

COST SUMMARY WORK

Task description: Cost Summary

Site: Midway Pit

Permit Action: 2017 TR-02

Permit/Job#: M1988018

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 5/19/2017

County: El Paso

Filename: M018-000

User: TC1

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Backfill 3 Ponds	DOZER	1	12.55	\$2,865.00
002	Knockdown Near Vert. West Highwalls	DOZER	1	0.92	\$210.00
003	Knockdown Northside Highwalls	DOZER	1	0.89	\$204.00
004	Place 3" Topsoil on Disturbed Area (22 acres)	SCRAPER1	1	28.55	\$7,090.00
005	Finish Grade Reclamation Area (22 ac)	GRADER	1	16.00	\$1,580.00
06A	Reveg using seed drill	REVEGE	1	80.00	\$35,513.00
06B	Reveg using broadcast method	REVEGE	1	4.00	\$1,645.00
070	Mob/Demob	MOBILIZE	1	2.84	\$2,957.00
<u>SUBTOTALS:</u>				145.75	\$52,064

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$1,051.69

Performance bond: 1.05

Total = \$546.67

Job superintendent: 72.88

Total = \$5,323.52

Profit: 10.00

Total = \$5,206.40

TOTAL O & P = \$12,128.28

CONTRACT AMOUNT (direct + O & P) = \$64,192.28

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): 0.00

Total = 0.00

Engineering work and/or contract/bid preparation: 0.00

Total = \$0.00

Reclamation management and/or administration: 5.00

\$3,209.61

CONTINGENCY: 0.00

Total = \$0.00

TOTAL INDIRECT COST = \$15,337.89

TOTAL BOND AMOUNT (direct + indirect) = \$67,401.89

BULLDOZER WORK

Task description: Backfill 3 Ponds

Site: Midway Pit Permit Action: 2017 TR-02 Permit/Job#: M1988018

PROJECT IDENTIFICATION

Task #: 001 State: Colorado Abbreviation: None
 Date: 5/22/2017 County: El Paso Filename: M018-001
 User: TC1

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
 Horsepower: 405
 Blade Type: Semi-Universal
 Attachment: NA
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$100.59	NA
Operating Cost/Hour:	\$87.23	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$40.52	NA

Total unit Cost/Hour: \$228.34
 Total Fleet Cost/Hour: \$228.34

MATERIAL QUANTITIES

Initial Volume: 14,755
 Swell factor: 1.125
 Loose volume: 16,599 LCY

Source of estimated volume: See spread sheets - assume 12 ft depth
 Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 75 feet
 Unadjusted hourly production: 1,514.3 LCY/hr

Materials consistency description: Partly consolidated stockpile 1.1

Average push gradient: -10 %
 Average site altitude: 5,400 feet

Material weight: 2,650 lbs/LCY

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

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.225	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.8737

Adjusted unit production: 1,323.04 LCY/hr

Adjusted fleet production: **1323.04** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.173/LCY

Total job time: **12.55** Hours

Total job cost: **\$2,865**

BULLDOZER WORKTask description: Knockdown Near Vert. West HighwallsSite: Midway Pit Permit Action: 2017 TR-02 Permit/Job#: M1988018**PROJECT IDENTIFICATION**

Task #: 002 State: Colorado Abbreviation: None
 Date: 5/22/2017 County: El Paso Filename: M018-002
 User: TC1

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

Basic Machine: Cat D9T - 9SU
 Horsepower: 405
 Blade Type: Semi-Universal
 Attachment: NA
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	<u>\$100.59</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$87.23</u>	<u>100</u>
Ripper own. Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper op. Cost/Hour:	<u>\$0.00</u>	<u>0</u>
Operator Cost/Hour:	<u>\$40.52</u>	<u>NA</u>

Total unit Cost/Hour: \$228.34
 Total Fleet Cost/Hour: \$228.34

MATERIAL QUANTITIES

Initial Volume: 1,864
 Swell factor: 1.125
 Loose volume: 2,097 LCY

Source of estimated volume: See revised spreadsheets - assume 10 ft height
 Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
 Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Partly consolidated stockpile 1.1

