

July 1, 2021

Kimberly Dennis Aggregate Industries – WCR, Inc. 1687 Cole Blvd Suite 300 Golden, CO 80401

RE: Lyons Quarry, Permit No. M-1977-141, Technical Revision No. 5 (TR-05), Adequacy Review No. 4 – Bond Estimate

Ms. Dennis:

The Division of Reclamation, Mining and Safety (Division) has calculated the required financial warranty for the reclamation plan proposed in TR-05 (see enclosed). Please review this estimate and provide any comments you might have. If you have no questions or comments and accept the bond estimate as-is, please provide a response stating your acceptance of the estimate.

Given the decision date for TR-05 is currently set for Monday, July 5, 2021, on which, our office will be closed for the Independence Day holiday, we recommend that **by noon on Friday, July 2, 2021**, you either submit a statement of acceptance of the bond estimate or an extension request to the TR-05 decision date.

If you have any questions, you may contact me by telephone at (303) 866-3567, ext. 8129, or by email at <a href="mailto:amy.eschberger@state.co.us">amy.eschberger@state.co.us</a>.

Sincerely,

Amy Eschberger

Carry Elektriger

**Environmental Protection Specialist** 

Encl: Division's TR-05 bond estimate, dated 7/1/2021

Cc: Travis Snyder, HDR

Chance Allen, Aggregate Industries - WCR, Inc.

Tim Cazier, DRMS

Michael Cunningham, DRMS



## **COST SUMMARY WORK**

ite: Lyons Quarry		Pe	rmit Action: TR-5 202	l Permit/Jo	Permit/Job#: M1977141	
PROJECT	<u>IDENTIFI</u>	<u>CATION</u>				
Task #:	000	State:	Colorado	Abbreviation:	None	
Date:	7/1/2021	County:	Boulder	Filename:	M141-000	
User:	AME					

## TASK LIST (DIRECT COSTS)

Task	B	Form	Fleet	Task	Cost
	Description	Used	Size	Hours	Cost
001	Project safety plan	NA	0	10.00	\$55,000
002	Erosion control	NA	2	10.00	\$125,000
003	Site survey	NA	0	10.00	\$65,000
004	Debris removal (10 tons/load x 5 loads x \$1,600/load)	NA	2	10.00	\$8,000
005	Excavation & blasting (245,080 cy x \$5.35/cy)	NA	4	480.00	\$1,311,178
006	Fill and compaction (254,695 cy x \$2.20/cy)	NA	4	480.00	\$560,329
007	Scour berm/drainage riprap (20,000 cy x \$28/cy)	NA	3	240.00	\$560,000
008	Final grading (40.35 acres x \$1,000/acre)	NA	3	80.00	\$40,350
009	Rock scaling (144 hours x \$500/hour)	NA	2	160.00	\$72,000
010	Rock reinforcement (20 bolts w/30 ft length x \$7,500/bolt)	NA	1	40.00	\$150,000
011	Install runoff channels (4,120 LF x \$33/LF)	NA	2	40.00	\$135,960
012	Install 24 inch Class V RCP (165 LF x \$550/LF)	NA	1	10.00	\$90,750
013	Soil test plots (4 plots x \$14,901/plot)	NA	1	240.00	\$59,604
014	Replace topsoil on 40.35 acres	SCRAPER1	1	39.43	\$54,286
015	Revegetate 29.25 acres (flatter slopes)	REVEGE	1	29.25	\$77,963
016	Revegetate 11.1 acres (steeper slopes)	REVEGE	1	11.00	\$30,734
017	Import soil growth medium (32,549 cy x \$13/cy)	NA	1	16.00	\$423,137
018	Install perimeter fencing (3,366 LF x \$25/LF)	NA	1	32.00	\$84,150
019	Mobilization/demobilzation	NA	13	16.00	\$225,000
020	Revegetate 11.85 acres (Rec Area 2 - TR-4 areas)	REVEGE	1	11.85	\$31,585
021	Replace topsoil on 11.85 acres (Rec Area 2 - TR-4 Areas)	SCRAPER1	1	12.99	\$17,882
		SUBTO	OTALS:	1978.52	\$4,177,908

### **INDIRECT COSTS**

### **OVERHEAD AND PROFIT:**

Liability insurance:	2.02	Total =	\$84,394
Performance bond:	1.05	Total =	\$43,868
Job superintendent:	989.26	Total =	\$71,256
Profit:	10.00	Total =	\$417,791
		TOTAL O & D -	\$617.200

