



COLORADO

Division of Reclamation,
Mining and Safety

Department of Natural Resources

1313 Sherman Street, Room 215
Denver, Colorado 80203

October 23, 2018

Jodi Schreiber
All-Rite Paving & Redi-Mix, Inc.
30783 East Hwy 50
La Junta, CO 81050

**Re: Hancock Gravel Pit, Permit No. M-1981-279, Technical Revision No. 2 (TR-2),
Adequacy Review No. 2 – Bond Estimate**

Ms. Schreiber:

The Division of Reclamation, Mining and Safety (Division) has completed its adequacy review of the materials you submitted with Technical Revision No. 2 (TR-2) for the Hancock Gravel Pit. The Division has calculated a reclamation bond (see enclosed estimate) for the proposed increase in disturbance. Please review the bond estimate and submit any comments at your earliest convenience.

If the Division receives no comments from you by the decision date of **November 13, 2018**, TR-2 will be approved with the required financial warranty set at the amount provided in the estimate, \$175,380.00. A notice of surety increase will be mailed separately after the revision approval date.

If you have any questions, you may contact me by telephone at 303-866-3567, ext. 8129, or by email at amy.eschberger@state.co.us.

Sincerely,

Amy Eschberger
Environmental Protection Specialist

Encl: Division's bond estimate for proposed 50 acres of disturbance



COST SUMMARY WORK

Task description: Cost Summary

Site: Hancock Gravel Pit Permit Action: TR-2 bond estimate Permit/Job#: M1981279

PROJECT IDENTIFICATION

Task #: 000 State: Colorado Abbreviation: None
Date: 10/23/2018 County: Otero Filename: M279-000
User: AME

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

| Task | Description | Form Used | Fleet Size | Task Hours | Cost |
|--------------------------|--------------------------------------|-----------|------------|---------------|------------------|
| 001 | Backfill highwalls to 3H:1V | DOZER | 1 | 188.60 | \$32,358.00 |
| 002 | Rip 5 acre stockpiling area | RIPPER | 1 | 8.06 | \$1,466.00 |
| 003 | Replace 6 inches topsoil on 50 acres | SCRAPER1 | 1 | 63.67 | \$25,749.00 |
| 004 | Revegetate 50 acres to rangeland | REVEGE | 1 | 100.00 | \$79,593.00 |
| 005 | Mobilization/Demobilization | MOBILIZE | 1 | 5.50 | \$5,550.00 |
| <u>SUBTOTALS:</u> | | | | 365.83 | \$144,716 |

INDIRECT COSTS

OVERHEAD AND PROFIT:

| | | | |
|----------------------|-------|---------|--------------------|
| Liability insurance: | 2.02 | Total = | <u>\$2,923.26</u> |
| Performance bond: | 1.05 | Total = | <u>\$1,519.52</u> |
| Job superintendent: | 40.00 | Total = | <u>\$2,922.00</u> |
| Profit: | 10.00 | Total = | <u>\$14,471.60</u> |

TOTAL O & P = \$21,836.38

CONTRACT AMOUNT (direct + O & P) = \$166,552.38

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

| | | | |
|--|---------------|---------|-------------------|
| Financial warranty processing (legal/related costs): | <u>500.00</u> | Total = | <u>500.00</u> |
| Engineering work and/or contract/bid preparation: | <u>0.00</u> | Total = | <u>\$0.00</u> |
| Reclamation management and/or administration: | <u>5.00</u> | | <u>\$8,327.62</u> |

CONTINGENCY: 0.00 Total = \$0.00

TOTAL INDIRECT COST = \$30,664.00

TOTAL BOND AMOUNT (direct + indirect) = \$175,380.00

BULLDOZER WORK

Task description: Backfill highwalls to 3H:1V

Site: Hancock Gravel Pit Permit Action: TR-2 bond estimate Permit/Job#: M1981279

PROJECT IDENTIFICATION

Task #: 001 State: Colorado Abbreviation: None
 Date: 10/23/2018 County: Otero Filename: M279-001
 User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS Series II LGP
 Horsepower: 240
 Blade Type: Straight
 Attachment: NA
 Shift Basis: 1 per day
 Data Source: (CRG)

