Stantec

Stantec Consulting Services Inc.
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January 23, 2020
File: 233001363
Provided electronically

Attention: Mr. David Ennis, P.G.
New Mexico Energy, Minerals, and Natural Resources Department
Mining and Minerals Division

Reference: St. Anthony Mine Site Financial Assurance Opinion of Construction Cost

Dear Mr. Ennis,

Stantec is providing this updated opinion of construction cost at the request of United Nuclear Corporation for the reclamation of the St. Anthony Mine Site (Site). We understand that United Nuclear Corporation has discussed with the New Mexico Energy, Minerals and Natural Resources Department, Mining and Minerals Division (MMD) technical challenges associated with the *St. Anthony Mine Closeout Plan, Updated 2019* (Stantec, 2019) (2019 Closeout Plan) and is currently evaluating and developing an alternative design for the Site that, among other things, will reduce the backfill elevation in Pit 1 (Modified 2019 Reclamation Design). Pending development of the Modified 2019 Reclamation Design, United Nuclear Corporation has asked for an updated opinion of construction costs to support United Nuclear Corporation in obtaining a letter of credit to adjust upward the interim financial assurance for the Site. We understand that United Nuclear Corporation will send appropriate documentation of the letter of credit directly to MMD once it has been issued.

Stantec prepared two cost estimates. One estimate was prepared based on the previously submitted cost estimate and reclamation components presented in the *St. Anthony Mine Financial Assurance Cost Estimate* (MWH, 2010), which is based off the conceptual *St. Anthony Mine, Site Closeout Plan* (MWH, 2006) and formed the basis for the current interim financial assurance for the Site. The second estimate is for the Modified 2019 Reclamation Design, presently in development, and is based on the 2019 Closeout Plan. United Nuclear Corporation intends for the Modified 2019 Reclamation Design to become its proposed Site closure/closeout plan once it is developed.

The modified 2010 opinion of cost (Attachment 1) was updated to utilize smaller earth moving equipment instead of the previously assumed mine fleet equipment. This change to the equipment fleet affects the efficiencies of operation and the resulting cost per unit for the construction activities and, therefore, affects the total estimated costs. The quantities for grading and haulage, cover volume requirements, and stormwater controls remain the same as presented in the 2010 cost estimate (MWH, 2010). The modified 2010 opinion of cost was also updated to include monitoring, testing, and verification controls consisting of QA/QC, lab testing, radiological support and monitoring during construction, and monitoring and maintenance post-construction.

The opinion of cost for the Modified 2019 Reclamation Design (Attachment 2) was prepared assuming use of a similarly sized fleet of equipment as the modified 2010 opinion of cost and is based on the 2019 Closeout Plan with some modifications. Based on discussions with United Nuclear Corporation, the cost estimate for the Modified 2019 Reclamation Design includes regrading and covering several piles in-place (Piles 1, 2, 3, 4, 6, 7, and Topsoil/Overburden). The remaining waste piles and excavated areas outside of Pit 1 would be hauled and placed into Pit 2 and covered. The opinion of cost for the Modified 2019 Reclamation Design also includes STPP stabilization of existing sediments in Pit 1; Pit 1 highwall layback; fencing and signage; revegetation; and additional stormwater controls. Both estimates include monitoring, testing, and verification controls consisting of QA/QC, lab testing, radiological support and monitoring during construction, and monitoring and maintenance post-construction.

ESTIMATE METHODOLOGY

The cost estimates were prepared following the procedures specified by the Association for the Advancement of Cost Engineering (AACE). The methodology used for the opinion of costs is consistent with the requirements of the Financial Assurance Calculations Hand Book, attachment 4 to the *Closeout Plan Guidelines for Existing Mines* (MMD, 1996). The opinions of cost were prepared to a Class 4 accuracy (lower bound accuracy of -15 to -30%; upper bound accuracy of +20 to +50 %) based on the level of design detail available and considered detailed development of construction equipment fleets and personnel loadings. Costs are based on 2019 New Mexico wage rates (New Mexico Department of Workforce - Prevailing Wage Type H, 2019). The work schedule was estimated at 10 hours/day, 6 days/week, with construction being completed in the 2019 construction season.

The total estimated construction costs for both estimates are summarized in Table 1 and include direct construction costs as well as indirect costs for overtime, contractor bonding and insurance, and engineering and construction oversight. The AACE Class 4 opinion of construction cost is summarized in Table 1 without escalation and contingency. Details of the estimated construction costs are presented in Attachments 1 and 2.

TABLE 1
SUMMARY OF AACE CLASS 4 OPINION OF CONSTRUCTION COSTS

	Amount	
Item	**Modified 2010 Costs**	**2020 Costs**
Direct Costs	$65,565,062	$68,334,367
Indirect Costs	$6,327,355	$6,899,825
TOTAL	**$71,892,417**	**$75,234,192**
TOTAL -30%	$50,324,692	$52,663,934
TOTAL +50%	$107,838,626	$112,851,288

Actual costs may differ from this estimate once the Site closure/closeout plan is finalized and/or implemented due to adjustments made during design or in the field.

Sincerely,

Reference: St. Anthony Mine Site Financial Assurance Opinion of Construction Cost

Jason Cumbers PE
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Attachment: Attachment 1 – Modified 2010 Opinion of Construction Cost
Attachment 2 – Modified 2019 Opinion of Construction Cost

c. Lance Hauer, GE
John Haggard, GE
Monique Mooney, GE

REFERENCES

MWH, 2006. St. Anthony Mine, Site Closeout Plan. January.

MWH, 2010. St Anthony Mine Financial Assurance Cost Estimate. Letter to New Mexico Mining and Minerals Division. September 17.

Stantec, 2019. St. Anthony Mine Closeout Plan, Updated 2019. March 29.

New Mexico Energy, Minerals and Natural Resources Department, Mining and Minerals Division (MMD), 1996, Closeout Plan Guidelines for Existing Mines

ATTACHMENT 1

MODIFIED 2010 OPINION OF COST

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St Anthony Mine

2010 Cost Estimate Modification - Rev H3a - 14 January 2020

Cost Estimate Summary

				14 January 2020	Rev H3a	
Item No.	**Description**	**Quantity**		**Total Cost**	**Cost Per Unit**	**Working Days**
1.0	**Mobilization and Preparation Work**	**Quantity**		**Total Cost**	**Cost Per Unit**	**Working Days**
		1	LS	$ 1,795,620	$ 1,795,620	34
Regrading (Sandstone - Except Piles 1 & 2)						
2.0	**0010 Regrade Pile 1 & 2 (Shale)**	**Quantity**		**Total Cost**	**Cost Per Unit**	**Work Days**
		1,644,000	CY	$ 9,029,840	$ 5.49	177
3.0	**0020 Regrade Pile 3 (Sandstone)**	**Quantity**		**Total Cost**	**Cost Per Unit**	**Work Days**
		473,000	CY	$ 2,604,229	$ 5.51	51
4.0	**0030 Regrade Pile 4 (Sandstone)**	**Quantity**		**Total Cost**	**Cost Per Unit**	**Work Days**
		4,185,000	CY	$ 27,741,810	$ 6.63	383
5.0	**0040 Regrade Pile 5 (Sandstone)**	**Quantity**		**Total Cost**	**Cost Per Unit**	**Work Days**
		186,000	CY	$ 1,232,969	$ 6.63	28
6.0	**0050 Regrade Pile 6 (Sandstone)**	**Quantity**		**Total Cost**	**Cost Per Unit**	**Work Days**
		101,000	CY	$ 641,183	$ 6.35	22
7.0	**0060 Regrade Pile 7 (Sandstone)**	**Quantity**		**Total Cost**	**Cost Per Unit**	**Work Days**
		31,000	CY	$ 177,238	$ 5.72	12
8.0	**0070 Regrade Crusher/Stockpile Area (Sandstone) no excavation or hauling**	**Quantity**		**Total Cost**	**Cost Per Unit**	**Work Days**
		102,000	CY	$ 63,232	$ 0.62	10
9.0	**0080 Regrade West Disturbance Area (Sandstone)**	**Quantity**		**Total Cost**	**Cost Per Unit**	**Work Days**
		83,000	CY	$ 455,886	$ 5.49	19
10.0	**0090 Regrade West Shaft Area (Sandstone) no excavation or hauling**	**Quantity**		**Total Cost**	**Cost Per Unit**	**Work Days**
		3,000	CY	$ 1,860	$ 0.62	1
11.0	**0100 Regrade Ore Storage Areas 1 & 2 (Sandstone)**	**Quantity**		**Total Cost**	**Cost Per Unit**	**Work Days**
		3,000	CY	$ 16,826	$ 5.61	1
12.0	**0110 Regrade West Shaft Access Road (Sandstone) no excavation or hauling**	**Quantity**		**Total Cost**	**Cost Per Unit**	**Work Days**
		26,000	CY	$ 16,118	$ 0.62	5

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Cost Estimate Summary

				14 January 2020	Rev H3a	
Item No.	**Description**	**Quantity**		**Total Cost**	**Cost Per Unit**	**Working Days**
13.0	0120 Earthen Control Structure (Budget) no excavation or hauling	Quantity		Total Cost	Cost Per Unit	Work Days
		10,000	CY	$ 5,635	$ 0.56	2
14.0	0130 Maintain Haul Roads	Quantity		Total Cost	Cost Per Unit	Work Days
		118	WK	$ 3,291,369	$ 27,808.58	0
	Cover Material (Gravelly Sands & Silts)					
15.0	0010 Topsoil Stockpile 1 (North)	Quantity		Total Cost	Cost Per Unit	Work Days
		39,000	CY	$ 273,909	$ 7.02	11
16.0	0020 Topsoil Stockpile 2 (South)	Quantity		Total Cost	Cost Per Unit	
		284,000	CY	$ 1,671,922	$ 5.89	38
17.0	0030 Topsoil/Overburden Stockpile (North of Pile 5)	Quantity		Total Cost	Cost Per Unit	
		541,000	CY	$ 3,184,895	$ 5.89	59
18.0	0040 Cover Material from Borrow Area (South)	Quantity		Total Cost	Cost Per Unit	
		98,000	CY	$ 576,931	$ 5.89	43
19.0	0050 Maintain Haul Roads	Quantity		Total Cost	Cost Per Unit	
		25	WK	$ 699,463	$ 27,808.58	0
	Channel Protection					
20.0	0010 Myer Gulch	Quantity		Total Cost	Cost Per Unit	Work Days
		325,304	CY	$ 3,142,903	$ 9.66	86
21.0	0020 Pile 4 Top Surface Drainage Channel	Quantity		Total Cost	Cost Per Unit	Work Days
		45,000	SF	$ 490,500	$ 10.90	46
22.0	0030 Pile Downchutes	Quantity		Total Cost	Cost Per Unit	Work Days
		58,500	UN	$ 637,650	$ 10.90	18
23.0	0040 Pile Slope Channels (6" Thick Soil Cement)	Quantity		Total Cost	Cost Per Unit	0
		55,111	SY	$ 611,181	$ 11.09	0
	Road Reclamation					
24.0	0010 Ripping and Regrading Roadways	Quantity		Total Cost	Cost Per Unit	

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				14 January 2020	Rev H3a	

Item No.	Description	Quantity		Total Cost	Cost Per Unit	Working Days
		41,500	CY	$ 44,438	$ 1.07	0
Revegetation						
25.0	0010 Revegetation	Quantity		Total Cost	Cost Per Unit	
		320	AC	$ 373,046	$ 1,165.77	0
Monitoring, Testing, & Verification Controls						
26.0	Quality Assurance & Quality Control	Quantity		Total Cost	Cost Per Unit	
		36	MN	$ 1,786,853	$ 49,634.82	0
27.0	Remedial Action Radiologic Support	Quantity		Total Cost	Cost Per Unit	
		36	MN	$ 2,337,994	$ 64,944.28	0
28.0	Radiation Protection & Perimeter Radiologic Air Monitoring Plan	Quantity		Total Cost	Cost Per Unit	
		36	MN	$ 1,514,745	$ 42,076.25	0
29.0	Monthly Monitoring & Maintenance of Access Roads	Quantity		Total Cost	Cost Per Unit	
		120	MN	$ 1,144,818	$ 9,540.15	0
	Total Direct Cost			**$ 65,565,062.60**	Days	1045
					Years	2.86
					Months	34
30.0	Indirect Owner Costs	Quantity		Total Cost		
		1	LS	$ 6,327,355		
	Total Indirect Cost			**$ 6,327,355**		
	Total Project Cost*			**$ 71,892,417**		
	Total Project Cost -30%			**$ 50,324,692**		
	Total Project Cost +50%			**$ 107,838,626**		

***Does not include contingency or escalation.**

Stantec OPCC Disclaimer – Any opinions of probable construction costs ("OPCC") prepared by Stantec, including evaluations of Client's project budget, represent Stantec's best judgment as a design professional familiar with the construction industry. Unless and to the extent otherwise indicated by Stantec, such opinions or evaluations are based upon current market rates for labor, materials and equipment. The Client acknowledges that Stantec has no control over the costs of labor, materials or equipment, construction contractor's methods of determining bid prices, competitive bidding environments, unidentified field conditions, market conditions, inflation or any other factors that may affect the OPCC, the project budget or negotiating conditions at the time of execution of the construction contract. Furthermore, this OPCC is based on stable market conditions that exhibit predictable supply/demand relationships and does not attempt to capture the impacts of hyper-inflationary or deflationary market cycles. Client further acknowledges that the OPCC is a "snapshot in time" and that the reliability of the OPCC will degrade over time. Accordingly, Stantec cannot and does not warrant or represent that construction bids or negotiated construction prices will not vary from Client's project budget or Stantec's good faith Class 4 OPCC.

Note: **AACE International CLASS 4 Cost Estimate –** Class 4 estimates are generally prepared based on limited information and subsequently have fairly wide accuracy ranges. Typically, engineering is 10% to 40% complete. They are typically used for project screening, determination of feasibility, concept evaluation, and preliminary budget approval. Virtually all Class 4 estimates use stochastic estimating methods such as cost curves, capacity factors, and other parametric and modeling techniques. Expected accuracy ranges are from –15% to –30% on the low side and +20% to 50% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances.

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2010 Cost Estimate Modification - Rev H3a - 14 January 2020

Scope of Work

Estimate Name and Version Information:				Client:	Property:
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Scope #	Description	Cubic Yards of Material	Distance to haul One-Way - Feet	M.P.H.	Depth of fill - Feet	Final Grading - Acre	Compaction - Sq. Yards	Calculation QTY	
1.0	**Mobilization and Preparation Work**								
1.1	0010 Mobilization and Preparation Work							1	LS
1.2	0020 Erosion Control Devices							1	LS
1.3	0030 Relocate 14.4kV Distribution Line							1,700	LF
1.4	0040 Break Concrete Slabs							2,500	CY
1.5	0050 Access Road Improvements							42,240	SY
	Regrading (Sandstone - Except Piles 1 & 2)								
2.0	**0010 Regrade Pile 1 & 2 (Shale)**	**1644000.0**	**2035.0**	**13.0**	**30.0**	**34.0**	**164400.0**		
2.1	Exc, Haul & Spread in Pit 2	1,644,000	2035.0	13.0				1,644,000	CY
2.2	Earth Moving and Leveling Materials	493,200						493,200	CY
2.3	item							-	UN
2.4	item							-	UN
2.5	item								UN
3.0	**0020 Regrade Pile 3 (Sandstone)**	**473000.0**	**2000.0**	**13.5**	**30.0**	**9.8**	**47300.0**		
3.1	Exc, Haul & Spread in Pit 2	261,486	1800.0	13.0				261,486	CY
3.2	Exc, Haul & Spread in Pit 1	211,513	2200.0	14.0				211,513	CY
3.3	Earth Moving and Leveling Materials	141,900						141,900	CY
3.4	Regrade Pile 3				30.0	10		10	AC
3.5	item								UN
4.0	**0030 Regrade Pile 4 (Sandstone)**	**4185000.0**	**5860.0**	**13.0**	**30.0**	**86.5**	**418500.0**		
4.1	Exc, Haul & Spread in Pit 1	3,340,000	5860.0	13.0				3,340,000	CY
4.2	Exc, Haul & Spread in Area 2 and 4	845,000						845,000	CY
4.3	Earth Moving and Leveling Materials	1,255,500						1,255,500	CY
4.4	item							-	UN
4.5	item								UN
5.0	**0040 Regrade Pile 5 (Sandstone)**	**186000.0**	**3734.0**	**13.0**	**20.0**	**5.8**	**27900.0**		
5.1	Exc, Haul & Spread in Pit 1	186,000	3734.0	13.0				186,000	CY
5.2	Earth Moving and Leveling Materials	55,800						55,800	CY
5.3	item				20.0	6		-	UN
5.4	item						27,900	-	UN
5.5	item								UN
6.0	**0050 Regrade Pile 6 (Sandstone)**	**101000.0**	**2033.0**	**11.0**	**20.0**	**3.1**	**15150.0**		
6.1	Exc, Haul & Spread in Pit 1	96,000	2033.0	11.0				96,000	CY
6.2	Earth Moving and Leveling Materials	5,000						5,000	CY
6.3	Earth Moving and Leveling Materials	28,800						28,800	CY
6.4	Grading				20.0	3		3	AC
6.5	item								UN
7.0	**0060 Regrade Pile 7 (Sandstone)**	**31000.0**	**2477.0**	**11.0**	**10.0**	**1.9**	**9300.0**		
7.1	Exc, Haul & Spread in Pit 1	26,000	2477.0	11.0				26,000	CY
7.2	Earth Moving and Leveling Materials	5,000						5,000	CY
7.3	Earth Moving and Leveling Materials	9,300						9,300	CY
7.4	Grading				10.0	2		2	AC
7.5	item								UN
8.0	**0070 Regrade Crusher/Stockpile Area (Sandstone) no excavation or haulin**	**102000.0**	**0.0**	**0.0**	**7.0**	**9.0**	**43714.3**		
8.1	Earth Moving and Leveling Materials	102,000	0.0	0.0				102,000	CY
8.2	Grading	102,000			7.0	9		9	AC
8.3	item							-	UN
8.4	item							-	UN

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8.5	item										UN
9.0	**0080 Regrade West Disturbance Area (Sandstone)**	**83,000**	**1000.0**	**10.0**	**10.0**	**5.1**	**24900.0**				
9.1	Exc, Haul & Spread in Pit 1	83,000	1000.0	10.0				83,000	CY
9.2	Earth Moving and Leveling Materials	24,900						24,900	CY
9.3	item								UN
9.4	item								UN
9.5	item								UN
10.0	**0090 Regrade West Shaft Area (Sandstone) no excavation or hauling**	**3000.0**	**0.0**	**0.0**	**7.0**	**0.3**	**1285.7**		
10.1	Earth Moving and Leveling Materials	3,000	0.0	0.0				3,000	CY
10.2	Grading				7.0	0		0.27	AC
10.3	item							-	UN
10.4	item							-	UN
10.5	item								UN
11.0	**0100 Regrade Ore Storage Areas 1 & 2 (Sandstone)**	**3000.0**	**5174.4**	**13.0**	**3.0**	**0.6**	**3000.0**		
11.1	Exc, Haul & Spread in Crusher Stockpile	2,500	5174.4	13.0	3.0			2,500	CY
11.2	Earth Moving and Leveling Materials	500						500	CY
11.3	Grading				3.0	1		1	AC
11.4	item								UN
11.5	item								UN
12.0	**0110 Regrade West Shaft Access Road (Sandstone) no excavation or haulir**	**26000.0**	**0.0**	**0.0**	**7.0**	**2.3**	**11142.9**		
12.1	Earth Moving and Leveling Materials	26,000	0.0	0.0				26,000	CY
12.2	Grading				7.0	2		2	AC
12.3	item							-	UN
12.4	item							-	UN
12.5	item								UN
13.0	**0120 Earthen Control Structure (Budget) no excavation or hauling**	**10000.0**	**0.0**	**0.0**	**1.0**	**6.2**	**30000.0**		
13.1	Earthmoving & Leveling	10,000	0.0	0.0	1.0			10,000	CY
13.2	item							-	UN
13.3	item							-	UN
13.4	item							-	UN
13.5	item								UN
14.0	**0130 Maintain Haul Roads**	**118.4**	**0.0**	**0.0**	**0.0**				
14.1	Maintain Haul Roads	118	0	0				118	WK
14.2	item								UN
14.3	item								UN
14.4	item								UN
14.5	Item								UN
	Cover Material (Gravelly Sands & Silts)								
15.0	**0010 Topsoil Stockpile 1 (North)**	**39000.0**	**2666.7**	**12.0**	**2.0**	**12**	**58500.0**		
15.1	Exc, Haul & Dump - Mine Shaft Area	20,000	3000	12				20,000	CY
15.2	Exc, Haul & Dump - Ore Storage Areas 1 & 2	6,000	3000	12				6,000	CY
15.3	Exc, Haul & Dump - West Shaft Access Road	13,000	2000	12				13,000	CY
15.4	Earthmoving & Leveling	39,000			2.0	12.09	58,500	39,000	CY
15.5	Item								UN
16.0	**0020 Topsoil Stockpile 2 (South)**	**284000.0**	**1900.0**	**12.0**	**2.0**	**88**	**426000.0**		
16.1	Exc, Haul & Dump - Pile #2	113,000	1000	11				113,000	CY
16.2	Exc, Haul & Dump - Pile #3	80,000	1000	11				80,000	CY
16.3	Exc, Haul & Dump - West Disturbance Area	20,000	2000	12				20,000	CY
16.4	Exc, Haul & Dump - Pile #6	22,000	2500	13				22,000	CY

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16.5	Exc, Haul & Dump - Pit #1	49,000	3000	13				49,000	CY
16.6	Earthmoving & Leveling	284,000			2.0	88.0	426000.0	284,000	CY
17.0	**0030 Topsoil/Overburden Stockpile (North of Pile 5)**	**541000.0**	**950.0**	**10.4**	**2.0**	**168**	**811500.0**		
17.1	Exc, Haul & Dump - Pile #4	401,000	1000	10				401,000	CY
17.2	Exc, Haul & Dump - Pile #5	32,000	500	10				32,000	CY
17.3	Exc, Haul & Dump - Pile #7	18,000	750	10				18,000	CY
17.4	Exc, Haul & Dump - Crusher Stockpile Area	82,000	500	10				82,000	CY
17.5	Exc, Haul & Dump - West Shaft Access Road	8,000	2000	12				8,000	CY
17.6	Earthmoving & Leveling	541,000			2.0	167.7	811500.0	541,000	CY
18.0	**0040 Cover Material from Borrow Area (South)**	**98000.0**	**1000.0**	**12.0**	**2.0**	**30**	**147000.0**		
18.1	Exc, Haul & Spread - Pit 1	96,000						96,000	CY
18.2	Exc, Haul & Spread - Crusher Stockpile Area	2,000						2,000	CY
18.3	Earthmoving & Leveling	98,000			2.0	30	147,000	98,000	CY
18.4	item								UN
18.5	Item								UN
19.0	**0050 Maintain Haul Roads**	**25.2**							
19.1	Maintain Haul Roads	25						25	WK
19.2	item							-	UN
19.3	item							-	UN
19.4	item							-	UN
19.5	item							-	UN
Channel Protection									
20.0	**0010 Myer Gulch**	**316550.0**							
20.1	Excavation of Arroyo Channel							325,304	CY
20.2	Grading of Arroyo Channel							25	AC
20.3	Compaction of Arroyo Channel							122,044	SY
20.4	Placement of Filter Layer							4,933	CY
20.5	Placing of Rip Rap - D50 12"							9,867	CY
20.6	Grade Control Structure							3,467	CY
20.7	Placing of Rip Rap - D50 9"							655	CY
21.0	**0020 Pile 4 Top Surface Drainage Channel**	**45000.0**							
21.1	Install ArmorFlex	45,000						45,000	SF
21.2	item								UN
21.3	item								UN
21.4	item								UN
21.5	item								UN
21.6	item								UN
22.0	**0030 Pile Downchutes**	**58500.0**							
22.1	Install ArmorFlex	58,500						58,500	SF
22.2	item								UN
22.3	item								UN
22.4	item								UN
22.5	item								UN
22.6	item								UN
23.0	**0040 Pile Slope Channels (6" Thick Soil Cement)**	**55111.0**							
23.1	Soil Cement on Pile Slope Channels	55,111						55,111	SY
23.2	item								UN
23.3	item								UN
23.4	item								UN

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23.5	item									UN
23.6	item									UN
Road Reclamation										
24.0	**0010 Ripping and Regrading Roadways**	**14,000**	**0.0**	**0.0**	**0.0**	**0.0**	**-**			
24.1	Ripping Roadways w/Dozer	41,500							41,500	CY
24.2	Regrade Roadways	62,200							62,200	SY
24.3	item								-	UN
24.4	item									UN
24.5	item								-	UN
Revegetation										
25.0	**0010 Revegetation**	**320**	**0.0**	**0.0**	**0.0**	**0.0**	**-**			
25.1	Rough Grade Site	320							320	AC
25.2	Seeding (11 to 15 LB/AC)	320							320	AC
25.3	Mulch with Straw (2 Tons/Acre)	320							320	AC
25.4	item								-	UN
25.5	item								-	UN
Monitoring, Testing, & Verification Controls										
26.0	**Quality Assurance & Quality Control**									
26.1	Labor Personnel & administration								36	MN
26.2	Lab Testing costs - Soil Testing								1	LS
26.3	Lab Testing costs - Rock Testing								1	LS
26.4	Monthly Lodging & Expenses								36	MN
26.5	item									UN
27.0	**Remedial Action Radiologic Support**									
27.1	Labor Personnel & administration								36	MN
27.2	Project Management								36	MN
27.3	Equipment, Supplies, Fees & Expenses								36	MN
27.4	Monthly Lodging & Expenses								1	LS
27.5	item									UN
28.0	**Radiation Protection & Perimeter Radiologic Air Monitoring Plan**									
28.1	Labor Personnel & administration								36	MN
28.2	Equipment, Supplies, Fees & Expenses								36	MN
28.3	Monthly Lodging & Expenses								1	LS
28.4	item									UN
28.5	item									UN
29.0	**Monthly Monitoring & Maintenance of Access Roads**									
29.1	Monthly Inspection of Site								120	MN
29.2	Maintenance of Access Roads								120	MN
29.3	item									UN
29.4	item									UN
29.5	item									UN
30.0	**Indirect Owner Costs**		**0.0**	**0.0**	**0.0**	**80.0**				
30.1	Overtime Adjustment								16.67%	%
30.2	Contract Bond								0.64%	%
30.3	Contractor Insurance								1.50%	%
30.4	Engineering and Construction Support								2.00%	%
30.5	Contingency								-	UN

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Cost Estimate Spreadsheet

										14 January 2020	Rev H3a	
Item No.	**Description**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**

1.0	**Mobilization and Preparation Work**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
1.1	0010 Mobilization and Preparation Work	1	LS	$ 524,029.50	$ 524,029.50	$ 566,165.63	$ 566,165.63	$ -	$ -	$ 1,090,195.13	$ 365,000.00	$ 1,455,195.13
1.2	0020 Erosion Control Devices	1	LS	$ 74,803.64	$ 74,803.64	$ 37,449.19	$ 37,449.19	$ 20,720.00	$ 20,720.00	$ 132,972.82		$ 132,972.82
1.3	0030 Relocate 14.4kV Distribution Line	1,700	LF	$ 32.08	$ 54,536.00	$ 13.00	$ 22,100.00	$ 9.09	$ 15,453.00	$ 92,089.00		$ 92,089.00
1.4	0040 Break Concrete Slabs	2,500	CY	$ 3.64	$ 9,103.14	$ 7.57	$ 18,926.59		$ -	$ 28,029.73		$ 28,029.73
1.5	0050 Access Road Improvements	42,240	SY	$ 0.65	$ 27,254.11	$ 1.35	$ 57,079.34	$ 0.07	$ 3,000.00	$ 87,333.44		$ 87,333.44
			Sub-total		$ 689,726.38		$ 701,720.74		$ 39,173.00	$ 1,430,620.13	$ 365,000.00	$ 1,795,620.13
	Contingency	0%										$ -

Regrading (Sandstone - Except Piles 1 & 2)

2.0	**0010 Regrade Pile 1 & 2 (Shale)**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
2.1	Exc, Haul & Spread in Pit 2	1,644,000	CY	$ 1.41	$ 2,325,290.29	$ 3.91	$ 6,426,633.15	$ -	$ -	$ 8,751,923.44		$ 8,751,923.44
2.2	Earth Moving and Leveling Materials	493,200	CY	$ 0.25	$ 121,922.05	$ 0.32	$ 155,994.47	$ -	$ -	$ 277,916.53		$ 277,916.53
2.3	item	-	UN	$ 183.20	$ -	$ 454.06	$ -	$ -	$ -	$ -		$ -
2.4	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
2.5	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
			Sub-total		$ 2,447,212.35		$ 6,582,627.62		$ -	$ 9,029,839.97	$ -	$ 9,029,839.97
	Contingency	0%										$ -

3.0	**0020 Regrade Pile 3 (Sandstone)**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
3.1	Exc, Haul & Spread in Pit 2	261,486	CY	$ 1.41	$ 369,849.09	$ 3.91	$ 1,022,188.25	$ -	$ -	$ 1,392,037.34		$ 1,392,037.34
3.2	Exc, Haul & Spread in Pit 1	211,513	CY	$ 1.41	$ 299,166.82	$ 3.91	$ 826,836.72	$ -	$ -	$ 1,126,003.54		$ 1,126,003.54
3.3	Earth Moving and Leveling Materials	141,900	CY	$ 0.25	$ 35,078.54	$ 0.32	$ 44,881.61	$ -	$ -	$ 79,960.16		$ 79,960.16
3.4	Regrade Pile 3	10	AC	$ 183.20	$ 1,790.31	$ 454.06	$ 4,437.16	$ -	$ -	$ 6,227.48		$ 6,227.48
3.5	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
			Sub-total		$ 705,884.76		$ 1,898,343.75		$ -	$ 2,604,228.52	$ -	$ 2,604,228.52
	Contingency	0%										$ -

4.0	**0030 Regrade Pile 4 (Sandstone)**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
4.1	Exc, Haul & Spread in Pit 1	3,340,000	CY	$ 1.62	$ 5,404,646.52	$ 4.84	$ 16,171,146.66	$ -	$ -	$ 21,575,793.18		$ 21,575,793.18
4.2	Exc, Haul & Spread in Area 2 and 4	845,000	CY	$ 1.62	$ 1,367,343.21	$ 4.84	$ 4,091,203.27	$ -	$ -	$ 5,458,546.48		$ 5,458,546.48
4.3	Earth Moving and Leveling Materials	1,255,500	CY	$ 0.25	$ 310,367.27	$ 0.32	$ 397,102.71	$ -	$ -	$ 707,469.99		$ 707,469.99
4.4	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
4.5	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
			Sub-total		$ 7,082,357.00		$ 20,659,452.64		$ -	$ 27,741,809.64	$ -	$ 27,741,809.64
	Contingency	0%										$ -

5.0	**0040 Regrade Pile 5 (Sandstone)**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
5.1	Exc, Haul & Spread in Pit 1	186,000	CY	$ 1.62	$ 300,977.32	$ 4.84	$ 900,548.89	$ -	$ -	$ 1,201,526.21		$ 1,201,526.21
5.2	Earth Moving and Leveling Materials	55,800	CY	$ 0.25	$ 13,794.10	$ 0.32	$ 17,649.01	$ -	$ -	$ 31,443.11		$ 31,443.11
5.3	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
5.4	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
5.5	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
			Sub-total		$ 314,771.42		$ 918,197.90		$ -	$ 1,232,969.32	$ -	$ 1,232,969.32
	Contingency	0%										$ -

Stantec

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6.0	0050 Regrade Pile 6 (Sandstone)	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
6.1	Exc, Haul & Spread in Pit 1	96,000	CY	$ 1.62	$ 155,343.13	$ 4.84	$ 464,799.42	$ -	$ -	$ 620,142.56		$ 620,142.56
6.2	Earth Moving and Leveling Materials	5,000	CY	$ 0.25	$ 1,236.03	$ 0.32	$ 1,581.45	$ -	$ -	$ 2,817.48		$ 2,817.48
6.3	Earth Moving and Leveling Materials	28,800	CY	$ 0.25	$ 7,119.54	$ 0.32	$ 9,109.17	$ -	$ -	$ 16,228.70		$ 16,228.70
6.4	Grading	3	AC	$ 183.20	$ 573.43	$ 454.06	$ 1,421.21	$ -	$ -	$ 1,994.64		$ 1,994.64
6.5	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
			Sub-total		$ 164,272.13		$ 476,911.25		$ -	$ 641,183.38	$ -	$ 641,183.38
	Contingency	0%										$ -

7.0	0060 Regrade Pile 7 (Sandstone)	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
7.1	Exc, Haul & Spread in Pit 1	26,000	CY	$ 1.62	$ 42,072.10	$ 4.84	$ 125,883.18	$ -	$ -	$ 167,955.28		$ 167,955.28
7.2	Earth Moving and Leveling Materials	5,000	CY	$ 0.25	$ 1,236.03	$ 0.32	$ 1,581.45	$ -	$ -	$ 2,817.48		$ 2,817.48
7.3	Earth Moving and Leveling Materials	9,300	CY	$ 0.25	$ 2,299.02	$ 0.32	$ 2,941.50	$ -	$ -	$ 5,240.52		$ 5,240.52
7.4	Grading	2	AC	$ 183.20	$ 352.01	$ 454.06	$ 872.42	$ -	$ -	$ 1,224.43		$ 1,224.43
7.5	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
			Sub-total		$ 45,959.15		$ 131,278.56		$ -	$ 177,237.71	$ -	$ 177,237.71
	Contingency	0%										$ -

8.0	0070 Regrade Crusher/Stockpile Area (Sandstone) no excavation or hauling	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
8.1	Earth Moving and Leveling Materials	102,000	CY	$ 0.25	$ 25,215.02	$ 0.32	$ 32,261.63	$ -	$ -	$ 57,476.65		$ 57,476.65
8.2	Grading	9	AC	$ 183.20	$ 1,654.59	$ 454.06	$ 4,100.79	$ -	$ -	$ 5,755.38		$ 5,755.38
8.3	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
8.4	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
8.5	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
			Sub-total		$ 26,869.62		$ 36,362.42		$ -	$ 63,232.04	$ -	$ 63,232.04
	Contingency	0%										$ -

9.0	0080 Regrade West Disturbance Area (Sandstone)	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
9.1	Exc, Haul & Spread in Pit 1	83,000	CY	$ 1.41	$ 117,396.04	$ 3.91	$ 324,458.97	$ -	$ -	$ 441,855.02		$ 441,855.02
9.2	Earth Moving and Leveling Materials	24,900	CY	$ 0.25	$ 6,155.43	$ 0.32	$ 7,875.63	$ -	$ -	$ 14,031.07		$ 14,031.07
9.3	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
9.4	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
9.5	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
			Sub-total		$ 123,551.47		$ 332,334.61		$ -	$ 455,886.08	$ -	$ 455,886.08
	Contingency	0%										$ -

