

February 2, 2024

Jason McGraw General Shale Brick, Inc. 1845 W. Dartmouth Ave. Denver, CO 80110

Re: Navajo Clay Pit, Permit No. M-1993-004, Technical Revision No. 3 (TR-03) Approval, Update mining and reclamation plans and maps and include the importation of scrap brick for reclamation.

Dear Mr. McGraw:

On February 2, 2024, the Division of Reclamation Mining and Safety (Division) concluded its review and approved the Technical Revision application submitted to the Division on October 3, 2023, addressing the following:

Update mining and reclamation plans and maps and include the importation of scrap brick for reclamation.

On February 2, 2024, the Division of Reclamation, Mining and Safety (Division) increased the current Financial Warranty for the Navajo Clay Pit to \$178,032.00, in accordance with Rule 4.2.1 and C.R.S. 34-32.5-117. This is an increase of \$129,735.00 from the currently held Financial Warranty of \$48,297.00. The Division ordered amendment of the current Financial Warranty, or submittal of a new Financial Warranty reflecting the increase, within 60 days from the date of this letter, due by April 1, 2024. The revision will not be final until the bond is received and approved by the Division.

If you have any questions regarding submittal of the Financial Warranty, please contact our Financial Warranty Specialist, Sara Stevenson-Benn, by telephone at (303) 866-3567 ext. 8148 or by email at sara.stevenson-benn@state.co.us. All Financial Warranty forms are available on our website at: https://drms.colorado.gov/forms/minerals-program-forms.

If you require additional information, or have questions or concerns, please feel free to contact me by phone at (303) 866-3567, ext. 8147, or by email at <u>joel.renfro@state.co.us</u>.

Sincerely,

Joel Renfro

Jolkento



Environmental Protection Specialist

Enclosed:

Divisions bond estimate

Cc:

Amy Eschberger, DRMS Sara Stevenson-Benn, DRMS Harold Stickler, General Shale Brick, Inc.

COST SUMMARY WORK

Task description: Cost Es		Cost Estimate U	Estimate Updated for TR-03				
te: Navajo Clay Pit		Pe	Permit Action: _TR-0		Permit/Jol	Permit/Job#: M1993004	
PROJECT	IDENTIFIC	<u>CATION</u>					
Task #:	000	State:	Colorado		Abbreviation:	None	
Date:	2/2/2024	County:	Elbert		Filename:	M004-000	
	2.12.10 DM						
	3:12:10 PM						

TASK LIST (DIRECT COSTS)

Task	D	Form	Fleet	Task Hours	Cost
	Description	Used	Size		
001	Backfill pit with overburden	DOZER	1	49.47	\$21,105
002	Push check dam bricks into pit	DOZER	1	1.03	\$440
003	Haul and fill pit with remaining scrap brick	SCRAPER1	1	0.54	\$920
004	Cut and fill remaining highwalls to 3H:1V	DOZER	1	23.72	\$10,121
005	Scrape overburden from stockpile pad and fill pit	SCRAPER1	1	18.52	\$31,300
006a	Rip compacted areas	GRADER	1	10.55	\$1,850
007	Retopsoil pit area	SCRAPER1	1	6.62	\$11,193
008	Retopsoil stockpile area	SCRAPER1	1	4.19	\$7,074
009	Retopsoil access road	SCRAPER1	1	4.32	\$4,459
010	Revegetate 20 acres	REVEGE	1	25.00	\$39,004
011	Mobilization/demobilization of equipment	MOBILIZE	1	8.20	\$17,689
		152.16	\$145,155		

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance:	2.02	Total =	\$2,932
Performance bond:	1.05	Total =	\$1,524
Job superintendent:	76.08	Total =	\$4,951
Profit:	10.00	Total =	\$14,516