Cost Breakdown:

| | | <u>Utilization %</u> |
|------------------------|---------|----------------------|
| Ownership Cost/Hour: | \$66.14 | NA |
| Operating Cost/Hour: | \$63.91 | 100 |
| Ripper own. Cost/Hour: | \$0.00 | NA |
| Ripper op. Cost/Hour: | \$0.00 | 50 |
| Operator Cost/Hour: | \$41.52 | NA |

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

MATERIAL QUANTITIES

Initial Volume: 54,815
 Swell factor: 1.000
 Loose volume: 54,815 LCY

Source of estimated volume: 7,400 ft L x 20 ft H, from 2H:1V to 3H:1V
 Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Average push distance: 100 feet
 Unadjusted hourly production: 496.4 LCY/hr

Materials consistency description: Consolidated stockpile 1.0

Average push gradient: 5 %
 Average site altitude: 4,380 feet

Material weight: 2,650 lbs/LCY

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

Job Condition Correction Factor

| | | <u>Source</u> |
|-----------------------|-------|---------------|
| Operator Skill: | 1.000 | (EXCL.) |
| Material consistency: | 1.000 | (CAT HB) |
| Dozing method: | 1.000 | (GEN.) |
| Visibility: | 1.000 | (AVG.) |
| Job efficiency: | 0.830 | (1 SHIFT/DAY) |

| | | |
|------------------|-------|----------|
| Spoil pile: | 0.900 | (SSD-FC) |
| Push gradient: | 0.903 | (CAT HB) |
| Altitude: | 1.000 | (CAT HB) |
| Material Weight: | 0.868 | (CAT HB) |
| Blade type: | 1.000 | (PAT) |

Net correction: 0.5855

Adjusted unit production: 290.64 LCY/hr

Adjusted fleet production: **290.64** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)

Unit cost: \$0.590/LCY

Total job time: **188.60** Hours

Total job cost: **\$32,358**

BULLDOZER RIPPING WORK

Task description: Rip 5 acre stockpiling area

Site: Hancock Gravel Pit Permit Action: TR-2 bond estimate Permit/Job#: M1981279

PROJECT IDENTIFICATION

Task #: 002 State: Colorado Abbreviation: None
Date: 10/23/2018 County: Otero Filename: M279-002
User: AME

Agency or organization name: DRMS

HOURLY EQUIPMENT COST

Basic Machine: Cat D7R DS Series II LGP Horsepower: 240
Ripper Attachment: 3-Shank Ripper Shift Basis: 1 per day
Data Source: (CRG)

Cost Breakdown:

| | | Utilization % |
|-----------------------------|------------------------|---------------|
| Ownership Cost/Hour: | <u>\$66.14</u> | <u>NA</u> |
| Operating Cost/Hour: | <u>\$63.91</u> | <u>100</u> |
| Ripper Ownership Cost/Hour: | <u>\$6.02</u> | <u>NA</u> |
| Ripper Operating Cost/Hour: | <u>\$4.12</u> | <u>100</u> |
| Operator Cost/Hour: | <u>\$41.52</u> | <u>NA</u> |
| Total Unit Cost/Hour: | <u>\$181.70</u> | |
| Total Fleet Cost/Hour: | <u>\$181.70</u> | |

MATERIAL QUANTITIES

Selected estimating method: Area

Alternate Methods:

Seismic: NA Bank Volume: NA BCY NA
Area: 5.00 acres Rip Depth (ft): 2.00 Volume: 16,133 BCY or CCY

Source of estimated quantity: DRMS estimate from 3/19/2016 aerial image

HOURLY PRODUCTION

Seismic:

Seismic Velocity: NA feet/second

Area:

Average Ripping Depth: 2.45 mph
Average Ripping Width: 6.50 degrees
Average Ripping Length: 400.00 feet
Average Dozer Speed: 88.00 feet
Average Maneuver Time: 0.25 feet
Production per unit area: 0.747 acres/hour

Job Condition Correction Factors

Unadjusted Hourly Unit Production: 0.747 Acres/hr
Site Altitude: 4,380 feet
Altitude Adj: 1.00 (CAT HB)
Job Efficiency: 0.83 (1 shift/day)
Net Correction: 0.83 multiplier

Adjusted Hourly Unit Production: 0.62 Acres/hr
Adjusted Hourly Fleet Production: **0.62** Acres/hr

