

COST SUMMARY WORK

Task description: Cost Summary

Site: Two Rivers Sand, Gravel and
Reservoir Project

Permit Action: TR-1

Permit/Job#: M2022013

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 9/16/2024 County: Weld Filename: 000
User: JPL

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
01A	Dewater pit - initial pumping	PUMPING	1	423.90	\$41,661
01B	Dewater pit - continual pumping	PUMPING	1	122.39	\$12,029
02A	Grade slope under liner	DOZER	2	13.03	\$8,900
02B	Haul liner material to pit area	TRUCK1	1	128.20	\$71,183
02C	Mix material for liner	DOZER	2	13.73	\$9,284
02D	Compact liner	COMPACT	2	15.96	\$8,169
03A	Haul subsoil to grade over liner	TRUCK1	1	558.56	\$288,416
03B	Grade subsoil over liner	DOZER	2	148.48	\$100,254
03C	Haul topsoil to pit area	TRUCK1	1	8.09	\$4,178
03D	Spread topsoil on pond bank	DOZER	2	1.91	\$1,288
03E	Seed banks of pond	REVEGE	1	9.00	\$10,854
04A	Process Area Decommissioning	DEMOLISH	1	175.00	\$14,440
05A	Rip processing area, wash pond area	RIPPER	2	19.47	\$13,462
05C	Haul topsoil to process and wash pond areas	TRUCK1	1	50.15	\$25,895
05D	Spread topsoil on process and wash pond areas	DOZER	2	7.87	\$5,312
05E	Seed processing area and wash pond area	REVEGE	1	22.00	\$53,842
06	Mobilization and Demob.	MOBILIZE	1	0.50	\$4,143
<u>SUBTOTALS:</u>				1718.24	\$673,310

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	\$13,601
Performance bond:	1.05	Total =	\$7,070
Job superintendent:	858.87	Total =	\$68,083
Profit:	10.00	Total =	\$67,331
		TOTAL O & P =	\$156,084
		CONTRACT AMOUNT (direct + O & P) =	\$829,394

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	\$500	Total =	\$500
Engineering work and/or contract/bid preparation:	6.00	Total =	\$49,764
Reclamation management and/or administration:	4.50		\$37,323
CONTINGENCY:		Total =	\$0

TOTAL INDIRECT COST = \$243,671

TOTAL BOND AMOUNT (direct + indirect) = \$916,981

PUMPING WORK

Task description: Dewater pit - initial pumping

Site: Two Rivers Sand, Gravel and Reservoir Project

Permit Action:

TR-1

Permit/Job#: M2022013

PROJECT IDENTIFICATION

Task #: 01A
Date: 9/16/2024
User: JPL

State: Colorado
County: Weld

Abbreviation: None
Filename: M013-01A

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

	Description	Quantity
Make and Model:	Submersible pump - 460v, 8 in.	5
Attachment 1:	Suction hose - 6 in. diam., 25 ft.	5
Attachment 2:	Discharge hose - 6 in. D., 25 ft.	5
Labor Unit 1:	Pump operator	1
Horsepower:	95	
Shift Basis:	1 per day	
Weight:	0.70	
	(US Tons)	

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$49.45	NA
Operating Cost/Hour:	\$20.60	100
Operator Cost/Hour:	\$28.23	NA
Total Unit Cost/Hour:	\$98.28	
Total Fleet Cost/Hour:	\$98.28	

PUMPING QUANTITIES

Initial Pond Volume:	434,529,979.00		Conversion factor:	1.0000
Final Pond Volume:	434,529,979.00	gallons		
Total Pond Inflow Surface Area:	300,000	Sq. ft.	Unit inflow rate in gph/sq. ft.:	0.0000
Total Pond Inflow Volume per Hour:	0.00	gallons		

Source of estimated volume: Exh L, page 6

PUMPING TIME

Maximum Pump Capacity:	170,000	gph/pump
Estimated Suction Head:	0	feet
Estimated Discharge Head:	15	feet
Total Head:	15	feet
CPB Pump Capacity:	168,000	gph/pump
Site Altitude:	4,680	feet
Adjusted Pumping Capacity:	840,000	gph
Initial Unadjusted Pumping Time:	517.30	hours
Inflow during Initial Pumping:	0	gallons
Net Unadjusted Pumping Time:	517.30	Hours
Altitude Adjustment Factor:	1.0000	(3% rule)
Pump Efficiency Factor:	0.9167	(55 min./hr.)
Total Adjusted Pumping Time:	474.21	hours

JOB TIME AND COST

Total job time: 474.21 Hours

Unit cost: \$0.000107 /Gallon

Total job cost: \$46,605

PUMPING WORK

Task description: Dewater pit - continual pumping

Site: Two Rivers Sand, Gravel and Reservoir Project

Permit Action:

TR-1

Permit/Job#: M2022013

PROJECT IDENTIFICATION

Task #: 01B
Date: 9/16/2024
User: JPL

State: Colorado
County: Weld

Abbreviation: None
Filename: M013-01B

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

	Description	Quantity
Make and Model:	Submersible pump - 460v, 8 in.	5
Attachment 1:	Suction hose - 6 in. diam., 25 ft.	5
Attachment 2:	Discharge hose - 6 in. D., 25 ft.	5
Labor Unit 1:	Pump operator	1
Horsepower:	<u>95</u>	
Shift Basis:	<u>1 per day</u>	
Weight:	<u>0.70</u>	
	(US Tons)	