 $Total = \frac{\$14,516}{\text{TOTAL O \& P}} = \frac{\$23,923}{\$23,923}$

CONTRACT AMOUNT (direct + O & P) = $\frac{$23,923}{$169,078}$

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

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

Engineering work and/or contract/bid preparation: 0.00 Total = \$0

Reclamation management and/or administration: 5.00 \$8,454

CONTINGENCY: 0.00 Total = \$0

TOTAL INDIRECT COST = \$32,877

TOTAL BOND AMOUNT (direct + indirect) = \$178,032

BULLDOZER WORK

	Backfill pit with	overburaen			
: Navajo Clay Pit	Per	mit Action:	TR-03	Permit/Job#:	M1993004
PROJECT IDENTIF	<u>ICATION</u>				
Task #: 001 Date: 2/2/2024	State: County:	Colorado Elbert		Abbreviation: _ Filename:	None M004-001
User: $\frac{3:10:52 \text{ PM}}{\text{JR2}}$	<u>/I</u>			-	
Agency or orga	nization name: D	RMS			
HOURLY EQUIPMI	ENT COST				
Basic Machine: Ca	t D8T - 8SU				
Horsepower: 310			_		
7 1	mi-Universal		_		
Attachment: NA Shift Basis: 1 p			_		
	er day RG)				
Cost Breakdown:			_		
			<u>Utilization %</u>		
Ownership Cost/Hour:		\$241.38	NA		
Operating Cost/Hour:		\$143.92	100		
Ripper own. Cost/Hour:		\$0.00	NA 0		
Ripper op. Cost/Hour: Operator Cost/Hour:	-	\$0.00 \$41.30	NA		
MATERIAL QUANT	<u> </u>				
Initial Volume: 20,1					
Swell factor: 1.12					
Swell factor: 1.12	25 588 LCY me:1.25ac p				
Swell factor: $\frac{1.12}{22,6}$ Source of estimated volu	me: 1.25ac p Cat Hand				
Swell factor: 1.12 Loose volume: 22,6 Source of estimated volu Source of estimated swel	25 588 LCY me: 1.25ac p Il factor: Cat Hand TION 150 feet	lbook			
Swell factor: 1.12 Loose volume: 22,6 Source of estimated volu Source of estimated swel HOURLY PRODUC' Average push distance:	25 588 LCY me: 1.25ac p Il factor: Cat Hand TION 150 feet 634.3 LCY	lbook	ile 1.0		
Swell factor: 1.12 Loose volume: 22,6 Source of estimated volu Source of estimated swel HOURLY PRODUC' Average push distance: Unadjusted hourly produ	25 588 LCY me: 1.25ac p Il factor: Cat Hand TION 150 feet 634.3 LCY	lbook /hr	ile 1.0		
Swell factor: 1.12 Loose volume: 22,6 Source of estimated volu Source of estimated swel HOURLY PRODUC' Average push distance: Unadjusted hourly produ Materials consistency de Average push gradient:	25 688 LCY me: 1.25ac p Il factor: Cat Hand TION 150 feet 634.3 LCY scription: Conso -5 %	lbook /hr	ile 1.0		
Swell factor: 1.12 Loose volume: 22,6 Source of estimated volu Source of estimated swel HOURLY PRODUC' Average push distance: Unadjusted hourly produ Materials consistency de Average push gradient: Average site altitude:	25 688 LCY me: 1.25ac p Cat Hand TION 150 feet 634.3 LCY scription: Conso -5 % 6,150 feet	/hr lidated stockp			
Swell factor: 1.12 Loose volume: 22,6 Source of estimated volu Source of estimated swel HOURLY PRODUC' Average push distance: Unadjusted hourly produ Materials consistency de Average push gradient: Average site altitude: Material weight: Weight description: Job Condition Correction	25 388 LCY me: 1.25ac p Il factor: Cat Hand TION 150 feet 634.3 LCY scription: Conso -5 % 6,150 feet 2,650 lbs/LCY Decomposed rock in Factor	/hr lidated stockp	75% Earth Source		
Swell factor: 1.12 Loose volume: 22,6 Source of estimated volu Source of estimated swel HOURLY PRODUC' Average push distance: Unadjusted hourly produ Materials consistency de Average push gradient: Average site altitude: Material weight: Weight description:	### 1.25ac p ### Cat Hand ### 150 feet ### 634.3 LCY ### Scription: Conso ###	/hr lidated stockp	75% Earth		

Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7230

Adjusted unit production: 458.60 LCY/hr
Adjusted fleet production: 458.6 LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: \$0.930/LCY

Total job time: 49.47 Hours
Total job cost: \$21,105

BULLDOZER WORK

Task description:	Pusn	check dam	bricks into	P10		
Navajo Clay Pit	· ·	Perr	mit Action:	TR-03	Permit/Job#:	M1993004
PROJECT IDEN	NTIFICATIO	<u>N</u>				
Task #: 002		State:	Colorado		Abbreviation:	None
Date: $\frac{362}{2/2/2}$	024	County:	Elbert		Filename:	M004-002
3:10:	09 PM	,				
User: JR2						
Agency o	r organization n	name: DR	MS			
HOURLY EQUI	IPMENT CO	<u>ST</u>				
Basic Machine:	Cat D8T - 85	112				
Horsepower:	310	30				
Blade Type:	Semi-Univer	rsal		_		
Attachment:	NA			<u> </u>		
Shift Basis:	1 per day					
Data Source:	(CRG)					
				_		
Cost Breakdown:			ĺ	Litilization 0/		
Ownership Cost/H	Jour.		\$241.38	<u>Utilization %</u> NA		
Operating Cost/F			\$143.92	100		
Ripper own. Cost/H			\$0.00	NA	<u></u>	
Ripper own. Cost/I			\$0.00	0		
Operator Cost/F			\$41.30	NA		
MATERIAL QU						
Initial Volume:	231		_			
Crriall fasta	1.000					
Swell factor:						
Loose volume:	231 LCY		<u> </u>			
	231 LCY I volume:	Estimated Cat Hand		ams + additional 25% vo	olume of OB	
Loose volume: Source of estimated	231 LCY d volume: d swell factor:			nms + additional 25% vo	olume of OB_	
Loose volume: Source of estimated Source of estimated	231 LCY d volume: d swell factor: DUCTION nce:		book	ams + additional 25% vo	olume of OB	
Loose volume: Source of estimated Source of estimated HOURLY PROD Average push dista	231 LCY d volume: d swell factor: DUCTION nce: production:	Cat Hand 200 feet 491.9 LCY/	book	nms + additional 25% vo	olume of OB	
Loose volume: Source of estimated Source of estimated HOURLY PROD Average push dista Unadjusted hourly Materials consisten Average push gradi	231 LCY d volume: d swell factor: DUCTION nce: production: cy description: dent:5 %	Cat Hand 200 feet 491.9 LCY/ Rock, a	book		olume of OB	
Loose volume: Source of estimated Source of estimated HOURLY PROI Average push dista Unadjusted hourly Materials consisten	231 LCY I volume: I swell factor: DUCTION nce: production: cy description: dent: de: 6,150 f	Cat Hand 200 feet 491.9 LCY/ Rock, a	book		olume of OB	
Loose volume: Source of estimated Source of estimated HOURLY PROD Average push dista Unadjusted hourly Materials consisten Average push gradia Average site altitud	231 LCY I volume: I swell factor: DUCTION nce: production: cy description: ient: 6,150 f 2,950 1	Cat Hand	book		olume of OB	
Loose volume: Source of estimated Source of estimated HOURLY PROI Average push dista Unadjusted hourly Materials consisten Average push gradi Average site altitud Material weight: Weight description	231 LCY 1 volume: 1 swell factor: DUCTION nce: production: cy description: det: 2,950 1 Slag - 1	Cat Hand	book	r blasted 0.7	olume of OB	
Loose volume: Source of estimated Source of estimated HOURLY PROI Average push dista Unadjusted hourly Materials consisten Average push gradi Average site altitud Material weight: Weight description Job Condition Corr	231 LCY 1 volume: 1 swell factor: DUCTION nce: production: cy description: det:	Cat Hand 200 feet 491.9 LCY/ Rock, a Feet bs/LCY broken	hr vg. ripped o	r blasted 0.7	olume of OB	
Loose volume: Source of estimated Source of estimated HOURLY PROD Average push dista Unadjusted hourly Materials consisten Average push gradi Average site altitud Material weight: Weight description Job Condition Corr	231 LCY 1 volume: 1 swell factor: DUCTION nce: production: cy description: det: 2,950 1 Slag - 1	Cat Hand 200 feet 491.9 LCY/ Rock, a Feet bs/LCY broken	book	r blasted 0.7	olume of OB	

Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.780	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.4548

Adjusted unit production: 223.72 LCY/hr
Adjusted fleet production: 223.72 LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: \$1.907/LCY

Total job time: 1.03 Hours
Total job cost: \$440

Material description: Slag - broken

Payload Capacity: 27.66 LCY

Rated Payload: 81,600 pounds

SCRAPER TEAM WORK

Task description:	Haul and	fill pit w	ith remai	ning scrap brick			
Site: Navajo Clay Pit	<u>t</u>	Permi	it Action:	Tr-03	Peri	mit/Job#: <u>M199</u>	3004
PROJECT IDE	NTIFICATION						
I ROJECT IDE	VIIIICATION						
Task #: 003			Colorado			viation: None	
Date: 2/2/2	024 Co 45 PM	ounty:	Elbert		Fil	lename: M004-	003
User: JR2	43 PWI	_					
	r organization name	: DRM	⁄IS				
HOURLY EQU	<u>IPMENT</u>			COSTS	hift basis: <u>1 per d</u>	l <u>ay</u>	
			Equipm	ent Description			
	-1	Scraper:	Cat 63	1G			
Cum	nont Equipment I or	-Dozer:	NA Cat D6	TICD			
Supp	port Equipment -Loa Dun-	np Area:	NA	1 LGP			
Road M	Maintenance – Motor		CAT 1				
	-Wate	r Truck:	Water '	Tanker, 2,500 Gal			
Cost Breakdown:	Scraper Wo	ork Toom		Support Equi	nmant	Maintenance	Equipment
Cost Breakdown.	Scraper		ozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine	•		NA	50	NA	50	50
Ownership cost/hour			NA NA	\$127.53	NA NA	\$83.57	\$11.35
Operating cost/hour	·		NA	\$41.57	NA NA	\$28.78	\$11.46
%Utilization-ripper			NA	NA	NA NA	NA	NA
Ripper own. cost/hour			NA	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour			NA	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour			NA	\$41.30	NA	\$28.56	\$0.00
Unit Subtotals			NA	\$210.40	NA	\$140.90	\$22.81
Number of Units			0	1	0	1	1
Group Subtotals	: Work:	\$1,3	15.66	Support:	\$210.40	Maint:	\$163.71
Total work team co							
Initial volume			CCY	Swell fact	tor: 1.000		
Loose volume	e: <u>500</u>		LCY				
	ource of estimated v e of estimated swell	_	Operato Cat Han	r will import 500 d dbook	ey of scrap brick f	or pit backfill	
		- · <u>-</u>					
HOURLY PRO	DUCTION			Scraper B	owl (volume) Bas	is·	
Material waight	: 2,950 lbs/LCY			-	Volume: 24.00		CY
iviaiciiai weigiii	. <u>2,330 108/LC I</u>			SHUCK	24.00	L	Cı

LCY

LCY

LCY

Heaped Volume: 34.00

Average Volume: 29.00

Adjusted Capacity: 27.66

\sim	1	an:	
1 7	ICIA	Time	•
		THIC	٠

Scraper Loading Time: $\underline{0.80}$ Minutes Maneuver and Spread Time: $\underline{0.70}$ Minutes

Job Condition Correction: Site Altitude: 6150 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: Rutted dirt, little maintenance, no water, 2" tire penetration 5.0

Haul Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	700.00	5.00	5.00	10.00	638	1.12

Haul Time: 1.12 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade	Roll. Res	Total Res	Velocity (fpm)	Travel Time
		(%)	(%)	(%)		(min)
1	700.00	-5.00	5.00	0.00	2937	0.38

Return Time: 0.38 minutes Total Scraper team cycle time: 3.00 minutes Adjusted for job conditions: 459.17 LCY/Hour Selected Number of Scrapers: 2 Scraper(s) Adjusted single scraper team (unit) hourly production: 918.35 LCY/Hour Adjusted multiple scraper team (fleet) hourly production: 918.35 LCY/Hour

Unadjusted unit production/hour:	553.22	LCY/Hou
Optimal Number of Scrapers per push dozer:		

JOB TIME AND COST

Fleet size:	1	Team(s)	Total job time:	0.54	Hours
Unit cost:	\$1.840	/LCY	Total job cost:	\$920	