Average push gradient: -25 %
 Average site altitude: 5,400 feet

Material weight: 2,650 lbs/LCYWeight description: Decomposed rock - 25% Rock, 75% Earth**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	<u>0.750</u>	<u>(AVG.)</u>
Material consistency:	<u>1.100</u>	<u>(CAT HB)</u>
Dozing method:	<u>1.200</u>	<u>(SLOT)</u>
Visibility:	<u>1.000</u>	<u>(AVG.)</u>

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.516	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 1.0813

Adjusted unit production: 2,282.08 LCY/hr

Adjusted fleet production: **2282.08** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.100/LCY

Total job time: **0.92** Hours

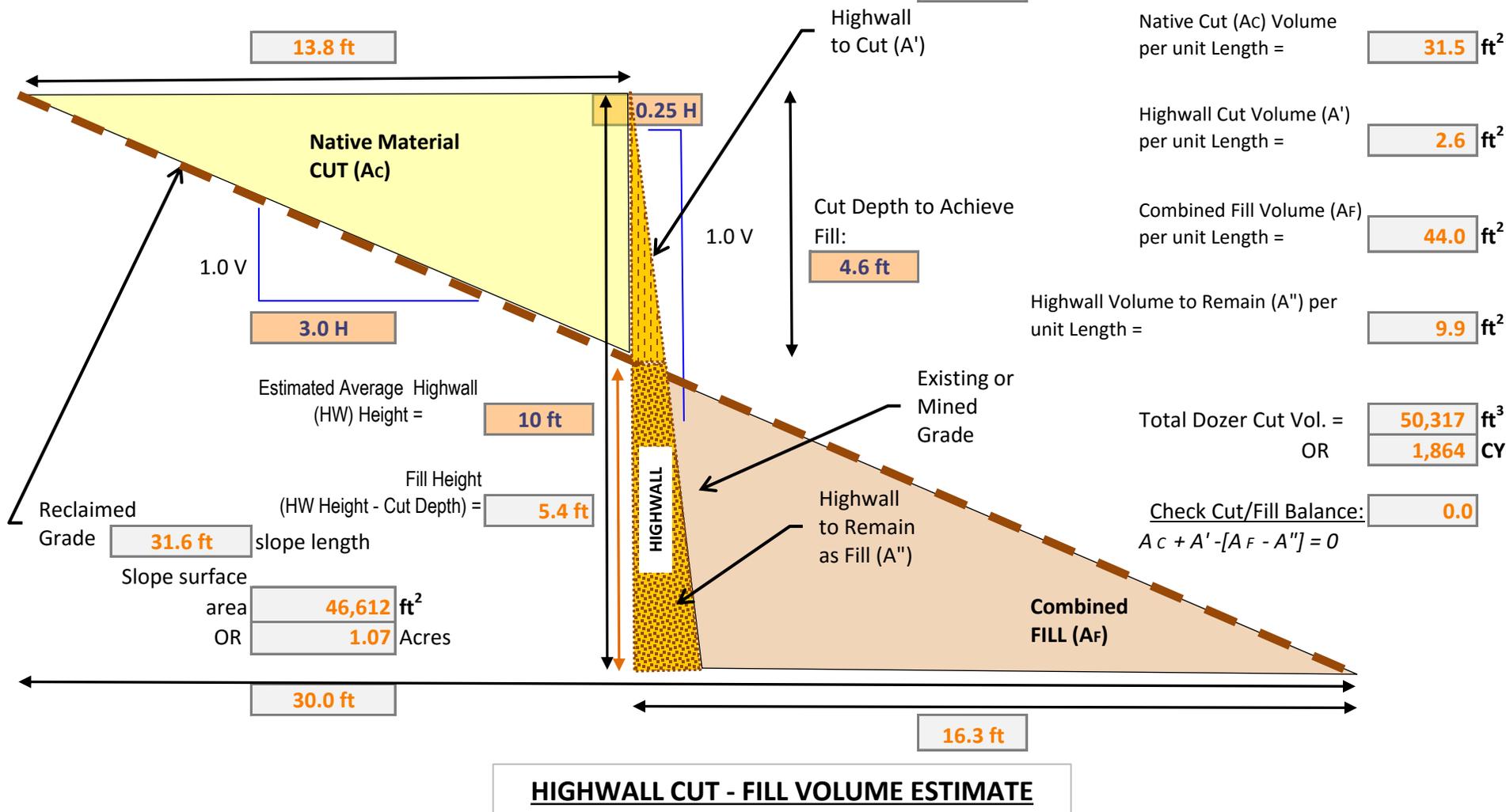
Total job cost: **\$210**

Task # 002.1 Highwall Backfill Volume Estimate

PROJECT: Midway Pit
PERMIT No.: M-1988-018
HIGHWALL LOCATION: West End - Near Vertical Walls

