COST SUMMARY WORK

Task description: **Cost Summary**

Site: **Windy Ridge Pit** Permit Action: SO-01 2015 Permit/Job#: M2003052

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 9/2/2015 County: Prowers Filename: M052-000
User: AME

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Grade highwall from 0H:1V to 3H:1V	DOZER	1	2.27	$390.00
002	Replace 6 in topsoil across 12 ac	SCRAPER1	1	27.42	$6,859.00
003	Revegetate 12 ac to rangeland	REVEGE	1	48.00	$12,012.00
004	Mobilization/Demobilization	MOBILIZE	1	7.20	$3,506.00
		SUBTOTALS:		**84.89**	**$ $22,767**

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	$459.89
Performance bond:	1.05	Total =	$239.05
Job superintendent:	0.00	Total =	$0.00
Profit:	10.00	Total =	$2,276.70
		TOTAL O & P =	$2,975.64
		CONTRACT AMOUNT (direct + O & P) =	$25,742.64

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	500.00	Total =	500.00
Engineering work and/or contract/bid preparation:	0.00	Total =	$0.00
Reclamation management and/or administration:	5.00		$1,287.13
CONTINGENCY:	0.00	Total =	$0.00
		TOTAL INDIRECT COST =	$4,762.77
		TOTAL BOND AMOUNT (direct + indirect) =	**$27,529.77**

BULLDOZER WORK

Task description: **Grade highwall from 0H:1V to 3H:1V**

Site: **Windy Ridge Pit** Permit Action: SO-01 2015 Permit/Job#: M2003052

PROJECT IDENTIFICATION

Task #:	001	State:	Colorado	Abbreviation:	None
Date:	9/2/2015	County:	Prowers	Filename:	M052-001
User:	AME				

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine:	Cat D7R DS Series II LGP
Horsepower:	238
Blade Type:	Straight
Attachment:	NA
Shift Basis:	1 per day
Data Source:	(CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	$49.84	NA
Operating Cost/Hour:	$83.73	100
Ripper op. Cost/Hour:	$0.00	0
Operator Cost/Hour:	$38.01	NA

Total unit Cost/Hour: $171.57
Total Fleet Cost/Hour: **$171.57**

MATERIAL QUANTITIES

Initial Volume:	833
Swell factor:	1.250
Loose volume:	**1,041** LCY

Source of estimated volume: DRMS, Approx Length= 600ft, Avg Height= 10ft
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
Unadjusted hourly production: 800.0 LCY/hr

Materials consistency description: Compacted fill or embankment 0.9

Average push gradient: -5 %
Average site altitude: 4,430 feet

Material weight: 2,650 lbs/LCY

Weight description: Decomposed rock - 25% Rock, 75% Earth

Job Condition Correction Factor		Source
Operator Skill:	0.900	(AB.AVG.)
Material consistency:	0.900	(CAT HB))
Dozing method:	1.100	(50% SL)
Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	0.800	(FND-RF)

Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.5726

Adjusted unit production: 458.08 LCY/hr

Adjusted fleet production: **458.08** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: $0.375/LCY

Total job time: **2.27** Hours

Total job cost: **$390**

SCRAPER TEAM WORK

Task description: **Replace 6 in topsoil across 12 ac**

Site: **Windy Ridge Pit** Permit Action: SO-01 2015 Permit/Job#: M2003052

PROJECT IDENTIFICATION

Task #: 002 State: Colorado Abbreviation: None
Date: 9/2/2015 County: Prowers Filename: M052-002
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 623G
-Dozer:	NA
Support Equipment -Load Area:	NA
-Dump Area:	NA
Road Maintenance –Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Scraper Work Team		Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	NA	NA	NA	NA
Ownership cost/hour:	$75.81	NA	NA	NA	NA	NA
Operating cost/hour:	$140.78	NA	NA	NA	NA	NA
Ripper op. cost/hour:	NA	NA	NA	NA	NA	NA
Operator cost/hour:	$33.56	NA	NA	NA	NA	NA
Unit Subtotals:	$250.15	NA	NA	NA	NA	NA
Number of Units:	1	0	0	0	0	0
Group Subtotals:	Work:	$250.15	Support:	$0.00	Maint:	$0.00

Total work team cost/hour: **$250.15**

MATERIAL QUANTITIES

Initial volume: 9,680 CCY Swell factor: 1.215
Loose volume: **11,761** LCY

Source of estimated volume: Division of Reclamation, Mining & Safety
Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Material weight: 1,600 lbs/LCY
Material description: Top Soil
Rated Payload: 55,200 pounds
Payload Capacity: 34.50 LCY