BULLDOZER WORK

: Navajo Clay Pit					
Navajo Ciay Fit	Per	mit Action:	TR-03	Permit/Job#:	M1993004
PROJECT IDENT	<u>IFICATION</u>				
Task #: 004	State:	Colorado		Abbreviation:	None
Date: $\frac{-001}{2/2/2024}$		Elbert		Filename:	M004-004
3:07:44				_	
User: JR2					
Agency or or	rganization name:DF	RMS			
HOURLY EQUIPM	MENT COST				
Basic Machine:	Cat D8T - 8SU				
	310		_		
	Semi-Universal		<u>—</u>		
• • • •	NA				
	1 per day		_		
	(CRG)		<u></u>		
Cost Breakdown:					
Coor Dioundo WII.			Utilization %		
Ownership Cost/Hou	ır:	\$241.38	NA		
Operating Cost/Hou		\$143.92	100		
Ripper own. Cost/Hou		\$0.00	NA		
Ripper op. Cost/Hou	· · · · · · · · · · · · · · · · · · ·	\$0.00	0		
Operator Cost/Hou	ır:	\$41.30	NA		
MATERIAL QUAI					
	,500 .125				
OWELL FACTOR: 1	.14J				
	438 I CV				
Loose volume: 8.	,438 LCY				
	olume: 900 ft L 2		:1V to 3H:1V Slopes		
Loose volume: 8. Source of estimated vo	olume: 900 ft L x well factor: Cat Hand		:1V to 3H:1V Slopes		
Loose volume: 8. Source of estimated vo. Source of estimated sv. HOURLY PRODU	olume: 900 ft L y well factor: Cat Hand		:1V to 3H:1V Slopes		
Loose volume: 8. Source of estimated vo. Source of estimated sv.	olume: 900 ft L 2 well factor: Cat Hand ICTION e: 200 feet	lbook	:1V to 3H:1V Slopes		
Loose volume: 8. Source of estimated volumes Source of estimated sw HOURLY PRODU Average push distance	olume: 900 ft L x well factor: Cat Hand ICTION 200 feet 491.9 LCY	lbook			
Loose volume: 8. Source of estimated volumes Source of estimated sw. HOURLY PRODU Average push distance Unadjusted hourly pro	olume: 900 ft L x well factor: Cat Hand ICTION e: 200 feet duction: 491.9 LCY/ description: Consol	/hr			
Loose volume: 8. Source of estimated volumes Source of estimated sy HOURLY PRODU Average push distance Unadjusted hourly pro	olume: 900 ft L x well factor: Cat Hand ICTION e: 200 feet duction: 491.9 LCY/ description: Consol	/hr			
Loose volume: 8. Source of estimated volumes Source of estimated sw. HOURLY PRODU Average push distance Unadjusted hourly pro Materials consistency Average push gradient	olume: 900 ft L x well factor: Cat Hand ICTION e: 200 feet duction: 491.9 LCY/ description: Consol t: -5 %	/hr			
Loose volume: 8. Source of estimated volumes Source of estimated sy HOURLY PRODU Average push distance Unadjusted hourly pro Materials consistency Average push gradient Average site altitude:	200 feet 200 feet 491.9 LCY description: Consol t: -5 % 6,150 feet	/hr idated stockp	pile 1.0		
Loose volume: 8. Source of estimated volume: Source of estimated sy HOURLY PRODU Average push distance Unadjusted hourly pro Materials consistency Average push gradient Average site altitude: Material weight: Weight description: Job Condition Correct	olume: 900 ft L x well factor: Cat Hand ICTION E: 200 feet duction: 491.9 LCY/ description: Consol t: -5 %	/hr idated stockp	pile 1.0		
Loose volume: 8. Source of estimated volume: Source of estimated sy HOURLY PRODU Average push distance Unadjusted hourly pro Materials consistency Average push gradient Average site altitude: Material weight: Weight description: Job Condition Correct	olume: 900 ft L x well factor: Cat Hand ICTION e: 200 feet 491.9 LCY/ description: Consol t: -5 % 6,150 feet 2,650 lbs/LCY Decomposed rock ion Factor tor Skill: 0.	/hr idated stockp	oile 1.0		

Visibility:	1.000	(AVG.)
Job efficiency:	0.830	(1 SHIFT/DAY)
Spoil pile:	1.000	(DOZ-OC)
Push gradient:	1.115	(CAT HB)
Altitude:	1.000	(CAT HB)
Material Weight:	0.868	(CAT HB)
Blade type:	1.000	(PAT)

Net correction: 0.7230

Adjusted unit production: 355.64 LCY/hr
Adjusted fleet production: 355.64 LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: \$1.200/LCY

Total job time: 23.72 Hours
Total job cost: \$10,121

SCRAPER TEAM WORK

7	Гask descrip	otion:	Scrape ove	erburd	en from st	ockpile pad and	fill pit			
Site:	Navajo C	lay Pit		Perr	nit Action:	Tr-03	Per	mit/Job#:	M1993	004
j	PROJECT	IDENT	<u>IFICATION</u>							
	Task #:	005	S	State:	Colorado		Abbre	viation:	None	
	Date:	2/2/2024 3:06:05		unty:	Elbert		Fi	lename:	M004-0	005
	User:	JR2						-		
j	HOURLY	EQUIP	MENT_		Fauinm	COSTS ent Description	hift basis: 1 per d	l <u>ay</u>		
			9	Scraper						
				-Dozer		10				
		Suppor	t Equipment -Loa	d Area	: Cat D6	T LGP				
			-Dum	p Area	: NA					
]	Road Mai	ntenance –Motor	Grader						
			-Water	Truck	: Water	Tanker, 2,500 Ga	1.			
<u>(</u>	Cost Break	down:	Scraper Wo		n Jozer	Support Equi	pment Dump Area		itenance l Grader	Equipment Water Truc

