

COST SUMMARY WORK

Task description: Cost Summary

Site: New Elk Mine

Permit Action: RDA Calculation Final

Permit/Job#: C1981012

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 9/28/2020

County: Las Animas

Filename: C012-000

User: DC1

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
001	Regrading 30,000 LCY Refuse	GRADER	2	4.14	\$1,274
002	Strip and Place 5 acres of topsoil	TRUCK1	1	82.68	\$57,015
003	Strip and Place 10 acres of Cover over 2 feet from borrow	TRUCK1	1	287.66	\$198,371
004	100 year ditch	EXCAVATE	1	27.86	\$3,051
005	Strip and Place 4 acres of Cover over 2 feet from RDA back	TRUCK1	1	115.07	\$79,349
006	Strip and Place 5 acres of Cover over 2 feet from borrow	TRUCK1	1	236.40	\$163,021
007	Reseed RDA	REVEGE	1	5.00	\$6,172
008	Replace topsoil over borrow area	TRUCK1	1	53.94	\$30,099
<u>SUBTOTALS:</u>				812.75	\$538,352

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$10,875

Performance bond: 1.05

Total = \$5,653

Job superintendent: 379.40

Total = \$26,387

Profit: 10.00

Total = \$53,835

TOTAL O & P = \$96,750

CONTRACT AMOUNT (direct + O & P) = \$635,102

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

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

Total = \$500

Engineering work and/or contract/bid preparation: 5.23

Total = \$33,216

Reclamation management and/or administration: 4.00

\$25,404

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$155,870

TOTAL BOND AMOUNT (direct + indirect) = \$694,222

MOTOR GRADER WORK

Task description: Regrading 30,000 LCY Refuse

Site: New Elk Mine Permit Action: RDA Reclamation
Final

Permit/Job#: C1981012

PROJECT IDENTIFICATION

Task #: 001 State: Colorado Abbreviation: None
Date: 9/23/2020 County: Las Animas Filename: C012-001
User: DC1

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: CAT 16M Horsepower: 297
Ripper Attachment: Multi-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	<u>\$55.79</u>	<u>NA</u>
Operating Cost/Hour:	<u>\$60.08</u>	<u>100</u>
Ripper Ownership Cost/Hour:	<u>\$4.83</u>	<u>NA</u>
Ripper Operating Cost/Hour:	<u>\$4.40</u>	<u>100</u>
Operator Cost/Hour:	<u>\$28.56</u>	<u>NA</u>
Total Unit Cost/Hour:	<u>\$153.65</u>	
Total Fleet Cost/Hour:	<u>\$307.30</u>	

MATERIAL QUANTITIES

Total Area to be graded or ripped: 19.00 acres

Source of estimated acreage: Operator provided

HOURLY PRODUCTION

Average Grader Speed: 1.50 mph
Selected Application: Finish grading (0-2.5 mph) - 1.5
Selected Blade Angle: 0 degrees
Effective Blade Length: 16.00 feet
Width of blade overlap per pass: 2.00 feet
Net grading or ripping width per pass: 14.00 feet
Unadjusted Hourly Unit Production: 2.5455 acres/hour

Job Condition Correction Factors

Site Altitude: 7680 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: 2.2909 acres/Hour
Adjusted Hourly Fleet Production: **4.5818** acres/Hour