10.0	0090 Regrade West Shaft Area (Sandstone) no excavation or hauling	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
10.1	Earth Moving and Leveling Materials	3,000	CY	$ 0.25	$ 741.62	$ 0.32	$ 948.87	$ -	$ -	$ 1,690.49		$ 1,690.49
10.2	Grading	0.3	AC	$ 183.20	$ 48.66	$ 454.06	$ 120.61	$ -	$ -	$ 169.28		$ 169.28
10.3	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
10.4	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
10.5	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
			Sub-total		$ 790.28		$ 1,069.48		$ -	$ 1,859.77	$ -	$ 1,859.77
	Contingency	0%										$ -

11.0	0100 Regrade Ore Storage Areas 1 & 2 (Sandstone)	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost

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11.1	Exc, Haul & Spread in Crusher Stockpile	2,500	CY	$ 1.62	$ 4,045.39	$ 4.84	$ 12,104.15	$ -	$ -	$ 16,149.55		$ 16,149.55
11.2	Earth Moving and Leveling Materials	500	CY	$ 0.25	$ 123.60	$ 0.32	$ 158.15	$ -	$ -	$ 281.75		$ 281.75
11.3	Grading	1	AC	$ 183.20	$ 113.55	$ 454.06	$ 281.43	$ -	$ -	$ 394.98		$ 394.98
11.4	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
11.5	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
		Sub-total			$ 4,282.55		$ 12,543.72		$ -	$ 16,826.27	$ -	$ 16,826.27
	Contingency	0%										$ -

12.0	0110 Regrade West Shaft Access Road (Sandstone) no excavation or hauling	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
12.1	Earth Moving and Leveling Materials	26,000	CY	$ 0.25	$ 6,427.36	$ 0.32	$ 8,223.55	$ -	$ -	$ 14,650.91		$ 14,650.91
12.2	Grading	2	AC	$ 183.20	$ 421.76	$ 454.06	$ 1,045.30	$ -	$ -	$ 1,467.06		$ 1,467.06
12.3	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
12.4	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
12.5	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
		Sub-total			$ 6,849.12		$ 9,268.85		$ -	$ 16,117.97	$ -	$ 16,117.97
	Contingency	0%										$ -

13.0	0120 Earthen Control Structure (Budget) no excavation or hauling	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
13.1	Earthmoving & Leveling	10,000.00	CY	$ 0.25	$ 2,472.06	$ 0.32	$ 3,162.90	$ -	$ -	$ 5,634.97		$ 5,634.97
13.2	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
13.3	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
13.4	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
13.5	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
		Sub-total			$ 2,472.06		$ 3,162.90		$ -	$ 5,634.97	$ -	$ 5,634.97
	Contingency	0%										$ -

14.0	0130 Maintain Haul Roads	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
14.1	Maintain Haul Roads	118	WK	$ 8,687.47	$ 1,028,232.17	$ 18,821.11	$ 2,227,629.40	$ 300.00	$ 35,507.42	$ 3,291,368.99		$ 3,291,368.99
14.2	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
14.3	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
14.4	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
14.5	Item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
		Sub-total			$ 1,028,232.17		$ 2,227,629.40		$ 35,507.42	$ 3,291,368.99	$ -	$ 3,291,368.99
	Contingency	0%										$ -

Cover Material (Gravelly Sands & Silts)

15.0	0010 Topsoil Stockpile 1 (North)	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
15.1	Exc, Haul & Dump - Mine Shaft Area	20,000	CY	$ 1.62	$ 32,363.15	$ 4.84	$ 96,833.21	$ -	$ -	$ 129,196.37		$ 129,196.37
15.2	Exc, Haul & Dump - Ore Storage Areas 1 & 2	6,000	CY	$ 1.62	$ 9,708.95	$ 4.84	$ 29,049.96	$ -	$ -	$ 38,758.91		$ 38,758.91
15.3	Exc, Haul & Dump - West Shaft Access Road	13,000	CY	$ 1.62	$ 21,036.05	$ 4.84	$ 62,941.59	$ -	$ -	$ 83,977.64		$ 83,977.64
15.4	Earthmoving & Leveling	39,000	CY	$ 0.25	$ 9,641.04	$ 0.32	$ 12,335.33	$ -	$ -	$ 21,976.37		$ 21,976.37
15.5	Item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
		Sub-total			$ 72,749.19		$ 201,160.10		$ -	$ 273,909.28	$ -	$ 273,909.28
	Contingency	0%										$ -

16.0	0020 Topsoil Stockpile 2 (South)	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
16.1	Exc, Haul & Dump - Pile #2	113,000	CY	$ 1.41	$ 159,828.35	$ 3.91	$ 441,733.30	$ -	$ -	$ 601,561.65		$ 601,561.65

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16.2	Exc, Haul & Dump - Pile #3	80,000	CY	$ 1.41	$ 113,152.81	$ 3.91	$ 312,731.54	$ -	$ -	$ 425,884.35		$ 425,884.35
16.3	Exc, Haul & Dump - West Disturbance Area	20,000	CY	$ 1.41	$ 28,288.20	$ 3.91	$ 78,182.89	$ -	$ -	$ 106,471.09		$ 106,471.09
16.4	Exc, Haul & Dump - Pile #6	22,000	CY	$ 1.41	$ 31,117.02	$ 3.91	$ 86,001.17	$ -	$ -	$ 117,118.20		$ 117,118.20
16.5	Exc, Haul & Dump - Pit #1	49,000	CY	$ 1.41	$ 69,306.10	$ 3.91	$ 191,548.07	$ -	$ -	$ 260,854.17		$ 260,854.17
16.6	Earthmoving & Leveling	284,000	CY	$ 0.25	$ 70,206.54	$ 0.32	$ 89,826.50	$ -	$ -	$ 160,033.04		$ 160,033.04
			Sub-total		$ 471,899.02		$ 1,200,023.47		$ -	$ 1,671,922.49	$ -	$ 1,671,922.49
	Contingency	0%										$ -

17.0	0030 Topsoil/Overburden Stockpile (North of Pile 5)	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
17.1	Exc, Haul & Dump - Pile #4	401,000	CY	$ 1.41	$ 567,178.47	$ 3.91	$ 1,567,566.85	$ -	$ -	$ 2,134,745.32		$ 2,134,745.32
17.2	Exc, Haul & Dump - Pile #5	32,000	CY	$ 1.41	$ 45,261.12	$ 3.91	$ 125,092.62	$ -	$ -	$ 170,353.74		$ 170,353.74
17.3	Exc, Haul & Dump - Pile #7	18,000	CY	$ 1.41	$ 25,459.38	$ 3.91	$ 70,364.60	$ -	$ -	$ 95,823.98		$ 95,823.98
17.4	Exc, Haul & Dump - Crusher Stockpile Area	82,000	CY	$ 1.41	$ 115,981.63	$ 3.91	$ 320,549.83	$ -	$ -	$ 436,531.46		$ 436,531.46
17.5	Exc, Haul & Dump - West Shaft Access Road	8,000	CY	$ 1.41	$ 11,315.28	$ 3.91	$ 31,273.15	$ -	$ -	$ 42,588.44		$ 42,588.44
17.6	Earthmoving & Leveling	541,000	CY	$ 0.25	$ 133,738.51	$ 0.32	$ 171,113.16	$ -	$ -	$ 304,851.66		$ 304,851.66
			Sub-total		$ 898,934.40		$ 2,285,960.20		$ -	$ 3,184,894.60	$ -	$ 3,184,894.60
	Contingency	0%										$ -

18.0	0040 Cover Material from Borrow Area (South)	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
18.1	Exc, Haul & Spread - Pit 1	96,000	CY	$ 1.41	$ 135,783.37	$ 3.91	$ 375,277.85	$ -	$ -	$ 511,061.22		$ 511,061.22
18.2	Exc, Haul & Spread - Crusher Stockpile Area	2,000	CY	$ 1.41	$ 2,828.82	$ 3.91	$ 7,818.29	$ -	$ -	$ 10,647.11		$ 10,647.11
18.3	Earthmoving & Leveling	98,000	CY	$ 0.25	$ 24,226.20	$ 0.32	$ 30,996.47	$ -	$ -	$ 55,222.67		$ 55,222.67
18.4	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
18.5	Item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
			Sub-total		$ 162,838.39		$ 414,092.60		$ -	$ 576,931.00	$ -	$ 576,931.00
	Contingency	0%										$ -

19.0	0050 Maintain Haul Roads	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
19.1	Maintain Haul Roads	25	WK	$ 8,687.47	$ 218,513.91	$ 18,821.11	$ 473,402.82	$ 300.00	$ 7,545.83	$ 699,462.56		$ 699,462.56
19.2	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
19.3	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
19.4	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
19.5	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
			Sub-total		$ 218,513.91		$ 473,402.82		$ 7,545.83	$ 699,462.56	$ -	$ 699,462.56
	Contingency	0%										$ -

Channel Protection

20.0	0010 Myer Gulch	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
20.1	Excavation of Arroyo Channel	325,304	CY	$ 0.79	$ 255,461.53	$ 3.16	$ 1,027,147.33		$ -	$ 1,282,608.86		$ 1,282,608.86
20.2	Grading of Arroyo Channel	25	AC	$ 1,282.42	$ 32,337.28	$ 3,614.07	$ 91,131.62		$ -	$ 123,468.90		$ 123,468.90
20.3	Compaction of Arroyo Channel	122,044	SY	$ 0.71	$ 86,927.59	$ 1.68	$ 204,601.89		$ -	$ 291,529.48		$ 291,529.48
20.4	Placement of Filter Layer	4,933	CY	$ 1.44	$ 7,103.08	$ 2.13	$ 10,498.76	$ 15.75	$ 77,700.00	$ 95,301.84		$ 95,301.84
20.5	Placing of Rip Rap - D50 12"	9,867	CY	$ 3.14	$ 30,954.81	$ 10.45	$ 103,150.56	$ 20.25	$ 199,800.00	$ 333,905.37		$ 333,905.37
20.6	Grade Control Structure	3,467	CY	$ 71.68	$ 248,490.67	$ 71.68	$ 248,490.67	$ 143.35	$ 496,946.67	$ 993,928.00		$ 993,928.00
20.7	Placing of Rip Rap - D50 9"	655	CY	$ 3.14	$ 2,054.36	$ 10.45	$ 6,845.73	$ 20.25	$ 13,260.00	$ 22,160.09		$ 22,160.09
			Sub-total		$ 663,329.31		$ 1,691,866.56		$ 787,706.67	$ 3,142,902.53	$ -	$ 3,142,902.53
	Contingency	0%										$ -

21.0	0020 Pile 4 Top Surface Drainage Channel	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost

										14 January 2020	Rev H3a	
21.1	Install ArmorFlex	45,000	SF		$ -		$ -		$ -	$ -	$ 490,500.00	$ 490,500.00
21.2	item	-	UN		$ -		$ -		$ -	$ -		$ -
21.3	item	-	UN		$ -		$ -		$ -	$ -		$ -
21.4	item	-	UN		$ -		$ -		$ -	$ -		$ -
21.5	item	-	UN		$ -		$ -		$ -	$ -		$ -
21.6	item	-	UN		$ -		$ -		$ -	$ -		$ -
			Sub-total		$ -		$ -		$ -	$ -	$ 490,500.00	$ 490,500.00
	Contingency	0%										$ -

22.0	0030 Pile Downchutes	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
22.1	Install ArmorFlex	58,500	SF		$ -		$ -		$ -	$ -	$ 637,650.00	$ 637,650.00
22.2	item	-	UN		$ -		$ -		$ -	$ -		$ -
22.3	item	-	UN		$ -		$ -		$ -	$ -		$ -
22.4	item	-	UN		$ -		$ -		$ -	$ -		$ -
22.5	item	-	UN		$ -		$ -		$ -	$ -		$ -
22.6	item	-	UN		$ -		$ -		$ -	$ -		$ -
			Sub-total		$ -		$ -		$ -	$ -	$ 637,650.00	$ 637,650.00
	Contingency	0%										$ -

23.0	0040 Pile Slope Channels (6" Thick Soil Cement)	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
23.1	Soil Cement on Pile Slope Channels	55,111	SY		$ -		$ -		$ -	$ -	$ 611,181.00	$ 611,181.00
23.2	item	-	UN		$ -		$ -		$ -	$ -		$ -
23.3	item	-	UN		$ -		$ -		$ -	$ -		$ -
23.4	item	-	UN		$ -		$ -		$ -	$ -		$ -
23.5	item	-	UN		$ -		$ -		$ -	$ -		$ -
23.6	item	-	UN		$ -		$ -		$ -	$ -		$ -
			Sub-total		$ -		$ -		$ -	$ -	$ 611,181.00	$ 611,181.00
	Contingency	0%										$ -

Road Reclamation

24.0	0010 Ripping and Regrading Roadways	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
24.1	Ripping Roadways w/Dozer	41,500	CY	$ 0.09	$ 3,554.51	$ 0.17	$ 6,902.92	$ -	$ -	$ 10,457.43		$ 10,457.43
24.2	Regrade Roadways	62,200	SY	$ 0.18	$ 11,207.14	$ 0.37	$ 22,773.13	$ -	$ -	$ 33,980.27		$ 33,980.27
24.3	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
24.4	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
24.5	item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
			Sub-total		$ 14,761.65		$ 29,676.05		$ -	$ 44,437.70	$ -	$ 44,437.70
	Contingency	0%										$ -

Revegetation

25.0	0010 Revegetation											
25.1	Rough Grade Site	320	AC	$ 47.10	$ 15,073.46	$ 91.24	$ 29,198.35		$ -	$ 44,271.81		$ 44,271.81
25.2	Seeding (11 to 15 LB/AC)	320	AC	$ 209.00	$ 66,880.00	$ 155.00	$ 49,600.00	$ 300.00	$ 96,000.00	$ 212,480.00		$ 212,480.00
25.3	Mulch with Straw (2 Tons/Acre)	320	AC	$ 32.75	$ 10,480.00	$ 30.67	$ 9,814.40	$ 300.00	$ 96,000.00	$ 116,294.40		$ 116,294.40
25.4	item	0	UN		$ -		$ -		$ -	$ -		$ -
25.5	item	0	UN									
			Sub-total		$ 92,433.46		$ 88,612.75		$ 192,000.00	$ 373,046.21	$ -	$ 373,046.21
	Contingency	0%										$ -

Monitoring, Testing, & Verification Controls

26.0	Quality Assurance & Quality Control											
26.1	Labor Personnel & administration	36	MN	$ 45,613.89	$ 1,642,100.00				$ -	$ 1,642,100.00		$ 1,642,100.00

										14 January 2020	**Rev H3a**	
26.2	Lab Testing costs - Soil Testing	1	LS	$ -	$ -			$ -	$ -	$ -	$ 29,176.00	$ 29,176.00
26.3	Lab Testing costs - Rock Testing	1	LS	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,360.00	$ 3,360.00
26.4	Monthly Lodging & Expenses	36	MN		$ -		$ -		$ -	$ -	$ 112,217.40	$ 112,217.40
26.5	item	0	UN									
			Sub-total		$ 1,642,100.00		$ -		$ -	$ 1,642,100.00	$ 144,753.40	$ 1,786,853.40
	Contingency	10%										$ 178,685
27.0	**Remedial Action Radiologic Support**											
27.1	Labor Personnel & administration	36	MN	$ 50,327.50	$ 1,811,790.00	$ -	$ -		$ -	$ 1,811,790.00		$ 1,811,790.00
27.2	Project Management	36	MN	$ 1,368.89	$ 49,280.00	$ -	$ -	$ -	$ -	$ 49,280.00		$ 49,280.00
27.3	Equipment, Supplies, Fees & Expenses	36	MN	$ -	$ -	$ 10,378.19	$ 373,615.00	$ -	$ -	$ 373,615.00		$ 373,615.00
27.4	Monthly Lodging & Expenses	1	LS		$ -		$ -		$ -	$ -	$ 103,309.09	$ 103,309.09
27.5	item	0	UN									
			Sub-total		$ 1,861,070.00		$ 373,615.00		$ -	$ 2,234,685.00	$ 103,309.09	$ 2,337,994.09
	Contingency	10%										$ 233,799
28.0	**Radiation Protection & Perimeter Radiologic Air Monitoring Plan**											
28.1	Labor Personnel & administration	36	MN	$ 31,479.17	$ 1,133,250.00	$ -	$ -		$ -	$ 1,133,250.00		$ 1,133,250.00
28.2	Equipment, Supplies, Fees & Expenses	36	MN	$ -	$ -	$ 8,541.53	$ 307,495.00	$ -	$ -	$ 307,495.00		$ 307,495.00
28.3	Monthly Lodging & Expenses	1	LS	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 74,000.00	$ 74,000.00
28.4	item	0	UN		$ -		$ -		$ -	$ -		$ -
28.5	item	0	UN									
			Sub-total		$ 1,133,250.00		$ 307,495.00		$ -	$ 1,440,745.00	$ 74,000.00	$ 1,514,745.00
	Contingency	10%										$ 151,475
29.0	**Monthly Monitoring & Maintenance of Access Roads**											
29.1	Monthly Inspection of Site	120	MN	$ 4,255.37	$ 510,644.67	$ -	$ -		$ -	$ 510,644.67		$ 510,644.67
29.2	Maintenance of Access Roads	120	MN	$ 2,132.83	$ 255,940.07	$ 3,151.94	$ 378,233.26	$ -	$ -	$ 634,173.33		$ 634,173.33
29.3	item	0	UN	$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -
29.4	item	0	UN		$ -		$ -		$ -	$ -		$ -
29.5	item	0	UN									
			Sub-total		$ 766,584.74		$ 378,233.26		$ -	$ 1,144,818.01	$ -	$ 1,144,818.01
	Contingency	10%										$ 114,482
	Total Direct Costs				**$ 20,641,694.53**		**$ 41,435,041.66**		**$ 1,061,932.91**	**$ 63,138,669.10**	**$ 2,426,393.49**	**$ 65,565,062.60**
30.0	**Indirect Owner Costs**	**QTY**	**Unit**		**Total Labor**		**Total Equipment**		**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
30.1	Overtime Adjustment	16.67%	%		$ -		$ -	$ -	$ -	$ -		$ 3,440,970.48
30.2	Contract Bond	0.64%	%		$ -		$ -	$ -	$ -	$ -		$ 450,471.38
30.3	Contractor Insurance	1.50%	%		$ -		$ -	$ -	$ -	$ -		$ 1,055,792.31
30.4	Engineering and Construction Support	2.00%	%		$ -		$ -	$ -	$ -	$ -		$ 1,380,120.66
30.5	Contingency	-	UN		$ -		$ -	$ -	$ -	$ -		
			Sub-total		$ -		$ -		$ -	$ -	$ -	$ 6,327,354.83
	Total Indirect Costs				**$ -**		**$ -**		**$ -**	**$ -**	**$ -**	**$ 6,327,354.83**
										Total Project Cost		**$ 71,892,417.43**

Stantec

General Electric - UNC

St Anthony Mine

2010 Cost Estimate Modification - Rev H3a - 14 January 2020

Cost Estimate Spreadsheet

			14 January 2020	Rev H3a		
			Total Project Cost	-30%	$	50,324,692.20
			Total Project Cost	+50%	$	107,838,626.14

Stantec

General Electric - UNC
St Anthony Mine
2010 Cost Estimate Modification - Rev H3a - 14 January 2020
Calculations

Mobilization and Preparation Work

1.1 0010 Mobilization and Preparation Work

	Description	Quantity	Unit	Rate	Man Hrs	Labor	Equip	Sub/Plug	Total Cost	2010 Estimate
0010	Mobilization and Preparation Work	1.00	LS		9,000	524,030	566,166	365,000	1,455,195	$ 1,028,300.00
Mob/Demob Major Equipment		1.00	LS		9,000	524,030	566,166	0	1,090,195	$ 663,300.00
	Assumes that there will be 3 primary crews working, plus the crew for maintaining the haul road									
	Mob & Assemble Equipment	30.00	EA		5,100	300,830	315,011	0	615,841	$ 369,504.00
	Prod=0.03 EA/hour, 120.000MH/EA, 0.01 EA/MH, 900.00	900	HRS							
	Equipment Erection									
	Crane Operator	1.0		75.42		67,881				
	Mechanic Foreman	1.0		62.42		56,182				
	Heavy Duty Mechanic	1.0		60.46		54,414				
	Heavy Duty Mechanic	1.0		60.46		54,414				
	185 CFM Diesel Compressor	1.0		12.59			11,331			
	40 Ton Hydraulic Crane (Grove700)	1.0		183.05			164,745			
	1- Ton Mechanic Truck	1.0		17.22			15,495			
	Prod=0.02 EA/hour, 50.000MH/EA, 0.02 EA/MH, 1,500.00	1500	HRS							
	Haul with Lowboy									
	Highway Truck Driver	1.0		45.29		67,939				
	80 Ton Lowboy	1.0		82.29			123,441			
	Disassemble & Demob Equipment	30.00	EA		3,900	223,200	251,154	0	474,354	$ 293,796.00
	Prod=0.05 EA/hour, 80.000MH/EA, 0.01 EA/MH, 600.00 h	600	HRS							
	Equipment Disassembly									
	Crane Operator	1.0		75.42		45,254				
	Mechanic Foreman	1.0		62.42		37,454				
	Heavy Duty Mechanic	1.0		60.46		36,276				
	Heavy Duty Mechanic	1.0		60.46		36,276				
	185 CFM Diesel Compressor	1.0		12.59			7,554			
	40 Ton Hydraulic Crane (Grove700)	1.0		183.05			109,830			
	1- Ton Mechanic Truck	1.0		17.22			10,330			
	Prod=0.02 EA/hour, 50.000MH/EA, 0.02 EA/MH, 1,500.00	1500	HRS							
	Haul with Lowboy									
	Highway Truck Driver	1.0		45.29		67,939				
	80 Ton Lowboy	1.0		82.29			123,441			
Mob Project Facilities		1.00	LS			0	0	250,000	250,000	$ 250,000.00
								250,000.00	250,000.00	$ 250,000.00
Miscellaneous		1.00	LS			0	0	115,000	115,000	$ 115,000.00
								115,000.00	115,000.00	$ 115,000.00

1.2 0020 Erosion Control Devices

	Description	Quantity	Unit	Rate	Man Hrs	Labor	Equip	Sub/Plug	Total Cost	2010 Estimate
0020	Erosion Control Devices	1.00	LS		1,343	74,804	37,449	20,720	132,973	$ 79,158.64
Install/Remove Silt Fence		30,000.00	LF		810	45,097	22,577	14,400	82,073	$ 50,263.31
					0.03	1.50	0.75	0.48	2.74	$ 1.68
	Prod=600.00 ft/hour, 0.007MH/ft, 150.00 ft/MH, 50.00 hc	50	HRS							
	Remove - Silt Fence with Rubber Tire Backhoe									
	Backhoe Operator	1.0		54.04		2,702				
	Labour Foreman	1.0		75.14		3,757				
	Laborer	2.0		46.81		4,681				
	1.7 CY Backhoe Loader (Case680)	1.0		94.33			4,716			
	1/2 Ton Pickup Truck 4x4	1.0		17.22			861			
	Prod=196.85 ft/hour, 0.020MH/ft, 49.21 ft/MH, 152.40 hc	152.4	HRS							
	Erect - Silt Fence with Rubber Tire Backhoe									
	Backhoe Operator	1.0		54.04		8,236				
	Labour Foreman	1.0		75.14		11,452				
	Laborer	2.0		46.81		14,269				
	1.7 CY Backhoe Loader (Case680)	1.0		94.33			14,376			
	1/2 Ton Pickup Truck 4x4	1.0		17.22			2,624			
	Medium Duty Silt Fence	30,000.0	ft	0.48				14,400		
Install/Remove Straw Bales		1,000.00	EA		533	29,707	14,872	6,320	50,899	$ 28,895.33
					0.53	18.89	4.73	5.27	28.90	$ 28.90
	Prod=30.00 ea/hour, 0.133MH/ea, 7.50 ea/MH, 33.33 hou	33.33	HRS							
	Remove - Straw Bales									
	Backhoe Operator	1.0		54.04		1,801				
	Labour Foreman	1.0		75.14		2,505				
	Laborer	2.0		46.81		3,121				
	1.7 CY Backhoe Loader (Case680)	1.0		94.33			3,144			
	1/2 Ton Pickup Truck 4x4	1.0		17.22			574			
	Prod=10.00 ea/hour, 0.400MH/ea, 2.50 ea/MH, 100.00 hc	100	HRS							
	Place - Straw Bales									
	Backhoe Operator	1.0		54.04		5,404				
	Labour Foreman	1.0		75.14		7,514				
	Laborer	2.0		46.81		9,363				
	1.7 CY Backhoe Loader (Case680)	1.0		94.33			9,433			
	1/2 Ton Pickup Truck 4x4	1.0		17.22			1,722			
	Straw Bales	1,000.0	ea	4.22				4,220		
	Stakes for Straw Bales (2" x 2" x 4 ft)	2,000.0	ea	1.05				2,100		

1.3 0030 Relocate 14.4kV Distribution Line

	Description	Quantity	Unit	Rate	Man Hrs	Labor	Equip	Sub/Plug	Total Cost	2010 Estimate
0030	Relocate 14.4kV Distribution Line	1,700.00	LF			54,536	22,100	15,453	92,089	$ 12,376.00
						32.08	13.00	9.09	54.17	$ 7.28
Relocate 14.4kV Distribution Line		1,700.00	LF			54,536	22,100	15,453	92,089	$ 12,376.00
										$ 7.28
	Relocate 14.4kV Distribution Line	1,700.0	LF	21.44		36,448				
	Relocate 14.4kV Distribution Line	1,700.0	LF	10.00			17,000			
	Demo existing 14.4kV Distribution Line	1,700.0		10.64		18,088				
	Demo existing 14.4kV Distribution Line	1,700.0		3.00			5,100			
	14.4kV Distribution Line	1,700.0	LF	9.09				15,453		

1.4 0040 Break Concrete Slabs

	Description	Quantity	Unit	Rate	Man Hrs	Labor	Equip	Sub/Plug	Total Cost	2010 Estimate
0040	Break Concrete Slabs	2,500.00	CY		156	9,103	18,927		28,030	$ 17,369.69
					0.06	3.64	7.57		11.21	$ 6.95
	Slabs to West of Pile 3: 1,490 SF 2,475 SF 3,785 SF Shaft Slab = 25,950 SF Total = 33,700 SF x 2' Thick / 27 = 2,496 CY 2,500 CY to break and leave in place.									
	Prod=20.00 cy/hour, 0.063MH/cy, 16.00 cy/MH, 125.00 h	125	HRS							
	Demolish Concrete									
	Backhoe Operator	1.0		54.04		6,755				
	Labour Foreman	0.3		75.14		2,348				
	2.0 CY Backhoe (Cat 330)	1.0		123.56			15,445			
	Hydraulic Hoe Ram	1.0		23.55			2,944			
	3/4 Ton Pickup Truck 4x4	0.3		17.22			538			

1.5 0050 Access Road Improvements

	Description	Quantity	Unit	Rate	Man Hrs	Labor	Equip	Sub/Plug	Total Cost	2010 Estimate
0050	Access Road Improvements	42,240.00	SY		450	27,254	57,079	3,000	87,333	$ 36,124.50
					0.01	0.65	1.35	0.07	2.07	$ 0.86
	Based on 3 miles of road at 24' wide.									
	Prod=281.60 sy/hour, 0.011MH/sy, 93.87 sy/MH, 150.00 l	150	HRS							
	Maintain/Improve Access Road									
	Grader Operator	1.0		75.42		11,313				
	Labour Foreman	0.5		75.14		5,636				
	Laborer	0.5		46.81		3,511				
	Highway Truck Driver	1.0		45.29		6,794				
	200 Hsp Grader (Cat 14G) 14M	1.0		153.26			22,989			
	3/4 Ton Pickup Truck 4x4	0.5		17.22			1,291			
	1000 Gallon Watertruck	1.0		218.66			32,799			
	Purchase Water from Local Rancher	10.0	Week	300.00				3,000		

Regrading (Sandstone - Except Piles 1 & 2)

2.0	**0010 Regrade Pile 1 & 2 (Shale)**		
2.1	Exc, Haul & Spread in Pit 2		
2.2	Earth Moving and Leveling Materials	0.30	1/3 of spread materials will be moved in leveling
2.3	item		Fine grading effort is removed to reflect previous estimate
2.4	item		Compaction effort is removed to reflect previous estimate.
2.5	item		Dust control is in item 14.0 Maintain Haul Roads
3.0	**0020 Regrade Pile 3 (Sandstone)**		
3.1	Exc, Haul & Spread in Pit 2		average of 1800 and 2200 from previous estimate. 2000 LF
3.2	Exc, Haul & Spread in Pit 1		
3.3	Earth Moving and Leveling Materials	0.30	1/3 of spread materials will be moved in leveling
3.4	Regrade Pile 3		
3.5	item		Dust control is in item 14.0 Maintain Haul Roads
4.0	**0030 Regrade Pile 4 (Sandstone)**		
4.1	Exc, Haul & Spread in Pit 1		st anthony.kmz Route Scope #1
4.2	Exc, Haul & Spread in Area 2 and 4		

4.3	Earth Moving and Leveling Materials	0.30	1/3 of spread materials will be moved in leveling
4.4	item		Compaction effort is removed to reflect previous estimate.
4.5	item		Dust control is in item 14.0 Maintain Haul Roads

5.0 0040 Regrade Pile 5 (Sandstone)

5.1	Exc, Haul & Spread in Pit 1	st anthony.kmz Route Scope #2. Start 2138 end 5872	3734	LF
5.2	Earth Moving and Leveling Materials	0.30 1/3 of spread materials will be moved in leveling		
5.3	item	Fine grading effort is removed to reflect previous estimate		
5.4	item	Compaction effort is removed to reflect previous estimate.		
5.5	item	Dust control is in item 14.0 Maintain Haul Roads		

6.0 0050 Regrade Pile 6 (Sandstone)

6.1	Exc, Haul & Spread in Pit 1	st anthony.kmz Route Scope #20	2033	LF
6.2	Earth Moving and Leveling Materials	0.30 1/3 of spread materials will be moved in leveling		
6.3	Earth Moving and Leveling Materials			
6.4	Grading			
6.5	item	Dust control is in item 14.0 Maintain Haul Roads		

7.0 0060 Regrade Pile 7 (Sandstone)

7.1	Exc, Haul & Spread in Pit 1	st anthony.kmz Route Scope #21	2476	LF
7.2	Earth Moving and Leveling Materials	0.30 1/3 of spread materials will be moved in leveling		
7.3	Earth Moving and Leveling Materials			
7.4	Grading			
7.5	item	Dust control is in item 14.0 Maintain Haul Roads		

8.0 0070 Regrade Crusher/Stockpile Area (Sandstone) no excavation or hauling

8.1	Earth Moving and Leveling Materials	
8.2	Grading	
8.3	item	
8.4	item	
8.5	item	Dust control is in item 14.0 Maintain Haul Roads

9.0 0080 Regrade West Disturbance Area (Sandstone)

9.1	Exc, Haul & Spread in Pit 1	
9.2	Earth Moving and Leveling Materials	0.30 1/3 of spread materials will be moved in leveling
9.3	item	
9.4	item	
9.5	item	Dust control is in item 14.0 Maintain Haul Roads

10.0 0090 Regrade West Shaft Area (Sandstone) no excavation or hauling

10.1	Earth Moving and Leveling Materials	
10.2	Grading	
10.3	item	
10.4	item	
10.5	item	Dust control is in item 14.0 Maintain Haul Roads

11.0 0100 Regrade Ore Storage Areas 1 & 2 (Sandstone)

11.1	Exc, Haul & Spread in Crusher Stockpile	
11.2	Earth Moving and Leveling Materials	
11.3	Grading	
11.4	item	
11.5	item	Dust control is in item 14.0 Maintain Haul Roads

12.0 0110 Regrade West Shaft Access Road (Sandstone) no excavation or hauling

12.1	Earth Moving and Leveling Materials	
12.2	Grading	
12.3	item	
12.4	item	
12.5	item	Dust control is in item 14.0 Maintain Haul Roads

13.0 0120 Earthen Control Structure (Budget) no excavation or hauling

13.1	Earthmoving & Leveling	Budget Number. No quantity information is available for this work.
13.2	item	Fine grading effort is removed to reflect previous estimate
13.3	item	
13.4	item	
13.5	item	Dust control is in item 14.0 Maintain Haul Roads

14.0 0130 Maintain Haul Roads

Number of work days per week	6.00	Days		
Estimated weeks of work in the 2010 Estimate	46.00	Weeks		
Number of weeks of work in this estimate	118.36	Weeks	710	DAYS

14.1 Maintain Haul Roads

0130	Maintain Haul Roads	118	WK		6,486	1,028,232	2,227,629	35,507	3,291,369	$	544,383.78
					54.80	8,687.47	18,821.11	300.00	27,808.58	$	11,834.43
	Maintain Haul Roads	118	Week		6,486	1,028,232	2,227,629	35,507	3,291,369	$	544,383.78
	hours per week										
	60.00	7101	HRS								
	Maintain Haul Roads	*1.00*	*EA*	*192.2405*							
	Grader Operator	1.0		75.42		535,617					
	Labour Foreman	0.3		75.14		133,407					
	Laborer	0.5		46.81		166,221					
	Highway Truck Driver	0.6		45.29		192,986					
	275 Hsp Grader (Cat 16G)	1.0		178.19			1,265,381				
	3/4 Ton Pickup Truck 4x4	0.3		17.22			30,566				
	8000 Gallon Watertanker	0.6		218.66			931,682				
	Purchase Water from Local Rancher	118	Week	300.00				35,507			

14.2 item

Water Tanker Hauling Water

From 2010 Estimate: "Assume that the water tanker is needed 60% of the time, and that it hauls three loads per day when in operation. 46 Weeks x 6 Days/Wk = 276 Days x 60% = 166 Days x 3 Loads x 8,000 Gal = 3,984,000 Gal 3,984,000 Gal x $0.003 / Gal = $11,952 / 46 Weeks"

NOT USED

Weeks	Days	Total Days	%	Days	Loads / Day	Gallons / Load	Total Gallons	Cost / Gallon	Total Cost
118.36	6.00	710	60%	426	3	8000	10,226,136.03	$ 0.003	$ 30,678.41

14.3 item
14.4 item
14.5 Item

Cover Material (Gravelly Sands & Silts)

15.0 0010 Topsoil Stockpile 1 (North)

15.1 Exc, Haul & Dump - Mine Shaft Area
15.2 Exc, Haul & Dump - Ore Storage Areas 1 & 2
15.3 Exc, Haul & Dump - West Shaft Access Road
15.4 Earthmoving & Leveling
15.5 Item

16.0 0020 Topsoil Stockpile 2 (South)