TOTAL O & P = \$617,309 CONTRACT AMOUNT (direct + O & P) = \$4,795,217

#### LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs):	\$500	Total =	\$500
Engineering work and/or contract/bid preparation:	4.25	Total =	\$203,797
Reclamation management and/or administration:	5.00		\$239,761

CONTINGENCY: 3.00 Total = \$125,337

TOTAL INDIRECT COST = \_\_\$1,186,704

TOTAL BOND AMOUNT (direct + indirect) = \$5,364,612

# SCRAPER TEAM WORK

Task description:	Replace to	psoil on	40.35 acr	res				
Site: Lyons Quarry		Permi	t Action:	TR-5 2021	Peri	mit/Job#: _	M1977141	1
PROJECT IDENT	<u> </u>							
Task #: 014	5	State:	Colorado		Abbre	viation: N	None	
Date: 7/1/202		_	Boulder		Fil	ename: N	M141-014	
User: AME								
Agency or o	organization name:	DRM	IS					
HOURLY EQUIP	PMENT_			COSTS	hift basis: 1 per d	<u>ay</u>		
				ent Description				
		Scraper:	Cat 637 NA	'G				_
Suppo	rt Equipment -Loa	-Dozer:		R DS XR Series I	Ţ			_
Бирро	1 1	p Area:	NA NA	IC DS THE Series I	1			_
Road Ma	intenance –Motor		CAT 16					<del>_</del> 
	-Water	Truck:	Water 7	Γanker, 3,500 Gal				_
Cost Breakdown:	Caranar Wa	rls Toom		Support Equi	nmant	Mainta	nongo Egy	inmont
Cost Breakdown:	Scraper Wo Scraper	Do.	zer	Support Equi Load Area	Dump Area	Motor Gr	nance Equarader V	Water Truck
%Utilization-machine:	100		NA	100	NA		100	100
Ownership cost/hour:	\$218.34		NA	\$81.02	NA	\$7	70.80	\$17.15
Operating cost/hour:	\$208.00		NA	\$79.33	NA	·	66.31	\$29.20
%Utilization-ripper:	NA		NA	NA	NA	7.0	75	NA
Ripper own. cost/hour:	NA		NA	\$0.00	NA	\$	55.52	\$0.00
Ripper op. cost/hour:	NA		NA	\$0.00	NA	\$	63.64	\$0.00
Operator cost/hour:	\$47.07		NA	\$40.04	NA	\$4	6.87	\$0.00
Unit Subtotals:	\$473.41		NA	\$200.39	NA	\$18	33.14	\$46.35
Number of Units:	2		0	1	0		1	
Group Subtotals:	Work:	\$940	5.82	Support:	\$200.39	M	aint:	\$229.49
Total work team cost	/hour: <b>\$1,376.70</b>							
MATERIAL QUA	ANTITIES							
Initial volume:	32,549		CCY	Swell fac	tor: 1.215			
Loose volume:	39,547		LCY					
	rce of estimated vo	_	40.35 ac	x 6 inch depth dbook				_
HOURLY PROD	<u>UCTION</u>							
	<del></del>			Scraper B	owl (volume) Bas	is:		
Material weight:	1,600 lbs/LCY			Struck	Volume: 24.00		LCY	
Material description:	Top Soil				Volume: 34.00		LCY	
Rated Payload:	81,600 pounds			Average			LCY	
Payload Capacity:	51.00 LCY			Adjusted (	Capacity: <b>29.00</b>		LCY	

Site Altitude: 5800 feet

Cycle Time:

Scraper Loading Time: 0.80 Minutes
Maneuver and Spread Time: 0.60 Minutes

Job Condition Correction:

	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	800.00	10.00	3.00	13.00	710	1.14

Haul Time: 1.14 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	800.00	-10.00	3.00	-7.00	2972	0.34

**0.34** minutes Return Time: Total Scraper team cycle time: 2.88 minutes Adjusted for job conditions: 501.46 LCY/Hour Selected Number of Scrapers: 2 Scraper(s) Adjusted single scraper team (unit) hourly production: 1,002.92 LCY/Hour Adjusted multiple scraper team (fleet) hourly production: 1,002.92 LCY/Hour Unadjusted unit production/hour: 604.17 LCY/Hour Optimal Number of Scrapers per push dozer:

**JOB TIME AND COST** 

 Fleet size:
 1
 Team(s)
 Total job time:
 39.43
 Hours

 Unit cost:
 \$1.373
 /LCY
 Total job cost:
 \$54,286

# **REVEGETATION WORK**

Task descri	ption:	Revegetate 29.25	acres (flatte	er slopes)			
Site: Lyons Q	uarry	Perm	nit Action:	TR-5 2021	Permit/Job	#: <u>M1977141</u>	
PROJECT	IDENTIFI	<u>CATION</u>					
Task #:	015	State:	Colorado		Abbreviation:	None	
Date:	7/1/2021	County:	Boulder		Filename:	M141-015	
User:	AME				<u> </u>		