JOB TIME AND COST

Fleet size: 2 Grader(s) Total job time: **4.15** Hours

Unit cost: \$67.07 per acre Total job cost: **\$1,274**

TRUCK/LOADER TEAM WORK

Task description: Strip and Place 5 acres of topsoil

Site: New Elk Mine

Permit Action: RDA Calculation Final

Permit/Job#: C1981012

PROJECT IDENTIFICATION

Task #: 002

State: Colorado

Abbreviation: None

Date: 9/28/2020

County: Las Animas

Filename: C012-002

User: DC1

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 725
-Loader:	Cat 319D L 8'-10" Stick
Support Equipment -Load Area:	Cat D7R DS Series II LGP
-Dump Area:	Cat D7R DS Series II LGP
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 3,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Excavator	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	50	50	25	25
Ownership cost/hour:	\$56.08	\$36.95	\$76.61	\$76.61	\$65.89	\$14.71
Operating cost/hour:	\$45.18	\$39.39	\$37.39	\$37.39	\$14.74	\$7.65
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$32.54	\$37.32	\$41.30	\$41.30	\$28.56	\$0.00
Unit Subtotals:	\$133.80	\$113.66	\$155.30	\$155.30	\$109.19	\$22.35
Number of Units:	1	1	1	1	1	1
Group Subtotals:	Work:	\$247.46	Support:	\$310.60	Maint:	\$131.54

Total work team cost/hour: \$689.60

MATERIAL QUANTITIES

Initial volume: 9,274

CCY

Swell factor: 1.000

Loose volume: 9,274

LCY

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

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:	52,000	Pounds
Payload Capacity:	32.50	LCY

Truck Bed (volume) Basis:

Struck Volume:	14.50	LCY
Heaped Volume:	18.70	LCY
Average Volume:	16.60	LCY
Adjusted Volume:	18.70	LCY

Final Truck Volume Based on Number of Loader Passes: **18.23** LCY

Loading Tool Capacity

Bucket Size Class: Medium

Rated Capacity:	1.100	LCY (heaped)
Bucket Fill Factor:	0.975	Loose material - uniform aggregates to 1/8" (95-100%) 0.975
Adjusted Capacity:	1.073	LCY

Job Condition Corrections:

Site Altitude (ft.): 7680 feet

	Truck	Loader	Source
Altitude Adj:	1.000	0.830	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.689	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill
Truck: 17 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: AVERAGE
Selected Value within this Basic Rating: AVERAGE

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): NA minutes

Cycle Time Factors		Factor (min.)	Source
Material:	NA	NA	(Cat HB)
Stockpile:	NA	NA	(Cat HB)
Truck Ownership:	NA	NA	(Cat HB)
Operation:	NA	NA	(Cat HB)
Dump Target:	NA	NA	(Cat HB)

Net Cycle Time Adjustment:	<u>NA</u>	minutes
Adjusted Loader Cycle Time:	0.282	minutes
Net Load Time per Truck:	4.612	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	4.612	Minutes	Adjusted for site altitude:	5.557	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) Time:
maintained 2.0

Road Condition: Hard, smooth, stabilized, surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	800.00	5.00	2.00	7.00	1050	0.821

Haul Time: **0.821** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	800.00	-5.00	2.00	-3.00	3159	0.317

Return Time: **0.317** minutes

Total Truck Cycle Time: **8.095** minutes

Loading Tool unit

Production 180.62 LCY/Hour Adjusted for job efficiency: 149.91 LCY/Hour

Truck Unit Production 135.15 LCY/Hour Adjusted for job efficiency: 112.17 LCY/Hour

Optimal No. of Trucks: 1 Truck(s) Selected Number of Trucks: 1 Truck(s)

Adjusted hourly truck team production: 112.17 LCY/Hour

Adjusted single truck/loader team production: 112.17 LCY/Hour

Adjusted multiple truck/loader team production: **112.17** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **82.68** Hours