<u>Cost Breakdown:</u>	Scraper Wor	k Team	Support Equipment		Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	50	NA	50	50
Ownership cost/hour:	\$341.67	NA	\$127.53	NA	\$83.57	\$11.35
Operating cost/hour:	\$285.26	NA	\$41.57	NA	\$28.78	\$11.46
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$30.90	NA	\$41.30	NA	\$28.56	\$0.00
Unit Subtotals:	\$657.83	NA	\$210.40	NA	\$140.90	\$22.81
Number of Units:	2	0	1	0	1	1
Group Subtotals:	Work:	\$1,315.66	Support:	\$210.40	Maint:	\$163.71

Total work team cost/hour: \$1,689.77

MATERIAL QUANTITIES

Initial volume: 16,456 **CCY** Swell factor: 1.125

18,513 LCY Loose volume:

Source of estimated volume: 3.4 ac area x 3 ft depth

Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Scraper Bowl (volume) Basis:

Material weight: 2,650 lbs/LCY Struck Volume: 24.00 LCY Material description: Decomposed rock - 25% Rock, Heaped Volume: 34.00 LCY

75% Earth

Rated Payload: 81,600 pounds Average Volume: 29.00 LCY

Scruper v	VOIRSHEEL COM			rask # 0	05		1 age 2 of 2
Payload	Capacity: 3	0.79 LCY	,		Adjusted Capac	eity: 29.00	LCY
Cycle Tin	ne:						
	oading Time: r and Spread T	ime:			.80 Minutes .70 Minutes		
Job Cond	ition Correctio	<u>n:</u>				Site Alti	tude: 6150 feet
		Scr	aper	Push Dozer	Source	ee	
	Altitude Adj:		000	NA	(CAT H		
Jo	b Efficiency:	0.3	830	NA	(CAT H	IB)	
Ne	et Correction:	0.3	830	NA			
Travel Ti	me:						
		n: <u>Firm,</u>	smooth, rol	ling, dirt/lt. surfa	aced, watered, mair	ntained 3.0	
Haul Rou	te:						
Seg #	Haul Distan	ce (Ft)	Grade (%)	Roll. Res	Total Res	Velocity (fpm)	Travel Time (min)
1	800.00		5.00	3.00	8.00	783	1.05
	l		1	1	Haul Time:		ninutes
D . D					Hauf Time.	1.05	imutes
Return Ro Seg #	oute: Haul Distan	ce (Ft)	Grade	Roll. Res	Total Res	Velocity (fpm)	Travel Time
~ · g ··		()	(%)	(%)	(%)	,, (- F)	(min)
1	800.00		-5.00	3.00	-2.00	2920	0.34
					Return Time:	0.34	minutes
				Total Scrape	er team cycle time:	2.89	minutes
					for job conditions:	499.72	LCY/Hour
					imber of Scrapers:	2	_ Scraper(s)
					nourly production:	999.45	_ LCY/Hour
	A	djusted m	ultiple scra	per team (fleet) l	nourly production:	999.45	LCY/Hour
	Unadjusted	l unit prod	duction/hou	r: 602.08	LCY/Hour		
Optimal	Number of Sc	rapers pe	r push doze	r:	-		
JOB TI	ME AND CO	<u>ost</u>					
Fleet		1	Team(s)	Т	otal job time:	18.52	Hours

Unit cost: \$1.691 /LCY

Total job cost: **\$31,300**

MOTOR GRADER WORK

Task description:	Rip compacted areas			
: Navajo Clay Pit	Permit Action	: <u>Tr-03</u>	Perm	nit/Job#: M1993004
PROJECT IDENTIF	<u>ICATION</u>			
Task #: 006A Date: 2/2/2024 3:05:09 PM	State: Colorade County: Elbert	0	Abbrev File	name: None M004-006a
User: JR2				
Agency or orga	nization name: <u>DRMS</u>			
HOURLY EQUIPMI	ENT COST			
Basic Machine			Horsepower:	183
Ripper Attachmen	t: Multi-Shank Ripper		Shift Basis:	1 per day
			Data Source:	(CRG)
Cost Breakdown:				
			Utilization %	
Owne	ership Cost/Hour:		NA	
	rating Cost/Hour:		100	
	ership Cost/Hour:		NA 188	
	rating Cost/Hour:		100	
-	erator Cost/Hour:	\$28.56	NA	
Lota	Unit Cost/Hour:	\$175.34		
Total	Fleet Cost/Hour: \$1	175.34		
MATERIAL QUANT	rities			
	to be graded or ripped:13.70	0		acres
Source	ce of estimated acreage: 16 acreage	c total disturbance	e - 2 ac pit floor - 0.3	ac pond
HOURLY PRODUC	<u>TION</u>			
	Average Grader Speed:	1.50	mnh	
	Selected Application:		mph pping (0-3 mph) - 1.5	50
	Selected Blade Angle:	30	degrees	
	Effective Blade Length:	10.40	feet	
Width	of blade overlap per pass:	2.00	feet	
	or ripping width per pass:	8.40	feet	
Unadjuste	d Hourly Unit Production:	1.5273	acres/hour	
Job Condition Correction	1 Factors	Si	te Altitude: 6150 fee	et
	Source			
Altitude Adj:	1.00 (CAT I			
Job Efficiency:	0.85 (1sh/d, r			
Net Correction:	0.8500 multipli	er		
A	Adjusted Hourly Unit Production	n: 1.2982	acres/Hour	
	djusted Hourly Fleet Production		acres/Hour	
JOB TIME AND CO	S T			
	l Grader(s)	Total job time	e: 10.55	Hours
	514401(5)	1 July Job unic	10.00	110010
Unit cost: \$13	5.07 per acre	Total job cost	t: \$1,850	