16.1 Exc, Haul & Dump - Pile #2
16.2 Exc, Haul & Dump - Pile #3
16.3 Exc, Haul & Dump - West Disturbance Area
16.4 Exc, Haul & Dump - Pile #6
16.6 Earthmoving & Leveling

17.0 0030 Topsoil/Overburden Stockpile (North of Pile 5)

17.1 Exc, Haul & Dump - Pile #4
17.2 Exc, Haul & Dump - Pile #5
17.3 Exc, Haul & Dump - Pile #7
17.4 Exc, Haul & Dump - Crusher Stockpile Area
17.6 Earthmoving & Leveling

18.0 0040 Cover Material from Borrow Area (South)

18.1 Exc, Haul & Spread - Pit 1
18.2 Exc, Haul & Spread - Crusher Stockpile Area
18.3 Earthmoving & Leveling
18.4 item
18.5 Item

19.0 0050 Maintain Haul Roads

Number of work days per week	6.00	Days		
Estimated weeks of work in the 2010 Estimate	8.00	Weeks		
Number of weeks of work in this estimate	25.15	Weeks	151	DAYS

19.1 Maintain Haul Roads

0130	Maintain Haul Roads	25	WK		6,486	218,514	473,403	7,546	699,463	$	94,675.44
					257.86	8,687.47	18,821.11	300.00	27,808.58	$	11,834.43
	Maintain Haul Roads	25	Week		6,486	218,514	473,403	7,546	699,463	$	94,675.44
	hours per week									$	11,834.43
	60.00	1509	HRS								
	Maintain Haul Roads	*1.00*	*EA*	*192.2405*							
	Grader Operator	1.0		75.42		113,826					
	Labour Foreman	0.3		75.14		28,351					
	Laborer	0.5		46.81		35,324					
	Highway Truck Driver	0.6		45.29		41,012					
	275 Hsp Grader (Cat 16G)	1.0		178.19			268,911				
	3/4 Ton Pickup Truck 4x4	0.3		17.22			6,496				
	8000 Gallon Watertanker	0.6		218.66			197,996				
	Purchase Water from Local Rancher	25	Week	300.00				7,546			

19.2 item
19.3 item
19.4 item
19.5 item

Channel Protection

20.0 0010 Myer Gulch

20.1 Excavation of Arroyo Channel
20.2 Grading of Arroyo Channel
20.3 Compaction of Arroyo Channel

	Station	Start	End	Length - Ft	Cross Section - SF	Excavation - CY	Width - Ft	Surface - SF	Compaction - SY	Grading - Acre	
	0+00 to 10+00	0	1000	1000	1,100	40,741	140	140,000	15,556	3.21	
	10+00 to 20+0	1000	2000	1000	1,100	40,741	140	140,000	15,556	3.21	
	20+00 to 24+0	2000	2400	400	1,100	16,296	140	56,000	6,222	1.29	
	24+00 to 28+0	2400	2800	400	1,100	16,296	140	56,000	6,222	1.29	
	28+00 to 37+0	2800	3700	900	1,100	36,667	140	126,000	14,000	2.89	
detail 12|18	37+00 to 37+5	3700	3750	50	1,608	2,978	156	7,800	867	0.18	Grade Control Structure 1
	37+50 to 42+0	3750	4200	450	1,100	18,333	140	63,000	7,000	1.45	
detail 12|18	42+00 to 42+5	4200	4250	50	1,608	2,978	156	7,800	867	0.18	Grade Control Structure 2
	42+50 to 47+5	4250	4750	500	1,100	20,370	140	70,000	7,778	1.61	
detail 12|18	47+50 to 48+0	4750	4800	50	1,608	2,978	156	7,800	867	0.18	Grade Control Structure 3
	48+00 to 53+0	4800	5300	500	1,100	20,370	140	70,000	7,778	1.61	
detail 12|18	53+00 to 53+5	5300	5350	50	1,608	2,978	156	7,800	867	0.18	Grade Control Structure 4
	53+50 to 58+5	5350	5850	500	1,100	20,370	140	70,000	7,778	1.61	
detail 12|18	58+50 to 59+0	5850	5900	50	1,608	2,978	156	7,800	867	0.18	Grade Control Structure 5
	59+00 to 65+5	5900	6550	650	1,100	26,481	140	91,000	10,111	2.09	
detail 12|18	65+50 to 66+0	6550	6600	50	1,608	2,978	156	7,800	867	0.18	Grade Control Structure 6
	66+00 to 68+0	6600	6800	200	1,100	8,148	140	28,000	3,111	0.64	
detail 12|18	68+00 to 68+5	6800	6850	50	1,608	2,978	156	7,800	867	0.18	Grade Control Structure 7
	68+50 to 71+0	6850	7100	250	1,100	10,185	140	35,000	3,889	0.80	
detail 12|18	71+00 to 71+5	7100	7150	50	1,608	2,978	156	7,800	867	0.18	Grade Control Structure 8
	71+50 to 78+0	7150	7800	650	1,100	26,481	140	91,000	10,111	2.09	
				0	-	-	140	-	-	0.00	
TOTAL				**7,800**		**325,304**		**1,098,400**	**122,044**	**25.22**	

20.4 Placement of Filter Layer

	Station	Start	End	Length Ft	Width Ft	Surface - SF	Filter Layer 1 - Ft	Filter Layer 2 - Ft	Filter Layer - Ft	Filter Material - CY	
detail 3|16	0+00 to 10+00	0	1000	1000	18	18,000	0.50	0.50	1.00	667	
detail 3|16	10+00 to 20+0	1000	2000	1000	18	18,000	0.50	0.50	1.00	667	
detail 3|16	20+00 to 24+0	2000	2400	400	18	7,200	0.50	0.50	1.00	267	
detail 3|16	24+00 to 28+0	2400	2800	400	18	7,200	0.50	0.50	1.00	267	
detail 3|16	28+00 to 37+0	2800	3700	900	18	16,200	0.50	0.50	1.00	600	
	37+00 to 37+5	3700	3750	50	-	-	-		-	-	Grade Control Structure 1
detail 3|16	37+50 to 42+0	3750	4200	450	18	8,100	0.50	0.50	1.00	300	
	42+00 to 42+5	4200	4250	50	-	-	-		-	-	Grade Control Structure 2
detail 3|16	42+50 to 47+5	4250	4750	500	18	9,000	0.50	0.50	1.00	333	
	47+50 to 48+0	4750	4800	50	-	-	-		-	-	Grade Control Structure 3
detail 3|16	48+00 to 53+0	4800	5300	500	18	9,000	0.50	0.50	1.00	333	
	53+00 to 53+5	5300	5350	50	-	-	-		-	-	Grade Control Structure 4
detail 3|16	53+50 to 58+5	5350	5850	500	18	9,000	0.50	0.50	1.00	333	
	58+50 to 59+0	5850	5900	50	-	-	-		-	-	Grade Control Structure 5
detail 3|16	59+00 to 65+5	5900	6550	650	18	11,700	0.50	0.50	1.00	433	
	65+50 to 66+0	6550	6600	50	-	-	-		-	-	Grade Control Structure 6
detail 3|16	66+00 to 68+0	6600	6800	200	18	3,600	0.50	0.50	1.00	133	
	68+00 to 68+5	6800	6850	50	-	-	-		-	-	Grade Control Structure 7
detail 3|16	68+50 to 71+0	6850	7100	250	18	4,500	0.50	0.50	1.00	167	
	71+00 to 71+5	7100	7150	50	-	-	-		-	-	Grade Control Structure 8
detail 3|16	71+50 to 78+0	7150	7800	650	18	11,700	0.50	0.50	1.00	433	
TOTAL				**7,800**		**133,200**				**4,933**	

20.5 Placing of Rip Rap - D50 12"

	Station	Start	End	Length Ft	Width Ft	Surface - SF	Rip Rap layer - Ft	Filter Material - CY	
detail 3|16	0+00 to 10+00	0	1000	1000	18	18,000	2.00	1,333	
detail 3|16	10+00 to 20+0	1000	2000	1000	18	18,000	2.00	1,333	
detail 3|16	20+00 to 24+0	2000	2400	400	18	7,200	2.00	533	
detail 3|16	24+00 to 28+0	2400	2800	400	18	7,200	2.00	533	
detail 3|16	28+00 to 37+0	2800	3700	900	18	16,200	2.00	1,200	
	37+00 to 37+5	3700	3750	50	-	-	-	-	Grade Control Structure 1
detail 3|16	37+50 to 42+0	3750	4200	450	18	8,100	2.00	600	
	42+00 to 42+5	4200	4250	50	-	-	-	-	Grade Control Structure 2
detail 3|16	42+50 to 47+5	4250	4750	500	18	9,000	2.00	667	
	47+50 to 48+0	4750	4800	50	-	-	-	-	Grade Control Structure 3
detail 3|16	48+00 to 53+0	4800	5300	500	18	9,000	2.00	667	
	53+00 to 53+5	5300	5350	50	-	-	-	-	Grade Control Structure 4
detail 3|16	53+50 to 58+5	5350	5850	500	18	9,000	2.00	667	
	58+50 to 59+0	5850	5900	50	-	-	-	-	Grade Control Structure 5
detail 3|16	59+00 to 65+5	5900	6550	650	18	11,700	2.00	867	
	65+50 to 66+0	6550	6600	50	-	-	-	-	Grade Control Structure 6
detail 3|16	66+00 to 68+0	6600	6800	200	18	3,600	2.00	267	
	68+00 to 68+5	6800	6850	50	-	-	-	-	Grade Control Structure 7
detail 3|16	68+50 to 71+0	6850	7100	250	18	4,500	2.00	333	
	71+00 to 71+5	7100	7150	50	-	-	-	-	Grade Control Structure 8
detail 3|16	71+50 to 78+0	7150	7800	650	18	11,700	2.00	867	
TOTAL				**7,800**		**133,200**		**9,867**	

20.6 Grade Control Structure

	Station	Start	End	Length - Ft	Width - Ft	Thick - Ft	Concrete - CY	Surface - SF	
detail 12|18	37+00 to 37+5	3700	3750	50	156	1.5	433	7,800	Grade Control Structure 1
detail 12|18	42+00 to 42+5	4200	4250	50	156	1.5	433	7,800	Grade Control Structure 2
detail 12|18	47+50 to 48+0	4750	4800	50	156	1.5	433	7,800	Grade Control Structure 3
detail 12|18	53+00 to 53+5	5300	5350	50	156	1.5	433	7,800	Grade Control Structure 4
detail 12|18	58+50 to 59+0	5850	5900	50	156	1.5	433	7,800	Grade Control Structure 5
detail 12|18	65+50 to 66+0	6550	6600	50	156	1.5	433	7,800	Grade Control Structure 6
detail 12|18	68+00 to 68+5	6800	6850	50	156	1.5	433	7,800	Grade Control Structure 7
detail 12|18	71+00 to 71+5	7100	7150	50	156	1.5	433	7,800	Grade Control Structure 8
TOTAL				**8,900**			**3,467**	**62,400**	

*** Waiting to confirm unitary pricing for Claycrete**

CY	$ / CY	Material	Cost / SF
3,467	$ 400.00	$ 1,386,666.67	$ 22.22

Claycrete Quote 10/3/2019
Canadian Dollars per Cubic Meter
$400 - $600

CAN$	US$	Avg CAN$	Convert to US$	Cubic Meter	Cubic Yard	Total Cost US$ / CY	Total Cost of Work	Labor %	Equipment %	Materials %
$ 1.00	$ 0.75	$ 500.00	$ 375.00	1	1.31	$ 286.71	$ 993,921.79	25%	25%	50%
						$ 286.71		$ 71.68	$ 71.68	$ 143.35

20.7 Placing of Rip Rap - D50 9"

Station	Start	End	Length Ft	Length - Sum of Sections	Surface Area - SF	Thickness - Ft	CF	CY	Width of Structure	Section of Rip Rap - SF	Rip Rap Material - CY	
37+00 to 37+50	3700	3750	50	88	4,400	1.50	6,600	244	156	1,657.5	81.85	Grade Control Structure 1
42+00 to 42+50	4200	4250	50	88	4,400	1.50	6,600	244	156	1,657.5	81.85	Grade Control Structure 2
47+50 to 48+00	4750	4800	50	88	4,400	1.50	6,600	244	156	1,657.5	81.85	Grade Control Structure 3
53+00 to 53+50	5300	5350	50	88	4,400	1.50	6,600	244	156	1,657.5	81.85	Grade Control Structure 4
58+50 to 59+00	5850	5900	50	88	4,400	1.50	6,600	244	156	1,657.5	81.85	Grade Control Structure 5
65+50 to 66+00	6550	6600	50	88	4,400	1.50	6,600	244	156	1,657.5	81.85	Grade Control Structure 6
68+00 to 68+50	6800	6850	50	88	4,400	1.50	6,600	244	156	1,657.5	81.85	Grade Control Structure 7
71+00 to 71+50	7100	7150	50	88	4,400	1.50	6,600	244	156	1,657.5	81.85	Grade Control Structure 8
TOTAL				**18,954**		**12**		**1,956**	**1,956**		**655**	

21.0 0020 Pile 4 Top Surface Drainage Channel
21.1 Install ArmorFlex
21.2 item
21.3 item
21.4 item
21.5 item
21.6 item
Total Budget Price $490,500

This work is possibly similar to the drainage work in: 233001363 St anthony cost estimate 18DEC2019 Rev F6

21.0	Stormwater Conveyance Channel (SP4)	QTY	Unit	Total Field Cost	Crew	Schedule Days
21.1	Excavation of Stormwater Conveyance Channel	26,738	CY	$ 105,421.79	Crew K	7
21.2	Grading of Stormwater Conveyance Channel	8	AC	$ 38,073.24	Crew J	5
21.3	Compaction of Stormwater Conveyance Channel	37,634	SY	$ 89,896.89	Crew L	17
21.4	Placement of Filter Layer	7,874	CY	$ 152,110.81	Crew M	4
21.5	Placing of Rip Rap - D50 6"	7,874	CY	$ 245,212.39	Crew N	13
21.6	Dust Control During Earth Movement Activities	46	DY	$ 168,200.58	Crew I	
				$ 798,915.70		**46**

22.0 0030 Pile Downchutes
22.1 Install ArmorFlex
22.2 item
22.3 item
22.4 item
22.5 item
22.6 item
Total Budget Price $637,650

This work is possibly similar to the drainage work in: 233001363 St anthony cost estimate 18DEC2019 Rev F6

22.0	Armored Downdrain Channel (DD)	QTY	Unit	Total Field Cost	Crew	Schedule Days
22.1	Excavation of Armored Downdrain Channel	12,884	CY	$ 50,798.29	Crew K	3
22.2	Grading of Armored Downdrain Channel	2	AC	$ 9,200.59	Crew J	1
22.3	Compaction of Armored Downdrain Channel	9,094	SY	$ 21,724.04	Crew L	4
22.4	Placement of Filter Layer	3,031	CY	$ 58,561.98	Crew M	2
22.5	Placing of Rip Rap - D50 9"	4,547	CY	$ 153,886.00	Crew N	8
22.6	Dust Control During Earth Movement Activities	18	DY	$ 64,714.00	Crew I	
				$ 358,884.91		**18**

23.0 0040 Pile Slope Channels (6" Thick Soil Cement)
23.1 Soil Cement on Pile Slope Channels
23.2 item
23.3 item
23.4 item
23.5 item
23.6 item

Road Reclamation

24.0 0010 Ripping and Regrading Roadways 14000 LF
24.1 Ripping Roadways w/Dozer

Ripping Roadways w/Dozer	41,500.00	CY	47	3,555	6,903	10,457	$	6,799.23
			0.00	0.09	0.17	0.25	$	0.16

Assume ripping the roadways 2' deep. 14,000 LF x 40' Wide = 560,000 SF 560,000 SF x 2' Deep / 27 = 41,480 CY USE 41,500 CY. Assume the seismic velocity is 4,000 Feet Per Second, which puts it more or less in the middle of the ranges for clay, glacial

Prod=1,100.00 cy/hour, 0.001MH/cy, 880.00 cy/MH, 37.7	37.73	HRS						
Ripping with 400 Hsp D9 Dozer	*1.00*	*EA*	*180.2075*					
Dozer Operator	1.0		75.42		2,846			
Labour Foreman	0.3		75.14		709			
405 Hsp Bulldozer (Cat D9)	1.0		171.43			6,468		
Ripper Attachment D9	1.0		7.22			272		
3/4 Ton Pickup Truck 4x4	0.3		17.22			162		

24.2 Regrade Roadways

Regrade Roadways	62,200.00	SY		149	11,207	22,773	33,980	$ 13,765.43
				0.00	0.18	0.37	0.55	$ 0.22
Prod=418.60 sy/hour, 0.002MH/sy, 418.60 sy/MH, 148.59	148.59	HRS						
Rough Grade Service Rd (145 Hsp Cat 140 Grader)	*1.00*	*EA*	*92.64*					
Grader Operator	1.0		75.42		11,207			
140 Hsp Grader (Cat 140)	1.0		153.26			22,773		

24.3 item
24.4 item
24.5 item

Revegetation

25.0 0010 Revegetation

25.1 Rough Grade Site

Rough Grade Site	320.00	Acre		200	15,073	29,198	44,272	$ 22,103.60
				0.63	47.10	91.24	138.35	$ 69.07
Prod=4.00 acre/hour, 0.625MH/acre, 1.60 acre/MH, 80.00	80	HRS						
Rough Grade Site	*2.00*	*EA*	*138.1475*					
Grader Operator	2.0		75.42		12,068			
Labour Foreman	0.5		75.14		3,006			
275 Hsp Grader (Cat 16M)	2.0		178.19			28,510		
3/4 Ton Pickup Truck 4x4	0.5		17.22			689		

25.2 Seeding (11 to 15 LB/AC)

Seeding (11 to 15 LB/AC)	320.00	AC		66,880	49,600	96,000	212,480	$ 116,480.00
				209.00	155.00	300.00	664.00	$ 364.00

Seeding with a Southwest Native Grass Mix at 11 to 15 lb/acre. Mixture Varieties Included: Contains Blue Grama, Sideoats Grama, Plains Bristlegrass, Alkali Sacaton, Indian Ricegrass, Spike Muhly, and Sand Dropseed.
*Note: Varieties included and percent

Seeding	320.0	AC	209.00	66,880			
Seeding	320.0	AC	155.00		49,600		
Southwest Native Grass Mixture	320.0	AC	300.00			96,000	

25.3 Mulch with Straw (2 Tons/Acre)

Mulch with Straw (2 Tons/Acre)	320.00	AC		10,480	9,814	96,000	116,294	$ 20,294.40
				32.75	30.67	300.00	363.42	$ 63.42
Mulching	320.0	AC	32.75	10,480				
Mulching	320.0	AC	30.67		9,814			
Bales of Straw (70 per Acre)	320.0	AC	300.00			96,000		

25.4 item
25.5 item

26.0 Monitoring, Testing, & Verification Controls

26.0 ='Scope of Work'!B199
- including field volume admix and nuke guage testing

	Labor Personnel	Hourly Rate	Total Hours	Total duration - MI	Monthly Cost	Total Cost
0	QC Subcontractor field testing (1 person	$ 70.00	4,000	36	$ 7,777.78	$ 280,000.00
	QA Stantec personnel A (1 personnel)	$ 130.00	1,000	36	$ 3,611.11	$ 130,000.00
	QA Stantec personnel B (3 personnel)	$ 90.00	12,000	36	$ 30,000.00	$ 1,080,000.00
	QA Stantec personnel C (1 personnel)	$ 130.00	1,000	36	$ 3,611.11	$ 130,000.00
	Administration	$ 65.00	340	36	$ 613.89	$ 22,100.00
			18,340		**$ 45,613.89**	$ 1,642,100.00
0	Soil Testing Fees					**$ 29,176.00**
0	Rock Testing Fees					**$ 3,360.00**
0	Monthly Lodging & expenses			36	$ 3,117.15	**$ 112,217.40**
						$ 1,786,853.40

0 0

Cost Estimate to Implement Remedial Action Radiologic Support (Excavation Control, Final Status Survey and Verification Survey and radon cover survey & emission Testing Program) for Removal Action
AVM Environmental Services, Inc.

	Labor Personnel	Hourly Rate	Total Hours	Total duration - MI	Monthly Cost	Total Cost
0	Rad Consultant/Project Manager (1)	$ 140.00	1,694	36	$ 6,587.78	$ 237,160.00
	RA Rad Site Manager/GIS (1)	$ 110.00	4,491	36	$ 13,722.50	$ 494,010.00
	Site Field Office/lab GIS Tech (1)	$ 85.00	4,520	36	$ 10,672.22	$ 384,200.00
	Rad Technicians (3)	$ 80.00	8,624	36	$ 19,164.44	$ 689,920.00
	Admn Clerk/Typist (1)	$ 65.00	100	36	$ 180.56	$ 6,500.00
			19,429		**$ 50,327.50**	$ 1,811,790.00
0	Project Management			36	**$ 1,368.89**	$ 49,280.00
0	Supplies, Fees and Expenses			36	**$ 10,378.19**	$ 373,615.00
0	Monthly Lodging & expenses			36	$ 2,869.70	**$ 103,309.09**
						$ 2,337,994.09

0 0

Cost Estimate to Implement Radiation Protection & Perimeter Radiologic Air Monitoring Plan for Removal Action
AVM Environmental Services, Inc.

	Labor Personnel	Hourly Rate	Total Hours	Total duration - MI	Monthly Cost	Total Cost
0	RSO/Site Safety Manager (1)	110	2,743	36	$ 8,381.39	$ 301,730.00
	Rad (OHP) Technicians (2)	80	10,394	36	$ 23,097.78	$ 831,520.00
					$ 31,479.17	$ 1,133,250.00
0	Supplies, Fees and Expenses			36	**$ 8,541.53**	$ 307,495.00
0	Employee Lodging & Misc expenses			36	$2,055.56	**$74,000.00**
						$ 1,514,745.00

0 0

0 0

	Hours	Rate	Labor
Senior Enginee	2	$ 136.30	$ 272.60
Engineer	16	$ 116.83	$ 1,869.23
Project Manag	16	$ 114.88	$ 1,838.08
Vehicle	16	$ 17.22	$ 275.47
			$ 4,255.37

Two site visits with two people per month

0 0

	Hours	Rate	Labor	Equipment	Area	Miles
Supervisor	7.12	$ 129.73	$ 923.11	$ -	Access Route 52	1.83
Labor	7.12	$ 46.81	$ 333.10	$ -	Lobo Tract West	0.64
0	7.12	$ 75.42	$ 536.68	$ -	Shaft Pad	1.06
0	7.12	$ 224.31	$ -	$ 1,596.07	Pile 4	0.95
0	7.12	$ 47.78	$ 339.95	$ -	Pit 2	1.06
0	7.12	$ 218.66	$ -	$ 1,555.87	Pit 1	0.30
			$ 2,132.83	$ 3,151.94	Lobo Tract East	0.19
Grader Blade Wi	Road Width	Passes	Speed - MPH	Efficiency	MPH	Work Hours
9	20	3.00	3.70	69%	0.85	7.12
CAT MG 14M, grading of rural roadway						

Grading of all sections of roadway one time per month.
Assumption that water is available near site and accessible to water truck

O&M Costs

Monthly Cost of Inspections - Labor	$ 4,255.37
Monthly Cost of Road Maintenance - Labor	$ 2,132.83
Monthly Cost of Road Maintenance - Equipment	$ 3,151.94
Years Required to inspect	10
Total Cost	$ 1,144,818.01

Requires inspections and road maintenance to all areas of site for an undetermined amount of time. Assuming 10 years for this estimate.

30.0 Indirect Owner Costs

30.1 Overtime Adjustment
30.2 Contract Bond
30.3 Contractor Insurance
30.4 Engineering and Construction Support
30.5 Contingency

Crew A	Excavation, Loading, and Hauling from Stockpile #4 to Open Pit	Units	CY
Crew B	Excavation, Loading, and Hauling from Borrow Source	Units	CY
Crew C	Earthmoving and Leveling Materials	Units	CY
Crew D	Compacted Concrete	Units	SF
Crew F	Final Grading	Units	AC
Crew G	Compaction of Pit Backfill Materials	Units	SY
Crew H	Compaction of Stockpile Cover Materials	Units	SY
Crew I	Dust Control During Earth Movement Activities	Units	DY
Crew J	Grading of Drainage Channel	Units	AC
Crew K	Permanent Storm Water Earthmoving	Units	CY
Crew L	Compaction of Drainage Channel	Units	SY
Crew M	Spreading and Leveling Drainage Materials	Units	CY
Crew N	Placing Riprap	Units	CY
Crew A (3 -11)	Calculations for Crew A- Scope 3 to Crew A- Scope 11	Units	CY

Crew A	**Excavation, Loading, and Hauling from Stockpile #4 to Open Pit**					Units	**CY**	**Units / Hr.**	**281**	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Truck Driver - Off Hwy	3.0	$ 47.78	$ 143.33	20%	$ 171.99	94	281	$ 0.61		$ 0.61
Labor Foreman	0.3	$ 75.14	$ 24.80	20%	$ 29.76	853	281	$ 0.11		$ 0.11
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	281	281	$ 0.26		$ 0.26
Cat 390F Excavator	1	$ 308.58	$ 308.58	20%	$ 370.30	281	281		$ 1.32	$ 1.32
Cat D6T Dozer	1	$ 153.51	$ 153.51	20%	$ 184.21	281	281		$ 0.65	$ 0.65
Cat 730 Articulated Truck	3.0	$ 218.66	$ 655.98	20%	$ 787.17	94	281		$ 2.80	$ 2.80
Ford F350 Service Truck	1.0	$ 17.22	$ 17.22	20%	$ 20.66	281	281		$ 0.07	$ 0.07
spare		$ -	$ -		$ -	0	281		$ -	$ -
			TOTAL COST PER HOUR		$ 1,817.66	TOTAL COST PER UNIT		**$ 1.62**	**$ 4.84**	$ 6.46

Crew B	**Excavation, Loading, and Hauling from Borrow Source**					Units	**CY**	**Units / Hr.**	**230**	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Loader Operator	1	$ 69.14	$ 69.14	20%	$ 82.97	230	230	$ 0.36		$ 0.36
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	230	230	$ 0.39		$ 0.39
Truck Driver - Off Hwy	5.0	$ 47.78	$ 238.88	20%	$ 286.65	46	230	$ 1.24		$ 1.24
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	230	230	$ 0.31		$ 0.31
Cat 980H Wheel Loader	1	$ 181.50	$ 181.50	20%	$ 217.80	230	230		$ 0.95	$ 0.95
Cat D6T Dozer	1	$ 153.51	$ 153.51	20%	$ 184.21	230	230		$ 0.80	$ 0.80
Cat 730 Articulated Truck	5.0	$ 218.66	$ 1,093.30	20%	$ 1,311.95	46	230		$ 5.69	$ 5.69
Ford F350 Service Truck	1.0	$ 17.22	$ 17.22	20%	$ 20.66	230	230		$ 0.09	$ 0.09
spare		$ -	$ -		$ -	0	230		$ -	$ -
			TOTAL COST PER HOUR		$ 2,267.30	TOTAL COST PER UNIT		**$ 2.31**	**$ 7.53**	$ 9.84

Crew C	**Earthmoving and Leveling Materials**					Units	**CY**	**Units / Hr.**	**667**	
Asset	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	667	667	$ 0.14		$ 0.14
Mechanic	0.25	$ 60.46	$ 15.12	20%	$ 18.14	2667	667	$ 0.03		$ 0.03
Laborer	1	$ 46.81	$ 46.81	20%	$ 56.18	667	667	$ 0.08		$ 0.08
spare	0	$ -	$ -	20%	$ -	0	0	$ -		$ -
spare		$ -								
CAT D9 Dozer	1	$ 171.43	$ 171.43	20%	$ 205.72	667	667		$ 0.31	$ 0.31
spare	0	$ -	$ -	20%	$ -	0	0		$ -	$ -
Ford F350 Service Truck	0.25	$ 17.22	$ 4.30	20%	$ 5.17	2667	667		$ 0.008	$ 0.008
spare		$ -								
			TOTAL COST PER HOUR		$ 375.70	TOTAL COST PER UNIT		**$ 0.25**	**$ 0.32**	$ 0.56

Crew D	**Roller Compacted Concrete**					Units	**SF**	**Units / Hr.**	**242**	
Asset	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
General Machinery Operator	2	$ 54.04	$ 108.08	20%	$ 129.69	121	242	$ 0.53		$ 0.53
Skilled Labor	4	$ 61.32	$ 245.30	20%	$ 294.36	61	242	$ 1.21		$ 1.21
Laborer	2	$ 46.81	$ 93.63	20%	$ 112.35	121	242	$ 0.46		$ 0.46
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	242	242	$ 0.30		$ 0.30
spare		$ -				0				
Cat CS56B Roller	1	$ 52.25	$ 52.25	20%	$ 62.71	242	242		$ 0.26	$ 0.26
Western Star WT6900 - Water Truck	1	$ 352.29	$ 352.29	20%	$ 422.75	242	242		$ 1.74	$ 1.74
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	242	242		$ 0.085	$ 0.085
spare		$ -				0				
			TOTAL COST PER HOUR		$ 1,115.07	TOTAL COST PER UNIT		**$ 2.51**	**$ 2.09**	$ 4.60

Crew E	**Spreading and Leveling Materials**					Units	**CY**	**Units / Hr.**	**216**	
Asset	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	216	216	$ 0.42		$ 0.42
Motor Grader Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	216	216	$ 0.42		$ 0.42
Laborer	2	$ 46.81	$ 93.63	20%	$ 112.35	108	216	$ 0.52		$ 0.52
Mechanic	0.25	$ 60.46	$ 15.12	20%	$ 18.14	865	216	$ 0.08		$ 0.08
spare		$ -								
Cat D6T Dozer	1	$ 155.07	$ 155.07	20%	$ 186.09	216	216		$ 0.86	$ 0.86
Cat 14M Grader	1	$ 224.31	$ 224.31	20%	$ 269.17	216	216		$ 1.24	$ 1.24
Ford F350 Service Truck	0.25	$ 17.22	$ 4.30	20%	$ 5.17	865	216		$ 0.024	$ 0.024
spare		$ -								
			TOTAL COST PER HOUR		$ 771.93	TOTAL COST PER UNIT		**$ 1.44**	**$ 2.13**	$ 3.57

Crew F	**Final Grading**					Units	**AC**	**Acres / Hr.**	**1.40**	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per hour	Units per hour	Labor cost per hour	Equip. cost per hour	Total cost per hours
Motor Grader Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	1.40	1.40	$ 64.65		$ 64.65
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	1.40	1.40	$ 64.65		$ 64.65
Truck Driver - Off Hwy	1	$ 47.78	$ 47.78	20%	$ 57.33	1.40	1.40	$ 40.95		$ 40.95
Mechanic	0.25	$ 60.46	$ 15.12	20%	$ 18.14	5.60	1.40	$ 12.96		$ 12.96
Cat 14M Grader	1	$ 153.26	$ 153.26	20%	$ 183.91	1.40	1.40		$ 131.37	$ 131.37
Cat D6T Dozer	1	$ 153.51	$ 153.51	20%	$ 184.21	1.40	1.40		$ 131.58	$ 131.58

CAT 740 8000 gal water truck	1	$ 218.66	$ 218.66	20%	$ 262.39	1.40	1.40		$ 187.42	$ 187.42
Ford F350 Service Truck	0.25	$ 17.22	$ 4.30	20%	$ 5.17	5.60	1.40		$ 3.69	$ 3.69
			TOTAL COST PER HOUR		$ 892.16			**$ 183.20**	**$ 454.06**	$ 637.26

Crew G	**Compaction of Pit Backfill Materials**					Units	**SY**	**Units / Hr.**	**197**	
Asset	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
General Machinery Operator	1	$ 54.04	$ 54.04	20%	$ 64.85	197	197	$ 0.33		$ 0.33
Truck Driver - Off Hwy	1	$ 47.78	$ 47.78	20%	$ 57.33	197	197	$ 0.29		$ 0.29
Mechanic	0.25	$ 60.46	$ 15.12	20%	$ 18.14	788	197	$ 0.09		$ 0.09
Cat CS56B Roller	1	$ 52.25	$ 52.25	20%	$ 62.71	197	197		$ 0.32	$ 0.32
CAT 740 8000 gal water truck	1	$ 218.66	$ 218.66	20%	$ 262.39	197	197		$ 1.33	$ 1.33
Ford F350 Service Truck	0.25	$ 17.22	$ 4.30	20%	$ 5.17	788	197		$ 0.026	$ 0.026
			TOTAL COST PER HOUR		$ 470.58	TOTAL COST PER UNIT		**$ 0.71**	**$ 1.68**	$ 2.39

Crew H	**Compaction of Stockpile Cover Materials**					Units	**SY**	**Units / Hr.**	**657**	
Asset	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
General Machinery Operator	1	$ 54.04	$ 54.04	20%	$ 64.85	657	657	$ 0.10		$ 0.10
Truck Driver - Off Hwy	1	$ 47.78	$ 47.78	20%	$ 57.33	657	657	$ 0.09		$ 0.09
Mechanic	0.25	$ 60.46	$ 15.12	20%	$ 18.14	2628	657	$ 0.03		$ 0.03
Cat 815K Soil Compactor	1	$ 74.63	$ 74.63	20%	$ 89.55	657	657		$ 0.14	$ 0.14
CAT 740 8000 gal water truck	1	$ 218.66	$ 218.66	20%	$ 262.39	657	657		$ 0.40	$ 0.40
Ford F350 Service Truck	0.25	$ 17.22	$ 4.30	20%	$ 5.17	2628	657		$ 0.008	$ 0.008
			TOTAL COST PER HOUR		$ 497.42	TOTAL COST PER UNIT		**$ 0.21**	**$ 0.54**	$ 0.76

Crew I	**Dust Control During Earth Movement Activities**					Units	**DY**	**Hours / Day**	**8.00**	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per Day	Labor cost per unit	Equip cost per unit	total cost per unit
Truck Driver - Off Hwy	1	$ 47.78	$ 47.78	20%	$ 57.33	8.00	8.00	$ 458.64		$ 458.64
Mechanic	0.25	$ 60.46	$ 15.12	20%	$ 18.14	32.00	8.00	$ 145.10		$ 145.10
Laborer	1	$ 46.81	$ 46.81	20%	$ 56.18	8.00	8.00	$ 449.41		$ 449.41
spare		$ -				0.00	0.00			
CAT 740 8000 gal water truck	1	$ 218.66	$ 218.66	20%	$ 262.39	8.00	8.00		$ 2,099.13	$ 2,099.13
Ford F350 Service Truck	0.25	$ 17.22	$ 4.30	20%	$ 5.17	32.00	8.00		$ 41.32	$ -
spare		$ -								
			TOTAL COST PER HOUR		$ 399.20	TOTAL COST PER DAY		**$ 1,053.15**	**$ 2,140.45**	$ 3,152.28