LEGEND

Input
Result



Highwall Length = 1474 ft

Native Cut (Ac) Volume per unit Length = 31.5 ft²

Highwall Cut Volume (A') per unit Length = 2.6 ft²

Combined Fill Volume (Af) per unit Length = 44.0 ft²

Highwall Volume to Remain (A'') per unit Length = 9.9 ft²

Total Dozer Cut Vol. = 50,317 ft³
 OR 1,864 CY

Check Cut/Fill Balance: 0.0
 $AC + A' - [AF - A''] = 0$

BULLDOZER WORK

Task description: Knockdown Northside Highwalls

Site: Midway Pit Permit Action: 2017 TR-02 Permit/Job#: M1988018

PROJECT IDENTIFICATION

Task #: 003 State: Colorado Abbreviation: None
 Date: 5/22/2017 County: El Paso Filename: M018-003
 User: TC1

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D9T - 9SU
 Horsepower: 405
 Blade Type: Semi-Universal
 Attachment: NA
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

		<u>Utilization %</u>
Ownership Cost/Hour:	\$100.59	NA
Operating Cost/Hour:	\$87.23	100
Ripper own. Cost/Hour:	\$0.00	NA
Ripper op. Cost/Hour:	\$0.00	0
Operator Cost/Hour:	\$40.52	NA

Total unit Cost/Hour: \$228.34
 Total Fleet Cost/Hour: \$228.34

MATERIAL QUANTITIES

Initial Volume: 1,813
 Swell factor: 1.125
 Loose volume: 2,040 LCY

Source of estimated volume: See revised spreadsheets - assume 15 ft height
 Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 50 feet
 Unadjusted hourly production: 2,110.5 LCY/hr

Materials consistency description: Partly consolidated stockpile 1.1

Average push gradient: -25 %
 Average site altitude: 5,400 feet

Material weight: 2,650 lbs/LCY

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

Job Condition Correction Factor

		<u>Source</u>
Operator Skill:	0.750	(AVG.)
Material consistency:	1.100	(CAT HB)
Dozing method:	1.200	(SLOT)
Visibility:	1.000	(AVG.)

Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.516	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 1.0813

Adjusted unit production: 2,282.08 LCY/hr

Adjusted fleet production: **2282.08** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.100/LCY

