 2:52 PM

Amy,

Please see our responses **inserted** into your text below.

Please contact me with any questions or comments.

Regards,

Randall G. Dean

Geologist

Daub & Associates, Inc.

970.254.1224 (O)

970.361.1964 (C)

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From: Yeldell - DNR, Amy [<mailto:amy.yeldell@state.co.us>]
Sent: Wednesday, May 15, 2019 9:50 AM
To: Daub, Gerald
Cc: Kirk Daehling; Randy Dean
Subject: Re: Natural Soda TR-42 -Response

All,

I have a few more follow up clarification questions.

01A-Demo for the power-lines the old calculation was for Double pole or "H" pole which is inaccurate. I mentioned in the field that it was difficult to tell what was NSI only power verse services that also went to other operators. BLM has indicated only the poles owned by NSI will need to be removed. James mentioned that D&A has a utility CAD file that could give me a power pole count needing to be removed. Most of what I observed appeared to be the 30-45" kind but if there are the shorter ones too that is also an input

option. *[D&A responds:]* NS is responsible for ~54 T-type power poles (~35-45' in length) and 2 or 3 T-type power poles (~50' in length).

Clarification on the Well pad spreadsheet. For interim reclamation does that acreage represent the area with seeding remaining or the total pad partially reclaimed? *[D&A responds:]* Total pad partially reclaimed. Also the total for roads on that spreadsheet is 7.89 ac while your email with acreages to be ripped indicates 6.16 ac of roads. Can you please clarify *[D&A responds:]* The well pad spreadsheet, road section columns also contain ~1.72 ac for the WSW-3&4 pipelines. We note a rounding discrepancy of 0.01 acre between the email (~6.16 ac of roads to be ripped) and the spreadsheet 6.17 acre (7.89-1.72= 6.17 acres of roads that are disturbed or undergoing interim or final reclamation).

My goal is to have a final calculation done by lunch so I can get it to BLM for final review today. *[D&A responds:]* We appreciate your efforts in expediting this as soon as possible.

--

Amy Yeldell

Environmental Protection Specialist

Minerals Program, Grand Junction Field Office



P 970.254.8511 Ext:8183 | F 970.241.1516

101 S. 3rd St., Suite 301, Grand Junction, CO 81501

amy.yeldell@state.co.us | www.mining.state.co.us

On Thu, May 9, 2019 at 5:16 PM Daub, Gerald <gjdaub@daubandassociates.com> wrote:

Amy:

The CIRCES document that you attached (AM-4, dated 9/7/17) indicated a total bond amount of \$4,627,490.29. The AM-4 CIRCES document contained flaws which were previously discussed with the DRMS. These flaws were partially addressed in the DRMS correspondence dated 10/30/17 (see attached) which provided an updated cost estimate for AM-4. The 10/30/17 correspondence indicated a currently held bond amount of \$4,158,340.68 and was accompanied by a partial CIRCES document which included a calculated total bond amount of \$3,950,444.75. Although a complete CIRCES document was requested for our review, none was received.

Additionally, the DRMS TR-41 approval letter (dated 8/2/18, see attached) indicated that the currently held reclamation bond amount of \$4,158,340.68 was more than adequate to bond for the additional reclamation associated with TR-41. An updated CIRCES document was not included with the TR-41 approval letter. Although an updated CIRCES document was requested, we have not received that document. Please forward the updated CIRCES document associated with TR-41 at your earliest convenience.

Please see our additional response comments inserted into your original email below.

With a long and busy field season already upon us, we greatly appreciate your efforts to expedite the TR-42 approval process. I look forward to receiving the TR-42 approval soon.

Please contact me if you have any questions or comments.

From: Yeldell - DNR, Amy [mailto:amy.yeldell@state.co.us]

Sent: Wednesday, May 08, 2019 10:58 AM

To: Kirk Daehling; Daub, Gerald; Randy Dean

Cc: Travis Marshall

Subject: Natural Soda TR-42

Jerry,

I have received and process your TR-42 request. Attached is the completeness letter.

I did have a few questions for the bond calc that I felt would be more expedient to address via email. I've attached the AM-4 bond calc for reference since this is largely updating that previous calculation.