Crew J	**Grading of Drainage Channel**					Units	**AC**	**Acres / Hr.**	**0.20**	
Asset	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per hour	Units per hour	Labor cost per hour	Equip. cost per hour	Total cost per hours
Motor Grader Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	0.20	0.20	$ 452.54		$ 452.54
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	0.20	0.20	$ 452.54		$ 452.54
Truck Driver - Off Hwy	1	$ 47.78	$ 47.78	20%	$ 57.33	0.20	0.20	$ 286.65		$ 286.65
Mechanic	0.25	$ 60.46	$ 15.12	20%	$ 18.14	0.80	0.20	$ 90.69		$ 90.69
Cat 14M Grader	1	$ 224.31	$ 224.31	20%	$ 269.17	0.20	0.20		$ 1,345.85	$ 1,345.85
Cat D6T Dozer	1	$ 155.07	$ 155.07	20%	$ 186.09	0.20	0.20		$ 930.44	$ 930.44
CAT 740 8000 gal water truck	1	$ 218.66	$ 218.66	20%	$ 262.39	0.20	0.20		$ 1,311.95	$ 1,311.95
Ford F350 Service Truck	0.25	$ 17.22	$ 4.30	20%	$ 5.17	0.80	0.20		$ 25.83	$ 25.83
			TOTAL COST PER HOUR		$ 979.30			**$ 1,282.42**	**$ 3,614.07**	$ 4,896.49

Crew K	**Permanent Storm Water Earthmoving**					Units	CY	Units/Hr.	244	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units / asset / Hour	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	244	244	$ 0.37		$ 0.37
Loader Operator	1	$ 69.14	$ 69.14	20%	$ 82.97	244	244	$ 0.34		$ 0.34
Mechanic	0.25	$ 60.46	$ 15.12	20%	$ 18.14	244	244	$ 0.07		$ 0.07
spare		$ -								
Cat 390F Excavator	1	$ 377.83	$ 377.83	20%	$ 453.39	244	244		$ 1.86	$ 1.86
Cat 980H Wheel Loader	1	$ 259.89	$ 259.89	20%	$ 311.87	244	244		$ 1.28	$ 1.28
Ford F350 Service Truck	0.25	$ 17.22	$ 4.30	20%	$ 5.17	244	244		$ 0.02	$ 0.02
spare		$ -								
			TOTAL COST PER HOUR		Units	TOTAL COST PER UNIT		**$ 0.79**	**$ 3.16**	$ 3.94

Crew L	**Compaction of Drainage Channel**					Units	**SY**	**Units / Hr.**	**197**	
Asset	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
General Machinery Operator	1	$ 54.04	$ 54.04	20%	$ 64.85	197	197	$ 0.33		$ 0.33
Truck Driver - Off Hwy	1	$ 47.78	$ 47.78	20%	$ 57.33	197	197	$ 0.29		$ 0.29
Mechanic	0.25	$ 60.46	$ 15.12	20%	$ 18.14	788	197	$ 0.09		$ 0.09
Cat CS56B Roller	1	$ 52.25	$ 52.25	20%	$ 62.71	197	197		$ 0.32	$ 0.32
CAT 740 8000 gal water truck	1	$ 218.66	$ 218.66	20%	$ 262.39	197	197		$ 1.33	$ 1.33
Ford F350 Service Truck	0.25	$ 17.22	$ 4.30	20%	$ 5.17	788	197		$ 0.026	$ 0.026
			TOTAL COST PER HOUR		$ 470.58	TOTAL COST PER UNIT		**$ 0.71**	**$ 1.68**	$ 2.39

Crew M	**Spreading and Leveling Drainage Materials**					Units	**CY**	**Units / Hr.**	**216**	
Asset	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	667	667	$ 0.14		$ 0.14
Motor Grader Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	667	667	$ 0.14		$ 0.14
Laborer	2	$ 46.81	$ 93.63	20%	$ 112.35	333	667	$ 0.17		$ 0.17
Mechanic	0.25	$ 60.46	$ 15.12	20%	$ 18.14	2667	667	$ 0.03		$ 0.03
spare		#REF!								
Cat D6T Dozer	1	$ 155.07	$ 155.07	20%	$ 186.09	667	667		$ 0.28	$ 0.28
Cat 14M Grader	1	$ 224.31	$ 224.31	20%	$ 269.17	667	667		$ 0.40	$ 0.40
Ford F350 Service Truck	0.25	$ 17.22	$ 4.30	20%	$ 5.17	2667	667		$ 0.008	$ 0.008
spare		#REF!								
			TOTAL COST PER HOUR		$ 771.93	TOTAL COST PER UNIT		**$ 0.47**	**$ 0.69**	$ 1.16

Stantec

General Electric - UNC

St Anthony Mine

2010 Cost Estimate Modification - Rev H3a - 14 January 2020

Crews

Crew N	Placing Riprap					Units	CY	Units/Hr.		73
Asset	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units / asset / Hour	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	73.2	73.2	$ 1.24		$ 1.24
Loader Operator	1	$ 69.14	$ 69.14	20%	$ 82.97	73.2	73.2	$ 1.13		$ 1.13
Laborer	1	$ 46.81	$ 46.81	20%	$ 56.18	73.2	73.2	$ 0.77		$ 0.77
spare		$ -								
Cat 390F Excavator	1	$ 377.83	$ 377.83	20%	$ 453.39	73.2	73.2		$ 6.19	$ 6.19
Cat 980H Wheel Loader	1	$ 259.89	$ 259.89	20%	$ 311.87	73	73.2		$ 4.26	$ 4.26
spare		$ -								
			TOTAL COST PER HOUR		$ 994.92	TOTAL COST PER UNIT		**$ 3.14**	**$ 10.45**	$ 13.59

Crew A - Excavation, Loading , and Hauling for Similar Scope of Work items

Crew A - For Scope # 2	Excavation, Loading, and Hauling					Units	CY	Units / Hr.		281
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Truck Driver - Off Hwy	2.0	$ 47.78	$ 95.55	20%	$ 114.66	141	281	$ 0.41		$ 0.41
Labor Foreman	0.3	$ 75.14	$ 24.80	20%	$ 29.76	853	281	$ 0.11		$ 0.11
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	281	281	$ 0.26		$ 0.26
Cat 390F Excavator	1	$ 308.58	$ 308.58	20%	$ 370.30	281	281		$ 1.32	$ 1.32
Cat D6T Dozer	1	$ 153.51	$ 153.51	20%	$ 184.21	281	281		$ 0.65	$ 0.65
Cat 730 Articulated Truck	2.0	$ 218.66	$ 437.32	20%	$ 524.78	141	281		$ 1.87	$ 1.87
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	281	281		$ 0.07	$ 0.07
			TOTAL COST PER HOUR		$ 1,497.94	TOTAL COST PER UNIT		**$ 1.41**	**$ 3.91**	$ 5.32

Crew A - For Scope # 3	Excavation, Loading, and Hauling					Units	CY	Units / Hr.		281
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Truck Driver - Off Hwy	2.0	$ 47.78	$ 95.55	20%	$ 114.66	141	281	$ 0.41		$ 0.41
Labor Foreman	0.3	$ 75.14	$ 24.80	20%	$ 29.76	853	281	$ 0.11		$ 0.11
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	281	281	$ 0.26		$ 0.26
Cat 390F Excavator	1	$ 308.58	$ 308.58	20%	$ 370.30	281	281		$ 1.32	$ 1.32
Cat D6T Dozer	1	$ 153.51	$ 153.51	20%	$ 184.21	281	281		$ 0.65	$ 0.65
Cat 730 Articulated Truck	2.0	$ 218.66	$ 437.32	20%	$ 524.78	141	281		$ 1.87	$ 1.87
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	281	281		$ 0.07	$ 0.07
			TOTAL COST PER HOUR		$ 1,497.94	TOTAL COST PER UNIT		**$ 1.41**	**$ 3.91**	$ 5.32

Crew A - For Scope # 4	Excavation, Loading, and Hauling					Units	CY	Units / Hr.		281
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Truck Driver - Off Hwy	3.0	$ 47.78	$ 143.33	20%	$ 171.99	94	281	$ 0.61		$ 0.61
Labor Foreman	0.3	$ 75.14	$ 24.80	20%	$ 29.76	853	281	$ 0.11		$ 0.11
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	281	281	$ 0.26		$ 0.26
Cat 390F Excavator	1	$ 308.58	$ 308.58	20%	$ 370.30	281	281		$ 1.32	$ 1.32
Cat D6T Dozer	1	$ 153.51	$ 153.51	20%	$ 184.21	281	281		$ 0.65	$ 0.65
Cat 730 Articulated Truck	3.0	$ 218.66	$ 655.98	20%	$ 787.17	94	281		$ 2.80	$ 2.80
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	281	281		$ 0.07	$ 0.07
			TOTAL COST PER HOUR		$ 1,817.66	TOTAL COST PER UNIT		**$ 1.62**	**$ 4.84**	$ 6.46

Crew A - For Scope # 5	Excavation, Loading, and Hauling					Units	CY	Units / Hr.		281
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Truck Driver - Off Hwy	3.0	$ 47.78	$ 143.33	20%	$ 171.99	94	281	$ 0.61		$ 0.61
Labor Foreman	0.3	$ 75.14	$ 24.80	20%	$ 29.76	853	281	$ 0.11		$ 0.11
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	281	281	$ 0.26		$ 0.26
Cat 390F Excavator	1	$ 308.58	$ 308.58	20%	$ 370.30	281	281		$ 1.32	$ 1.32
Cat D6T Dozer	1	$ 153.51	$ 153.51	20%	$ 184.21	281	281		$ 0.65	$ 0.65
Cat 730 Articulated Truck	3.0	$ 218.66	$ 655.98	20%	$ 787.17	94	281		$ 2.80	$ 2.80
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	281	281		$ 0.07	$ 0.07
			TOTAL COST PER HOUR		$ 1,817.66	TOTAL COST PER UNIT		**$ 1.62**	**$ 4.84**	$ 6.46

Crew A - For Scope # 6	Excavation, Loading, and Hauling					Units	CY	Units / Hr.		281
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Truck Driver - Off Hwy	3.0	$ 47.78	$ 143.33	20%	$ 171.99	94	281	$ 0.61		$ 0.61
Labor Foreman	0.3	$ 75.14	$ 24.80	20%	$ 29.76	853	281	$ 0.11		$ 0.11
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	281	281	$ 0.26		$ 0.26
Cat 390F Excavator	1	$ 308.58	$ 308.58	20%	$ 370.30	281	281		$ 1.32	$ 1.32
Cat D6T Dozer	1	$ 153.51	$ 153.51	20%	$ 184.21	281	281		$ 0.65	$ 0.65
Cat 730 Articulated Truck	3.0	$ 218.66	$ 655.98	20%	$ 787.17	94	281		$ 2.80	$ 2.80
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	281	281		$ 0.07	$ 0.07
			TOTAL COST PER HOUR		$ 1,817.66	TOTAL COST PER UNIT		**$ 1.62**	**$ 4.84**	$ 6.46

General Electric - UNC

St Anthony Mine

2010 Cost Estimate Modification - Rev H3a - 14 January 2020

Crews

Crew A - For Scope # 7	Excavation, Loading, and Hauling					Units	CY	Units / Hr.	281	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Truck Driver - Off Hwy	3.0	$ 47.78	$ 143.33	20%	$ 171.99	94	281	$ 0.61		$ 0.61
Labor Foreman	0.3	$ 75.14	$ 24.80	20%	$ 29.76	853	281	$ 0.11		$ 0.11
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	281	281	$ 0.26		$ 0.26
Cat 390F Excavator	1	$ 308.58	$ 308.58	20%	$ 370.30	281	281		$ 1.32	$ 1.32
Cat D6T Dozer	1	$ 153.51	$ 153.51	20%	$ 184.21	281	281		$ 0.65	$ 0.65
Cat 730 Articulated Truck	3.0	$ 218.66	$ 655.98	20%	$ 787.17	94	281		$ 2.80	$ 2.80
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	281	281		$ 0.07	$ 0.07
			TOTAL COST PER HOUR		$ 1,817.66	TOTAL COST PER UNIT		**$ 1.62**	**$ 4.84**	$ 6.46

Crew A - For Scope # 9	Excavation, Loading, and Hauling					Units	CY	Units / Hr.	281	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Truck Driver - Off Hwy	2.0	$ 47.78	$ 95.55	20%	$ 114.66	141	281	$ 0.41		$ 0.41
Labor Foreman	0.3	$ 75.14	$ 24.80	20%	$ 29.76	853	281	$ 0.11		$ 0.11
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	281	281	$ 0.26		$ 0.26
Cat 390F Excavator	1	$ 308.58	$ 308.58	20%	$ 370.30	281	281		$ 1.32	$ 1.32
Cat D6T Dozer	1	$ 153.51	$ 153.51	20%	$ 184.21	281	281		$ 0.65	$ 0.65
Cat 730 Articulated Truck	2.0	$ 218.66	$ 437.32	20%	$ 524.78	141	281		$ 1.87	$ 1.87
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	281	281		$ 0.07	$ 0.07
			TOTAL COST PER HOUR		$ 1,497.94	TOTAL COST PER UNIT		**$ 1.41**	**$ 3.91**	$ 5.32

Crew A - For Scope # 11	Excavation, Loading, and Hauling					Units	CY	Units / Hr.	281	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Truck Driver - Off Hwy	3.0	$ 47.78	$ 143.33	20%	$ 171.99	94	281	$ 0.61		$ 0.61
Labor Foreman	0.3	$ 75.14	$ 24.80	20%	$ 29.76	853	281	$ 0.11		$ 0.11
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	281	281	$ 0.26		$ 0.26
Cat 390F Excavator	1	$ 308.58	$ 308.58	20%	$ 370.30	281	281		$ 1.32	$ 1.32
Cat D6T Dozer	1	$ 153.51	$ 153.51	20%	$ 184.21	281	281		$ 0.65	$ 0.65
Cat 730 Articulated Truck	3.0	$ 218.66	$ 655.98	20%	$ 787.17	94	281		$ 2.80	$ 2.80
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	281	281		$ 0.07	$ 0.07
			TOTAL COST PER HOUR		$ 1,817.66	TOTAL COST PER UNIT		**$ 1.62**	**$ 4.84**	$ 6.46

Crew A - For Scope # 15.1	Excavation, Loading, and Hauling					Units	CY	Units / Hr.	281	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Truck Driver - Off Hwy	3.0	$ 47.78	$ 143.33	20%	$ 171.99	94	281	$ 0.61		$ 0.61
Labor Foreman	0.3	$ 75.14	$ 24.80	20%	$ 29.76	853	281	$ 0.11		$ 0.11
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	281	281	$ 0.26		$ 0.26
Cat 390F Excavator	1	$ 308.58	$ 308.58	20%	$ 370.30	281	281		$ 1.32	$ 1.32
Cat D6T Dozer	1	$ 153.51	$ 153.51	20%	$ 184.21	281	281		$ 0.65	$ 0.65
Cat 730 Articulated Truck	3.0	$ 218.66	$ 655.98	20%	$ 787.17	94	281		$ 2.80	$ 2.80
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	281	281		$ 0.07	$ 0.07
			TOTAL COST PER HOUR		$ 1,817.66	TOTAL COST PER UNIT		**$ 1.62**	**$ 4.84**	$ 6.46

Crew A - For Scope # 15.2	Excavation, Loading, and Hauling					Units	CY	Units / Hr.	281	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Truck Driver - Off Hwy	3.0	$ 47.78	$ 143.33	20%	$ 171.99	94	281	$ 0.61		$ 0.61
Labor Foreman	0.3	$ 75.14	$ 24.80	20%	$ 29.76	853	281	$ 0.11		$ 0.11
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	281	281	$ 0.26		$ 0.26
Cat 390F Excavator	1	$ 308.58	$ 308.58	20%	$ 370.30	281	281		$ 1.32	$ 1.32
Cat D6T Dozer	1	$ 153.51	$ 153.51	20%	$ 184.21	281	281		$ 0.65	$ 0.65
Cat 730 Articulated Truck	3.0	$ 218.66	$ 655.98	20%	$ 787.17	94	281		$ 2.80	$ 2.80
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	281	281		$ 0.07	$ 0.07
			TOTAL COST PER HOUR		$ 1,817.66	TOTAL COST PER UNIT		**$ 1.62**	**$ 4.84**	$ 6.46

Crew A - For Scope # 15.3	Excavation, Loading, and Hauling					Units	CY	Units / Hr.	281	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Truck Driver - Off Hwy	3.0	$ 47.78	$ 143.33	20%	$ 171.99	94	281	$ 0.61		$ 0.61
Labor Foreman	0.3	$ 75.14	$ 24.80	20%	$ 29.76	853	281	$ 0.11		$ 0.11
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	281	281	$ 0.26		$ 0.26
Cat 390F Excavator	1	$ 308.58	$ 308.58	20%	$ 370.30	281	281		$ 1.32	$ 1.32
Cat D6T Dozer	1	$ 153.51	$ 153.51	20%	$ 184.21	281	281		$ 0.65	$ 0.65
Cat 730 Articulated Truck	3.0	$ 218.66	$ 655.98	20%	$ 787.17	94	281		$ 2.80	$ 2.80
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	281	281		$ 0.07	$ 0.07
			TOTAL COST PER HOUR		$ 1,817.66	TOTAL COST PER UNIT		**$ 1.62**	**$ 4.84**	$ 6.46

Crew A - For Scope # 16	Excavation, Loading, and Hauling					Units	CY	Units / Hr.	281	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Truck Driver - Off Hwy	2.0	$ 47.78	$ 95.55	20%	$ 114.66	141	281	$ 0.41		$ 0.41
Labor Foreman	0.3	$ 75.14	$ 24.80	20%	$ 29.76	853	281	$ 0.11		$ 0.11
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	281	281	$ 0.26		$ 0.26
Cat 390F Excavator	1	$ 308.58	$ 308.58	20%	$ 370.30	281	281		$ 1.32	$ 1.32
Cat D6T Dozer	1	$ 153.51	$ 153.51	20%	$ 184.21	281	281		$ 0.65	$ 0.65
Cat 730 Articulated Truck	2.0	$ 218.66	$ 437.32	20%	$ 524.78	141	281		$ 1.87	$ 1.87

Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	281	281		$ 0.07	$ 0.07
			TOTAL COST PER HOUR		$ 1,497.94	TOTAL COST PER UNIT		**$ 1.41**	**$ 3.91**	$ 5.32

Crew A - For Scope # 17	Excavation, Loading, and Hauling					Units	CY	Units / Hr.	281	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Truck Driver - Off Hwy	2.0	$ 47.78	$ 95.55	20%	$ 114.66	141	281	$ 0.41		$ 0.41
Labor Foreman	0.3	$ 75.14	$ 24.80	20%	$ 29.76	853	281	$ 0.11		$ 0.11
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	281	281	$ 0.26		$ 0.26
Cat 390F Excavator	1	$ 308.58	$ 308.58	20%	$ 370.30	281	281		$ 1.32	$ 1.32
Cat D6T Dozer	1	$ 153.51	$ 153.51	20%	$ 184.21	281	281		$ 0.65	$ 0.65
Cat 730 Articulated Truck	2.0	$ 218.66	$ 437.32	20%	$ 524.78	141	281		$ 1.87	$ 1.87
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	281	281		$ 0.07	$ 0.07
			TOTAL COST PER HOUR		$ 1,497.94	TOTAL COST PER UNIT		**$ 1.41**	**$ 3.91**	$ 5.32

Crew A - For Scope # 18	Excavation, Loading, and Hauling					Units	CY	Units / Hr.	281	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	281	281	$ 0.32		$ 0.32
Truck Driver - Off Hwy	2.0	$ 47.78	$ 95.55	20%	$ 114.66	141	281	$ 0.41		$ 0.41
Labor Foreman	0.3	$ 75.14	$ 24.80	20%	$ 29.76	853	281	$ 0.11		$ 0.11
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	281	281	$ 0.26		$ 0.26
Cat 390F Excavator	1	$ 308.58	$ 308.58	20%	$ 370.30	281	281		$ 1.32	$ 1.32
Cat D6T Dozer	1	$ 153.51	$ 153.51	20%	$ 184.21	281	281		$ 0.65	$ 0.65
Cat 730 Articulated Truck	2.0	$ 218.66	$ 437.32	20%	$ 524.78	141	281		$ 1.87	$ 1.87
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	281	281		$ 0.07	$ 0.07
			TOTAL COST PER HOUR		$ 1,497.94	TOTAL COST PER UNIT		**$ 1.41**	**$ 3.91**	$ 5.32

Crew A	Excavation, Loading, and Hauling from Stockpile #4 to Open Pit				Units	CY		
	Loading time Minute	Loads per Hour	LCY per load	LCY / Hour			Truck Match	
	7.25	8.3	34	**281**			**2.6**	
	Dumping time Minute	Avg distance to dump location		Miles round Trip	MPH	Enroute Min	Truck time per load - Minute	
	3.62	5280		2.00	15	8.0	18.9	

CAT390 Excavator based crew
CATD6 Dozer assisting to pile materials.
CAT740 trucks matched by average haul distances.
Loading and hauling of materials from stockpile #4 old tailings waste site to pit.
Factored 2.5 times the estimated cycle time for loading to compensate for care in loading waste materials. CAT Performance Handbook edition 44
Service truck available full time for fueling and maintenance

Cycle Time	Load Bucket	Swing Loaded	Dump Bucket	Swing Empty	Total Cycle Time	Passes	Truck Spot	Time - Minutes
Load - Sec	25	15	8	13	1.00	6.0	1.25	**7.25**
	Truck Spot	Eject	Retract	Pullout	Time Minutes	Bucket CY	% of Capacity	LCY per Load
Dump	2.00	0.27	0.35	1.00	**3.62**	6.0	95%	**34**

Note: cost is approximately $ - per cubic yard - not including support activities (road maintenance, final grading)

Crew B	Excavation, Loading, and Hauling from Borrow Source				Units	CY		
	Loading time Minute	Loads per Hour	LCY per load	LCY / Hour			Truck Match	
	6.25	9.6	24	**230**			**5.0**	
	Dumping time Minute	Avg Distance to Repository/Stage		Miles round Trip	MPH	Enroute Min	Truck time per load - Minute	
	4.62	13306		5.04	15	20.2	31.0	

CAT980 Loader based crew loading trucks with clean borrow materials.
CATD6 Dozer assisting to pile materials.
CAT740 trucks matched by average haul distances.
Loading and hauling of materials for cover material to stockpile #4.
Service truck available full time for fueling and maintenance

Cycle Time	Load Bucket	Travel	Dump Bucket	Travel Empty	Total Cycle Time	Passes	Truck Spot	Time - Minutes
Load - Sec	15	30	10	20	1.25	4.0	1.25	**6.25**
	Truck Spot	Eject	Retract	Pullout	Time Minutes	Bucket CY	% of Capacity	LCY per Load
Dump	2.50	0.27	0.35	1.50	**4.62**	9.0	67%	**24**

Note: cost is approximately $ - per cubic yard - not including support activities (road maintenance, final grading)

Crew C	Earthmoving and Leveling Materials				Units	CY				
Effective blade width - FT	Amount carried per pass - CY	Distance to spread - LF	Traveled distance - Mile	Working speed - MPH	Time to spread - HR	Reversing speed - MPH	Time to reverse - HR	Time per pass - HR	Passes per hour	Production per hour - CY
14.1	17.7	250	0.047	3.10	0.015	4.20	0.011	0.027	37.67	**666.74**
					Minutes		Minutes			
					0.916		0.676	1.593		

CAT D9 Dozer based crew leveling material spot dumped
Laborers for grade checking and spotting trucks
A service truck is available 25% of the time for fueling and normal maintenance.

Crew D	Roller Compacted Concrete	Units	SF	Production per hour - SF	242

Crew E	Spreading and Leveling Materials				Units	CY				
Effective blade width - FT	Amount carried per pass - CY	Distance to spread - LF	Traveled distance - Mile	Working speed - MPH	Time to spread - HR	Reversing speed - MPH	Time to reverse - HR	Time per pass - HR	Passes per hour	Production per hour - CY
8	6	150	0.028	2.00	0.014	2.10	0.014	0.028	36.06	**216.35**
					Minutes		Minutes			
					0.852		0.812	1.664		

CAT D6 Dozer based crew leveling material spot dumped
CAT Motor Grader fine grading
Two laborers for grade checking and spotting trucks
A service truck is available 25% of the time for fueling and normal maintenance.

Crew F	Final Grading				Units	AC	Acres / Hr.	1.40				
Blade Width - FT	Area Width - FT	Area Length - FT	Passes to cover	Actual passes	Traveled distance - Mile	Working speed - MPH	Time - Hours	Turning / Repositioning	Efficiency	Hours	SF in Area	Acres / Hour
14	100	100	7.14	8.00	0.152	3.70	0.041	0.040	50%	0.16	10,000	**1.40**

CAT MG 14M based crew, final grading of materials spot dumped. CATD6 assisting
One CAT740 8000 gallon water truck for soil amending and dust control
Service truck is available 25% of the time for fueling and normal maintenance.
CAT Handbook 416C - tillage performance (factor formula for acres per hour)

Crew G	Compaction of Pit Backfill Materials				Units	SY							
Drum width - FT	Area Width - FT	Area Length - FT	Passes to cover	Actual passes	Traveled distance - Mile	Working speed - MPH	Time - Hours	Turning / Repositioning	Number of 6" lifts	Passes for % of compaction	Hours	SF in Area	Production* per Hour - SY
6.5	100	100	15.38	16.00	0.303	1.50	0.202	0.080	20	1	5.64	10,000	**197**
						Minutes	12	4.8					

Compacting of repository cover and roadways
CATCS56B Roller based crew with a CAT740 water trucks assisting for compaction and dust control
*CAT CS56 specifications - publication HEHG3672 (10/2007)
250 Cubic Meters per hour at 6" depth = 1,965 SY per Hour - 95-98% compaction
250 Cubic Meters per hour at 4" depth = 2,947 SY per Hour - 95-98% compaction

Crew H	Compaction of Stockpile Cover Materials				Units	SY							
Drum width - FT	Area Width - FT	Area Length - FT	Passes to cover	Actual passes	Traveled distance - Mile	Working speed - MPH	Time - Hours	Turning / Repositioning	Number of 12" lifts	Passes for % of compaction	Hours	SF in Area	Production* per Hour - SY
6.5	100	100	15.38	16.00	0.303	1.50	0.202	0.080	3	2	1.69	10,000	**657**
						Minutes	12	4.8					

Compacting of cover material in 12" lifts with a sheepsfoot type compactor
CAT 815K Soil Compactor based crew with a CAT740 water trucks assisting for compaction and dust control
248hp 49,353 lb.

Crew I	Dust Control During Earth Movement Activities	Units	DY

Crew M	Spreading and Leveling Drainage Materials				Units	CY				
Effective blade width - FT	Amount carried per pass - CY	Distance to spread - LF	Traveled distance - Mile	Working speed - MPH	Time to spread - HR	Reversing speed - MPH	Time to reverse - HR	Time per pass - HR	Passes per hour	Production per hour - CY
8	6	150	0.028	2.00	0.014	2.10	0.014	0.028	36.06	**216.35**
					Minutes		Minutes			
					0.852		0.812	1.664		

CAT D6 Dozer based crew leveling material spot dumped
CAT Motor Grader fine grading
Two laborers for grade checking and spotting trucks
A service truck is available 25% of the time for fueling and normal maintenance.

Truck match from distance and haul speed. Variable calculation on hall costs.

Scope #	Avg distance to dump location	Miles round Trip	MPH	Enroute Min	Dumping time Minute	Loading Time - Minutes	Loads per Hour	Truck time per load - Minute	Truck Match
2.0	2035	0.77	13	3.6	3.62	7.25	8.3	14.4	**1.99**
3.0	2000	0.76	13.5	3.4	3.62	7.25	8.3	14.2	**1.96**
4.0	5860	2.22	13	10.2	3.62	7.25	8.3	21.1	**2.91**
5.0	3734	1.41	10	8.5	3.62	7.25	8.3	19.4	**2.67**
6.0	2033	0.77	11	4.2	3.62	7.25	8.3	15.1	**2.08**
7.0	2477	0.94	11	5.1	3.62	7.25	8.3	16.0	**2.21**
9.0	1000	0.38	10	2.3	3.62	7.25	8.3	13.1	**1.81**
11.0	5174	1.96	13	9.0	3.62	7.25	8.3	19.9	**2.75**
15.1	3000	1.14	12	5.7	3.62	7.25	8.3	16.6	**2.28**

15.2	3000	1.14	12	5.7	3.62	7.25	8.3	16.6	**2.28**
15.3	2000	0.76	12	3.8	3.62	7.25	8.3	14.7	**2.02**
16.0	1900	0.72	12	3.6	3.62	7.25	8.3	14.5	**2.00**
17.0	950	0.36	10.4	2.1	3.62	7.25	8.3	12.9	**1.79**
18.0	1000	0.38	12	1.9	3.62	7.25	8.3	12.8	**1.76**

Crew J	**Grading and Drainage Channel**				**Units**	**AC**	**Acres/Hr.**	**0.20**				
Blade Width - FT	Area Width - FT	Area Length - FT	Passes to cover	Actual passes	Traveled distance - Mile	Working speed - MPH	Time - Hours	Turning / Repositioning	Efficiency	Hours	SF in Area	Acres / Hour
14	30	1000	2.14	3.00	0.568	2.70	0.210	1.50	50%	3.42	30,000	**0.20**

CAT MG 14M based crew, final grading of materials spot dumped. CATD6 assisting
One CAT740 8000 gallon water truck for soil amending and dust control
Service truck is available 25% of the time for fueling and normal maintenance.
CAT Handbook 416C - tillage performance (factor formula for acres per hour)

Crew K **Permanent Stormwater Earthmoving - CY per Hour**

Minute per pass	Passes per hour	CY per pass	CY per hour
1.35	44.44	5.49	**244**

Excavator and loader based crew for general excavation of materials
Materials that are excavated, moved a short distance, spread over an area to be placed by other crew
Excavation of materials for stormwater features

Cycle Time	Load Bucket	Swing Loaded	Dump Bucket	Swing Empty	Total Cycle Time	Passes	Truck Spot*	Time - Minutes	Bucket CY	% of Capacity	LCY per Load
Excavator	0.75	0.25	0.10	0.25	1.35	0.0	0.00	**0**	6.1	90%	**5.49**
	Load Bucket	Travel Loaded	Dump Bucket	Travel Empty	Total Cycle Time	Passes	Truck Spot	Time - Minutes	Bucket CY	% of Capacity	LCY per Load
Loader	0.25	0.5	0.10	0.5	1.35	0.0	0.00	**0**	7.1	90%	6.39

Crew L	**Compaction of Drainage Channel**				**Units**	**SY**								
Drum width - FT	Area Width - FT	Area Length - FT	Passes to cover	Actual passes	Traveled distance - Mile	Working speed - MPH	Time - Hours	Turning / Repositioning	Number of 6" lifts	Passes for % of compaction	Hours	SF in Area	Production* per Hour - SY
6.5	100	100	15.38	16.00	0.303	1.50	0.202	0.080	20	1	5.64	10,000	**197**
						Minutes	12	4.8					

Compacting of repository cover and roadways
CATCS56B Roller based crew with a CAT740 water trucks assisting for compaction and dust control
*CAT CS56 specifications - publication HEHG3672 (10/2007)
250 Cubic Meters per hour at 6" depth = 1,965 SY per Hour - 95-98% compaction
250 Cubic Meters per hour at 4" depth = 2,947 SY per Hour - 95-98% compaction

Crew N - Placing Riprap - CY per Hour

Minute per pass	CY per pass	CY / Hour
1.25	1.5	**73**

CAT390 Excavator with thumb based crew, with CAT980 Loader assisting to move and pile materials.
Placing various sizes of riprap in various locations. Riprap delivered by truck and located as needed by loader
Laborer for spotting trucks

Cycle Time	Load Bucket	Swing Loaded	Place	Swing Empty	Total Cycle Time	Bucket CY	% of Capacity	LCY per Load
	0.50	0.25	0.25	0.25	**1.25**	6.1	45%	**2.7**

Stantec

General Electric - UNC
St Anthony Mine
2010 Cost Estimate Modification - Rev H3a - 14 January 2020
Unitary Costs

LABOR			CALCULATIONS				
Description	Unit	Total Labor Cost	Base Rate	Burden 35%	With Burden	Efficiency Factor	New Mexico Department of Workforce - Prevailing Wage Type H - 2019 Base Rate + Fringe Rate + Apprenticeship
Supervisor	Hour	$ 129.73	$ 66.07	$ 23.12	$ 89.19	1.455	
Labor Foreman	Hour	$ 75.14	$ 38.27	$ 13.39	$ 51.66	1.455	
Excavator Operator	Hour	$ 75.42	$ 38.41	$ 13.44	$ 51.85	1.455	Operator Group X
Crane Operator	Hour	$ 75.42	$ 38.41	$ 13.44	$ 51.85	1.455	
Dozer Operator	Hour	$ 75.42	$ 38.41	$ 13.44	$ 51.85	1.455	Operator Group X
Loader Operator	Hour	$ 69.14	$ 35.21	$ 12.32	$ 47.53	1.455	Operator Group IX
General Machinery Operator	Hour	$ 54.04	$ 27.52	$ 9.63	$ 37.15	1.455	Operator Group V
Motor Grader Operator	Hour	$ 75.42	$ 38.41	$ 13.44	$ 51.85	1.455	Operator Group X
Truck Driver - Off Hwy	Hour	$ 47.78	$ 24.33	$ 8.52	$ 32.85	1.455	Truck Driver Group V
Truck Driver - OTR	Hour	$ 45.29	$ 33.55	$ 11.74	$ 45.29	1.000	From previous NM estimates
Mechanic Foreman	Hour	$ 62.42	$ 31.79	$ 11.13	$ 42.92	1.455	
Mechanic	Hour	$ 60.46	$ 30.79	$ 10.78	$ 41.57	1.455	
Laborer	Hour	$ 46.81	$ 23.84	$ 8.34	$ 32.18	1.455	Laborer Group II
Flagger	Hour	$ 45.34	$ 23.09	$ 8.08	$ 31.17	1.455	Laborer Group I
Security Guard	Hour	$ 46.81	$ 23.84	$ 8.34	$ 32.18	1.455	Laborer Group II

	Hours of Work	Start of Shift	Travel (2)	Inspection of Equipment	Lunch	Break (2)	Available Hours	Labor efficiency -	Shift Hours	Efficiency factor
Efficiency of work hours	10	0.25	0.25	0.25	0.5	0.5	8.25	50/60	**6.875**	**1.455**