Agency or organization name: DRMS

## **FERTILIZING**

#### Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	909.00	pound	\$0.36	\$327.24
Triple superphosphate, 0-46-0	108.70	pound	\$0.46	\$50.00
			Total Fertilizer Materials Cost/Acre	\$377.24

Application

Description		Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)		\$38.77
·		
	<b>Total Fertilizer Application Cost/Acre</b>	\$38.77

### **TILLING**

Description		Cost /Acre
Subsoil scarification, (MEANS 32 91 13.23 3100)		\$191.66
Weed control spraying (MEANS 31 31 16.13 3100)		\$290.40
	<b>Total Tilling Cost/Acre</b>	\$482.06

### **SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Switchgrass - Blackwell	0.81	7.23	\$9.32
Aster, Engleman's	0.20	0.95	\$38.80
Blue Grama - Native	0.59	9.63	\$8.10
Canada Wildrye	3.64	9.61	\$39.46
Beeplant, Rocky Mountain	2.12	5.45	\$57.24
Bottlebrush Squirreltail	2.18	9.61	\$35.37
Sandberg Bluegrass - VNS	0.38	8.07	\$3.19
Slender Wheatgrass - San Luis	2.19	7.99	\$9.31
Thickspike Wheatgrass - Critana	2.26	7.99	\$15.54

Rabbitbrush, Rubber Needlegrass, Green - Lodorm Sage, Fringed	0.61	9.09	\$39.22
	1.54	6.40	\$18.13
	0.03	2.51	\$1.23
Totals Seed Mix	16.55	84.53	\$274.90

**Application** 

Description	Cost /Acre
Broadcast seeding [DMG]	\$267.22
Total Seed Application Cost/Acre	\$267.22

#### **MULCHING and MISCELLANEOUS**

#### Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	\$2.98	\$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$307.02	\$614.04
Total Mulch Materials Cost/Acre				\$617.02

Application

Description		Cost /Acre
Crimping, with tractor {DMG survey data}		\$71.57
Weed spray, hand, non-aquatic area, nox. [DMG]		\$183.16
	<b>Total Mulch Application Cost/Acre</b>	\$254.73

### **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:
 29.25
 Cost / Acre:
 \$2,311.94

 Estimated Failure Rate:
 25%
 Cost / Acre\*:
 \$1,413.87

\*Selected Replanting Work Items: SEEDING,MULCHING

Initial Job Cost: \$67,624.25

Reseeding Job Cost: \$10,338.92

Total Job Cost: \$77,963

29.25

# **REVEGETATION WORK**

Task descrip	otion:	Revegetate 11.1	acres (steepe	er slopes)		
Site: Lyons Qu	ıarry	Per	mit Action:	TR-5 2021	Permit/Job	o#: <u>M1977141</u>
PROJECT	IDENTIFIC	<u>CATION</u>				
Task #:	016	State:	Colorado		Abbreviation:	None
Date:	7/1/2021	County:	Boulder		Filename:	M141-016

User: AME

Agency or organization name: DRMS

## **FERTILIZING**

#### Materials

	Units /			
Description	Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	909.00	pound	\$0.36	\$327.24
Triple superphosphate, 0-46-0	108.70	pound	\$0.46	\$50.00
			Total Fertilizer Materials	
			Cost/Acre	\$377.24

Application

Description		Cost /Acre
Push rotary spreader (MEANS 32 01 90.13 0110)		\$110.64
	<b>Total Fertilizer Application Cost/Acre</b>	\$110.64

#### **TILLING**

Description		Cost /Acre
Subsoil scarification, (MEANS 32 91 13.23 3100)		\$191.66
Weed control spraying (MEANS 31 31 16.13 3100)		\$290.40
	<b>Total Tilling Cost/Acre</b>	\$482.06

#### **SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Switchgrass - Blackwell	0.81	7.23	\$9.32
Aster, Engleman's	0.20	0.95	\$38.80
Blue Grama - Native	0.59	9.63	\$8.10
Canada Wildrye	3.64	9.61	\$39.46
Beeplant, Rocky Mountain	2.12	5.45	\$57.24
Bottlebrush Squirreltail	2.18	9.61	\$35.37
Sandberg Bluegrass - VNS	0.38	8.07	\$3.19
Slender Wheatgrass - San Luis	2.19	7.99	\$9.31
Thickspike Wheatgrass - Critana	2.26	7.99	\$15.54