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$49.45</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$20.60</u>	<u>100</u>
Operator Cost/Hour:	<u>\$28.23</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$98.28</u>	
Total Fleet Cost/Hour:	<u>\$98.28</u>	

PUMPING QUANTITIES

Initial Pond Volume:	<u>112,151,304.00</u>		Conversion factor:	<u>1.0000</u>
Final Pond Volume:	<u>112,151,304.00</u>	gallons		
Total Pond Inflow Surface Area:	<u>300,000</u>	Sq. ft.	Unit inflow rate in gph/sq. ft.:	<u>0.0000</u>
Total Pond Inflow Volume per Hour:	<u>0.00</u>	gallons		

Source of estimated volume: Exh L, page 6

PUMPING TIME

Maximum Pump Capacity:	<u>170,000</u>	gph/pump
Estimated Suction Head:	<u>0</u>	feet
Estimated Discharge Head:	<u>15</u>	feet
Total Head:	<u>15</u>	feet
CPB Pump Capacity:	<u>168,000</u>	gph/pump
Site Altitude:	<u>4,680</u>	feet
Adjusted Pumping Capacity:	<u>840,000</u>	gph
Initial Unadjusted Pumping Time:	<u>133.51</u>	hours
Inflow during Initial Pumping:	<u>0</u>	gallons
Net Unadjusted Pumping Time:	<u>133.51</u>	Hours
Altitude Adjustment Factor:	<u>1.0000</u>	(3% rule)
Pump Efficiency Factor:	<u>0.9167</u>	(55 min./hr.)
Total Adjusted Pumping Time:	<u>122.39</u>	hours

JOB TIME AND COST

Total job time: 122.39 Hours

Unit cost: \$0.000107 /Gallon

Total job cost: \$12,029

BULLDOZER WORKTask description: **Grade slope under liner**Site: **Two Rivers Sand, Gravel and
Reservoir Project**Permit Action: **TR-1**Permit/Job#: **M2022013****PROJECT IDENTIFICATION**Task #: **02A**
Date: **9/17/2024**
User: **JPL**State: **Colorado**
County: **Weld**Abbreviation: **None**
Filename: **M013-02A**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D8T - 8SU**
Horsepower: **310**
Blade Type: **Semi-Universal**
Attachment: **3-shank ripper**
Shift Basis: **1 per day**
Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$173.32	NA
Operating Cost/Hour:	\$109.71	100
Ripper own. Cost/Hour:	\$14.53	NA
Ripper op. Cost/Hour:	\$3.98	50
Operator Cost/Hour:	\$40.04	NA
Total unit Cost/Hour:	\$341.57	
Total Fleet Cost/Hour:	\$683.14	

MATERIAL QUANTITIESInitial Volume: **14,502**
Swell factor: **1.215**
Loose volume: **17,620 LCY**Source of estimated volume: **Calc from 6,176 lf, 63.4' length, 1' deep. pg 10 Ex L**
Source of estimated swell
factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **50 feet**
Unadjusted hourly
production: **1,400.0 LCY/hr**Materials consistency description: **Partly consolidated stockpile 1.1**Average push
gradient: **20 %**
Average site altitude: **4,680 feet**Material weight: **1,600 lbs/LCY**Weight description: **Top Soil****Job Condition Correction Factor****Source**

Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	0.545	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4830

Adjusted unit
production: 676.20 LCY/hr
Adjusted fleet
production: **1352.4 LCY/hr**

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: \$0.505/LCY

Total job time: **13.03 Hours**
Total job cost: **\$8,900**

TRUCK/LOADER TEAM WORKTask description: Haul liner material to pit areaSite: Two Rivers Sand, Gravel and
Reservoir ProjectPermit Action: TR-1Permit/Job#: M2022013PROJECT IDENTIFICATIONTask #: 02B
Date: 9/17/2024
User: JPLState: Colorado
County: WeldAbbreviation: None
Filename: M013-02BAgency or organization name: DRMSHOURLY EQUIPMENT COSTShift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 12-18 cy, 6x4
-Loader:	CAT 966H high lift
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 120M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	75	NA	NA	25	25
Ownership cost/hour:	\$27.14	\$57.78	NA	NA	\$52.82	\$11.65
Operating cost/hour:	\$62.81	\$34.69	NA	NA	\$10.94	\$5.61
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	NA	NA	\$0.00	\$0.00
Operator cost/hour:	\$24.82	\$56.64	NA	NA	\$56.70	\$0.00
Unit Subtotals:	\$114.77	\$149.10	NA	NA	\$120.46	\$17.26
Number of Units:	2	1	0	0	1	1
Group Subtotals:	Work: \$378.64		Support: \$0.00		Maint: \$137.72	

Total work team cost/hour: \$516.36MATERIAL QUANTITIESInitial volume: 61,706 CCY Swell factor: 1.000
Loose volume: 61,706 LCYSource of estimated volume: Ex L Page 10-11
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: \$0.00
Total Cost: \$0.00HOURLY PRODUCTIONTruck Capacity:Truck Payload (weight) Basis:Material weight: 1,600 Pounds/LCY
Description: Top Soil

Rated Payload:	<u>50,300</u>	Pounds
Payload Capacity:	<u>31.44</u>	LCY

Truck Bed (volume) Basis:

Struck Volume:	<u>12.00</u>	LCY
Heaped Volume:	<u>18.00</u>	LCY
Average Volume:	<u>15.00</u>	LCY
Adjusted Volume:	<u>18.00</u>	LCY