EQUIPMENT			CONSEQUENTIAL COSTS							DEPRECIATION COSTS				
Description	Unit	Total Equipment Hourly Rate	Routine & Maintenance	Fuel	Lubrication	Tires & Chains	GET/Wear	No Fuel ($/hr.)	All in	Market Value	Replacement value	Rental Rate (Monthly)	Hrs/Mo	Hourly Rate
Cat 390F Excavator	Hour	$ 308.58	$ 26.55	$ 70.50	$ 3.66		$ 4.47	$ 34.68	$ 105.18	$ 1,410,000.00	2.5%	$ 35,250	173.3	$ 203.40
CAT 390F L Excavator w/thumb	Hour	$ 323.01	$ 26.55	$ 70.50	$ 3.66		$ 4.47	$ 34.68	$ 105.18	$ 1,510,000.00	2.5%	$ 37,750	173.3	$ 217.83
Backhoe Loader (Case 680) 1.7 CY	Hour	$ 94.33	$ 26.55	$ 30.39	$ 1.20	6.91	$ 7.64	$ 42.30	$ 72.69	$ 150,000.00	2.5%	$ 3,750	173.3	$ 21.64
Backhoe Loader (CAT 330) 2.0 CY	Hour	$ 123.56	$ 26.55	$ 31.85	$ 1.20	6.91	$ 7.64	$ 42.30	$ 74.15	$ 342,500.00	2.5%	$ 8,563	173.3	$ 49.41
Cat 14M Grader	Hour	$ 153.26	$ 44.79	$ 35.37	$ 1.88	$ 1.99	$ 1.43	$ 50.09	$ 85.46	$ 470,000.00	2.5%	$ 11,750	173.3	$ 67.80
Cat 16M Grader	Hour	$ 178.19	$ 44.79	$ 35.37	$ 1.88	$ 1.99	$ 1.43	$ 50.09	$ 85.46	$ 642,773.00	2.5%	$ 16,069	173.3	$ 92.73
Cat 980H Wheel Loader	Hour	$ 181.50	$ 45.60	$ 31.85	$ 1.73	$ 6.91	$ 7.64	$ 61.88	$ 93.73	$ 608,446.00	2.5%	$ 15,211	173.3	$ 87.77
Cat D6T Dozer	Hour	$ 153.51	$ 56.05	$ 30.39	$ 1.20	$ -	$ 2.41	$ 59.66	$ 90.05	$ 439,900.00	2.5%	$ 10,998	173.3	$ 63.46
CAT D9 Dozer	Hour	$ 171.43	$ 26.55	$ 70.50	$ 3.66	$ -	$ 4.47	$ 34.68	$ 105.18	$ 459,256.00	2.5%	$ 11,481	173.3	$ 66.25
Western Star 4900SA	Hour	$ 60.67	$ 3.56	$ 21.15	$ 1.15	$ 1.44	$ -	$ 6.16	$ 27.31	$ 231,250.00	2.5%	$ 5,781	173.3	$ 33.36
Western Star WT6900 - Water Truck	Hour	$ 208.29	$ 58.28	$ 69.77	$ 3.65	$ 10.52	$ -	$ 72.44	$ 142.22	$ 458,000.00	2.5%	$ 11,450	173.3	$ 66.07
Western Star WT4700SF - Water Truck	Hour	$ 191.27	$ 58.28	$ 69.77	$ 3.65	$ 10.52	$ -	$ 72.44	$ 142.22	$ 340,000.00	2.5%	$ 8,500	173.3	$ 49.05
Cat 730 Articulated Truck	Hour	$ 218.66	$ 56.08	$ 30.27	$ 2.40	$ 3.69	$ -	$ 62.16	$ 92.43	$ 875,000.00	2.5%	$ 21,875	173.3	$ 126.23
CAT Articulated 740 EJ Dump Truck	Hour	$ 218.66	$ 56.08	$ 30.27	$ 2.40	$ 3.69	$ -	$ 62.16	$ 92.43	$ 875,001.00	2.5%	$ 21,875	173.3	$ 126.23
CAT 740 8000 gal water truck	Hour	$ 218.66	$ 56.08	$ 30.27	$ 2.40	$ 3.69	$ -	$ 62.16	$ 92.43	$ 875,000.00	2.5%	$ 21,875	173.3	$ 126.23
Tri-axle Single Drop Gooseneck Trailer	Hour	$ 21.63	$ 1.25	$ -	$ -	$ 1.44	$ -	$ 2.69	$ 2.69	$ 131,250.00	2.5%	$ 3,281	173.3	$ 18.93
Western Star 4900SB - Vacuum tank	Hour	$ 69.68	$ 3.56	$ 21.15	$ 1.15	$ 1.44	$ -	$ 6.16	$ 27.31	$ 293,750.00	2.5%	$ 7,344	173.3	$ 42.38
Cat CS56B Roller	Hour	$ 52.25	$ 3.33	$ 20.66	$ 1.13	$ 0.46	$ -	$ 4.91	$ 25.58	$ 184,927.00	2.5%	$ 4,623	173.3	$ 26.68
Cat CS54B Roller	Hour	$ 42.33	$ 3.33	$ 20.66	$ 1.13	$ 0.46	$ -	$ 4.91	$ 25.58	$ 116,115.00	2.5%	$ 2,903	173.3	$ 16.75
Cat 815K Soil Compactor	Hour	$ 74.63	$ 3.33	$ 20.66	$ 1.13	$ 0.46	$ -	$ 4.91	$ 25.58	$ 340,000.00	2.5%	$ 8,500	173.3	$ 49.05
Drill, Percussion Crawler	Hour	$ 183.26	$ 26.01	$ 47.24	$ 7.95	$ -	$ 7.14	$ 41.10	$ 88.34	$ 658,000.00	2.5%	$ 16,450	173.3	$ 94.92
Mobile Crushing/Screening Plant	Hour	$ 437.71	$ 136.63	$ 138.58	$ 9.24	$ -	$ -	$ 145.86	$ 284.44	$ 1,062,500.00	2.5%	$ 26,563	173.3	$ 153.27
Ford F350 Service Truck	Hour	$ 17.22	$ 1.13	$ 5.11	$ 0.28	$ 1.33	$ -	$ 2.73	$ 7.84	$ 65,000.00	2.5%	$ 1,625	173.3	$ 9.38
Grove 65t Rough Terrain Crane	Hour	$ 183.05	$ 4.75	$ 48.62	$ 2.27	$ 5.69	$ -	$ 12.71	$ 61.33	$ 843,750.00	2.5%	$ 21,094	173.3	$ 121.72
Klein KPT120 12,000 gal Porto Tower water tank	Hour	$ 6.35	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 44,000.00	2.5%	$ 1,100	173.3	$ 6.35
Vermeer BC1000XL Wood Chipper	Hour	$ 24.89	$ 3.33	$ 14.95	$ 1.13	$ -	$ -	$ 4.46	$ 19.41	$ 38,000.00	2.5%	$ 950	173.3	$ 5.48
Bobcat T595 tracked skid steer with auger	Hour	$ 34.52	$ 3.33	$ 20.66	$ 1.13	$ 0.46	$ -	$ 4.91	$ 25.58	$ 61,995.00	2.5%	$ 1,550	173.3	$ 8.94
spare														

MATERIALS		
Description	**Unit**	**Price**
Jobsite 40' Office Containers	Each	$ 32,068.38
Jobsite trailers	Each	
Security trailers	Each/Month	
Sanitation facilities	Each/Month	
Decontamination Station	Month	
Jersey barriers	Each	$ 621.12
Traffic control signage	Month	$ 1,369.00
Traffic control signals	Month	$ 5,000.00
Gates - 40' wide	Each	$ 3,000.00
Mud grates - 40' wide	Each	$ 5,000.00
Fencing	LF	$ 150.00
Silt Fencing	LF	$ 0.48
Straw Bales	Each	$ 4.22
Stakes for Straw Bales	Each	$ 1.05
24" corrugated culverts	LF	$ 843.22
12" corrugated culverts	LF	$ 434.12
Gabion basket materials	S.Y.	$ 138.26
Gabion basket labor and materials	CY	$ 216.84
Geotextile fabric incl mat, equip, labor	SY	$ 3.10
Road Gravel - 1" minus	TON	$ 18.87
Concrete - 3,000 lb. mix - delivered	CY	$ 152.50
Type I filter material - delivered	TON	$ 15.75
Type II filter material - delivered	TON	$ 15.75
D50 = 3.0 in.	CY	$ 17.55
D50 = 6.0 in.	CY	$ 17.55
D50 = 9.0 in	CY	$ 20.25
D50 = 15.0 in.	CY	$ 20.25
D50 = 18.0 in.	CY	$ 24.30
D50 = 27.0 in.	CY	$ 25.65
Seeding	M.S.F.	$ 62.56
		$ -

$ 2,725.23 Acre — Seeding rye, fine textured, with mulch and fertilizer, 10 lb. per M.S.F., hydro or air seeding

OTHER		
Concrete culvert, headwall concrete, precast, 30 degree skewed wingwall, 30" diameter pipe	Ea.	$ 2,881.32
Rip-rap and rock lining, random, broken stone, 18" minimum thickness, machine placed for slope protection, not grouted	S.Y.	$ 82.74
Synthetic erosion control, polyethylene, 3 dimensional geomatrix, 50 mil thick	S.Y.	$ 5.16
Soil preparation, structural soil mixing, remove topsoil & stock pile on site, 12" deep, 50' haul, 75 HP dozer	M.S.F.	$ 72.19
Gabion boxes, galvanized steel mesh mats or boxes, stone filled, 36" deep	S.Y.	$ 138.26
Fencing Supply & Install	LF	$ 150.00
Traffic signals, vertical mast and foundation, mast sized for single arm up to 40'; no lighting or transmission function	Ea.	$ 20,439.69
Traffic signals, horizontal arm, per linear foot of arm	Ea.	$ 320.69
Traffic signal, traffic signals, includes signal, bracket, sensor, and wiring	Ea.	$ 2,919.41
Traffic signals, pedestrian signals and callers, includes four signals with brackets and two call buttons	Ea.	$ 5,246.38
Traffic signals, controller, design, and underground conduit, includes miscellaneous signage and adjacent surface work	Ea.	$ 40,945.97
12,000 gal mobile elevated water tank. Purchase with delivery		$ 56,750.00

Contractor Billing Rates - For Estimation of Services		Salary	Hour	Burden		Cont. MU	Billing Rate
Senior Engineer	Year	$ 175,000.00	$ 84.13	35%	$ 113.58	20%	$ 136.30
Project Engineer	Year	$ 150,000.00	$ 72.12	35%	$ 97.36	20%	$ 116.83
Project Manager	Year	$ 147,500.00	$ 70.91	35%	$ 95.73	20%	$ 114.88
Field personnel, clerk, average	Week	$ 559.18	$ 13.98	35%	$ 18.87	20%	$ 22.65
Field personnel, labor foreman, average	Week	$ 1,530.70	$ 38.27	35%	$ 51.66	20%	$ 61.99
Field personnel, field engineer, average	Week	$ 1,742.65	$ 43.57	35%	$ 58.81	20%	$ 70.58
Field personnel, project manager, average	Week	$ 2,834.20	$ 70.86	35%	$ 95.65	20%	$ 114.79
Field personnel, superintendent, average	Week	$ 2,642.70	$ 66.07	35%	$ 89.19	20%	$ 107.03
Field personnel, timekeeper, average	Week	$ 1,532.00	$ 38.30	35%	$ 51.71	20%	$ 62.05

Conversions				
1	Acre	=	4,840.00	SY
1	Acre	=	43,560.00	SF
1	CY	=	27.00	CF
1	SY	=	9.00	SF
1	Mile	=	1,760.00	SY
1	Mile	=	5,280.00	FT
1	Square Mile	=	640.00	Acre
1	Square Mile	=	259.00	Hectare
1	MPH	=	1.47	FT / Second
1	US Ton	=	2,000.00	lbs.
1	Metric Ton	=	2,204.62	lbs.
1	Cubic Meter	=	35.37	CF
1	Cubic Meter	=	1.31	CY
1	Cubic Yard	=	0.76	CM
1	Meter	=	3.28	FT
1	Foot	=	0.30	Meter
1	Month	=	4.33	Weeks

General Electric - UNC

St Anthony Mine

2010 Cost Estimate Modification - Rev H3a - 14 January 2020

Assumptions

Description	Value	Comment
Contractor Markup	20%	Percent
Contingency - Calculated	0.00%	Percent
AACE Cost Estimate - Class	4	See footnote
Estimate Accuracy	-30 to +50	% Percent
Efficiency factor	1.45	Factor
10 hour work day results in 8.25 available hours	8.25	Effective work hours
Work Days Per Week	6.00	Days per the 2010 Estimate
Work Hours - 10 hour days, 6 days per week	60.00	Hours per week
Swell factor of Bank Material to Loose Cubic Yards	1.34%	
Swell factor for Shale Conversion	1.50%	Accept engineers estimate quantity for comparative purposes
Swell factor for Sandstone Conversion	1.62%	Accept engineers estimate quantity for comparative purposes
Average weight of one cubic yard of material	1.35	tons - 2,700 lbs./CY
Wage rate burden	35%	taxes and markup
Equipment Replacement Value	2.5%	Used to calculate the hourly rate of contractors equipment

Note: **AACE International CLASS 4 Cost Estimate – Class 4** estimates are generally prepared based on limited information and subsequently have fairly wide accuracy ranges. Typically, engineering is 10% to 40% complete. They are typically used for project screening, determination of feasibility, concept evaluation, and preliminary budget approval. Virtually all Class 4 estimates use stochastic estimating methods such as cost curves, capacity factors, and other parametric and modeling techniques. Expected accuracy ranges are from –15% to –30% on the low side and +20% to 50% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances.

ATTACHMENT 2

MODIFIED 2019 RECLAMATION DESIGN OPINION OF COST

General Electric - UNC

St Anthony Mine

2019 Modified Design Cost Estimate - Rev F7a - 14 January 2020

Estimate Summary

		14 January 2020		REV F7

Item No.	Description	Quantity		Total Cost	Cost Per Unit	Working Days
1.0	General Project Support	Quantity		Total Cost	Cost Per Unit	Working Days
		1	LS	$ 5,424,338	$ 5,424,338	16
2.0	Pit 1 Highwall Drill & Blast, TPP Stabilization of Existing Sediments	Quantity		Total Cost	Cost Per Unit	Working Days
		230,000	CY	$ 2,203,067	$ 9.58	52
3.0	Excavate & Haul 368,500 cy from Topsoil South Pile to Pit 2. Spread & Compact.	Quantity		Total Cost	Cost Per Unit	Work Days
		368,500	CY	$ 3,689,024	$ 10.01	57
4.0	Excavate & Haul 633,000 cy from Pile 5 to Pit 2. Spread & Compact.	Quantity		Total Cost	Cost Per Unit	Work Days
		633,000	CY	$ 6,328,045	$ 10.00	96
5.0	Excavate & Haul 83,500 cy from West Disturbance Area to Pit 2. Spread & Compact.	Quantity		Total Cost	Cost Per Unit	Work Days
		83,500	CY	$ 839,421	$ 10.05	14
6.0	Excavate & Haul 574,000 cy from Crusher Stockpile to Pit 2. Spread & Compact.	Quantity		Total Cost	Cost Per Unit	Work Days
		574,000	CY	$ 5,738,227	$ 10.00	87
7.0	Excavate & Haul 93,000 cy from Ore Storage 1 & 2, Shaft Access Road, & Mine Dump to Pit 2. Spread & Compact.	Quantity		Total Cost	Cost Per Unit	Work Days
		93,000	CY	$ 1,075,578	$ 11.57	15
8.0	Excavate & Haul 427,500 cy from Surface Excavation to Pit 2. Excavations Throughout the Site (ground excavations, not from piles)	Quantity		Total Cost	Cost Per Unit	Work Days
		427,500	CY	$ 4,279,669	$ 10.01	66
9.0	Excavate 217,500 cy from Surface Excavation, Consolidate into One Area & Grade into New Pile	Quantity		Total Cost	Cost Per Unit	Work Days
		217,500	CY	$ 2,155,382	$ 9.91	34
10.0	Re-Grade Surface 2,690,566 cy of Material In-Place. This is Material Currently in Stockpiles that will be Re-Shaped.	Quantity		Total Cost	Cost Per Unit	Work Days
		2,690,566	CY	$ 2,522,301	$ 0.94	120
11.0	Excavate 465000 cy from Lobo Tract Borrow Area, Haul to Re-Graded-in-Place Piles, Compact as Cover Surface	Quantity		Total Cost	Cost Per Unit	Work Days
		465,000	CY	$ 5,117,028	$ 11.00	75

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Item No.	Description	Quantity		Total Cost	Cost Per Unit	Working Days
12.0	Final Grading of 185 Acres of the Re-Graded-in-Place Piles	Quantity		Total Cost	Cost Per Unit	Work Days
		185	AC	$ 187,758	$ 1,015	16
13.0	Excavate 103,000 cy from West Borrow Area, Haul to Pit 2, Spread & Compact as Cover Surface	Quantity		Total Cost	Cost Per Unit	Work Days
		103,000	CY	$ 1,326,971	$ 12.88	31
14.0	Re-Grade Surface 391,111 cy of the Material Left in Place (16,559,844 cy) in Stockpile #4.	Quantity		Total Cost	Cost Per Unit	Work Days
		391,111	CY	$ 448,895	$ 1.15	20
15.0	Excavate 331,200 cy from West Borrow Area, Haul to Re-Graded Pile 4, Spread & Compact as Cover Surface	Quantity		Total Cost	Cost Per Unit	Work Days
		331,200	CY	$ 4,614,351	$ 13.93	59
16.0	Excavate 594,500 cy from Lobo Tract Borrow Area, Haul to Re-Graded Pile 4, Spread & Compact as Cover Surface	Quantity		Total Cost	Cost Per Unit	Work Days
		594,500	CY	$ 8,237,753	$ 13.86	93
17.0	Regrade 129072 cy of Borrow area after Borrow Material Excavations are Complete	Quantity		Total Cost	Cost Per Unit	Work Days
		129,072	CY	$ 207,613	$ 1.61	18
18.0	Re-Grade 84,133 cy of Pit #1 Infill Material. This is Material Currently in Piles on the Floor of Pit #1.	Quantity		Total Cost	Cost Per Unit	Work Days
		84,133	CY	$ 135,328	$ 1.61	12
19.0	Regrade 116500 cy of Pile 3 Material left in Place (Final Area is 24 Acres)	Quantity		Total Cost	Cost Per Unit	Work Days
		116,500	CY	$ 187,391	$ 1.61	16
20.0	Excavate 38720 cy from West Borrow Area, Haul to Re-Graded Pile 3, Spread & Compact as Cover Surface(Final Area is 24 Acres)	Quantity		Total Cost	Cost Per Unit	10.74673677
		38,720	CY	$ 520,051	$ 13.43	17
21.0	Stormwater Conveyance Channel (SP4)	Quantity		Total Cost	Cost Per Unit	Work Days
		26,738	CY	$ 798,916	$ 29.88	46
22.0	Armored Downdrain Channel (DD)	Quantity		Total Cost	Cost Per Unit	Work Days
		12,884	CY	$ 358,885	$ 27.86	18

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Item No.	Description	Quantity		Total Cost	Cost Per Unit	Working Days
23.0	Stormwater Drainage Channels	Quantity		Total Cost	Cost Per Unit	Work Days
		394,523	CY	$ 5,153,964	$ 13.06	109
24.1	Quality Assurance & Quality Control	Quantity		Total Cost	Cost Per Unit	
		36	MN	$ 1,786,853	$ 49,635	
24.2	Remedial Action Radiologic Support	Quantity		Total Cost	Cost Per Unit	
		36	MN	$ 2,337,994	$ 64,944	
24.3	Radiation Protection & Perimeter Radiologic Air Monitoring Plan	Quantity		Total Cost	Cost Per Unit	
		36	MN	$ -	$ -	
24.4	Monthly Monitoring & Maintenance of Access Roads	Quantity		Total Cost	Cost Per Unit	
		120	UN	$ -	$ -	
	Total Direct Cost			**$ 68,334,367.38**	**Days**	**1085**
					Years	**3.0**
					Months	**36**
25.0	Indirect Owner Costs	Quantity		Total Cost		
		1	LS	$ 6,899,825		
	Total Indirect Cost			**$ 6,899,825**		
	Total Project Cost*			**$ 75,234,192**		
	Total Project Cost -30%			**$ 52,663,934**		
	Total Project Cost +50%			**$ 112,851,288**		

***Does not include contingency or escalation.**

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Item No.	Description	Quantity		Total Cost	Cost Per Unit	Working Days

AACE International **CLASS 4 Cost Estimate –** Class 4 estimates are generally prepared based on limited information and subsequently have fairly wide accuracy ranges. Typically, engineering is 10% to 40% complete. They are typically used for project screening, determination of feasibility, concept evaluation, and preliminary budget approval. Virtually all Class 4 estimates use stochastic estimating methods such as cost curves, capacity factors, and other parametric and modeling techniques. Expected accuracy ranges are from –15% to –30% on the low side and +20% to 50% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances.

Stantec OPCC Disclaimer – Any opinions of probable construction costs (“OPCC”) prepared by Stantec, including evaluations of Client’s project budget, represent Stantec’s best judgment as a design professional familiar with the construction industry. Unless and to the extent otherwise indicated by Stantec, such opinions or evaluations are based upon current market rates for labor, materials and equipment. The Client acknowledges that Stantec has no control over the costs of labor, materials or equipment, construction contractor’s methods of determining bid prices, competitive bidding environments, unidentified field conditions, market conditions, inflation or any other factors that may affect the OPCC, the project budget or negotiating conditions at the time of execution of the construction contract. Furthermore, this OPCC is based on stable market conditions that exhibit predictable supply/demand relationships and does not attempt to capture the impacts of hyper-inflationary or deflationary market cycles. Client further acknowledges that the OPCC is a "snapshot in time" and that the reliability of the OPCC will degrade over time. Accordingly, Stantec cannot and does not warrant or represent that construction bids or negotiated construction prices will not vary from Client’s project budget or Stantec's good faith Class 4 OPCC.

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Scope #	Description	Cubic Yards of Material	Distance to haul One-Way - Feet	M.P.H.	Depth of fill - Feet	Final Grading - Acre	Compaction - Sq. Yards	Calculation QTY	
1.0	**General Project Support**								
1.1	Mobilization Demobilization - Allowance							1	LS
1.2	Fencing - Perimeter & Signage - Allowance							36,360	LF
1.3	Fencing - Permanent Cattle Fence (Pit 1)							6,360	LF
1.4	Site Facilities - Allowance							36	MO
1.5	Revegetation (Seeding of Disturbed Areas)							249	AC
1.6	Contractor Management & Administration							36	MO
2.0	**Pit 1 Highwall Drill & Blast, TPP Stabilization of Existing Sediments**	**230000.0**							
2.1	Drilling & Blasting	230,000						230,000	CY
2.2	Stripping Material into Pit	230,000						230,000	CY
2.3	Grading & Leveling	230,000						230,000	CY
2.4	TPP Stabilization of Existing Sediments (Allowance)							1	LS
2.5	item								UN
3.0	**Excavate & Haul 368,500 cy from Topsoil South Pile to Pit 2. Spread & Com**	**368500.0**	**3960.0**	**10.0**	**20.0**	**11.4**	**55275.0**		
3.1	Excavation, loading, & hauling of Materials	368,500	3960	10				368,500	CY
3.2	Backfill & leveling in Pit	368,500						368,500	CY
3.3	Grading				20	11		11	AC
3.4	Compaction						55,275	55,275	SY
3.5	Dust Control During Earth Movement Activities							57	DY
4.0	**Excavate & Haul 633,000 cy from Pile 5 to Pit 2. Spread & Compact.**	**633000.0**	**4910.4**	**17.0**	**20.0**	**19.6**	**94950.0**		
4.1	Excavation, loading, & hauling of Materials	633,000	4910	17				633,000	CY
4.2	Backfill & leveling in Pit	633,000						633,000	CY
4.3	Grading				20	20		20	AC
4.4	Compaction						94,950	94,950	SY
4.5	Dust Control During Earth Movement Activities							96	DY
5.0	**Excavate & Haul 83,500 cy from West Disturbance Area to Pit 2. Spread & (**	**83500.0**	**3484.8**	**15.0**	**20.0**	**2.6**	**12525.0**		
5.1	Excavation, loading, & hauling of Materials	83,500	3485	15				83,500	CY
5.2	Backfill & leveling in Pit	83,500						83,500	CY
5.3	Grading				20	3		3	AC
5.4	Compaction						12,525	12,525	SY
5.5	Dust Control During Earth Movement Activities							14	DY
6.0	**Excavate & Haul 574,000 cy from Crusher Stockpile to Pit 2. Spread & Comp**	**574000.0**	**5755.2**	**17.0**	**20.0**	**17.8**	**86100.0**		
6.1	Excavation, loading, & hauling of Materials	574,000	5755	17				574,000	CY
6.2	Backfill & leveling in Pit	574,000						574,000	CY
6.3	Grading				20	18		18	AC
6.4	Compaction						86,100	86,100	SY
6.5	Dust Control During Earth Movement Activities							87	DY
7.0	**Excavate & Haul 93,000 cy from Ore Storage 1 & 2, Shaft Access Road, & M**	**93000.0**	**10824.0**	**12.0**	**20.0**	**2.9**	**13950.0**		
7.1	Excavation, loading, & hauling of Materials	93,000	10824	12				93,000	CY
7.2	Backfill & leveling in Pit	93,000						93,000	CY
7.3	Grading				20	3		3	AC
7.4	Compaction						13,950	13,950	SY
7.5	Dust Control During Earth Movement Activities							15	DY
8.0	**Excavate & Haul 427,500 cy from Surface Excavation to Pit 2. Excavations T**	**427500.0**	**7233.6**	**13.0**	**20.0**	**13.2**	**64125.0**		
8.1	Excavation, loading, & hauling of Materials	427,500	7234	13				427,500	CY
8.2	Backfill & leveling	427,500						427,500	CY
8.3	Grading				20	13		13	AC
8.4	Compaction						64,125	64,125	SY

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8.5	Dust Control During Earth Movement Activities							66	DY
9.0	**Excavate 217,500 cy from Surface Excavation, Consolidate into One Area &**	**217500.0**	**7233.6**	**13.0**	**10.0**	**13.5**	**65250.0**		
9.1	Excavation, loading, & hauling of Materials	217,500	7234	13				217,500	CY
9.2	Backfill & leveling	217,500						217,500	CY
9.3	Grading				10	13		13	AC
9.4	Compaction						65,250	65,250	SY
9.5	Dust Control During Earth Movement Activities							34	DY
10.0	**Re-Grade Surface 2,690,566 cy of Material In-Place. This is Material Curren**	**2,690,566**	**0.0**	**0.0**	**4.0**	**104.2**	**2017924.5**		
10.1	Earthmoving & leveling of piles	2,690,566	0	0	4.0			2,690,566	CY
10.2	Grading				4.0	104		104	AC
10.3	Compaction						2,017,925	2,017,925	SY
10.4	Dust Control During Earth Movement Activities							120	DY
10.5	Item								UN
11.0	**Excavate 465000 cy from Lobo Tract Borrow Area, Haul to Re-Graded-in-Place Piles, Compact as Cover Surface**	**465,000**	**7233.6**	**13.0**	**2.0**	**144.1**	**697500.0**		
11.1	Excavation, loading, & hauling of Materials	465,000	7234	13.0				465,000	CY
11.2	Backfill & leveling	465,000						465,000	CY
11.3	Grading				2.0	144		144	AC
11.4	Compaction						697,500	697,500	SY
11.5	Dust Control During Earth Movement Activities							75	DY
12.0	**Final Grading of 185 Acres of the Re-Graded-in-Place Piles**		**0.0**	**0.0**	**0.0**	**185.0**	**2409035.5**		
12.1	Final Grading					185		185	AC
12.2	Dust Control During Earth Movement Activities							16	DY
12.3	item						2,409,036	2,409,036	UN
12.4	item								UN
12.5	item								UN
13.0	**Excavate 103,000 cy from West Borrow Area, Haul to Pit 2, Spread & Comp**	**103000.0**	**6283.2**	**12.0**	**1.0**	**63.8**	**309000.0**		
13.1	Excavation, loading, & hauling of Materials	103,000	6283	12.0				103,000	CY
13.2	Backfill & leveling in Pit	103,000						103,000	CY
13.3	Grading				1.0	64		64	AC
13.4	Compaction						309,000	309,000	SY
13.5	Dust Control During Earth Movement Activities							31	DY
14.0	**Re-Grade Surface 391,111 cy of the Material Left in Place (16,559,844 cy) in**	**391,111**	**0.0**	**0.0**	**3.0**	**80.8**	**391,111.00**		
14.1	Earthmoving & leveling on Pile #4	391,111	0	0	3.0			391,111	CY
14.2	item				3.0	81		81	AC
14.3	Compaction on Pile #4						391,111	391,111	SY
14.4	Dust Control During Earth Movement Activities							20	DY
14.5	Item							-	UN
15.0	**Excavate 331,200 cy from West Borrow Area, Haul to Re-Graded Pile 4, Spr**	**331200.0**	**7708.8**	**10.0**	**1.0**	**205.3**	**993600.0**		
15.1	Excavation, loading, & hauling of Materials	331,200	7709	10.0				331,200	CY
15.2	Backfill & leveling	331,200						331,200	CY
15.3	Grading				1.0	205		205	AC
15.4	Compaction						993,600	993,600	SY
15.5	Dust Control During Earth Movement Activities							59	DY
16.0	**Excavate 594,500 cy from Lobo Tract Borrow Area, Haul to Re-Graded Pile**	**594500.0**	**9662.4**	**10.0**	**1.0**	**368.5**	**1783500.0**		
16.1	Excavation, loading, & hauling of Materials	594,500	9662	10				594,500	CY
16.2	Backfill & leveling	594,500						594,500	CY
16.3	Grading				1	368.47		368	AC
16.4	Compaction						1,783,500	1,783,500	SY

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16.5	Dust Control During Earth Movement Activities							93	DY
17.0	**Regrade 129072 cy of Borrow area after Borrow Material Excavations are C**	**129072.0**	**0.0**	**0.0**	**3.0**	**27**	**129072.0**		
17.1	Earthmoving & leveling	129,072	0	0				129,072	CY
17.2	Final Grading				3	27		27	AC
17.3	Compaction						129,072	129,072	SY
17.4	Dust Control During Earth Movement Activities							18	DY
17.5	Item							-	UN
18.0	**Re-Grade 84,133 cy of Pit #1 Infill Material. This is Material Currently in Pil**	**84133.0**	**0.0**	**0.0**	**3.0**	**17**	**84133.0**		
18.1	Earthmoving & leveling in Pit	84,133	0	0				84,133	CY
18.2	Final Grading in Pit				3.0	17		17	AC
18.3	Compaction in Pit						84,133	84,133	SY
18.4	Dust Control During Earth Movement Activities							12	DY
18.5	Item								UN
19.0	**Regrade 116500 cy of Pile 3 Material left in Place (Final Area is 24 Acres)**	**116500.0**	**0.0**	**0.0**	**3.0**	**24**	**116500.0**		
19.1	Earthmoving & leveling	116,500						116,500	CY
19.2	Grading				3.0	24.07		24	AC
19.3	Compaction						116,500	116,500	SY
19.4	Dust Control During Earth Movement Activities							16	DY
19.5	Item								UN
20.0	**Excavate 38720 cy from West Borrow Area, Haul to Re-Graded Pile 3, Sprea**	**38720.0**	**9662.4**	**10.0**	**1.0**	**24.0**	**116160.0**		
20.1	Excavation, loading, & hauling of Materials	38,720	9662	10.0				38,720	CY
20.2	Backfill & leveling	38,720						38,720	CY
20.3	Grading				1.0	24		24	AC
20.4	Compaction						116,160	116,160	SY
20.5	Dust Control During Earth Movement Activities							2	DY
21.0	**Stormwater Conveyance Channel (SP4)**								
21.1	Excavation of Stormwater Conveyance Channel							26,738	CY
21.2	Grading of Stormwater Conveyance Channel							8	AC
21.3	Compaction of Stormwater Conveyance Channel							37,634	SY
21.4	Placement of Filter Layer							7,874	CY
21.5	Placing of Rip Rap - D50 6"							7,874	CY
21.6	Dust Control During Earth Movement Activities							46	DY
22.0	**Armored Downdrain Channel (DD)**								
22.1	Excavation of Armored Downdrain Channel							12,884	CY
22.2	Grading of Armored Downdrain Channel							2	AC
22.3	Compaction of Armored Downdrain Channel							9,094	SY
22.4	Placement of Filter Layer							3,031	CY
22.5	Placing of Rip Rap - D50 9"							4,547	CY
22.6	Dust Control During Earth Movement Activities							18	DY
23.0	**Stormwater Drainage Channels**	**These quantities are from the estimate "233001363_St-Anthony_drainage-features_rev-B_03OCT2019"**							
23.1	Meyer's Gulch Arroyo Stabilization	325,304				25	122044	325,304	CY
23.2	Pit 1 North Diversion Channel	32,267				3.31	16000	32,267	CY
23.3	Pit 1 South Diversion Channel	21,485				2.85	13778	21,485	CY
23.4	Pit 2 Diversion Channel	8,356				1.85	8976	8,356	CY
23.5	East Tributary Channel Armoring	7,111				1.47	7111	7,111	CY
23.6	Dust Control During Earth Movement Activities								DY
24.0	**Monitoring, Testing, & Verification Controls**								
24.1	**Quality Assurance & Quality Control**								
24.1.1	Labor Personnel & administration							36	MN

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21.1.2	Lab Testing costs - Soil Testing							1	LS
24.1.3	Lab Testing costs - Rock Testing							1	LS
24.1.4	Monthly Lodging & Expenses							36	MN
24.1.5	item								UN
24.2	**Remedial Action Radiologic Support**								
24.2.1	Labor Personnel & administration							36	MN
24.2.2	Project Management							36	MN
24.2.3	Equipment, Supplies, Fees & Expenses							36	MN
24.2.4	Monthly Lodging & Expenses							1	LS
24.2.5	item								UN
24.3	**Radiation Protection & Perimeter Radiologic Air Monitoring Plan**								
24.3.1	Labor Personnel & administration							36	MN
24.3.2	Equipment, Supplies, Fees & Expenses							36	MN
24.3.3	Monthly Lodging & Expenses							1	LS
24.3.4	item								UN
24.3.5	item								UN
24.4	**Monthly Monitoring & Maintenance of Access Roads**								
24.4.1	Monthly Inspection of Site							120	MN
24.4.2	Maintenance of Access Roads							120	MN
24.4.3	item								UN
24.4.4	item								UN
24.4.5	item								UN
25.0	**Indirect Owner Costs**		**0.0**	**0.0**	**0.0**	**80.0**			
25.1	Engineering and Construction Management							2.00%	%
25.2	Overtime Adjustment							16.67%	%
25.3	Contract Bond							0.64%	%
25.4	Contractor Insurance							1.50%	%
25.5	item								UN