JOB TIME AND COST

Fleet size: 1 Grader(s) Total job time: **8.07** Hours

Unit cost: \$293.136 Per acre Total job cost: **\$1,466**

SCRAPER TEAM WORK

Task description: Replace 6 inches topsoil on 50 acres

Site: Hancock Gravel Pit Permit Action: TR-2 bond estimate Permit/Job#: M1981279

PROJECT IDENTIFICATION

Task #: 003 State: Colorado Abbreviation: None
 Date: 10/23/2018 County: Otero Filename: M279-003
 User: AME

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: | CAT 14M |
| -Water Truck: | Water Tanker, 2,500 Gal. |

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 | 75 | 50 |
| Ownership cost/hour: | \$110.85 | NA | NA | NA | \$60.13 | \$8.51 |
| Operating cost/hour: | \$119.02 | NA | NA | NA | \$38.15 | \$7.98 |
| %Utilization-ripper: | NA | NA | NA | NA | NA | NA |
| Ripper own. cost/hour: | NA | NA | NA | NA | \$0.00 | \$0.00 |
| Ripper op. cost/hour: | NA | NA | NA | NA | \$0.00 | \$0.00 |
| Operator cost/hour: | \$31.05 | NA | NA | NA | \$28.69 | \$0.00 |
| Unit Subtotals: | \$260.92 | NA | NA | NA | \$126.97 | \$16.49 |
| Number of Units: | 1 | 0 | 0 | 0 | 1 | 1 |
| Group Subtotals: | Work: | \$260.92 | Support: | \$0.00 | Maint: | \$143.46 |

Total work team cost/hour: **\$404.38**

MATERIAL QUANTITIES

Initial volume: 40,333 CCY Swell factor: 1.000
 Loose volume: 40,333 LCY

Source of estimated volume: 50 acres x 6 in depth
 Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

| | | <u>Scraper Bowl (volume) Basis:</u> | |
|-----------------------|----------------------|-------------------------------------|-------------------------|
| Material weight: | <u>1 lbs/LCY</u> | Struck Volume: | <u>24.00</u> LCY |
| Material description: | <u>User Provided</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>81,600.00 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: 4380 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: Firm, smooth, rolling, dirt/lt. surfaced, watered, maintained 3.0

Haul Route:

| Seg # | Haul Distance (Ft) | Grade (%) | Roll. Res (%) | Total Res (%) | Velocity (fpm) | Travel Time (min) |
|-------|--------------------|-----------|---------------|---------------|----------------|-------------------|
| 1 | 500.00 | 2.00 | 3.00 | 5.00 | 1343 | 0.41 |

Haul Time: 0.41 minutes

Return Route:

| Seg # | Haul Distance (Ft) | Grade (%) | Roll. Res (%) | Total Res (%) | Velocity (fpm) | Travel Time (min) |
|-------|--------------------|-----------|---------------|---------------|----------------|-------------------|
| 1 | 500.00 | -2.00 | 3.00 | 1.00 | 2937 | 0.34 |

Return Time: 0.34 minutes

Total Scraper team cycle time: 2.25 minutes
 Adjusted for job conditions: 641.87 LCY/Hour
 Selected Number of Scrapers: 1 Scraper(s)
 Adjusted single scraper team (unit) hourly production: 641.87 LCY/Hour
 Adjusted multiple scraper team (fleet) hourly production: 641.87 LCY/Hour

Unadjusted unit production/hour: 773.33 LCY/Hour
 Optimal Number of Scrapers per push dozer: _____

JOB TIME AND COST

Fleet size: 1 Team(s) Total job time: 62.84 Hours
 Unit cost: \$0.630 /LCY Total job cost: \$25,410

REVEGETATION WORKTask description: Revegetate 50 acres to rangelandSite: Hancock Gravel PitPermit Action: TR-2 bond estimatePermit/Job#: M1981279PROJECT IDENTIFICATIONTask #: 004State: ColoradoAbbreviation: NoneDate: 10/23/2018County: OteroFilename: M279-004User: AMEAgency or organization name: DRMSFERTILIZINGMaterials

| Description | Units / Acre | Unit | Cost / Unit | Cost /Acre |
|-------------------------------|-----------------|-------|---|----------------|
| Ammonium nitrate, 33-0-0 | 121.00 | pound | \$0.34 | \$41.14 |
| Triple superphosphate, 0-46-0 | 87.00 | pound | \$0.44 | \$38.28 |
| | | | Total Fertilizer Materials Cost/Acre | \$79.42 |