Final Truck Volume Based on Number of Loader Passes: 15.75 LCY**Loading Tool Capacity**

		Bucket Size Class: <u>NA</u>
Rated Capacity:	<u>5.000</u>	LCY (heaped)
Bucket Fill Factor:	<u>1.050</u>	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	<u>5.250</u>	LCY

Job Condition Corrections:Site Altitude (ft.): 4680 feet

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

Loading Tool Cycle Time:Number of Loading Tool Passes Required to Fill
Truck: 3 passes**Excavators and Front Shovels:**

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA
 Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

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

Cycle Time Factors		Factor (min.)	Source
Material:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Stockpile:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Truck Ownership:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Operation:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Dump Target:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		0.000	minutes
Adjusted Loader Cycle Time:		0.500	minutes
Net Load Time per Truck:		1.100	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.50</u>	Minutes	Adjusted for site altitude:	<u>0.500</u>	Minutes
Truck Load Time:	<u>1.100</u>	Minutes	Adjusted for site altitude:	<u>1.100</u>	Minutes
Truck Maneuver and Dump Time:	<u>0.90</u>	Minutes	Adjusted for site altitude:	<u>0.900</u>	Minutes

Truck Travel (Haul & Return) Time:
maintained 3.0

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

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	800.00	0.00	3.00	3.00	2824	0.445

Haul Time: **0.445** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	800.00	0.00	3.00	3.00	2874	0.314

Return Time: **0.314** minutesTotal Truck Cycle Time: **3.259** minutes

Loading Tool unit

Production 590.63 LCY/Hour Adjusted for job efficiency: 490.22 LCY/Hour
Truck Unit Production 289.97 LCY/Hour Adjusted for job efficiency: 240.67 LCY/Hour

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

Adjusted hourly truck team production: 481.34 LCY/Hour
Adjusted single truck/loader team production: 481.34 LCY/Hour
Adjusted multiple truck/loader team production: **481.34** LCY/Hour

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: **128.20** HoursUnit cost: \$1.073 /LCY Total job cost: **\$66,195**

BULLDOZER WORKTask description: **Mix material for liner**Site: **Two Rivers Sand, Gravel and
Reservoir Project**Permit Action:
TR-1

Permit/Job#: M2022013

PROJECT IDENTIFICATIONTask #: 02C
Date: 9/17/2024
User: JPLState: Colorado
County: WeldAbbreviation: None
Filename: M013-02C

Agency or organization name: DRMS

HOURLY EQUIPMENT COSTBasic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$173.32	NA
Operating Cost/Hour:	\$109.71	100
Ripper own. Cost/Hour:	\$14.53	NA
Ripper op. Cost/Hour:	\$0.40	5
Operator Cost/Hour:	\$40.04	NA
Total unit Cost/Hour:	\$337.99	
Total Fleet Cost/Hour:	\$675.99	

MATERIAL QUANTITIESInitial Volume: 30,853
Swell factor: 1.215
Loose volume: **37,486 LCY**Source of estimated volume: Assumed half the volume of liner material Ex L pg 11
Source of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 50 feet
Unadjusted hourly
production: 1,400.0 LCY/hr

Materials consistency description: Partly consolidated stockpile 1.1

Average push gradient: 0 %
Average site altitude: 4,680 feet

Material weight: 1,600 lbs/LCY

Weight description: Top Soil

Job Condition Correction FactorSource

Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.9748

Adjusted unit
production: 1,364.72 LCY/hr
Adjusted fleet
production: **2729.44** LCY/hr

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: \$0.248/LCY

Total job time: **13.73** Hours
Total job cost: **\$9,284**

COMPACTION WORK

Task description: Compact liner

Site: Two Rivers Sand, Gravel and Reservoir Project

Permit Action:

TR-1

Permit/Job#: M2022013

PROJECT IDENTIFICATION

Task #: 02D State: Colorado Abbreviation: None
Date: 9/17/2024 County: Weld Filename: M013-02D
User: JPL

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 815F Horsepower: 240
Compactor Type: Soil - tamping foot Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$107.16</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$117.19</u>	<u>100</u>
Operator Cost/Hour:	<u>\$31.50</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$255.85</u>	
Total Fleet Cost/Hour:	<u>\$511.71</u>	

MATERIAL QUANTITIES

Loose volume: 61,706 LCY Shrinkage factor: 0.910
Compacted volume: 56,152 CCY
Source of estimated volume: Same as hauled quantity. ExL pg11
Source of estimated shrinkage factor: Cat Handbook

HOURLY PRODUCTION

Unadjusted hourly production = $(W \times S \times L \times C) / P$

Compacted width per pass (W): 6.50 feet
Average Compactor Speed (S): 8.00 mph
Compacted thickness of each lift (L): 10.00 inches
Conversion Constant (C): 16.3 (5,280ft./12in./27cu.ft.)
Required number of machine passes (P): 4 passes
Unadjusted Hourly Unit Production: 2,119.00 CCY/hour

Job Condition Correction Factors

Site Altitude: 4,680 feet

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

Adjusted Hourly Unit Production: 1,758.77 CCY/Hour
Adjusted Hourly Fleet Production: 3,517.54 CCY/Hour

JOB TIME AND COST

Fleet size: 2 Compactor(s) Total job time: 15.96 Hours
Unit cost: \$0.145 per CCY Total job cost: \$8,169