SCRAPER TEAM WORK

	Task description:	Retopsoil	pit area						
;	Site: Navajo Clay Pit		Permi	t Action:	Tr-03	Peri	nit/Job#:	M1993	3004
	PROJECT IDENT	<u> </u>							
	Task #: 007 Date: 2/2/202 3:04:08 User: JR2	<u>24</u> Co		Colorado Elbert			viation: _ ename: _	None M004-0	007
	Agency or o	organization name:	: DRM	IS					
	HOURLY EQUIP	PMENT_			COSTS	hift basis: 1 per d	<u>ay</u>		
				Equipm	ent Description				
			Scraper:	Cat 63	1G				
			-Dozer:	NA Cat DC	TICD				
	Suppo	rt Equipment -Loa	nd Area:	NA	ST LGP				
	Road Ma	intenance – Motor		CAT 1	40M				
		-Water	r Truck:	Water '	Tanker, 2,500 Gal				
	Cost Breakdown:	Scraper Wo			Support Equi				Equipment
		Scraper	Do	zer	Load Area	Dump Area	Motor	Grader	Water Truck
	%Utilization-machine:	100		NA	50	NA		50	50
	Ownership cost/hour:	\$341.67		NA	\$127.53	NA		\$83.57	\$11.35
	Operating cost/hour:	\$285.26		NA	\$41.57	NA		\$28.78	\$11.46
	%Utilization-ripper:	NA		NA	NA	NA		NA	NA
	Ripper own. cost/hour:	NA		NA	\$0.00	NA		\$0.00	\$0.00
	Pinner on cost/hours	NΙΛ		NΙΛ	\$0.00	NIA		90.00	\$0.00

	Beraper	DOZCI	Loud 7 Hea	Dump mea	Wiotor Grader	
%Utilization-machine:	100	NA	50	NA	50	50
Ownership cost/hour:	\$341.67	NA	\$127.53	NA	\$83.57	\$11.35
Operating cost/hour:	\$285.26	NA	\$41.57	NA	\$28.78	\$11.46
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$30.90	NA	\$41.30	NA	\$28.56	\$0.00
Unit Subtotals:	\$657.83	NA	\$210.40	NA	\$140.90	\$22.81
Number of Units:	2	0	1	0	1	1
Group Subtotals:	Work:	\$1,315.66	Support:	\$210.40	Maint:	\$163.71

Total work team cost/hour: \$1,689.77

MATERIAL QUANTITIES

Initial volume: 5,163 **CCY** Swell factor: 1.215

6,273 LCY Loose volume:

Source of estimated volume: Pit area = 4.8 ac x 8 in depth

Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Scraper Bowl (volume) Basis:

Material weight:	1,600 lbs/LCY	Struck Volume:	24.00	LCY
Material description:	Top Soil	Heaped Volume:	34.00	LCY
Rated Payload:	81,600 pounds	Average Volume:	29.00	LCY
Payload Capacity:	51.00 LCY	Adjusted Capacity:	29.00	LCY

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Cyc	I A	11	me.
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 $\begin{array}{lll} \text{Scraper Loading Time:} & \underline{0.80} \text{ Minutes} \\ \text{Maneuver and Spread Time:} & \underline{0.70} \text{ Minutes} \\ \end{array}$

Job Condition Correction: Site Altitude: 6150 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	900.00	5.00	3.00	8.00	783	1.17

Haul Time: 1.17 minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	900.00	-5.00	3.00	-2.00	2920	0.38

Return Time: **0.38** minutes Total Scraper team cycle time: 3.05 minutes Adjusted for job conditions: 473.51 LCY/Hour Selected Number of Scrapers: 2 Scraper(s) Adjusted single scraper team (unit) hourly production: 947.02 LCY/Hour Adjusted multiple scraper team (fleet) hourly production: 947.02 LCY/Hour

Unadjusted unit production/hour:	570.49	LCY/Hou
Optimal Number of Scrapers per push dozer:		

JOB TIME AND COST

Fleet size:	1	_ Team(s)	Total job time:	6.62	Hours
Unit cost:	\$1.784	_ /LCY	Total job cost:	\$11,193	

SCRAPER TEAM WORK

,	Task descrij	ption:	Retopsoil	stockpil	e area					
Site:	Navajo C	Clay Pit		Perm	it Action:	Tr-03	Pe	rmit/Job#:	M19930	004
]	PROJECT	Γ IDEN	<u> </u>							
	Task #:	008		State:	Colorado		Abbro	eviation:	None	
	Date:	2/2/202 3:02:55		ounty:	Elbert		F	ilename:	M004-00	08
	User:	JR2		_				-		
-	<u>HOURLY</u>	EQUII	<u>PMENT</u>		Fauinm	COSTS ent Description	hift basis: 1 per	<u>day</u>		
-				Scraper:						
				-Dozer:		10				
_		Suppo	ort Equipment -Loa			T LGP				
				np Area:						
		Road Ma	intenance –Motor	Grader:	CAT 1	40M				
			-Wate	r Truck:	Water '	Tanker, 2,500 Gal				
	Cost Break	down:	Scraper Wo			Support Equi				Equipment
			Scraper	l D	ozer	Load Area	Dump Area	Motor (Grader	Water True