Unit cost: \$6.148 /LCY Total job cost: **\$57,015**

TRUCK/LOADER TEAM WORK

Task description: Strip and Place 10 acres of Cover over 2 feet from borrow

Site: New Elk Mine

Permit Action: RDA Calculation Final

Permit/Job#: C1981012

PROJECT IDENTIFICATION

Task #: 003

State: Colorado

Abbreviation: None

Date: 9/28/2020

County: Las Animas

Filename: C012-003

User: DC1

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 725
-Loader:	Cat 319D L 8'-10" Stick
Support Equipment -Load Area:	Cat D7R DS Series II LGP
-Dump Area:	Cat D7R DS Series II LGP
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 3,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Excavator	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	50	50	25	25
Ownership cost/hour:	\$56.08	\$36.95	\$76.61	\$76.61	\$65.89	\$14.71
Operating cost/hour:	\$45.18	\$39.39	\$37.39	\$37.39	\$14.74	\$7.65
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$32.54	\$37.32	\$41.30	\$41.30	\$28.56	\$0.00
Unit Subtotals:	\$133.80	\$113.66	\$155.30	\$155.30	\$109.19	\$22.35
Number of Units:	1	1	1	1	1	1
Group Subtotals:	Work:	\$247.46	Support:	\$310.60	Maint:	\$131.54

Total work team cost/hour: \$689.60

MATERIAL QUANTITIES

Initial volume: 32,267

CCY

Swell factor: 1.000

Loose volume: 32,267

LCY

Source of estimated volume: Operator Provided

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:	2,650	Pounds/LCY
Description:	Decomposed rock - 25% Rock, 75% Earth	
Rated Payload:	52,000	Pounds
Payload Capacity:	19.62	LCY

Truck Bed (volume) Basis:

Struck Volume:	14.50	LCY
Heaped Volume:	18.70	LCY
Average Volume:	16.60	LCY
Adjusted Volume:	18.70	LCY

Final Truck Volume Based on Number of Loader Passes: **18.23** LCY

Loading Tool Capacity

Bucket Size Class: Medium

Rated Capacity:	1.100	LCY (heaped)
Bucket Fill Factor:	0.975	Loose material - uniform aggregates to 1/8" (95-100%) 0.975
Adjusted Capacity:	1.073	LCY

Job Condition Corrections:

Site Altitude (ft.): 7680 feet

	Truck	Loader	Source
Altitude Adj:	1.000	0.830	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.689	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: 17 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: AVERAGE
Selected Value within this Basic Rating: AVERAGE

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): NA minutes

Cycle Time Factors		Factor (min.)	Source
Material:	NA	NA	(Cat HB)
Stockpile:	NA	NA	(Cat HB)
Truck Ownership:	NA	NA	(Cat HB)
Operation:	NA	NA	(Cat HB)
Dump Target:	NA	NA	(Cat HB)

Net Cycle Time Adjustment:	NA	minutes
Adjusted Loader Cycle Time:	0.282	minutes
Net Load Time per Truck:	4.612	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	4.612	Minutes	Adjusted for site altitude:	5.557	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) Time:
maintained 2.0

Road Condition: Hard, smooth, stabilized, surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	800.00	5.00	2.00	7.00	1050	0.821

Haul Time: **0.821** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	800.00	-5.00	2.00	-3.00	3159	0.317

Return Time: **0.317** minutes

Total Truck Cycle Time: **8.095** minutes

Loading Tool unit

Production 180.62 LCY/Hour Adjusted for job efficiency: 149.91 LCY/Hour

Truck Unit Production 135.15 LCY/Hour Adjusted for job efficiency: 112.17 LCY/Hour

Optimal No. of Trucks: 1 Truck(s) Selected Number of Trucks: 1 Truck(s)

Adjusted hourly truck team production: 112.17 LCY/Hour

Adjusted single truck/loader team production: 112.17 LCY/Hour

Adjusted multiple truck/loader team production: **112.17** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **287.66** Hours

Unit cost: \$6.148 /LCY Total job cost: **\$198,371**

HYDRAULIC EXCAVATOR WORK

Task description: 100 year ditch

Site: New Elk Mine

Permit Action: RDA Calculation Final

Permit/Job#: C1981012

PROJECT IDENTIFICATION

Task #: 004

State: Colorado

Abbreviation: None

Date: 9/28/2020

County: Las Animas

Filename: C012-004

User: DC1

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat 315D L 8'-6" Stick

Attachment 1: ROPS Cab

Horsepower: 115

Weight (MT): 17.32

Shift Basis: 1 per day

Data Source: (CRG)