TRUCK/LOADER TEAM WORKTask description: Haul subsoil to grade over linerSite: Two Rivers Sand, Gravel and
Reservoir ProjectPermit Action: TR-1Permit/Job#: M2022013**PROJECT IDENTIFICATION**Task #: 03A
Date: 9/17/2024
User: JPLState: Colorado
County: WeldAbbreviation: None
Filename: M013-03AAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

		Equipment Description
Truck Loader Team -Truck:		Generic 12-18 cy, 6x4
-Loader:		CAT 966H high lift
Support Equipment -Load Area:		NA
-Dump Area:		NA
Road Maintenance -Motor Grader:		CAT 120M
-Water Truck:		Water Tanker, 2,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	75	NA	NA	25	25
Ownership cost/hour:	\$27.14	\$57.78	NA	NA	\$52.82	\$11.65
Operating cost/hour:	\$62.81	\$34.69	NA	NA	\$10.94	\$5.61
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	NA	NA	\$0.00	\$0.00
Operator cost/hour:	\$24.82	\$56.64	NA	NA	\$56.70	\$0.00
Unit Subtotals:	\$114.77	\$149.10	NA	NA	\$120.46	\$17.26
Number of Units:	2	1	0	0	1	1
Group Subtotals:	Work: \$378.64		Support: \$0.00		Maint: \$137.72	

Total work team cost/hour: \$516.36**MATERIAL QUANTITIES**Initial volume: 273,815 CCY Swell factor: 1.000
Loose volume: 273,815 LCYSource of estimated volume: Ex L Pg 9, total for both slopes 273815
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: \$0.00
Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:**Truck Payload (weight) Basis:Material weight: 1,600 Pounds/LCY
Description: Top Soil

Rated Payload:	<u>50,300</u>	Pounds
Payload Capacity:	<u>31.44</u>	LCY

Truck Bed (volume) Basis:

Struck Volume:	<u>12.00</u>	LCY
Heaped Volume:	<u>18.00</u>	LCY
Average Volume:	<u>15.00</u>	LCY
Adjusted Volume:	<u>18.00</u>	LCY

Final Truck Volume Based on Number of Loader Passes: 15.75 LCY**Loading Tool Capacity**

		Bucket Size Class: <u>NA</u>
Rated Capacity:	<u>5.000</u>	LCY (heaped)
Bucket Fill Factor:	<u>1.050</u>	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	<u>5.250</u>	LCY

Job Condition Corrections:Site Altitude (ft.): 4680 feet

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

Loading Tool Cycle Time:Number of Loading Tool Passes Required to Fill
Truck: 3 passes**Excavators and Front Shovels:**

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA
 Track Loaders – Material Description: _____

Cycle Time Elements (min.):Load: NA Maneuver: NA Dump: 0.100Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Stockpile:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Truck Ownership:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Operation:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Dump Target:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		0.000	minutes
Adjusted Loader Cycle Time:		0.500	minutes
Net Load Time per Truck:		1.100	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.50</u>	Minutes	Adjusted for site altitude:	<u>0.500</u>	Minutes
Truck Load Time:	<u>1.100</u>	Minutes	Adjusted for site altitude:	<u>1.100</u>	Minutes
Truck Maneuver and Dump Time:	<u>0.90</u>	Minutes	Adjusted for site altitude:	<u>0.900</u>	Minutes

Truck Travel (Haul & Return) Time:
maintained 3.0

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

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	600.00	0.00	3.00	3.00	2824	0.374

Haul Time: **0.374** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	600.00	0.00	3.00	3.00	2874	0.244

Return Time: **0.244** minutesTotal Truck Cycle Time: **3.118** minutes

Loading Tool unit

Production 590.63 LCY/Hour Adjusted for job efficiency: 490.22 LCY/Hour
 Truck Unit Production 303.08 LCY/Hour Adjusted for job efficiency: 251.56 LCY/Hour

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

Adjusted hourly truck team production: 503.11 LCY/Hour
 Adjusted single truck/loader team production: 490.22 LCY/Hour
 Adjusted multiple truck/loader team production: **490.22** LCY/Hour

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: **558.56** HoursUnit cost: \$1.053 /LCY Total job cost: **\$288,416**

BULLDOZER WORKTask description: **Grade subsoil over liner**Site: **Two Rivers Sand, Gravel and
Reservoir Project**Permit Action: **TR-1**Permit/Job#: **M2022013****PROJECT IDENTIFICATION**Task #: **03B**
Date: **9/17/2024**
User: **JPL**State: **Colorado**
County: **Weld**Abbreviation: **None**
Filename: **M013-03B**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D8T - 8SU**
Horsepower: **310**
Blade Type: **Semi-Universal**
Attachment: **3-shank ripper**
Shift Basis: **1 per day**
Data Source: **(CRG)****Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	\$173.32	NA
Operating Cost/Hour:	\$109.71	100
Ripper own. Cost/Hour:	\$14.53	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$40.04	NA
Total unit Cost/Hour:	\$337.60	
Total Fleet Cost/Hour:	\$675.19	

MATERIAL QUANTITIESInitial Volume: **273,815**
Swell factor: **1.215**
Loose volume: **332,685 LCY**Source of estimated volume: **Ex L pg 9**
Source of estimated swell
factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **50 feet**
Unadjusted hourly
production: **1,400.0 LCY/hr**Materials consistency description: **Partly consolidated stockpile 1.1**Average push
gradient: **5 %**
Average site altitude: **4,680 feet**Material weight: **1,600 lbs/LCY**Weight description: **Top Soil****Job Condition Correction Factor****Source**

Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	0.903	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8002