Cost Breakdown:	Scraper Wor	Scraper Work Team Support Equipment		oment	Maintenance Equipment	
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	50	NA	50	50
Ownership cost/hour:	\$341.67	NA	\$127.53	NA	\$83.57	\$11.35
Operating cost/hour:	\$285.26	NA	\$41.57	NA	\$28.78	\$11.46
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$30.90	NA	\$41.30	NA	\$28.56	\$0.00
Unit Subtotals:	\$657.83	NA	\$210.40	NA	\$140.90	\$22.81
Number of Units:	2	0	1	0	1	1
Group Subtotals:	Work:	\$1,315.66	Support:	\$210.40	Maint:	\$163.71

Total work team cost/hour: **\$1,689.77**

MATERIAL QUANTITIES

Initial volume: 5,001 CCY Swell factor: 1.215
Loose volume: 6,076 LCY

Source of estimated volume: Stockpile area = $(6.5 \text{ ac} - 0.3 \text{ ac pond}) \times 6 \text{ in depth}$

Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Scraper Bowl (volume) Basis:

Material weight:	1,600 lbs/LCY	Struck Volume:	24.00	LCY
Material description:	Top Soil	Heaped Volume:	34.00	LCY
Rated Payload:	81,600 pounds	Average Volume:	29.00	LCY
Payload Capacity:	51.00 LCY	Adjusted Capacity:	29.00	LCY

Site Altitude: 6150 feet

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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	200.00	1.00	3.00	4.00	1667	0.23

Haul Time: **0.23** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade (%)	Roll. Res (%)	Total Res (%)	Velocity (fpm)	Travel Time (min)
1	200.00	-1.00	3.00	2.00	2914	0.26

0.26 minutes Return Time: Total Scraper team cycle time: 1.99 minutes Adjusted for job conditions: 725.73 LCY/Hour Selected Number of Scrapers: 2 Scraper(s) Adjusted single scraper team (unit) hourly production: 1,451.46 LCY/Hour Adjusted multiple scraper team (fleet) hourly production: 1,451.46 LCY/Hour

Unadjusted unit production/hour:	874.37	LCY/Hou
Optimal Number of Scrapers per push dozer:		

JOB TIME AND COST

Fleet size:	1	Team(s)	Total job time:	4.19	Hours
Unit cost:	\$1.164	/LCY	Total job cost:	\$7,074	

SCRAPER TEAM WORK

Task description:	Retopsoil :	access road				
Site: Navajo Clay Pit		Permit Action:	Tr-03	Peri	mit/Job#: <u>M199</u> 3	3004
PROJECT IDENT	<u> </u>					
Task #: 009		State: Colorado)		viation: None	200
Date: 2/2/202 3:01:11		ounty: Elbert		FII	ename: M004-0	009
User: JR2						
Agency or o	organization name	DRMS				
HOURLY EQUIP	PMENT		COSTS	hift basis: 1 per d	av	
	<u> </u>	.				
		Equipm Scraper: Cat 63	nent Description			
		-Dozer: NA	10			
Suppo	rt Equipment -Loa	nd Area: Cat Do	6T LGP			
		p Area: NA				
Road Mai	intenance – Motor		40M Tanker, 2,500 Gal	1		
	- w ater	r Truck: water	Tanker, 2,500 Gai	l .		
Cost Breakdown:	Scraper Wo	ork Team	Support Equi	pment	Maintenance	Equipment
	Scraper	Dozer	Load Area	Dump Area	Motor Grader	Water Truck
%Utilization-machine:	100	NA	50	NA	50	50
Ownership cost/hour:	\$341.67	NA	\$127.53	NA	\$83.57	\$11.35
Operating cost/hour:	\$285.26	NA	\$41.57	NA	\$28.78	\$11.46
%Utilization-ripper:	NA	NA	NA	NA	NA	NA
Ripper own. cost/hour:	NA	NA	\$0.00	NA	\$0.00	\$0.00
Ripper op. cost/hour:	NA	NA	\$0.00	NA	\$0.00	\$0.00
Operator cost/hour:	\$30.90	NA	\$41.30	NA	\$28.56	\$0.00
Unit Subtotals:	\$657.83	NA	\$210.40	NA	\$140.90	\$22.81
Number of Units:	1	0	1	0	1	1

Total work team cost/hour: \$1,031.94

MATERIAL QUANTITIES

Group Subtotals:

Initial volume: 2,581 **CCY** Swell factor: 1.215

3,136 LCY Loose volume:

Work:

Source of estimated volume: $\underline{\text{Access road} = 3.2 \text{ ac x 6 in depth}}$

\$657.83

Source of estimated swell factor: Cat Handbook

HOURLY PRODUCTION

Scraper Bowl (volume) Basis:

\$210.40

Support:

Material weight:	1,600 lbs/LCY	Struck Volume:	24.00	LCY
Material description:	Top Soil	Heaped Volume:	34.00	LCY
Rated Payload:	81,600 pounds	Average Volume:	29.00	LCY
Payload Capacity:	51.00 LCY	Adjusted Capacity:	29.00	LCY

Maint:

\$163.71

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Scraper Loading Time: $\underline{0.80}$ Minutes Maneuver and Spread Time: $\underline{0.70}$ Minutes

Job Condition Correction: Site Altitude: 6150 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	200.00	1.00	3.00	4.00	1667	0.23

Haul Time: **0.23** minutes

Return Route:

Seg #	Haul Distance (Ft)	Grade	Roll. Res	Total Res	Velocity (fpm)	Travel Time
		(%)	(%)	(%)		(min)
1	200.00	-1.00	3.00	2.00	2914	0.26