Total job time: **0.89** Hours

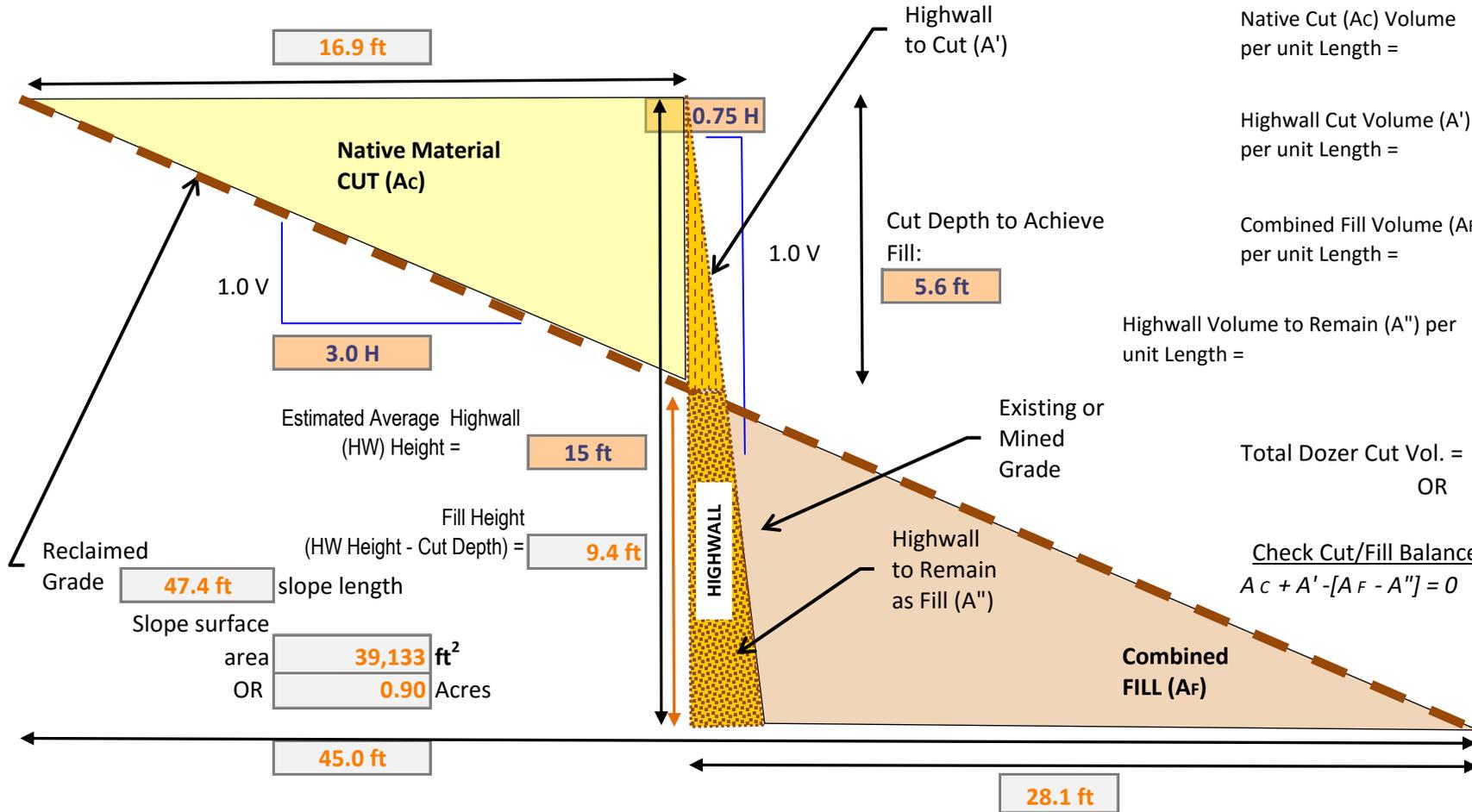
Total job cost: **\$204**

Task # 003.1 Highwall Backfill Volume Estimate

PROJECT: Midway Pit
PERMIT No.: M-1988-018
HIGHWALL LOCATION: North Side Highwalls

LEGEND

Input
Result



Highwall Length =	825 ft
Native Cut (Ac) Volume per unit Length =	47.5 ft ²
Highwall Cut Volume (A') per unit Length =	11.9 ft ²
Combined Fill Volume (Af) per unit Length =	131.8 ft ²
Highwall Volume to Remain (A'') per unit Length =	72.5 ft ²
Total Dozer Cut Vol. =	48,944 ft ³
OR	1,813 CY
Check Cut/Fill Balance:	0.0

$$A_C + A' - [A_F - A''] = 0$$

HIGHWALL CUT - FILL VOLUME ESTIMATE

SCRAPER TEAM WORK

Task description: Place 3" Topsoil on Disturbed Area (22 acres)

Site: Midway Pit Permit Action: 2017 TR-02 Permit/Job#: M1988018

PROJECT IDENTIFICATION

Task #: 004 State: Colorado Abbreviation: None
 Date: 5/22/2017 County: El Paso Filename: M018-004
 User: TC1

Agency or organization name: DRMS

HOURLY EQUIPMENT

COSTShift basis: 1 per day

Equipment Description	
-Scraper:	Cat 631G
-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:	\$98.72	NA	NA	NA	NA	NA
Operating cost/hour:	\$108.19	NA	NA	NA	NA	NA
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	NA	NA	NA	NA
Ripper op. cost/hour:	NA	NA	NA	NA	NA	NA
Operator cost/hour:	\$41.46	NA	NA	NA	NA	NA
Unit Subtotals:	\$248.37	NA	NA	NA	NA	NA
Number of Units:	1	0	0	0	0	0
Group Subtotals:	Work:	\$248.37	Support:	\$0.00	Maint:	\$0.00

