

COST SUMMARY WORK

Task description: Summary of Reclamation Tasks

Site: Wertz Pit

Permit Action: 2022 New Permit

Permit/Job#: M2022024

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 7/21/2022

County: Bent

Filename: M024-000

User: NCG

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Backfill and regrade side slopes to 3:1	DOZER	1	108.22	\$28,548
002	Replace 5" topsoil over affected area	SCRAPER1	1	29.19	\$47,081
003	Revegetate 102 acres	REVEGE	1	50.00	\$77,586
004	Mobilize/Demobilize equipment	MOBILIZE	1	2.73	\$1,688
<u>SUBTOTALS:</u>				190.14	\$154,903

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02
Performance bond: 1.05
Job superintendent: 88.18
Profit: 10.00

Total = \$3,129

Total = \$1,626

Total = \$6,625

Total = \$15,490

TOTAL O & P = \$26,871

CONTRACT AMOUNT (direct + O & P) = \$181,774

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): \$500

Total = \$500

Engineering work and/or contract/bid preparation: 0.00

Total = \$0

Reclamation management and/or administration: 5.00

\$9,089

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$36,459

TOTAL BOND AMOUNT (direct + indirect) = \$191,362

BULLDOZER WORKTask description: **Backfill and regrade side slopes to 3:1**Site: **Wertz Pit**Permit Action: **2022 New Permit**Permit/Job#: **M2022024****PROJECT IDENTIFICATION**Task #: **001**State: **Colorado**Abbreviation: **None**Date: **7/21/2022**County: **Bent**Filename: **M024-001**User: **NCG**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:	\$124.85	NA
Operating Cost/Hour:	\$97.63	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$41.30	NA

Total unit Cost/Hour: **\$263.78**Total Fleet Cost/Hour: **\$263.78****MATERIAL QUANTITIES**Initial Volume: **45,154**Swell factor: **1.060**Loose volume: **47,863 LCY**Source of estimated volume: **Division of Reclamation, Mining & Safety**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: **Dry, non-cohesive 0.8**Average push gradient: **0 %**Average site altitude: **3,920 feet**Material weight: **2,900 lbs/LCY**Weight description: **Sand and gravel - Dry****Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	0.800	(CAT HB)
Dozing method:	1.000	(GEN.)
Visibility:	1.000	(AVG.)

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

Net correction: 0.3159

Adjusted unit production: 442.26 LCY/hr

Adjusted fleet production: **442.26** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.596/LCY

Total job time: **108.22** Hours

Total job cost: **\$28,548**

SCRAPER TEAM WORKTask description: **Replace 5" topsoil over affected area**Site: **Wertz Pit**Permit Action: 2022 New PermitPermit/Job#: M2022024**PROJECT IDENTIFICATION**Task #: 002State: ColoradoAbbreviation: NoneDate: 7/22/2022County: BentFilename: M024-002User: NCGAgency or organization name: DRMS**HOURLY EQUIPMENT**COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 637G
-Dozer:	Cat D8T - 8SU
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 3,500 Gal.

Cost Breakdown:**Scraper Work Team****Support Equipment****Maintenance Equipment**

	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	50	NA	NA	50	50
Ownership cost/hour:	\$264.49	\$124.85	NA	NA	\$114.80	\$14.98
Operating cost/hour:	\$296.10	\$48.82	NA	NA	\$39.70	\$16.66
%Utilization-ripper:	NA	NA	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:	\$30.90	\$41.30	NA	NA	\$28.56	\$0.00
Unit Subtotals:	\$591.49	\$214.97	NA	NA	\$183.05	\$31.64
Number of Units:	2	1	0	0	1	1
Group Subtotals:	Work:	\$1,397.95	Support:	\$0.00	Maint:	\$214.69

Total work team cost/hour: **\$1,612.64****MATERIAL QUANTITIES**Initial volume: 34,560

CCY

Swell factor: 1.000Loose volume: **34,560**

LCY

Source of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION****Scraper Bowl (volume) Basis:**

Material weight:	<u>1,600 lbs/LCY</u>	Struck Volume:	<u>24.00</u>	LCY
Material description:	<u>Top Soil</u>	Heaped Volume:	<u>34.00</u>	LCY
Rated Payload:	<u>81,600 pounds</u>	Average Volume:	<u>29.00</u>	LCY
Payload Capacity:	<u>51.00 LCY</u>	Adjusted Capacity:	<u>29.00</u>	LCY

