

## COST SUMMARY WORK

Task description: SI-01 Estimate Summary

Site: 83rd Joint Venture

Permit Action: SI-01 Estimate

Permit/Job#: M1992069

### PROJECT IDENTIFICATION

Task #: 001

State: Colorado

Abbreviation: None

Date: 10/24/2017

County: Weld

Filename: M069-001

10:02:08 AM

User: PSH

Agency or organization name: DRMS

### TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
002	Import Backfill Material	SITEMAINT ENANCE	1	0.00	\$7,066,312.00
003	Site Revegetation	REVEGE	1	80.00	\$131,214.00
004	Mob/Demob	MOBILIZE	1	3.33	\$2,328.00
005	Compact and place imported fill	COMPACT	1	3,557.95	\$745,215.00
006	Backfill Stockpile Rough Grading	DOZER	1	2,941.06	\$560,279.00
<b><u>SUBTOTALS:</u></b>				<b>6582.34</b>	<b>\$8,505,348</b>

### INDIRECT COSTS

#### OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$171,808.03

Performance bond: 1.05

Total = \$89,306.15

Job superintendent: 1,820.64

Total = \$132,997.75

Profit: 10.00

Total = \$850,534.80

TOTAL O & P = \$1,244,646.73

CONTRACT AMOUNT (direct + O & P) = \$9,749,994.73

#### 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

\$487,499.74

CONTINGENCY: 0.00

Total = \$0.00

TOTAL INDIRECT COST = \$1,732,646.47

TOTAL BOND AMOUNT (direct + indirect) = \$10,237,994.00

## SITE MAINTENANCE

Task description: Import Backfill Material

Site: 83rd Joint Venture

Permit Action: SI-01 Estimate

Permit/Job#: M1992069

### PROJECT IDENTIFICATION

Task #: 002

State: Colorado

Abbreviation: None

Date: 10/24/2017

County: Weld

Filename: M069-002

10:03:17 AM

User: PSH

Agency or organization name: DRMS

### UNIT COSTS

Maintenance Item	Hours per Year	Menu Selection	Quantity	Unit	Unit Cost	Total Cost
Import Backfill Material	2890.00	USER PROVIDED ITEM	1,766,578.00	1	\$4.00	\$7,066,312.00

Job Hours: 0.00

Total Cost: \$7,066,312.00

**REVEGETATION WORK**Task description: Site RevegetationSite: 83rd Joint VenturePermit Action: SI-01 EstimatePermit/Job#: M1992069**PROJECT IDENTIFICATION**Task #: 003State: ColoradoAbbreviation: NoneDate: 10/24/2017County: WeldFilename: M069-00310:04:00 AMUser: PSHAgency or organization name: DRMS**FERTILIZING****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
			\$	\$
			<b>Total Fertilizer Materials Cost/Acre</b>	<b>\$0.00</b>

**Application**

Description	Cost /Acre
	\$
<b>Total Fertilizer Application Cost/Acre</b>	<b>\$0.00</b>

**TILLING**

Description	Cost /Acre
Chisel plowing {DMG}	\$90.60
Weed control spraying (MEANS 31 31 16.13 3100)	\$242.00
<b>Total Tilling Cost/Acre</b>	<b>\$332.60</b>

**SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Alkali Sacaton	0.20	7.81	\$5.66
Switchgrass - Blackwell	0.70	6.25	\$6.71
Sideoats Grama - Butte	0.90	2.95	\$8.70
Western Wheatgrass - Arriba	7.20	18.18	\$58.18
Needlegrass, Green - Lodorm	1.50	6.23	\$7.31
<b>Totals Seed Mix</b>	<b>10.50</b>	<b>41.43</b>	<b>\$86.55</b>

**Application**

Description	Cost /Acre
	\$0.00
<b>Total Seed Application Cost/Acre</b>	<b>\$0.00</b>

**MULCHING and MISCELLANEOUS****Materials**

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$261.00	\$522.00
<b>Total Mulch Materials Cost/Acre</b>				<b>\$522.00</b>

**Application**

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$66.02
<b>Total Mulch Application Cost/Acre</b>	<b>\$66.02</b>

**NURSERY STOCK PLANTING**

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
Cottonwood, Narrowleaf	1	Tubling, 3 cu. in. container (MEANS)	\$1.05	\$0.00	\$1.05
Snowberry, Mountain	1	Container, 1 gallon (MEANS)	\$14.16	\$0.00	\$14.16
Winter Fat	1	Container, 1 gallon (MEANS)	\$14.16	\$0.00	\$14.16
<b>Totals Nursery Stock Cost / Acre</b>					<b>\$29.37</b>

**JOB TIME AND COST**

No. of Acres: 124  
 Estimated Failure Rate: 25%  
 \*Selected Replanting Work Items: FERTILIZING, SEEDING

Cost /Acre: \$1,036.54

Cost /Acre\*: \$86.55

Initial Job Cost: \$128,530.96  
 Reseeding Job Cost: \$2,683.05  
 Total Job Cost: \$131,214  
 Job Hours: 80.00

**EQUIPMENT MOBILIZATION/DEMobilIZATION**Task description: Mob/DemobSite: 83rd Joint VenturePermit Action: SI-01 EstimatePermit/Job#: M1992069**PROJECT IDENTIFICATION**Task #: 004State: ColoradoAbbreviation: NoneDate: 10/24/2017County: WeldFilename: M069-00410:04:47 AMUser: PSHAgency 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:**