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Cost Estimate Spreadsheet

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Item No.	**Description**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
1.0	**General Project Support**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
1.1	Mobilization Demobilization - Allowance	1	LS		$ -		$ -	$ -	$ -	$ -	$ 418,162.92	$ 418,162.92
1.2	Fencing - Perimeter & Signage - Allowance	36,360	LF	$ 22.71	$ 825,735.60		$ -	$ 6.04	$ 219,614.40	$ 1,045,350.00	$ 6,000.00	$ 1,051,350.00
1.3	Fencing - Permanent Cattle Fence (Pit 1)	6,360	LF	$ 22.71	$ 144,435.60		$ -	$ 6.04	$ 38,414.40	$ 182,850.00	$ 1,400.00	$ 184,250.00
1.4	Site Facilities - Allowance	36	MO	$ 29,960.38	$ 1,069,137.65		$ -	$ -	$ -	$ 1,069,137.65	$ 170,009.81	$ 1,239,147.45
1.5	Revegetation (Seeding of Disturbed Areas)	249	AC	$ 908.41	$ 226,193.76	$ 908.41	$ 226,193.76	$ 908.41	$ 226,193.76	$ 678,581.27		$ 678,581.27
1.6	Contractor Management & Administration	36	MO	$ 51,922.20	$ 1,852,846.41		$ -	$ -	$ -	$ 1,852,846.41		$ 1,852,846.41
			Sub-total		$ 4,118,349.01		$ 226,193.76		$ 484,222.56	$ 4,828,765.33	$ 595,572.72	$ 5,424,338.05
	Contingency	15%										$ 813,651
2.0	**Pit 1 Highwall Drill & Blast, TPP Stabilization of Existing Sediments**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
2.1	Drilling & Blasting	230,000	CY	$ 2.97	$ 683,938.68	$ 2.31	$ 531,952.31	$ 1.32	$ 303,972.75	$ 1,519,863.74		$ 1,519,863.74
2.2	Stripping Material into Pit	230,000	CY	$ 0.28	$ 63,264.84	$ 0.75	$ 172,265.83		$ -	$ 235,530.66		$ 235,530.66
2.3	Grading & Leveling	230,000	CY	$ 0.07	$ 17,057.22	$ 0.13	$ 30,615.72		$ -	$ 47,672.94		$ 47,672.94
2.4	TPP Stabilization of Existing Sediments (Allowance)	1	LS		$ -		$ -		$ -	$ -	$ 400,000.00	$ 400,000.00
2.5	item	-	UN		$ -		$ -		$ -	$ -		$ -
			Sub-total		$ 764,260.74		$ 734,833.85		$ 303,972.75	$ 1,803,067.34	$ -	$ 2,203,067.34
	Contingency	40%										$ 881,227
3.0	**Excavate & Haul 368,500 cy from Topsoil South Pile to Pit 2. Spread & Compact.**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
3.1	Excavation, loading, & hauling of Materials	368,500	CY	$ 2.01	$ 741,813.44	$ 6.85	$ 2,522,885.20	$ -	$ -	$ 3,264,698.63		$ 3,264,698.63
3.2	Backfill & leveling in Pit	368,500	CY	$ 0.07	$ 27,328.64	$ 0.13	$ 49,051.70	$ -	$ -	$ 76,380.34		$ 76,380.34
3.3	Grading	11	AC	$ 183.20	$ 2,092.17	$ 516.30	$ 5,896.06	$ -	$ -	$ 7,988.23		$ 7,988.23
3.4	Compaction	55,275	SY	$ 0.71	$ 39,370.27	$ 1.68	$ 92,665.99	$ -	$ -	$ 132,036.26		$ 132,036.26
3.5	Dust Control During Earth Movement Activities	57	DY	$ 1,502.56	$ 85,757.02	$ 2,140.45	$ 122,163.83	$ -	$ -	$ 207,920.84		$ 207,920.84
			Sub-total		$ 896,361.52		$ 2,792,662.77		$ -	$ 3,689,024.30	$ -	$ 3,689,024.30
	Contingency	9%										$ 332,012
4.0	**Excavate & Haul 633,000 cy from Pile 5 to Pit 2. Spread & Compact.**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
4.1	Excavation, loading, & hauling of Materials	633,000	CY	$ 2.01	$ 1,274,268.40	$ 6.85	$ 4,333,748.52	$ -	$ -	$ 5,608,016.92		$ 5,608,016.92
4.2	Backfill & leveling in Pit	633,000	CY	$ 0.07	$ 46,944.44	$ 0.13	$ 84,259.77	$ -	$ -	$ 131,204.22		$ 131,204.22
4.3	Grading	20	AC	$ 183.20	$ 3,593.87	$ 516.30	$ 10,128.10	$ -	$ -	$ 13,721.97		$ 13,721.97
4.4	Compaction	94,950	SY	$ 0.71	$ 67,629.25	$ 1.68	$ 159,179.30	$ -	$ -	$ 226,808.55		$ 226,808.55
4.5	Dust Control During Earth Movement Activities	96	DY	$ 1,502.56	$ 143,653.65	$ 2,140.45	$ 204,639.57	$ -	$ -	$ 348,293.22		$ 348,293.22
			Sub-total		$ 1,536,089.61		$ 4,791,955.27		$ -	$ 6,328,044.88	$ -	$ 6,328,044.88
	Contingency	9%										$ 569,524
5.0	**Excavate & Haul 83,500 cy from West Disturbance Area to Pit 2. Spread & Compact.**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
5.1	Excavation, loading, & hauling of Materials	83,500	CY	$ 2.01	$ 168,090.70	$ 6.85	$ 571,671.41	$ -	$ -	$ 739,762.11		$ 739,762.11
5.2	Backfill & leveling in Pit	83,500	CY	$ 0.07	$ 6,192.51	$ 0.13	$ 11,114.84	$ -	$ -	$ 17,307.35		$ 17,307.35
5.3	Grading	3	AC	$ 183.20	$ 474.07	$ 516.30	$ 1,336.01	$ -	$ -	$ 1,810.09		$ 1,810.09
5.4	Compaction	12,525	SY	$ 0.71	$ 8,921.08	$ 1.68	$ 20,997.59	$ -	$ -	$ 29,918.66		$ 29,918.66
5.5	Dust Control During Earth Movement Activities	14	DY	$ 1,502.56	$ 20,879.49	$ 2,140.45	$ 29,743.55	$ -	$ -	$ 50,623.03		$ 50,623.03
			Sub-total		$ 204,557.85		$ 634,863.39		$ -	$ 839,421.24	$ -	$ 839,421.24
	Contingency	9%										$ 75,548

General Electric - UNC

St Anthony Mine

2019 Modified Design Cost Estimate - Rev F7a - 14 January 2020

Cost Estimate Spreadsheet

										14 January 2020		REV F7
Item No.	**Description**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
6.0	**Excavate & Haul 574,000 cy from Crusher Stockpile to Pit 2. Spread & Compact.**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
6.1	Excavation, loading, & hauling of Materials	574,000	CY	$ 2.01	$ 1,155,497.73	$ 6.85	$ 3,929,813.03	$ -	$ -	$ 5,085,310.76		$ 5,085,310.76
6.2	Backfill & leveling in Pit	574,000	CY	$ 0.07	$ 42,568.89	$ 0.13	$ 76,406.18	$ -	$ -	$ 118,975.07		$ 118,975.07
6.3	Grading	18	AC	$ 183.20	$ 3,258.90	$ 516.30	$ 9,184.09	$ -	$ -	$ 12,442.99		$ 12,442.99
6.4	Compaction	86,100	SY	$ 0.71	$ 61,325.74	$ 1.68	$ 144,342.68	$ -	$ -	$ 205,668.42		$ 205,668.42
6.5	Dust Control During Earth Movement Activities	87	DY	$ 1,502.56	$ 130,264.13	$ 2,140.45	$ 185,565.74	$ -	$ -	$ 315,829.87		$ 315,829.87
			Sub-total		$ 1,392,915.38		$ 4,345,311.73		$ -	$ 5,738,227.11	$ -	$ 5,738,227.11
	Contingency	9%										$ 516,440
7.0	**Excavate & Haul 93,000 cy from Ore Storage 1 & 2, Shaft Access Road, & Mine Dump to Pit 2. Spread & Compact.**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
7.1	Excavation, loading, & hauling of Materials	93,000	CY	$ 2.28	$ 212,435.92	$ 8.09	$ 752,144.54	$ -	$ -	$ 964,580.46		$ 964,580.46
7.2	Backfill & leveling in Pit	93,000	CY	$ 0.07	$ 6,897.05	$ 0.13	$ 12,379.40	$ -	$ -	$ 19,276.45		$ 19,276.45
7.3	Grading	3	AC	$ 183.20	$ 528.01	$ 516.30	$ 1,488.02	$ -	$ -	$ 2,016.02		$ 2,016.02
7.4	Compaction	13,950	SY	$ 0.71	$ 9,936.05	$ 1.68	$ 23,386.53	$ -	$ -	$ 33,322.58		$ 33,322.58
7.5	Dust Control During Earth Movement Activities	15	DY	$ 1,502.56	$ 23,255.00	$ 2,140.45	$ 33,127.54	$ -	$ -	$ 56,382.54		$ 56,382.54
			Sub-total		$ 253,052.02		$ 822,526.03		$ -	$ 1,075,578.05	$ -	$ 1,075,578.05
	Contingency	9%										$ 96,802
8.0	**Excavate & Haul 427,500 cy from Surface Excavation to Pit 2. Excavations Throughout the Site (ground excavations, not from piles)**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
8.1	Excavation, loading, & hauling of Materials	427,500	CY	$ 2.01	$ 860,584.11	$ 6.85	$ 2,926,820.68	$ -	$ -	$ 3,787,404.79		$ 3,787,404.79
8.2	Backfill & leveling	427,500	CY	$ 0.07	$ 31,704.18	$ 0.13	$ 56,905.30	$ -	$ -	$ 88,609.48		$ 88,609.48
8.3	Grading	13	AC	$ 183.20	$ 2,427.14	$ 516.30	$ 6,840.07	$ -	$ -	$ 9,267.21		$ 9,267.21
8.4	Compaction	64,125	SY	$ 0.71	$ 45,673.78	$ 1.68	$ 107,502.61	$ -	$ -	$ 153,176.39		$ 153,176.39
8.5	Dust Control During Earth Movement Activities	66	DY	$ 1,502.56	$ 99,487.45	$ 2,140.45	$ 141,723.30	$ -	$ -	$ 241,210.75		$ 241,210.75
			Sub-total		$ 1,039,876.66		$ 3,239,791.96		$ -	$ 4,279,668.62	$ -	$ 4,279,668.62
	Contingency	9%										$ 385,170
9.0	**Excavate 217,500 cy from Surface Excavation, Consolidate into One Area & Grade into New Pile**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
9.1	Excavation, loading, & hauling of Materials	217,500	CY	$ 2.01	$ 437,841.04	$ 6.85	$ 1,489,084.21	$ -	$ -	$ 1,926,925.24		$ 1,926,925.24
9.2	Backfill & leveling	217,500	CY	$ 0.07	$ 16,130.20	$ 0.13	$ 28,951.82	$ -	$ -	$ 45,082.02		$ 45,082.02
9.3	Grading	13	AC	$ 183.20	$ 2,469.72	$ 516.30	$ 6,960.07	$ -	$ -	$ 9,429.79		$ 9,429.79
9.4	Compaction	65,250	SY	$ 0.21	$ 13,935.45	$ 0.54	$ 35,466.02	$ -	$ -	$ 49,401.47		$ 49,401.47
9.5	Dust Control During Earth Movement Activities	34	DY	$ 1,502.56	$ 51,368.18	$ 2,140.45	$ 73,175.74	$ -	$ -	$ 124,543.92		$ 124,543.92
			Sub-total		$ 521,744.59		$ 1,633,637.86		$ -	$ 2,155,382.44	$ -	$ 2,155,382.44
	Contingency	9%										$ 193,984
10.0	**Re-Grade Surface 2,690,566 cy of Material In-Place. This is Material Currently in Stockpiles that will be Re-Shaped.**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
10.1	Earthmoving & leveling of piles	2,690,566	CY	$ 0.07	$ 199,537.31	$ 0.13	$ 358,146.11	$ -	$ -	$ 557,683.41		$ 557,683.41
10.2	Grading	104	AC	$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -
10.3	Compaction	2,017,925	SY	$ 0.21	$ 430,968.36	$ 0.54	$ 1,096,823.80	$ -	$ -	$ 1,527,792.16		$ 1,527,792.16
10.4	Dust Control During Earth Movement Activities	120	DY	$ 1,502.56	$ 180,168.69	$ 2,140.45	$ 256,656.51	$ -	$ -	$ 436,825.20		$ 436,825.20
10.5	Item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
			Sub-total		$ 810,674.36		$ 1,711,626.42		$ -	$ 2,522,300.77	$ -	$ 2,522,300.77
	Contingency	8%										$ 201,784

Stantec

Cost Estimate Spreadsheet

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Item No.	Description	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
11.0	**Excavate 465000 cy from Lobo Tract Borrow Area, Haul to Re-Graded-in-Place Piles, Compact as Cover Surface**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
11.1	Excavation, loading, & hauling of Materials	465,000	CY	$ 2.01	$ 936,073.94	$ 6.85	$ 3,183,559.34	$ -	$ -	$ 4,119,633.28		$ 4,119,633.28
11.2	Backfill & leveling	465,000	CY	$ 0.07	$ 34,485.25	$ 0.13	$ 61,896.99	$ -	$ -	$ 96,382.24		$ 96,382.24
11.3	Grading	144	AC	$ 183.20	$ 26,400.47	$ 516.30	$ 74,400.75	$ -	$ -	$ 100,801.22		$ 100,801.22
11.4	Compaction	697,500	SY	$ 0.21	$ 148,965.15	$ 0.54	$ 379,119.54	$ -	$ -	$ 528,084.69		$ 528,084.69
11.5	Dust Control During Earth Movement Activities	75	DY	$ 1,502.56	$ 112,238.56	$ 2,140.45	$ 159,887.71	$ -	$ -	$ 272,126.27		$ 272,126.27
			Sub-total		$ 1,258,163.38		$ 3,858,864.32		$ -	$ 5,117,027.70	$ -	$ 5,117,027.70
	Contingency	9%										$ 460,532
12.0	**Final Grading of 185 Acres of the Re-Graded-in-Place Piles**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
12.1	Final Grading	185	AC	$ 183.20	$ 33,892.57	$ 516.30	$ 95,514.68	$ -	$ -	$ 129,407.25		$ 129,407.25
12.2	Dust Control During Earth Movement Activities	16	DY	$ 1,502.56	$ 24,066.96	$ 2,140.45	$ 34,284.21		$ -	$ 58,351.17		$ 58,351.17
12.3	item	-	UN									
12.4	item	-	UN									
12.5	item	-	UN									
			Sub-total		$ 57,959.53		$ 129,798.90		$ -	$ 187,758.42	$ -	$ 187,758.42
	Contingency	8%										$ 15,021
13.0	**Excavate 103,000 cy from West Borrow Area, Haul to Pit 2, Spread & Compact as Cover Surface**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
13.1	Excavation, loading, & hauling of Materials	103,000	CY	$ 2.01	$ 207,345.41	$ 6.85	$ 705,175.51	$ -	$ -	$ 912,520.92		$ 912,520.92
13.2	Backfill & leveling in Pit	103,000	CY	$ 0.07	$ 7,638.67	$ 0.13	$ 13,710.52	$ -	$ -	$ 21,349.19		$ 21,349.19
13.3	Grading	64	AC	$ 183.20	$ 11,695.69	$ 516.30	$ 32,960.33	$ -	$ -	$ 44,656.02		$ 44,656.02
13.4	Compaction	309,000	SY	$ 0.21	$ 65,993.16	$ 0.54	$ 167,954.03	$ -	$ -	$ 233,947.20		$ 233,947.20
13.5	Dust Control During Earth Movement Activities	31	DY	$ 1,502.56	$ 47,224.52	$ 2,140.45	$ 67,272.95	$ -	$ -	$ 114,497.47		$ 114,497.47
			Sub-total		$ 339,897.45		$ 987,073.34		$ -	$ 1,326,970.80	$ -	$ 1,326,970.80
	Contingency	9%										$ 119,427
14.0	**Re-Grade Surface 391,111 cy of the Material Left in Place (16,559,844 cy) in Stockpile #4.**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
14.1	Earthmoving & leveling on Pile #4	391,111	CY	$ 0.07	$ 29,005.51	$ 0.13	$ 52,061.49	$ -	$ -	$ 81,067.00		$ 81,067.00
14.2	item	81	AC	$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -
14.3	Compaction on Pile #4	391,111	SY	$ 0.21	$ 83,529.62	$ 0.54	$ 212,584.69	$ -	$ -	$ 296,114.31		$ 296,114.31
14.4	Dust Control During Earth Movement Activities	20	DY	$ 1,502.56	$ 29,578.16	$ 2,140.45	$ 42,135.11	$ -	$ -	$ 71,713.27		$ 71,713.27
14.5	Item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
			Sub-total		$ 142,113.29		$ 306,781.29		$ -	$ 448,894.58	$ -	$ 448,894.58
	Contingency	8%										$ 35,912
15.0	**Excavate 331,200 cy from West Borrow Area, Haul to Re-Graded Pile 4, Spread & Compact as Cover Surface**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
15.1	Excavation, loading, & hauling of Materials	331,200	CY	$ 2.28	$ 756,545.98	$ 8.09	$ 2,678,605.07	$ -	$ -	$ 3,435,151.04		$ 3,435,151.04
15.2	Backfill & leveling	331,200	CY	$ 0.07	$ 24,562.40	$ 0.13	$ 44,086.63	$ -	$ -	$ 68,649.03		$ 68,649.03
15.3	Grading	205	AC	$ 183.20	$ 37,607.89	$ 516.30	$ 105,985.07	$ -	$ -	$ 143,592.96		$ 143,592.96
15.4	Compaction	993,600	SY	$ 0.21	$ 212,203.26	$ 0.54	$ 540,061.89	$ -	$ -	$ 752,265.16		$ 752,265.16
15.5	Dust Control During Earth Movement Activities	59	DY	$ 1,502.56	$ 88,550.26	$ 2,140.45	$ 126,142.90	$ -	$ -	$ 214,693.15		$ 214,693.15
			Sub-total		$ 1,119,469.79		$ 3,494,881.56		$ -	$ 4,614,351.35	$ -	$ 4,614,351.35
	Contingency	9%										$ 415,292

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Cost Estimate Spreadsheet

										14 January 2020	REV F7	
Item No.	**Description**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
16.0	**Excavate 594,500 cy from Lobo Tract Borrow Area, Haul to Re-Graded Pile 4, Spread & Compact as Cover Surface**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
16.1	Excavation, loading, & hauling of Materials	594,500	CY	$ 2.28	$ 1,357,990.89	$ 8.09	$ 4,808,063.74	$ -	$ -	$ 6,166,054.64		$ 6,166,054.64
16.2	Backfill & leveling	594,500	CY	$ 0.07	$ 44,089.21	$ 0.13	$ 79,134.97	$ -	$ -	$ 123,224.18		$ 123,224.18
16.3	Grading	368	AC	$ 183.20	$ 67,505.72	$ 516.30	$ 190,241.92	$ -	$ -	$ 257,747.64		$ 257,747.64
16.4	Compaction	1,783,500	SY	$ 0.21	$ 380,902.29	$ 0.54	$ 969,404.58	$ -	$ -	$ 1,350,306.87		$ 1,350,306.87
16.5	Dust Control During Earth Movement Activities	93	DY	$ 1,502.56	$ 140,406.35	$ 2,140.45	$ 200,013.69	$ -	$ -	$ 340,420.04		$ 340,420.04
			Sub-total		$ 1,990,894.46		$ 6,246,858.90		$ -	$ 8,237,753.37	$ -	$ 8,237,753.37
	Contingency	9%										$ 741,398
17.0	**Regrade 129072 cy of Borrow area after Borrow Material Excavations are Complete**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
17.1	Earthmoving & leveling	129,072.00	CY	$ 0.07	$ 9,572.22	$ 0.13	$ 17,181.01	$ -	$ -	$ 26,753.22		$ 26,753.22
17.2	Final Grading	26.67	AC	$ 183.20	$ 4,885.39	$ 516.30	$ 13,767.82	$ -	$ -	$ 18,653.21		$ 18,653.21
17.3	Compaction	129,072.00	SY	$ 0.21	$ 27,565.92	$ 0.54	$ 70,155.87	$ -	$ -	$ 97,721.79		$ 97,721.79
17.4	Dust Control During Earth Movement Activities	17.70	DY	$ 1,502.56	$ 26,596.76	$ 2,140.45	$ 37,888.00	$ -	$ -	$ 64,484.76		$ 64,484.76
17.5	Item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
			Sub-total		$ 68,620.29		$ 138,992.69		$ -	$ 207,612.98	$ -	$ 207,612.98
	Contingency	8%										$ 16,609
18.0	**Re-Grade 84,133 cy of Pit #1 Infill Material. This is Material Currently in Piles on the Floor of Pit #1.**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
18.1	Earthmoving and leveling in Pit	84,133	CY	$ 0.07	$ 6,239.46	$ 0.13	$ 11,199.10	$ -	$ -	$ 17,438.55		$ 17,438.55
18.2	Final Grading in Pit	17	AC	$ 183.20	$ 3,184.45	$ 516.30	$ 8,974.28	$ -	$ -	$ 12,158.72		$ 12,158.72
18.3	Compaction in Pit	84,133	SY	$ 0.21	$ 17,968.29	$ 0.54	$ 45,729.70	$ -	$ -	$ 63,697.99		$ 63,697.99
18.4	Dust Control During Earth Movement Activities	12	DY	$ 1,502.56	$ 17,336.56	$ 2,140.45	$ 24,696.53	$ -	$ -	$ 42,033.10		$ 42,033.10
18.5	Item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
			Sub-total		$ 44,728.76		$ 90,599.60		$ -	$ 135,328.37	$ -	$ 135,328.37
	Contingency	8%										$ 10,826
19.0	**Regrade 116500 cy of Pile 3 Material left in Place (Final Area is 24 Acres)**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
19.1	Earthmoving & leveling	116,500	CY	$ 0.07	$ 8,639.85	$ 0.13	$ 15,507.53	$ -	$ -	$ 24,147.38		$ 24,147.38
19.2	Grading	24	AC	$ 183.20	$ 4,409.54	$ 516.30	$ 12,426.79	$ -	$ -	$ 16,836.33		$ 16,836.33
19.3	Compaction	116,500	SY	$ 0.21	$ 24,880.92	$ 0.54	$ 63,322.47	$ -	$ -	$ 88,203.39		$ 88,203.39
19.4	Dust Control During Earth Movement Activities	16	DY	$ 1,502.56	$ 24,006.15	$ 2,140.45	$ 34,197.59	$ -	$ -	$ 58,203.75		$ 58,203.75
19.5	Item	-	UN		$ -		$ -	$ -	$ -	$ -		$ -
			Sub-total		$ 61,936.47		$ 125,454.39		$ -	$ 187,390.85	$ -	$ 187,390.85
	Contingency	8%										$ 14,991
20.0	**Excavate 38720 cy from West Borrow Area, Haul to Re-Graded Pile 3, Spread & Compact as Cover Surface(Final Area is 24 Acres)**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
20.1	Excavation, loading, & hauling of Materials	38,720	CY	$ 2.28	$ 88,446.44	$ 8.09	$ 313,150.93	$ -	$ -	$ 401,597.37		$ 401,597.37
20.2	Backfill & leveling	38,720	CY	$ 0.07	$ 2,871.55	$ 0.13	$ 5,154.09	$ -	$ -	$ 8,025.64		$ 8,025.64
20.3	Grading	24	AC	$ 183.20	$ 4,396.87	$ 516.30	$ 12,391.09	$ -	$ -	$ 16,787.97		$ 16,787.97
20.4	Compaction	116,160	SY	$ 0.21	$ 24,808.30	$ 0.54	$ 63,137.67	$ -	$ -	$ 87,945.97		$ 87,945.97
20.5	Dust Control During Earth Movement Activities	2	DY	$ 1,502.56	$ 2,348.40	$ 2,140.45	$ 3,345.37	$ -	$ -	$ 5,693.77		$ 5,693.77
			Sub-total		$ 122,871.56		$ 397,179.16		$ -	$ 520,050.71	$ -	$ 520,050.71

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2019 Modified Design Cost Estimate - Rev F7a - 14 January 2020

Cost Estimate Spreadsheet

14 January 2020 REV F7

Item No.	Description	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
	Contingency	9%										$ 46,805

21.0	Stormwater Conveyance Channel (SP4)	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
21.1	Excavation of Stormwater Conveyance Channel	26,738	CY	$ 0.79	$ 20,997.21	$ 3.16	$ 84,424.58		$ -	$ 105,421.79		$ 105,421.79
21.2	Grading of Stormwater Conveyance Channel	8	AC	$ 1,282.42	$ 9,971.62	$ 3,614.07	$ 28,101.62		$ -	$ 38,073.24		$ 38,073.24
21.3	Compaction of Stormwater Conveyance Channel	37,634	SY	$ 0.71	$ 26,805.25	$ 1.68	$ 63,091.64		$ -	$ 89,896.89		$ 89,896.89
21.4	Placement of Filter Layer	7,874	CY	$ 1.44	$ 11,337.19	$ 2.13	$ 16,757.02	$ 15.75	$ 124,016.60	$ 152,110.81		$ 152,110.81
21.5	Placing of Rip Rap - D50 6"	7,874	CY	$ 3.14	$ 24,703.41	$ 10.45	$ 82,319.06	$ 17.55	$ 138,189.92	$ 245,212.39		$ 245,212.39
21.6	Dust Control During Earth Movement Activities	46	DY	$ 1,502.56	$ 69,374.38	$ 2,140.45	$ 98,826.20	$ -	$ -	$ 168,200.58		$ 168,200.58
		Sub-total			$ 163,189.06		$ 373,520.12		$ 262,206.52	$ 798,915.70	$ -	$ 798,915.70
	Contingency	12%										$ 95,870

22.0	Armored Downdrain Channel (DD)	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
22.1	Excavation of Armored Downdrain Channel	12,884	CY	$ 0.79	$ 10,117.67	$ 3.16	$ 40,680.62		$ -	$ 50,798.29		$ 50,798.29
22.2	Grading of Armored Downdrain Channel	2	AC	$ 1,282.42	$ 2,409.69	$ 3,614.07	$ 6,790.90		$ -	$ 9,200.59		$ 9,200.59
22.3	Compaction of Armored Downdrain Channel	9,094	SY	$ 0.71	$ 6,477.62	$ 1.68	$ 15,246.42		$ -	$ 21,724.04		$ 21,724.04
22.4	Placement of Filter Layer	3,031	CY	$ 1.44	$ 4,364.77	$ 2.13	$ 6,451.38	$ 15.75	$ 47,745.83	$ 58,561.98		$ 58,561.98
22.5	Placing of Rip Rap - D50 9"	4,547	CY	$ 3.14	$ 14,266.05	$ 10.45	$ 47,538.70	$ 20.25	$ 92,081.25	$ 153,886.00		$ 153,886.00
22.6	Dust Control During Earth Movement Activities	18	DY	$ 1,502.56	$ 26,691.31	$ 2,140.45	$ 38,022.69	$ -	$ -	$ 64,714.00		$ 64,714.00
		Sub-total			$ 64,327.11		$ 154,730.71		$ 139,827.08	$ 358,884.91	$ -	$ 358,884.91
	Contingency	12%										$ 43,066

23.0	Stormwater Drainage Channels	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
23.1	Meyer's Gulch Arroyo Stabilization	325,304	CY	$ 2.04	$ 663,319.09	$ 5.20	$ 1,691,856.34	$ 2.42	$ 787,720.89	$ 3,142,896.32		$ 3,142,896.32
23.2	Pit 1 North Diversion Channel	32,267	CY	$ 3.06	$ 98,850.65	$ 9.89	$ 319,273.88	$ 14.65	$ 472,800.00	$ 890,924.53		$ 890,924.53
23.3	Pit 1 South Diversion Channel	21,485	CY	$ 3.29	$ 70,589.40	$ 10.20	$ 219,211.62	$ 14.15	$ 304,083.33	$ 593,884.35		$ 593,884.35
23.4	Pit 2 Diversion Channel	8,356	CY	$ 3.97	$ 33,149.21	$ 11.66	$ 97,471.24	$ 15.17	$ 126,800.13	$ 257,420.57		$ 257,420.57
23.5	East Tributary Channel Armoring	7,111	CY	$ 4.22	$ 30,014.85	$ 12.70	$ 90,343.72	$ 20.88	$ 148,480.00	$ 268,838.57		$ 268,838.57
23.6	Dust Control During Earth Movement Activities	-	DY		$ -		$ -		$ -	$ -		$ -
		Sub-total			$ 895,923.20		$ 2,418,156.79		$ 1,839,884.35	$ 5,153,964.34	$ -	$ 5,153,964.34
	Contingency	12%										$ 618,476

24.0 Monitoring, Testing, & Verification Controls

24.1	Quality Assurance & Quality Control	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
24.1.1	Labor Personnel & administration	36	MN	$ 45,613.89	$ 1,642,100.00		$ -		$ -	$ 1,642,100.00		$ 1,642,100.00
21.1.2	Lab Testing costs - Soil Testing	1	LS		$ -		$ -		$ -	$ -	$ 29,176.00	$ 29,176.00
24.1.3	Lab Testing costs - Rock Testing	1	LS		$ -		$ -		$ -	$ -	$ 3,360.00	$ 3,360.00
24.1.4	Monthly Lodging & Expenses	1	LS		$ -		$ -		$ -	$ -	$ 112,217.40	$ 112,217.40
24.1.5	item		UN									
		Sub-total			$ 1,642,100.00		$ -		$ -	$ 1,642,100.00	$ 144,753.40	$ 1,786,853.40
	Contingency	10%										$ 178,685

24.2	Remedial Action Radiologic Support	QTY	Unit	Labor Unit Cost	Total Labor	Equipment Unit Cost	Total Equipment	Materials Unit Cost	Total Materials	Total L/E/M Amount	Other Costs	Total Field Cost
24.2.1	Labor Personnel & administration	36	MN	$ 50,328	$ 1,811,790		$ -		$ -	$ 1,811,790		$ 1,811,790
24.2.2	Project Management	36	MN	$ 1,369	$ 49,280		$ -		$ -	$ 49,280		$ 49,280
24.2.3	Equipment, Supplies, Fees & Expenses	36	MN		$ -	$ 10,378	$ 373,615		$ -	$ 373,615		$ 373,615
24.2.4	Monthly Lodging & Expenses	1	LS		$ -		$ -		$ -	$ -	$ 103,309	$ 103,309
24.2.5	item	-	UN									

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General Electric - UNC

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2019 Modified Design Cost Estimate - Rev F7a - 14 January 2020

Cost Estimate Spreadsheet

										14 January 2020	REV F7	
Item No.	**Description**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
			Sub-total		$ 1,861,070		$ 373,615		$ -	$ 2,234,685	$ 103,309	$ 2,337,994
	Contingency	10%										$ 233,799
24.3	**Radiation Protection & Perimeter Radiologic Air Monitoring Plan**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
24.3.1	Labor Personnel & administration	36	MN	$ 31,479	$ 1,133,250		$ -		$ -	$ 1,133,250		$ 1,133,250
24.3.2	Equipment, Supplies, Fees & Expenses	36	MN		$ -	$ 8,542	$ 307,495		$ -	$ 307,495		$ 307,495
24.3.3	Monthly Lodging & Expenses	1	LS		$ -		$ -		$ -	$ -	$ 74,000	$ 74,000
24.3.4	item		UN		$ -		$ -		$ -	$ -		$ -
24.3.5	item		UN		$ -		$ -		$ -	$ -		$ -
			Sub-total		$ 1,133,250		$ 307,495		$ -	$ 1,440,745	$ 74,000	$ 1,514,745
	Contingency	10%										$ 151,474.50
24.4	**Monthly Monitoring & Maintenance of Access Roads**	**QTY**	**Unit**	**Labor Unit Cost**	**Total Labor**	**Equipment Unit Cost**	**Total Equipment**	**Materials Unit Cost**	**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
24.4.1	Monthly Inspection of Site	120	MN	$ 4,255	$ 510,645		$ -		$ -	$ 510,645		$ 510,645
24.4.2	Maintenance of Access Roads	120	MN	$ 2,133	$ 255,940	$ 3,152	$ 378,233		$ -	$ 634,173		$ 634,173
24.4.3	item		UN		$ -		$ -		$ -	$ -		$ -
24.4.4	item		UN		$ -		$ -		$ -	$ -		$ -
24.4.5	item		UN		$ -		$ -		$ -	$ -		$ -
			Sub-total		$ 766,585		$ 378,233		$ -	$ 1,144,818	$ -	$ 1,144,818
	Contingency	10%										$ 114,481.80
	Sub-Total - Monitoring, Testing, & Verification Controls				$ 3,503,170.00		$ 373,615.00		$ -	$ 3,876,785.00	$ 248,062.49	$ 4,124,847
	Total Direct Costs				**$ 23,270,980.85**		**$ 40,029,909.79**		**$ 3,030,113.26**	**$ 64,431,169.16**	**$ 843,635.21**	**$ 68,334,367.38**
25.0	**Indirect Owner Costs**	**QTY**	**Unit**		**Total Labor**		**Total Equipment**		**Total Materials**	**Total L/E/M Amount**	**Other Costs**	**Total Field Cost**
25.1	Engineering and Construction Management	2.00%	%		$ -		$ -	$ -	$ -	$ -		$ 1,444,272.80
25.2	Overtime Adjustment	16.67%	%		$ -		$ -	$ -	$ -	$ -		$ 3,879,272.51
25.3	Contract Bond	0.64%	%		$ -		$ -	$ -	$ -	$ -		$ 471,410.64
25.4	Contractor Insurance	1.50%	%		$ -		$ -	$ -	$ -	$ -		$ 1,104,868.69
			Sub-total		$ -		$ -		$ -	$ -	$ -	$ 6,899,824.64
	Total Indirect Costs				**$ -**		**$ -**		**$ -**	**$ -**	**$ -**	**$ 6,899,824.64**
										Total Project Cost		**$ 75,234,192.01**
										Total Project Cost	**-30%**	**$ 52,663,934.41**
										Total Project Cost	**+50%**	**$ 112,851,288.02**

General Electric - UNC
St Anthony Mine
2019 Modified Design Cost Estimate - Rev F7a - 14 January 2020
Calculations

Estimate Version Information: **Rev** **F7** **14 January 2020**

1.0 General Project Support

1.1 Mobilization Demobilization - Allowance

Item	Rate	Description	Equipment Pcs	Hours RT	Hours	Cost	20%				
Tractor & Trailer / lowboy	$ 270.91		32	8	256	$ 69,353.90	$ 69,353.90	Trucks	8	Loader	2
Operator	$ 45.21				256	$ 11,574.94	$ 11,574.94	Excavator	2	Water Truck	3
Labor	$ 43.79	2 mechanics			320	$ 14,013.50	$ 14,013.50	Dozer	4	Compactor	3
Labor	$ 43.79	4 workers X 4 weeks			640	$ 112,107.96	$ 112,107.96	Motor Grader	0	Tractor	2
Service Truck	$ 6.35	2 service trucks X4 weeks			320	$ 2,031.16	$ 2,031.16	Site Trailers	4	Misc.	4
							$ 209,081.46				