Return Time: **0.26** minutes Total Scraper team cycle time: 1.99 minutes Adjusted for job conditions: 725.73 LCY/Hour Selected Number of Scrapers: Scraper(s) 1 Adjusted single scraper team (unit) hourly production: 725.73 LCY/Hour Adjusted multiple scraper team (fleet) hourly production: 725.73 LCY/Hour

Unadjusted unit production/hour: 874.37 LCY/Hour Optimal Number of Scrapers per push dozer:

JOB TIME AND COST

Fleet size:	1	Team(s)	Total job time:	4.32	Hour
Unit cost:	\$1.422	/LCY	Total job cost:	\$4,459	

REVEGETATION WORK

Task description: Revegetate 20 acres

Site: Navajo Clay Pit Permit Action: TR-03 Permit/Job#: M1993004

PROJECT IDENTIFICATION

Task #: 010 State: Colorado Abbreviation: None

Date: 2/2/2024 County: Elbert Filename: M004-010

2:37:34 PM

User: JR2

Agency or organization name: DRMS

FERTILIZING

Materials

Description	Units / Acre	Unit	Cost / Unit	Cost /Acre
Potassium nitrate, 13-46-0	40.00	pound	\$0.68	\$27.20
			Total Fertilizer Materials Cost/Acre	\$27.20

Application

Description		Cost /Acre
Tractor towed spreader (MEANS 32 01 90.13 0120)		\$41.82
	Total Fertilizer Application Cost/Acre	\$41.82

TILLING

Description	Cost /Acre
Disc harrowing, 6" deep (MEANS 32 91 13.23 6100)	\$112.82
Weed control spraying (MEANS 31 31 16.13 3100)	\$338.80
Total Tilling Cost/Act	re \$451.62

SEEDING

Seed Mix	Rate – PLS LBS / Acre	Seeds per SQ. FT	Cost /Acre
Switchgrass - Blackwell	1.35	12.06	\$15.53
Blue Grama - Lovington	0.30	4.90	\$4.79
Sideoats Grama - Vaughn	0.90	2.95	\$7.54
Western Wheatgrass - Arriba	3.20	8.08	\$20.80
Prairie Sandreed - Goshen	1.95	12.22	\$20.18
Totals Seed Mix	7.70	40.21	\$68.84

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	\$429.79	\$859.57
Total Mulch Materials Cost/Acre				\$859.57

Application

Description		Cost /Acre
Crimping, with tractor {DMG survey data}		\$74.46
Weed spray, hand, aquatic area, annuals [DMG]		\$119.47
	Total Mulch Application Cost/Acre	\$193.93

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:
 20
 Cost /Acre:
 \$1,874.98

 Estimated Failure Rate:
 25%
 Cost /Acre*:
 \$300.84

*Selected Replanting Work Items: SEEDING

Initial Job Cost: \$37,499.60

Reseeding Job Cost: \$1,504.20

Total Job Cost: \$39,004

Job Hours: 25.00

EQUIPMENT MOBILIZATION/DEMOBILIZATION

Task description: Mobilization/demobilization of equipment

Site: Navajo Clay Pit Permit Action: TR-03 Permit/Job#: M1993004

PROJECT IDENTIFICATION

Task #: 011 State: Colorado Abbreviation: None

Date: 2/2/2024 County: Elbert Filename: M004-011

Agency or organization name: DRMS

EQUIPMENT 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:

Available Rig Capacities	0-25 Tons	26-50 Tons	51+ Tons
Ownership Cost/Hour:	\$20.26	\$36.04	\$47.05
Operating Cost/Hour:	\$39.51	\$76.08	\$82.85
Operator Cost/Hour:	\$22.52	\$22.52	\$22.52
Helper Cost/Hour:	\$0.00	\$23.53	\$23.53
Total Unit Cost/Hour:	\$82.29	\$158.17	\$175.95

NON ROADABLE EQUIPMENT:

Machine	Weight/	Owner ship	Haul Rig	Fleet	Haul Trip	Return Trip	DOT Permit
Description	Unit	Cost/hr/ unit	Cost/hr/uni	Size	Cost/hr/	Cost/hr/ fleet	Cost/ fleet
	(TONS)		t		fleet		
Cat D8T - 8SU	53.08	\$255.49	\$175.95	1	\$431.44	\$175.95	\$250.00
Drill/Broadcast	25.00	\$6.73	\$82.29	1	\$89.02	\$82.29	\$250.00
Seeder with							
Tractor							
Cat 631G	52.50	\$341.67	\$175.95	2	\$1,035.24	\$351.90	\$500.00
CAT 140M	16.68	\$83.57	\$82.29	1	\$165.86	\$82.29	\$250.00
Cat D6T LGP	26.87	\$127.53	\$158.17	1	\$285.70	\$158.17	\$250.00

Subtotals: \$2,007.26 \$850.60 \$1,500.00

ROADABLE EQUIPMENT:

Machine Description	Total Cost/hr/ unit	Fleet Size	Haul Trip Cost/hr/ fleet	Return Trip Cost/hr/ fleet
Light Duty Pickup, 4x4, 3/4 T.	\$15.83	1	\$15.83	\$15.83
Water Tanker, 2,500 Gal.	\$34.27	1	\$34.27	\$34.27

Subtotals:	\$50.10	\$50.10

EQUIPMENT HAUL DISTANCE and Time

Transportation Cycle Time:

	Non-	
	Roadable	Roadable
	Equipment	Equipment
Haul Time (Hours):	0.80	0.80
Return Time (Hours):	0.80	0.80
Loading Time (Hours):	1.25	NA
Unloading Time (Hours):	1.25	NA
Subtotals:	4.10	1.60

JOB TIME AND COST

Total job cost: **8.20** Hours

Total job cost: **\$17,689**