Rabbitbrush, Rubber	0.61	9.09	\$39.22
Needlegrass, Green - Lodorm	1.54	6.40	\$18.13
Sage, Fringed	0.03	2.51	\$1.23
Totals Seed Mix	16.55	84.53	\$274.90

**Application** 

Description	Cost /Acro	e
Broadcast seeding [DMG]	\$267.22	
Total S	eed Application Cost/Acre \$267.22	

#### **MULCHING and MISCELLANEOUS**

#### Materials

	Units /			
Description	Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	\$2.98	\$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$307.02	\$614.04
Total Mulch Materials Cost/Acre				\$617.02

Application

Description		Cost /Acre
Hydromulching (MEANS 32 92 19.13 1100)		\$96.80
Weed spray, hand, non-aquatic area, nox. [DMG]		\$183.16
	<b>Total Mulch Application Cost/Acre</b>	\$279.96

### **NURSERY STOCK PLANTING**

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
		Totals	Nursery Stoc	ek Cost / Acre	\$0.00

#### **JOB TIME AND COST**

 No. of Acres:
 11.1
 Cost /Acre:
 \$2,409.04

 Estimated Failure Rate:
 25%
 Cost /Acre\*:
 \$1,439.10

\*Selected Replanting Work Items: SEEDING,MULCHING

Initial Job Cost: \$26,740.34

Reseeding Job Cost: \$3,993.50

Total Job Cost: Job Hours: 11.00

# **REVEGETATION WORK**

rask description:	Revegetate 11.85 acres (Rec A	Area 2 - 1 K-4 area	s)		
Site: Lyons Quarry	Permit Action:	TR-5 2021	Permit/Job	o#: <u>M1977141</u>	
PROJECT IDENTIFI         Task #:       020         Date:       7/1/2021         User:       AME	State: Colorado County: Boulder		Abbreviation: Filename:	None M141-020	

## **FERTILIZING**

Agency or organization name: DRMS

#### Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Ammonium nitrate, 33-0-0	909.00	pound	\$0.36	\$327.24
Triple superphosphate, 0-46-0	108.70	pound	\$0.46	\$50.00
			Total Fertilizer Materials Cost/Acre	\$377.24

Application

Description		Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)		\$38.77
	<b>Total Fertilizer Application Cost/Acre</b>	\$38.77

## **TILLING**

Description		Cost /Acre
Subsoil scarification, (MEANS 32 91 13.23 3100)		\$191.66
Weed control spraying (MEANS 31 31 16.13 3100)		\$290.40
	Total Tilling Cost/Acre	\$482.06

## **SEEDING**

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Switchgrass - Blackwell	0.81	7.23	\$9.32
Aster, Engleman's	0.20	0.95	\$38.80
Blue Grama - Native	0.59	9.63	\$8.10
Canada Wildrye	3.64	9.61	\$39.46
Beeplant, Rocky Mountain	2.12	5.45	\$57.24
Bottlebrush Squirreltail	2.18	9.61	\$35.37
Sandberg Bluegrass - VNS	0.38	8.07	\$3.19
Slender Wheatgrass - San Luis	2.19	7.99	\$9.31
Thickspike Wheatgrass - Critana	2.26	7.99	\$15.54

Rabbitbrush, Rubber Needlegrass, Green - Lodorm Sage, Fringed	0.61	9.09	\$39.22
	1.54	6.40	\$18.13
	0.03	2.51	\$1.23
Totals Seed Mix	16.55	84.53	\$274.90

**Application** 

Description	Cost /Acre
Broadcast seeding [DMG]	\$267.22
Total Seed Application	Cost/Acre \$267.22

#### **MULCHING and MISCELLANEOUS**

#### Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Herbicide - 2,4D @ 1.0 pt/ac	1.00	ACRE	\$2.98	\$2.98
Straw, delivered {MEANS 31 25 14.16 1200}	2.00	TON	\$307.02	\$614.04
Total Mulch Materials Cost/Acre				\$617.02

Application

Description		Cost /Acre
Crimping, with tractor {DMG survey data}		\$71.57
Weed spray, hand, non-aquatic area, nox. [DMG]		\$183.16
	<b>Total Mulch Application Cost/Acre</b>	\$254.73

### **NURSERY STOCK PLANTING**

Common Name	No / Acre	Type and Size	Planting Cost	Fertilizer Pellet Cost	Cost /Acre
					\$
		Totals	Nursery Stoo	ek Cost / Acre	\$0.00