1.2 Fencing - Perimeter & Signage - Allowance

Site fencing 8' commercial-grade chain link fence $28.75 LF labor and materials. Chain link material $6.04 Lf - Gates $350 each
Construction fencing 4'X100' - orange barrier fence $28.97 roll - 4'X50' wood snow fence $49.99 roll $22.71 Labor

	Length		Labor/LF	Materials/LF	5 dbl Gates	Signs Allowance	Other Materials
Perimeter of construction area	36360	LF	$ 22.71	$ 6.04	$ 3,500.00	$ 2,500.00	$ 6,000.00

1.3 Fencing - Permanent Cattle Fence (Pit 1)

	Length		Labor/LF	Materials/LF	2 dbl Gates		Other Materials
Permanent cattle fence	6360	LF	$ 22.71	$ 6.04	1400		$ 1,400.00

1.4 Site Facilities - Allowance

Item				Months	Cost
Security shack - 40' containers		Mobile Modular quote $32,068.31 each	delivery and set up in mobilization		$ 32,068.31
Portable Construction Units	LDR - 4 units, service 1X per week	$ 770.20 month	Rental $192.55 per month including delivery and 1 service per week. +/- 20 worker	35.68	$ 27,484.57
Office facilities 3 units		Mobile Modular quote $32,068.31 each			$ 96,204.93
Maintenance	Labor per month	4 workers X 8 hrs per day X 20 days per month	640 hrs/month $ 46.81 $ 29,960.38 month	35.68	$ 1,069,135.30
	Construction fencing 4'X100' - orange barrier fence $28.97 roll - 4'X50' wood snow fence $49.99 roll		$22.71 Labor		$ 14,252.00
					$ 1,239,145.11

1.5 Revegetation (Seeding of Disturbed Areas)

1.6 Contractor Management & Administration

21.6 working days per month @ 8hrs per day, 173.3 hours per month

Personnel	Hourly Rate	Monthly Hours	Monthly cost	Months	Total Cost
Project Manager (1)	114.79	173.33	$ 12,281.30	35.68	$ 438,257.76
Site Superintendent (2)	107.03	346.66	$ 22,902.96	35.68	$ 817,291.50
Site Field Engineer (1)	70.58	173.33	$ 7,551.34	35.68	$ 269,469.30
Site Field Office Controller (1)	22.65	173.33	$ 6,638.54	35.68	$ 236,896.09
Administration Clerk (1)	22.65	173.33	$ 2,423.07	35.68	$ 86,467.07
Office Supplies, and Expenses			$ 125.00	35.68	$ 4,460.62
			$ 51,922.20		$ 1,852,842.35

2.0 Pit 1 Highwall Drill & Blast, TPP Stabilization of Existing Sediments

Engineers Estimate Quantity of material **230,000.00 CY**

2.1 Drilling & Blasting

CY 230,000.00

Drilling	Blasting	Support	Mobilization	General	Maintenance	Technical Services	Low Volume MU %		Total Cost ($/t mined)
$ 0.45	$ 1.44	$ 0.92	$ 0.48	$ 0.26	$ 0.66	$ 0.20	50%	$ 2.20	**$ 6.61**

% of Labor	Labor	% of Equipment	Equipment	% of Materials	Materials	Total
45%	$ 2.97	35%	$ 2.31	20%	$ 1.32	$ 6.61

One time Mobilization / Demobilization	
$ 55,000.00	$ 0.24

Rise	Run	Diagonal - ft	Avg. thick - ft	Length - ft	CF	CY
140'	140'	198	20	1,350.00	5,346,000.00	198,000.00

2.2 Stripping Material into Pit

CY
230,000.00

2.3 Grading & Leveling

CY
230,000.00

2.4 TPP Stabilization of Existing Sediments (Allowance)

Allowance for this activity **$ 400,000.00** LS

21.0 Stormwater Conveyance Channel (SP4)

21.1 Excavation of Stormwater Conveyance Channel CY CY
21.2 Grading of Stormwater Conveyance Channel AC AC
21.3 Compaction of Stormwater Conveyance Channel SY SY

	Segment	Start	End	Length FT	Cross section	Excavation CY	Width FT	Surface - SF	Compaction - SY	Grading - Acre
detail 1|16	SP4-01	0	2166	2166	97.32	7,807	45.66	98,900	10,988.84	2.27
detail 1|16	SP4-02	0	1193	1193	97.32	4,300	45.66	54,472	6,052.49	1.25
detail 1|16	SP4-03	0	1470	1470	97.32	5,299	45.66	67,120	7,457.80	1.54
detail 1|16	SP4-04	0	2589	2589	97.32	9,332	45.66	118,214	13,134.86	2.71
TOTAL				**7,418**		**26,738**		**338,706**	**37,634**	**7.78**

21.4 Placement of Filter Layer

	Segment	Start	End	Length Ft	Width Ft	Surface - SF	Filter Layer 1 - Ft	Filter Layer 2 - Ft	Filter Layer - Ft	Filter Material - CY
detail 1|16	SP4-01	0	2166	2166	28.66	62,078	0.50	0.50	1.00	2,299
detail 1|16	SP4-02	0	1193	1193	28.66	34,191	0.50	0.50	1.00	1,266
detail 1|16	SP4-03	0	1470	1470	28.66	42,130	0.50	0.50	1.00	1,560
detail 1|16	SP4-04	0	2589	2589	28.66	74,201	0.50	0.50	1.00	2,748
TOTAL				**7,418**		**212,600**				**7,874**

21.5 Placing of Rip Rap - D50 6"

	Station	Start	End	Length Ft	Width Ft	Surface - SF	Rip Rap layer - Ft	Rip Rap Material - CY
detail 1|16	SP4-01	0	2166	2166	28.66	62,078	1.00	2,299
detail 1|16	SP4-02	0	1193	1193	28.66	34,191	1.00	1,266
detail 1|16	SP4-03	0	1470	1470	28.66	42,130	1.00	1,560
detail 1|16	SP4-04	0	2589	2589	28.66	74,201	1.00	2,748
TOTAL				**7,418**		**212,600**		**7,874**

22.0 Armored Downdrain Channel (DD)

22.1 Excavation of Armored Downdrain Channel CY
22.2 Grading of Armored Downdrain Channel AC
22.3 Compaction of Armored Downdrain Channel SY

	Segment	Start	End	Length FT	Cross section	Excavation CY	Width FT	Surface - SF	Compaction - SY	Grading - Acre
detail 2|16	DD1	0	504	504	106.25	1,983	25.00	12,600	1,400.00	0.29
detail 2|16	DD2	504	1020	516	106.25	2,031	25.00	12,900	1,433.33	0.30
detail 2|16	DD3	1020	1880	860	106.25	3,384	25.00	21,500	2,388.89	0.49
detail 2|16	DD4	1880	2700	820	106.25	3,227	25.00	20,500	2,277.78	0.47
detail 2|16	DD5	2700	3274	574	106.25	2,259	25.00	14,350	1,594.44	0.33
TOTAL				**3,274**		**12,884**		**81,850**	**9,094**	**1.88**

22.4 Placement of Filter Layer

	Segment	Start	End	Length Ft	Width Ft	Surface - SF	Filter Layer 1 - Ft	Filter Layer 2 - Ft	Filter Layer - Ft	Filter Material - CY
detail 2|16	DD1	0	504	504	25.00	12,600	0.50	0.50	1.00	467
detail 2|16	DD2	504	1020	516	25.00	12,900	0.50	0.50	1.00	478
detail 2|16	DD3	1020	1880	860	25.00	21,500	0.50	0.50	1.00	796
detail 2|16	DD4	1880	2700	820	25.00	20,500	0.50	0.50	1.00	759
detail 2|16	DD5	2700	3274	574	25.00	14,350	0.50	0.50	1.00	531
TOTAL				**3,274**		**81,850**				**3,031**

22.5 Placing of Rip Rap - D50 9"

	Station	Start	End	Length Ft	Width Ft	Surface - SF	Rip Rap layer - Ft	Rip Rap Material - CY
detail 2|16	DD1	0	504	504	25.00	12,600	1.50	700
detail 2|16	DD2	504	1020	516	25.00	12,900	1.50	717
detail 2|16	DD3	1020	1880	860	25.00	21,500	1.50	1,194
detail 2|16	DD4	1880	2700	820	25.00	20,500	1.50	1,139
detail 2|16	DD5	2700	3274	574	25.00	14,350	1.50	797
TOTAL				**3,274**		**81,850**		**4,547**

	Station	Start	End	Length Ft	Cross Section SF	Excavation CY	Width Ft	Surface - SF	Compaction - SY	Grading - Acre
detail 2|16	0+00 to 6+00	0	600	600	242	5,377.78	40	24,000	2,666.67	0.55
detail 2|16	6+00 to 12+00	600	1200	600	242	5,377.78	40	24,000	2,666.67	0.55

detail 2|16	12+00 to 18+00	1200	1800	600	242	5,377.78	40	24,000	2,666.67	0.55
detail 2|16	18+00 to 24+00	1800	2400	600	242	5,377.78	40	24,000	2,666.67	0.55
detail 2|16	24+00 to 30+00	2400	3000	600	242	5,377.78	40	24,000	2,666.67	0.55
detail 2|16	30+00 to 36+00	3000	3600	600	242	5,377.78	40	24,000	2,666.67	0.55
TOTAL				**3,600**		**32,267**		**144,000**	**16,000**	**3.31**

	Station	Start	End	Length Ft	Width Ft	Surface - SF	Filter Layer 1 - Ft	Filter Layer 2 - Ft	Filter Layer - Ft	Filter Material - CY
detail 2|16	0+00 to 6+00	0	600	600	40	24,000	0.50	0.50	1.00	889
detail 2|16	6+00 to 12+00	600	1200	600	40	24,000	0.50	0.50	1.00	889
detail 2|16	12+00 to 18+00	1200	1800	600	40	24,000	0.50	0.50	1.00	889
detail 2|16	18+00 to 24+00	1800	2400	600	40	24,000	0.50	0.50	1.00	889
detail 2|16	24+00 to 30+00	2400	3000	600	40	24,000	0.50	0.50	1.00	889
detail 2|16	30+00 to 36+00	3000	3600	600	40	24,000	0.50	0.50	1.00	889
TOTAL				**3,600**		**144,000**				**5,333**

	Station	Start	End	Length Ft	Width Ft	Surface - SF	Rip Rap layer - Ft	Rip Rap Material - CY
detail 2|16	0+00 to 6+00	0	600	600	40	24,000	3.00	2,667
detail 2|16	6+00 to 12+00	600	1200	600	40	24,000	3.00	2,667
detail 2|16	12+00 to 18+00	1200	1800	600	40	24,000	3.00	2,667
detail 2|16	18+00 to 24+00	1800	2400	600	40	24,000	3.00	2,667
detail 2|16	24+00 to 30+00	2400	3000	600	40	24,000	3.00	2,667
detail 2|16	30+00 to 36+00	3000	3600	600	40	24,000	3.00	2,667
TOTAL				**3,600**		**144,000**		**16,000**

24.0 Monitoring, Testing, & Verification Controls

24.1 Quality Assurance & Quality Control

- including field volume admix and nuke guage testing

		Hourly Rate	Total Hours	Total duration - MN	Monthly Cost	Total Cost
24.1.1	Labor Personnel	Hourly Rate	Total Hours	Total duration - MN	Monthly Cost	Total Cost
	QC Subcontractor field testing (1 personnel)	$ 70.00	4,000	36	$ 7,777.78	$ 280,000.00
	QA Stantec personnel A (1 personnel)	$ 130.00	1,000	36	$ 3,611.11	$ 130,000.00
	QA Stantec personnel B (3 personnel)	$ 90.00	12,000	36	$ 30,000.00	$ 1,080,000.00
	QA Stantec personnel C (1 personnel)	$ 130.00	1,000	36	$ 3,611.11	$ 130,000.00
	Administration	$ 65.00	340	36	$ 613.89	$ 22,100.00
			18,340		**$ 45,613.89**	$ 1,642,100.00
21.1.2	Soil Testing Fees					**$ 29,176.00**
24.1.3	Rock Testing Fees					**$ 3,360.00**
24.1.4	Monthly Lodging & expenses			36	$ 3,117.15	**$ 112,217.40**
						$ 1,786,853.40

24.2 Remedial Action Radiologic Support

Cost Estimate to Implement Remedial Action Radiologic Support (Excavation Control, Final Status Survey and Verification Survey and radon cover survey & emission Testing Program) for Removal Action

AVM Environmental Services, Inc.

		Hourly Rate	Total Hours	Total duration - MN	Monthly Cost	Total Cost
24.2.1	Labor Personnel	Hourly Rate	Total Hours	Total duration - MN	Monthly Cost	Total Cost
	Rad Consultant/Project Manager (1)	$ 140.00	1,694	36	$ 6,587.78	$ 237,160.00
	RA Rad Site Manager/GIS (1)	$ 110.00	4,491	36	$ 13,722.50	$ 494,010.00
	Site Field Office/lab GIS Tech (1)	$ 85.00	4,520	36	$ 10,672.22	$ 384,200.00
	Rad Technicians (3)	$ 80.00	8,624	36	$ 19,164.44	$ 689,920.00
	Admn Clerk/Typist (1)	$ 65.00	100	36	$ 180.56	$ 6,500.00
			19,429		**$ 50,327.50**	$ 1,811,790.00
24.2.2	Project Management			36	**$ 1,368.89**	$ 49,280.00
24.2.3	Supplies, Fees and Expenses			36	**$ 10,378.19**	$ 373,615.00
24.2.4	Monthly Lodging & expenses			36	$ 2,869.70	**$ 103,309.09**
						$ 2,337,994.09

24.3 Radiation Protection & Perimeter Radiologic Air Monitoring Plan

Cost Estimate to Implement Radiation Protection & Perimeter Radiologic Air Monitoring Plan for Removal Action

AVM Environmental Services, Inc.

		Hourly Rate	Total Hours	Total duration - MN	Monthly Cost	Total Cost
24.3.1	Labor Personnel	Hourly Rate	Total Hours	Total duration - MN	Monthly Cost	Total Cost
	RSO/Site Safety Manager (1)	110	2,743	36	$ 8,381.39	$ 301,730.00
	Rad (OHP) Technicians (2)	80	10,394	36	$ 23,097.78	$ 831,520.00
					$ 31,479.17	$ 1,133,250.00
24.3.2	Supplies, Fees and Expenses			36	**$ 8,541.53**	$ 307,495.00
24.3.3	Employee Lodging & Misc expenses			36	$2,055.56	**$74,000.00**
						$ 1,514,745.00

24.4 Monthly Monitoring & Maintenance of Access Roads

24.4.1 Monthly Inspection of Site

	Hours	Rate	Labor
Senior Engineer	2	$ 136.30	$ 272.60
Engineer	16	$ 116.83	$ 1,869.23
Project Manager	16	$ 114.88	$ 1,838.08
Vehicle	16	$ 17.22	$ 275.47
			$ 4,255.37

Two site visits with two people per month

24.4.2 Maintenance of Access Roads

	Hours	Rate	Labor	Equipment	Area	Miles
Supervisor	7.12	$ 129.73	$ 923.11	$ -	Access Route 52	1.83
Labor	7.12	$ 46.81	$ 333.10	$ -	Lobo Tract West	0.64
Motor Grader Operator	7.12	$ 75.42	$ 536.68	$ -	Shaft Pad	1.06
Cat 14M Grader	7.12	$ 224.31	$ -	$ 1,596.07	Pile 4	0.95
Truck Driver - Off Hwy	7.12	$ 47.78	$ 339.95	$ -	Pit 2	1.06
CAT 740 8000 gal water tru	7.12	$ 218.66	$ -	$ 1,555.87	Pit 1	0.30
			$ 2,132.83	$ 3,151.94	Lobo Tract East	0.19
Grader Blade Width	Road Width	Passes	Speed - MPH	Efficiency	MPH	Work Hours
9	20	3.00	3.70	69%	0.85	7.12
CAT MG 14M, grading of rural roadway						

Grading of all sections of roadway one time per month.

Assumption that water is available near site and accessible to water truck

O&M Costs

Monthly Cost of Inspections - Labor	$ 4,255.37
Monthly Cost of Road Maintenance - Labor	$ 2,132.83
Monthly Cost of Road Maintenance - Equipment	$ 3,151.94
Years Required to inspect	10
Total Cost	$ 1,144,818.01

Requires inspections and road maintenance to all areas of site for an undetermined amount of time. Assuming 10 years for this estimate.

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Crews

Crew A	Excavation, Loading, and Hauling from Stockpile #4 to Open Pit	Units	CY
Crew B	Excavation, Loading, and Hauling from Borrow Source	Units	CY
Crew C	Earthmoving and Leveling Materials	Units	CY
Crew D	Drilling and Blasting	Units	CY
Crew E	Stripping of Shot Materials	Units	CY
Crew F	Final Grading	Units	AC
Crew G	Compaction of Pit Backfill Materials	Units	SY
Crew H	Compaction of Stockpile #4 Cover Materials	Units	SY
Crew I	Dust Control During Earth Movement Activities	Units	DY
Crew J	Grading of Drainage Channel	Units	AC
Crew K	Permanent Storm Water Earthmoving	Units	CY
Crew L	Compaction of Drainage Channel	Units	SY
Crew M	Spreading and Leveling Materials	Units	CY
Crew N	Placing Riprap	Units	CY
Crew A	Calculations for Crew A- Scope 3 to Crew A- Scope 20	Units	CY

Crew A	**Excavation, Loading, and Hauling from Stockpile #4 to Open Pit**					Units	**CY**	**Units / Hr.**	**211**	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Truck Driver - Off Hwy	2.0	$ 47.78	$ 95.55	20%	$ 114.66	106	211	$ 0.54		$ 0.54
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	211	211	$ 0.34		$ 0.34
Cat 390F Excavator	1	$ 377.83	$ 377.83	20%	$ 453.39	211	211		$ 2.14	$ 2.14
Cat D6T Dozer	1	$ 155.07	$ 155.07	20%	$ 186.09	211	211		$ 0.88	$ 0.88
Cat 730 Articulated Truck	2.0	$ 218.66	$ 437.32	20%	$ 524.78	106	211		$ 2.48	$ 2.48
Ford F350 Service Truck	1.0	$ 17.22	$ 17.22	20%	$ 20.66	211	211		$ 0.10	$ 0.10
spare		$ -	$ -		$ -	0	211		$ -	$ -
			TOTAL COST PER HOUR		$ 1,553.15	TOTAL COST PER UNIT		**$ 1.74**	**$ 5.61**	$ 7.35

Crew B	**Excavation, Loading, and Hauling from Borrow Source**					Units	**CY**	**Units / Hr.**	**230**	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Loader Operator	1	$ 69.14	$ 69.14	20%	$ 82.97	230	230	$ 0.36		$ 0.36
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	230	230	$ 0.39		$ 0.39
Truck Driver - Off Hwy	5.0	$ 47.78	$ 238.88	20%	$ 286.65	46	230	$ 1.24		$ 1.24
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	230	230	$ 0.31		$ 0.31
Cat 980H Wheel Loader	1	$ 259.89	$ 259.89	20%	$ 311.87	230	230		$ 1.35	$ 1.35
Cat D6T Dozer	1	$ 155.07	$ 155.07	20%	$ 186.09	230	230		$ 0.81	$ 0.81
Cat 730 Articulated Truck	5.0	$ 218.66	$ 1,093.30	20%	$ 1,311.95	46	230		$ 5.69	$ 5.69
Ford F350 Service Truck	1.0	$ 17.22	$ 17.22	20%	$ 20.66	230	230		$ 0.09	$ 0.09
spare		$ -	$ -		$ -	0	230		$ -	$ -
			TOTAL COST PER HOUR		$ 2,363.25	TOTAL COST PER UNIT		**$ 2.31**	**$ 7.95**	$ 10.26

Crew C	**Earthmoving and Leveling Materials**					Units	**CY**	**Units / Hr.**	**2222**	
Asset	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	2222	2222	$ 0.04		$ 0.04
Mechanic	0.25	$ 60.46	$ 15.12	20%	$ 18.14	8890	2222	$ 0.01		$ 0.01
Laborer	1	$ 46.81	$ 46.81	20%	$ 56.18	2222	2222	$ 0.03		$ 0.03
spare	0	$ -	$ -	20%	$ -	0	0	$ -		$ -
spare		$ -								
CAT D9 Dozer	1	$ 242.23	$ 242.23	20%	$ 290.67	2222	2222		$ 0.13	$ 0.13
Cat 14M Grader	0	$ 224.31	$ -	20%	$ -	0	0		$ -	$ -
Ford F350 Service Truck	0.25	$ 17.22	$ 4.30	20%	$ 5.17	8890	2222		$ 0.002	$ 0.002
spare		$ -								
			TOTAL COST PER HOUR		$ 460.66	TOTAL COST PER UNIT		**$ 0.07**	**$ 0.13**	$ 0.21

Crew D	**Drilling and Blasting**					Units	**CY**	**Units / Hr.**	**1000**	
spare										
			TOTAL COST PER HOUR		$ -	TOTAL COST PER UNIT		**$ -**	**$ -**	$ -

Crew E	**Stripping of Shot Materials**					Units	**CY**	**Units / Hr.**	**395**	
Asset	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	395	395	$ 0.23		$ 0.23
Motor Grader Operator	0	$ 75.42	$ -	20%	$ -	0	395	$ -		$ -
Mechanic	0.25	$ 60.46	$ 15.12	20%	$ 18.14	1580	395	$ 0.05		$ 0.05
Laborer	0	$ 46.81	$ -	20%	$ -	0	395	$ -		$ -
spare		$ -								
CAT D9 Dozer	1	$ 242.23	$ 242.23	20%	$ 290.67	395	395		$ 0.74	$ 0.74
Cat 14M Grader	0	$ 224.31	$ -	20%	$ -	0	395		$ -	$ -
Ford F350 Service Truck	0.25	$ 17.22	$ 4.30	20%	$ 5.17	1580	395		$ 0.01	$ 0.013
spare		$ -								
			TOTAL COST PER HOUR		$ 404.48	TOTAL COST PER UNIT		**$ 0.28**	**$ 0.75**	$ 1.02

Crew F	**Final Grading**					Units	**AC**	**Acres / Hr.**	**1.40**	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per hour	Units per hour	Labor cost per hour	Equip. cost per hour	Total cost per hours
Motor Grader Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	1.40	1.40	$ 64.65		$ 64.65
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	1.40	1.40	$ 64.65		$ 64.65
Truck Driver - Off Hwy	1	$ 47.78	$ 47.78	20%	$ 57.33	1.40	1.40	$ 40.95		$ 40.95
Mechanic	0.25	$ 60.46	$ 15.12	20%	$ 18.14	5.60	1.40	$ 12.96		$ 12.96
Cat 14M Grader	1	$ 224.31	$ 224.31	20%	$ 269.17	1.40	1.40		$ 192.26	$ 192.26
Cat D6T Dozer	1	$ 155.07	$ 155.07	20%	$ 186.09	1.40	1.40		$ 132.92	$ 132.92
CAT 740 8000 gal water truck	1	$ 218.66	$ 218.66	20%	$ 262.39	1.40	1.40		$ 187.42	$ 187.42
Ford F350 Service Truck	0.25	$ 17.22	$ 4.30	20%	$ 5.17	5.60	1.40		$ 3.69	$ 3.69
			TOTAL COST PER HOUR		$ 979.30			**$ 183.20**	**$ 516.30**	$ 699.50

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Crews

Crew G	**Compaction of Pit Backfill Materials**					Units	**SY**	**Units / Hr.**	**197**	
Asset	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
General Machinery Operator	1	$ 54.04	$ 54.04	20%	$ 64.85	197	197	$ 0.33		$ 0.33
Truck Driver - Off Hwy	1	$ 47.78	$ 47.78	20%	$ 57.33	197	197	$ 0.29		$ 0.29
Mechanic	0.25	$ 60.46	$ 15.12	20%	$ 18.14	788	197	$ 0.09		$ 0.09
Cat CS56B Roller	1	$ 52.25	$ 52.25	20%	$ 62.71	197	197		$ 0.32	$ 0.32
CAT 740 8000 gal water truck	1	$ 218.66	$ 218.66	20%	$ 262.39	197	197		$ 1.33	$ 1.33
Ford F350 Service Truck	0.25	$ 17.22	$ 4.30	20%	$ 5.17	788	197		$ 0.026	$ 0.026
			TOTAL COST PER HOUR		$ 470.58	TOTAL COST PER UNIT		**$ 0.71**	**$ 1.68**	$ 2.39

Crew H	**Compaction of Stockpile #4 Cover Materials**					Units	**SY**	**Units / Hr.**	**657**	
Asset	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
General Machinery Operator	1	$ 54.04	$ 54.04	20%	$ 64.85	657	657	$ 0.10		$ 0.10
Truck Driver - Off Hwy	1	$ 47.78	$ 47.78	20%	$ 57.33	657	657	$ 0.09		$ 0.09
Mechanic	0.25	$ 60.46	$ 15.12	20%	$ 18.14	2628	657	$ 0.03		$ 0.03
Cat 815K Soil Compactor	1	$ 74.63	$ 74.63	20%	$ 89.55	657	657		$ 0.14	$ 0.14
CAT 740 8000 gal water truck	1	$ 218.66	$ 218.66	20%	$ 262.39	657	657		$ 0.40	$ 0.40
Ford F350 Service Truck	0.25	$ 17.22	$ 4.30	20%	$ 5.17	2628	657		$ 0.008	$ 0.008
			TOTAL COST PER HOUR		$ 497.42	TOTAL COST PER UNIT		**$ 0.21**	**$ 0.54**	$ 0.76

Crew I	**Dust Control During Earth Movement Activities**					Units	**DY**	**Hours / Day**	**8.00**	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per Day	Labor cost per unit	Equip cost per unit	total cost per unit
Truck Driver - Off Hwy	1	$ 47.78	$ 47.78	20%	$ 57.33	8.00	8.00	$ 458.64		$ 458.64
Mechanic	0.25	$ 60.46	$ 15.12	20%	$ 18.14	32.00	8.00	$ 145.10		$ 145.10
Laborer	2	$ 46.81	$ 93.63	20%	$ 112.35	4.00	8.00	$ 898.81		$ 898.81
spare		$ -				0.00	0.00			
CAT 740 8000 gal water truck	1	$ 218.66	$ 218.66	20%	$ 262.39	8.00	8.00		$ 2,099.13	$ 2,099.13
Ford F350 Service Truck	0.25	$ 17.22	$ 4.30	20%	$ 5.17	32.00	8.00		$ 41.32	$ -
spare		$ -								
			TOTAL COST PER HOUR		$ 455.38	TOTAL COST PER DAY		**$ 1,502.56**	**$ 2,140.45**	$ 3,601.69

Crew J	**Grading of Drainage Channel**					Units	**AC**	**Acres / Hr.**	**0.20**	
Asset	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per hour	Units per hour	Labor cost per unit	Equip. cost per hour	Total cost per hours
Motor Grader Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	0.20	0.20	$ 452.54		$ 452.54
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	0.20	0.20	$ 452.54		$ 452.54
Truck Driver - Off Hwy	1	$ 47.78	$ 47.78	20%	$ 57.33	0.20	0.20	$ 286.65		$ 286.65
Mechanic	0.25	$ 60.46	$ 15.12	20%	$ 18.14	0.80	0.20	$ 90.69		$ 90.69
Cat 14M Grader	1	$ 224.31	$ 224.31	20%	$ 269.17	0.20	0.20		$ 1,345.85	$ 1,345.85
Cat D6T Dozer	1	$ 155.07	$ 155.07	20%	$ 186.09	0.20	0.20		$ 930.44	$ 930.44
CAT 740 8000 gal water truck	1	$ 218.66	$ 218.66	20%	$ 262.39	0.20	0.20		$ 1,311.95	$ 1,311.95
Ford F350 Service Truck	0.25	$ 17.22	$ 4.30	20%	$ 5.17	0.80	0.20		$ 25.83	$ 25.83
			TOTAL COST PER HOUR		$ 979.30			**$ 1,282.42**	**$ 3,614.07**	$ 4,896.49

Crew K	**Permanent Storm Water Earthmoving**					Units	CY	Units/Hr.	244	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units / asset / Hour	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	244	244	$ 0.37		$ 0.37
Loader Operator	1	$ 69.14	$ 69.14	20%	$ 82.97	244	244	$ 0.34		$ 0.34
Mechanic	0.25	$ 60.46	$ 15.12	20%	$ 18.14	244	244	$ 0.07		$ 0.07
spare		$ -								
Cat 390F Excavator	1	$ 377.83	$ 377.83	20%	$ 453.39	244	244		$ 1.86	$ 1.86
Cat 980H Wheel Loader	1	$ 259.89	$ 259.89	20%	$ 311.87	244	244		$ 1.28	$ 1.28
Ford F350 Service Truck	0.25	$ 17.22	$ 4.30	20%	$ 5.17	244	244		$ 0.02	$ 0.02
spare		$ -								
			TOTAL COST PER HOUR		Units	TOTAL COST PER UNIT		**$ 0.79**	**$ 3.16**	$ 3.94

Crew L	**Compaction of Drainage Channel**					Units	**SY**	**Units / Hr.**	**197**	
Asset	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
General Machinery Operator	1	$ 54.04	$ 54.04	20%	$ 64.85	197	197	$ 0.33		$ 0.33
Truck Driver - Off Hwy	1	$ 47.78	$ 47.78	20%	$ 57.33	197	197	$ 0.29		$ 0.29
Mechanic	0.25	$ 60.46	$ 15.12	20%	$ 18.14	788	197	$ 0.09		$ 0.09
Cat CS56B Roller	1	$ 52.25	$ 52.25	20%	$ 62.71	197	197		$ 0.32	$ 0.32
CAT 740 8000 gal water truck	1	$ 218.66	$ 218.66	20%	$ 262.39	197	197		$ 1.33	$ 1.33
Ford F350 Service Truck	0.25	$ 17.22	$ 4.30	20%	$ 5.17	788	197		$ 0.026	$ 0.026
			TOTAL COST PER HOUR		$ 470.58	TOTAL COST PER UNIT		**$ 0.71**	**$ 1.68**	$ 2.39

Crew M	**Spreading and Leveling Materials**					Units	**CY**	**Units / Hr.**	**216**	
Asset	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	216	216	$ 0.42		$ 0.42
Motor Grader Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	216	216	$ 0.42		$ 0.42
Laborer	2	$ 46.81	$ 93.63	20%	$ 112.35	108	216	$ 0.52		$ 0.52
Mechanic	0.25	$ 60.46	$ 15.12	20%	$ 18.14	865	216	$ 0.08		$ 0.08
spare		$ -				0				
Cat D6T Dozer	1	$ 155.07	$ 155.07	20%	$ 186.09	216	216		$ 0.86	$ 0.86
Cat 14M Grader	1	$ 224.31	$ 224.31	20%	$ 269.17	216	216		$ 1.24	$ 1.24
Ford F350 Service Truck	0.25	$ 17.22	$ 4.30	20%	$ 5.17	865	216		$ 0.024	$ 0.024
spare		$ -				0				
			TOTAL COST PER HOUR		$ 771.93	TOTAL COST PER UNIT		**$ 1.44**	**$ 2.13**	$ 3.57

Crew N	**Placing Riprap**					Units	CY	Units/Hr.	73	
Asset	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units / asset / Hour	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	73.2	73.2	$ 1.24		$ 1.24
Loader Operator	1	$ 69.14	$ 69.14	20%	$ 82.97	73.2	73.2	$ 1.13		$ 1.13
Laborer	1	$ 46.81	$ 46.81	20%	$ 56.18	73.2	73.2	$ 0.77		$ 0.77
spare		$ -								
Cat 390F Excavator	1	$ 377.83	$ 377.83	20%	$ 453.39	73.2	73.2		$ 6.19	$ 6.19
Cat 980H Wheel Loader	1	$ 259.89	$ 259.89	20%	$ 311.87	73	73.2		$ 4.26	$ 4.26
spare		$ -								
			TOTAL COST PER HOUR		$ 994.92	TOTAL COST PER UNIT		**$ 3.14**	**$ 10.45**	$ 13.59

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Crews

Crew A - Excavation, Loading , and Hauling for Scope of work items

Crew A - For Scope # 3	**Excavation, Loading, and Hauling**					Units	CY	**Units / Hr.**	**211**	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Truck Driver - Off Hwy	3.0	$ 47.78	$ 143.33	20%	$ 171.99	70	211	$ 0.81		$ 0.81
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	211	211	$ 0.34		$ 0.34
Cat 390F Excavator	1	$ 377.83	$ 377.83	20%	$ 453.39	211	211		$ 2.14	$ 2.14
Cat D6T Dozer	1	$ 155.07	$ 155.07	20%	$ 186.09	211	211		$ 0.88	$ 0.88
Cat 730 Articulated Truck	3.0	$ 218.66	$ 655.98	20%	$ 787.17	70	211		$ 3.72	$ 3.72
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	211	211		$ 0.10	$ 0.10
			TOTAL COST PER HOUR		$ 1,872.87	TOTAL COST PER UNIT		**$ 2.01**	**$ 6.85**	$ 8.86

Crew A - For Scope # 4	**Excavation, Loading, and Hauling**					Units	CY	**Units / Hr.**	**211**	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Truck Driver - Off Hwy	3.0	$ 47.78	$ 143.33	20%	$ 171.99	70	211	$ 0.81		$ 0.81
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	211	211	$ 0.34		$ 0.34
Cat 390F Excavator	1	$ 377.83	$ 377.83	20%	$ 453.39	211	211		$ 2.14	$ 2.14
Cat D6T Dozer	1	$ 155.07	$ 155.07	20%	$ 186.09	211	211		$ 0.88	$ 0.88
Cat 730 Articulated Truck	3.0	$ 218.66	$ 655.98	20%	$ 787.17	70	211		$ 3.72	$ 3.72
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	211	211		$ 0.10	$ 0.10
			TOTAL COST PER HOUR		$ 1,872.87	TOTAL COST PER UNIT		**$ 2.01**	**$ 6.85**	$ 8.86

Crew A - For Scope # 5	**Excavation, Loading, and Hauling**					Units	CY	**Units / Hr.**	**211**	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Truck Driver - Off Hwy	3.0	$ 47.78	$ 143.33	20%	$ 171.99	70	211	$ 0.81		$ 0.81
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	211	211	$ 0.34		$ 0.34
Cat 390F Excavator	1	$ 377.83	$ 377.83	20%	$ 453.39	211	211		$ 2.14	$ 2.14
Cat D6T Dozer	1	$ 155.07	$ 155.07	20%	$ 186.09	211	211		$ 0.88	$ 0.88
Cat 730 Articulated Truck	3.0	$ 218.66	$ 655.98	20%	$ 787.17	70	211		$ 3.72	$ 3.72
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	211	211		$ 0.10	$ 0.10
			TOTAL COST PER HOUR		$ 1,872.87	TOTAL COST PER UNIT		**$ 2.01**	**$ 6.85**	$ 8.86