Application

| Description | Cost /Acre |
|---|----------------|
| Tractor towed spreader (MEANS 32 01 90.13 0120) | \$34.72 |
| Total Fertilizer Application Cost/Acre | |
| | \$34.72 |

TILLING

| Description | Cost /Acre |
|--|-----------------|
| Chisel plowing {DMG} | \$92.77 |
| Weed control spraying (MEANS 31 31 16.13 3100) | \$193.60 |
| Total Tilling Cost/Acre | |
| | \$286.37 |

SEEDING

| Seed Mix | Rate – PLS LBS / Acre | Seeds per SQ. FT | Cost /Acre |
|--------------------------|--------------------------------|------------------------|-----------------|
| Blue Grama - Hachita | 3.00 | 48.97 | \$49.98 |
| Sand Dropseed | 0.60 | 71.63 | \$6.66 |
| Little Bluestem - Native | 3.50 | 20.89 | \$56.46 |
| Sideoats Grama - Vaughn | 9.00 | 29.55 | \$92.16 |
| Totals Seed Mix | | 16.10 | \$205.26 |

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 |
|---|--------------|------|-------------|-----------------|
| Hay, delivered {MEANS 31 25 14.16 1200} | 2.00 | TON | \$288.00 | \$576.00 |
| Total Mulch Materials Cost/Acre | | | | \$576.00 |

Application

| Description | Cost /Acre |
|--|----------------|
| Crimping, with tractor {DMG survey data} | \$68.78 |
| Total Mulch Application Cost/Acre | \$68.78 |

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: <u>50</u> | Cost /Acre: <u>\$1,482.55</u> |
| Estimated Failure Rate: <u>25%</u> | Cost /Acre*: <u>\$437.26</u> |
| *Selected Replanting Work Items: <u>SEEDING</u> | |
| Initial Job Cost: <u>\$74,127.50</u> | |
| Reseeding Job Cost: <u>\$5,465.75</u> | |
| Total Job Cost: <u>\$79,593</u> | |
| Job Hours: <u>100.00</u> | |

EQUIPMENT MOBILIZATION/DEMobilIZATIONTask description: Mobilization/DemobilizationSite: Hancock Gravel PitPermit Action: TR-2 bond estimatePermit/Job#: M1981279PROJECT IDENTIFICATION

Task #: 005 State: Colorado Abbreviation: None
 Date: 10/23/2018 County: Otero Filename: M279-005
 User: AME

Agency or organization name: DRMSEQUIPMENT 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:

| <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/unit</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 D7R DS Series II LGP | 34.57 | \$66.14 | \$117.55 | 1 | \$183.69 | \$117.55 | \$250.00 |
| Cat 631G | 52.50 | \$110.85 | \$125.45 | 1 | \$236.30 | \$125.45 | \$250.00 |
| CAT 14M | 23.57 | \$64.20 | \$88.67 | 1 | \$152.87 | \$88.67 | \$250.00 |
| Drill/Broadcast Seeder with Tractor | 25.00 | \$15.54 | \$88.67 | 1 | \$104.21 | \$88.67 | \$250.00 |

Subtotals: **\$677.07** **\$420.34** **\$1,000.00**

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> |
|----------------------------|----------------------------|-------------------|---------------------------------|-----------------------------------|
| Water Tanker, 2,500 Gal. | \$24.48 | 1 | \$24.48 | \$24.48 |

Subtotals: **\$24.48** **\$24.48**

EQUIPMENT HAUL DISTANCE and Time

Nearest Major City or Town within project area region: LA JUNTA
 Total one-way travel distance: 15.00 miles
 Average Travel Speed: 40.00 mph

Total Non-Roadable Mob/Demob Cost * \$5,531.34
 * * two round trips with haul rig:
 Total Roadable Mob/Demob Cost ** \$18.36
 ** one round trip, no haul rig:

Transportation Cycle Time:

| | Non-Roadable Equipment | Roadable Equipment |
|-------------------------|------------------------|--------------------|
| Haul Time (Hours): | 0.38 | 0.38 |
| Return Time (Hours): | 0.38 | 0.38 |
| Loading Time (Hours): | 1.00 | NA |
| Unloading Time (Hours): | 1.00 | NA |
| Subtotals: | 2.75 | 0.75 |

JOB TIME AND COST

Total job time: 5.50 Hours

Total job cost: \$5,550