Cost Breakdown:

		Utilization %
Ownership Cost/Hour:	\$36.12	NA
Operating Cost/Hour:	\$36.06	100
Operator Cost/Hour:	\$37.32	NA
Total Unit Cost/Hour:	\$109.49	

Total Fleet Cost/Hour: \$109.49

MATERIAL QUANTITIES

Initial volume: 4,000

CCY

Swell factor: 1.000

Loose volume: 4,000

LCY

Source of estimated volume: Operator Provided

Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Excavator Cycle Time (load bucket, swing loaded, dump bucket, swing empty):

Basic Job Condition Description: AVERAGE

Secondary Job Condition within Basic Description: AVERAGE

Cycle Time Value: 0.256 minutes

Load Bucket Capacity

Bucket Size Class: Medium

Rated Capacity: 0.80 LCY (heaped)

Bucket Fill Factor: 1.025 Rock - Earth Mixture (100%-105%) 1.025

Adjusted Capacity: 0.82 LCY

Job Condition Correction Factors

Site Altitude: 7820 feet

		Source
Altitude Adj:	0.90	(CAT HB)
Job Efficiency:	0.83	(1 shift/day)
Net Correction:	0.75	multiplier

Unadjusted Hourly Unit Production: 192.19 LCY/Hour

Adjusted Hourly Unit Production: 143.56 LCY/Hour

Adjusted Hourly Fleet Production: 143.56 LCY/Hour

JOB TIME AND COST

Fleet size: 1

Excavator

Total job time: 27.86

Hours

Unit cost: \$0.763 /LCY

Total job cost: **\$3,051**

TRUCK/LOADER TEAM WORK

Task description: Strip and Place 4 acres of Cover over 2 feet from RDA back

Site: New Elk Mine

Permit Action: RDA Calculation Final

Permit/Job#: C1981012

PROJECT IDENTIFICATION

Task #: 005

State: Colorado

Abbreviation: None

Date: 9/28/2020

County: Las Animas

Filename: C012-005

User: DC1

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 725
-Loader:	Cat 319D L 8'-10" Stick
Support Equipment -Load Area:	Cat D7R DS Series II LGP
-Dump Area:	Cat D7R DS Series II LGP
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 3,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Excavator	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	50	50	25	25
Ownership cost/hour:	\$56.08	\$36.95	\$76.61	\$76.61	\$65.89	\$14.71
Operating cost/hour:	\$45.18	\$39.39	\$37.39	\$37.39	\$14.74	\$7.65
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$32.54	\$37.32	\$41.30	\$41.30	\$28.56	\$0.00
Unit Subtotals:	\$133.80	\$113.66	\$155.30	\$155.30	\$109.19	\$22.35
Number of Units:	1	1	1	1	1	1
Group Subtotals:	Work: \$247.46		Support: \$310.60		Maint: \$131.54	

Total work team cost/hour: **\$689.60**

MATERIAL QUANTITIES

Initial volume: 12,907

CCY

Swell factor: 1.000

Loose volume: **12,907**

LCY

Source of estimated volume: Operator Provided

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:	2,650	Pounds/LCY
Description:	Decomposed rock - 25% Rock, 75% Earth	
Rated Payload:	52,000	Pounds
Payload Capacity:	19.62	LCY

Truck Bed (volume) Basis:

Struck Volume:	14.50	LCY
Heaped Volume:	18.70	LCY
Average Volume:	16.60	LCY
Adjusted Volume:	18.70	LCY

Final Truck Volume Based on Number of Loader Passes: **18.23** LCY

Loading Tool Capacity

Bucket Size Class: Medium

Rated Capacity:	1.100	LCY (heaped)
Bucket Fill Factor:	0.975	Loose material - uniform aggregates to 1/8" (95-100%) 0.975
Adjusted Capacity:	1.073	LCY