Adjusted unit production: 1,120.28 LCY/hr

Adjusted fleet production: **2240.56 LCY/hr**

JOB TIME AND COST

Fleet size: 2 Dozer(s)

Unit cost: \$0.301/LCY

Total job time: **148.48 Hours**

Total job cost: **\$100,254**

TRUCK/LOADER TEAM WORKTask description: Haul topsoil to pit areaSite: Two Rivers Sand, Gravel and
Reservoir ProjectPermit Action: TR-1Permit/Job#: M2022013**PROJECT IDENTIFICATION**Task #: 03C
Date: 9/17/2024
User: JPLState: Colorado
County: WeldAbbreviation: None
Filename: M013-03CAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 12-18 cy, 6x4
-Loader:	CAT 966H high lift
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 120M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	75	NA	NA	25	25
Ownership cost/hour:	\$27.14	\$57.78	NA	NA	\$52.82	\$11.65
Operating cost/hour:	\$62.81	\$34.69	NA	NA	\$10.94	\$5.61
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	NA	NA	\$0.00	\$0.00
Operator cost/hour:	\$24.82	\$56.64	NA	NA	\$56.70	\$0.00
Unit Subtotals:	\$114.77	\$149.10	NA	NA	\$120.46	\$17.26
Number of Units:	2	1	0	0	1	1
Group Subtotals:	Work: \$378.64		Support: \$0.00		Maint: \$137.72	

Total work team cost/hour: \$516.36**MATERIAL QUANTITIES**Initial volume: 3,895 CCY Swell factor: 1.000
Loose volume: 3,895 LCYSource of estimated volume: 3895 ExL pg 12
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: \$0.00
Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:**Truck Payload (weight) Basis:Material weight: 1,600 Pounds/LCY
Description: Top Soil

Rated Payload:	<u>50,300</u>	Pounds
Payload Capacity:	<u>31.44</u>	LCY

Truck Bed (volume) Basis:

Struck Volume:	<u>12.00</u>	LCY
Heaped Volume:	<u>18.00</u>	LCY
Average Volume:	<u>15.00</u>	LCY
Adjusted Volume:	<u>18.00</u>	LCY

Final Truck Volume Based on Number of Loader Passes: 15.75 LCY**Loading Tool Capacity**

		Bucket Size Class: <u>NA</u>
Rated Capacity:	<u>5.000</u>	LCY (heaped)
Bucket Fill Factor:	<u>1.050</u>	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	<u>5.250</u>	LCY

Job Condition Corrections:Site Altitude (ft.): 4680 feet

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

Loading Tool Cycle Time:Number of Loading Tool Passes Required to Fill
Truck: 3 passes**Excavators and Front Shovels:**

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA
 Track Loaders – Material Description: _____

Cycle Time Elements (min.):Load: NA Maneuver: NA Dump: 0.100Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Stockpile:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Truck Ownership:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Operation:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Dump Target:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		0.000	minutes
Adjusted Loader Cycle Time:		0.500	minutes
Net Load Time per Truck:		1.100	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.50</u>	Minutes	Adjusted for site altitude:	<u>0.500</u>	Minutes
Truck Load Time:	<u>1.100</u>	Minutes	Adjusted for site altitude:	<u>1.100</u>	Minutes
Truck Maneuver and Dump Time:	<u>0.90</u>	Minutes	Adjusted for site altitude:	<u>0.900</u>	Minutes

Truck Travel (Haul & Return) Time:
maintained 3.0

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

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	800.00	0.00	3.00	3.00	2824	0.445

Haul Time: **0.445** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	800.00	0.00	3.00	3.00	2874	0.314

Return Time: **0.314** minutesTotal Truck Cycle Time: **3.259** minutes

Loading Tool unit

Production 590.63 LCY/Hour Adjusted for job efficiency: 490.22 LCY/Hour
Truck Unit Production 289.97 LCY/Hour Adjusted for job efficiency: 240.67 LCY/Hour

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

Adjusted hourly truck team production: 481.34 LCY/Hour
Adjusted single truck/loader team production: 481.34 LCY/Hour
Adjusted multiple truck/loader team production: **481.34** LCY/Hour

JOB TIME AND COSTFleet size: 1 Team(s) Total job time: **8.09** HoursUnit cost: \$1.073 /LCY Total job cost: **\$4,178**

BULLDOZER WORKTask description: Spread topsoil on pond bankSite: Two Rivers Sand, Gravel and
Reservoir ProjectPermit Action: TR-1Permit/Job#: M2022013**PROJECT IDENTIFICATION**Task #: 03DState: ColoradoAbbreviation: NoneDate: 9/17/2024County: WeldFilename: M013-03DUser: JPLAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D8T - 8SUHorsepower: 310Blade Type: Semi-UniversalAttachment: 3-shank ripperShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$173.32</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$109.71</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$14.53</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$40.04</u>	<u>NA</u>
Total unit Cost/Hour:	<u>\$337.60</u>	
Total Fleet Cost/Hour:	<u>\$675.19</u>	

MATERIAL QUANTITIESInitial Volume: 3,895Swell factor: 1.215Loose volume: 4,732 LCYSource of estimated volume: Ex L pg 12Source of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 50 feetUnadjusted hourly
production: 1,400.0 LCY/hrMaterials consistency description: Partly consolidated stockpile 1.1Average push
gradient: 0 %Average site altitude: 4,680 feetMaterial weight: 1,600 lbs/LCYWeight description: Top SoilJob Condition Correction FactorSource

Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8862

Adjusted unit
production: 1,240.68 LCY/hr
Adjusted fleet
production: **2481.36 LCY/hr**

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: \$0.272/LCY

Total job time: **1.91 Hours**
Total job cost: **\$1,288**

REVEGETATION WORKTask description: Seed banks of pondSite: Two Rivers Sand, Gravel and
Reservoir ProjectPermit Action: TR-1Permit/Job#: M2022013**PROJECT IDENTIFICATION**Task #: 03EState: ColoradoAbbreviation: NoneDate: 9/17/2024County: WeldFilename: M013-03EUser: JPLAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
10-34-0, 18-46-0, 5-10-5	200.00	pound	\$0.51	\$102.32
			Total Fertilizer Materials Cost/Acre	\$102.32

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$43.12
Total Fertilizer Application Cost/Acre	\$43.12

TILLING

Description	Cost /Acre
Chisel plowing {DMG}	\$102.41
Weed control spraying (MEANS 31 31 16.13 3100)	\$338.80
Total Tilling Cost/Acre	\$441.21

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.10	3.90	\$2.91
Blue Grama - Lovington	0.20	3.26	\$5.55
Indian Ricegrass - Paloma	1.90	6.15	\$39.01
Switchgrass - Pathfinder	0.90	8.04	\$12.11
Sand Dropseed	0.10	11.94	\$1.30
Kentucky Bluegrass - Ginger	0.10	4.94	\$0.41
Little Bluestem - Pastura	0.30	1.79	\$4.76
Sideoats Grama - Vaughn	1.80	5.91	\$44.26
Strawberry Clover (coated)	0.10	0.68	\$0.98

Smooth Brome - Manchar	0.30	1.00	\$1.57
Sheep Fescue - Covar	0.40	6.24	\$2.47
Tall Wheatgrass - Jose	1.10	1.99	\$6.32
Totals Seed Mix	7.30	55.84	\$121.66

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$236.64
Total Seed Application Cost/Acre	\$236.64

MULCHING and MISCELLANEOUS

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - Curtail @ 4.0 pt/ac	1.00	ACRE	\$36.14	\$36.14
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$492.78	\$985.56
Total Mulch Materials Cost/Acre				\$1,021.70

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$85.37
Weed spray, truck, non-aquatic area, nox. [DMG]	\$83.26
Total Mulch Application Cost/Acre	\$168.64

NURSERY STOCK PLANTING

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

JOB TIME AND COST

No. of Acres:	4.8	Cost /Acre:	\$2,135.29
Estimated Failure Rate:	25%	Cost /Acre*:	\$358.30
*Selected Replanting Work Items:	SEEDING		
Initial Job Cost:	\$10,249.39		
Reseeding Job Cost:	\$429.96		
Total Job Cost:	\$10,679		
Job Hours:	9.00		

DEMOLITION WORK

Task description: Process Area Decommissioning

Site: Two Rivers Sand, Gravel and
Reservoir Project

Permit Action: TR-1

Permit/Job#: M2022013

PROJECT IDENTIFICATION

Task #: 04A
Date: 9/17/2024
User: JPL

State: Colorado
County: Weld

Abbreviation: None
Filename: M013-04A

Agency or organization name: DRMS

UNIT COSTS

Location adjustment: 89.20 %

Structure or Item Description	Dimensions	Demolition Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Concrete pads	15x30,15x60,15x25	Demo. and on-site disposal in existing pit, 12 in. thick - Max. 10,000 ft. haul	1,725.00	SF	\$2.31	\$3,990.10
Concrete supports - truck scales	Convert 10 CY (Exh L)	Demo. and on-site disposal in existing pit, 1.5 ft. x 2 ft. - Max. 10,000 ft. haul	90.00	LF	\$6.94	\$624.53
Concrete supports - temp buildings	Convert 8 CY (Exh L)	Demo. and on-site disposal in existing pit, 1.5 ft. x 2 ft. - Max. 10,000 ft. haul	72.00	LF	\$6.94	\$499.62
Fuel tanks	6,000 gallons	Comprehensive storage tank removal, non-leaking - 6,000 to 8,000 gal. tank	2.00	EA	\$5,536.95	\$11,073.90

Job Hours: 175.00

Subtotal
(unadjusted): \$16,188.15

Total Cost
(adjusted for
location): \$14,439.83

BULLDOZER RIPPING WORK

Task description: Rip processing area, wash pond area

Site: Two Rivers Sand, Gravel and Reservoir Project

Permit Action:

TR-1

Permit/Job#: M2022013

PROJECT IDENTIFICATION

Task #: 05A

State: Colorado

Abbreviation: None

Date: 9/17/2024

County: Weld

Filename: M013-05A

User: JPL

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:	\$173.32	NA
Operating Cost/Hour:	\$109.71	100
Ripper Ownership Cost/Hour:	\$14.53	NA
Ripper Operating Cost/Hour:	\$7.95	100
Operator Cost/Hour:	\$40.04	NA
Total Unit Cost/Hour:	\$345.55	
Total Fleet Cost/Hour:	\$691.09	

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 24.20 acres Rip Depth (ft): 1.00 Volume: 39,043 BCY or CCY

Source of estimated quantity: Ex L pg 12-13

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: 4,680 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: 19.48 Hours