Cycle Time:Scraper Loading Time: 0.80 MinutesManeuver and Spread Time: 0.60 MinutesJob Condition Correction:

Site Altitude: 3918 feet

	Scraper	Push Dozer	Source
Altitude Adj:	1.000	1.000	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.830	

Travel Time:Road Condition: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	0.00	3.00	3.00	2800	0.56

Haul Time: 0.56 minutesReturn Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	0.00	3.00	3.00	2949	0.48

Return Time: 0.48 minutesTotal Scraper team cycle time: 2.44 minutesAdjusted for job conditions: 591.89 LCY/HourSelected Number of Scrapers: 2 Scraper(s)Adjusted single scraper team (unit) hourly production: 1,183.77 LCY/HourAdjusted multiple scraper team (fleet) hourly production: 1,183.77 LCY/HourUnadjusted unit production/hour: 713.11 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: 29.19 HoursUnit cost: \$1.362 /LCYTotal job cost: \$47,081

REVEGETATION WORKTask description: Revegetate 102 acresSite: Wertz PitPermit Action: 2022 New PermitPermit/Job#: M2022024**PROJECT IDENTIFICATION**Task #: 003State: ColoradoAbbreviation: NoneDate: 7/21/2022County: BentFilename: M024-003User: NCGAgency 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)	\$117.18
Total Tilling Cost/Acre	\$117.18

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Native	0.60	9.79	\$8.24
Sand Dropseed	0.20	23.88	\$1.95
Sideoats Grama - Butte	2.30	7.55	\$20.70
Yellow Sweet Clover - Madrid	0.40	2.39	\$1.13
Western Wheatgrass - Native	3.20	8.08	\$19.20
Totals Seed Mix	6.70	51.69	\$51.22

Application

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Description	Cost /Acre
Drill Seeding (DRMS Survey Cost)	\$232.00
Total Seed Application Cost/Acre	\$232.00

MULCHING and MISCELLANEOUS**Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	BALE	\$16.85	\$33.70
Total Mulch Materials Cost/Acre				\$33.70

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$73.00
Total Mulch Application Cost/Acre	\$73.00

NURSERY STOCK PLANTING

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

JOB TIME AND COST

No. of Acres: 102 Cost /Acre: \$507.10
 Estimated Failure Rate: 50% Cost /Acre*: \$507.10
 *Selected Replanting Work Items: TILLING,SEEDING,MULCHING

Initial Job Cost: **\$51,724.20**
 Reseeding Job Cost: **\$25,862.10**
 Total Job Cost: **\$77,586**
 Job Hours: **50.00**

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: Mobilize/Demobilize equipmentSite: Wertz PitPermit Action: 2022 New PermitPermit/Job#: M2022024**PROJECT IDENTIFICATION**Task #: 004State: ColoradoAbbreviation: NoneDate: 7/21/2022County: BentFilename: M024-004User: NCGAgency or organization name: DRMS**EQUIPMENT TRANSPORT RIG COST**Shift basis: 1 per dayCost Data Source: CRG DataTruck 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:	\$15.25	\$23.06	\$37.58
Operating Cost/Hour:	\$25.26	\$30.83	\$51.41
Operator Cost/Hour:	\$27.71	\$27.71	\$27.71
Helper Cost/Hour:	\$0.00	\$20.22	\$20.22
Total Unit Cost/Hour:	\$68.22	\$101.82	\$136.92

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 D7R DS Series II LGP	38.49	\$101.15	\$101.82	1	\$202.97	\$101.82	\$250.00
Drill/Broadcast Seeder with Tractor	25.00	\$6.25	\$68.22	1	\$74.47	\$68.22	\$250.00

Subtotals: **\$277.44** **\$170.04** **\$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.	\$14.23	1	\$14.23	\$14.23

Subtotals: **\$14.23** **\$14.23**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	<u>LAMAR</u>	
Total one-way travel distance:	<u>25.00</u>	miles
Average Travel Speed:	<u>65.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$1,677.14</u>
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$10.95</u>
** one round trip, no haul rig:	

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.38</u>	<u>0.38</u>
Return Time (Hours):	<u>0.38</u>	<u>0.38</u>
Loading Time (Hours):	<u>0.30</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.30</u>	<u>NA</u>
Subtotals:	<u>1.37</u>	<u>0.77</u>

JOB TIME AND COST

Total job time:	<u>2.74</u>	Hours
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Total job cost:	<u>\$1,688</u>
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