Job Condition Corrections:

Site Altitude (ft.): 7680 feet

	Truck	Loader	Source
Altitude Adj:	1.000	0.830	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.689	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill
Truck: 17 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: AVERAGE
Selected Value within this Basic Rating: AVERAGE

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): NA minutes

Cycle Time Factors		Factor (min.)	Source
Material:	NA	NA	(Cat HB)
Stockpile:	NA	NA	(Cat HB)
Truck Ownership:	NA	NA	(Cat HB)
Operation:	NA	NA	(Cat HB)
Dump Target:	NA	NA	(Cat HB)

Net Cycle Time Adjustment:	NA	minutes
Adjusted Loader Cycle Time:	0.282	minutes
Net Load Time per Truck:	4.612	minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	4.612	Minutes	Adjusted for site altitude:	5.557	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) Time:
maintained 2.0

Road Condition: Hard, smooth, stabilized, surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	800.00	5.00	2.00	7.00	1050	0.821

Haul Time: **0.821** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	800.00	-5.00	2.00	-3.00	3159	0.317

Return Time: **0.317** minutes

Total Truck Cycle Time: **8.095** minutes

Loading Tool unit

Production 180.62 LCY/Hour Adjusted for job efficiency: 149.91 LCY/Hour

Truck Unit Production 135.15 LCY/Hour Adjusted for job efficiency: 112.17 LCY/Hour

Optimal No. of Trucks: 1 Truck(s) Selected Number of Trucks: 1 Truck(s)

Adjusted hourly truck team production: 112.17 LCY/Hour

Adjusted single truck/loader team production: 112.17 LCY/Hour

Adjusted multiple truck/loader team production: **112.17** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **115.07** Hours

Unit cost: \$6.148 /LCY Total job cost: **\$79,349**

TRUCK/LOADER TEAM WORK

Task description: Strip and Place 5 acres of Cover over 2 feet from borrow

Site: New Elk Mine

Permit Action: RDA Calculation Final

Permit/Job#: C1981012

PROJECT IDENTIFICATION

Task #: 006

State: Colorado

Abbreviation: None

Date: 9/28/2020

County: Las Animas

Filename: C012-006

User: DC1

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 725
-Loader:	Cat 319D L 8'-10" Stick
Support Equipment -Load Area:	Cat D7R DS Series II LGP
-Dump Area:	Cat D7R DS Series II LGP
Road Maintenance -Motor Grader:	CAT 14M
-Water Truck:	Water Tanker, 3,500 Gal.

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Excavator	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	50	50	25	25
Ownership cost/hour:	\$56.08	\$36.95	\$76.61	\$76.61	\$65.89	\$14.71
Operating cost/hour:	\$45.18	\$39.39	\$37.39	\$37.39	\$14.74	\$7.65
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Ripper op. cost/hour:	NA	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Operator cost/hour:	\$32.54	\$37.32	\$41.30	\$41.30	\$28.56	\$0.00
Unit Subtotals:	\$133.80	\$113.66	\$155.30	\$155.30	\$109.19	\$22.35
Number of Units:	1	1	1	1	1	1
Group Subtotals:	Work: \$247.46		Support: \$310.60		Maint: \$131.54	

Total work team cost/hour: **\$689.60**

MATERIAL QUANTITIES

Initial volume: 26,517

CCY

Swell factor: 1.000

Loose volume: **26,517**

LCY

Source of estimated volume: Operator Provided

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:	2,650	Pounds/LCY
Description:	Decomposed rock - 25% Rock, 75% Earth	
Rated Payload:	52,000	Pounds
Payload Capacity:	19.62	LCY

Truck Bed (volume) Basis:

Struck Volume:	14.50	LCY
Heaped Volume:	18.70	LCY
Average Volume:	16.60	LCY
Adjusted Volume:	18.70	LCY