#### **JOB TIME AND COST**

 No. of Acres:
 11.85
 Cost /Acre:
 \$2,311.94

 Estimated Failure Rate:
 25%
 Cost /Acre\*:
 \$1,413.87

\*Selected Replanting Work Items: SEEDING, MULCHING

Initial Job Cost: \$27,396.49

Reseeding Job Cost: \$4,188.59

Total Job Hours: \$31,585

11.85

# **SCRAPER TEAM WORK**

Task # 021

Task description:	Replace to	psoil on	11.85 acr	res (Rec Area 2 -	TR-4 Areas)			
Site: Lyons Quarry		Permi	t Action:	TR-5 2021	Per	mit/Job#:	M1977	7141
PROJECT IDEN	<u> FIFICATION</u>							
Task #: 021	S	tate: (	Colorado		Δhhre	viation:	None	
Date: $\frac{0.21}{7/1/202}$			Boulder			lename:	M141-0	)21
User: AME						-		
Agency or o	organization name:	DRM	S					
HOURLY EQUIP	PMENT			COSTS	hift basis: 1 per d	lay		
			Eauipme	ent Description				
	-S	craper:	Cat 637					<del></del>
	-	Dozer:	NA					
Suppo	ort Equipment -Load			R DS XR Series I	I			
Dood Mo	-Dumj intenance –Motor (	Area:	NA CAT 16	cM				<del></del>
Koau Wa	-Water			Γanker, 3,500 Gal				
-	vv ater	Truck.	vv ater 1	<u>runker, 3,300 Gur</u>	<u> </u>			
Cost Breakdown:	Scraper Wor	k Team		Support Equip	oment	Main	itenance J	Equipment
	Scraper	Do	zer	Load Area	Dump Area	Motor	Grader	Water Truck
%Utilization-machine:	100		NA	100	NA		100	100
Ownership cost/hour:	\$218.34		NA	\$81.02	NA		\$70.80	\$17.15
Operating cost/hour:	\$208.00		NA	\$79.33	NA		\$56.31	\$29.20
%Utilization-ripper:	NA		NA	NA	NA		75	NA
Ripper own. cost/hour:	NA		NA	\$0.00	NA		\$5.52	\$0.00
Ripper op. cost/hour:	NA		NA	\$0.00	NA		\$3.64	\$0.00
Operator cost/hour:	\$47.07		NA	\$40.04	NA		\$46.87	\$0.00
Unit Subtotals:	\$473.41		NA	\$200.39	NA	\$	183.14	\$46.35
Number of Units:	2		0	1	0		1	1
Group Subtotals:	Work:	\$946	5.82	Support:	\$200.39		Maint:	\$229.49
Total work team cost	t/hour: <b>\$1,376.70</b>		·					
MATERIAL QUA	ANTITIES							
Initial volume:	9,560		CCY	Swell fact	or: 1.215			
Loose volume:	11,615		LCY					
Sou	rce of estimated vo	lume:	11.85 ac	x 6 inch depth				
Source	of estimated swell f	actor:	Cat Hand					<del></del>
HOURLY PROD	UCTION							
	<del></del>			Scraper Bo	owl (volume) Bas	<u>is:</u>		
Material weight:	1,600 lbs/LCY			•	Volume: 24.00	_	1.0	CY
Material description:	Top Soil			Heaped T				CY
Rated Payload:	81,600 pounds			Average				CY
Payload Capacity:	51.00 LCY			Adjusted C				CY

Site Altitude: 5800 feet

Cycle Time:			
-			

 $\begin{array}{lll} \text{Scraper Loading Time:} & \underline{0.80} \text{ Minutes} \\ \text{Maneuver and Spread Time:} & \underline{0.60} \text{ Minutes} \\ \end{array}$ 

Job Condition Correction:

	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	1000.00	10.00	3.00	13.00	710	1.42

Haul Time: 1.42 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	1000.00	-10.00	3.00	-7.00	2972	0.41

**0.41** minutes Return Time: Total Scraper team cycle time: 3.23 minutes Adjusted for job conditions:  $447.\overline{12}$ LCY/Hour Selected Number of Scrapers: 2 Scraper(s) Adjusted single scraper team (unit) hourly production: LCY/Hour 894.24 Adjusted multiple scraper team (fleet) hourly production: 894.24 LCY/Hour

Unadjusted unit production/hour: 538.70 LCY/Hour Optimal Number of Scrapers per push dozer:

**JOB TIME AND COST** 

Fleet size:	1	Team(s)	Total job time:	12.99	Hours
Unit cost:	\$1.540	/LCY	Total job cost:	\$17,882	