<b>Available Rig Capacities</b>	<b>0-25 Tons</b>	<b>26-50 Tons</b>	<b>51+ Tons</b>
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 825H	36.08	\$103.01	\$117.55	1	\$220.56	\$117.55	\$250.00
Cat D8T - 8SU	53.08	\$91.36	\$125.45	1	\$216.81	\$125.45	\$250.00

Subtotals: **\$437.37** **\$243.00** **\$500.00****ROADABLE EQUIPMENT:**

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
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Subtotals: **\$0.00** **\$0.00**

**EQUIPMENT HAUL DISTANCE and Time**

Nearest Major City or Town within project area region:	<u>GREELEY</u>	
Total one-way travel distance:	<u>10.00</u>	miles
Average Travel Speed:	<u>30.00</u>	mph

Total Non-Roadable Mob/Demob Cost *	<u>\$2,328.32</u>
** two round trips with haul rig:	
Total Roadable Mob/Demob Cost **	<u>\$0.00</u>
** one round trip, no haul rig:	

**Transportation Cycle Time:**

	Non- Roadable Equipment	Roadable Equipment
Haul Time (Hours):	<u>0.33</u>	<u>0.33</u>
Return Time (Hours):	<u>0.33</u>	<u>0.33</u>
Loading Time (Hours):	<u>0.50</u>	<u>NA</u>
Unloading Time (Hours):	<u>0.50</u>	<u>NA</u>
Subtotals:	<u>1.67</u>	<u>0.67</u>

**JOB TIME AND COST**

Total job time:	<u>3.33</u>	Hours
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Total job cost:	<u>\$2,328</u>
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## COMPACTION WORK

Task description: Compact and place imported fill

Site: 83rd Joint Venture

Permit Action: SI-01 Estimate

Permit/Job#: M1992069

### PROJECT IDENTIFICATION

Task #: 005

State: Colorado

Abbreviation: None

Date: 10/24/2017

County: Weld

Filename: M069-005

10:05:32 AM

User: PSH

Agency or organization name: DRMS

### HOURLY EQUIPMENT COST

Basic Machine: CAT 825H

Horsepower: 354

Compactor Type: Soil - tamping foot

Shift Basis: 1 per day

Data Source: (CRG)

#### Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$103.01</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$74.57</u>	<u>100</u>
Operator Cost/Hour:	<u>\$31.87</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$209.45</u>	
Total Fleet Cost/Hour:	<u>\$209.45</u>	

### MATERIAL QUANTITIES

Loose volume: 1,766,578

LCY

Shrinkage factor: 0.900

Compacted volume: 1,589,920

CCY

Source of estimated volume: Division of Reclamation, Mining & Safety

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):	<u>7.34</u>	<u>feet</u>
Average Compactor Speed (S):	<u>3.00</u>	<u>mph</u>
Compacted thickness of each lift (L):	<u>6.00</u>	<u>inches</u>
Conversion Constant (C):	<u>16.3</u>	<u>(5,280ft./12in./27cu.ft.)</u>
Required number of machine passes (P):	<u>4</u>	<u>passes</u>
Unadjusted Hourly Unit Production:	<u>538.39</u>	<u>CCY/hour</u>

#### Job Condition Correction Factors

Site Altitude: 4,800 feet

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

Adjusted Hourly Unit Production: 446.86 CCY/Hour

Adjusted Hourly Fleet Production: 446.86 CCY/Hour

### JOB TIME AND COST

Fleet size: 1 Compactor(s)

Total job time: 3,557.96 Hours

Unit cost: \$0.469 per CCY

Total job cost: \$745,215

**BULLDOZER WORK**Task description: Backfill Stockpile Rough GradingSite: 83rd Joint VenturePermit Action: SI-01 EstimatePermit/Job#: M1992069**PROJECT IDENTIFICATION**Task #: 006State: ColoradoAbbreviation: NoneDate: 10/24/2017County: WeldFilename: M069-006User: PSHAgency 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:	\$83.81	NA
Operating Cost/Hour:	\$66.17	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: \$190.50Total Fleet Cost/Hour: \$190.50**MATERIAL QUANTITIES**Initial Volume: 1,766,578Swell factor: 1.000Loose volume: 1,766,578 LCYSource of estimated volume: Division of Reclamation, Mining & SafetySource of estimated swell factor: Cat Handbook**HOURLY PRODUCTION**Average push distance: 100 feetUnadjusted hourly production: 852.6 LCY/hrMaterials consistency description: Loose stockpile 1.2Average push gradient: -5 %Average site altitude: 4,800 feetMaterial weight: 2,900 lbs/LCYWeight description: Sand and gravel - Dry**Job Condition Correction Factor**

		<u>Source</u>
Operator Skill:	1.000	(EXCL.)
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:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.793	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7045

Adjusted unit production: 600.66 LCY/hr

Adjusted fleet production: 600.66 LCY/hr

### **JOB TIME AND COST**

Fleet size: 1 Dozer(s)

Unit cost: \$0.317/LCY

Total job time: 2,941.06 Hours

Total job cost: \$560,279