Final Truck Volume Based on Number of Loader Passes: 18.23 LCY

Loading Tool Capacity

Bucket Size Class: Medium

Rated Capacity:	1.100	LCY (heaped)
Bucket Fill Factor:	0.975	Loose material - uniform aggregates to 1/8" (95-100%) 0.975
Adjusted Capacity:	1.073	LCY

Job Condition Corrections:

Site Altitude (ft.): 7680 feet

	Truck	Loader	Source
Altitude Adj:	1.000	0.830	(CAT HB)
Job Efficiency:	0.830	0.830	(CAT HB)
Net Correction:	0.830	0.689	

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill
Truck: 17 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: AVERAGE
Selected Value within this Basic Rating: AVERAGE
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): NA minutes

Cycle Time Factors		Factor (min.)	Source
Material:	NA	NA	(Cat HB)
Stockpile:	NA	NA	(Cat HB)
Truck Ownership:	NA	NA	(Cat HB)
Operation:	NA	NA	(Cat HB)
Dump Target:	NA	NA	(Cat HB)

Net Cycle Time Adjustment: NA minutes
Adjusted Loader Cycle Time: **0.282** minutes
Net Load Time per Truck: **4.612** minutes

Truck Cycle Time:

Truck Exchange Time:	0.50	Minutes	Adjusted for site altitude:	0.500	Minutes
Truck Load Time:	4.612	Minutes	Adjusted for site altitude:	5.557	Minutes
Truck Maneuver and Dump Time:	0.90	Minutes	Adjusted for site altitude:	0.900	Minutes

Truck Travel (Haul & Return) Time:
maintained 2.0

Road Condition: Hard, smooth, stabilized, surfaced, watered,

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	800.00	5.00	2.00	7.00	1050	0.821

Haul Time: **0.821** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	800.00	-5.00	2.00	-3.00	3159	0.317

Return Time: **0.317** minutes

Total Truck Cycle Time: **8.095** minutes

Loading Tool unit
 Production 180.62 LCY/Hour Adjusted for job efficiency: 149.91 LCY/Hour
 Truck Unit Production
135.15 LCY/Hour Adjusted for job efficiency: 112.17 LCY/Hour
 Optimal No. of Trucks: 1 Truck(s) Selected Number of Trucks: 1 Truck(s)
 Adjusted hourly truck team production: 112.17 LCY/Hour
 Adjusted single truck/loader team production: 112.17 LCY/Hour
 Adjusted multiple truck/loader team production: **112.17** LCY/Hour

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: **236.40** Hours

Unit cost: \$6.148 /LCY Total job cost: **\$163,021**

REVEGETATION WORK

Task description: Reseed RDA

Site: New Elk Mine Permit Action: RDA Calculation Final Permit/Job#: C1981012

PROJECT IDENTIFICATION

Task #: 007 State: Colorado Abbreviation: None
Date: 9/28/2020 County: Las Animas Filename: C012-007
User: DC1

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
	\$
Total Tilling Cost/Acre	\$0.00

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Buffalograss - Bison	0.50	0.48	\$4.75
Blue Grama - Hachita	0.67	10.94	\$10.70
Little Bluestem - Cimarron	1.20	7.16	\$14.98
Sideoats Grama - Butte	2.50	8.21	\$22.50
Milk Vetch, Cicer - Monarch	0.33	1.10	\$2.71
Streambank Wheatgrass - Sodar	1.50	4.89	\$8.55
Sainfoin - Remont	1.67	0.73	\$5.28
Thickspike Wheatgrass - Critana	0.50	1.77	\$3.44
Western Wheatgrass - Arriba	2.00	5.05	\$13.00
Rabbitbrush, Rubber	0.15	2.23	\$9.64
Rose, Wood's	0.20	0.00	\$4.10
Daisy or Sunflower, Maximillians	0.11	0.62	\$6.16
Flax, Lewis Blue	0.11	0.73	\$1.82
Spike Muhly	0.33	12.12	\$3.20
Penstemon, Rocky Mountain	0.11	1.72	\$3.25
Totals Seed Mix	11.88	57.76	\$114.07