1. For the DS-10 Well pad you list ~1.5 ac affected with a polygon around the well pad. That acreage does not appear to include the additional disturbance to build the access road. Can you please include a diagram for the road with the associated acreages like you have on past TR's *[D&A responds:]* Please see attached diagram. The DS-10 road will disturb 1,680 sq ft (0.04 ac).
2. For task 01a can you please verify the pipeline length and quantity type on site. I know some of the 12" pipeline has been removed but I do not have an exact length to know how much to remove or if any still remains on site. If any other structures have been removed or added please note those as well.

[D&A responds:] Active Pipeline: 27,300'

- Two 16" pipelines from the plant to the south @ 4,800': 9,600'
- One 12" pipeline from the plant to the east @ 5,300: 5,300'
- Two 8" pipelines from the plant to the east @ 5,300: 10,600'
- 100' of 6" carbon steel connection pipeline from each operating wellhead to the pipelines totaling 1,800' of connection pipe:
 1. 8H well pair = 200'
 2. 10H well pair = 200'
 3. 12H well pair = 200'
 4. 13H well pair = 200'
 5. 14H well pair = 200'
 6. 15H well pair = 200'
 7. 16H well pair = 200'
 8. 17H well pair = 200'
 9. 12H-IR = 100'
 10. 13H-IR = 100'
- Inactive Pipeline: 7,950' (88-1V, 11H well pairs, 5H, 6H, 7H-2I, 7H-1R and 7H-1V).

3. For task 02a can you please send me an updated table of all open wells you have, including the diameter, length, and bridge plug placement dept if applicable. Please include the two proposed wells under this TR as well on your list but no other unapproved wells. Note that I got clarification for our bonding guy and the cement materials listed on our bond calc does not include the bridge

plug so I will be adding them in for each applicable well. Also if a well has previously gone under a different name please list all aliases. *[D&A responds:] See attached spreadsheet.*

4. For tasks 03a, 04a, 05a I do not have source of these volumes to be graded. *[D&A responds:] Cumulatively, the TR-1 through TR-42 submission documents and the resultant DRMS CIRCES documents are the source for these volumes. Can you please give me an acreage and depth type calculation that results in XX amount of CY to be graded. [D&A responds:] The historic DRMS CIRCES and TR's are the best sources for that data. For the well pads and access roads a list for each pad would be most helpful so that we can add and subtract them as needed and its easier to keep track of them. [D&A responds:] See attached spreadsheet. The acreages you provide I will use for topsoil application in tasks 06a-08a.*

5. Task 10a, I cannot find where the 27.7 ac comes from. Nearly all of the affected lands will be compacted to some effect but through grading some areas may not required ripping. Please provide the acreage requiring decomposition.

[D&A responds:] We understand that the area surrounding the plant and the roads will require decompaction (ripping). The regrading/recontouring of well pads, pond, and other areas will eliminate the need to separately decompact/rip.

D&A calculated 22.36 (not 27.7) acres will require ripping of compacted soils:

- Area surrounding the pond: 8 acres
- Plant area: 8.2 acres
- Road areas: 6.16 acres

It is D&A's position that the DRMS should reduce the Task 10A volume of topsoil from 22,297 LCY to 18,037 LCY.

6. 11a acreage will be the sum of all lands with topsoil being applied. Right now its 90.5, that should go up to account for TR-40 thru TR-42 well pads. *[D&A responds:] Please note that frequently, Natural Soda (NS) chooses to reutilize a previously disturbed and currently bonded area, in which case additional bonding would only be needed for any actual new disturbance. The DS-10 (1.5 ac) and 14H-1V (1.3 ac) will increase NS's total disturbed area to 93.3 acres. Again the running list of pads will help keep track of this total as the project progresses. Your annual report indicates that some pads have been initially seeded, you can note that separately and I can run a new task for just the failure of those pads. [D&A responds:] We will review your proposed modifications.*

7. Mobilization, previously the equipment required for demo of plant style buildings was not included. this will be added to this calculation. As will a secondary mobilization of seeding equipment to account for vegetation failure. *[D&A responds:] We will review your proposed modifications.*

Hopefully all of this makes sense. I'll be driving to Denver later today and at a confrere all day tomorrow so email is probably the best bet. My phone is on call forwarding if you would prefer. I'll be back in the office on Friday. My hope is to have a solid draft ready by the inspection.

Thanks

Amy Yeldell

Environmental Protection Specialist

Minerals Program, Grand Junction Field Office



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101 S. 3rd St., Suite 301, Grand Junction, CO 81501

amy.yeldell@state.co.us | www.mining.state.co.us

Regards,
Jerry

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