Total work team cost/hour: **\$248.37**

MATERIAL QUANTITIES

Initial volume: 8,873 CCY Swell factor: 1.125
 Loose volume: 9,982 LCY

Source of estimated volume: 3" depth over 22 acres
 Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

		Scraper Bowl (volume) Basis:	
Material weight:	<u>2,650 lbs/LCY</u>	Struck Volume:	<u>24.00</u> LCY
Material description:	<u>Decomposed rock - 25% Rock, 75% Earth</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>30.79 LCY</u>	Adjusted Capacity:	<u>29.00</u> LCY

Cycle Time:

Scraper Loading Time: 0.80 Minutes

Maneuver and Spread Time: 0.70 Minutes

Job Condition Correction:

Site Altitude: 5400 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: Soft, rutted dirt, no maintenance or water, 4" tire penetration 8.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1500.00	-5.00	8.00	3.00	2227	0.97

Haul Time: 0.97 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1500.00	5.00	8.00	13.00	918	1.66

Return Time: 1.66 minutes

Total Scraper team cycle time: 4.13 minutes

Adjusted for job conditions: 349.69 LCY/Hour

Selected Number of Scrapers: 1 Scraper(s)

Adjusted single scraper team (unit) hourly production: 349.69 LCY/Hour

Adjusted multiple scraper team (fleet) hourly production: 349.69 LCY/Hour

Unadjusted unit production/hour: 421.31 LCY/Hour

Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COST

Fleet size: 1 Team(s)

Total job time: 28.55 Hours

Unit cost: \$0.710 /LCY

Total job cost: \$7,090

MOTOR GRADER WORK

Task description: Finish Grade Reclamation Area (22 ac)

Site: Midway Pit Permit Action: 2017 TR-02 Permit/Job#: M1988018

PROJECT IDENTIFICATION

Task #: 005 State: Colorado Abbreviation: None
Date: 5/22/2017 County: El Paso Filename: M018-005
User: TC1

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 120M Horsepower: 138
Ripper Attachment: _____ Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$32.40</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$28.16</u>	<u>100</u>
Ripper Ownership Cost/Hour:	<u>\$0.00</u>	<u>NA</u>
Ripper Operating Cost/Hour:	<u>\$0.00</u>	
Operator Cost/Hour:	<u>\$38.16</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$98.72</u>	
Total Fleet Cost/Hour:	<u>\$98.72</u>	

MATERIAL QUANTITIES

Total Area to be graded or ripped: 22.00 acres

Source of estimated acreage: Highwall knock down spreadsheets

HOURLY PRODUCTION

Average Grader Speed: 1.50 mph
Selected Application: Finish grading (0-2.5 mph) - 1.5
Selected Blade Angle: 30 degrees
Effective Blade Length: 10.40 feet
Width of blade overlap per pass: 2.00 feet
Net grading or ripping width per pass: 8.40 feet
Unadjusted Hourly Unit Production: 1.5273 acres/hour

Job Condition Correction Factors

Site Altitude: 5400 feet

		Source
Altitude Adj:	<u>1.00</u>	<u>(CAT HB)</u>
Job Efficiency:	<u>0.90</u>	<u>(1sh/d, fav.)</u>
Net Correction:	<u>0.9000</u>	<u>multiplier</u>

Adjusted Hourly Unit Production: 1.3745 acres/Hour
Adjusted Hourly Fleet Production: **1.3745** acres/Hour

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **16.01** Hours

Unit cost: \$71.82 per acre Total job cost: **\$1,580**

REVEGETATION WORKTask description: Reveg using seed drillSite: Midway PitPermit Action: 2017 TR-02Permit/Job#: M1988018PROJECT IDENTIFICATIONTask #: 06AState: ColoradoAbbreviation: NoneDate: 5/22/2017County: El PasoFilename: M018-06AUser: TC1Agency or organization name: DRMSFERTILIZINGMaterials

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
Total Tilling Cost/Acre	\$106.29

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.15	5.85	\$4.25
Sand Dropseed	0.05	5.97	\$0.54
Little Bluestem - Pastura	1.34	8.00	\$22.55
Sideoats Grama - Vaughn	1.82	5.97	\$18.20
Galleta	0.37	1.35	\$9.14
Needle and Thread	1.09	2.88	\$45.24
Western Wheatgrass - Native	3.20	8.08	\$22.40
Saltbush, Four Wing	1.00	1.38	\$12.50
Winter Fat	0.02	0.05	\$0.41
Totals Seed Mix	9.04	39.53	\$135.23

REVEGETATION WORKTask description: Reveg using broadcast methodSite: Midway PitPermit Action: 2017 TR-02Permit/Job#: M1988018PROJECT IDENTIFICATIONTask #: 06BState: ColoradoAbbreviation: NoneDate: 5/22/2017County: El PasoFilename: M018-06BUser: TC1Agency or organization name: DRMSFERTILIZINGMaterials

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
Total Tilling Cost/Acre	\$106.29

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.30	11.71	\$8.50
Sand Dropseed	0.10	11.94	\$1.08
Little Bluestem - Pastura	2.68	16.00	\$45.10
Sideoats Grama - Vaughn	3.64	11.95	\$36.40
Galleta	0.74	2.70	\$18.28
Needle and Thread	2.18	5.76	\$90.47
Western Wheatgrass - Native	6.40	16.16	\$44.80
Saltbush, Four Wing	2.00	2.75	\$25.00
Winter Fat	0.04	0.10	\$0.82
Totals Seed Mix	18.08	79.07	\$270.45

EQUIPMENT MOBILIZATION/DEMOBILIZATIONTask description: Mob/DemobSite: Midway PitPermit Action: 2017 TR-02Permit/Job#: M1988018PROJECT IDENTIFICATIONTask #: 070State: ColoradoAbbreviation: NoneDate: 5/22/2017County: El PasoFilename: M018-070User: TC1Agency or organization name: DRMSEQUIPMENT TRANSPORT RIG COSTShift 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:

<u>Available Rig Capacities</u>	<u>0-25 Tons</u>	<u>26-50 Tons</u>	<u>51+ Tons</u>
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:

<u>Machine Description</u>	<u>Weight/ Unit (TONS)</u>	<u>Owner ship Cost/hr/ unit</u>	<u>Haul Rig Cost/hr/uni t</u>	<u>Fleet Size</u>	<u>Haul Trip Cost/hr/ fleet</u>	<u>Return Trip Cost/hr/ fleet</u>	<u>DOT Permit Cost/ fleet</u>
Cat D9T - 9SU	60.01	\$100.59	\$125.45	1	\$226.04	\$125.45	\$250.00
Cat 631G	52.50	\$98.72	\$125.45	1	\$224.17	\$125.45	\$250.00
CAT 120M	15.53	\$32.40	\$88.67	1	\$121.07	\$88.67	\$250.00

Subtotals: **\$571.28** **\$339.57** **\$750.00**ROADABLE EQUIPMENT:

<u>Machine Description</u>	<u>Total Cost/hr/ unit</u>	<u>Fleet Size</u>	<u>Haul Trip Cost/hr/ fleet</u>	<u>Return Trip Cost/hr/ fleet</u>
Drill/Broadcast Seeder with Tractor	\$30.89	1	\$30.89	\$30.89
Power Mulcher (Bowie LD-90)	\$21.31	1	\$21.31	\$21.31

Subtotals: **\$52.20** **\$52.20**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region: COLORADO SPRINGS
 Total one-way travel distance: 23.00 miles
 Average Travel Speed: 50.00 mph

Total Non-Roadable Mob/Demob Cost * \$2,909.26
 * two round trips with haul rig:
 Total Roadable Mob/Demob Cost ** \$48.02
 ** one round trip, no haul rig:

Transportation Cycle Time:

	Non-Roadable Equipment	Roadable Equipment
Haul Time (Hours):	0.46	0.46
Return Time (Hours):	0.46	0.46
Loading Time (Hours):	0.25	NA
Unloading Time (Hours):	0.25	NA
Subtotals:	1.42	0.92

JOB TIME AND COST

Total job time: 2.84 Hours

Total job cost: \$2,957