Application

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	TON	\$301.00	\$602.00
Total Mulch Materials Cost/Acre				\$602.00

Application

Description	Cost /Acre
Crimping, with tractor {DMG survey data}	\$70.17
Power mulcher (MEANS 32 91 13.16 0350)	\$101.93
Total Mulch Application Cost/Acre	\$172.10

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:	5	Cost /Acre:	\$1,120.17
Estimated Failure Rate:	33%	Cost /Acre*:	\$346.07
*Selected Replanting Work Items:	SEEDING		

Initial Job Cost:	\$5,600.85
Reseeding Job Cost:	\$571.02
Total Job Cost:	\$6,172
Job Hours:	5.00

TRUCK/LOADER TEAM WORK

Task description: Replace topsoil over borrow area

Site: New Elk Mine

Permit Action: RDA Calculation Final

Permit/Job#: C1981012

PROJECT IDENTIFICATION

Task #: 008

State: Colorado

Abbreviation: None

Date: 9/29/2020

County: Las Animas

Filename: C012-008

User: DC1

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Shift basis: 1 per day

Equipment Description	
Truck Loader Team -Truck:	Cat 725
-Loader:	Cat 319D L 8'-10" Stick
Support Equipment -Load Area:	Cat D7R DS Series II LGP
-Dump Area:	Cat D7R DS Series II LGP
Road Maintenance -Motor Grader:	NA
-Water Truck:	NA

Cost Breakdown:

	Truck/Loader Team		Support Equipment		Maintenance Equipment	
	Truck	Excavator	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	100	50	50	NA	NA
Ownership cost/hour:	\$56.08	\$36.95	\$76.61	\$76.61	NA	NA
Operating cost/hour:	\$45.18	\$39.39	\$37.39	\$37.39	NA	NA
%Utilization-riper:	NA	0	NA	NA	NA	NA
Ripper own. cost/hour:	NA	\$0.00	\$0.00	\$0.00	NA	NA
Ripper op. cost/hour:	NA	\$0.00	\$0.00	\$0.00	NA	NA
Operator cost/hour:	\$32.54	\$37.32	\$41.30	\$41.30	NA	NA
Unit Subtotals:	\$133.80	\$113.66	\$155.30	\$155.30	NA	NA
Number of Units:	1	1	1	1	0	0
Group Subtotals:	Work: \$247.46		Support: \$310.60		Maint: \$0.00	

Total work team cost/hour: **\$558.06**

MATERIAL QUANTITIES

Initial volume: 6,050

CCY

Swell factor: 1.000

Loose volume: **6,050**

LCY

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

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:	52,000	Pounds
Payload Capacity:	32.50	LCY

Truck Bed (volume) Basis:

Struck Volume:	14.50	LCY
Heaped Volume:	18.70	LCY
Average Volume:	16.60	LCY
Adjusted Volume:	18.70	LCY

Final Truck Volume Based on Number of Loader Passes: **18.23** LCY

Loading Tool Capacity

Bucket Size Class: Medium

Rated Capacity:	1.100	LCY (heaped)
Bucket Fill Factor:	0.975	Loose material - uniform aggregates to 1/8" (95-100%) 0.975
Adjusted Capacity:	1.073	LCY

Job Condition Corrections:

Site Altitude (ft.): 7680 feet

	Truck	Loader	Source
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Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill
Truck: 17 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: AVERAGE
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Cycle Time Elements (min.):

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Net Cycle Time Adjustment:	<u>NA</u>	minutes
Adjusted Loader Cycle Time:	0.282	minutes
Net Load Time per Truck:	4.612	minutes

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Road Condition: Hard, smooth, stabilized, surfaced, watered,

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