Unit cost: \$556.276 Per acre

Total job cost: **\$13,462**

TRUCK/LOADER TEAM WORKTask description: Haul topsoil to process and wash pond areasSite: Two Rivers Sand, Gravel and
Reservoir ProjectPermit Action: TR-1Permit/Job#: M2022013**PROJECT IDENTIFICATION**Task #: 05C
Date: 9/17/2024
User: JPLState: Colorado
County: WeldAbbreviation: None
Filename: M013-05CAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

	Equipment Description
Truck Loader Team -Truck:	Generic 12-18 cy, 6x4
-Loader:	CAT 966H high lift
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 120M
-Water Truck:	Water Tanker, 2,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Loader	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	75	NA	NA	25	25
Ownership cost/hour:	\$27.14	\$57.78	NA	NA	\$52.82	\$11.65
Operating cost/hour:	\$62.81	\$34.69	NA	NA	\$10.94	\$5.61
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	NA	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	NA	NA	\$0.00	\$0.00
Operator cost/hour:	\$24.82	\$56.64	NA	NA	\$56.70	\$0.00
Unit Subtotals:	\$114.77	\$149.10	NA	NA	\$120.46	\$17.26
Number of Units:	2	1	0	0	1	1
Group Subtotals:	Work: \$378.64		Support: \$0.00		Maint: \$137.72	

Total work team cost/hour: \$516.36**MATERIAL QUANTITIES**Initial volume: 19,521 CCY Swell factor: 1.000
Loose volume: 19,521 LCYSource of estimated volume: Area of 24.2 acres and depth of 6" ExL pg12
Source of estimated swell factor: Cat Handbook
Material Purchase Cost: \$0.00
Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:**Truck Payload (weight) Basis:Material weight: 1,600 Pounds/LCY
Description: Top Soil

Rated Payload:	<u>50,300</u>	Pounds
Payload Capacity:	<u>31.44</u>	LCY

Truck Bed (volume) Basis:

Struck Volume:	<u>12.00</u>	LCY
Heaped Volume:	<u>18.00</u>	LCY
Average Volume:	<u>15.00</u>	LCY
Adjusted Volume:	<u>18.00</u>	LCY

Final Truck Volume Based on Number of Loader Passes: 15.75 LCY**Loading Tool Capacity**

		Bucket Size Class: <u>NA</u>
Rated Capacity:	<u>5.000</u>	LCY (heaped)
Bucket Fill Factor:	<u>1.050</u>	Other - moist loam (100-110%) 1.050
Adjusted Capacity:	<u>5.250</u>	LCY

Job Condition Corrections:Site Altitude (ft.): 4680 feet

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

Loading Tool Cycle Time:Number of Loading Tool Passes Required to Fill
Truck: 3 passes**Excavators and Front Shovels:**

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA
 Track Loaders – Material Description: _____

Cycle Time Elements (min.):Load: NA Maneuver: NA Dump: 0.100Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.500 minutes

Cycle Time Factors		Factor (min.)	Source
Material:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Stockpile:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Truck Ownership:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Operation:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Dump Target:	No adjustment - factor not applicable 0.00	0.000	(Cat HB)
Net Cycle Time Adjustment:		0.000	minutes
Adjusted Loader Cycle Time:		0.500	minutes
Net Load Time per Truck:		1.100	minutes

Truck Cycle Time:

Truck Exchange Time:	<u>0.50</u>	Minutes	Adjusted for site altitude:	<u>0.500</u>	Minutes
Truck Load Time:	<u>1.100</u>	Minutes	Adjusted for site altitude:	<u>1.100</u>	Minutes
Truck Maneuver and Dump Time:	<u>0.90</u>	Minutes	Adjusted for site altitude:	<u>0.900</u>	Minutes

Truck Travel (Haul & Return) Time:
maintained 3.0

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

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1900.00	0.00	3.00	3.00	2824	0.834

Haul Time: **0.834** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1900.00	0.00	3.00	3.00	2874	0.696

Return Time: **0.696** minutesTotal Truck Cycle Time: **4.030** minutes

Loading Tool unit

Production 590.63 LCY/Hour Adjusted for job efficiency: 490.22 LCY/Hour
Truck Unit Production 234.49 LCY/Hour Adjusted for job efficiency: 194.63 LCY/Hour

Optimal No. of Trucks: 3 Truck(s) Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 389.26 LCY/Hour
Adjusted single truck/loader team production: 389.26 LCY/Hour
Adjusted multiple truck/loader team production: **389.26** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **50.15** Hours

Unit cost: \$1.327 /LCY Total job cost: **\$25,895**

BULLDOZER WORKTask description: Spread topsoil on process and wash pond areasSite: Two Rivers Sand, Gravel and
Reservoir ProjectPermit Action: TR-1Permit/Job#: M2022013**PROJECT IDENTIFICATION**Task #: 05D
Date: 9/17/2024
User: JPLState: Colorado
County: WeldAbbreviation: None
Filename: M013-05DAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D8T - 8SU
Horsepower: 310
Blade Type: Semi-Universal
Attachment: 3-shank ripper
Shift Basis: 1 per day
Data Source: (CRG)**Cost Breakdown:**

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$173.32</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$109.71</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$14.53</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$40.04</u>	<u>NA</u>
Total unit Cost/Hour:	<u>\$337.60</u>	
Total Fleet Cost/Hour:	<u>\$675.19</u>	

MATERIAL QUANTITIESInitial Volume: 19,521
Swell factor: 1.000
Loose volume: 19,521 LCYSource of estimated volume: Area of 24.2 acres. Depth of 6" Ex L pg 12
Source of estimated swell
factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 50 feet
Unadjusted hourly
production: 1,400.0 LCY/hrMaterials consistency description: Partly consolidated stockpile 1.1Average push
gradient: 0 %
Average site altitude: 4,680 feetMaterial weight: 1,600 lbs/LCYWeight description: Top SoilJob Condition Correction FactorSource

Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.900	(SSD-FC)
Push gradient:	1.000	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	1.438	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8862

Adjusted unit
production: 1,240.68 LCY/hr
Adjusted fleet
production: **2481.36 LCY/hr**

JOB TIME AND COST

Fleet size: 2 Dozer(s)
Unit cost: \$0.272/LCY

Total job time: **7.87 Hours**
Total job cost: **\$5,312**

REVEGETATION WORKTask description: Seed processing area and wash pond areaSite: Two Rivers Sand, Gravel and
Reservoir ProjectPermit Action: TR-1Permit/Job#: M2022013**PROJECT IDENTIFICATION**Task #: 05E
Date: 9/17/2024
User: JPLState: Colorado
County: WeldAbbreviation: None
Filename: M013-05EAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
10-34-0, 18-46-0, 5-10-5	200.00	pound	\$0.51	\$102.32
			Total Fertilizer Materials Cost/Acre	\$102.32

Application

Description	Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)	\$43.12
Total Fertilizer Application Cost/Acre	\$43.12

TILLING

Description	Cost /Acre
Chisel plowing {DMG}	\$102.41
Weed control spraying (MEANS 31 31 16.13 3100)	\$338.80
Total Tilling Cost/Acre	\$441.21

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.10	3.90	\$2.91
Blue Grama - Lovington	0.20	3.26	\$5.55
Indian Ricegrass - Paloma	1.90	6.15	\$39.01
Switchgrass - Pathfinder	0.90	8.04	\$12.11
Sand Dropseed	0.10	11.94	\$1.30
Kentucky Bluegrass - Ginger	0.10	4.94	\$0.41
Little Bluestem - Pastura	0.30	1.79	\$4.76
Sideoats Grama - Vaughn	1.80	5.91	\$44.26
Strawberry Clover (coated)	0.10	0.68	\$0.98

Smooth Brome - Manchar	0.30	1.00	\$1.57
Sheep Fescue - Covar	0.40	6.24	\$2.47
Tall Wheatgrass - Jose	1.10	1.99	\$6.32
Totals Seed Mix	7.30	55.84	\$121.66

Application

Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$236.64
Total Seed Application Cost/Acre	\$236.64

MULCHING and MISCELLANEOUS

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - Curtail @ 4.0 pt/ac	1.00	ACRE	\$36.14	\$36.14
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$492.78	\$985.56
Total Mulch Materials Cost/Acre				\$1,021.70

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$85.37
Weed spray, truck, non-aquatic area, nox. [DMG]	\$83.26
Total Mulch Application Cost/Acre	\$168.64

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:	24.2	Cost /Acre:	\$2,135.29
Estimated Failure Rate:	25%	Cost /Acre*:	\$358.30
*Selected Replanting Work Items:	SEEDING		
Initial Job Cost:	\$51,674.02		
Reseeding Job Cost:	\$2,167.72		
Total Job Cost:	\$53,842		
Job Hours:	22.00		

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: **Mobilization and Demob.**Site: **Two Rivers Sand, Gravel and
Reservoir Project**Permit Action: **TR-1**Permit/Job#: **M2022013****PROJECT IDENTIFICATION**Task #: **06**
Date: **9/17/2024**
User: **JPL**State: **Colorado**
County: **Weld**Abbreviation: **None**
Filename: **M013-06**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:	\$10.44	\$22.18	\$23.94
Operating Cost/Hour:	\$26.48	\$54.55	\$55.65
Operator Cost/Hour:	\$22.52	\$22.52	\$22.52
Helper Cost/Hour:	\$0.00	\$23.53	\$23.53
Total Unit Cost/Hour:	\$59.44	\$122.78	\$125.64

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	52.21	\$187.01	\$125.64	2	\$625.30	\$251.28	\$250.00
CAT 966H high lift	25.80	\$57.78	\$59.44	1	\$117.22	\$59.44	\$250.00
CAT 815F	22.88	\$107.16	\$59.44	2	\$333.20	\$118.88	\$500.00
Drill/Broadcast Seeder with Tractor	25.00	\$41.02	\$59.44	1	\$100.46	\$59.44	\$250.00
Grove RT890E, 142', 81.60 MT	54.55	\$222.11	\$125.64	1	\$347.75	\$125.64	\$250.00
CAT 120M	15.53	\$52.82	\$59.44	1	\$112.26	\$59.44	\$250.00

Subtotals: **\$1,636.19** **\$674.12** **\$1,750.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Generic 12-18 cy, 6x4	\$114.77	2	\$229.54	\$229.54
Water Tanker, 2,500 Gal.	\$34.10	1	\$34.10	\$34.10

Subtotals: **\$263.64** **\$263.64**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	<u>GREELEY</u>	
Total one-way travel distance:	<u>5.00</u>	miles
Average Travel Speed:	<u>40.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$4,077.58</u>
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$65.91</u>
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.13</u>	<u>0.13</u>
Return Time (Hours):	<u>0.13</u>	<u>0.13</u>
Loading Time (Hours):	<u>0.00</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.00</u>	<u>NA</u>
Subtotals:	<u>0.25</u>	<u>0.25</u>

JOB TIME AND COST

Total job time:	<u>0.50</u>	Hours
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Total job cost:	<u>\$4,143</u>
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