Scraper Bowl (volume) Basis:

Struck Volume: 18.00 LCY
Heaped Volume: 23.00 LCY
Average Volume: 20.50 LCY
Adjusted Capacity: **20.50** LCY

Cycle Time:

Scraper Loading Time: 0.90 Minutes
Maneuver and Spread Time: 0.70 Minutes

Job Condition Correction: Site Altitude: 4430 feet

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

Travel Time:

Road Condition: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	350.00	6.00	5.00	11.00	593	0.60

Haul Time: **0.60** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	350.00	-6.00	5.00	-1.00	2774	0.18

Return Time: **0.18** minutes

Total Scraper team cycle time: **2.38** minutes
Adjusted for job conditions: 428.95 LCY/Hour
Selected Number of Scrapers: 1 Scraper(s)
Adjusted single scraper team (unit) hourly production: 428.95 LCY/Hour
Adjusted multiple scraper team (fleet) hourly production: **428.95** LCY/Hour

Unadjusted unit production/hour: 516.81 LCY/Hour
Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **27.42** Hours

Unit cost: $0.583 /LCY Total job cost: **$6,859**

REVEGETATION WORK

Task description: **Revegetate 12 ac to rangeland**

Site: **Windy Ridge Pit** Permit Action: SO-01 2015 Permit/Job#: M2003052

PROJECT IDENTIFICATION

Task #: 003 State: Colorado Abbreviation: None
Date: 9/2/2015 County: Prowers Filename: M052-003
User: AME

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			$	$
			Total Fertilizer Materials Cost/Acre	**$0.00**

Application

Description	Cost /Acre
	$
Total Fertilizer Application Cost/Acre	**$0.00**

TILLING

Description	Cost /Acre
Chisel plowing {DMG}	$88.58
Total Tilling Cost/Acre	**$88.58**

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Blue Grama - Hachita	0.45	7.35	$4.79
Indiangrass - Cheyenne	2.00	6.10	$18.38
Switchgrass - Blackwell	0.90	8.04	$4.78
Sideoats Grama - El Reno	2.25	7.39	$25.29
Western Wheatgrass - Arriba	3.20	8.08	$11.78
Totals Seed Mix	8.80	36.95	**$65.02**

Application

Description	Cost /Acre
Drill seeding (DRMS Cost Data)	$88.20
Total Seed Application Cost/Acre	**$88.20**

MULCHING and MISCELLANEOUS

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	$265.00	$530.00
Total Mulch Materials Cost/Acre				**$530.00**

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	$65.89
Power mulcher (MEANS 32 91 13.16 0250)	$86.68
Total Mulch Application Cost/Acre	**$152.57**

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: 12
Estimated Failure Rate: 50%
*Selected Replanting Work Items: SEEDING

Cost /Acre: $924.37
Cost /Acre*: $153.22

Initial Job Cost: **$11,092.44**
Reseeding Job Cost: **$919.32**
Total Job Cost: **$12,012**
Job Hours: **48.00**

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: **Mobilization/Demobilization**

Site: **Windy Ridge Pit** Permit Action: SO-01 2015 Permit/Job#: M2003052

PROJECT IDENTIFICATION

Task #: 004 State: Colorado Abbreviation: None
Date: 9/2/2015 County: Prowers Filename: M052-004
User: AME

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 D7R DS XR Series II	32.01	$46.88	$117.55	1	$164.43	$117.55	$250.00
Cat 623G	41.35	$75.81	$117.55	1	$193.36	$117.55	$250.00
Subtotals:					**$357.79**	**$235.10**	**$500.00**

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Power Mulcher (Reinco M90)	$26.19	1	$26.19	$26.19
Drill/Broadcast Seeder with Tractor	$52.78	1	$52.78	$52.78
Subtotals:			**$78.97**	**$78.97**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region:	SPRINGFIELD	
Total one-way travel distance:	40.00	miles
Average Travel Speed:	50.00	mph

Total Non-Roadable Mob/Demob Cost * '* two round trips with haul rig:	$3,379.78
Total Roadable Mob/Demob Cost ** ** one round trip, no haul rig:	$126.35

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.80	0.80
Return Time (Hours):	0.80	0.80
Loading Time (Hours):	1.00	NA
Unloading Time (Hours):	1.00	NA
Subtotals:	3.60	1.60

JOB TIME AND COST

Total job time:	**7.20**	Hours
Total job cost:	**$3,506**	