Crew A - For Scope # 6	**Excavation, Loading, and Hauling**					Units	CY	**Units / Hr.**	**211**	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Truck Driver - Off Hwy	3.0	$ 47.78	$ 143.33	20%	$ 171.99	70	211	$ 0.81		$ 0.81
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	211	211	$ 0.34		$ 0.34
Cat 390F Excavator	1	$ 377.83	$ 377.83	20%	$ 453.39	211	211		$ 2.14	$ 2.14
Cat D6T Dozer	1	$ 155.07	$ 155.07	20%	$ 186.09	211	211		$ 0.88	$ 0.88
Cat 730 Articulated Truck	3.0	$ 218.66	$ 655.98	20%	$ 787.17	70	211		$ 3.72	$ 3.72
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	211	211		$ 0.10	$ 0.10
			TOTAL COST PER HOUR		$ 1,872.87	TOTAL COST PER UNIT		**$ 2.01**	**$ 6.85**	$ 8.86

Crew A - For Scope # 7	**Excavation, Loading, and Hauling**					Units	CY	**Units / Hr.**	**211**	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Truck Driver - Off Hwy	4.0	$ 47.78	$ 191.10	20%	$ 229.32	53	211	$ 1.08		$ 1.08
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	211	211	$ 0.34		$ 0.34
Cat 390F Excavator	1	$ 377.83	$ 377.83	20%	$ 453.39	211	211		$ 2.14	$ 2.14
Cat D6T Dozer	1	$ 155.07	$ 155.07	20%	$ 186.09	211	211		$ 0.88	$ 0.88
Cat 730 Articulated Truck	4.0	$ 218.66	$ 874.64	20%	$ 1,049.56	53	211		$ 4.96	$ 4.96
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	211	211		$ 0.10	$ 0.10
			TOTAL COST PER HOUR		$ 2,192.59	TOTAL COST PER UNIT		**$ 2.28**	**$ 8.09**	$ 10.37

Crew A - For Scope # 8	**Excavation, Loading, and Hauling**					Units	CY	**Units / Hr.**	**211**	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Truck Driver - Off Hwy	3.0	$ 47.78	$ 143.33	20%	$ 171.99	70	211	$ 0.81		$ 0.81
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	211	211	$ 0.34		$ 0.34
Cat 390F Excavator	1	$ 377.83	$ 377.83	20%	$ 453.39	211	211		$ 2.14	$ 2.14
Cat D6T Dozer	1	$ 155.07	$ 155.07	20%	$ 186.09	211	211		$ 0.88	$ 0.88
Cat 730 Articulated Truck	3.0	$ 218.66	$ 655.98	20%	$ 787.17	70	211		$ 3.72	$ 3.72
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	211	211		$ 0.10	$ 0.10
			TOTAL COST PER HOUR		$ 1,872.87	TOTAL COST PER UNIT		**$ 2.01**	**$ 6.85**	$ 8.86

Crew A - For Scope # 9	**Excavation, Loading, and Hauling**					Units	CY	**Units / Hr.**	**211**	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Truck Driver - Off Hwy	3.0	$ 47.78	$ 143.33	20%	$ 171.99	70	211	$ 0.81		$ 0.81
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	211	211	$ 0.34		$ 0.34
Cat 390F Excavator	1	$ 377.83	$ 377.83	20%	$ 453.39	211	211		$ 2.14	$ 2.14
Cat D6T Dozer	1	$ 155.07	$ 155.07	20%	$ 186.09	211	211		$ 0.88	$ 0.88
Cat 730 Articulated Truck	3.0	$ 218.66	$ 655.98	20%	$ 787.17	70	211		$ 3.72	$ 3.72
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	211	211		$ 0.10	$ 0.10
			TOTAL COST PER HOUR		$ 1,872.87	TOTAL COST PER UNIT		**$ 2.01**	**$ 6.85**	$ 8.86

Crew A - For Scope # 11	**Excavation, Loading, and Hauling**					Units	CY	**Units / Hr.**	**211**	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Truck Driver - Off Hwy	3.0	$ 47.78	$ 143.33	20%	$ 171.99	70	211	$ 0.81		$ 0.81
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	211	211	$ 0.34		$ 0.34

	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Cat 390F Excavator	1	$ 377.83	$ 377.83	20%	$ 453.39	211	211		$ 2.14	$ 2.14
Cat D6T Dozer	1	$ 155.07	$ 155.07	20%	$ 186.09	211	211		$ 0.88	$ 0.88
Cat 730 Articulated Truck	3.0	$ 218.66	$ 655.98	20%	$ 787.17	70	211		$ 3.72	$ 3.72
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	211	211		$ 0.10	$ 0.10
			TOTAL COST PER HOUR		$ 1,872.87	TOTAL COST PER UNIT		**$ 2.01**	**$ 6.85**	$ 8.86

Crew A - For Scope # 13	**Excavation, Loading, and Hauling**					Units	**CY**	**Units / Hr.**	**211**	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Truck Driver - Off Hwy	3.0	$ 47.78	$ 143.33	20%	$ 171.99	70	211	$ 0.81		$ 0.81
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	211	211	$ 0.34		$ 0.34
Cat 390F Excavator	1	$ 377.83	$ 377.83	20%	$ 453.39	211	211		$ 2.14	$ 2.14
Cat D6T Dozer	1	$ 155.07	$ 155.07	20%	$ 186.09	211	211		$ 0.88	$ 0.88
Cat 730 Articulated Truck	3.0	$ 218.66	$ 655.98	20%	$ 787.17	70	211		$ 3.72	$ 3.72
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	211	211		$ 0.10	$ 0.10
			TOTAL COST PER HOUR		$ 1,872.87	TOTAL COST PER UNIT		**$ 2.01**	**$ 6.85**	$ 8.86

Crew A - For Scope # 15	**Excavation, Loading, and Hauling**					Units	**CY**	**Units / Hr.**	**211**	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Truck Driver - Off Hwy	4.0	$ 47.78	$ 191.10	20%	$ 229.32	53	211	$ 1.08		$ 1.08
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	211	211	$ 0.34		$ 0.34
Cat 390F Excavator	1	$ 377.83	$ 377.83	20%	$ 453.39	211	211		$ 2.14	$ 2.14
Cat D6T Dozer	1	$ 155.07	$ 155.07	20%	$ 186.09	211	211		$ 0.88	$ 0.88
Cat 730 Articulated Truck	4.0	$ 218.66	$ 874.64	20%	$ 1,049.56	53	211		$ 4.96	$ 4.96
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	211	211		$ 0.10	$ 0.10
			TOTAL COST PER HOUR		$ 2,192.59	TOTAL COST PER UNIT		**$ 2.28**	**$ 8.09**	$ 10.37

Crew A - For Scope # 16	**Excavation, Loading, and Hauling**					Units	**CY**	**Units / Hr.**	**211**	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Truck Driver - Off Hwy	4.0	$ 47.78	$ 191.10	20%	$ 229.32	53	211	$ 1.08		$ 1.08
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	211	211	$ 0.34		$ 0.34
Cat 390F Excavator	1	$ 377.83	$ 377.83	20%	$ 453.39	211	211		$ 2.14	$ 2.14
Cat D6T Dozer	1	$ 155.07	$ 155.07	20%	$ 186.09	211	211		$ 0.88	$ 0.88
Cat 730 Articulated Truck	4.0	$ 218.66	$ 874.64	20%	$ 1,049.56	53	211		$ 4.96	$ 4.96
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	211	211		$ 0.10	$ 0.10
			TOTAL COST PER HOUR		$ 2,192.59	TOTAL COST PER UNIT		**$ 2.28**	**$ 8.09**	$ 10.37

Crew A - For Scope # 20	**Excavation, Loading, and Hauling**					Units	**CY**	**Units / Hr.**	**211**	
	Qty	Cost each per hour	Cost per hour	MU %	Total cost per hour	Units per asset	Units per hour	Labor cost per unit	Equip cost per unit	total cost per unit
Excavator Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Dozer Operator	1	$ 75.42	$ 75.42	20%	$ 90.51	211	211	$ 0.43		$ 0.43
Truck Driver - Off Hwy	4.0	$ 47.78	$ 191.10	20%	$ 229.32	53	211	$ 1.08		$ 1.08
Mechanic	1	$ 60.46	$ 60.46	20%	$ 72.55	211	211	$ 0.34		$ 0.34
Cat 390F Excavator	1	$ 377.83	$ 377.83	20%	$ 453.39	211	211		$ 2.14	$ 2.14
Cat D6T Dozer	1	$ 155.07	$ 155.07	20%	$ 186.09	211	211		$ 0.88	$ 0.88
Cat 730 Articulated Truck	4.0	$ 218.66	$ 874.64	20%	$ 1,049.56	53	211		$ 4.96	$ 4.96
Ford F350 Service Truck	1	$ 17.22	$ 17.22	20%	$ 20.66	211	211		$ 0.10	$ 0.10
			TOTAL COST PER HOUR		$ 2,192.59	TOTAL COST PER UNIT		**$ 2.28**	**$ 8.09**	$ 10.37

Crew A	Excavation, Loading, and Hauling from Stockpile #4 to Open Pit	Units	CY	

Loading time Minute	Loads per Hour	LCY per load	LCY / Hour			Truck Match
9.65	6.2	34	**211**			**2.3**
Dumping time Minute	Avg distance to dump location		Miles round Trip	MPH	Enroute Min	Truck time per load - Minute
4.62	5280		2.00	15	8.0	22.3

CAT390 Excavator based crew
CATD6 Dozer assisting to pile materials.
CAT740 trucks matched by average haul distances.
Loading and hauling of materials from stockpile #4 old tailings waste site to pit.
Factored 3.5 times the estimated cycle time for loading to compensate for care in loading waste materials. CAT Performance Handbook edition 44
Service truck available full time for fueling and maintenance

Cycle Time Load - Sec	Load Bucket	Swing Loaded	Dump Bucket	Swing Empty	Total Cycle Time	Passes	Truck Spot	Time - Minutes
	35	21	11	18	1.40	6.0	1.25	**9.65**
	Truck Spot	Eject	Retract	Pullout	Time Minutes	Bucket CY	% of Capacity	LCY per Load
Dump	2.50	0.27	0.35	1.50	**4.62**	6.0	95%	**34**

Note: cost is approximately $ - per cubic yard - not including support activities (road maintenance, final grading)

Crew B	Excavation, Loading, and Hauling from Borrow Source	Units	CY	

Loading time Minute	Loads per Hour	LCY per load	LCY / Hour			Truck Match
6.25	9.6	24	**230**			**5.0**
Dumping time Minute	Avg Distance to Repository/Stage		Miles round Trip	MPH	Enroute Min	Truck time per load - Minute
4.62	13306		5.04	15	20.2	31.0

CAT980 Loader based crew loading trucks with clean borrow materials.
CATD6 Dozer assisting to pile materials.
CAT740 trucks matched by average haul distances.
Loading and hauling of materials for cover material to stockpile #4.
Service truck available full time for fueling and maintenance

Cycle Time Load - Sec	Load Bucket	Travel	Dump Bucket	Travel Empty	Total Cycle Time	Passes	Truck Spot	Time - Minutes
	15	30	10	20	1.25	4.0	1.25	**6.25**
	Truck Spot	Eject	Retract	Pullout	Time Minutes	Bucket CY	% of Capacity	LCY per Load
Dump	2.50	0.27	0.35	1.50	**4.62**	9.0	67%	**24**

Note: cost is approximately $ - per cubic yard - not including support activities (road maintenance, final grading)

Crew C	Earthmoving and Leveling Materials	Units	CY

Effective blade width - FT	Amount carried per pass - CY	Distance to spread - LF	Traveled distance - Mile	Working speed - MPH	Time to spread - HR	Reversing speed - MPH	Time to reverse - HR	Time per pass - HR	Passes per hour	Production per hour - CY
14.1	17.7	75	0.014	3.10	0.005	4.20	0.003	0.008	125.56	**2222.46**
					Minutes		Minutes			
					0.275		0.203	0.478		

CAT D9 Dozer based crew leveling material spot dumped
Laborers for grade checking and spotting trucks
A service truck is available 25% of the time for fueling and normal maintenance.

Crew D	Drilling and Blasting	Units	CY	Production per hour - CY	1000

One crew consisting of 4 drill, percussion crawlers - drilling <100' section per day, drill, load, shoot each 24 hours at 8.25 hour effective work hours per day

Crew E	Stripping of Shot Materials	0	0

Effective blade width - FT	Amount carried per pass - CY	Distance to spread - LF	Traveled distance - Mile	Working speed - MPH	Time to spread - HR	Reversing speed - MPH	Time to reverse - HR	Time per pass - HR	Passes per hour	Production per hour - CY
14.1	17.7	300	0.057	2.10	0.027	3.20	0.018	0.045	22.32	**394.98**
					Minutes		Minutes			
					1.623		1.065	2.689		

CAT D9T Dozer based crew stripping shot materials into the pit
Semi U blade
Service truck is available 25% of the time for fueling and normal maintenance.

Crew F	Final Grading				Units	AC	Acres / Hr.	1.40				
Blade Width - FT	Area Width - FT	Area Length - FT	Passes to cover	Actual passes	Traveled distance - Mile	Working speed - MPH	Time - Hours	Turning / Repositioning	Efficiency	Hours	SF in Area	Acres / Hour
14	100	100	7.14	8.00	0.152	3.70	0.041	0.040	50%	0.16	10,000	**1.40**

CAT MG 14M based crew, final grading of materials spot dumped. CATD6 assisting
One CAT740 8000 gallon water truck for soil amending and dust control
Service truck is available 25% of the time for fueling and normal maintenance.
CAT Handbook 416C - tillage performance (factor formula for acres per hour)

Crew G	Compaction of Pit Backfill Materials				Units	SY							
Drum width - FT	Area Width - FT	Area Length - FT	Passes to cover	Actual passes	Traveled distance - Mile	Working speed - MPH	Time - Hours	Turning / Repositioning	Number of 6" lifts	Passes for % of compaction	Hours	SF in Area	Production* per Hour - SY
6.5	100	100	15.38	16.00	0.303	1.50	0.202	0.080	20	1	5.64	10,000	**197**
						Minutes	12	4.8					

Compacting of repository cover and roadways
CATCS56B Roller based crew with a CAT740 water trucks assisting for compaction and dust control
*CAT CS56 specifications - publication HEHG3672 (10/2007)
250 Cubic Meters per hour at 6" depth = 1,965 SY per Hour - 95-98% compaction
250 Cubic Meters per hour at 4" depth = 2,947 SY per Hour - 95-98% compaction

Crew H	Compaction of Stockpile #4 Cover Materials				Units	SY							
Drum width - FT	Area Width - FT	Area Length - FT	Passes to cover	Actual passes	Traveled distance - Mile	Working speed - MPH	Time - Hours	Turning / Repositioning	Number of 12" lifts	Passes for % of compaction	Hours	SF in Area	Production* per Hour - SY
6.5	100	100	15.38	16.00	0.303	1.50	0.202	0.080	3	2	1.69	10,000	**657**
						Minutes	12	4.8					

Compacting of cover material in 12" lifts with a sheepsfoot type compactor
CAT 815K Soil Compactor based crew with a CAT740 water trucks assisting for compaction and dust control
248hp 49,353 lb.

Crew I	Dust Control During Earth Movement Activities	Units	DY

Truck match from distance and haul speed. Variable calculation on hall costs.

Scope #	Avg distance to dump location	Miles round Trip	MPH	Enroute Min	Dumping time Minute	Loading Time - Minutes	Loads per Hour	Truck time per load - Minute	Truck Match
3	3960	1.50	10	9.0	4.62	9.65	6.2	23.3	**2.4**
4	4910	1.86	17	6.6	4.62	9.65	6.2	20.8	**2.2**
5	3485	1.32	15	5.3	4.62	9.65	6.2	19.6	**2.0**
6	5755	2.18	17	7.7	4.62	9.65	6.2	22.0	**2.3**
7	10824	4.10	12	20.5	4.62	9.65	6.2	34.8	**3.6**
8	7234	2.74	13	12.6	4.62	9.65	6.2	26.9	**2.8**
9	7234	2.74	13	12.6	4.62	9.65	6.2	26.9	**2.8**
10	0	0.00	0		4.62	9.65	6.2	14.3	
11	7234	2.74	13	12.6	4.62	9.65	6.2	26.9	**2.8**
12	0	0.00	0		4.62	9.65	6.2	14.3	
13	6283	2.38	12	11.9	4.62	9.65	6.2	26.2	**2.7**
14	0	0.00	0		4.62	9.65	6.2	14.3	
15	7709	2.92	10	17.5	4.62	9.65	6.2	31.8	**3.3**
16	9662	3.66	10	22.0	4.62	9.65	6.2	36.2	**3.8**
17	0	0.00	0		4.62	9.65	6.2	14.3	
20	9662	3.66	10	22.0	4.62	9.65	6.2	36.2	**3.8**

Crew J	Grading and Drainage Channel				Units	AC	Acres/Hr.	0.20				
Blade Width - FT	Area Width - FT	Area Length - FT	Passes to cover	Actual passes	Traveled distance - Mile	Working speed - MPH	Time - Hours	Turning / Repositioning	Efficiency	Hours	SF in Area	Acres / Hour
14	30	1000	2.14	3.00	0.568	2.70	0.210	1.50	50%	3.42	30,000	**0.20**

CAT MG 14M based crew, final grading of materials spot dumped. CATD6 assisting
One CAT740 8000 gallon water truck for soil amending and dust control
Service truck is available 25% of the time for fueling and normal maintenance.
CAT Handbook 416C - tillage performance (factor formula for acres per hour)

Crew K	Permanent Stormwater Earthmoving - CY per Hour			
	Minute per pass	Passes per hour	CY per pass	CY per hour
	1.35	44.44	5.49	**244**

Excavator and loader based crew for general excavation of materials
Materials that are excavated, moved a short distance, spread over an area to be placed by other crew
Excavation of materials for stormwater features

Cycle Time	Load Bucket	Swing Loaded	Dump Bucket	Swing Empty	Total Cycle Time	Passes	Truck Spot*	Time - Minutes	Bucket CY	% of Capacity	LCY per Load
Excavator	0.75	0.25	0.10	0.25	1.35	0.0	0.00	**0**	6.1	90%	**5.49**
	Load Bucket	Travel Loaded	Dump Bucket	Travel Empty	Total Cycle Time	Passes	Truck Spot	Time - Minutes	Bucket CY	% of Capacity	LCY per Load
Loader	0.25	0.5	0.10	0.5	1.35	0.0	0.00	**0**	7.1	90%	6.39

Crew L | **Compaction of Drainage Channel** | **Units** | **SY**

Drum width - FT	Area Width - FT	Area Length - FT	Passes to cover	Actual passes	Traveled distance - Mile	Working speed - MPH	Time - Hours	Turning / Repositioning	Number of 6" lifts	Passes for % of compaction	Hours	SF in Area	Production* per Hour - SY
6.5	100	100	15.38	16.00	0.303	1.50	0.202	0.080	20	1	5.64	10,000	**197**
						Minutes	12	4.8					

Compacting of repository cover and roadways
CATCS56B Roller based crew with a CAT740 water trucks assisting for compaction and dust control
*CAT CS56 specifications - publication HEHG3672 (10/2007)
250 Cubic Meters per hour at 6" depth = 1,965 SY per Hour - 95-98% compaction
250 Cubic Meters per hour at 4" depth = 2,947 SY per Hour - 95-98% compaction

Crew M | **Spreading and Leveling Materials** | **Units** | **CY**

Effective blade width - FT	Amount carried per pass - CY	Distance to spread - LF	Traveled distance - Mile	Working speed - MPH	Time to spread - HR	Reversing speed - MPH	Time to reverse - HR	Time per pass - HR	Passes per hour	Production per hour - CY
8	6	150	0.028	2.00	0.014	2.10	0.014	0.028	36.06	**216.35**
					Minutes		Minutes			
					0.852		0.812	1.664		

CAT D6 Dozer based crew leveling material spot dumped
CAT Motor Grader fine grading
Two laborers for grade checking and spotting trucks
A service truck is available 25% of the time for fueling and normal maintenance.

Crew N - Placing Riprap - CY per Hour

Minute per pass	CY per pass	CY / Hour
1.25	1.5	**73**

CAT390 Excavator with thumb based crew, with CAT980 Loader assisting to move and pile materials.
Placing various sizes of riprap in various locations. Riprap delivered by truck and located as needed by loader
Laborer for spotting trucks

Cycle Time	Load Bucket	Swing Loaded	Place	Swing Empty	Total Cycle Time	Bucket CY	% of Capacity	LCY per Load
	0.50	0.25	0.25	0.25	**1.25**	6.1	45%	**2.7**

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LABOR			CALCULATIONS				
Description	**Unit**	**Total Labor Cost**	**Base Rate**	**Burden 35%**	**With Burden**	**Efficiency Factor**	New Mexico Department of Workforce - Prevailing Wage Type H - 2019 Base Rate + Fringe Rate + Apprenticeship
Supervisor	Hour	$ 129.73	$ 66.07	$ 23.12	$ 89.19	1.455	
Excavator Operator	Hour	$ 75.42	$ 38.41	$ 13.44	$ 51.85	1.455	Operator Group X
Dozer Operator	Hour	$ 75.42	$ 38.41	$ 13.44	$ 51.85	1.455	Operator Group X
Loader Operator	Hour	$ 69.14	$ 35.21	$ 12.32	$ 47.53	1.455	Operator Group IX
General Machinery Operator	Hour	$ 54.04	$ 27.52	$ 9.63	$ 37.15	1.455	Operator Group V
Motor Grader Operator	Hour	$ 75.42	$ 38.41	$ 13.44	$ 51.85	1.455	Operator Group X
Truck Driver - Off Hwy	Hour	$ 47.78	$ 24.33	$ 8.52	$ 32.85	1.455	Truck Driver Group V
Truck Driver - OTR	Hour	$ 45.29	$ 33.55	$ 11.74	$ 45.29	1.000	From previous NM estimates
Mechanic	Hour	$ 60.46	$ 30.79	$ 10.78	$ 41.57	1.455	
Laborer	Hour	$ 46.81	$ 23.84	$ 8.34	$ 32.18	1.455	Laborer Group II
Flagger	Hour	$ 45.34	$ 23.09	$ 8.08	$ 31.17	1.455	Laborer Group I
Security Guard	Hour	$ 46.81	$ 23.84	$ 8.34	$ 32.18	1.455	Laborer Group II

	Hours of Work	Start of Shift	Travel (2)	Inspection of Equipment	Lunch	Break (2)	Available Hours	Labor efficiency -	Shift Hours	Efficiency factor
Efficiency of work hours	10	0.25	0.25	0.25	0.5	0.5	8.25	50/60	**6.875**	**1.455**

EQUIPMENT			CONSEQUENTIAL COSTS							DEPRECIATION COSTS				
Description	**Unit**	**Total Equipment Hourly Rate**	**Routine & Maintenance**	**Fuel**	**Lubrication**	**Tires & Chains**	**GET/Wear**	**No Fuel ($/hr.)**	**All in**	**Market Value**	**Replacement value**	**Rental Rate (Monthly)**	**Hrs/Mo**	**Hourly Rate**
Cat 390F Excavator	Hour	$ 377.83	$ 26.55	$ 70.50	$ 3.66		$ 4.47	$ 34.68	$ 105.18	$ 1,890,000.00	2.5%	$ 47,250	173.3	$ 272.65
CAT 390F L Excavator w/thumb	Hour	$ 379.27	$ 26.55	$ 70.50	$ 3.66		$ 4.47	$ 34.68	$ 105.18	$ 1,900,000.00	2.5%	$ 47,500	173.3	$ 274.09
Cat 14M Grader	Hour	$ 224.31	$ 44.79	$ 35.37	$ 1.88	$ 1.99	$ 1.43	$ 50.09	$ 85.46	$ 962,500.00	2.5%	$ 24,063	173.3	$ 138.85
Cat 980H Wheel Loader	Hour	$ 259.89	$ 45.60	$ 31.85	$ 1.73	$ 6.91	$ 7.64	$ 61.88	$ 93.73	$ 1,151,875.00	2.5%	$ 28,797	173.3	$ 166.17
Cat D6T Dozer	Hour	$ 155.07	$ 56.05	$ 30.39	$ 1.20	$ -	$ 2.41	$ 59.66	$ 90.05	$ 450,750.00	2.5%	$ 11,269	173.3	$ 65.02
CAT D9 Dozer	Hour	$ 242.23	$ 26.55	$ 70.50	$ 3.66	$ -	$ 4.47	$ 34.68	$ 105.18	$ 950,000.00	2.5%	$ 23,750	173.3	$ 137.05
Western Star 4900SA	Hour	$ 60.67	$ 3.56	$ 21.15	$ 1.15	$ 1.44	$ -	$ 6.16	$ 27.31	$ 231,250.00	2.5%	$ 5,781	173.3	$ 33.36
Western Star WT6900 - Water Truck	Hour	$ 352.29	$ 58.28	$ 69.77	$ 3.65	$ 10.52	$ -	$ 72.44	$ 142.22	$ 1,456,250.00	2.5%	$ 36,406	173.3	$ 210.08
Cat 730 Articulated Truck	Hour	$ 218.66	$ 56.08	$ 30.27	$ 2.40	$ 3.69	$ -	$ 62.16	$ 92.43	$ 875,000.00	2.5%	$ 21,875	173.3	$ 126.23
CAT Articulated 740 EJ Dump Truck	Hour	$ 218.66	$ 56.08	$ 30.27	$ 2.40	$ 3.69	$ -	$ 62.16	$ 92.43	$ 875,001.00	2.5%	$ 21,875	173.3	$ 126.23
CAT 740 8000 gal water truck	Hour	$ 218.66	$ 56.08	$ 30.27	$ 2.40	$ 3.69	$ -	$ 62.16	$ 92.43	$ 875,000.00	2.5%	$ 21,875	173.3	$ 126.23
Tri-axle Single Drop Gooseneck Trailer	Hour	$ 21.63	$ 1.25	$ -	$ -	$ 1.44	$ -	$ 2.69	$ 2.69	$ 131,250.00	2.5%	$ 3,281	173.3	$ 18.93
Western Star 4900SB - Vacuum tank	Hour	$ 69.68	$ 3.56	$ 21.15	$ 1.15	$ 1.44	$ -	$ 6.16	$ 27.31	$ 293,750.00	2.5%	$ 7,344	173.3	$ 42.38
Cat CS56B Roller	Hour	$ 52.25	$ 3.33	$ 20.66	$ 1.13	$ 0.46	$ -	$ 4.91	$ 25.58	$ 184,927.00	2.5%	$ 4,623	173.3	$ 26.68
Cat CS54B Roller	Hour	$ 42.33	$ 3.33	$ 20.66	$ 1.13	$ 0.46	$ -	$ 4.91	$ 25.58	$ 116,115.00	2.5%	$ 2,903	173.3	$ 16.75
Cat 815K Soil Compactor	Hour	$ 74.63	$ 3.33	$ 20.66	$ 1.13	$ 0.46	$ -	$ 4.91	$ 25.58	$ 340,000.00	2.5%	$ 8,500	173.3	$ 49.05
Drill, Percussion Crawler	Hour	$ 183.26	$ 26.01	$ 47.24	$ 7.95	$ -	$ 7.14	$ 41.10	$ 88.34	$ 658,000.00	2.5%	$ 16,450	173.3	$ 94.92
Mobile Crushing/Screening Plant	Hour	$ 437.71	$ 136.63	$ 138.58	$ 9.24	$ -	$ -	$ 145.86	$ 284.44	$ 1,062,500.00	2.5%	$ 26,563	173.3	$ 153.27
Ford F350 Service Truck	Hour	$ 17.22	$ 1.13	$ 5.11	$ 0.28	$ 1.33	$ -	$ 2.73	$ 7.84	$ 65,000.00	2.5%	$ 1,625	173.3	$ 9.38
Grove 65t Rough Terrain Crane	Hour	$ 183.05	$ 4.75	$ 48.62	$ 2.27	$ 5.69	$ -	$ 12.71	$ 61.33	$ 843,750.00	2.5%	$ 21,094	173.3	$ 121.72
Klein KPT120 12,000 gal Porto Tower water tank	Hour	$ 6.35	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 44,000.00	2.5%	$ 1,100	173.3	$ 6.35
Vermeer BC1000XL Wood Chipper	Hour	$ 24.89	$ 3.33	$ 14.95	$ 1.13	$ -	$ -	$ 4.46	$ 19.41	$ 38,000.00	2.5%	$ 950	173.3	$ 5.48
Bobcat T595 tracked skid steer with auger	Hour	$ 34.52	$ 3.33	$ 20.66	$ 1.13	$ 0.46	$ -	$ 4.91	$ 25.58	$ 61,995.00	2.5%	$ 1,550	173.3	$ 8.94
spare														

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MATERIALS					
Description	**Unit**	**Price**			
Jobsite 40' Office Containers	Each	$ 32,068.38			
Jobsite trailers	Each				
Security trailers	Each/Month				
Sanitation facilities	Each/Month				
Decontamination Station	Month				
Jersey barriers	Each	$ 621.12			
Traffic control signage	Month	$ 1,369.00			
Traffic control signals	Month	$ 5,000.00			
Gates - 40' wide	Each	$ 3,000.00			
Mud grates - 40' wide	Each	$ 5,000.00			
Fencing - General	LF	$ 150.00			
24" corrugated culverts	LF	$ 843.22			
12" corrugated culverts	LF	$ 434.12			
Gabion basket materials	S.Y.	$ 138.26			
Gabion basket labor and materials	CY	$ 216.84			
Geotextile fabric incl mat, equip, labor	SY	$ 3.10			
Road Gravel - 1" minus	TON	$ 18.87			
Concrete - 3,000 lb. mix - delivered	CY	$ 152.50			
Type I filter material - delivered	TON	$ 15.75			
Type II filter material - delivered	TON	$ 15.75			
D50 = 3.0 in.	CY	$ 17.55			
D50 = 6.0 in.	CY	$ 17.55			
D50 = 9.0 in	CY	$ 20.25			
D50 = 15.0 in.	CY	$ 20.25			
D50 = 18.0 in.	CY	$ 24.30			
D50 = 27.0 in.	CY	$ 25.65			
Seeding	M.S.F.	$ 62.56	$ 2,725.23	Acre	Seeding rye, fine textured, with mulch and fertilizer, 10 lb. per M.S.F., hydro or air seeding
		$ -			

OTHER		
Concrete culvert, headwall concrete, precast, 30 degree skewed wingwall, 30" diameter pipe	Ea.	$ 2,881.32
Rip-rap and rock lining, random, broken stone, 18" minimum thickness, machine placed for slope protection, not grouted	S.Y.	$ 82.74
Synthetic erosion control, polyethylene, 3 dimensional geomatrix, 50 mil thick	S.Y.	$ 5.16
Soil preparation, structural soil mixing, remove topsoil & stock pile on site, 12" deep, 50' haul, 75 HP dozer	M.S.F.	$ 72.19
Gabion boxes, galvanized steel mesh mats or boxes, stone filled, 36" deep	S.Y.	$ 138.26
Fencing Supply & Install	LF	$ 150.00
Fencing 8' commercial-grade chain link - materials	LF	$ 6.04
Fencing commercial-grade chain link - labor	LF	$ 22.71
Traffic signals, vertical mast and foundation, mast sized for single arm up to 40'; no lighting or transmission function	Ea.	$ 20,439.69
Traffic signals, horizontal arm, per linear foot of arm	Ea.	$ 320.69
Traffic signal, traffic signals, includes signal, bracket, sensor, and wiring	Ea.	$ 2,919.41
Traffic signals, pedestrian signals and callers, includes four signals with brackets and two call buttons	Ea.	$ 5,246.38
Traffic signals, controller, design, and underground conduit, includes miscellaneous signage and adjacent surface work	Ea.	$ 40,945.97
12,000 gal mobile elevated water tank. Purchase with delivery		$ 56,750.00

Contractor Billing Rates - For Estimation of Services		Salary	Hour	Burden		Cont. MU	Billing Rate
Senior Engineer	Year	$ 175,000.00	$ 84.13	35%	$ 113.58	20%	$ 136.30
Project Engineer	Year	$ 150,000.00	$ 72.12	35%	$ 97.36	20%	$ 116.83
Project Manager	Year	$ 147,500.00	$ 70.91	35%	$ 95.73	20%	$ 114.88
Field personnel, clerk, average	Week	$ 559.18	$ 13.98	35%	$ 18.87	20%	$ 22.65
Field personnel, field engineer, average	Week	$ 1,742.65	$ 43.57	35%	$ 58.81	20%	$ 70.58
Field personnel, project manager, average	Week	$ 2,834.20	$ 70.86	35%	$ 95.65	20%	$ 114.79
Field personnel, superintendent, average	Week	$ 2,642.70	$ 66.07	35%	$ 89.19	20%	$ 107.03
Field personnel, timekeeper, average	Week	$ 1,532.00	$ 38.30	35%	$ 51.71	20%	$ 62.05

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Conversions				
1	Acre	=	4,840.00	SY
1	Acre	=	43,560.00	SF
1	CY	=	27.00	CF
1	SY	=	9.00	SF
1	Mile	=	1,760.00	SY
1	Mile	=	5,280.00	FT
1	Square Mile	=	640.00	Acre
1	Square Mile	=	259.00	Hectare
1	MPH	=	1.47	FT / Second
1	US Ton	=	2,000.00	lbs.
1	Metric Ton	=	2,204.62	lbs.
1	Cubic Meter	=	35.37	CF
1	Cubic Meter	=	1.31	CY
1	Cubic Yard	=	0.76	CM
1	Meter	=	3.28	FT
1	Foot	=	0.30	Meter
1	Month	=	4.33	Weeks

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Assumptions

Description	Value	Comment
Contractor Markup	20%	Percent
Contingency - Calculated	0.00%	Percent
AACE Cost Estimate - Class	4	See footnote
Estimate Accuracy	-30 to +50	% Percent
Efficiency factor	1.45	Factor
10 hour work day results in 8.25 available hours	8.25	Effective work hours
Work Hours - 10 hour days, 6 days per week	60.00	Hours per week
Swell factor of Bank Material to Loose Cubic Yards	0%	Accept engineers estimate quantity for comparative purposes
Average weight of one cubic yard of material	1.35	tons - 2,700 lbs./CY
Wage rate burden	35%	taxes and markup
Equipment Replacement Value	2.5%	Used to calculate the hourly rate of contractors equipment

AACE International **CLASS 4 Cost Estimate –** Class 4 estimates are generally prepared based on limited information and subsequently have fairly wide accuracy ranges. Typically, engineering is 10% to 40% complete. They are typically used for project screening, determination of feasibility, concept evaluation, and preliminary budget approval. Virtually all Class 4 estimates use stochastic estimating methods such as cost curves, capacity factors, and other parametric and modeling techniques. Expected accuracy ranges are from –15% to –30% on the low side and +20% to 50% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances.