

**Closure Cost Estimate
Property Information**

Enter Data Below in Green and Blue Spaces

STANDARDIZED RECLAMATION COST ESTIMATOR

Version 1.4.1
Build 017b (Revised 16 May 2019)

Approved for use in Nevada, August 1, 2012

COST DATA FILE INFORMATION	
File Name:	Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Cost Data File:	SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Data Date:	September 29, 2020
Cost Data Basis:	User Data Data Cost Units: Imperial
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coos
PROJECT INFORMATION	
Property/Mine Name:	Foothill Dolomite Mine Property Code: N/A
Project Name:	Foothill Dolomite Mine
Date of Submittal:	09-29-2020 Average Altitude: 4865 ft.
Select One:	<input type="radio"/> Notice or Sm Exploration Plan <input type="radio"/> Lg Exploration Plan <input checked="" type="radio"/> Mine Operation
Select One:	<input type="radio"/> Private Land <input checked="" type="radio"/> Public or Public/Private
Cost Estimate Type:	Surety
Cost Basis Category:	American Magnesium - Option 1
	American Magnesium - Foothill Dolomite Mine - Northern Nevada Equipment
Cost Basis Description:	

**Closure Cost Estimate
Table of Contents**

Project Name: Foothill Dolomite Mine

Project Date: 09-29-2020

**_Cost Estimate for Reclamation after Exploration.xlsm
Reclamation Plan**

Table of Contents

Property Information
Cost Summary
Exploration
Exploration Roads & Pads
Waste Rock Dumps
Heap Leach Pads
Tailings
Roads
Pits
Quarries & Borrow Pits
Underground Openings
Material Hauling
Foundations and Buildings
Other Demo & Equipment Removal
Sediment & Drainage Control
Process Ponds
Landfills
Yards, Etc.
Waste Disposal
Well Abandonment
Misc. Costs
Monitoring
Construction Management
Solution Management
Other User
Reclamation Quantities
Labor Costs
Equipment Costs
Material Costs
Misc. Unit Costs
Fleets (Crews)
Productivity
User Tools
Seed Mixture
User Sheet 1
User Sheet 2
User Sheet 3
User Sheet 4
User Sheet 5
User Sheet 6
User Sheet 7
User Sheet 8

Description

Closure Cost Estimate
Table of Contents

User Sheet 9
User Sheet 10
User Sheet 11
User Sheet 12
User Sheet 13
User Sheet 14
User Sheet 15
User Sheet 16
User Sheet 17
User Sheet 18
User Sheet 19
User Sheet 20

**Closure Cost Estimate
Cost Summary**

Project Name: Foothill Dolomite Mine

Project Date: 09-29-2020

Model Version: Version 1.4.1

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A. Earthwork/Recontouring	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Exploration	\$0	\$0	\$0	\$0
Exploration Roads & Drill Pads	\$2,767	\$13,288	\$0	\$16,055
Roads	\$569	\$3,066	\$0	\$3,635
Well Abandonment	\$0	\$0	\$0	\$0
Pits	\$0	\$0	N/A	\$0
Quarries & Borrow Areas	\$0	\$0	\$0	\$0
Underground Openings	\$0	\$0	\$0	\$0
Process Ponds	\$0	\$0	\$0	\$0
Heaps	\$0	\$0	\$0	\$0
Waste Rock Dumps	\$0	\$0	\$0	\$0
Landfills	\$0	\$0	\$0	\$0
Tailings	\$0	\$0	\$0	\$0
Foundation & Buildings Areas	\$0	\$0	\$0	\$0
Yards, Etc.	\$132	\$685	\$0	\$817
Drainage & Sediment Control	\$0	\$0	\$0	\$0
Generic Material Hauling	\$0	\$0	\$0	\$0
Other User Costs (from Other User sheet)	\$0	\$0	\$59,427	\$59,427
Other**				\$0
Subtotal	\$3,468	\$17,039	\$59,427	\$79,934
Mob/Demob if included in Other User sheet	\$0	\$0	\$0	\$0
Mob/Demob				\$0
Subtotal "A"	\$3,468	\$17,039	\$59,427	\$79,934
B. Revegetation/Stabilization	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Exploration	\$0	\$0	\$0	\$0
Exploration Roads & Drill Pads	\$410	\$147	\$18,755	\$19,312
Roads	\$210	\$75	\$9,601	\$9,886
Well Abandonment			N/A	
Pits	\$0	\$0	\$0	\$0
Quarries & Borrow Areas	\$0	\$0	\$0	\$0
Underground Openings			N/A	
Process Ponds	\$0	\$0	\$0	\$0
Heaps	\$0	\$0	\$0	\$0
Waste Rock Dumps	\$0	\$0	\$0	\$0
Landfills	\$0	\$0	\$0	\$0
Tailings	\$0	\$0	\$0	\$0
Foundation & Buildings Areas	\$0	\$0	\$0	\$0
Yards, Etc.	\$140	\$50	\$1,601	\$1,791
Drainage & Sediment Control	\$0	\$0	\$0	\$0
Generic Material Hauling	\$0	\$0	\$0	\$0
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Other**				\$0
Subtotal "B"	\$760	\$272	\$29,957	\$30,989
C. Detoxification/Water Treatment/Disposal of Wastes**	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Process Ponds/Sludge				\$0
Heaps				\$0
Dumps (Waste & Landfill)				\$0
Tailings				\$0
Surplus Water Disposal				\$0
Monitoring				\$0
Miscellaneous				\$0
Solid Waste - On Site	\$0	\$0	N/A	\$0
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Other**				\$0
Subtotal "C"	\$0	\$0	\$0	\$0
D. Structure, Equipment and Facility Removal, and Misc.	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Foundation & Buildings Areas	\$0	\$0	\$0	\$0
Other Demolition	\$0	\$0	\$0	\$0
Equipment Removal	\$0	\$0	\$0	\$0
Fence Removal	\$0	\$0	\$0	\$0
Fence Installation	\$0	\$0	\$0	\$0
Culvert Removal	\$0	\$0	N/A	\$0
Pipe Removal	\$0	\$0	N/A	\$0
Powerline Removal	\$0			\$0
Transformer Removal	\$0			\$0
Rip-rap, rock lining, gabions	\$0	\$0	\$0	\$0
Other Misc. Costs	\$0	\$0	\$0	\$0
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Other**				\$0
Subtotal "D"	\$0	\$0	\$0	\$0
E. Monitoring	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Reclamation Monitoring and Maintenance	\$9,821	\$2,675	\$293	\$12,789
Ground and Surface Water Monitoring	\$0	\$0	\$0	\$0
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Subtotal "E"	\$9,821	\$2,675	\$293	\$12,789
F. Construction Management & Support	Labor	Equipment ⁽²⁾	Materials	Total
Construction Management	\$9,979	\$1,436	N/A	\$11,415
Construction Support	\$0	\$214	\$0	\$214
Road Maintenance	\$1,347	\$6,918	\$726	\$8,991
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Other**				\$0
Subtotal "F"	\$11,326	\$8,568	\$726	\$20,620
Subtotal Operational & Maintenance Costs	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials ⁽³⁾	Total
Subtotal A through F	\$25,375	\$28,554	\$90,403	\$144,332

**Closure Cost Estimate
Cost Summary**

Project Name: Foothill Dolomite Mine

Project Date: 09-29-2020

Model Version: Version 1.4.1

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

** Other Operator supplied costs - additional documentation required.

**Closure Cost Estimate
Cost Summary**

Project Name: Foothill Dolomite Mine

Project Date: 09-29-2020

Model Version: Version 1.4.1

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Indirect Costs				Include?	Total
1. Engineering, Design and Construction (ED&C) Plan (7)					\$11,547
2. Contingency (8)					\$14,433
3. Insurance (9)					\$381
4. Performance Bond (10)					\$4,330
5. Contractor Profit (11)					\$14,433
6. Contract Administration (12)					\$14,433
7. Government Indirect Cost (13)					\$3,031
Subtotal Add-On Costs					\$62,588
Total Indirect Costs as % of Direct Cost					43%
GRAND TOTAL					\$206,920
Administrative Cost Rates (%)					
		Cost Ranges for Indirect Cost Percentages			
		<=	<=	<=	>
1. Engineering, Design and Construction (ED&C) Plan (7)		\$1,000,000	\$25,000,000		\$25,000,000
Variable Rate		8%	6%		4%
2. Contingency (8)		\$500,000	\$5,000,000	\$50,000,000	\$50,000,000
Variable Rate		10%	8%	6%	4%
3. Insurance (9)		1.5%	of labor costs		
4. Bond (10)		3.0%	of the O&M costs if O&M costs are >\$100,000		
5. Contractor Profit (11)		10%	of the O&M costs		
6. Contract Administration (12)		\$1,000,000	\$25,000,000		\$25,000,000
Variable Rate		10%	8%		6%
0		21%	of contract administration		

RECLAMATION COST ESTIMATION SUMMARY SHEET FOOTNOTES

1. Federal construction contracts require Davis-Bacon wage rates for contracts over \$2,000. Wage rate estimates may include base pay, payroll loading,
2. The reclamation cost estimate must include the estimated plugging cost of at least one drill hole for each active drill rig in the project area. Where the
3. Miscellaneous items should be itemized on accompanying worksheets.
4. Fluid management should be calculated only when mineral processing activities are involved. Fluid management represents the costs of maintaining
5. Handling of hazardous materials includes the cost of decontaminating, neutralizing, disposing, treating and/or isolating all hazardous materials used,
6. Any mitigation measures required in the Plan of Operations must be included in the reclamation cost estimate. Mitigation may include measures to avoid,
7. Engineering, design and construction (ED&C) plans are often necessary to provide details on the reclamation needed to contract for the required work. To
8. A contingency cost is included in the reclamation cost estimation to cover unforeseen cost elements. Calculate the contingency cost as a percentage of the
9. Insurance premiums are calculated at 1.5% of the total labor costs. Enter the premium amount if liability insurance is not included in the itemized unit
10. Federal construction contracts exceeding \$100,000 require both a performance and a payment bond (Miller Act, 40 USC 270et seq.). Each bond premium
11. For Federal construction contracts, use 10% of estimated O&M cost for the contractor's profit.
12. To estimate the contract administration cost, use 6 to 10% of the operational and maintenance (O&M) cost. Calculate the contract administration cost as a
13. Government indirect cost rate is 21% of the contract administration costs.

Closure Cost Estimate
Other User

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Other Cost Items Calculated Elsewhere												
	Description (required)	ID Code	Facility Type	Quantity	Units	Total Capital Cost \$	Material Unit Cost \$	Labor Unit Cost \$	Equipment/ Operating Unit Cost \$	Cost Type (select)	Total Cost \$	Comments
1	Topdressing Purchase and Hauling		Off Site - Other Load Out	4,055	1	\$15,503.60	\$10.83			A. Earthwork	\$59,427	
						\$15,504	\$43,924	\$0	\$0		\$59,427	

Notes: Capital cost is lump sum (i.e. not multiplied by the quantity).
Material, Labor and Equipment/Operating costs are unit costs (i.e. multiplied by the quantity).
Note: Assumes 20% discount on purchased soil for bulk discount at \$13.54/cy original Cost
Note: Assumes Capitol Cost as Delivery cost at \$3.50 per mile using an 18 cy dump truck at 19.6 miles for delivery.

**Closure Cost Estimate
Reclamation Quantities**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
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Model Version: Version 1.4.1
Data Cost File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Reclamation Quantity Summary																	
												Unit Costs					
	Description	Total Regrade or Haul Volume cy	Total Regrade or Haul Cost \$	Total Cover Volume cy	Cover Placement Cost \$	Total Growth Media Volume cy	Growth Media Placement Cost \$	Total Surface Area acres	Total Scarify Cost \$	Total Revetation Cost \$	TOTALS \$	Regrade Unit Cost \$/CY	Material Haul or Backfill Unit Cost \$/CY	Cover Unit Cost \$/CY	Growth Media Unit Cost \$/CY	Scarify Unit Cost \$/CY	Area Unit Cost \$/acre
1	Waste Rock Dumps		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
2	Tailings Impoundments		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
3	Heap Leach Pads		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
5	Open Pits		\$ -						\$ -	\$ -	\$ -		N/A				
4	Quarries & Borrow Pits		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
6	Roads	42	163			2,420	3,309	1.5	163	9,886	13,521	3.88	N/A		1.37	108.67	9,014.00
7	Landfills		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
8	Buildings		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
9	Yards		\$ -		\$ -	484	654	0.25	163	1,791	2,608		N/A		1.35	652.00	10,432.00
10	Ponds		\$ -				\$ -		\$ -	\$ -	\$ -	N/A					
11	Exploration Roads	1,653	4,716			4,722	11,012	2.93	327	19,312	35,367	2.85	N/A		2.33	111.60	12,070.65
12	Exploration Trenches		\$ -							\$ -	\$ -		N/A				
13	Diversion Ditches		\$ -							\$ -	\$ -		N/A				
14	Sediment Ponds		\$ -				\$ -		\$ -	\$ -	\$ -		N/A				
15	Generic Haulage/Backfill		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -	N/A					
16	Adit/Decline Backfilling1		\$ -								\$ -	N/A					
17	Shaft Backfilling		\$ -								\$ -	N/A					
TOTALS		1,695	4,879	-	\$ -	7,626	14,975	4.68	653	30,989	51,496						
Average Costs		per CY	2.88	per CY		per CY	1.96	per acre	139.53	47.46	11,003	per acre					

Closure Cost Estimate Exploration

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration - Cost Summary				
	Labor	Equipment	Materials	Totals
Hole Abandonment Costs	\$0	\$0	\$0	\$0
Trench Backfilling Costs	\$0	\$0	\$0	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Trench Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Exploration Drillhole Abandonment - User Input										
Facility Description			Hole Plugging							
	Description (required)	ID Code	Hole Type (select)	Diameter in	Total Number of Holes	Max Holes Open at One Time	Casing to Remove ft	Average Depth of Hole ⁽¹⁾ ft bgs	Depth to Water ft bgs	Hole Plug Method (select)
1	Exploration Boreholes	N/A	Rotary Pre-dri	3.0	86.0	0.0	0.0	100.0	250.0	Grout Only

Notes:

1. If core holes are pre-drilled, use length of hole below pre-drilled length
2. If Top Plug is selected, assumes maximum 1/2hr laborer time to place plug and backfill with cuttings/soil (including move-to/set up time).

NOTE: Exploration Boreholes and casings will be removed and backfilled with grout upon drilling completion of each exploration borehole.

**Closure Cost Estimate
Exploration**

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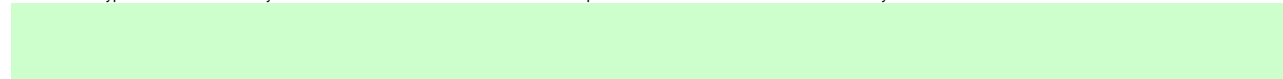
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration - Cost Summary				
	Labor	Equipment	Materials	Totals
Hole Abandonment Costs	\$0	\$0	\$0	\$0
Trench Backfilling Costs	\$0	\$0	\$0	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Trench Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Exploration Trenches - User Input													
Facility Description			Trench Parameters					Backfill			Revegetation		
	Description (required)	ID Code	Trench Length ft	Trench Depth ft	Trench Bottom Width ft	Trench Sideslope Angle degrees	Additional Hrs for Walk-in ⁽¹⁾ hr	Backfill Material (select)	Cut Material Type (select)	Backfilling Fleet (select)	Seed Mix (select)	Mulch (select)	Fertilizer (select)

Notes:

1. Include one-way hours necessary to walk equipment in from drop-off point to work area
2. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table



Closure Cost Estimate Exploration

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Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration - Cost Summary				
	Labor	Equipment	Materials	Totals
Hole Abandonment Costs	\$0	\$0	\$0	\$0
Trench Backfilling Costs	\$0	\$0	\$0	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Trench Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Exploration Drillhole Abandonment														
	Description (required)	Vol/foot of depth ft3	Hole Plugging Material ⁽¹⁾	Total Grout Volume ⁽²⁾ cy	Total Cuttings Volume cy	Total Top Seal Volume ^(3,4) cy	Total Drillhole Abandon. Hours ^(6,7) hrs	Casing Removal Labor Cost ⁽⁵⁾ \$	Casing Removal Equipment Cost \$	Plugging Labor Cost \$	Plugging Equipment Cost \$	Plugging Material Cost \$	Top Seal Material Cost ^(2,3) \$	Total Cost ^(6,7) \$
1	Exploration Boreholes	0.050	Cuttings	0.19			3	\$0	\$0	\$0	\$0	\$0	\$0	\$0
				0.19			3	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Notes:

1. Assumes grout backfill from bottom of hole to 50' (15.24m) above static water level, up to 10' (3m) from top of hole
2. Assumes 25% loss to formation for grout backfill
3. If "Top Plug" hole plug method is used, assumes physical plug installed without backfill, grout or cement. Not available option for Nevada projects
4. Assumes top 20' (6 m) of hole is plugged with cement if "Grout Only", "Backfill + Grout", or "Cement Plug" hole plug method are chosen.
5. Assumes that a) casing is not cemented entire length, b) does not include temporary surface casing
6. Assumes minimum 1 hr per hole for abandonment (excluding move-to and casing removal)
7. Assumes fixed hours per hole for setup & tear-down and moving between holes (see Productivity Sheet) per drill hole (includes rig time if grouting required, labor crew only if cuttings backfill only)

Closure Cost Estimate Exploration

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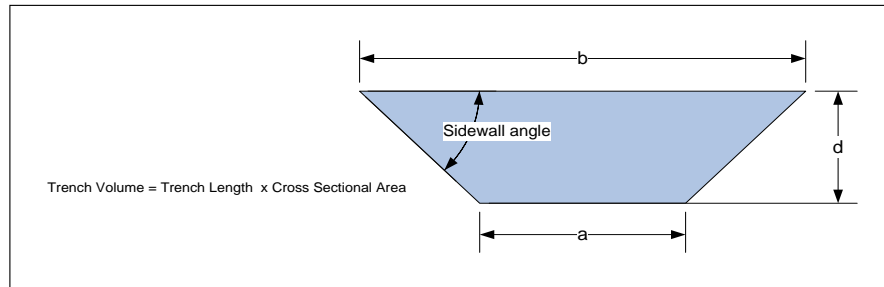
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Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration - Cost Summary				
	Labor	Equipment	Materials	Totals
Hole Abandonment Costs	\$0	\$0	\$0	\$0
Trench Backfilling Costs	\$0	\$0	\$0	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Trench Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Exploration Trenches - Calculations

Exploration Trench Volume Calculation



Dozing & Ripping/Scarifying Calculations

Dozing: Dozing distance = 1/2 trench length or 400 ft (max push) whichever is less
Assumes flat push (grade correction factor = 1)

Revegetation: 10 ft added to trench width to account for revegetation under spoil pile

Closure Cost Estimate Exploration

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Exploration - Cost Summary				
	Labor	Equipment	Materials	Totals
Hole Abandonment Costs	\$0	\$0	\$0	\$0
Trench Backfilling Costs	\$0	\$0	\$0	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Trench Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Exploration Trenches - Backfill/Regrading Costs												
Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83)												
	Description (required)	Trench Backfill Volume	Dozer Push Distance	Equipment Productivity	Dozing Material	Density Correction	Backfilling Fleet	Corrected Hourly Productivity	Total Dozer Hours	Trench Backfill Labor Cost	Trench Backfill Equipment Cost	Total Trench Backfill Cost
		LCY (BCY+30%)	ft	yd3/hr				yd3/hr	hr	\$	\$	\$
										\$0	\$0	\$0

**Closure Cost Estimate
Exploration**

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Exploration - Cost Summary				
	Labor	Equipment	Materials	Totals
Hole Abandonment Costs	\$0	\$0	\$0	\$0
Trench Backfilling Costs	\$0	\$0	\$0	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Trench Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Exploration Trenches - Revegetation Costs						
	Description (required)	Surface Area acres	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
			\$0	\$0	\$0	\$0

Closure Cost Estimate

Expl. Roads & Pads

Project Name: Foothill Dolomite Mine - Reclamation Plan

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Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration Roads & Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$1,038	\$3,678	N/A	\$4,716
Cover Placement Cost	\$1,677	\$9,335	N/A	\$11,012
Ripping/Scarifying Cost	\$52	\$275	N/A	\$327
Subtotal Earthworks	\$2,767	\$13,288		\$16,055
Revegetation Cost	\$410	\$147	\$18,755	\$19,312
TOTALS	\$3,177	\$13,435	\$18,755	\$35,367

Exploration Roads & Pads - User Input																	
You must fill in ALL green cells and relevant blue cells in this section for each road																	
Facility Description			Physical (1) - MANDATORY										User Overrides		Growth Media		
	Description (required)	ID Code	Underlying Ground Slope % grade	Ungraded Slope _H:1V	Cut Slope degrees	Road + Drill Pad Length ft	Road Width ft	Number of Drill Pads	Individual Sump Volume cy	Drill Pad Width ft	Drill Pad Length ft	Slope Replacement Percent %	Regrade Volume (if calculated elsewhere) cy	Disturbed Area (if calculated elsewhere) acres	Growth Media Thickness in	Distance to Growth Media Stockpile ft	Slope from Road to Stockpile % grade
1	Exploration Roads		15.0	2.0	66.7	10,626	12.0	86	0	12.0	10	115%		2.93	12	1,379	15.0

Notes:

1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. Slope replacement refers to the percentage of cut volumn replaced during regrading.
3. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)
4. Sump volume will be applied to all roads on slopes <20%. On slopes >20% pad width (i.e. cut volume) should be adequate to account for sump volume.



**Closure Cost Estimate
Expl. Roads & Pads**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration Roads & Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$1,038	\$3,678	N/A	\$4,716
Cover Placement Cost	\$1,677	\$9,335	N/A	\$11,012
Ripping/Scarifying Cost	\$52	\$275	N/A	\$327
Subtotal Earthworks	\$2,767	\$13,288		\$16,055
Revegetation Cost	\$410	\$147	\$18,755	\$19,312
TOTALS	\$3,177	\$13,435	\$18,755	\$35,367

Exploration Roads & Pads - User Input (cont.)														
You must fill in ALL green cells and relevant blue cells in this section for each road														
		Grading				Growth Media				Revegetation				
	Description (required)	Regrade Material Condition (select)	Cut Material Type (select)	Recontouring Equipment Fleet (select)	Additional for Walk-in ⁽¹⁾	Growth Media Material Type (select)	Growth Media Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Additional Hrs for Walk-in ⁽¹⁾	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarifying/ Ripping? (select)	Ripping Fleet (select)
1	Exploration Roads	0.8	LS - broken	Small Dozer	1.0	Alluvium	Small Truck		1.0	User Mix 1	Straw Mulch	None	Yes	Small Dozer

Notes:

1. Include one-way hours necessary to walk equipment in from drop-off point to work area
2. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Closure Cost Estimate Expl. Roads & Pads

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration Roads & Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$1,038	\$3,678	N/A	\$4,716
Cover Placement Cost	\$1,677	\$9,335	N/A	\$11,012
Ripping/Scarifying Cost	\$52	\$275	N/A	\$327
Subtotal Earthworks	\$2,767	\$13,288		\$16,055
Revegetation Cost	\$410	\$147	\$18,755	\$19,312
TOTALS	\$3,177	\$13,435	\$18,755	\$35,367

Exploration Roads & Pads - Calculations

Regrading Volume and Footprint Volume

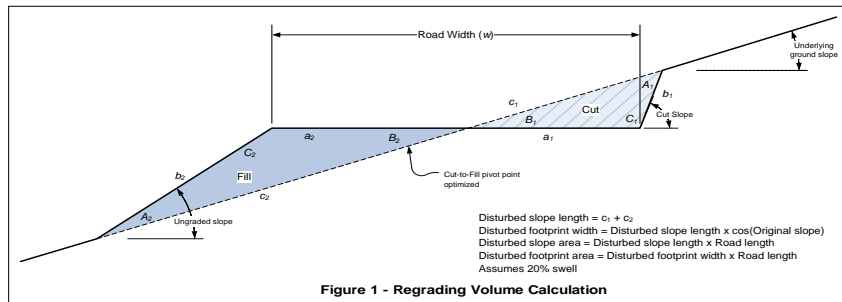


Figure 1 - Regrading Volume Calculation

Will not allow dozer for slopes greater than 30%
For dozer regreeding push distance = road width
Assumes dozer push is uphill
Assumes minimum push distance of 100 ft

Swell Factor: 1.2

Ripping/Scarifying Calculations

Minimum 1 hr ripping/scarifying time per area
Number of passes = Final slope length ÷ Grader width
Travel distance = Number of passes x Road length
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)
For dozer regreeding assumes push distance = 3 x road width

Revegetation Calculations

Minimum of 1 acre crew time per area

Closure Cost Estimate Expl. Roads & Pads

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

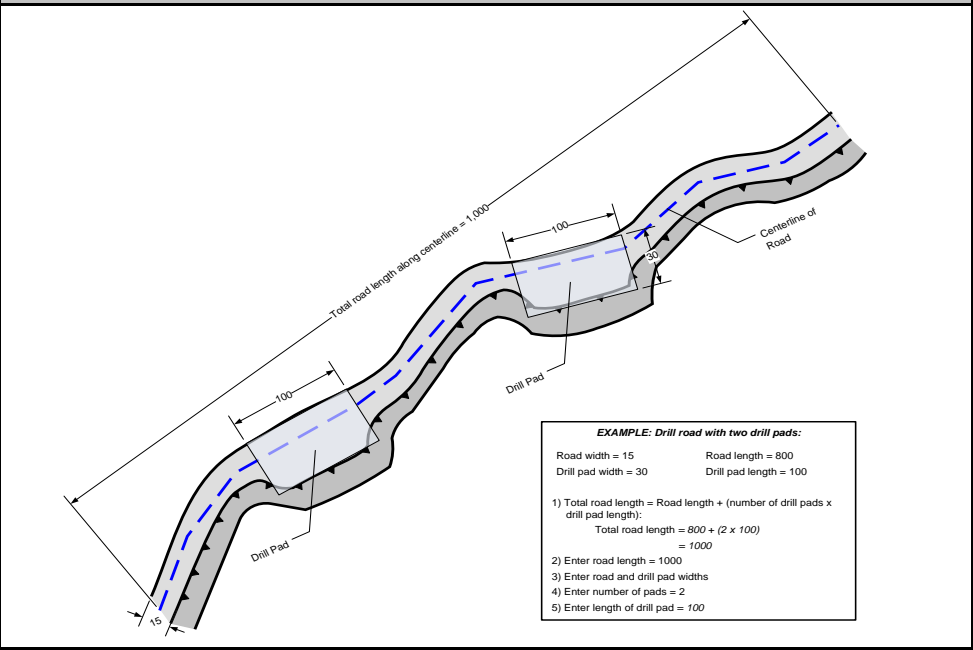
Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration Roads & Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$1,038	\$3,678	N/A	\$4,716
Cover Placement Cost	\$1,677	\$9,335	N/A	\$11,012
Ripping/Scarifying Cost	\$52	\$275	N/A	\$327
Subtotal Earthworks	\$2,767	\$13,288		\$16,055
Revegetation Cost	\$410	\$147	\$18,755	\$19,312
TOTALS	\$3,177	\$13,435	\$18,755	\$35,367

Inputting Exploration Roads and Drill Pads



Closure Cost Estimate
Expl. Roads & Pads

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration Roads & Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$1,038	\$3,678	N/A	\$4,716
Cover Placement Cost	\$1,677	\$9,335	N/A	\$11,012
Ripping/Scarifying Cost	\$52	\$275	N/A	\$327
Subtotal Earthworks	\$2,767	\$13,288		\$16,055
Revegetation Cost	\$410	\$147	\$18,755	\$19,312
TOTALS	\$3,177	\$13,435	\$18,755	\$35,367

Exploration Roads & Pads - Regrading Costs										
	Description (required)	Total Road Length ft	Total Drill Pad Length ft	Regrading Volume cy	Recontouring Fleet	Equipment Productivity cy/hr	Total Equipment Hours ⁽¹⁾ hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
1	Exploration Roads	9,766	860	1,653	D6R	43	40	\$1,038	\$3,678	\$4,716
		9,766	860	1,653			40	\$1,038	\$3,678	\$4,716

(1) Includes walk-in time based on distance and travel speed (see Productivity sheet for speeds)

Closure Cost Estimate
Expl. Roads & Pads

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration Roads & Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$1,038	\$3,678	N/A	\$4,716
Cover Placement Cost	\$1,677	\$9,335	N/A	\$11,012
Ripping/Scarifying Cost	\$52	\$275	N/A	\$327
Subtotal Earthworks	\$2,767	\$13,288		\$16,055
Revegetation Cost	\$410	\$147	\$18,755	\$19,312
TOTALS	\$3,177	\$13,435	\$18,755	\$35,367

Exploration Roads & Pads - Growth Media Costs									
	Description (required)	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$
1	Exploration Roads	4,722	725/966G/D7R	515	4	11	\$1,677	\$9,335	\$11,012
		4,722				11	\$1,677	\$9,335	\$11,012

Closure Cost Estimate
Expl. Roads & Pads

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration Roads & Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$1,038	\$3,678	N/A	\$4,716
Cover Placement Cost	\$1,677	\$9,335	N/A	\$11,012
Ripping/Scarifying Cost	\$52	\$275	N/A	\$327
Subtotal Earthworks	\$2,767	\$13,288		\$16,055
Revegetation Cost	\$410	\$147	\$18,755	\$19,312
TOTALS	\$3,177	\$13,435	\$18,755	\$35,367

Exploration Roads & Pads - Scarifying/Revegetation Costs											
	Description (required)	Surface Area acres	Ripping/ Scarifying Fleet	Ripping Hours hrs	Ripping Labor Costs \$	Ripping Equipment Cost \$	Total Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
1	Exploration Roads	2.93	D7R	2	\$52	\$275	\$327	\$410	\$147	\$18,755	\$19,312
		2.93		2	\$52	\$275	\$327	\$410	\$147	\$18,755	\$19,312

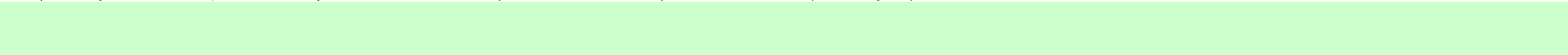
Closure Cost Estimate
Waste Rock Dumps

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost		\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Waste Rock Dumps - User Input																					
You must fill in ALL green cells in this section for each dump, lift or dump category																					
Facility Description				Physical - MANDATORY										Cover				Growth Media			
	Description (required)	ID Code	Type	Underlying Ground Slope % Grade	Ungraded Slope _H:1V	Final Slope _H:1V	Final Top Slope % Grade	Lift (dump) Height ft	Mid-Bench Length ft	Average Flat Area Long Dimension (ripping distance) ft	Final (Regraded) Dump Footprint acres	Regrade Volume (1) (if calculated elsewhere) cy	Cover Thickness Slopes in	Cover Thickness Flat Areas in	Distance from Cover Borrow ft	Slope from Dump to Cover Borrow % grade	Slope Growth Media Thickness in	Flat Area Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Dump to Stockpile % grade	

- Notes:
- 1. All Physical parameters must be input even if manual overrides for volume or area are used.
 - 2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)



Closure Cost Estimate
Waste Rock Dumps

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost		\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Waste Rock Dumps - User Input (cont.)		You must fill in ALL green cells and relevant blue cells in this section for each dump, lift or dump category																	
		Grading				Cover		Growth Media		Revegetation									
	Description (required)	Regrading Material Condition (select)	Regrading Material Type (select)	Regrading Equipment Fleet (select)	Slot/Side-by- Side (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Seed Mix Slopes (select)	Seed Mix Areas (select)	Flat (select)	Mulch Slopes (select)	Mulch Flat Areas (select)	Fertilizer Slopes (select)	Fertilizer Flat Areas (select)	Slope Scarify/ Rip? (select)	Flat Area Scarify/ Rip? (select)	Scarify/ Ripping Fleet (select)

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Closure Cost Estimate Waste Rock Dumps

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Waste Rock Dumps - Calculations

Regrading Volume Calculation

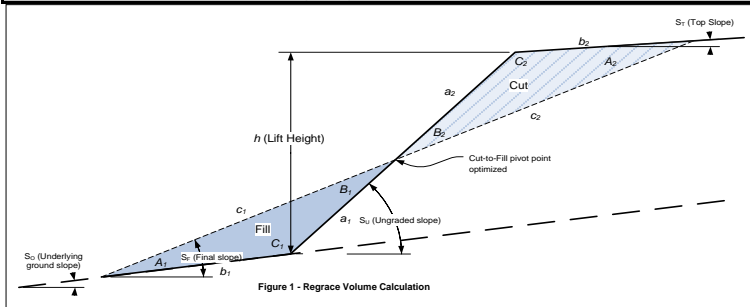


Figure 1 - Regrade Volume Calculation

Regrading Push Distance Calculation

dozing distance: based on 2/3 final cut slope + 2/3 final fill slope (minimum = 50 ft)

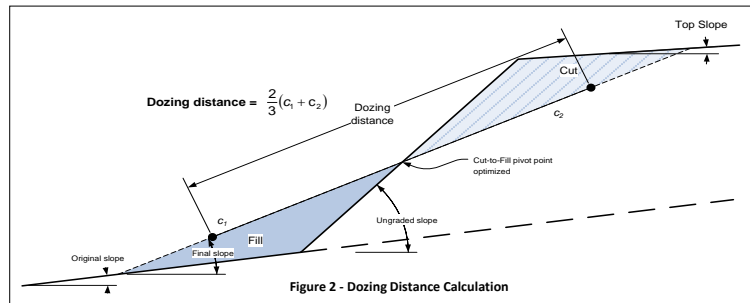


Figure 2 - Dozing Distance Calculation

Final Slope Area and Footprint Area Calculations

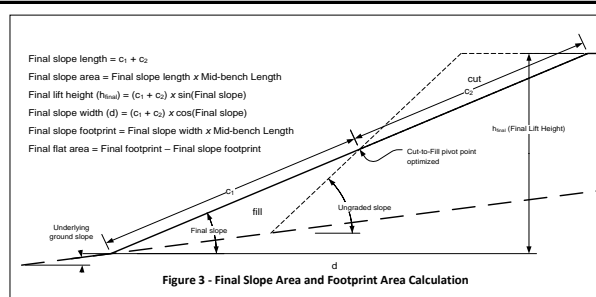


Figure 3 - Final Slope Area and Footprint Area Calculation

Ripping/Scarifying Calculations

Minimum 1 hr ripping/scarifying time per dump

Slopes:

Number of passes = Final slope length ÷ Grader width
Travel distance = Number of passes x Mid-bench length
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)
Minimum 1 hr

Flat Areas:

Flat area width = Final flat area ÷ Average long dimensions
Number of passes = Flat area width ÷ Grader width
Travel distance = Number of passes x Average long dimensions
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)

Revegetation: Minimum 1 acre revegetation crew time per area

**Closure Cost Estimate
Waste Rock Dumps**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost		\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Waste Rock Dumps - Regrading Costs														
Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side) x (Altitude Deration)														
	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Grade Correction	Dozing Material	Density Correction	Side-by-Side or Slot Dozing	Total Hourly Productivity cy/hr	Total Dozer Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
												\$0	\$0	\$0

**Closure Cost Estimate
Waste Rock Dumps**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost		\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Waste Rock Dumps - Cover and Growth Media Costs																	
		Cover (lower layer)								Growth Media Placement							
	Description (required)	Cover Volume cy	Cover Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Cover Labor Cost \$	Cover Equipment Cost \$	Total Cover Cost \$	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity BCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$
							\$0	\$0	\$0						\$0	\$0	\$0

**Closure Cost Estimate
Waste Rock Dumps**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
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 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost		\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Waste Rock Dumps - Scarifying/Revegetation Costs																
	Description (required)	Slope Area acres	Flat Area acres	Total Surface Area acres	Final Slope Length ft	Flat Area Long Dimension ft	Ripping/ Scarifying Fleet	Slope Scarifying/ Ripping Hours hrs	Flat Area Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
												\$0	\$0	\$0	\$0	\$0

Notes: 1) Minimum total ripping hours = 1 (i.e. If total ripping hrs (slope + flat) < 1, then one hour of fleet time is assumed, regardless of acres shown in in scarifying table.)

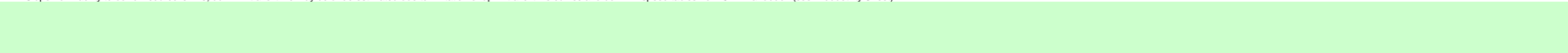
Closure Cost Estimate
Heap Leach

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Heap Leach Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Drain Installation	\$0	\$0	\$0	\$0
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Heap Leach Pads - User Input																				
You must fill in ALL green cells and relevant blue cells in this section for each heap, lift or heap category																				
Facility Description				Physical (1) - MANDATORY									Cover				Growth Media			
	Description (required)	ID Code	Type	Underlying Ground Slope % grade	Ungraded Slope _H:1V	Final Slope _H:1V	Final Top Slope % grade	Lift (heap) Height ft	Mid-Bench Length ft	Average Flat Area Long Dimension (ripping distance) ft	Final (Regraded) Heap Footprint acres	Regrade Volume (if calculated elsewhere) cy	Cover Thickness Slopes in	Cover Thickness Flat Areas in	Distance from Cover Borrow ft	Slope from Heap to Cover Borrow % grade	Slope Growth Media Thickness in	Flat Area Growth Media Thickness in	Distance from Growth Material Stockpile ft	Slope from Heap to Stockpile % grade

- Notes:
- 1. All Physical parameters must be input even if manual overrides for volume or area are used.
 - 2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)



Closure Cost Estimate
Heap Leach

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
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Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Heap Leach Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Drain Installation	\$0	\$0	\$0	\$0
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Heap Leach Pads - User Input (cont.)		You must fill in ALL green cells and relevant blue cells in this section for each heap, lift or heap category																
Description (required)	Regrading Material Condition (select)	Grading				Cover		Growth Media		Revegetation								
		Regrading Material Type (select)	Regrading Equipment Fleet (select)	Slot/ Side-by-Side (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Seed Mix Slopes (select)	Seed Mix Flat Areas (select)	Mulch Slopes (select)	Mulch Flat Areas (select)	Fertilizer Slopes (select)	Fertilizer Flat Areas (select)	Slope Scarify/ Rip? (select)	Flat Area Scarify/ Rip? (select)	Scarifying/ Ripping Fleet (select)	

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Closure Cost Estimate
Heap Leach

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Heap Leach Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Drain Installation	\$0	\$0	\$0	\$0
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Heap Leach Pads - User Input (cont.)												
		Solution Collection Ditch Fill						Piping				
	Description (required)	Collection Ditch Length ft	Collection Ditch Top Width ft	Collection Ditch Depth ft	Volume (if calculated elsewhere) cy	Distance from Borrow ft	Slope to Borrow % grade	Drain Rock Equipment Fleet (select)	Solid Pipe Length ft	Solid Pipe Type (select)	Drainage Pipe Length ft	Drainage Pipe Type (select)

Notes:

Closure Cost Estimate Heap Leach

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Heap Leach Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Drain Installation	\$0	\$0	\$0	\$0
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Heap Leach Pads - Calculations

Regrading Volume Calculation

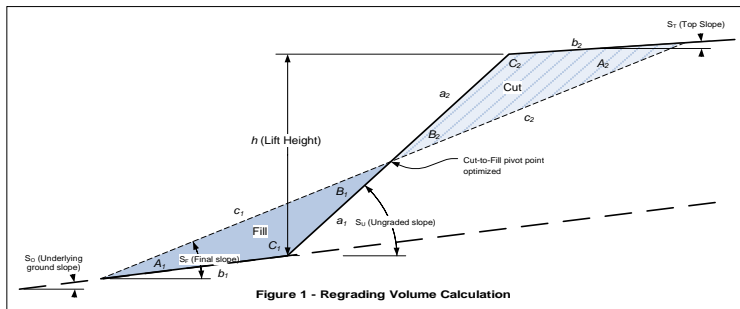


Figure 1 - Regrading Volume Calculation

Regrading Push Distance Calculation

dozing distance: based on 2/3 final cut slope + 2/3 final fill slope (minimum = 50 ft)

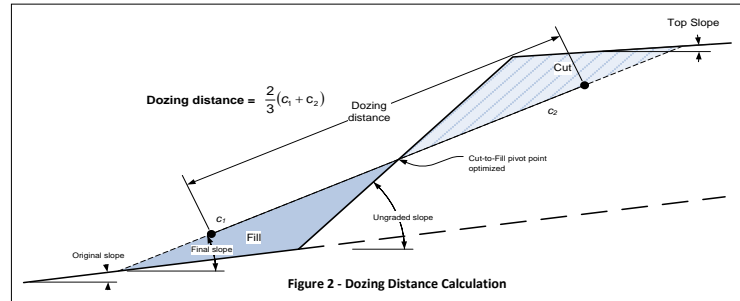


Figure 2 - Dozing Distance Calculation

Ripping/Scarifying Calculations

Minimum 1 hr ripping/scarifying per area

Slopes:

Number of passes = Final slope length ÷ Grader width
 Travel distance = Number of passes x Mid-bench length
 Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)

Flat Areas:

Flat area width = Final flat area ÷ Average long dimensions
 Number of passes = Flat area width ÷ Grader width
 Travel distance = Number of passes x Average long dimensions
 Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)

Revegetation: Minimum 1 acre revegetation crew time per area

Final Slope Area and Footprint Area Calculations

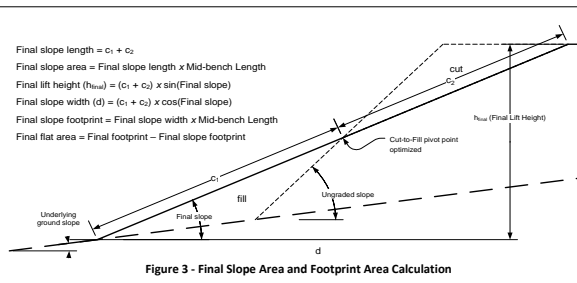


Figure 3 - Final Slope Area and Footprint Area Calculation

Solution Collection Ditch Calculations

Use when existing heap material is not suitable drain rock
 Assume to be constructed in existing solution channels
 Assume 2H:1V ditch sideslopes
 Drain rock assumed to be Gravel - Dry at 2,550 lb/cy (1,510 kg/m³) from CAT Handbook 35th Ed.

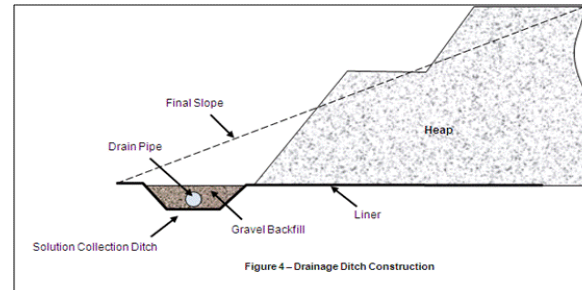


Figure 4 - Drainage Ditch Construction

**Closure Cost Estimate
Heap Leach**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Heap Leach Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Drain Installation	\$0	\$0	\$0	\$0
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Heap Leach Pad - Drainage Channel Fill & Drainage Pipe Installation														
		Drain Rock Placement							Drainpipe Installation					
		Drain Rock Volume cy	Drain Rock Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours hrs	Drainage Labor Cost \$	Drainage Equipment Cost \$	Total Drainage Cost \$	Piping Crew Hours hrs	Piping Labor Cost \$	Piping Equipment Cost \$	Piping Material Cost \$	Total Pipe Installation Cost \$
	Description (required)					0	\$0	\$0	\$0		\$0	\$0	\$0	\$0

**Closure Cost Estimate
Heap Leach**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Heap Leach Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Drain Installation	\$0	\$0	\$0	\$0
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Heap Leach Pad - Regrading Costs														
Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side) x (Altitude Deration)														
	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Grade Correction	Dozing Material	Density Correction	Side-by-Side or Slot Dozing	Total Hourly Productivity cy/hr	Total Dozer Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
												\$0	\$0	\$0

**Closure Cost Estimate
Heap Leach**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Heap Leach Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Drain Installation	\$0	\$0	\$0	\$0
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Heap Leach Pad - Cover and Growth Media Costs																		
		Cover (lower layer)								Growth Media Placement								
Description (required)	Cover Volume cy	Cover Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Cover Labor Cost \$	Cover Equipment Cost \$	Total Cover Cost \$	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity BCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$		
						\$0	\$0	\$0						\$0	\$0	\$0		

**Closure Cost Estimate
Heap Leach**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Heap Leach Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Drain Installation	\$0	\$0	\$0	\$0
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Heap Leach Pad - Scarifying/Revegetation Costs																
	Description (required)	Slope Area acres	Flat Area acres	Total Surface Area acres	Final Slope Length ft	Flat Area Long Dimension ft	Ripping/ Scarifying Fleet	Slope Scarifying/ Ripping Hours hrs	Flat Area Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
										\$0	\$0	\$0	\$0	\$0	\$0	\$0

1) Minimum total ripping hours = 1 (i.e. If total ripping hrs (slope + flat) < 1, then one hour of fleet time is assumed, regardless of acres shown in in scarifying table.)

Bond Calculation
Tailings

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Tailings - Cost Summary				
	Labor	Equipment	Materials	Totals
Embankment Regrading Cost	\$0	\$0	N/A	\$0
Tailings Surface Grading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Tailings - User Input																	
You must fill in ALL green cells and relevant blue cells in this section for each tailings impoundment																	
Facility Description			Physical - MANDATORY								Cover				Growth Media		
	Description (required)	ID Code	Underlying Ground Slope % Grade	Ungraded Slope _H:1V	Final (Regraded) Embankment Slope _H:1V	Final Embankment Height ft	Final Tailings Surface Area acres	Mid- Embankment or Ripping Length ft	Embankment Regrade Volume (if calculated elsewhere) cy	Surface Regrade Volume (calculated elsewhere) cy	Embankment Cover Thickness in	Tailings Surface Cover Thickness in	Distance from Cover Borrow ft	Slope from Tailings to Borrow % grade	Embankment Growth Media Thickness in	Tailings Surface Growth Media Thickness in	Distance from Growth Material Stockpile ft

- Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
 2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)



**Bond Calculation
Tailings**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Tailings - Cost Summary				
	Labor	Equipment	Materials	Totals
Embankment Regrading Cost	\$0	\$0	N/A	\$0
Tailings Surface Grading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Tailings - User Input (cont.)		You must fill in ALL green cells and relevant blue cells in this section for each tailings impoundment															
		Grading				Cover		Growth Media		Revegetation							
Description (required)		Regrading Material Condition (select)	Embankment Material Type (select)	Regrading Equipment Fleet (select)	Slot/Side-by- Side (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Seed Mix Embankment Slope (select)	Seed Mix Tailings Surface (select)	Mulch Embankment Slopes (select)	Mulch Tailings Surface (select)	Fertilizer Embankment Slopes (select)	Fertilizer Tailing Surface (select)	Embankment Slope Scarify/ Rip? (select)	Tailings Surface Scarify/ Rip? (select)

Notes:

1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Bond Calculation Tailings

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

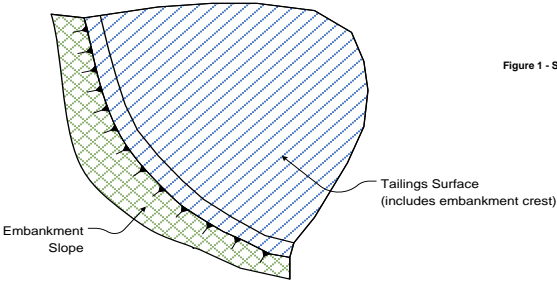
Tailings - Cost Summary

	Labor	Equipment	Materials	Totals
Embankment Regrading Cost	\$0	\$0	N/A	\$0
Tailings Surface Grading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

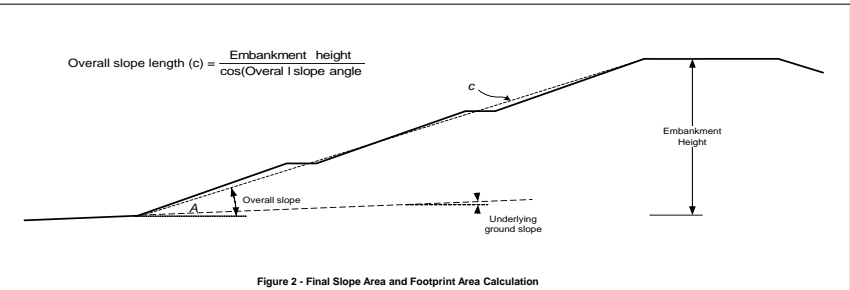
Tailings - Calculations

Surface Area Calculations

Top Surface Area provided by user



Final Slope Area and Footprint Area Calculations



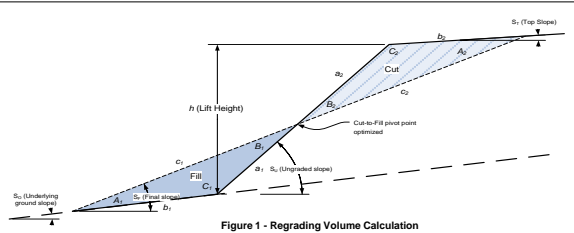
Grading Calculations

Grading assumed on impoundment surface only, not embankment
Average push distance assumed to be 2/3 of the 600 feet maximum from Caterpillar Handbook or 400 feet
Material assumed to be loose stockpile (1.2 productivity factor)
Dozing density correction based on dry sand = 2300/2400 = 0.96
Slope assumed to be 0 to 5% (1.0 productivity factor)

Ripping/Scarifying/Revegetation Calculation

Minimum 1 hr ripping/scarifying per area
Minimum 1 acre revegetation crew time per area

Regrading Volume Calculation



Bond Calculation
Tailings

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Tailings - Cost Summary				
	Labor	Equipment	Materials	Totals
Embankment Regrading Cost	\$0	\$0	N/A	\$0
Tailings Surface Grading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Tailings - Embankment Regrading Costs														
Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side) x (Altitude Deration)														
	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Grade Correction	Dozing Material Condition	Density Correction	Side-by-Side or Slot Dozing	Total Hourly Productivity cy/hr	Total Dozer Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
												\$0	\$0	\$0

Bond Calculation
Tailings

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Tailings - Cost Summary				
	Labor	Equipment	Materials	Totals
Embankment Regrading Cost	\$0	\$0	N/A	\$0
Tailings Surface Grading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Tailings - Surface Regrading Costs														
Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side) x (Altitude Deration)														
	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Grade Correction	Density Correction	Dozing Material	Side-by-Side or Slot Dozing	Total Hourly Productivity cy/hr	Total Dozer Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
												\$0	\$0	\$0

Bond Calculation
Tailings

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Tailings - Cost Summary				
	Labor	Equipment	Materials	Totals
Embankment Regrading Cost	\$0	\$0	N/A	\$0
Tailings Surface Grading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Tailings - Cover and Growth Media Costs																	
		Cover Placement							Growth Media Placement								
	Description (required)	Cover Volume cy	Cover Placement Fleet	Cover Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Cover Placement Cost \$	Growth Media Volume cy	Growth Media Placement Fleet	Growth Media Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$
							\$0	\$0	\$0						\$0	\$0	\$0

Bond Calculation Tailings

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Tailings - Cost Summary				
	Labor	Equipment	Materials	Totals
Embankment Regrading Cost	\$0	\$0	N/A	\$0
Tailings Surface Grading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Tailings - Scarifying/Revegetation Costs															
	Description (required)	Embankment Slope Area acres	Tailings Surface Area acres	Total Surface Area acres	Final Slope Length ft	Ripping/ Scarifying Fleet	Slope Scarifying/ Ripping Hours hrs	Flat Area Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Cost \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Cost \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
									\$0	\$0	\$0	\$0	\$0	\$0	\$0

Bond Calculation
Tailings

Slope from Tailings to Stockpile % grade

--

Bond Calculation
Tailings

Scarifying/ Ripping Fleet (select)

**Bond Calculation
Tailings**

**Bond Calculation
Tailings**

**Bond Calculation
Tailings**

**Bond Calculation
Tailings**

**Bond Calculation
Tailings**

Closure Cost Estimate Roads

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety **Cost Basis:** American Magnesium - Option 1

Roads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$26	\$137	N/A	\$163
Cover Placement Cost	\$517	\$2,792	N/A	\$3,309
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$569	\$3,066		\$3,635
Revegetation Cost	\$210	\$75	\$9,601	\$9,886
TOTALS	\$779	\$3,141	\$9,601	\$13,521

Roads - User Input														
You must fill in ALL green cells and relevant blue cells in this section for each road														
Facility Description				Physical (1) - MANDATORY						User Overrides		Growth Media		
	Description (required)	ID Code	Type	Underlying Ground Slope % grade	Ungraded Slope _H:1V	Cut Slope degrees	Road Width ft	Road Length ft	Slope Replacement Percent %	Regrade Volume (if calculated elsewhere) cy	Disturbed Area (if calculated elsewhere) acres	Growth Media Thickness in	Haul Distance from Growth Media Stockpile ft	Slope from Road to Stockpile % grade
1	Access Road		Haul Road	2.0	3.0	50.0	16.0	1,350	115%		1.50	12.0	1,379	-2%

Notes:

1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)
3. Because the work required for building roads with a dozer is similar to that required to regrade a road with a dozer, this sheet could be used to provide a rough estimate of road construction costs if a dozer is selected as the grading fleet.

Note: Assumes any improvements made to existing BML road will be left in place and not require reclamation.

Closure Cost Estimate Roads

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Roads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$26	\$137	N/A	\$163
Cover Placement Cost	\$517	\$2,792	N/A	\$3,309
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$569	\$3,066		\$3,635
Revegetation Cost	\$210	\$75	\$9,601	\$9,886
TOTALS	\$779	\$3,141	\$9,601	\$13,521

Roads - User Input (cont.)						
Haul Road Safety Berms						
	Description (required)	Berm Length ft	Berm Height ft	Berm Base Width ft	Berm Sideslope Angle _H:1V	Number of Berms (2) (1 or 2 sides)
1	Access Road	0.0	2.0	6.0	1.3	2

(2) Enter 1 if berm on only one side of road, 2 if both sides of road are bermed.

Closure Cost Estimate Roads

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Roads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$26	\$137	N/A	\$163
Cover Placement Cost	\$517	\$2,792	N/A	\$3,309
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$569	\$3,066		\$3,635
Revegetation Cost	\$210	\$75	\$9,601	\$9,886
TOTALS	\$779	\$3,141	\$9,601	\$13,521

Roads - User Input (cont.)													
You must fill in ALL green cells and relevant blue cells in this section for each road													
		Grading				Growth Media			Revegetation				
	Description (required)	Regrading Material Condition (select)	Regrading Material Type (select)	Regrading Equipment Fleet (select)	No. of Excavators if grade >30% (select)	Growth Media Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarifying/ Ripping? (select)	Ripping Fleet (select)
1	Access Road	1	Alluvium	Sm Dozer		Alluvium	Small Truck		User Mix 1	Straw Mulch	None	Yes	Small Dozer

Notes:

1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table
2. If original slope >30% only excavators are allowed.

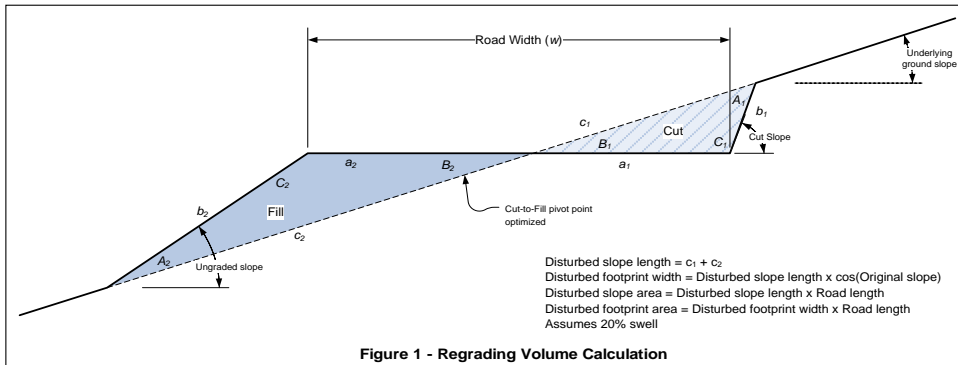
Closure Cost Estimate Roads

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Roads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$26	\$137	N/A	\$163
Cover Placement Cost	\$517	\$2,792	N/A	\$3,309
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$569	\$3,066		\$3,635
Revegetation Cost	\$210	\$75	\$9,601	\$9,886
TOTALS	\$779	\$3,141	\$9,601	\$13,521

Roads - Calculations

Regrading Volume and Footprint Volume



Will not allow dozer for slopes greater than 30%
 For dozer regrading push distance = road width
 Assumes dozer push is uphill
 Assumes minimum push distance of 100 ft

Ripping/Scarifying Calculations

Minimum 1 hr ripping/scarifying time per area
 Number of passes = Final slope length ÷ Grader width
 Travel distance = Number of passes x Road length
 Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)
 For dozer regrading assumes push distance = 3 x road width

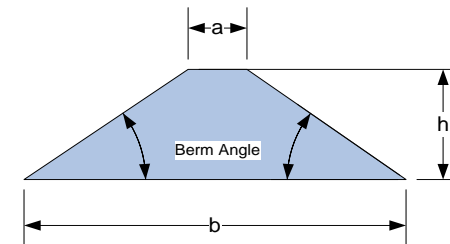
Revegetation Calculations

Minimum of 1 acre crew time per area

Safety Berm Volume Calculation

$$\text{Cross Sectional Area} = \frac{(a+b)}{2} \times h$$

$$\text{Berm Volume} = \text{Berm Length} \times \text{Cross Sectional Area} \times \text{No. Sides}$$



Total berm volume doubled if both sides of road are bermed.
 If length of berm on each side of road is different, input total length of both berms and input 1 for number of sides

Closure Cost Estimate Roads

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Roads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$26	\$137	N/A	\$163
Cover Placement Cost	\$517	\$2,792	N/A	\$3,309
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$569	\$3,066		\$3,635
Revegetation Cost	\$210	\$75	\$9,601	\$9,886
TOTALS	\$779	\$3,141	\$9,601	\$13,521

Roads - Regrading Costs								
	Description (required)	Regrading Volume cy	Recontouring Fleet	Fleet Productivity cy/hr	Total Fleet Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
1	Access Road	42	D7R	296	1	\$26	\$137	\$163
		42			1	\$26	\$137	\$163

Closure Cost Estimate Roads

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Roads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$26	\$137	N/A	\$163
Cover Placement Cost	\$517	\$2,792	N/A	\$3,309
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$569	\$3,066		\$3,635
Revegetation Cost	\$210	\$75	\$9,601	\$9,886
TOTALS	\$779	\$3,141	\$9,601	\$13,521

Roads - Growth Media Costs									
	Description (required)	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$
1	Access Road	2,420	725/966G/D7R	548	3	4	\$517	\$2,792	\$3,309
		2,420				4	\$517	\$2,792	\$3,309

Closure Cost Estimate Roads

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Roads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$26	\$137	N/A	\$163
Cover Placement Cost	\$517	\$2,792	N/A	\$3,309
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$569	\$3,066		\$3,635
Revegetation Cost	\$210	\$75	\$9,601	\$9,886
TOTALS	\$779	\$3,141	\$9,601	\$13,521

Roads - Scarifying/Revegetation Costs												
	Description (required)	Total Surface Area acres	Final Slope Length ft	Ripping/ Scarifying Fleet	Ripping Hours hrs	Ripping Labor Costs \$	Ripping Equipment Cost \$	Total Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
1	Access Road	1.50	48.0	D7R	1	\$26	\$137	\$163	\$210	\$75	\$9,601	\$9,886
		1.50			1	\$26	\$137	\$163	\$210	\$75	\$9,601	\$9,886

Closure Cost Estimate
Pits

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Pits - Cost Summary				
	Labor	Equipment	Materials	Totals
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Safety Berm Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Pits - User Input																		
Facility Description				Pit Berms					Berm Construction		Excavate or Doze	Hauling (if selected method)				Revegetation		
	Description (required)	ID Code	Type	Berm (or Highwall) Length ft	Berm Height ft	Berm Base Width ft	Berm Sideslope Angle _H:1V	Volume (if calculated elsewhere) cy	Construction Method (select)	Berm Material Type (select)	Berm Construction Equipment Fleet (select)	Berm Hauling Fleet (select)	Distance to Borrow Source ft	Slope to Borrow Source % grade	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)

- Notes:
- 1. All Physical parameters must be input even if manual overrides for volume or area are used.
 - 2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)
 - 3. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table



**Closure Cost Estimate
Pits**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Pits - Cost Summary				
	Labor	Equipment	Materials	Totals
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Safety Berm Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Pits - Calculations

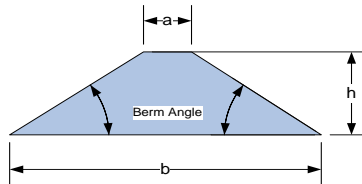
Safety Berm Volume Calculation

$$\text{Cross Sectional Area} = \frac{(a + b)}{2} \times h$$

$$\text{Berm Volume} = \text{Berm Length} \times \text{Cross Sectional Area}$$

Dozer productivity assumes push distance of:

100 feet



Dozer:

Length x (Berm Base Width + Dozer Push Distance) - accounts for disturbance created in borrow area

Excavator:

Length x (Berm Base Width + (2 x Excavator Track Width)) - accounts for disturbance created in borrow area

Haul & Place:

Length x Berm Base Width - if necessary use Yards sheet to account for disturbance created in borrow area

Revegetation Calculations

Minimum 1 acre revegetation crew time per area

Closure Cost Estimate
Pits

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Pits - Cost Summary				
	Labor	Equipment	Materials	Totals
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Safety Berm Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Pits - Safety Berm Construction Costs									
Safety Berm									
	Description (required)	Safety Berm Volume cy	Selected Fleet	Number of Trucks/ Scrapers	Corrected Fleet Productivity cy/hr	Total Hours	Safety Berm Labor Cost \$	Safety Berm Equipment Cost \$	Total Safety Berm Cost \$
							\$0	\$0	\$0

Closure Cost Estimate
Pits

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Pits - Cost Summary				
	Labor	Equipment	Materials	Totals
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Safety Berm Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Pits - Safety Berms - Revegetation Costs						
	Description (required)	Flat Area acres	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
			\$0	\$0	\$0	\$0

Closure Cost Estimate
Quarries & Borrow Pits

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost		\$0	N/A	\$0
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Subtotal Earthwork	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
Safety Berm Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Quarries & Borrow Pits - User Input																				
Facility Description				Physical - MANDATORY										Cover				Growth Media		
	Description (required)	ID Code	Type	Underlying Ground Slope % Grade	Ungraded Slope _H:1V	Final Slope _H:1V	Final Top Slope % Grade	Bench or Highwall Height ft	Mid-Bench Length ft	Average Flat Area Long Dimension (ripping distance) ft	Final (Regraded) Footprint acres	Regrade Volume (1) (if calculated elsewhere) cy	Cover Thickness Slopes in	Cover Thickness Flat Areas in	Distance from Cover Borrow ft	Slope from Dump to Cover Borrow % grade	Slope Growth Media Thickness in	Flat Area Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Dump to Stockpile % grade

- Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
 2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)

**Closure Cost Estimate
Quarries & Borrow Pits**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Subtotal Earthwork	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
Safety Berm Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Quarries & Borrow Pits - User Input (cont.)																			
You must fill in ALL green cells and relevant blue cells in this section for each dump, lift or dump category																			
		Grading				Cover		Growth Media		Revegetation									
Description (required)		Regrading Material Condition (select)	Regrading Material Type (select)	Regrading Equipment Fleet (select)	Slot/Side-by- Side (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Seed Mix Slopes (select)	Seed Mix Flat Areas (select)	Flat Areas (select)	Mulch Slopes (select)	Mulch Flat Areas (select)	Fertilizer Slopes (select)	Fertilizer Flat Areas (select)	Slope Scarify/ Rip? (select)	Flat Area Scarify/ Rip? (select)	Scarify/ Ripping Fleet (select)

Notes:
 1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Closure Cost Estimate Quarries & Borrow Pits

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Subtotal Earthwork	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
Safety Berm Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

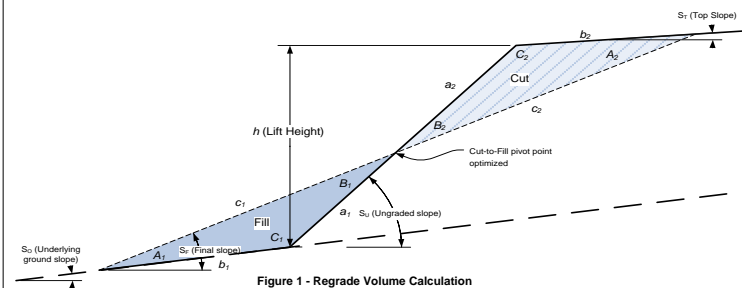
Quarries & Borrow Pits - User Input (cont.)																
Facility Description		Highwall Berms					Berm Construction		Excavate or Doze	Hauling (if selected method)				Revegetation		
	Description (required)	Berm (or Highwall) Length ft	Berm Height ft	Berm Base Width ft	Berm Sideslope Angle H:1V	Volume (if calculated elsewhere) cy	Construction Method (select)	Berm Material Type (select)	Berm Construction Equipment Fleet (select)	Berm Hauling Fleet (select)	Distance to Borrow Source ft	Slope to Borrow Source % grade	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)

Notes:

1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)
3. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

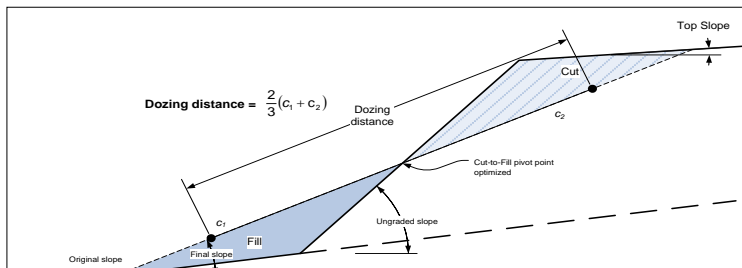
Quarries & Borrow Pits - Calculations

Regrading Volume Calculation

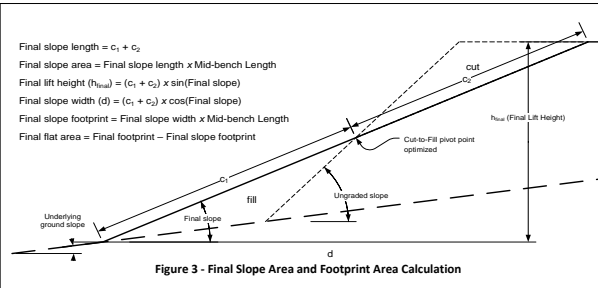


Regrading Push Distance Calculation

dozing distance: based on 2/3 final cut slope + 2/3 final fill slope (minimum = 50 ft)



Final Slope Area and Footprint Area Calculations



Ripping/Scarifying Calculations

Minimum 1 hr ripping/scarifying time per dump

Slopes:

Number of passes = Final slope length ÷ Grader width
Travel distance = Number of passes x Mid-bench length
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)
Minimum 1 hr

Flat Areas:

Flat area width = Final flat area ÷ Average long dimensions
Number of passes = Flat area width ÷ Grader width
Travel distance = Number of passes x Average long dimensions
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)

Revegetation: Minimum 1 acre revegetation crew time per area

**Closure Cost Estimate
Quarries & Borrow Pits**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Subtotal Earthwork	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
Safety Berm Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

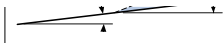


Figure 2 - Dozing Distance Calculation

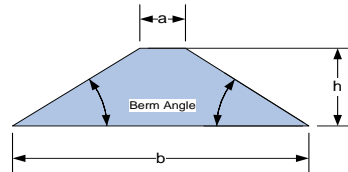
Safety Berm Volume Calculation

$$\text{Cross Sectional Area} = \frac{(a + b)}{2} \times h$$

$$\text{Berm Volume} = \text{Berm Length} \times \text{Cross Sectional Area}$$

Dozer productivity assumes push distance of:

100 feet



Dozer:

Length x (Berm Base Width + Dozer Push Distance) - accounts for disturbance created in borrow area

Excavator:

Length x (Berm Base Width + (2 x Excavator Track Width)) - accounts for disturbance created in borrow area

Haul & Place:

Length x Berm Base Width - if necessary use Yards sheet to account for disturbance created in borrow area

**Closure Cost Estimate
Quarries & Borrow Pits**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Subtotal Earthwork	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
Safety Berm Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Quarries & Borrow Pits - Regrading Costs														
Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side) x (Altitude Deration)														
	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Grade Correction	Dozing Material	Density Correction	Side-by-Side or Slot Dozing	Total Hourly Productivity cy/hr	Total Dozer Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
												\$0	\$0	\$0

**Closure Cost Estimate
Quarries & Borrow Pits**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Subtotal Earthwork	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
Safety Berm Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Quarries & Borrow Pits - Cover and Growth Media Costs																	
		Cover (lower layer)							Growth Media Placement								
	Description (required)	Cover Volume cy	Cover Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Cover Labor Cost \$	Cover Equipment Cost \$	Total Cover Cost \$	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity BCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$
							\$0	\$0	\$0						\$0	\$0	\$0

**Closure Cost Estimate
Quarries & Borrow Pits**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Subtotal Earthwork	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
Safety Berm Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Quarries & Borrow Pits - Scarifying/Revegetation Costs																
	Description (required)	Slope Area acres	Flat Area acres	Total Surface Area acres	Final Slope Length ft	Flat Area Long Dimension ft	Ripping/ Scarifying Fleet	Slope Scarifying/ Ripping Hours hrs	Flat Area Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
												\$0	\$0	\$0	\$0	\$0

Notes: 1) Minimum total ripping hours = 1 (i.e. If total ripping hrs (slope + flat) < 1, then one hour of fleet time is assumed, regardless of acres shown in in scarifying table.)

Closure Cost Estimate
Underground Openings

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Underground Openings Cost Summary				
	Labor	Equipment	Materials	Totals
Adits, Portals & Declines Plugging	\$0	\$0	\$0	\$0
Shaft Backfill/Cover	\$0	\$0	N/A	\$0
Shaft Capping	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Adits, Portals & Declines - User Input										
Facility Description			Physical Characteristics				Backfill Material			
	Description (required)	ID Code	Height ft	Width ft	Backfill/ Plug Type	Distance to Bulkhead ft	Backfill Material Condition (select)	Backfill Material Type (select)	Distance to Backfill Borrow ft	Slope from Adit to Borrow Area % grade

- Notes: 1) Foam (adit) option is for smaller openings that can be plugged with simple forms and a 5 ft thick plug.
2) Foam (production) option is for larger production openings (declines, etc.) and requires larger form construction and minimum 10 ft thick plug.
3) All foam plugs include minimum 15ft of backfill from opening to plug.
4) Bat gate option is for small openings and the material cost is the same for any size opening.
5) Backfilling assumes that small dozer will push material from nearby stockpile or dump
6) Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table



Closure Cost Estimate
Underground Openings

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Underground Openings Cost Summary				
	Labor	Equipment	Materials	Totals
Adits, Portals & Declines Plugging	\$0	\$0	\$0	\$0
Shaft Backfill/Cover	\$0	\$0	N/A	\$0
Shaft Capping	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Shaft Openings - User Input											
You must fill in ALL green cells and relevant blue cells in this section for each shaft											
Facility Description			Physical Characteristics			Backfill or Foundation Cover					
	Description (required)	ID Code	Diameter ft	Shaft Depth (for backfill method) ft	Backfill/ Plug Type (select)	Backfill Material Type (select)	Cover/ Backfill Fleet (select)	Thickness (if not complete backfill) ft	Distance to Backfill Borrow ft	Slope from Shaft to Borrow Area % grade	Maximum Fleet Size (user override)

Notes:

1. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)
2. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Closure Cost Estimate Underground Openings

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

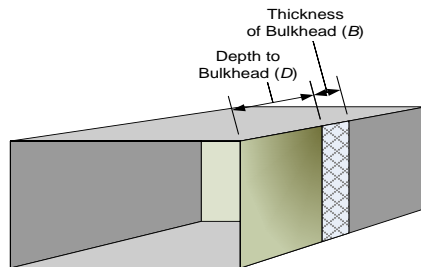
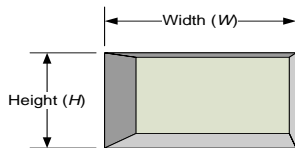
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Underground Openings Cost Summary				
	Labor	Equipment	Materials	Totals
Adits, Portals & Declines Plugging	\$0	\$0	\$0	\$0
Shaft Backfill/Cover	\$0	\$0	N/A	\$0
Shaft Capping	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Underground Openings - Calculations

Adits, Declines and Portals - Volume Calculations



Cross-Sectional Area (A) = $W \times H$
 Volume of Concrete Bulkhead = $A \times B$
 Volume of Backfill = $A \times D$

Concrete Cover/Bulkhead Volume Calculation

Using Means Heavy Construction Cost Data (2004)

Estimate cover/bulkhead thickness
 Assumes that all concrete works are reinforced
 Productivity for crew from Means Heavy Construction Cost Data (2004) adjusted for supervision (addressed in Misc. Costs) and Davis-Bacon Wage Rates
 Assumes 18 in thick slab

Backfill Calculations

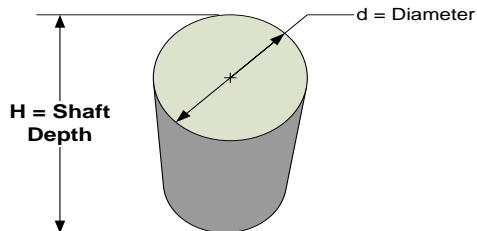
Uses 1 large and 1 small dozer for adit backfill

Assumes max 400 foot push
 Assumes average operator and 50 min/hr availability

Uses truck & loader load, haul place fleets for shafts

Concrete cap will be 1.5 feet thick, reinforced, structually supported.
 If concrete cap is used, assume 10 feet of rock backfill on top of cap.
 Assumes that all concrete works are reinforced
 If backfill is used, assume overfill by 5 feet
 Carpenter rate incl Fringe: per hour

Shaft Volume Calculations



Radius (r) = $\frac{1}{2}d$
 Cross-Sectional Area (A) = πr^2
 Volume = $A \times H$

Closure Cost Estimate Underground Openings

Project Name: Foothill Dolomite Mine - Reclamation Plan
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 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Underground Openings Cost Summary				
	Labor	Equipment	Materials	Totals
Adits, Portals & Declines Plugging	\$0	\$0	\$0	\$0
Shaft Backfill/Cover	\$0	\$0	N/A	\$0
Shaft Capping	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Adits, Portals & Declines Plugging																	
Uses RS Means Heavy Construction Cost Data for bulkhead production rate, material costs and crews																	
						Bulkhead Construction				Backfill or Foam (1)				Bat Gate or Culvert (2,3,4)			
Description (required)	Bulkhead Volume cy	Backfill (rock) Volume cy	Backfill Equipment Fleet	Backfill Productivity LCY/hr	Backfill Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Material Cost \$	Total Bulkhead Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Material (Foam) Cost \$	Total Backfill Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Material Cost \$	Total Bat Gate Cost \$
						\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Notes:

- 1) Foam costs include 1 hour move to and setup + 1 hr. minimum crew time
- 2) Assumes 1 hr walk-in/walk-out time for equipment
- 3) Batgate assumes 8 hr install time each
- 4) Bat culvert backfill costs based on one 8-hr day (i.e. backfilling hours = 8 hrs).

**Closure Cost Estimate
Underground Openings**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Underground Openings Cost Summary				
	Labor	Equipment	Materials	Totals
Adits, Portals & Declines Plugging	\$0	\$0	\$0	\$0
Shaft Backfill/Cover	\$0	\$0	N/A	\$0
Shaft Capping	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Shaft Plugging														
		Cover/Cap										Backfill/Cover		
	Description (required)	Cover Area ft2	Backfill or Cover Volume cy	Backfill Equipment Fleet	Number of Trucks	Backfill Productivity LCY/hr	Backfill Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Material Cost \$	Total Shaft Cap Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Backfill Cost \$
								\$0	\$0	\$0	\$0	\$0	\$0	\$0

Closure Cost Estimate
Underground Openings

Closure Cost Estimate
Underground Openings

Closure Cost Estimate
Underground Openings

Closure Cost Estimate
Underground Openings

Total Labor Cost \$
\$0

Closure Cost Estimate
Underground Openings

Closure Cost Estimate
Haul Material

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Generic Material Hauling - Cost Summary				
	Labor	Equipment	Materials	Totals
Hauling/Crush/Screen/Compact	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Generic Material Hauling - User Input																		
Facility Description				Physical		Hauled Material			Crushing & Screening					Cover			Growth Medi	
	Description (required)	ID Code	Type	Final Surface Area acres	Average Ripping Distance ft	Material Volume Required cy	Distance from Borrow Source (1) ft	Slope to Borrow Source % grade	Crush Material	Screen Material	Loss to Crushing/ Screening %	Distance to Placement Location (2) ft	Slope to Placement % grade	Cover Thickness in	Distance to Cover Borrow ft	Slope to Borrow % grade	Growth Media Thickness in	Distance to Growth Material Stockpile ft

- Notes:
- 1. Input distance to crusher if material to be crushed
 - 2. Input distance from crusher to placement if material to be crushed
 - 3. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)



Closure Cost Estimate
Haul Material

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Generic Material Hauling - Cost Summary				
	Labor	Equipment	Materials	Totals
Hauling/Crush/Screen/Compact	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Generic Material Hauling - User Input (cont.)																
		Hauling Material				Cover			Growth Media			Revegetation				
	Description (required)	Haul Material Type (select)	Material Hauling Fleet (select)	Each Fleet Size (from/to crusher) (user override)	Compact After Placement?	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch Type (select)	Fertilizer Type (select)	Scarify/ Rip? (select)	Scarifying/ Ripping Fleet (select)

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Closure Cost Estimate
Haul Material

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Generic Material Hauling - Cost Summary				
	Labor	Equipment	Materials	Totals
Hauling/Crush/Screen/Compact	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Generic Material Hauling - Load, Haul, Place and Grade													
		Material Haulage							Crush and/or Compact				
	Description (required)	Material Volume to Crusher cy	Final Material Volume cy	Material Haulage Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Hauling Labor Cost \$	Hauling Equipment Cost \$	Total Crush/ Screen Cost \$	Compact Labor Cost \$	Compact Equipment Cost \$	Total Load/Haul/ Place Cost \$
								\$0	\$0	\$0	\$0	\$0	\$0

Notes: Final Material Volume includes allowance for additional material hauled to crushing/screening plant based on Loss to Crushing/Screening input above.

Closure Cost Estimate
Haul Material

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Generic Material Hauling - Cost Summary				
	Labor	Equipment	Materials	Totals
Hauling/Crush/Screen/Compact	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Generic Material Hauling - Cover and Growth Media Costs																	
		Cover Placement								Growth Media Placement							
	Description (required)	Cover Volume cy	Cover Placement Fleet	Cover Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Cover Placement Cost \$	Growth Media Volume cy	Growth Media Placement Fleet	Growth Media Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$
							\$0	\$0	\$0						\$0	\$0	\$0

Closure Cost Estimate
Haul Material

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
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Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Generic Material Hauling - Cost Summary				
	Labor	Equipment	Materials	Totals
Hauling/Crush/Screen/Compact	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Generic Material Hauling - Scarifying/Revegetation Costs											
	Description (required)	Total Surface Area acres	Ripping/ Scarifying Fleet	Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Cost \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Cost \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
					\$0	\$0	\$0	\$0	\$0	\$0	\$0

Closure Cost Estimate
Haul Material

a
Slope to Stockpile % grade

Closure Cost Estimate
Haul Material

Closure Cost Estimate
Haul Material

Closure Cost Estimate
Haul Material

Closure Cost Estimate
Haul Material

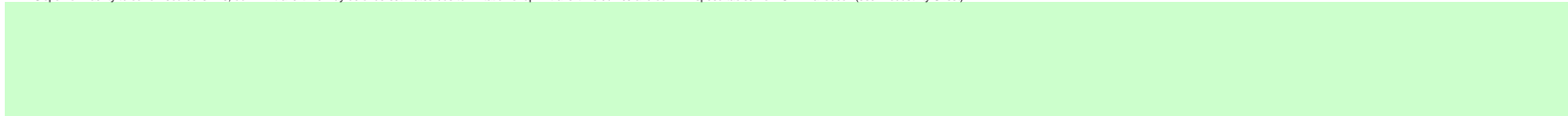
Closure Cost Estimate
Foundations & Buildings

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Buildings & Foundation Demolition Cost Summary				
	Labor	Equipment	Materials	Totals
Building Demolition Cost	\$0	\$0	N/A	\$0
Wall Demolition Cost	\$0	\$0	N/A	\$0
Slab Demolition	\$0	\$0	N/A	\$0
Subtotal Demolition	\$0	\$0	\$0	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Buildings & Foundation - User Input																		
You must fill in ALL green cells and relevant blue cells in this section for each building or facility																		
Facility Description			Physical - MANDATORY										Foundation Cover (1)			Growth Media (1) (entire footprint)		
Description (required)	ID Code	Type	Length ft	Width ft	Eve Height ft	Slab Thickness in	Foundation Wall Thickness in	Foundation Wall Height ft	Average Flat Area Long Dimension (ripping distance) ft	Building Area Footprint (including surrounding facilities) acres	Foundation Cover Thickness in	Distance from Foundation Cover Borrow Area ft	Slope from Facility to Borrow Area % grade	Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Facility to Stockpile % grade		

- Notes:
- Foundation cover only calculated to cover slab. Growth media estimated over entire footprint area
 - If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)



Closure Cost Estimate
Foundations & Buildings

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Buildings & Foundation Demolition Cost Summary				
	Labor	Equipment	Materials	Totals
Building Demolition Cost	\$0	\$0	N/A	\$0
Wall Demolition Cost	\$0	\$0	N/A	\$0
Slab Demolition	\$0	\$0	N/A	\$0
Subtotal Demolition	\$0	\$0	\$0	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Buildings & Foundation - User Input (cont.)																	
You must fill in ALL green cells and relevant blue cells in this section for each building or facility																	
		Construction Materials		Slab Demolition		Foundation Cover			Growth Media			Revegetation					
Description (required)		Building Type (select)	Foundation Type (select)	Wall (select)	Slab Demo Method (select)	Slab Breaking Equipment Fleet (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Growth Media Material Type (select)	Growth Media Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarify/ Rip? (select)	Ripping Fleet (select)

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

**Closure Cost Estimate
Foundations & Buildings**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
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Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Buildings & Foundation Demolition Cost Summary				
	Labor	Equipment	Materials	Totals
Building Demolition Cost	\$0	\$0	N/A	\$0
Wall Demolition Cost	\$0	\$0	N/A	\$0
Slab Demolition	\$0	\$0	N/A	\$0
Subtotal Demolition	\$0	\$0	\$0	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Buildings & Foundation - Calculations
<div>Building Volume Calculations</div> <p>Using Means Heavy Construction Cost Data (2004) calculates cubic feet from building dimensions Estimate slab thickness and wall thickness if not known Assumes that all concrete slabs are reinforced Productivity for crew from Means Heavy Construction Cost Data (2004) adjusted for supervision (addressed in Misc. Costs) and Davis-Bacon Wage Rates Demolition costs do not include hauling or disposing if debris - Use Waste Disposal module</p>
<div>Slab Demolition Calculations</div> <p>Minimum 1 hr excavator time for slab demolition</p>
<div>Cover Volume Calculation</div> <p>Foundation area x cover thickness If "Bury in Place" is selected as slab demolition method, cover thickness is adjusted such that total cover (cover + growth media) equals value entered in "Minimum thickness of cover over unbroken slab" cell above</p>
<div>Ripping/Scarifying Calculations</div> <p>Flat area width = Final flat area ÷ Average long dimensions Number of passes = Flat area width ÷ Grader width Travel distance = Number of passes x Average long dimensions Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)</p>
<div>Revegetation</div> <p>Minimum 1 acre revegetation crew time per area</p>

**Closure Cost Estimate
Foundations & Buildings**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Buildings & Foundation Demolition Cost Summary				
	Labor	Equipment	Materials	Totals
Building Demolition Cost	\$0	\$0	N/A	\$0
Wall Demolition Cost	\$0	\$0	N/A	\$0
Slab Demolition	\$0	\$0	N/A	\$0
Subtotal Demolition	\$0	\$0	\$0	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Building & Foundation Demolition Costs																			
Uses RS Means Heavy Construction Cost Data for building and wall demolition cost calculations. Uses CAT Handbook for slab breaking production.																			
								Building Demolition			Wall Demolition			Slab Demolition			Total Costs		
Description (required)	Building Footprint (slab area) sq ft	Building Volume cu ft	Wall Length ft	Wall Area sq ft	Slab Demolition Fleet	Slab Volume cy		Total Labor Cost \$	Total Equipment Cost \$	Total Building Demolition Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Wall Demolition Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Slab Breaking Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Demolition Costs \$
								\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**Closure Cost Estimate
Foundations & Buildings**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Buildings & Foundation Demolition Cost Summary				
	Labor	Equipment	Materials	Totals
Building Demolition Cost	\$0	\$0	N/A	\$0
Wall Demolition Cost	\$0	\$0	N/A	\$0
Slab Demolition	\$0	\$0	N/A	\$0
Subtotal Demolition	\$0	\$0	\$0	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Building & Foundation - Foundation Cover and Growth Media Costs																				
Description (required)	Foundation Cover									Growth Media						Total Cover & Growth Media Costs				
	Cover Volume cy	Cover Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Cover Cost \$		Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Costs \$
						\$0	\$0	\$0							\$0	\$0	\$0	\$0	\$0	\$0

**Closure Cost Estimate
Foundations & Buildings**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Buildings & Foundation Demolition Cost Summary				
	Labor	Equipment	Materials	Totals
Building Demolition Cost	\$0	\$0	N/A	\$0
Wall Demolition Cost	\$0	\$0	N/A	\$0
Slab Demolition	\$0	\$0	N/A	\$0
Subtotal Demolition	\$0	\$0	\$0	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Building & Foundation - Scarifying/Revegetation Costs															
				Scarifying/Ripping			Revegetation				Total Scarify & Revegation Costs				
Description (required)	Flat Area acres	Ripping/ Scarifying Fleet	Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Material Cost \$	Total Costs \$	
				\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**Closure Cost Estimate
Other Demo & Equip Removal**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Other Demolition and Equipment Removal - Cost Summary				
	Labor	Equipment	Materials	Totals
Other Demolition	\$0	\$0	\$0	\$0
Equipment Removal	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Other Demolition							
Facility Description							
	Description (required)	ID Code	Type	Quantity	Units	Labor Unit Cost \$	Equipment Unit Cost \$
						\$0	\$0

Notes:

Closure Cost Estimate
Other Demo & Equip Removal

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Other Demolition and Equipment Removal - Cost Summary				
	Labor	Equipment	Materials	Totals
Other Demolition	\$0	\$0	\$0	\$0
Equipment Removal	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Equipment & Material Removal							
Facility Description							
	Description (required)	ID Code	Type	Quantity	Units	Labor Unit Cost (\$)	Equipment Unit Cost (\$)
						\$0	\$0

Notes:

Closure Cost Estimate
Other Demo & Equip Removal

Material Unit Cost \$
\$0

Closure Cost Estimate
Other Demo & Equip Removal

Material Unit Cost (\$)
\$0

**Closure Cost Estimate
Sediment & Drainage Control**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Drainage Control - Cost Summary				
	Labor	Equipment	Materials	Totals
Diversion Ditch Construction	\$0	\$0	N/A	\$0
Diversion Ditch Liner	\$0	\$0	\$0	\$0
Diversion Ditch Rip-Rap	\$0	\$0	\$0	\$0
Sed Pond Construct/Regrade	\$0	\$0	N/A	\$0
Liner Installation	\$0	\$0	\$0	\$0
Sed Pond Cover	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Diversion Ditch Revegetation	\$0	\$0	\$0	\$0
Sediment Pond Revegetation	\$0	\$0	\$0	\$0
Subtotal Revegetation	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Diversion Ditches - User Input															
			Diversion Ditches						Revegetation			Liner and Rip-Rap Installation			
Description (required)	ID Code	Diversion Length ft	Diversion Depth ft	Ditch Bottom Width ft	Ditch Sideslope Angle _H:1V	Excavate Volume (if calculated elsewhere) cy	Excavating Material Condition (select)	Excavating Equipment Fleet (select)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Liner Area S.Y.	Liner Type (select)	Rip-Rap Area S.Y.	Rip-Rap Type (select type)

Notes:

**Closure Cost Estimate
Sediment & Drainage Control**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Drainage Control - Cost Summary				
	Labor	Equipment	Materials	Totals
Diversion Ditch Construction	\$0	\$0	N/A	\$0
Diversion Ditch Liner	\$0	\$0	\$0	\$0
Diversion Ditch Rip-Rap	\$0	\$0	\$0	\$0
Sed Pond Construct/Regrade	\$0	\$0	N/A	\$0
Liner Installation	\$0	\$0	\$0	\$0
Sed Pond Cover	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Diversion Ditch Revegetation	\$0	\$0	\$0	\$0
Sediment Pond Revegetation	\$0	\$0	\$0	\$0
Subtotal Revegetation	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Sediment/Evaporation Pond Construction/Removal - User Input												
			Sediment Ponds							Growth Media		
Description (required)	ID Code	Pond Width ft	Pond/Berm Length ft	Berm Height ft	Crest Width ft	Sideslope Angle _H:1V	Final Area (if calculated elsewhere) acres	Regrade Volume (if calculated elsewhere) cy	Cover Volume (if calculated elsewhere) cy	Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Pond to Borrow % grade

Notes:

1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)
3. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

**Closure Cost Estimate
Sediment & Drainage Control**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Drainage Control - Cost Summary				
	Labor	Equipment	Materials	Totals
Diversion Ditch Construction	\$0	\$0	N/A	\$0
Diversion Ditch Liner	\$0	\$0	\$0	\$0
Diversion Ditch Rip-Rap	\$0	\$0	\$0	\$0
Sed Pond Construct/Regrade	\$0	\$0	N/A	\$0
Liner Installation	\$0	\$0	\$0	\$0
Sed Pond Cover	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Diversion Ditch Revegetation	\$0	\$0	\$0	\$0
Sediment Pond Revegetation	\$0	\$0	\$0	\$0
Subtotal Revegetation	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Sediment/Evaporation Pond Construction/Removal - User Input (cont.)													
		Sediment Ponds			Growth Media			Revegetation			Ripping/Scarifying		
	Description (required)	Excavating Material Condition (select)	Material Type (select)	Excavating Equipment Fleet (select)	Liner Type (select)	Growth Media Material Type (select)	Growth Media Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarify/ Rip? (select)	Scarify/ Ripping Fleet (select)

Notes:

1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

**Closure Cost Estimate
Sediment & Drainage Control**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Drainage Control - Cost Summary				
	Labor	Equipment	Materials	Totals
Diversion Ditch Construction	\$0	\$0	N/A	\$0
Diversion Ditch Liner	\$0	\$0	\$0	\$0
Diversion Ditch Rip-Rap	\$0	\$0	\$0	\$0
Sed Pond Construct/Regrade	\$0	\$0	N/A	\$0
Liner Installation	\$0	\$0	\$0	\$0
Sed Pond Cover	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Diversion Ditch Revegetation	\$0	\$0	\$0	\$0
Sediment Pond Revegetation	\$0	\$0	\$0	\$0
Subtotal Revegetation	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Drainage Control - Calculations

Diversion Ditch Volume Calculation

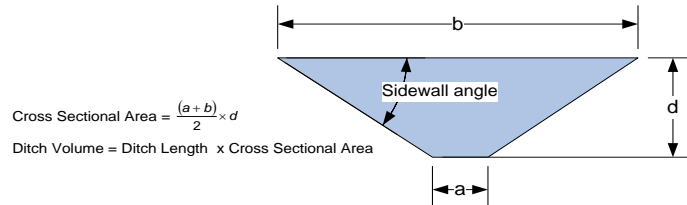


Figure 1 - Ditch Volume Calculation

- 1) Assume 20% swell for excavations
- 2) Assumes heavy duty trenching bucket is used

Sediment/Evaporation Pond Construction Calculation

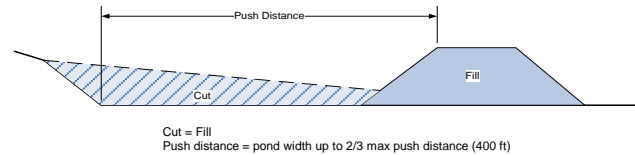


Figure 2 - Sediment Ponds

- 1) Assume balanced cut-to-fill for berm construction
- 2) Include cost for liner, if required.
- 3) Include line items for removal, if necessary.
- 4) Assume 20% swell for excavations
- 5) Minimum 1 hr ripping/scarifying per area
- 6) Minimum 1 acre revegetation crew time per area

**Closure Cost Estimate
Sediment & Drainage Control**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Drainage Control - Cost Summary				
	Labor	Equipment	Materials	Totals
Diversion Ditch Construction	\$0	\$0	N/A	\$0
Diversion Ditch Liner	\$0	\$0	\$0	\$0
Diversion Ditch Rip-Rap	\$0	\$0	\$0	\$0
Sed Pond Construct/Regrade	\$0	\$0	N/A	\$0
Liner Installation	\$0	\$0	\$0	\$0
Sed Pond Cover	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Diversion Ditch Revegetation	\$0	\$0	\$0	\$0
Sediment Pond Revegetation	\$0	\$0	\$0	\$0
Subtotal Revegetation	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Diversion Ditches - Excavation Costs								Liner Installation				Rip-Rap Installation			
Description (required)	Diversion Ditch Volume LCY	Diversion Ditch Equipment	Corrected Excavator Productivity LCY/hr	Total Hours	Diversion Ditch Labor Cost \$	Diversion Ditch Equipment Cost \$	Total Diversion Ditch Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Material Cost \$	Total Liner Cost \$	Labor Cost \$	Equipment Cost \$	Material Cost \$	Total Cost \$
					\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Notes: LCM assumes 20% swell from ditch volume

**Closure Cost Estimate
Sediment & Drainage Control**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Drainage Control - Cost Summary				
	Labor	Equipment	Materials	Totals
Diversion Ditch Construction	\$0	\$0	N/A	\$0
Diversion Ditch Liner	\$0	\$0	\$0	\$0
Diversion Ditch Rip-Rap	\$0	\$0	\$0	\$0
Sed Pond Construct/Regrade	\$0	\$0	N/A	\$0
Liner Installation	\$0	\$0	\$0	\$0
Sed Pond Cover	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Diversion Ditch Revegetation	\$0	\$0	\$0	\$0
Sediment Pond Revegetation	\$0	\$0	\$0	\$0
Subtotal Revegetation	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Diversion Ditches - Revegetation Costs							
		Description (required)	Surface Area acres	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
				\$0	\$0	\$0	\$0

**Closure Cost Estimate
Sediment & Drainage Control**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Drainage Control - Cost Summary				
	Labor	Equipment	Materials	Totals
Diversion Ditch Construction	\$0	\$0	N/A	\$0
Diversion Ditch Liner	\$0	\$0	\$0	\$0
Diversion Ditch Rip-Rap	\$0	\$0	\$0	\$0
Sed Pond Construct/Regrade	\$0	\$0	N/A	\$0
Liner Installation	\$0	\$0	\$0	\$0
Sed Pond Cover	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Diversion Ditch Revegetation	\$0	\$0	\$0	\$0
Sediment Pond Revegetation	\$0	\$0	\$0	\$0
Subtotal Revegetation	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Sediment/Evaporation Ponds - Construction/Regrading Costs																
Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83)											Earthwork			Liner		
	Description (required)	Regrading Volume cy	Sed/Evap Pond Equipment	Dozing Distance (see above) ft	Uncorrected Dozer Productivity LCY/hr	Grade Correction	Density Correction	Excavating Material	Corrected Productivity LCY/hr	Total Dozer Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Constr/ Regrading Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Material Cost \$
											\$0	\$0	\$0	\$0	\$0	\$0

**Closure Cost Estimate
Sediment & Drainage Control**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Drainage Control - Cost Summary				
	Labor	Equipment	Materials	Totals
Diversion Ditch Construction	\$0	\$0	N/A	\$0
Diversion Ditch Liner	\$0	\$0	\$0	\$0
Diversion Ditch Rip-Rap	\$0	\$0	\$0	\$0
Sed Pond Construct/Regrade	\$0	\$0	N/A	\$0
Liner Installation	\$0	\$0	\$0	\$0
Sed Pond Cover	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Diversion Ditch Revegetation	\$0	\$0	\$0	\$0
Sediment Pond Revegetation	\$0	\$0	\$0	\$0
Subtotal Revegetation	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Sediment/Evaporation Ponds - Growth Media Costs								
		Growth Media						
Description (required)	Growth Media Volume cy	Growth Media Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Cover Placement Cost \$
						\$0	\$0	\$0

**Closure Cost Estimate
Sediment & Drainage Control**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Drainage Control - Cost Summary				
	Labor	Equipment	Materials	Totals
Diversion Ditch Construction	\$0	\$0	N/A	\$0
Diversion Ditch Liner	\$0	\$0	\$0	\$0
Diversion Ditch Rip-Rap	\$0	\$0	\$0	\$0
Sed Pond Construct/Regrade	\$0	\$0	N/A	\$0
Liner Installation	\$0	\$0	\$0	\$0
Sed Pond Cover	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Diversion Ditch Revegetation	\$0	\$0	\$0	\$0
Sediment Pond Revegetation	\$0	\$0	\$0	\$0
Subtotal Revegetation	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Sediment/Evaporation Ponds - Revegetation Costs												
	Description (required)	Surface Area acres	Long Ripping Distance ft	Ripping/ Scarifying Fleet	Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
					0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

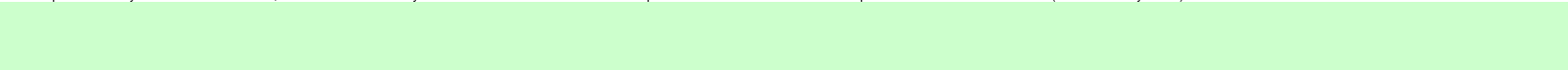
**Closure Cost Estimate
Process Ponds**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Process Ponds - Cost Summary				
	Labor	Equipment	Materials	Totals
Backfilling Costs	\$0	\$0	N/A	\$0
Growth Media Placement Costs	\$0	\$0	N/A	\$0
Liner Cutting & Folding Costs	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Process Ponds - User Input														
You must fill in ALL green cells and relevant blue cells in this section for each pond														
Facility Description			Pond Dimensions (1)					Backfill - (If trucks are used) (1)				Growth Media		
	Description (required)	ID Code	Pond Length ft	Pond Width ft	Pond Depth ft	Pond Sideslope Angle _H:1V	Disturbed Area (if calculated elsewhere) acres	Percent Backfill (100% if blank)	Distance from Backfill Borrow ft	Slope from Facility to Borrow Area % grade	Pond Volume (if calculated elsewhere) cy	Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Facility to Stockpile % grade

Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)



Closure Cost Estimate Process Ponds

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Process Ponds - Cost Summary				
	Labor	Equipment	Materials	Totals
Backfilling Costs	\$0	\$0	N/A	\$0
Growth Media Placement Costs	\$0	\$0	N/A	\$0
Liner Cutting & Folding Costs	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Process Ponds - User Input (cont.)											
		Liner	Backfill			Growth Media			Revegetation		
	Description (required)	Crew Cut & Fold Time ⁽²⁾ hrs	Backfill Material Type (select)	Backfill Equipment Fleet (select)	Maximum Fleet Size (user override)	Growth Media Material Type (select)	Growth Media Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)

Notes:

1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

(2) Pond liner removal crew (2Clab + excavator) = 2 General Laborers + 325C Excavator

Closure Cost Estimate Process Ponds

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

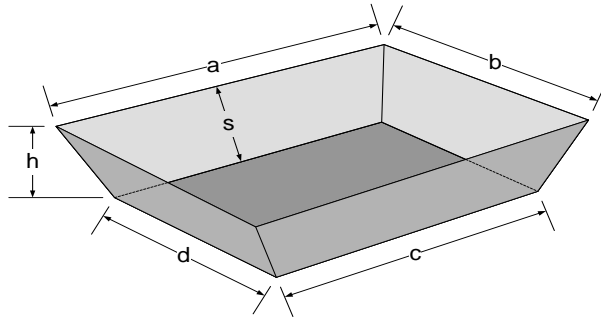
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Process Ponds - Cost Summary				
	Labor	Equipment	Materials	Totals
Backfilling Costs	\$0	\$0	N/A	\$0
Growth Media Placement Costs	\$0	\$0	N/A	\$0
Liner Cutting & Folding Costs	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Process Ponds - Calculations

Pond Volume Calculation



Area and Volume of the Frustum of a Pyramid

$$\text{Surface Area} = ab + cd + (a+b+c+d) \times \frac{s}{2}$$

$$\text{Volume} = \frac{h(ab + cd + \sqrt{abcd})}{3}$$

Revegetation Calculations

Minimum 1 acre revegetation crew time per area

**Closure Cost Estimate
Process Ponds**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Process Ponds - Cost Summary				
	Labor	Equipment	Materials	Totals
Backfilling Costs	\$0	\$0	N/A	\$0
Growth Media Placement Costs	\$0	\$0	N/A	\$0
Liner Cutting & Folding Costs	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Process Ponds - Liner Cutting and Folding					
	Description (required)	Crew Hours hrs	Total Labor Cost \$	Total Equipment Cost \$	Total Liner Removal Cost \$
			\$0	\$0	\$0

Closure Cost Estimate Process Ponds

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Process Ponds - Cost Summary				
	Labor	Equipment	Materials	Totals
Backfilling Costs	\$0	\$0	N/A	\$0
Growth Media Placement Costs	\$0	\$0	N/A	\$0
Liner Cutting & Folding Costs	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Process Ponds - Backfill and Growth Media Costs																
		Pond Backfill								Growth Media						
	Description (required)	Backfill Volume cy	Backfill Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours hrs	Total Labor Cost \$	Total Equipment Cost \$	Total Backfill Cost \$	Growth Media Volume cy	Growth Media Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$
							\$0	\$0	\$0						\$0	\$0

**Closure Cost Estimate
Process Ponds**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Process Ponds - Cost Summary				
	Labor	Equipment	Materials	Totals
Backfilling Costs	\$0	\$0	N/A	\$0
Growth Media Placement Costs	\$0	\$0	N/A	\$0
Liner Cutting & Folding Costs	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Process Ponds - Revegetation Costs						
	Description (required)	Surface Area acres	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
			\$0	\$0	\$0	\$0

**Closure Cost Estimate
Process Ponds**

**Closure Cost Estimate
Process Ponds**

**Closure Cost Estimate
Process Ponds**

**Closure Cost Estimate
Process Ponds**

Closure Cost Estimate
Process Ponds

Total Growth Media Cost \$
\$0

**Closure Cost Estimate
Process Ponds**

Closure Cost Estimate Landfills

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Landfills - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Landfills - User Input											
You must fill in ALL green cells and relevant blue cells in this section for each landfill											
Facility Description			Physical (1)			Cover			Growth Media		
	Description (required)	ID Code	Final Landfill Footprint acres	Average Long Dimension (ripping distance) ft	Regrade Volume (calculated elsewhere) cy	Cover Thickness in	Distance from Cover Borrow ft	Slope from Landfill to Cover Borrow % grade	Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Landfill to Stockpile % grade

Notes:

1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)

Closure Cost Estimate Landfills

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Landfills - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Landfills - User Input (cont.)																
You must fill in ALL green cells and relevant blue cells in this section for each landfill																
		Grading				Cover			Growth Media			Revegetation				
	Description (required)	Regrading Material Condition (select)	Regrading Material Type (select)	Regrading Equipment Fleet (select)	Slot/ Side-by-Side (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch Type (select)	Fertilizer (select)	Scarify/ Rip? (select)	Scarifying/ Ripping Fleet (select)

Notes:

1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Closure Cost Estimate Landfills

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Landfills - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Landfills - Calculations

Dozing, Ripping/Scarifying & Revegetation Calculations

Dozing: Dozing distance = 2/3 of the 600 feet maximum from Caterpillar Handbook or 400 feet
Assumes flat push (grade correction factor = 1)
Minimum 1 hr per area

Ripping: Flat area width = Final flat area ÷ Average long dimensions
Number of passes = Flat area width ÷ Grader width
Travel distance = Number of passes x Average long dimensions
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)
Minimum 1 hr per area

Revegetation: Minimum 1 acre revegetation crew time per area

Closure Cost Estimate Landfills

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Landfills - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Landfills - Regrading Costs													
Productivity = Dozer Productivity x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side)													
	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Dozing Material	Density Correction	Side-by-Side or Slot Dozing	Total Hourly Productivity LCY/hr	Total Dozer Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
											\$0	\$0	\$0

Closure Cost Estimate Landfills

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Landfills - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Landfills - Cover and Growth Media Costs																
		Cover Placement								Growth Media Placement						
	Description (required)	Cover Volume ft	Cover Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Cover Labor Cost \$	Cover Equipment Cost \$	Total Cover Cost \$	Growth Media Volume ft	Growth Media Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$
							\$0	\$0	\$0						\$0	\$0

Closure Cost Estimate Landfills

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Landfills - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Landfills - Scarifying/Revegetation Costs												
	Description (required)	Surface Area acres	Long Dimension ft	Ripping/ Scarifying Fleet	Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
						\$0	\$0	\$0	\$0	\$0	\$0	\$0

**Closure Cost Estimate
Landfills**

**Closure Cost Estimate
Landfills**

Closure Cost Estimate
Landfills

Closure Cost Estimate
Landfills

Closure Cost Estimate
Landfills

Total Growth Media Cost \$
\$0

Closure Cost Estimate
Landfills

**Closure Cost Estimate
Yards, Etc.**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Yards, Etc. - Cost Summary				
	Labor	Equipment	Materials	Totals
Regrading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$106	\$548	N/A	\$654
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$132	\$685		\$817
Revegetation Cost	\$140	\$50	\$1,601	\$1,791
TOTALS	\$272	\$735	\$1,601	\$2,608

Yards, Etc. - User Input												
You must fill in ALL green cells and relevant blue cells in this section for each building or facility												
Facility Description				Physical			Cover			Growth Media		
	Description (required)	ID Code	Type	Area acres	Average Flat Area Long Dimension (ripping distance) ft	Regrade Volume (calculated elsewhere) cy	Cover Thickness in	Distance from Cover Borrow Area ft	Slope from Facility to Borrow Area % grade	Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Facility to Stockpile % grade
1	Laydown Yard		Other Facilities	0.25	100		0	100	0.1	12	100	0.1

Notes:

1. All Physical parameters must be input even if manual overrides for volume or area are used.

2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)

Note: A portion of the Laydown Yard will be used during reclamation as a temporary staging area for equipment and topdressing.

**Closure Cost Estimate
Yards, Etc.**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Yards, Etc. - Cost Summary				
	Labor	Equipment	Materials	Totals
Regrading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$106	\$548	N/A	\$654
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$132	\$685		\$817
Revegetation Cost	\$140	\$50	\$1,601	\$1,791
TOTALS	\$272	\$735	\$1,601	\$2,608

Yards, Etc. - User Input (cont.)															
You must fill in ALL green cells and relevant blue cells in this section for each building or facility															
		Grading			Cover			Growth Media			Revegetation				
	Description (required)	Regrading Material Condition (select)	Regrading Material Type (select)	Regrading Equipment Fleet (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarify/ Rip? (select)	Ripping Fleet (select)
1	Laydown Yard	1	Alluvium	Small	Alluvium	Small Truck		Alluvium	Small Truck		User Mix 1	Straw Mulch	None	Yes	Small Dozer

Notes:

1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

**Closure Cost Estimate
Yards, Etc.**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Yards, Etc. - Cost Summary				
	Labor	Equipment	Materials	Totals
Regrading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$106	\$548	N/A	\$654
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$132	\$685		\$817
Revegetation Cost	\$140	\$50	\$1,601	\$1,791
TOTALS	\$272	\$735	\$1,601	\$2,608

Yards, Etc. - Calculations
<div>Grading Calculations</div> <p>Average push distance assumed to be 2/3 of the 600 feet maximum from Caterpillar Handbook or 400 feet Material assumed to be loose stockpile (1.2 productivity factor) Slope assumed to be 0 to 5% (1.0 productivity factor)</p>
<div>Cover Volume Calculation</div> <p>Yard area x cover thickness</p>
<div>Ripping/Scarifying Calculations</div> <p>Flat area width = Final flat area ÷ Average long dimensions Number of passes = Flat area width ÷ Grader width Travel distance = Number of passes x Average long dimensions Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time) Minimum 1 hr ripping/scarifying per area</p>
<div>Revegetation</div> <p>Minimum 1 acre revegetation crew time per area</p>

Closure Cost Estimate
Yards, Etc.

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Yards, Etc. - Cost Summary				
	Labor	Equipment	Materials	Totals
Regrading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$106	\$548	N/A	\$654
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$132	\$685		\$817
Revegetation Cost	\$140	\$50	\$1,601	\$1,791
TOTALS	\$272	\$735	\$1,601	\$2,608

Yards, Etc. - Regrading Costs													
Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side)													
	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Grade Correction	Dozing Material	Density Correction	Total Hourly Productivity cy/hr	Total Dozer Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
1	Laydown Yard			D7R							\$0	\$0	\$0
											\$0	\$0	\$0

**Closure Cost Estimate
Yards, Etc.**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Yards, Etc. - Cost Summary				
	Labor	Equipment	Materials	Totals
Regrading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$106	\$548	N/A	\$654
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$132	\$685		\$817
Revegetation Cost	\$140	\$50	\$1,601	\$1,791
TOTALS	\$272	\$735	\$1,601	\$2,608

Yards, Etc. - Cover and Growth Media Costs																
		Cover								Growth Media						
	Description (required)	Cover Volume cy	Topsoil Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Cover Cost \$	Growth Media Volume cy	Growth Media Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$
1	Laydown Yard						\$0	\$0	\$0	484	725/966G/D7R	483	2	1	\$106	\$548
							\$0	\$0	\$0	484				1	\$106	\$548

**Closure Cost Estimate
Yards, Etc.**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Yards, Etc. - Cost Summary				
	Labor	Equipment	Materials	Totals
Regrading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$106	\$548	N/A	\$654
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$132	\$685		\$817
Revegetation Cost	\$140	\$50	\$1,601	\$1,791
TOTALS	\$272	\$735	\$1,601	\$2,608

Yards, Etc. - Scarifying/Revegetation Costs												
	Description (required)	Surface Area acres	Area Long Dimension ft	Ripping/ Scarifying Fleet	Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
1	Laydown Yard	0.25	100	D7R	1	\$26	\$137	\$163	\$140	\$50	\$1,601	\$1,791
		0.25			1	\$26	\$137	\$163	\$140	\$50	\$1,601	\$1,791

Closure Cost Estimate
Yards, Etc.

Closure Cost Estimate
Yards, Etc.

Closure Cost Estimate
Yards, Etc.

Closure Cost Estimate
Yards, Etc.

Closure Cost Estimate
Yards, Etc.

Total Growth Media Cost \$
\$654
\$654

Closure Cost Estimate
Yards, Etc.

Closure Cost Estimate Waste Disposal

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Disposal - Cost Summary				
	Labor	Equipment	Fees	Totals
Solid Waste - On Site	\$0	\$0	N/A	\$0
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Waste Disposal - User Input - Solid Waste									
						Landfill (Bulk) Disposal		Dumpster	
	Description (required)	ID Code	Waste Type (select)	Disposal Method (select)	Quantity cy	Distance to Landfill ft	Slope to Landfill % grade	Number of Trucks (user override)	Months Dumpster Rental months

Notes:

1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)

**Closure Cost Estimate
Waste Disposal**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Disposal - Cost Summary				
	Labor	Equipment	Fees	Totals
Solid Waste - On Site	\$0	\$0	N/A	\$0
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Waste Disposal - User Input - Hazardous Materials									
	Description (required)	ID Code	Waste Type (select)	Container Type (select)	Vacuum Truck Size (select)	Liquid Quantity gallons	Soild Quantity cy	One Way Travel Distance to Disposal Site mi	One Way Travel Time to Disposal Site hr

Notes:
1. Use Other Demo & Equip Removal Sheet for tank removal



Closure Cost Estimate Waste Disposal

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Disposal - Cost Summary				
	Labor	Equipment	Fees	Totals
Solid Waste - On Site	\$0	\$0	N/A	\$0
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Waste Disposal - User Input - Hydrocarbon Contaminated Soils						
	Description (required)	ID Code	Waste Type (select)	Disposal Method (select)	Quantity cy	Travel Distance to Offsite Disposal mi

Notes:

1. Use Yards or Landfills Sheets for bioremediation facility reclamation

Closure Cost Estimate Waste Disposal

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety **Cost Basis:** American Magnesium - Option 1

Waste Disposal - Cost Summary				
	Labor	Equipment	Fees	Totals
Solid Waste - On Site	\$0	\$0	N/A	\$0
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Waste Disposal - Assumptions & Calculations

Solid Waste Disposal

Off site disposal assumes use of average rolloff dumpster [30 cy (m3), 10 ton (tonne)]

On site disposal assumes use of small loader/truck fleet for haulage

Average density for on site disposal = 2,600 lb/cy (1,540 kg/m3)

For on site disposal only 1 truck is required unless total truck hours > 8, only 2 trucks unless total truck hours are > 16

Hazardous Materials Disposal

Assumes all hazardous materials are known

Enter EITHER solid or liquid quantity each line.

If container type = 55 gallon (200 liter) drum then solid waste hauling costs apply

Average density for solids assumed to be 2,600 lb/cy (1,540 kg/m3)

Vacuum truck sizes: small = 2,200 gal (~8,300 litres), large = 5,000 gal (~19,000 litres)

Vacuum truck on site for 4 hours for each load

Hydrocarbon Contaminated Soils Disposal

Assumes all hazardous materials are known

On site disposal assumes biopad treatment

Exavation productivity =45 cy./hr (35 m3/hr) (Means Heavy Construction, 2006: 02315-424-0360)

Closure Cost Estimate Waste Disposal

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Disposal - Cost Summary				
	Labor	Equipment	Fees	Totals
Solid Waste - On Site	\$0	\$0	N/A	\$0
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Waste Disposal - Solid Waste Disposal										
	Description (required)	Waste Volume cy	Number of Off Site Dumpster Loads	Landfill Fleet Equipment	Landfill Fleet Productivity LCY/hr	Number of Trucks	Total Fleet Hours	Total Dumpster Cost \$	Total Labor Cost \$	Total Equipment Cost \$
								\$0	\$0	\$0

Closure Cost Estimate Waste Disposal

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Disposal - Cost Summary				
	Labor	Equipment	Fees	Totals
Solid Waste - On Site	\$0	\$0	N/A	\$0
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Waste Disposal - Hazardous Materials Disposal									
	Description (required)	Liquid Waste Volume gallons	Solid Waste Volume cy	Number of Truck Loads	Tons of Waste Tons	Pick-up Fees \$	Transport Fees \$	Disposal Fees \$	Total Hazardous Material Cost \$
						\$0	\$0	\$0	\$0

Closure Cost Estimate Waste Disposal

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Disposal - Cost Summary				
	Labor	Equipment	Fees	Totals
Solid Waste - On Site	\$0	\$0	N/A	\$0
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Waste Disposal - Hydrocarbon Contaminated Soils										
	Description (required)	Quantity cy	Disposal Equipment Fleet	Total Fleet Hours	Treatment Cost \$	Transport Fees \$	Disposal Fees \$	Total Labor Cost \$	Total Equipment Cost \$	Total Waste Disposal Cost \$
					\$0	\$0	\$0	\$0	\$0	\$0

Closure Cost Estimate
Well Abandonment

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Well Abandonment				
	Labor	Equipment	Materials	Totals
Production, Dewatering, Infiltration Wells	\$0	\$0	\$0	\$0
Monitoring Wells	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Production, Dewatering and Infiltration Well Closure																									
	Description (required)	ID Code	Number of Holes	Casing Diam in	Average Depth ⁽¹⁾ ft bgs	Depth to First Water ft bgs	Original Static Water Level ft bgs	Top of Slotted Casing ⁽²⁾ ft bgs	Blank Casing Below Top of Screen ⁽²⁾ ft	Type of Pump (if any) (select)	Depth to Pump ft bgs	Hole Plug Method (select)	Casing Volume per ft cf	Perforation Length ^(3,4) ft	Grout Volume per Hole ^(4,5) cy	Cement Volume per Hole ⁽⁶⁾ cy	Inert Media Volume per Hole ⁽⁷⁾ cy	Pump Removal Labor Cost \$	Pump Removal Equip Cost \$	Perf Labor Cost \$	Perf Equip Cost ⁽⁸⁾ \$	Grout + Cement Labor Cost ⁽⁹⁾ \$	Grout + Cement Equip Cost ⁽⁹⁾ \$	Grout + Cement Material Cost \$	Inert Media Labor Cost ⁽¹⁰⁾ \$
																		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

- (1) For previously abandoned holes enter "0" for depth
(2) Wells abandoned per Nevada Administrative Code (NAC 534.420). Hole grouted and perforated from bottom to 50 feet (15.24m) above the top of the screen, or first water encountered or original static water level, depending on vertical hydraulic gradient and well construction parameters. Inert media (cuttings or alluvium) used from top of grout to top seal.
(3) Perforation length = amount of blank casing below first water (for confined aquifers) or predicted recovered water table (unconfined aquifers) + 50 feet (15.24m) of blank casing above water table
(4) Assumes 50' (15.24m) sanitary seal at top of hole. Therefore, perforation and grouting only required to bottom of sanitary seal.
(5) Assumes 100% loss to formation for grout (abandonite) for screened and perforated sections.
(6) Assumes 20' (6m) top seal of cement in casing only. See note 4.
(7) Inert material is cuttings or alluvium sourced locally.
(8) Includes perforation tool wear cost/ft of perforation (see Productivty Sheet).
(9) See Productivity Sheet for hourly production. Minimum 1 hr per hole + fixed hours per hole for move and setup. If no perforation required, use standard drill rig.
(10) See Productivity Sheet for hourly production. Minimum 1 hr per hole.

Notes:

Closure Cost Estimate
Well Abandonment

Inert Media Equip Cost ⁽⁹⁾ \$
\$0

Closure Cost Estimate
Well Abandonment

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Well Abandonment				
	Labor	Equipment	Materials	Totals
Production, Dewatering, Infiltration Wells	\$0	\$0	\$0	\$0
Monitoring Wells	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Monitoring Well Closure																		
	Description (required)	ID Code	Number of Holes	Casing Diam in	Average Depth ft bgs	Top of Screen ⁽¹⁾ ft bgs	Hole Plug Method (select)	Casing Volume per ft ft3	Grout Volume/ Well ^(2,3) cy	Cement Volume per Hole ⁽⁴⁾ cy	Inert Backfill Volume per Hole ⁽⁵⁾ cy	Total Grouting Hours/ Hole hr	Total Inert Media Hours/ Hole hr	Grout + Cement Labor Cost ⁽⁶⁾ \$	Grout + Cement Equip Cost ⁽⁶⁾ \$	Grout + Cement Material Cost \$	Inert Material Labor Cost ⁽⁷⁾ \$	Inert Material Equip Cost ⁽⁷⁾ \$
														\$0	\$0	\$0	\$0	\$0

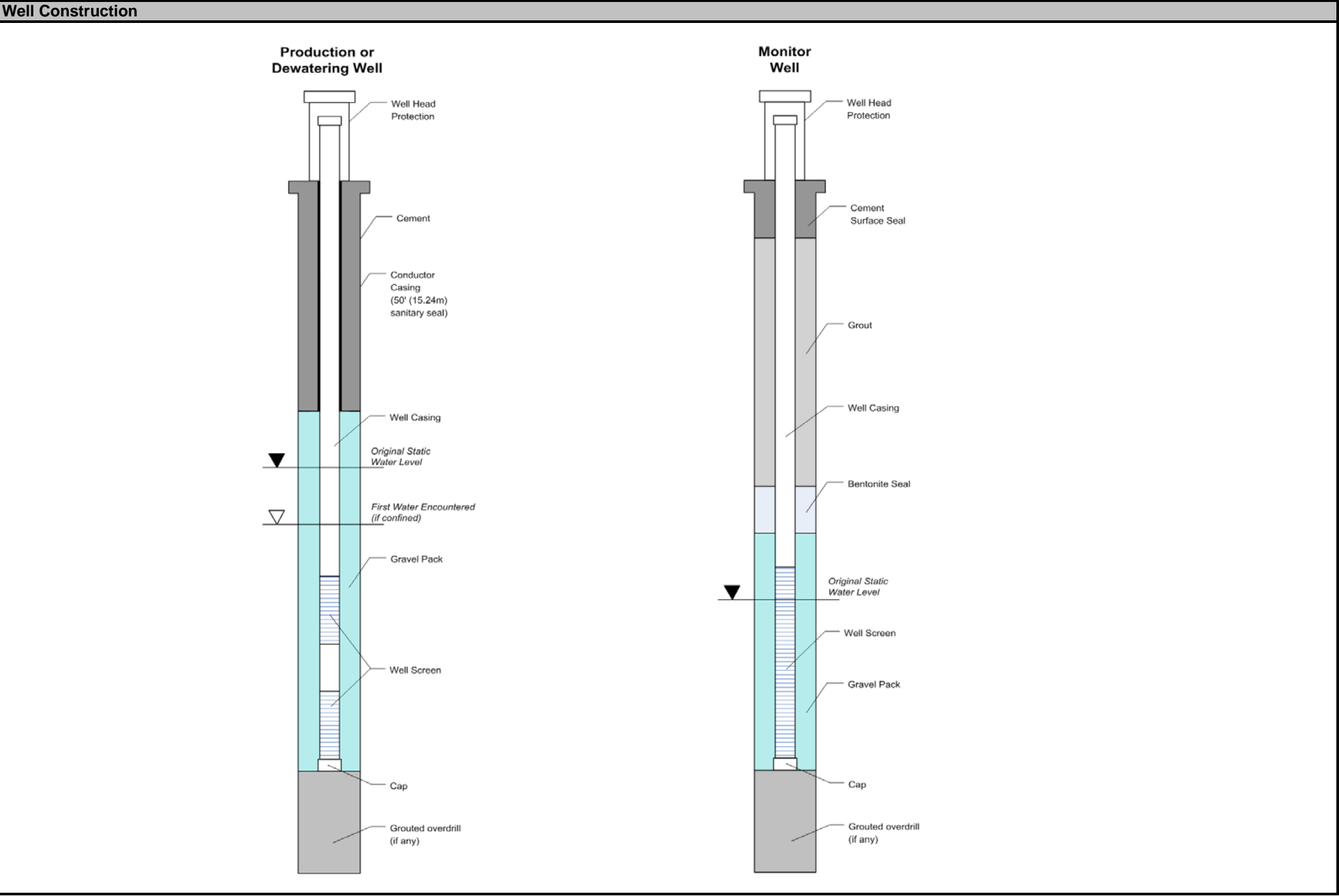
Wells abandoned per NAC 534.420 with bentonite grout placed to 50 feet above the top of the screen (see note 1).
(1) Assumes top of screen is at or above the static water level (in unconfined aquifers) or the depth of first water encountered (in confined aquifers).
(2) Assumes 25% loss to formation for grouting
(3) Grouting only required to 50' (15.24m) above the top of screen because monitor wells are constructed with a seal in the annular space.
(4) Assumes top 20' (6m) plugged with cement.
(5) Assumes hole plugged with inert material (cuttings or alluvium) above grout up to cement surface plug.
(6) See Productivity Sheet for hourly production. Minimum 1 hr per hole + fixed hours per hole for move and setup (see Productivty Sheet).
(7) See Productivity Sheet for hourly production. Minimum 1 hr per hole.

Notes:

Closure Cost Estimate
Well Abandonment

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Well Abandonment				
	Labor	Equipment	Materials	Totals
Production, Dewatering, Infiltration Wells	\$0	\$0	\$0	\$0
Monitoring Wells	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0



Closure Cost Estimate

Misc. Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Miscellaneous Cost Summary				
	Labor	Equipment	Materials	Totals
Fence Removal	\$0	\$0	N/A	\$0
Fence Installation	\$0	\$0	\$0	\$0
Culvert & Buried Pipe Removal	\$0	\$0	N/A	\$0
Surface Pipe Removal	\$0	\$0	N/A	\$0
Power Lines	\$0	N/A	N/A	\$0
Substations/Transformers	\$0	N/A	N/A	\$0
Rip-rap, rock lining, gabions	\$0	\$0	\$0	\$0
Other Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Fence Removal							
You must fill in ALL green and blue cells							
					Costs		
	Description (required)	ID Code	Length ft	Type (select type)	Labor Cost \$	Equipment Cost \$	Total Cost \$
					\$0	\$0	\$0

Notes:

Fence Installation							
You must fill in ALL green and blue cells							
			Input		Costs		
	Description (required)	ID Code	Length ft	Type (select type)	Labor Cost \$	Equipment Cost \$	Material Cost (\$)
					\$0	\$0	\$0

Notes:

Closure Cost Estimate

Misc. Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Miscellaneous Cost Summary				
	Labor	Equipment	Materials	Totals
Fence Removal	\$0	\$0	N/A	\$0
Fence Installation	\$0	\$0	\$0	\$0
Culvert & Buried Pipe Removal	\$0	\$0	N/A	\$0
Surface Pipe Removal	\$0	\$0	N/A	\$0
Power Lines	\$0	N/A	N/A	\$0
Substations/Transformers	\$0	N/A	N/A	\$0
Rip-rap, rock lining, gabions	\$0	\$0	\$0	\$0
Other Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Culvert & Buried Pipe Removal							
You must fill in ALL green and blue cells							
			Input			Costs	
	Description (required)	ID Code	Length ft	Type (select type)	Location (select)	Labor Cost \$	Equipment Cost \$
						\$0	\$0

Notes:

Surface Pipe Removal							
You must fill in ALL green and blue cells							
			Input			Costs	
	Description (required)	ID Code	Length ft	Type (select type)	Location (select)	Labor Cost \$	Equipment Cost \$
						\$0	\$0

Notes:

Closure Cost Estimate

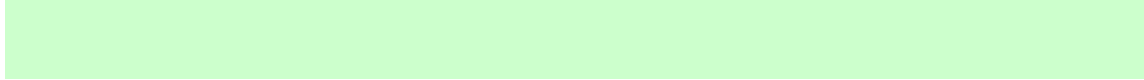
Misc. Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Miscellaneous Cost Summary				
	Labor	Equipment	Materials	Totals
Fence Removal	\$0	\$0	N/A	\$0
Fence Installation	\$0	\$0	\$0	\$0
Culvert & Buried Pipe Removal	\$0	\$0	N/A	\$0
Surface Pipe Removal	\$0	\$0	N/A	\$0
Power Lines	\$0	N/A	N/A	\$0
Substations/Transformers	\$0	N/A	N/A	\$0
Rip-rap, rock lining, gabions	\$0	\$0	\$0	\$0
Other Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Power Line and Substation Removal							
You must fill in ALL green and blue cells							
			Input				
	Description (required)	ID Code	Power Line Length miles	Power Line Type (select)	Number of Substations #	Location (select)	Power Line Removal \$
							\$0

Notes: If substation owned by operator, use Other Demo & Equipment Removal sheet
 User may need to add line items in Foundations & Buildings for substation slab demolition and fence removal
 Labor/Equipment costs assume approximately 80% of cost are equipment and 20% are labor related costs



Closure Cost Estimate

Misc. Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Miscellaneous Cost Summary				
	Labor	Equipment	Materials	Totals
Fence Removal	\$0	\$0	N/A	\$0
Fence Installation	\$0	\$0	\$0	\$0
Culvert & Buried Pipe Removal	\$0	\$0	N/A	\$0
Surface Pipe Removal	\$0	\$0	N/A	\$0
Power Lines	\$0	N/A	N/A	\$0
Substations/Transformers	\$0	N/A	N/A	\$0
Rip-rap, rock lining, gabions	\$0	\$0	\$0	\$0
Other Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Rip-Rap & Rock Lining							
You must fill in ALL green and blue cells							
			Input		Costs		
	Description (required)	ID Code	Area S.Y.	Type (select type)	Labor Cost \$	Equipment Cost \$	Material Cost \$
					\$0	\$0	\$0

Notes:

Closure Cost Estimate
Misc. Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Miscellaneous Cost Summary				
	Labor	Equipment	Materials	Totals
Fence Removal	\$0	\$0	N/A	\$0
Fence Installation	\$0	\$0	\$0	\$0
Culvert & Buried Pipe Removal	\$0	\$0	N/A	\$0
Surface Pipe Removal	\$0	\$0	N/A	\$0
Power Lines	\$0	N/A	N/A	\$0
Substations/Transformers	\$0	N/A	N/A	\$0
Rip-rap, rock lining, gabions	\$0	\$0	\$0	\$0
Other Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Closure Cost Estimate
Monitoring

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Reclamation Monitoring & Maintenance - Cost Summary				
	Labor	Equipment	Lab & Materials	Totals
Revegetation Maintenance	\$164	\$59	\$293	\$516
Erosion Maintenance	\$747	\$2,242	N/A	\$2,989
Reclamation Monitoring	\$8,821	\$3,675	N/A	\$12,789
Subtotal Reclamation Monitoring	\$9,821	\$2,675	\$293	\$12,789
Water Quality Monitoring	\$0	\$0	\$0	\$0
TOTAL MONITORING	\$9,821	\$2,675	\$293	\$12,789

Reclamation Maintenance								
Description	Total Revegetation Surface Area (1,2 acres	% Area Requiring Reseeding	Seed Mix (select)	Area Requiring Reseeding acres	Seed \$/acres	Labor \$/acres	Equipment \$/acres	Totals \$
Revegetation Maintenance	5	25%	User Mix 1	1.2	\$250.00	\$140.00	\$50.00	
Labor								\$164
Equipment								\$59
Materials								\$293
Cost/Acre								\$440
							Subtotal	\$516
Notes: 1) Surface area is NOT the same as footprint disturbance area typically used for permitting purposes.								
	Total Volume Growth Media cy	% Volume Requiring Maintenance	Average Growth Media Placement Cost \$/cy	Volume Requiring Replacement cy		Labor (assume: 25%) \$/acres	Equipment (assume: 75%) \$/acres	Total \$
Erosion Maintenance	7,626	20%	\$1.96	1,525		\$747.00	\$2,242.00	\$2,989
Notes:								

Reclamation Monitoring					
Description	Hrs/Day	Days/Year	Number of Years	Rate \$/hr	
Field Work					
Field Geologist/Engineer	8	1	3	\$134.99	\$3,240
Range Scientist				\$119.42	\$0
Reporting					
Field Geologist/Engineer	14	1	3	\$134.99	\$5,670
Range Scientist				\$119.42	\$0
				Subtotal	\$8,910
Travel					
	Hrs/Trip hr	Trips/Year	Years	Truck Cost \$/hr	
Travel	4	1	3	\$31.13	\$374
				Subtotal	\$374
Total Reclamation Monitoring					\$9,284
Notes: Assumes Engineer will travel from Silver City, NM Assumes 10 hours for reporting and 4 hours for mobilization and demobilization					

Closure Cost Estimate Monitoring

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Reclamation Monitoring & Maintenance - Cost Summary				
	Labor	Equipment	Lab & Materials	Totals
Revegetation Maintenance	\$164	\$59	\$293	\$516
Erosion Maintenance	\$747	\$2,242	N/A	\$2,989
Reclamation Monitoring	\$8,910	\$374	N/A	\$9,284
Subtotal Reclamation Monitoring	\$9,821	\$2,675	\$293	\$12,789
Water Quality Monitoring	\$0	\$0	\$0	\$0
TOTAL MONITORING	\$9,821	\$2,675	\$293	\$12,789

Water and Rock Sample Analysis

[illegible]

Notes: Sampling labor cost = No. Samplers x Years x Events/year x Days/event x Hour/Day x Labor Rate
Sampling equipment costs include 1 pickup truck for every two samplers

Ground & Surface Water Monitoring

[illegible]

Description	No. of units		Years		Cost \$
Pump (purchased)		Replacement period (yrs):			\$0
Subtotal Field Work					\$0

Notes: Replacement period = frequency of pump replacement

Reporting

Description	Hrs/Event	Rate \$/hr	Cost \$
Field Geologist/Engineer			
Subtotal Reporting			

Notes:

Closure Cost Estimate Constr. Mgmt

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Construction Management & Road Maintenance - Cost Summary				
	Labor	Equipment	Materials	Totals
Construction Management	\$9,979	\$1,436	N/A	\$11,415
Construction Support		\$214		\$214
Road Maintenance	\$1,347	\$6,918	\$726	\$8,991
TOTAL CONSTRUCTION MANAGEMENT	\$11,326	\$8,568	\$726	\$20,620

Construction Management							
Construction Management Staff							
Description	Duration mo.	Hours/ Month hr.	Number of Supervisors	Supervisor Rate \$/hr	Labor Cost \$	Equipment Cost ⁽¹⁾ \$	Totals \$
Active Reclamation	0.5	80	1	\$89.10	\$3,564	\$513	\$4,077
Monitoring & Maintenance	36	2	1	\$89.10	\$6,415	\$923	\$7,338
Total Staff					\$9,979	\$1,436	\$11,415
Construction Management Support							
Description	Duration mo.	Number of Units		Rental Rate \$/mo	Generator Cost \$/mo	Equipment Cost ⁽¹⁾ \$	Totals \$
Temporary Office Rental						\$0	\$0
Temporary Toilets	1	1		\$214		\$214	\$214
Total Support						\$214	\$214
Notes: Office rental assumes only 1 generator required for every 4 trailers							
Total Construction Management							\$11,629

Road Maintenance							
Description	Fleet Size (select)	Number	Duration mo.	Hours/ Month hr.	Labor Cost \$	Equipment Cost \$	Totals \$
Active Reclamation							
Water Truck	Small	1	1	40	\$932	\$5,273	\$6,205
Grader	Small	1	1	16	\$415	\$1,645	\$2,060
Monitoring & Maintenance							
Water Truck	Small	1	36	0	\$0	\$0	\$0
Grader	Small	1	36	0	\$0	\$0	\$0
Description	Gallons/ Day	Days/ Month	Duration mo.	Cost/ Gallon \$			Totals \$
Water Fees							
Water Fees	6000	14	1	0.01			\$726
Total Project Maintenance					\$1,347	\$6,918	\$8,991

Notes: 1) Supervisor equipment = pickup truck
 Note: Assumes water from City of Demning at \$8.64 per 1,000 gallons.

**Closure Cost Estimate
Labor Rates**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Color Code Key	
User Input - Direct Input	Direct Input
User Input - Pull Down List	Pull Down Selection
Program Constant (can override)	Alternate Input
Program Calculated Value	Locked Cell - Formula or Reference

ZONE ADJUSTMENTS			
Cost Basis/Project Region	American Magnesium - Option 1	American Magnesium - Foothill Dolomite Mine - Northern Nevada Equipment	
Power Equipment Operators	50-150 miles	\$0.00	
Truck Drivers	50-150 miles	\$0.00	
Laborers	50-150 miles	\$0.00	
INDIRECT COSTS			
Unemployment (%)	1.84%		
Retirement/SS/Medicare (%)	7.65%		
Workman's Compensation (%)	13.30%		
Other Indirects			
State Payroll Tax (13),(15),(17)			
Total Other Indirects	0.00%		

HOURLY LABOR RATE TABLE										
EQUIPMENT TYPE (1) OR JOB DESCRIPTION	Labor Group	Base Rate (\$/hr)	Zone Adjustment (\$/hr)	Hourly Wage (\$/hr)	Fringe (\$/hr)	Retirement/ Medicare (\$/hr)	Unemployment Insurance (\$/hr)	Workman's Compensation (\$/hr)	Other Indirect Costs (\$/hr)	Total (\$/hr)
Equipment Operators (\$/hr) (2)										
Bulldozers										
D6R		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
D6R w/ Winch		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
D7R		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
D8R		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
D9R		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
D10R		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
D11R		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
Wheeled Dozers										
824G										
834G										
844										
854G										
Motor Graders										
120H		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
14G/H		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
16G/H		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
24M		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
Track Excavators										
312C		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
320C		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
325C		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
330C		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
345B		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
365BL		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
385BL		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
Scrapers										
631G		\$14.03	\$0.00	\$14.03		\$0.26	\$1.07	\$1.87	\$0.00	\$17.23
637G		\$14.03	\$0.00	\$14.03		\$0.26	\$1.07	\$1.87	\$0.00	\$17.23
Wheeled Loaders										
924G		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
928G		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
950G		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
966G		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
972G		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
980G		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
988G		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
990		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
992G		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
994D		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
L2350		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
Shovels										
PC2000										
PC3000										
PC4000										
PC5500										
PC8000										
Hydraulic Hammers										
H-120 (fits 325)										
H-160 (fits 345)										
H-180 (fits 365/385)										
Demolition Shears										
S340 (fits 322/325/330)										
S365 (fits 330/345)										
S390 (fits 365/385)										
Demolition Grapples										
G315 (fits 322/325)										
G320 (fits 325/330)										
G330 (fits 345/365)										

**Closure Cost Estimate
Labor Rates**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Color Code Key	
User Input - Direct Input	Direct Input
User Input - Pull Down List	Pull Down Selection
Program Constant (can override)	Alternate Input
Program Calculated Value	Locked Cell - Formula or Reference

ZONE ADJUSTMENTS			
Cost Basis/Project Region	American Magnesium - Option 1	American Magnesium - Foothill Dolomite Mine - Northern Nevada Equipment	
Power Equipment Operators	50-150 miles	\$0.00	
Truck Drivers	50-150 miles	\$0.00	
Laborers	50-150 miles	\$0.00	
INDIRECT COSTS			
Unemployment (%)	1.84%		
Retirement/SS/Medicare (%)	7.65%		
Workman's Compensation (%)	13.30%		
Other Indirects			
State Payroll Tax (13),(15),(17)			
Total Other Indirects	0.00%		

HOURLY LABOR RATE TABLE										
Other Equipment										
420D 4WD Backhoe		\$14.03	\$0.00	\$14.03	\$0.26	\$1.07	\$1.87	\$0.00	\$17.23	
428D 4WD Backhoe		\$14.03	\$0.00	\$14.03	\$0.26	\$1.07	\$1.87	\$0.00	\$17.23	
CS533E Vibratory Roller		\$14.03	\$0.00	\$14.03	\$0.26	\$1.07	\$1.87	\$0.00	\$17.23	
CS633E Vibratory Roller		\$14.03	\$0.00	\$14.03	\$0.26	\$1.07	\$1.87	\$0.00	\$17.23	
CP533E Sheepsfoot Compactor		\$14.03	\$0.00	\$14.03	\$0.26	\$1.07	\$1.87	\$0.00	\$17.23	
CP633E Sheepsfoot Compactor		\$14.03	\$0.00	\$14.03	\$0.26	\$1.07	\$1.87	\$0.00	\$17.23	
Light Truck - 1.5 Ton		\$0.00		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Supervisor's Truck		\$0.00		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Flatbed Truck										
Air Compressor + tools		\$14.03	\$0.00	\$14.03	\$0.26	\$1.07	\$1.87	\$0.00	\$17.23	
Welding Equipment		\$27.12	\$0.00	\$27.12	\$0.50	\$2.07	\$3.61	\$0.00	\$33.30	
Heavy Duty Drill Rig		\$14.03	\$0.00	\$14.03	\$0.26	\$1.07	\$1.87	\$0.00	\$17.23	
Pump (plugging) Drill Rig		\$14.03	\$0.00	\$14.03	\$0.26	\$1.07	\$1.87	\$0.00	\$17.23	
Concrete Pump										
Gas Engine Vibrator		\$14.03	\$0.00	\$14.03	\$0.26	\$1.07	\$1.87	\$0.00	\$17.23	
Generator 5KW										
HDEP Welder (pipe or liner)										
5 Ton Crane		\$27.12	\$0.00	\$27.12	\$0.50	\$2.07	\$3.61	\$0.00	\$33.30	
20 Ton Crane		\$27.12	\$0.00	\$27.12	\$0.50	\$2.07	\$3.61	\$0.00	\$33.30	
50 Ton Crane		\$27.12	\$0.00	\$27.12	\$0.50	\$2.07	\$3.61	\$0.00	\$33.30	
120 Ton Crane		\$27.12	\$0.00	\$27.12	\$0.50	\$2.07	\$3.61	\$0.00	\$33.30	
NOTES:										
(1) Equipment Type:	Caterpillar model or equivalent, LeTourneau									
(2) Equipment Operator Source:	Davis-Bacon Act WD#NM20200012									
(3) Zone Basis:	From Deming									
Truck Drivers (\$/hr) (4)										
725	truck Driver > 25 yds	\$18.97	\$0.00	\$18.97	\$0.00	\$0.35	\$1.45	\$2.52	\$0.00	\$23.29
730	truck Driver > 25 yds	\$18.97	\$0.00	\$18.97	\$0.00	\$0.35	\$1.45	\$2.52	\$0.00	\$23.29
735	truck Driver > 25 yds	\$18.97	\$0.00	\$18.97	\$0.00	\$0.35	\$1.45	\$2.52	\$0.00	\$23.29
740	truck Driver > 25 yds	\$18.97	\$0.00	\$18.97	\$0.00	\$0.35	\$1.45	\$2.52	\$0.00	\$23.29
769D	truck Driver > 25 yds	\$18.97	\$0.00	\$18.97	\$0.00	\$0.35	\$1.45	\$2.52	\$0.00	\$23.29
773E		\$18.97	\$0.00	\$18.97	\$0.00	\$0.35	\$1.45	\$2.52	\$0.00	\$23.29
777D	truck Driver > 60 yds	\$18.97	\$0.00	\$18.97	\$0.00	\$0.35	\$1.45	\$2.52	\$0.00	\$23.29
785C					\$0.00					
793C					\$0.00					
797B					\$0.00					
613E (5,000 gal) Water Wagon	ter Truck > 2,500 gal	\$18.97	\$0.00	\$18.97	\$0.00	\$0.35	\$1.45	\$2.52	\$0.00	\$23.29
621E (8,000 gal) Water Wagon	ter Truck > 2,500 gal	\$18.97	\$0.00	\$18.97	\$0.00	\$0.35	\$1.45	\$2.52	\$0.00	\$23.29
777D Water Truck					\$0.00					
785C Water Truck					\$0.00					
Dump Truck (10-12 yd3)	Truck Driver > 8 yds <	\$11.90	\$0.00	\$11.90	\$0.00	\$0.22	\$0.91	\$1.58	\$0.00	\$14.61
NOTES:										
(4) Truck Driver Source:	Davis-Bacon Act WD#NM20200012									
(5) Zone Basis:	From Deming									

Closure Cost Estimate

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Color Code Key	
User Input - Direct Input	Direct Input
User Input - Pull Down List	Pull Down Selection
Program Constant (can override)	Alternate Input
Program Calculated Value	Locked Cell - Formula or Reference

ZONE ADJUSTMENTS

Cost Basis/Project Region	American Magnesium - Option 1	American Magnesium - Foothill Dolomite Mine - Northern Nevada Equipment	
Power Equipment Operators	50-150 miles	\$0.00	
Truck Drivers	50-150 miles	\$0.00	
Laborers	50-150 miles	\$0.00	

INDIRECT COSTS

Unemployment (%)	1.84%
Retirement/SS/Medicare (%)	7.65%
Workman's Compensation (%)	13.30%

Other Indirects	
-----------------	--

State Payroll Tax (13),(15),(17),	
Total Other Indirects	0.00%

HOURLY LABOR RATE TABLE

Laborers (\$/hr) (6,7)

General Laborer	Group 1	\$12.37	\$0.00	\$12.37	\$0.00	\$0.23	\$0.95	\$1.65	\$0.00	\$15.19
Skilled Laborer	Group 4	\$17.97	\$0.00	\$17.97	\$0.00	\$0.33	\$1.37	\$2.39	\$0.00	\$22.06
Driller's Helper	Group 3	\$17.83	\$0.00	\$17.83	\$0.00	\$0.33	\$1.36	\$2.37	\$0.00	\$21.89
Rodmen (reinforcing concrete)	Group 1	\$17.74	\$0.00	\$17.74	\$0.00	\$0.33	\$1.36	\$2.36	\$0.00	\$21.78
Cement finisher	Group 3	\$17.83	\$0.00	\$17.83	\$0.00	\$0.33	\$1.36	\$2.37	\$0.00	\$21.89
Carpenter		\$22.26	\$0.00	\$22.26	\$13.48	\$0.41	\$1.70	\$2.96	\$0.00	\$40.81

NOTES:

(6) Laborer Source:	D-B LABO0169-034 10/1/2017 & Davis-Bacon Act WD#NM20200012
(7) Carpenter Source:	D-B Projected from Southern Nevada
(8) Zone Basis:	From Deming

Project Management and Technical Labor (\$/hr) (9)	
--	--

[illegible]

NOTES:

(9) Project Manager:	R.S.Means 2020 Q2 (01 31 1320 0200 Total Incl O&P-10%) Adjusted for Elko, NV
(9) Foreman Source:	R.S.Means 2020 Q2 (01 31 1320 0200 Total Incl O&P-10%) Adjusted for Elko, NV
(9) Technical Labor Source:	Wood plc 2020 Adjusted for Zone,Tax and Ins.
Other Labor Source:	
Other Labor Source:	
Additional User Markups	
(These are added by the user to the	
base rate to account for site-specific	
conditions or corporate requirements)	

Closure Cost Estimate Equipment Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Monthly Rental Basis: 160 hrs month

EQUIPMENT RENTAL RATE TABLE				
EQUIPMENT TYPE (1)	Monthly Owner/Rental Rate	Equipment Hourly Rate	Fuel/Lube/ Wear	Total Rate
Bulldozers				
D6R	\$6,570.00	\$41.06	\$50.90	\$91.96
D6R w/ Winch	\$6,570.00	\$41.06	\$50.90	\$91.96
D7R	\$18,300.00	\$114.38	\$22.95	\$137.33
D8R	\$20,180.00	\$126.13	\$29.70	\$155.83
D9R	\$30,100.00	\$188.13	\$41.41	\$229.54
D10R	\$44,500.00	\$278.13	\$51.43	\$329.55
D11R	\$56,234.00	\$351.46	\$235.44	\$586.90
Wheeled Dozers				
824G	\$19,849.00	\$124.06	\$113.00	\$237.06
834G	\$24,929.00	\$155.81	\$138.70	\$294.51
844	\$33,734.00	\$210.84	\$184.06	\$394.90
854G	\$33,802.00	\$211.26	\$221.85	\$433.11
Motor Graders				
120H	\$8,670.00	\$54.19	\$48.60	\$102.79
140H	\$14,790.00	\$92.44	\$94.28	\$186.72
160H	\$18,806.00	\$117.54	\$129.63	\$247.16
24M	\$20,686.00	\$129.29	\$158.47	\$287.75
Track Excavators				
312C	\$5,610.00	\$35.06	\$7.59	\$42.65
320C	\$7,750.00	\$48.44	\$15.05	\$63.49
325C	\$10,750.00	\$67.19	\$18.57	\$85.76
330C	\$11,500.00	\$71.88	\$23.64	\$95.51
345B	\$16,730.00	\$104.56	\$29.42	\$133.99
365BL	\$23,119.00	\$144.49	\$113.51	\$258.00
385BL	\$28,472.00	\$177.95	\$134.75	\$312.70
Scrapers				
631G	\$27,700.00	\$173.13	\$70.61	\$243.74
637G	\$36,819.00	\$230.12	\$200.40	\$430.52
Wheeled Loaders				
924G	\$5,610.00	\$35.06	\$19.78	\$54.85
928G	\$6,530.00	\$40.81	\$36.90	\$77.71
950G	\$9,520.00	\$59.50	\$32.45	\$91.95
966G	\$11,500.00	\$71.88	\$37.28	\$109.16
972G	\$13,480.00	\$84.25	\$43.86	\$128.11
980G	\$15,690.00	\$98.06	\$61.05	\$159.11
988G	\$19,589.00	\$122.43	\$151.77	\$274.20
990	\$28,299.00	\$176.87	\$233.36	\$410.23
992G	\$47,500.00	\$296.88	\$225.73	\$522.61
994D	\$45,175.00	\$282.34	\$350.03	\$632.37
L2350	\$82,607.00	\$516.29	\$625.53	\$1,141.82
Shovels				
PC2000	\$70,917.00	\$443.23	\$278.28	\$721.51
PC3000	\$72,526.00	\$453.29	\$345.19	\$798.47
PC4000	\$74,135.00	\$463.34	\$427.42	\$890.76
PC5500	\$81,548.00	\$509.68	\$562.14	\$1,071.82
PC8000	\$89,703.00	\$560.64	\$658.00	\$1,218.64
Hydraulic Hammers				
H-120 (fits 325)	\$3,420.00	\$21.38	\$11.57	\$32.95
H-160 (fits 345)	\$7,028.00	\$43.93	\$23.24	\$67.17
H-180 (fits 365/385)	\$8,168.00	\$51.05	\$24.96	\$76.01
Demolition Shears				
S340 (fits 322/325/330)	\$3,524.00	\$22.03	\$20.50	\$42.53
S365 (fits 330/345)	\$4,131.00	\$25.82	\$25.23	\$51.05
S380 (fits 365/385)	\$6,593.00	\$41.21	\$31.61	\$72.82
Demolition Grapples				
G315 (fits 322/325)				\$0.00
G320 (fits 325/330)				\$0.00
G330 (fits 345/365)				\$0.00
Other Equipment				
420D 4WD Backhoe	\$3,240.00	\$20.25	\$22.10	\$42.35
428D 4WD Backhoe	\$3,870.00	\$24.19	\$22.89	\$46.78
CS633E Vibratory Roller	\$4,402.00	\$27.51	\$27.54	\$55.06
CS633E Vibratory Roller	\$4,291.00	\$26.82	\$31.05	\$57.87
CP633E Sheepfoot Compactor	\$4,085.00	\$25.53	\$33.08	\$58.61
CP633E Sheepfoot Compactor	\$6,588.00	\$41.18	\$40.18	\$81.36
Light Truck - 1.5 Ton	\$2,184.00	\$13.65	\$17.48	\$31.13
Supervisor's Truck	\$834.00	\$5.21	\$7.61	\$12.82
Flatbed Truck	\$621.00	\$3.88	\$21.62	\$25.50
Air Compressor + Tools	\$597.00	\$3.73	\$5.57	\$9.30
Welding Equipment	\$405.00	\$2.53	\$6.30	\$8.83
Heavy Duty Drill Rig	\$52,018.00	\$325.11	\$314.83	\$639.94
Pump (plugging) Drill Rig	\$52,018.00	\$325.11	\$310.45	\$635.56
Concrete Pump	\$14,864.20	\$92.90	\$21.90	\$114.80
Gas Engine Vibrator	\$357.00	\$2.23	\$3.65	\$5.88
Generator 5KW	\$938.00	\$5.86	\$6.87	\$12.73
HDEP Welder (pipe or liner)	\$7,022.96	\$43.89	\$4.38	\$48.27
5 Ton Crane	\$7,159.50	\$44.75	\$42.14	\$86.88
20 Ton Crane	\$7,955.00	\$49.72	\$48.28	\$98.00
50 Ton Crane	\$15,154.00	\$94.71	\$88.82	\$183.54
120 Ton Crane	\$28,943.00	\$180.89	\$177.03	\$357.92
Trucks				
725	\$10,824.00	\$67.65	\$82.89	\$150.54
730	\$14,640.00	\$91.50	\$62.31	\$153.81
735	\$16,730.00	\$104.56	\$70.00	\$174.56
740	\$18,820.00	\$117.63	\$74.01	\$191.63
769D			\$23.86	\$23.86
773E	\$18,267.00	\$114.17	\$160.85	\$275.02
777D	\$37,750.00	\$235.94	\$325.91	\$561.85
785C	\$40,948.00	\$255.93	\$366.30	\$622.22
793C	\$49,547.00	\$309.67	\$470.39	\$780.06
797B	\$89,160.00	\$557.25	\$817.64	\$1,374.89
613E (5,000 gal) Water Wagon	\$8,726.00	\$54.54	\$77.29	\$131.83
621E (8,000 gal) Water Wagon	\$10,006.00	\$62.54	\$103.42	\$165.96
777D Water Truck	\$37,226.00	\$232.66	\$321.40	\$554.07
785C Water Truck	\$40,948.00	\$255.93	\$366.30	\$622.22
Dump Truck (10-12 yd ³)	\$3,752.00	\$23.45	\$32.89	\$56.34
NOTES:				
(1) Power Equipment Source: Catepillar model or equivalent, LeTourneau loader, Komatsu shovels				
(2) Power Equipment Type: RS Means Heavy Construction (2020 Q2)				
(3) Drilling Equipment Source: RS Means Heavy Construction (2020 Q2)				
(4) Other Equipment Source: RS Means Heavy Construction (2020 Q2)				
(5) Drill rig includes support (pipe) truck				

**Closure Cost Estimate
Equipment Costs**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE Cost data-Am Mg Foothill Dolomite Mine 1 12.xlsm

FUEL, LUBE AND WEAR CALCULATIONS						
EQUIPMENT TYPE	PM Cost Per Hour ⁽¹⁾	Under carriage or Tires ⁽²⁾	G.E.T Consumption ⁽³⁾	Fuel Use Rate gal/hr (4)	Cost @ 2.19/gal	Total Hourly Equipment Cost
Bulldozers						
D6R	\$34.60		\$2.61	6.25	\$13.69	\$50.90
D6R w/ Winch	\$34.60		\$2.61	6.25	\$13.69	\$50.90
D7R	\$2.69		\$3.84	7.50	\$16.43	\$22.95
D8R	\$3.49		\$4.86	9.75	\$21.35	\$29.70
D9R	\$3.61		\$6.59	14.25	\$31.21	\$41.41
D10R	\$3.79		\$8.22	18.00	\$39.42	\$51.43
D11R	\$160.74		\$16.66	26.50	\$58.04	\$235.44
Wheeled Dozers						
824G	\$49.58	\$38.56	\$1.32	10.75	\$23.54	\$113.00
834G	\$59.69	\$49.72	\$1.70	12.60	\$27.59	\$138.70
844	\$77.91	\$70.88	\$2.42	15.00	\$32.85	\$184.06
854G	\$90.20	\$87.64	\$2.40	19.00	\$41.61	\$221.85
Motor Graders						
120H	\$20.32	\$18.90	\$0.62	4.00	\$8.76	\$48.60
14G/H	\$37.21	\$42.00	\$1.38	6.25	\$13.69	\$94.28
16G/H	\$50.42	\$60.78	\$2.00	7.50	\$16.43	\$129.63
24M	\$55.46	\$66.86	\$2.20	15.50	\$33.95	\$158.47
Track Excavators						
312C	\$2.14		\$1.33	1.88	\$4.12	\$7.59
320C	\$2.38		\$1.94	4.80	\$10.73	\$15.05
325C	\$2.64		\$1.48	6.80	\$14.45	\$18.57
330C	\$3.01		\$2.67	8.20	\$17.96	\$23.64
345B	\$3.36		\$2.85	10.60	\$23.21	\$29.42
365BL	\$80.63		\$3.97	13.20	\$28.91	\$113.51
385BL	\$91.31		\$5.11	17.50	\$38.33	\$134.75
Scrapers						
631G	\$3.22	\$32.68	\$1.86	15.00	\$32.85	\$70.61
637G	\$116.00	\$30.28	\$2.11	23.75	\$52.01	\$200.40
Wheeled Loaders						
924G	\$9.33	\$4.24	\$0.19	2.75	\$6.02	\$19.78
928G	\$16.35	\$12.28	\$0.60	3.50	\$7.67	\$36.90
950G	\$2.30	\$20.62	\$0.87	4.00	\$8.76	\$32.45
966G	\$2.42	\$21.40	\$0.87	5.75	\$12.59	\$37.28
972G	\$2.53	\$26.56	\$1.08	6.25	\$13.69	\$43.86
980G	\$2.57	\$40.64	\$1.41	7.50	\$16.43	\$61.05
988G	\$57.81	\$65.20	\$2.26	12.10	\$26.50	\$151.77
990	\$85.58	\$106.84	\$3.71	17.00	\$37.23	\$233.36
992G	\$11.87	\$130.76	\$3.73	23.00	\$50.37	\$225.73
994D	\$122.36	\$143.84	\$4.99	36.00	\$78.84	\$350.03
L2350	\$203.53	\$268.16	\$9.30	66.00	\$144.54	\$625.53
Shovels						
PC2000	\$183.38		\$13.87	37.00	\$81.03	\$278.28
PC3000	\$218.80		\$16.89	50.00	\$109.50	\$345.19
PC4000	\$254.21		\$19.91	70.00	\$153.30	\$427.42
PC5500	\$279.63		\$21.90	119.00	\$260.61	\$562.14
PC8000	\$307.59		\$24.09	149.00	\$326.31	\$658.00
Hydraulic Hammers						
H-120 (fits 325)	N/A		\$11.57			\$11.57
H-160 (fits 345)	N/A		\$23.24			\$23.24
H-180 (fits 365/385)	N/A		\$24.96			\$24.96
Demolition Shears						
S340 (fits 322/325/330)	N/A		\$20.50			\$20.50
S365 (fits 330/345)	N/A		\$25.23			\$25.23
S390 (fits 365/385)	N/A		\$31.61			\$31.61
Demolition Grapples						
G315 (fits 322/325)	N/A					\$0.00
G320 (fits 325/330)	N/A					\$0.00
G330 (fits 345/365)	N/A					\$0.00
Other Equipment						
420D 4WD Backhoe	\$11.81	\$3.18	\$0.54	3.00	\$6.57	\$22.10
428D 4WD Backhoe	\$12.20	\$3.22	\$0.60	3.00	\$6.57	\$22.59
CS633E Vibratory Roller	\$19.33			3.75	\$8.21	\$27.64
CP633E Vibratory Roller	\$20.65			4.75	\$10.40	\$31.05
CP633E Sheepfoot Compactor	\$24.87			3.75	\$8.21	\$33.08
CP633E Sheepfoot Compactor	\$29.78			4.75	\$10.40	\$40.18
Light Truck - 1.5 Ton	\$8.67	\$5.52		1.50	\$3.29	\$17.48
Supervisor's Truck	\$3.62	\$1.80		1.00	\$2.19	\$7.61
Flatbed Truck	\$3.85	\$7.48		4.70	\$10.29	\$21.62
Air Compressor + tools	\$3.38		N/A	1.00	\$2.19	\$5.57
Welding Equipment	\$1.92		N/A	2.00	\$4.38	\$6.30
Heavy Duty Drill Rig	\$278.95		\$9.60	12.00	\$26.28	\$314.83
Pump (plugging) Drill Rig	\$278.95		\$9.60	10.00	\$21.90	\$310.45
Concrete Pump			N/A	10.00	\$21.90	\$21.90
Gas Engine Vibrator	\$1.46		N/A	1.00	\$2.19	\$3.65
Generator 5KW	\$3.58		N/A	1.50	\$3.29	\$6.87
HDEP Welder (pipe or liner)			N/A	2.00	\$4.38	\$4.38
5 Ton Crane	\$23.22	\$12.35		3.00	\$6.57	\$42.14
20 Ton Crane	\$25.80	\$13.72		4.00	\$8.76	\$48.28
50 Ton Crane	\$45.47	\$33.06		4.70	\$10.29	\$88.82
120 Ton Crane	\$80.14	\$65.50		5.20	\$11.39	\$177.03
Trucks						
725	\$28.22	\$41.16	\$3.22	4.70	\$10.29	\$82.89
730	\$2.76	\$44.94	\$3.22	5.20	\$11.39	\$62.31
735	\$2.86	\$47.82	\$3.22	7.35	\$16.10	\$70.00
740	\$2.97	\$51.72	\$3.22	7.35	\$16.10	\$74.01
769D			\$3.60	9.25	\$20.26	\$23.86
773E	\$47.92	\$83.16	\$4.04	11.75	\$25.73	\$160.85
777D	\$95.60	\$189.12	\$4.51	16.75	\$36.68	\$325.91
785C	\$105.16	\$208.03		24.25	\$53.11	\$366.30
793C	\$127.24	\$251.72		41.75	\$91.43	\$470.39
797B	\$204.78	\$484.20		58.75	\$128.66	\$817.64
613E (5,000 gal) Water Wagon	\$45.31	\$18.84		6.00	\$13.14	\$77.29
621E (8,000 gal) Water Wagon	\$50.66	\$29.22		10.75	\$23.54	\$103.42
777D Water Truck	\$95.60	\$189.12		16.75	\$36.68	\$321.40
785C Water Truck	\$105.16	\$208.03		24.25	\$53.11	\$366.30
Dump Truck (10-12 yd3) (5)	N/A	\$21.50	N/A	5.20	\$11.39	\$32.89
Notes:						
(1) PM Source:						
(2) Undercarriage Source:						
(3) G.E.T. Source:						
(4) Fuel Use Source:	Caterpillar Handbook, Edition 35, Ch. 20; or estimated average for smaller vehicles					
(5) Dump Truck Oper. Cost Source:	Means Heavy Construction (2008)					

**Closure Cost Estimate
Equipment Costs**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

TIRE COST TABLES						
Equipment	Tire Size	# of Tires Per Piece of Equipment	Cost Per Tire	Tire Cost (1)(2)	Life Expectancy Hours (Low/Zone A) (3)	Tire Cost per Hour
Bulldozers						
D6R			N/A			
D6R w/ Winch			N/A			
D7R			N/A			
D8R			N/A			
D9R			N/A			
D10R			N/A			
D11R			N/A			
Wheeled Dozers						
824G	29.5R25	4	\$33,740.00	\$134,960.00	3,500	\$38.56
834G	35/65-R33	4	\$43,505.00	\$174,020.00	3,500	\$49.72
844	45/65-R39	4	\$62,020.00	\$248,080.00	3,500	\$70.88
854G	45/65-R45	4	\$76,685.00	\$306,740.00	3,500	\$87.64
Motor Graders						
120H	19PR24	6	\$11,025.00	\$66,150.00	3,500	\$18.90
14G/H	20.5R25	6	\$24,500.00	\$147,000.00	3,500	\$42.00
16G/H	23.5R25	6	\$35,455.00	\$212,730.00	3,500	\$60.78
24M	23.5R25	6	\$39,000.50	\$234,003.00	3,500	\$66.86
Track Excavators						
312C			N/A			
320C			N/A			
325C			N/A			
330C			N/A			
345B			N/A			
365BL			N/A			
385BL			N/A			
Scrapers						
631G	37.25R35	4	\$32,680.00	\$130,720.00	4,000	\$32.68
637G	37.25R35	4	\$30,280.00	\$121,120.00	4,000	\$30.28
Wheeled Loaders						
924G	17.5R25	4	\$4,770.00	\$19,080.00	4,500	\$4.24
928G	17.5R25	4	\$13,815.00	\$55,260.00	4,500	\$12.28
950G	26.5R25	4	\$23,085.00	\$92,340.00	4,500	\$20.52
966G	26.5R25	4	\$24,075.00	\$96,300.00	4,500	\$21.40
972G	26.5R25	4	\$29,880.00	\$119,520.00	4,500	\$26.56
980G	29.5R25	4	\$45,720.00	\$182,880.00	4,500	\$40.64
988G	35/65-33	4	\$73,350.00	\$293,400.00	4,500	\$65.20
990	41.25/70-39	4	\$120,195.00	\$480,780.00	4,500	\$106.84
992G	45/65R45	4	\$147,105.00	\$588,420.00	4,500	\$130.76
994D	55/85R57	4	\$161,815.50	\$647,262.00	4,500	\$143.84
L2350	55/85R57	4	\$301,680.00	\$1,206,720.00	4,500	\$268.16
Shovels						
PC2000			N/A			
PC3000			N/A			
PC4000			N/A			
PC5500			N/A			
PC8000			N/A			
Hydraulic Hammers						
H-120 (fits 325)			N/A			
H-160 (fits 345)			N/A			
H-180 (fits 365/385)			N/A			
Demolition Shears						
S340 (fits 322/325/330)			N/A			
S365 (fits 330/345)			N/A			
S390 (fits 365/385)			N/A			
Demolition Grapples						
G315 (fits 322/325)			N/A			
G320 (fits 325/330)			N/A			
G330 (fits 345/365)			N/A			
Other Equipment						
420D 4WD Backhoe	340/80R18-19.5LR24	2	\$4,770.00	\$9,540.00	3,000	\$3.18
428D 4WD Backhoe	340/80R18-16.9R28	2	\$4,830.00	\$9,660.00	3,000	\$3.22
CS533E Vibratory Roller			N/A			
CS633E Vibratory Roller			N/A			
CP533E Sheepfoot Compactor			N/A			
CP633E Sheepfoot Compactor			N/A			
Light Truck - 1.5 Ton		4	4140	\$16,560.00	3,000	\$5.52
Supervisor's Truck		4	1350	\$5,400.00	3,000	\$1.80
Flatbed Truck		22	1020	\$22,440.00	3,000	\$7.48
Air Compressor + tools			N/A			
Welding Equipment			N/A			
Heavy Duty Drill Rig		4		\$0.00	3,000	
Pump (plugging) Drill Rig		4		\$0.00	3,000	
Concrete Pump			N/A			
Gas Engine Vibrator			N/A			
Generator 9KW			N/A			
HDEP Welder (pipe or liner)			N/A			
5 Ton Crane		4	\$9,261.00	\$37,044.00	3,000	\$12.35
20 Ton Crane		4	\$10,290.00	\$41,160.00	3,000	\$13.72
50 Ton Crane		6	\$16,530.00	\$99,180.00	3,000	\$33.06
120 Ton Crane		6	\$42,750.00	\$256,500.00	3,000	\$85.50
Trucks						
T25	23.5R25	6	\$13,720.00	\$82,320.00	2,000	\$41.16
T30	23.5R25	6	\$14,980.00	\$89,880.00	2,000	\$44.94
T35	26.5R25	6	\$15,940.00	\$95,640.00	2,000	\$47.82
T40	29.5R25	6	\$17,240.00	\$103,440.00	2,000	\$51.72
T69D	18.00R33	6		\$0.00	6,000	
T73E	24.00R35	6	\$69,300.00	\$415,800.00	5,000	\$83.16
T77D	27.00R49	6	\$157,600.00	\$945,600.00	5,000	\$189.12
T85C	33.00R51	6	\$138,688.00	\$832,128.00	4,000	\$208.03
T93C	40.00R57	6	\$167,812.48	\$1,006,874.88	4,000	\$251.72
T97B	40.00R57	6	\$322,800.00	\$1,936,800.00	4,000	\$484.20
613E (5,000 gal) Water Wagon	23.5R25	6	\$18,840.00	\$113,040.00	6,000	\$18.84
621E (8,000 gal) Water Wagon	33.25R29	6	\$38,960.00	\$233,760.00	8,000	\$29.22
T77D Water Truck	27.00R49	6	\$157,600.00	\$945,600.00	5,000	\$189.12
T85C Water Truck	33.00R51	6	\$138,688.00	\$832,128.00	4,000	\$208.03
Dump Truck (10-12 yd3)		10	\$12,900.00	\$129,000.00	6,000	\$21.50
Notes:						
(1) Unit Cost Basis:						
(2) Cost Basis:						
(3) Tire Cost Source:						
(4) Tire Wear Source:						

Closure Cost Estimate Material Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety **Cost Basis:** American Magnesium - Option 1

Revegetation Materials			
Seed Mixes			
Seed Mix	Description		Cost/Acre
None			
Mix 1	Basins		\$302.50
Mix 2	Low Hills		\$332.75
Mix 3	Uplands		\$363.00
Mix 4	Riparian or Custom		\$393.25
User Mix 1	Site Specific Seed Mix		\$250.00
User Mix 2			
User Mix 3			
User Mix 4			
	Cost/lb	lbs/Acre	Cost/Acre
User Mix 5 (from Seed Mix sheet	\$0.00	\$9.18	\$0.00
Notes:			
Mulch			
Item	Cost/lb	lbs/Acre	Cost/Acre
None			
Straw Mulch	\$0.17	36300	\$6,150.83
Hydro Mulch	\$0.25		
Timber Mulch			
Notes:	Granite Seed \$500 per Ton in 50 lb bag Wood (Hydro) Mulch (June 2020)		

Closure Cost Estimate Material Costs

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Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety **Cost Basis:** American Magnesium - Option 1

Amendments			
Item	Cost/lb	lbs/Acre	Cost/Acre
None			
Organic Matter	\$0.70		\$0.00
Treated Sludge			
Chemical	\$0.59		\$0.00
Notes:	Western Nevada Supply \$29.34 per 50 lb. bag 15-15-15 (June 2020)		

Closure Cost Estimate

Material Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety **Cost Basis: American Magnesium - Option 1**

Well Abandonment Materials			
Description	Cost/50lb bag	Units	Cost/unit*
Cement	\$7.57	cy	\$36.07
Grout (Low Grade Bentonite)	\$8.85	cy	\$42.14
Inert Material/Cuttings		cy	
		cy	
		cy	
(1) Jentech Drilling Supply quote (June 2020) Type I,II Cement at \$14.24 per 94 lb. bag			
(2) Jentech Drilling Supply (June 2020) 3/8 in. Chunk Bentonite Hole Plug at \$8.85 per 50 lb. bag (5.75 cf/bag at			
* Assumes 1 bag mixes with water to make 0.21 y3 or 0.16 m3 of grout/cement slurry.			

Monitoring Costs		
Description	Units	Cost/unit
Monitor Well Pump	ea.	\$2,788.41
Sampling Supplies	ea.	\$6.51
Water Analysis (Profile I) (1)	ea.	\$411.00
Leach Test (MWMP) w/ analysis	ea.	\$483.40
ABA + S speciation	ea.	\$150.00
WAD Cyanide in water	ea.	\$56.00
Water Analysis (Profile II) (1)	ea.	\$461.00
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
(1) WET Lab, Reno, Nevada (July 2020)		
Well pump and Sample supply costs adjusted to 2020.		
Original source unknown.		

Closure Cost Estimate Material Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

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Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety **Cost Basis:** American Magnesium - Option 1



Closure Cost Estimate

Material Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety **Cost Basis: American Magnesium - Option 1**

[illegible]

(1) Source: Oil Price Information Service, average annual cost including freight to Nevada (July 2020).

Source: Federal Government Vehicle Allowance Rate 2020

Source: NV Energy (July 2020) \$0.07872

Closure Cost Estimate Material Costs

Revegetation Method				
Slopes				
Disturbance Type	Seed Application Method	Labor Cost/Acre	Equipment Cost/Acre	Total Cost/Acre
Waste Rock Dumps	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Heap Leach	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Tailings	Hand Broadcast	\$140.00	\$50.00	\$190.00
Quarries & Borrow Pits	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Flat Areas and Undifferentiated				
Disturbance Type	Seed Application Method	Labor Cost/Acre	Equipment Cost/Acre	Total Cost/Acre
Exploration Trenches	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Exploration Roads	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Waste Rock Dumps	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Heap Leach	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Tailings	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Quarries & Borrow Pits	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Roads	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Pits	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Haul Material	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Foundations & Buildings	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Sediment & Drainage Control	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Process Ponds	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Landfills	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Yards, Etc.	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Revegetation Maintenance	Mechanical Broadcast	\$140.00	\$50.00	\$190.00

Closure Cost Estimate Misc. Unit Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan
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Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety **Cost Basis:** American Magnesium - Option 1

Revegetation										
	Means Number	Unit	Crew	Daily Output	Daily Output User	Materials	Labor	Equipment	Total	Notes
Seeding - Broadcast Hand (1)		acres					\$140.00	\$50.00	\$190.00	
Seeding - Broadcast Mechanical (1)		acres					\$140.00	\$50.00	\$190.00	
Seeding - Drill (1)		acres		365			\$140.00	\$120.00	\$260.00	
Seeding - Hydroseeding (1)				365			\$250.00	\$150.00	\$400.00	
Shrub Planting - bare root 6-10 in (150- 250mm) (2)	02910-400-0561	ea.	1 Clab	365					\$0.00	
Tree Planting - bare root 11-16 in (270- 400mm) (3)	02910-400-0562	ea.	1 Clab	260					\$0.00	
Cactus Planting (4)		ea.	1 Clab						\$0.00	
NOTES:										
(1) Seeding Source:	Source: Kelley Erosion Control (July 2020).									
(2) Shrub Source:										
(3) Tree Source:										
(4) Cactus Source:										
Building and Wall Demolition										
Hourly productivity rates and crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data . All equipment, labor and material unit costs are from Labor Costs, Equipment Costs and Material Costs spreadsheets										
	Means Number	Unit	Crew	Daily Output	Daily Output User	Labor	Equipment	Premium	Total	Notes
Building Demolition										
Lg. steel	02220-110-0012	C.F.	B-8	21500		\$0.08	\$0.11		\$0.19	
Lg. concrete	02220-110-0050	C.F.	B-8	15300		\$0.11	\$0.15		\$0.26	
Lg. masonry	02220-110-0080	C.F.	B-8	20100		\$0.08	\$0.11		\$0.19	
Lg. mixed	02220-110-0100	C.F.	B-8	20100		\$0.08	\$0.11		\$0.19	
Sm. steel	02220-110-0500	C.F.	B-3	14800		\$0.10	\$0.10		\$0.20	
Sm. concrete	02220-110-0600	C.F.	B-3	11300		\$0.12	\$0.13		\$0.25	
Sm. masonry	02220-110-0650	C.F.	B-3	14800		\$0.10	\$0.10		\$0.20	
Sm. wood	02220-110-0700	C.F.	B-3	14800		\$0.10	\$0.10		\$0.20	
Wall Demolition										
Block 4 in (100 mm) thick	02220-130-2000	S.F.	1 Clab	180		\$0.68	\$0.00	20%	\$0.82	
Block 6 in (150 mm) thick	02220-130-2040	S.F.	1 Clab	170		\$0.71	\$0.00	20%	\$0.85	
Block 8 in (200 mm) thick	02220-130-2080	S.F.	1 Clab	150		\$0.81	\$0.00	20%	\$0.97	
Block 12 in (300 mm) thick	02220-130-2100	S.F.	1 Clab	150		\$0.81	\$0.00	20%	\$0.97	
Conc 6 in (150 mm) thick	02220-130-2400	S.F.	B-9	160		\$8.04	\$0.47	10%	\$9.36	
Conc 8 in (200 mm) thick	02220-130-2420	S.F.	B-9	140		\$9.19	\$0.53	10%	\$10.69	
Conc 10 in (250 mm) thick	02220-130-2440	S.F.	B-9	120		\$10.72	\$0.62	10%	\$12.47	
Conc 12 in (300 mm) thick	02220-130-2500	S.F.	B-9	100		\$12.87	\$0.74	10%	\$14.97	

Closure Cost Estimate
Misc. Unit Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Disposal										
Unit rates from Means Heavy Construction 2006 Edition by permission of R.S.Means/Reed Construction Data .										
	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment		Total	Notes
Rubbish Handling										
Dumpster delivery (average for all sizes)	02220-350-0910	ea.			\$51.50				\$51.50	
Haul (average for all sizes)	02220-350-0920	ea.			\$161.00				\$161.00	
Rent per month (average for all sizes)	02220-350-0940	ea.			\$55.00				\$55.00	
Disposal fee per ton (tonne) (average for all sizes)	02220-350-0950	ton			\$60.50				\$60.50	
NOTES:										
Dumpster Cost Source:	R.S. Means Heavy Construction (2020 Q2).									
Dumpster Disposal Fee Source:	R.S. Means Heavy Construction (2020 Q2).									
Hazardous Material Handling - Solids (+ Liquids in drums)										
Pickup fees 55 gal (200 L). drums	02110-300-1100	ea.			\$251.00				\$251.00	
Bulk material (average)	02110-300-1220/1230	ton			\$409.50				\$409.50	
Transport - truck load (80 drums, 25 cy (m3), 18 tons)	02110-300-1260/1270	mile			\$5.88				\$5.88	
Dump site solid disposal fee	02110-300-6000/6020	ton			\$288.50				\$288.50	
NOTES:										
Solid Handling Cost Source:	R.S. Means Heavy Construction (2019 Q2).									
Solid Disposal Fee Source:	2019 Q2 R.S. Means Heavy Const. ave. 02 81									
Hazardous Material Handling - Liquids										
Vacuum Truck Pickup (2200 gal/8300 L)	02110-300-3110	hr.			\$147.00				\$147.00	
Vacuum Truck Pickup (5000 gal/19000 L)	02110-300-3120	hr.			\$213.00				\$213.00	
Dump site liquid disposal fee	02110-300-6000/6020	ton			\$288.50				\$288.50	
NOTES:										
Liquid Handling Cost Source:	R.S. Means Heavy Construction (2020 Q2).									
Liquid Disposal Fee Source:	2020 Q2 R.S. Means Heavy Const. ave. 02 81									
Hydrocarbon Contaminated Soils (HCS)										
Insitu Biotreatment	02115-200-2020/2021	C.Y.			\$17.64				\$17.64	
HCS disposal fee	02115-200-2050/2055	C.Y.			\$278.50				\$278.50	
NOTES:										
Insitu Treatement Cost Source:	2020 Q2 R.S. Means Heavy Const., ave. 02 65									
HCS Disposal Fee Source:	2020 Q2 R.S. Means Heavy Const., ave. 02 65									

Closure Cost Estimate
Misc. Unit Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Concrete Structure Installation										
Weekly dumpster rental rates from Means Heavy Construction 2005 Edition with permission by R.S.Means/Reed Construction Data . Weekly dumpster rental rates include haul to off-site disposal site and disposal fees										
	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment	Premium	Total	Notes
Reinforced Concrete Bulkheads and Shaft Covers										
Grade walls - 15 in (400mm) thick, 8 ft (2.5m) high	03310-240-4300	C.Y.	C-14D	80.02	\$163.00	\$93.03	\$13.35		\$269.38	includes reinforcing
Grade walls - 15 in (400mm) thick, 12 ft (3.7m) high	03310-240-4350	C.Y.	C-14D	26.2	\$163.00	\$284.13	\$40.76		\$487.89	includes reinforcing
Elevated conc, 1-way beam & slab - 15ft (4.6m) span	03310-240-2700	C.Y.	C-14B	20.59	\$278.00	\$355.26	\$51.87		\$685.13	includes reinforcing
Elevated conc, 1-way beam & slab - 25ft (7.5m) span	03310-240-2750	C.Y.	C-14B	28.36	\$265.00	\$257.93	\$37.66		\$560.59	includes reinforcing
Bat Gate/Foam Plug Installation										
Bat Gate (5)		ea.			\$3,367.61					materials \$/ea. Installed
Culvert Gate (5)		ea.			\$6,735.21					materials \$/ea. Installed
Adit Foam Plug (6)		ea./C.Y.			\$336.76					materials \$/cy placed
Production Opening Foam Plug (6)		ea./C.Y.			\$336.76					materials \$/cy placed
NOTES:										
(5) Bat Gate Source:	NV BLM, 2/2006: 8 hr + 1hr mob/demob + 1hr setup per gate (adjusted to 2020)									
(6) Foam Plug Source:	NV BLM, 2/2006: 8 hr+ 1hr mob/demob + 1hr setup per adit; 16 hrs per production opening (adjusted to 2020)									

Closure Cost Estimate Misc. Unit Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
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Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety **Cost Basis:** American Magnesium - Option 1

Misc. Linear Projects										
Hourly productivity rates and crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data . All equipment, labor and material unit costs are from Labor Costs, Equipment Costs and Material Costs spreadsheets										
	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment	Premium	Total	Notes
Fencing Installation										
Barbed 3-strand	02820-170-1650	L.F.	B-80A	760	\$0.51	\$0.48	\$0.33		\$1.32	
Barbed 4-strand	extrapolated	L.F.	B-80A	570	\$0.68	\$0.64	\$0.44		\$1.76	
Barbed 5-strand	02820-130-0920	L.F.	B-80A	456	\$0.85	\$0.80	\$0.55		\$2.20	
Chain link 8-10ft (2.5-3m) Install	02820-130-0920	L.F.	B-80C	180	\$38.00	\$2.03	\$1.38		\$41.41	
Wood stockade fence 6 ft (2 m) high - Install	02820-510-1240	L.F.	B-80C	150	\$16.00	\$2.43	\$1.66		\$20.09	
	user	L.F.							\$0.00	
	user	L.F.							\$0.00	
	user	L.F.							\$0.00	
	user	L.F.							\$0.00	
Fencing Removal										
Barbed 3-strand Removal	02220-220-1600	L.F.	2 Clab	430		\$0.57	\$0.58		\$1.15	
Barbed 4-strand Removal	extrapolated	L.F.	2 Clab	355		\$0.68	\$0.70		\$1.38	
Barbed 5-strand Removal	02220-220-1650	L.F.	2 Clab	280		\$0.87	\$0.89		\$1.76	
Chain link 8-10 ft (2.5-3 m) Removal	02220-220-1700	L.F.	B-6	445		\$1.14	\$1.40		\$2.54	
Wood, all types 4-6 ft ("1.5-2 m) high - Removal	02220-220-1775	L.F.	2 Clab	430		\$0.57	\$0.58		\$1.15	
	user	L.F.								
	user	L.F.							\$0.00	
	user	L.F.							\$0.00	
	user	L.F.							\$0.00	
Culvert Removal										
12 in (300 mm) Diameter	02220-220-2900	L.F.	B-6	175		\$2.91	\$3.55		\$6.46	
18 in (450 mm) Diameter	02220-220-2930	L.F.	B-6	150		\$3.40	\$4.14		\$7.54	
24 in (600 mm) Diameter	02220-220-2960	L.F.	B-6	120		\$4.25	\$5.18		\$9.43	
36 in (1m) Diameter	02220-220-3000	L.F.	B-6	90		\$5.66	\$6.91		\$12.57	
Pipeline Removal										
0.75 in (20mm) - 4 in (100 mm) diameter	02220-381-1600	L.F.	B-20	700		\$1.37	\$0.36		\$1.73	
6 in (150 mm) - 8 in (200 mm)	02220-381-1700	L.F.	B-20	500		\$1.92	\$0.50		\$2.42	
10 in (250 mm) - 18 in (450 mm)	02220-381-1800	L.F.	B-20	300		\$3.20	\$0.83		\$4.03	
20 in (500 mm) - 36 in (1 m)	02220-381-1900	L.F.	B-20	200		\$4.81	\$1.25		\$6.06	
Pipe and Drainpipe Installation										
Water 4in (100mm) 40ft (12m) length, welded HDPE	02510-760-0100	L.F.	B-22A	400	\$2.70	\$1.91	\$5.44		\$10.05	
Water 6in (150mm) 40ft (12m) length, welded HDPE	02510-760-0200	L.F.	B-22A	380	\$5.85	\$2.01	\$5.72		\$13.58	
Water 12in (300mm) 40ft (12m) length, welded HDPE	02510-760-0500	L.F.	B-22A	260		\$2.94	\$8.36		\$11.30	
Drain 4in (100mm) perforated PVC	02620-630-2100	L.F.	B-14	315	\$1.74	\$4.09	\$1.87		\$7.70	
Drain 6in (150mm) perforated PVC	02620-630-2110	L.F.	B-14	300	\$4.22	\$4.29	\$1.96		\$10.47	
Drain 4in (100mm) corrugated, perf or plain	02620-660-0040	L.F.	2 Clab	1200	\$0.78	\$0.20	\$0.21		\$1.19	
Drain 6in (150mm) corrugated., perf or plain	02620-660-0060	L.F.	2 Clab	900	\$2.18	\$0.27	\$0.28		\$2.73	

Closure Cost Estimate
Misc. Unit Costs

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Date of Submittal: 09-29-2020
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Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Drain Rock Preparation										
Crushing		C.Y.							\$0.50	
Screening		C.Y.							\$0.50	
TOTAL									\$1.00	
Misc.										
Backhoe work	02210-700-0120	C.Y.	B-11M	28		\$4.92	\$12.10		\$17.02	
Powerline and Transformer Removal										
Single Pole		mile							\$46,803.69	
Double Pole		mile							\$53,489.93	
Transformer (9)		ea.							\$58,997.31	
NOTES:										
(7) Single Pole Source:	NV Energy estimate (2009) Adjusted to 2020									
(8) Double Pole Source:	NV Energy estimate (2009) Adjusted to 2020									
(9) Transformer Source:	NV Energy estimate (2018) adjusted to 2020									
Erosion and Sedimentation Control										
Hourly productivity rates and crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data .										
All equipment, labor and material unit costs are from Labor Costs, Equipment Costs and Material Costs spreadsheets										
	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment	Premium	Total	Notes
Rip-Rap & Rock Lining										
Rip-Rap 3/8 to 1/4 CY (m3) pieces, grouted	02370-450-0110	S.Y.	B-13	80	\$25.00	\$17.69	\$9.80		\$52.49	assumes on-site source of rip-rap
Rip-Rap 18 in (450 mm) min thick, no grout	02370-450-0200	S.Y.	B-13	53	\$7.65	\$26.71	\$14.79		\$49.15	assumes on-site source of rip-rap
Gabions, 6 in (150 mm) deep	02370-450-0400	S.Y.	B-13	200	\$7.05	\$7.08	\$3.92		\$18.05	assumes on-site source rock fill for gabions
Gabions, 9 in (250 mm) deep	02370-450-0500	S.Y.	B-13	163	\$9.85	\$8.68	\$4.81		\$23.34	assumes on-site source rock fill for gabions
Gabions, 12 in (300 mm) deep	02370-450-0200	S.Y.	B-13	153	\$14.30	\$9.25	\$5.12		\$28.67	assumes on-site source rock fill for gabions
Gabions, 18 in (450 mm) deep	02370-450-0200	S.Y.	B-13	102	\$18.35	\$13.88	\$7.69		\$39.92	assumes on-site source rock fill for gabions
Gabions, 36 in (1m) deep	02370-450-0200	S.Y.	B-13	60	\$31.00	\$23.59	\$13.07		\$67.66	assumes on-site source rock fill for gabions
HDEP Liner Installation										
Finish grading large area	2310-100-0100	S.F.	B-11L	18000		\$0.02	\$0.08		\$0.10	
Compaction-riding, vibrating roller - 12in (300mm) lifts	2315-310-5100	C.Y.	B-10Y	2600		\$0.10	\$0.17		\$0.27	
60 mil HDPE	2660-610-0010	S.F.	3 Skwk	1600	\$0.57	\$0.42	\$0.45		\$1.44	
80 mil HDPE	user	S.F.	3 Skwk	149		\$4.48	\$4.87		\$9.35	
40 mil VLDPE	user	S.F.	3 Skwk	150		\$4.45	\$4.83		\$9.28	
	user	S.F.	3 Skwk	149		\$4.48	\$4.87		\$9.35	
	user	S.F.	3 Skwk	149		\$4.48	\$4.87		\$9.35	

**Closure Cost Estimate
Misc. Unit Costs**

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 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Construction Management Support											
Office Trailer, Furnished, no hook-ups	0150-500-0250	mo.				\$198.00				\$198.00	
Toilet Portable, chemical	1590-400-6410	mo.				\$214.20				\$214.20	
TOTAL						\$412.20				\$412.20	
Pump and Casing Removal											
	Pump Type	Measurement	Unit				Labor	Equipment		Total	Notes
Pump Removal											
	Submersible	ft to pump	L.F.				\$7.65	\$18.86		\$26.51	
	Line Shaft	ft to pump	L.F.				\$7.65	\$18.86		\$26.51	
NOTES:											
(10) Pump Removal Source: Boart Longyear Quote: June 2020											

**Closure Cost Estimate
Fleets (Crews)**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
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Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
RIPPING					
Rip road Waste rock dumps, heaps, tails - rip flat surfaces Surface preparation Scarify					
Small Dozer w/ multi-shank					
D7R		1	\$137.33	\$25.96	\$163.29
Totals			\$137.33	\$25.96	\$163.29
Medium Dozer w/ multi-shank					
D9R		1	\$229.54	\$25.96	\$255.50
Totals			\$229.54	\$25.96	\$255.50
Large Dozer w/ multi-shank					
D10R		1	\$329.55	\$25.96	\$355.51
Totals			\$329.55	\$25.96	\$355.51
Grader w/ multi-shank					
16G/H		1	\$247.16	\$25.96	\$273.12
Totals			\$247.16	\$25.96	\$273.12
GRADING					
Grading storage and structure areas Grading waste rock dumps and heaps Grading landfills Constructing pit safety berms					
Small Dozer Fleet					
D7R		1	\$137.33	\$25.96	\$163.29
Totals			\$137.33	\$25.96	\$163.29
Medium Dozer Fleet					
D9R		1	\$229.54	\$25.96	\$255.50
Totals			\$229.54	\$25.96	\$255.50
Large Dozer Fleet					
D10R		1	\$329.55	\$25.96	\$355.51
Totals			\$329.55	\$25.96	\$355.51
EXPLORATION GRADING					
Backfilling and grading exploration trenches Grading flat exploration roads					
Small Dozer Fleet					
D6R		1	\$91.96	\$25.96	\$117.92
Totals			\$91.96	\$25.96	\$117.92
Medium Dozer Fleet					
D7R		1	\$137.33	\$25.96	\$163.29
Totals			\$137.33	\$25.96	\$163.29
Large Dozer Fleet					
D8R		1	\$155.83	\$25.96	\$181.79
Totals			\$155.83	\$25.96	\$181.79

**Closure Cost Estimate
Fleets (Crews)**

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Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
EXCAVATING					
Earthen Berms Diversion ditch excavation and backfill Underground openings backfill - excavate and place Pit berm construction (excavator option)					
Small Excavator					
325C		1	\$85.76	\$33.30	\$119.06
Totals			\$85.76	\$33.30	\$119.06
Medium Excavator					
345B		1	\$133.99	\$33.30	\$167.29
Totals			\$133.99	\$33.30	\$167.29
Large Excavator					
385BL		1	\$312.70	\$33.30	\$346.00
Totals			\$312.70	\$33.30	\$346.00
EXCAVATE AND RECONTOUR					
Recontour large roads (haul roads, access roads, etc.) Ponds - Excavate and pull liner and bury					
Small Excavator + Dozer					
325C		1	\$85.76	\$33.30	\$119.06
D7R		1	\$137.33	\$25.96	\$163.29
Total Equipment			\$223.09	\$59.26	\$282.35
Medium Excavator + Dozer					
345B		1	\$133.99	\$33.30	\$167.29
D9R		1	\$229.54	\$25.96	\$255.50
Totals			\$363.53	\$59.26	\$422.79
Large Excavator + Dozer					
385BL		1	\$312.70	\$33.30	\$346.00
D10R		1	\$329.55	\$25.96	\$355.51
Totals			\$642.25	\$59.26	\$701.51
EXPLORATION ROAD/PAD RECONTOUR					
Recontour small roads (exploration roads, service roads, etc.) Cut and Fill reclamation on slopes Drill pad recontour Drill sump backfill					
Small Dozer					
D6R		1	\$91.96	\$25.96	\$117.92
Totals			\$91.96	\$25.96	\$117.92
Large Dozer					
D8R		1	\$155.83	\$25.96	\$181.79
Totals			\$155.83	\$25.96	\$181.79
Grader					
14G/H		1	\$186.72	\$25.96	\$212.68
Totals			\$186.72	\$25.96	\$212.68
Small Excavator					
320C		1	\$63.49	\$33.30	\$96.79
Totals			\$63.49	\$33.30	\$96.79
Medium Excavator					
325C		1	\$85.76	\$33.30	\$119.06
Totals			\$85.76	\$33.30	\$119.06

**Closure Cost Estimate
Fleets (Crews)**

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Date of Submittal: 09-29-2020
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Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
LOAD, HAUL AND PLACE MATERIAL					
Rock placement Haul overburden for backfill Haul borrow for backfill Haul cover or growth media					
Small Truck/Loader Fleet					
725		Calculated	\$150.54	\$23.29	\$173.83
966G	Loader	1	\$109.16	\$33.30	\$142.46
D7R		1	\$137.33	\$25.96	\$163.29
Totals			\$397.03	\$82.55	\$479.58
Medium Truck/Loader Fleet					
740		Calculated	\$191.63	\$23.29	\$214.92
988G	Loader	1	\$274.20	\$33.30	\$307.50
D8R		1	\$155.83	\$25.96	\$181.79
Totals			\$621.66	\$82.55	\$704.21
Large Truck/Loader Fleet					
769D		Calculated	\$23.86	\$23.29	\$47.15
988G	Loader	1	\$274.20	\$33.30	\$307.50
D7R		1	\$137.33	\$25.96	\$163.29
Totals			\$435.39	\$82.55	\$517.94
Extra Large Truck/Loader Fleet					
777D		Calculated	\$561.85	\$23.29	\$585.14
992G	Loader	1	\$522.61	\$33.30	\$555.91
D7R		1	\$137.33	\$25.96	\$163.29
Totals			\$1,221.79	\$82.55	\$1,304.34
Scraper/Dozer Fleet					
631G		Calculated	\$243.74	\$17.23	\$260.97
D10R		1	\$329.55	\$25.96	\$355.51
D7R		1	\$137.33	\$25.96	\$163.29
Totals			\$710.62	\$69.15	\$779.77
Tandem Scraper Fleet					
637G		2	\$430.52	\$17.23	\$447.75
D7R		1	\$137.33	\$25.96	\$163.29
Totals			\$567.85	\$43.19	\$611.04
MISC. LOAD AND HAUL AND EARTHWORKS					
Sludge removal Drainage controls					
Misc. - Cat 325B Excavator / 10-12 yd3 Truck					
325C		1	\$85.76	\$33.30	\$119.06
Dump Truck (10-12 yd3)		1	\$56.34	\$14.61	\$70.95
Totals			\$142.10	\$47.91	\$190.01
Misc. - Cat D9R Dozer/ Loader (5 yd3) / 10-12 yd3 Truck					
D9R		1	\$229.54	\$25.96	\$255.50
966G		1	\$109.16	\$33.30	\$142.46
Dump Truck (10-12 yd3)		1	\$56.34	\$14.61	\$70.95
Totals			\$395.04	\$73.87	\$468.91
Misc. - Cat D6 Dozer / Cat 966 Loader / 10-12 yd3 Truck					
D6R		1	\$91.96	\$25.96	\$117.92
966G		1	\$109.16	\$33.30	\$142.46
Dump Truck (10-12 yd3)		1	\$56.34	\$14.61	\$70.95
Totals			\$257.46	\$73.87	\$331.33

**Closure Cost Estimate
Fleets (Crews)**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
CONCRETE BREAKING					
Slab demolition Footing demolition Wall demolition					
Small - Cat 325B Excavator w/ H140D s Hammer					
325C		1	\$85.76	\$33.30	\$119.06
H-120 (fits 325)		1	\$32.95	\$0.00	\$32.95
D9R		1	\$229.54	\$25.96	\$255.50
Totals			\$348.25	\$59.26	\$407.51
Medium - Cat 345B Excavator w/ H180D s Hammer					
345B		1	\$133.99	\$33.30	\$167.29
H-160 (fits 345)		1	\$67.17	\$0.00	\$67.17
D9R		1	\$229.54	\$25.96	\$255.50
Totals			\$430.70	\$59.26	\$489.96
Large - Cat 385B Excavator w/ H180D s Hammer					
385BL		1	\$312.70	\$33.30	\$346.00
H-180 (fits 365/385)		1	\$76.01	\$0.00	\$76.01
D9R		1	\$229.54	\$25.96	\$255.50
Totals			\$618.25	\$59.26	\$677.51
DRILL HOLE ABANDONMENT					
Drill Hole - Grout or Cement					
Pump (plugging) Drill Rig		1	\$635.56	\$17.23	\$652.79
Driller's Helper		2	\$0.00	\$43.78	\$43.78
Totals			\$635.56	\$61.01	\$696.57
Drill Hole - Inert Media (Means Crew B-11M+ 1 Laborer)					
420D 4WD Backhoe		1	\$42.35	\$17.23	\$59.58
General Laborer		1	\$0.00	\$15.19	\$15.19
Totals			\$42.35	\$32.42	\$74.77
Drill Hole - Casing Perforation or Removal					
Heavy Duty Drill Rig		1	\$639.94	\$17.23	\$657.17
Driller's Helper		2	\$0.00	\$43.78	\$43.78
Totals			\$639.94	\$61.01	\$700.95
MAINTENANCE FLEET					
Road Grading, Dust Suppression, Clean Up					
Maintenance - Small Water Truck and Cat 14G Grader					
613E (5,000 gal) Water Wagon		1	\$131.83	\$23.29	\$155.12
120H		1	\$102.79	\$25.96	\$128.75
Totals			\$234.62	\$49.25	\$283.87
Maintenance - Medium Water Truck and Cat 16G Grader					
613E (5,000 gal) Water Wagon		1	\$131.83	\$23.29	\$155.12
14G/H		1	\$186.72	\$25.96	\$212.68
Totals			\$318.55	\$49.25	\$367.80
Maintenance - Large Water Truck and Cat 16G Grader					
621E (8,000 gal) Water Wagon		1	\$165.96	\$23.29	\$189.25
16G/H		1	\$247.16	\$25.96	\$273.12
Totals			\$413.12	\$49.25	\$462.37
PROJECT SUPERVISION					
Foreman		1	\$0.00	\$82.88	\$82.88
Supervisor's Truck		1	\$12.82	\$0.00	\$12.82
Totals			\$12.82	\$82.88	\$95.70

**Closure Cost Estimate
Fleets (Crews)**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
MEANS CREW DEFINITIONS					
Crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data . For use with misc. unit costs where Means is the source for productivity					
1 Clab - Seedling Planting/Block Wall Demolition					
General Laborer		1	\$0.00	\$15.19	\$15.19
Totals			\$0.00	\$15.19	\$15.19
2 Clab - Barbed Wire/Wood Fence Removal, Drainpipe Installation, Pumping, Evaporation					
General Laborer		2	\$0.00	\$30.38	\$30.38
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
Totals			\$31.13	\$30.38	\$61.51
2 Clab + Excavator - Pond Liner Cut and Fold					
General Laborer		2	\$0.00	\$30.38	\$30.38
325C		1	\$85.76	\$33.30	\$119.06
Totals			\$85.76	\$63.68	\$149.44
2 Clab + Welder - Bat Gates					
General Laborer		2	\$0.00	\$30.38	\$30.38
Welding Equipment		1	\$8.83	\$33.30	\$42.13
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
Totals			\$39.96	\$63.68	\$103.64
3 Clab - Foam Adit Plugs					
General Laborer		2	\$0.00	\$30.38	\$30.38
420D 4WD Backhoe		1	\$42.35	\$17.23	\$59.58
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
Totals			\$73.48	\$47.61	\$121.09
3 Clab + Welder - Culvert Bat Gate					
General Laborer		2	\$0.00	\$30.38	\$30.38
Welding Equipment		1	\$8.83	\$33.30	\$42.13
420D 4WD Backhoe		1	\$42.35	\$17.23	\$59.58
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
Totals			\$82.31	\$80.91	\$163.22
3 Clab D - 3 Laborers + Foreman - Decontamination					
General Laborer		3	\$0.00	\$45.57	\$45.57
Foreman		1	\$0.00	\$82.88	\$82.88
Supervisor's Truck		1	\$12.82	\$0.00	\$12.82
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
Totals			\$43.95	\$128.45	\$172.40
3 SKWK - Liner Installation					
Skilled Laborer		3	\$0.00	\$66.18	\$66.18
HDEP Welder (pipe or liner)		1	\$48.27	\$0.00	\$48.27
420D 4WD Backhoe		1	\$42.35	\$17.23	\$59.58
			\$0.00		\$0.00
			\$0.00		\$0.00
Totals			\$90.62	\$83.41	\$174.03

**Closure Cost Estimate
Fleets (Crews)**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
B-3 - Small Building Demolition					
LABOR					
General Laborer		2	\$0.00	\$30.38	\$30.38
Foreman		1	\$0.00	\$82.88	\$82.88
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
EQUIPMENT					
928G		1	\$77.71	\$33.30	\$111.01
Dump Truck (10-12 yd3)		2	\$112.68	\$29.22	\$141.90
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
Totals			\$190.39	\$175.78	\$366.17
B-6 - Chain Link Fence/Culvert Removal					
General Laborer		2	\$0.00	\$30.38	\$30.38
928G		1	\$77.71	\$33.30	\$111.01
Totals			\$77.71	\$63.68	\$141.39
B-8 - Large Building Demolition					
LABOR					
General Laborer		2	\$0.00	\$30.38	\$30.38
Foreman		1	\$0.00	\$82.88	\$82.88
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
EQUIPMENT					
928G		1	\$77.71	\$33.30	\$111.01
20 Ton Crane		1	\$98.00	\$33.30	\$131.30
Dump Truck (10-12 yd3)		2	\$112.68	\$29.22	\$141.90
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
Totals			\$288.39	\$209.08	\$497.47
B-9 - Concrete Wall Demolition					
General Laborer		4	\$0.00	\$60.76	\$60.76
Foreman		1	\$0.00	\$82.88	\$82.88
Air Compressor + tools			\$9.30	\$17.23	\$26.53
Totals			\$9.30	\$160.87	\$170.17

**Closure Cost Estimate
Fleets (Crews)**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
B-10Y - General Compaction					
General Laborer		1	\$0.00	\$15.19	\$15.19
CS533E Vibratory Roller		1	\$55.06	\$17.23	\$72.29
Totals			\$55.06	\$32.42	\$87.48
B-11L - Fine Grading for Evaporation Pond Liner Base					
General Laborer		1	\$0.00	\$15.19	\$15.19
14G/H		1	\$186.72	\$25.96	\$212.68
Totals			\$186.72	\$41.15	\$227.87
B-11M - Backhoe Work					
420D 4WD Backhoe		1	\$42.35	\$17.23	\$59.58
Totals			\$42.35	\$17.23	\$59.58
B-12G - Rip-Rap Machine Placed (Modified)					
966G		1	\$109.16	\$33.30	\$142.46
325C		1	\$85.76	\$33.30	\$119.06
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
Totals			\$226.05	\$66.60	\$292.65
B-13 - Grouted Rip-Rap & Gabion Baskets					
General Laborer		4	\$0.00	\$60.76	\$60.76
Foreman		1	\$0.00	\$82.88	\$82.88
20 Ton Crane		1	\$98.00	\$33.30	\$131.30
Totals			\$98.00	\$176.94	\$274.94
B-14 PVC Drain Pipe Installation					
Foreman		1	\$0.00	\$82.88	\$82.88
General Laborer		4	\$0.00	\$60.76	\$60.76
420D 4WD Backhoe		1	\$42.35	\$17.23	\$59.58
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
Totals			\$73.48	\$160.87	\$234.35
B-20 - Remove Pipelines					
Foreman		1	\$0.00	\$82.88	\$82.88
Skilled Laborer		1	\$0.00	\$22.06	\$22.06
General Laborer		1	\$0.00	\$15.19	\$15.19
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
Totals			\$31.13	\$120.13	\$151.26
B-22A - HDEP Installation - Pipe or Liner					
Skilled Laborer		1	\$0.00	\$22.06	\$22.06
General Laborer		2	\$0.00	\$30.38	\$30.38
D7R		1	\$137.33	\$25.96	\$163.29
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
420D 4WD Backhoe		1	\$42.35	\$17.23	\$59.58
Generator 5KW		1	\$12.73	\$0.00	\$12.73
HDEP Welder (pipe or liner)		1	\$48.27	\$0.00	\$48.27
Totals			\$271.81	\$95.63	\$367.44
B-80A - Install Barbed Wire Fence					
General Laborer		3	\$0.00	\$45.57	\$45.57
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
Totals			\$31.13	\$45.57	\$76.70

**Closure Cost Estimate
Fleets (Crews)**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
B-80C - Install Chain Link Fence (Flatbed truck has small crane)					
General Laborer		3	\$0.00	\$45.57	\$45.57
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
Totals			\$31.13	\$45.57	\$76.70
C-14B - Elevated Concrete Slabs (Reinforced Concrete Shaft Covers)					
Foreman		1	\$0.00	\$82.88	\$82.88
Supervisor's Truck		1	\$12.82	\$0.00	\$12.82
Carpenter		16	\$0.00	\$652.96	\$652.96
General Laborer		2	\$0.00	\$30.38	\$30.38
Rodmen (reinforcing concrete)		4	\$0.00	\$87.12	\$87.12
Cement finisher		2	\$0.00	\$43.78	\$43.78
Gas Engine Vibrator		1	\$5.88	\$17.23	\$23.11
Concrete Pump		1	\$114.80	\$0.00	\$114.80
Totals			\$133.50	\$914.35	\$1,047.85
C-14D - Concrete Walls Formed in Place (Reinforced Concrete Adit Bulkheads)					
Foreman		1	\$0.00	\$82.88	\$82.88
Supervisor's Truck		1	\$12.82	\$0.00	\$12.82
Carpenter		18	\$0.00	\$734.58	\$734.58
General Laborer		2	\$0.00	\$30.38	\$30.38
Rodmen (reinforcing concrete)		2	\$0.00	\$43.56	\$43.56
Cement finisher		1	\$0.00	\$21.89	\$21.89
Gas Engine Vibrator		1	\$5.88	\$17.23	\$23.11
Concrete Pump		1	\$114.80	\$0.00	\$114.80
Totals			\$133.50	\$930.52	\$1,064.02

**Closure Cost Estimate
Productivity**

Productivity - Bulldozers

Dozer Specifications						
Description	D11R	D10R	D9R	D8R	D7R	D6R
Blade Width (SU) (ft)	18.33	15.92	14.17	12.92	12.08	10.67
Shank Gauge (3 shanks) (ft)	9.83	8.67	7.67	7.08	6.5	6.5
Pocket Spacing (ft)	4.75	4.33	3.87	3.58	3.25	3.25
Ripping Width (Ripper + 1 Pocket) (ft)	14.58	13	11.54	10.66	9.75	9.75
Ripping Speed (mph)	1	1	1	1	1	1
Ripping Maneuver (turn) Time (min)	0.25	0.25	0.25	0.25	0.25	0.25
Altitude Deration Factor	1	1	1	1	1	1
Ripping Hourly Production (excluding maneuvering time) (ft)	5,280	5,280	5,280	5,280	5,280	5,280

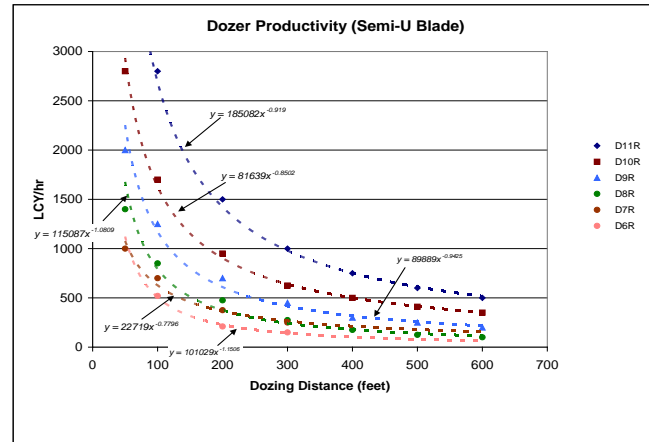
Source: Caterpillar Performance Handbook Edition 35

Dozer Productivity vs. Grading Distance						
Average Dozing Distance (feet)	Production (LCY/hr)					
	D11R	D10R	D9R	D8R	D7R	D6R
50	4,800	2,800	2,000	1,400	1,000	
100	2,800	1,700	1,250	850	700	520
200	1,500	950	700	475	375	210
300	1,000	625	450	275	250	150
400	750	500	300	175		
500	600	410	250	125		
600	500	350	200	100		

Source: Caterpillar Performance Handbook Edition 35

dozer productivity = $k \times \text{Dozing Distance}^p$
(see graph)

k =	185082	81639	89889	115087	22719	101029
p =	-0.919	-0.8502	-0.9425	-1.0809	-0.7796	-1.1506



**Closure Cost Estimate
Productivity**

Productivity - Bulldozers (cont.)

% Grade vs. Dozing Factor	
% Grade	Dozing Factor
-30	1.6
-20	1.4
-10	1.2
0	1
10	0.8
20	0.55
30	0.3

Source: Caterpillar Performance Handbook Edition 35
% Grade Dozing Factor = $-0.0214x + 0.9786$
(see graph)

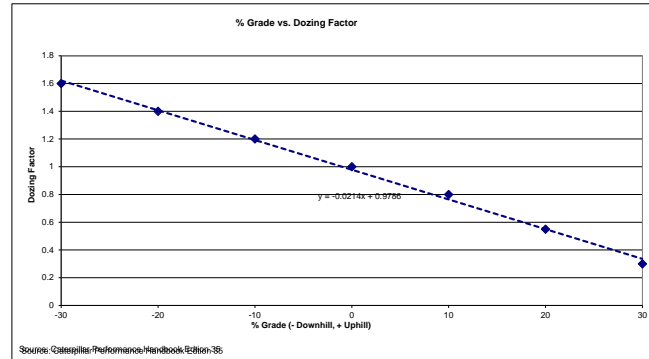
Job Condition Correction Factors - Bulldozers	
OPERATOR	
Average	0.75
MATERIAL (1)	
Loose stockpile	1.2
Normal	1
Hard to cut; frozen — with tilt cylinder	0.8
Hard to drift; "dead" (dry, non-cohesive material) or very sticky material	0.8
Rock, ripped or blasted	0.6
SLOT DOZING OR SIDE BY SIDE (1)	1.2
VISIBILITY	
Good conditions	1
JOB EFFICIENCY	
50 min/hr	0.83

(1) Selected in facility worksheets.
Other factors included as standard factors.
Source: Caterpillar Performance Handbook Edition 35

Material Densities(1)		
Material	lb/cy	kg/m ³
Alluvium	2,900	1,720
Basalt	3,300	1,960
Clay - Dry	2,500	1,480
Granite - broken	2,800	1,660
Gravel	2,550	1,510
LS - broken	2,600	1,540
LS - crushed	2,600	1,540
Sandstone	2,550	1,510
Shale	2,100	1,250
Stone - crushed	2,700	1,600
Tallings - Coarse (dry, loose sand)	2,400	1,420
Tallings - Slimes (loose sand & clay)	2,700	1,600
Topsoil	1,600	950

(1) Source: Caterpillar Performance Handbook Edition 35

Note: uses Sand & Gravel - Dry from Caterpillar Handbook



**Closure Cost Estimate
Productivity**

Productivity - Scrapers

Scraper Specifications		
Description	631G	637G
Empty Weight	100,600	112,760
Payload Capacity (cy)		
Struck	24	24
Heaped	34	34
Average	29	29
Loaded by	One D10R	Self*
Load Time (min)	1	1
Maneuver and Spread (min)	1	1
Job Efficiency	1	1
Rolling Resistance**	3	3
Altitude Deration Factor	1	1
* Requires pair		
**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered		
Source: Caterpillar Performance Handbook Edition 36		

Weight of Materials			Downhill Scraper Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)											
			631G						637G PP					
Material	lb/cy	Scraper Load lb	Loaded Weight (lbs)	22	16	10	5	1	Loaded Weight (lbs)	25	15	10	5	1
Alluvium	2,900	84,100	184,700	7.5	10	13	33	33	196,860	7	10	18.5	34	34
Basalt	3,300	95,700	196,300	7.5	10	13	24.5	33	208,460	7	10	18.5	25	34
Clay - Dry	2,500	72,500	173,100	7.5	10	13	33	33	185,260	7	10	18.5	34	34
Granite - broken	2,800	81,200	181,800	7.5	10	13	33	33	193,960	7	13	18.5	34	34
Gravel	2,550	73,950	174,550	7.5	10	13	33	33	186,710	7	10	18.5	34	34
LS - broken	2,600	75,400	176,000	7.5	10	13	33	33	188,160	7	10	18.5	34	34
LS - crushed	2,600	75,400	176,000	7.5	10	13	33	33	188,160	7	10	18.5	34	34
Sandstone	2,550	73,950	174,550	7.5	10	13	33	33	186,710	7	10	18.5	34	34
Shale	2,100	60,900	161,500	7.5	10	18	33	33	173,660	10	13.5	18.5	34	34
Stone - crushed	2,700	78,300	178,900	7.5	10	13	33	33	191,060	7	10	18.5	34	34
Tailings - Coarse (dry, loose sand)	2,400	69,600	170,200	7.5	10	13	33	33	182,360	7	10	18.5	34	34
Tailings - Slimes (loose sand & clay)	2,700	78,300	178,900	7.5	10	13	33	33	191,060	7	10	18.5	34	34
Topsoil	1,600	46,400	147,000	7.5	10	18	33	33	159,160	10	13.5	18.5	34	34
			Empty	10	18	24.5	33	33	Empty	10	13.5	18.5	34	34

Source: Caterpillar Performance Handbook Edition

Source: Caterpillar Performance Handbook Edition 34

Closure Cost Estimate Productivity

Productivity - Scrapers (cont.)

631G Scraper Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			
0	825	2,250	5,300			2142.7	1.3418	
2	750	1,800	4,600			1838.1	1.3083	
4	550	1,400	3,000	4,800	6,700	1310.7	1.1893	
6	499	1,000	2,200	3,300	4,500	5,600	1022.1	1.066
8	375	750	1,600	2,500	3,300	4,200	769.01	1.0558
10	300	700	1,300	2,000	2,750	3,450	645.84	1.0424
12	250	550	1,100	1,700	2,250	2,800	531.04	1.0453
14	225	450	900	1,400	1,850	2,250	452.07	1.0089

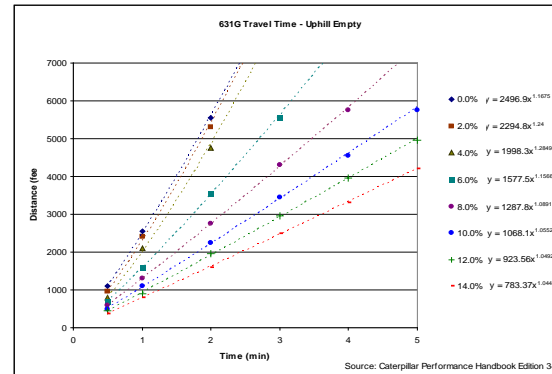
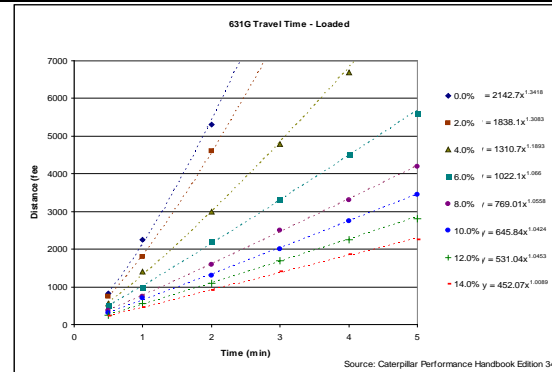
$$\text{Travel Time (min)} = \sqrt[3]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35

631G Scraper Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			
0	1,100	2,550	5,550			2496.9	1.1675	
2	950	2,400	5,300			2294.8	1.24	
4	800	2,100	4,750			1998.3	1.2849	
6	700	1,600	3,550	5,550		1557.5	1.1566	
8	600	1,300	2,750	4,300	5,750	1267.8	1.0891	
10	500	1,100	2,250	3,450	4,550	1068.1	1.0552	
12	450	900	1,950	2,950	3,950	923.56	1.0492	
14	375	800	1,600	2,500	3,300	783.37	1.0444	

$$\text{Travel Time (min)} = \sqrt[3]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



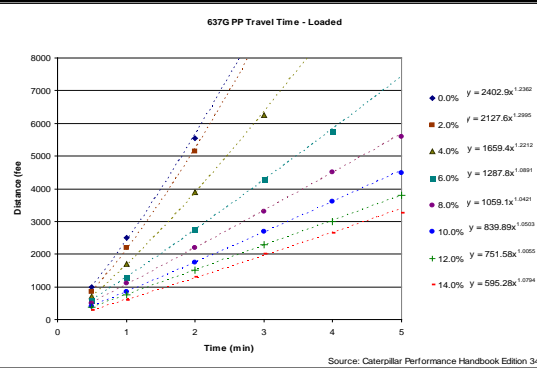
Closure Cost Estimate
Productivity

Productivity - Scrapers (cont.)

637G Push-Pull Scraper Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			
0	1,000	2,500	5,550			2402.9	1.2362	
2	850	2,200	5,150			2127.6	1.2995	
4	700	1,700	3,900	6,250		1659.4	1.2212	
6	600	1,300	2,750	4,300	5,750	1287.8	1.0891	
8	500	1,100	2,200	3,300	4,500	1059.1	1.0421	
10	400	850	1,750	2,700	3,600	839.89	1.0503	
12	375	750	1,500	2,300	3,000	751.58	1.0055	
14	275	600	1,300	2,000	2,650	595.28	1.0794	

$$\text{Travel Time (min)} = \sqrt[3]{\frac{\text{distance}}{k}}$$

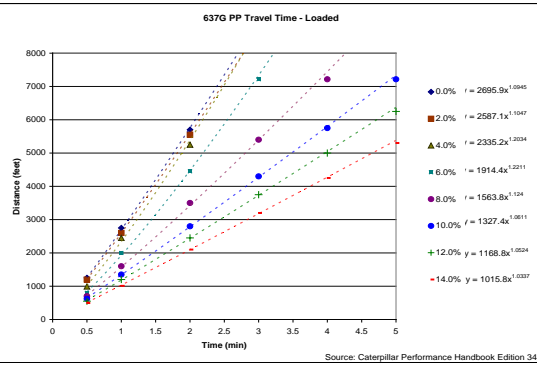
Source: Caterpillar Performance Handbook Edition 35



637G Push-Pull Scraper Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			
0	1,250	2,750	5,700			2695.9	1.0945	
2	1,200	2,600	5,550			2587.1	1.1047	
4	990	2,450	5,250			2335.2	1.0234	
6	800	2,000	4,450	7,216		1914.4	1.2211	
8	700	1,600	3,500	5,400	7,216	1563.8	1.124	
10	625	1,350	2,800	4,300	5,750	1327.4	1.0611	
12	550	1,200	2,450	3,750	5,000	1168.8	1.0524	
14	495	1,010	2,100	3,200	4,250	1015.8	1.0337	

$$\text{Travel Time (min)} = \sqrt[3]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



Closure Cost Estimate
Productivity

Productivity - Haul Trucks

Haul Truck Specifications						
Description	769D	773E	777D	785C	793C	797B
Chassis Weight (lb)	53,506	70,330	113,160	170,000	259,500	473,600
Body Weight (lb)	17,350	20,300	34,785	36,788	70,785	104,200
Standard Liner Weight (lb)	7,000	8,600	12,040	16,846	24,418	8,800
Total Truck Weight (lb)	77,856	99,230	159,985	223,634	354,703	586,600
Payload Capacity (cy)						
Struck	21.6	34.8	55	78.5	126	228
Heaped	31.7	46	78.6	102	169	290
Average	26.65	40.4	66.8	90.25	147.5	259
Maneuver to Load Time (min)	0.7	0.7	0.7	0.7	0.7	0.7
Maneuver and Dump Time (min)	1.1	1.1	1.1	1.1	1.1	1.1
Job Efficiency	0.83	0.83	0.83	0.83	0.83	0.83
Rolling Resistance**	2.5	2.5	2.5	2.5	2.5	2.5
Altitude Deration Factor	1	1	1	1	1	1

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered

Source: Caterpillar Performance Handbook Edition 35

Weight of Materials				Downhill Haul Truck Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)															
Material	lb/cy	Truck (769D) Load lb	Truck (773E) Load lb	Truck (777D) Load lb	769D					773E					777D				
					Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5
Alluvium	2,900	77,285	117,160	193,720	155,141	11	11	15	26	216,390	7	7	13	23	353,705	7	9	12	29
Basalt	3,300	87,945	133,320	220,440	166,801	11	11	11	20	232,550	7	7	13	23	380,425	7	7	12	21
Clay - Dry	2,500	66,625	101,000	167,000	144,481	11	11	15	26	200,230	7	9	13	23	326,985	7	9	16	29
Granite - broken	2,800	74,620	113,120	187,040	152,476	11	11	15	26	212,350	7	7	13	23	347,025	7	9	12	29
Gravel	2,550	67,958	103,020	170,340	145,814	11	11	15	26	202,250	7	9	13	23	330,325	7	9	16	29
LS - broken	2,600	69,290	105,040	173,680	147,146	11	11	15	26	204,270	7	9	13	23	333,665	7	9	12	29
LS - crushed	2,600	69,290	105,040	173,680	147,146	11	11	15	26	204,270	7	9	13	23	333,665	7	9	12	29
Sandstone	2,550	67,958	103,020	170,340	145,814	11	11	15	26	202,250	7	9	13	23	330,325	7	9	16	29
Shale	2,100	55,965	84,840	140,280	133,821	11	11	15	26	184,070	7	9	13	31	300,265	7	9	16	29
Stone - crushed	2,700	71,955	109,080	180,360	149,811	11	11	15	26	208,310	7	7	13	23	340,345	7	9	12	29
Tailings - Coarse (dry, loose sand)	2,400	63,960	96,960	160,320	141,816	11	11	15	26	196,190	7	9	13	23	320,305	7	9	16	29
Tailings - Slimes (loose sand & clay)	2,700	71,955	109,080	180,360	149,811	11	11	15	26	208,310	7	7	13	23	340,345	7	9	12	29
Topsoil	1,600	42,640	64,640	106,880	120,496	11	11	15	26	163,870	7	9	17	31	266,865	9	12	16	29
					Empty	15	15	26	36	Empty	13	17	23	42	Empty	16	16	29	39

Source: Caterpillar Performance Handbook Edition 35

Weight of Materials				Downhill Haul Truck Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)															
Material	lb/cy	Truck (785C) Load lb	Truck (793C) Load lb	Truck (797B) Load lb	785C					793C					797B				
					Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5
Alluvium	2,900	261,725	427,750	751,100	485,359	8	8	14	27	782,453	7	7	10	17	1,337,700	7	7	9	17
Basalt	3,300	297,825	486,750	854,700	521,459	8	8	14	27	841,453	7	7	10	17	1,441,300	7	7	9	17
Clay - Dry	2,500	225,625	368,750	647,500	449,259	8	11	14	36	723,453	7	7	10	25	1,234,100	7	7	9	23
Granite - broken	2,800	252,700	413,000	725,200	476,334	8	8	14	27	767,703	7	7	10	17	1,311,800	7	7	9	17
Gravel	2,550	230,138	376,125	660,450	453,772	8	8	14	36	730,828	7	7	10	25	1,247,050	7	7	9	23
LS - broken	2,600	234,650	383,500	673,400	458,284	8	8	14	27	738,203	7	7	10	25	1,260,000	7	7	9	23
LS - crushed	2,600	234,650	383,500	673,400	458,284	8	8	14	27	738,203	7	7	10	25	1,260,000	7	7	9	23
Sandstone	2,550	230,138	376,125	660,450	453,772	8	8	14	36	730,828	7	7	10	25	1,247,050	7	7	9	23
Shale	2,100	189,525	309,750	543,900	413,159	8	11	14	36	664,453	7	7	10	25	1,130,500	7	7	13	23
Stone - crushed	2,700	243,675	398,250	699,300	467,309	8	8	14	27	752,953	7	7	10	17	1,285,900	7	7	9	23
Tailings - Coarse (dry, loose sand)	2,400	216,600	354,000	621,600	440,234	8	11	14	36	708,703	7	7	10	25	1,208,200	7	7	9	23
Tailings - Slimes (loose sand & clay)	2,700	243,675	398,250	699,300	467,309	8	8	14	27	752,953	7	7	10	17	1,285,900	7	7	9	23
Topsoil	1,600	144,400	236,000	414,400	368,034	8	11	19	36	590,703	7	10	13	25	1,001,000	7	9	13	23
					Empty	14	19	36	36	Empty	10	13	17	33	Empty	13	17	23	42

Source: Caterpillar Performance Handbook Edition 35

Closure Cost Estimate Productivity

Productivity - Haul Trucks (cont.)

769D Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	1,148	3,428	7,183	6,330			3316.3	1.1422
4	689	1,984	4,198	6,330			1928.3	1.1033
6	508	1,427	2,952	4,510	6,002		1386.4	1.0725
8	394	1,082	2,263	3,411	4,592	5,740	1061.8	1.06
10	328	869	1,771	2,690	3,608	4,510	857.82	1.0373
15	213	574	1,181	1,804	2,394	3,018	565	1.0482

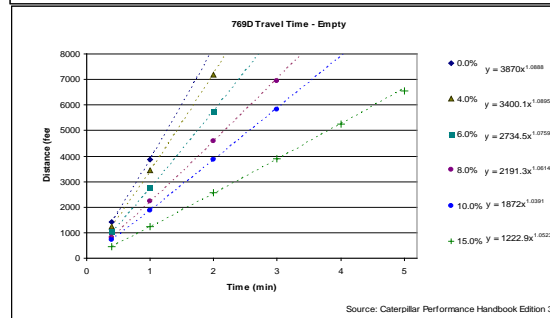
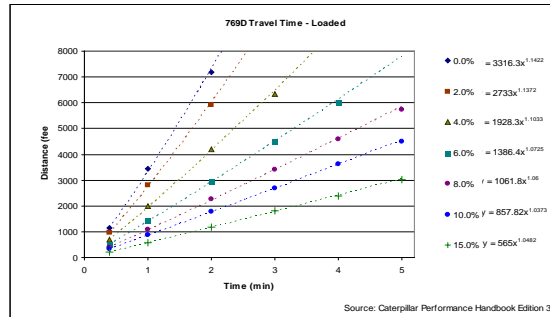
$$\text{Travel Time (min)} = \sqrt[k]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35

769D Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	1,427	3,870					3670	1.0888
4	1,246	3,444	7,183				3400.1	1.0895
6	1,017	2,755	5,740				2734.5	1.0759
8	820	2,230	4,592	6,954			2191.3	1.0614
10	722	1,870	3,870	5,838			1872	1.0391
15	459	1,246	2,558	3,903	5,248	6,560	1222.9	1.0523

$$\text{Travel Time (min)} = \sqrt[k]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



Closure Cost Estimate Productivity

Productivity - Haul Trucks (cont.)

773E Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	1,066	3,117	6,496	6,168			3027.4	1.1254
4	656	1,952	4,035	4,167			1863.1	1.1109
6	492	1,312	2,756	3,167	5,577	6,955	1304.2	1.0507
8	394	1,017	2,100	3,182	4,265	5,315	1018.2	1.0326
10	328	853	1,804	2,690	3,609	4,528	856.36	1.041
15	226	525	1,083	1,673	2,231	2,769	549.25	1.0038

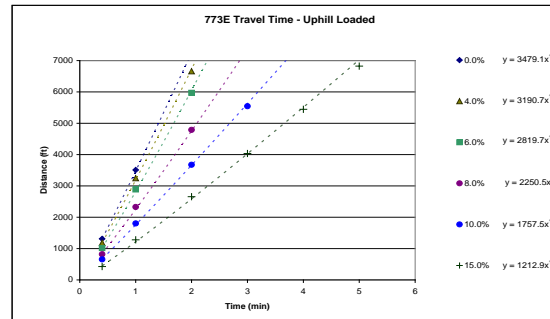
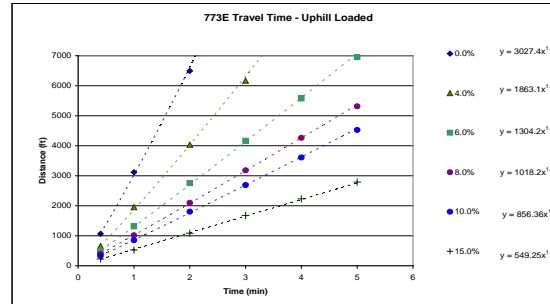
$$\text{Travel Time (min)} = \sqrt{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35

773E Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	1,312	3,510	7,218				3479.1	1.0602
4	1,181	3,248	6,660				3190.7	1.0763
6	1,017	2,887	5,971				2819.7	1.1018
8	820	2,329	4,790	7,218			2250.5	1.08
10	656	1,804	3,675	5,545			1757.5	1.0592
15	427	1,280	2,657	4,035	5,446	6,824	1212.9	1.0915

$$\text{Travel Time (min)} = \sqrt{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



Closure Cost Estimate Productivity

Productivity - Haul Trucks (cont.)

777D Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	656	2,558	6,068	5,215	7,085		2403.1	1.3876
4	459	1,509	3,313	3,706	5,018		1412	1.1863
6	394	1,148	2,460	2,837	3,722		1111	1.0949
8		918	1,886	2,165	2,919		922.57	1.0197
10		722	1,443	1,685	2,185		721.44	1.0027
15		525	1,017	1,158	1,504		520.56	0.9905

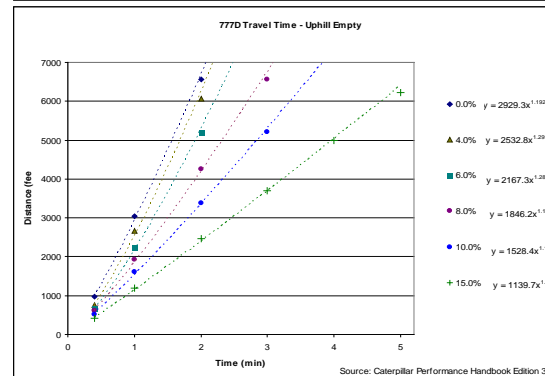
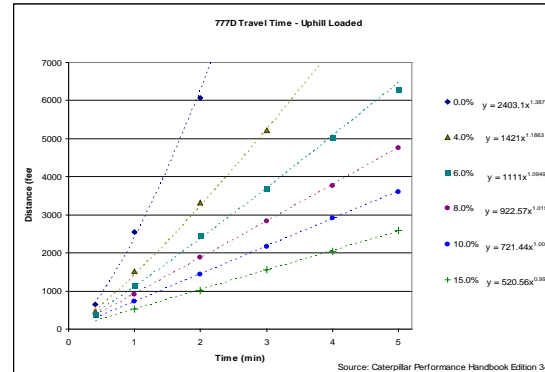
$$\text{Travel Time (min)} = \sqrt{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35

777D Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	968	3,034	6,560				2929.3	1.192
4	754	2,657	6,068				2532.8	1.2999
6	656	2,247	5,182				2167.3	1.2873
8	607	1,935	4,248	6,560			1846.2	1.1831
10	525	1,607	3,378	5,215	7,282		1528.4	1.1332
15	410	1,197	2,460	3,706	4,986	6,232	1139.7	1.072

$$\text{Travel Time (min)} = \sqrt{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



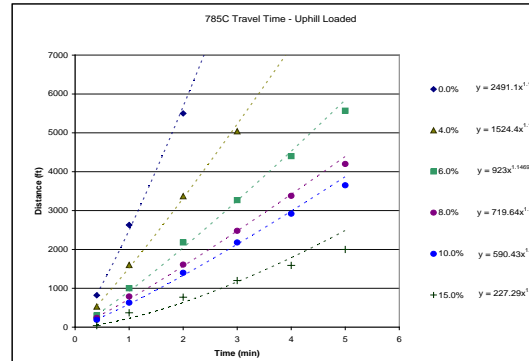
Closure Cost Estimate
Productivity

Productivity - Haul Trucks (cont.)

785C Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	820	2,630	5,500				2491.1	1.1872
4	530	1,600	3,370	5,040			1524.4	1.1206
6	300	1,000	2,180	3,270	4,400	5,570	923	1.1469
8	240	790	1,610	2,480	3,380	4,200	719.64	1.1233
10	190	630	1,400	2,180	2,920	3,650	590.43	1.1678
15	40	370	770	1,200	1,590	2,000	227.29	1.4863

$$\text{Travel Time (min)} = \sqrt{\frac{\text{distance}}{k}}$$

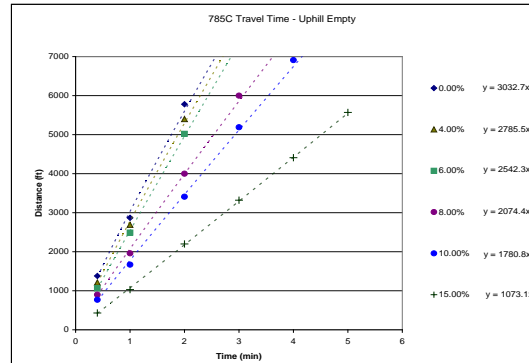
Source: Caterpillar Performance Handbook Edition 35



785C Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	1,380	2,870	5,780				3032.7	0.8852
4	1,210	2,690	5,400				2785.5	0.9264
6	1,060	2,490	5,020				2542.3	0.9645
8	900	1,960	4,000	6,000			2074.4	0.9446
10	770	1,670	3,410	5,190	6,910		1780.8	0.9606
15	430	1,030	2,200	3,320	4,410	5,570	1073.1	1.0209

$$\text{Travel Time (min)} = \sqrt{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



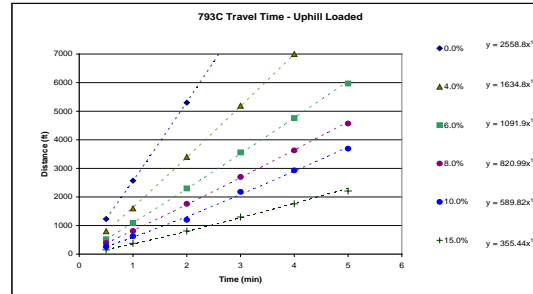
Closure Cost Estimate Productivity

Productivity - Haul Trucks (cont.)

793C Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	1,230	2,570	5,300	5,190	7,000		2558.8	1.0537
4	800	1,600	3,400	5,190	7,000		1634.8	1.0485
6	520	1,090	2,300	3,560	4,760	5,970	1091.9	1.0635
8	390	810	1,760	2,700	3,630	4,570	820.99	1.0743
10	260	630	1,200	2,180	2,930	3,690	589.82	1.1481
15	150	390	810	1,300	1,760	2,210	355.44	1.1695

$$\text{Travel Time (min)} = \sqrt{\frac{\text{distance}}{k}}$$

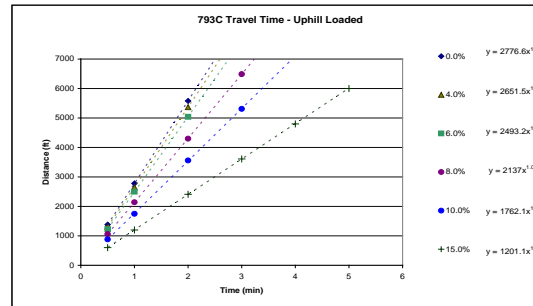
Source: Caterpillar Performance Handbook Edition 35



793C Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	1,380	2,780	5,580				2776.6	1.0078
4	1,310	2,650	5,370				2651.5	1.0177
6	1,230	2,500	5,040				2493.2	1.0174
8	1,060	2,140	4,300	6,490			2137	1.0107
10	880	1,750	3,560	5,310			1762.1	1.0059
15	600	1,200	2,410	3,610	4,800	6,000	1201.1	1.0003

$$\text{Travel Time (min)} = \sqrt{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



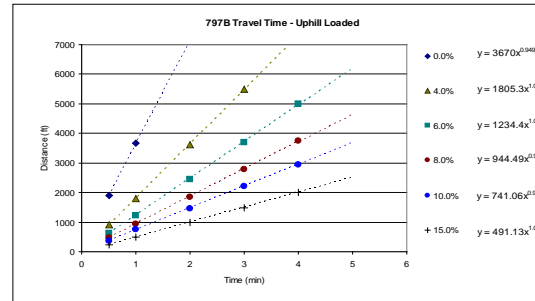
Closure Cost Estimate Productivity

Productivity - Haul Trucks (cont.)

797B Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	1,900	3,670					3670	0.9498
4	900	1,800	3,620	5,480			1805.3	1.0077
6	620	1,230	2,450	3,700	5,000		1234.4	1.0019
8	480	940	1,850	2,790	3,750		944.49	0.987
10	370	750	1,460	2,220	2,950		741.06	0.9957
15	240	500	1,000	1,480	2,000		491.13	1.0142

$$\text{Travel Time (min)} = \sqrt{\frac{\text{distance}}{k}}$$

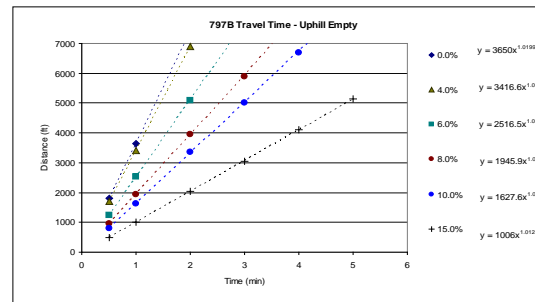
Source: Caterpillar Performance Handbook Edition 35



797B Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	1,800	3,650					3650	1.0199
4	1,700	3,400	6,900				3416.6	1.0105
6	1,240	2,520	5,100				2516.5	1.0201
8	960	1,950	3,960	5,900			1945.9	1.0152
10	800	1,620	3,350	5,000	6,700		1627.6	1.0239
15	500	1,000	2,040	3,050	4,100	5,130	1006	1.0124

$$\text{Travel Time (min)} = \sqrt{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



Closure Cost Estimate
Productivity

Productivity - Articulated Trucks

Articulated Truck Specifications				
Description	725	730	735	740
Chassis Weight (lb)				
Body Weight (lb)				
Standard Liner Weight (lb)				
Operating Weight (Empty) (lb)	50,120	51,220	65,830	72,070
Payload Capacity (cy)				
Struck	14.5	17.1	19.3	23.3
Heaped	18.8	22.1	31.8	30.2
Average	16.65	19.6	25.55	26.75
Maneuver to Load Time (min)	0.7	0.7	0.7	0.7
Maneuver and Dump Time (min)	1.1	1.1	1.1	1.1
Job Efficiency	0.83	0.83	0.83	0.83
Rolling Resistance**	2.5	2.5	2.5	2.5
Altitude Deration Factor	1	1	1	1

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered

Source: Caterpillar Performance Handbook Edition 35

Weight of Materials				Downhill Haul Truck Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)									
Material	lb/cy	Truck (725) Load lb	Truck (730) Load lb	Loaded Weight (lbs)	725				Loaded Weight (lbs)	730			
					20	15	10	5		20	15	10	5
Alluvium	2,900	48,285	56,840	98,405	9	9	13	30	108,060	5	8	13	29
Basalt	3,300	54,945	64,680	105,065	5	9	13	22	115,900	5	8	13	29
Clay - Dry	2,500	41,625	49,000	91,745	9	13	13	30	100,220	8	8	13	29
Granite - broken	2,800	46,620	54,880	96,740	9	13	13	30	106,100	5	8	13	29
Gravel	2,550	42,458	49,980	92,578	9	13	13	30	101,200	8	8	13	29
LS - broken	2,600	43,290	50,960	93,410	9	13	13	30	102,180	8	8	13	29
LS - crushed	2,600	43,290	50,960	93,410	9	13	13	30	102,180	8	8	13	29
Sandstone	2,550	42,458	49,980	92,578	9	13	13	30	101,200	8	8	13	29
Shale	2,100	34,965	41,160	85,085	9	13	22	30	92,380	8	13	13	29
Stone - crushed	2,700	44,955	52,920	95,075	9	13	13	30	104,140	8	8	13	29
Tailings - Coarse (dry, loose sand)	2,400	39,960	47,040	90,080	9	13	13	30	98,280	8	8	13	29
Tailings - Slimes (loose sand & clay)	2,700	44,955	52,920	95,075	9	13	13	30	104,140	8	8	13	29
Topsoil	1,600	26,640	31,360	76,760	9	13	22	30	82,580	8	13	22	35
				Empty	13	13	22	30	Empty	13	13	22	35

Source: Caterpillar Performance Handbook Edition 35

Weight of Materials				Downhill Haul Truck Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)									
Material	lb/cy	Truck (735) Load lb	Truck (740) Load lb	Loaded Weight (lbs)	735				Loaded Weight (lbs)	740			
					20	15	10	5		20	15	10	5
Alluvium	2,900	74,095	77,575	139,925	7	9	13	27	149,645	7	9	17	23
Basalt	3,300	84,315	88,275	150,145	7	9	13	27	160,345	7	9	13	23
Clay - Dry	2,500	63,875	66,875	129,705	7	9	13	27	138,945	9	13	17	31
Granite - broken	2,800	71,540	74,900	137,370	7	9	13	27	146,970	7	9	17	23
Gravel	2,550	65,153	68,213	130,983	7	9	13	27	140,283	7	9	17	31
LS - broken	2,600	66,430	69,550	132,260	7	9	13	27	141,620	7	9	17	31
LS - crushed	2,600	66,430	69,550	132,260	7	9	13	27	141,620	7	9	17	31
Sandstone	2,550	65,153	68,213	130,983	7	9	13	27	140,283	7	9	17	31
Shale	2,100	53,655	56,175	119,485	9	9	18	27	125,245	7	13	17	31
Stone - crushed	2,700	68,985	72,225	134,815	7	9	13	27	144,295	7	9	17	23
Tailings - Coarse (dry, loose sand)	2,400	61,320	64,200	127,150	7	9	13	27	136,270	9	13	17	31
Tailings - Slimes (loose sand & clay)	2,700	68,985	72,225	134,815	7	9	13	27	144,295	7	9	17	23
Topsoil	1,600	40,880	42,800	106,710	9	13	18	36	114,870	9	13	17	31
				Empty	13	18	27	42	Empty	17	17	23	31

Source: Caterpillar Performance Handbook Edition 35

Closure Cost Estimate Productivity

Productivity - Articulated Trucks (cont.)

725 Articulated Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			
0	600	2,190	5,200			2097.3	1.3455	
4	420	1,400	3,200	5,000	6,820	1329.1	1.2109	
6	400	1,080	2,390	3,630	4,950	1091.2	1.0904	
8	380	880	1,850	2,850	3,850	928.59	1.0158	
10	300	729	1,450	2,250	3,020	741.09	1.0076	
15	200	500	1,000	1,570	2,100	504.55	1.0225	

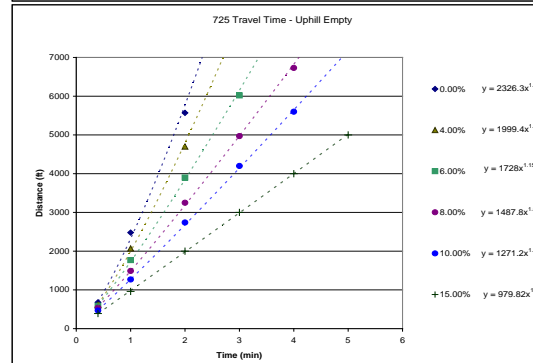
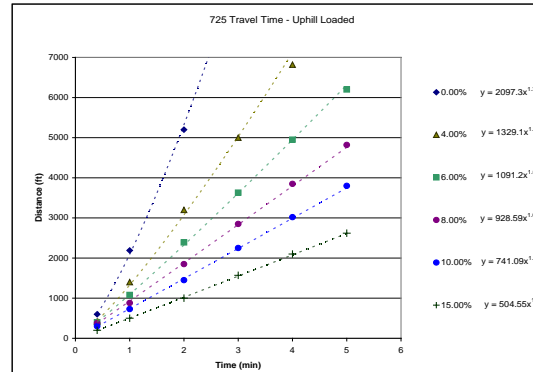
$$\text{Travel Time (min)} = \sqrt[3]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35

725 Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			
0	680	2,480	5,570			2326.3	1.3122	
4	620	2,070	4,700			1999.4	1.2616	
6	590	1,770	3,900	6,020		1728	1.1556	
8	540	1,490	3,250	4,970	6,730	1487.8	1.0986	
10	470	1,270	2,740	4,200	5,600	1271.2	1.0754	
15	390	960	2,000	3,000	4,000	979.82	1.0145	

$$\text{Travel Time (min)} = \sqrt[3]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



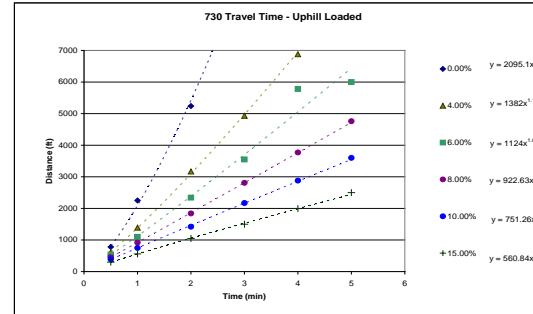
**Closure Cost Estimate
Productivity**

Productivity - Articulated Trucks (cont.)

730 Articulated Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	780	2,250	5,240				2095	1.374
4	610	1,390	3,170	4,930	6,880		1362	1.1651
6	540	1,100	2,340	3,550	5,780	6,000	112	1.0847
8	460	920	1,840	2,810	3,770	4,760	922.63	1.0145
10	390	750	1,420	2,170	2,880	3,600	751.26	0.965
15	300	560	1,050	1,500	1,995	2,500	560.84	0.9152

$$\text{Travel Time (min)} = \sqrt{\frac{\text{distance}}{k}}$$

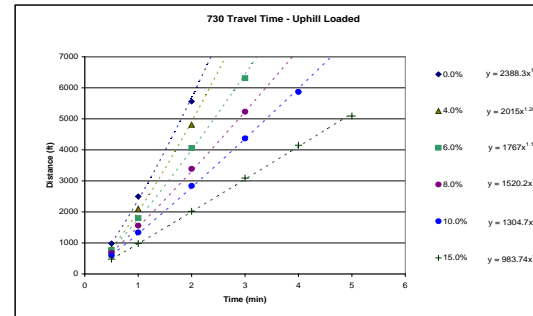
Source: Caterpillar Performance Handbook Edition 35



730 Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	980	2,500	5,560				2388	1.25621
4	810	2,100	4,810				2015	1.285
6	770	1,800	4,060	6,310			1767	1.1766
8	680	1,560	3,390	5,230	7,070		1520.2	1.1252
10	595	1,340	2,840	4,370	5,870		1304.7	1.0994
15	480	980	2,020	3,090	4,150	5,090	983.74	1.0321

$$\text{Travel Time (min)} = \sqrt{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



**Closure Cost Estimate
Productivity**

Productivity - Articulated Trucks (cont.)

735 Articulated Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			
0	700	2,200	5,020	4,520	6,100	2166	1.2254	
4	550	1,350	2,950	2,530	3,370	1410.5	1.0628	
6	450	1,020	2,200	3,400	4,570	1095.6	1.0223	
8	390	810	1,650	2,530	3,370	879.73	0.9546	
10	340	700	1,400	2,100	2,800	754.84	0.9332	
15	230	500	970	1,400	1,900	519.31	0.9268	

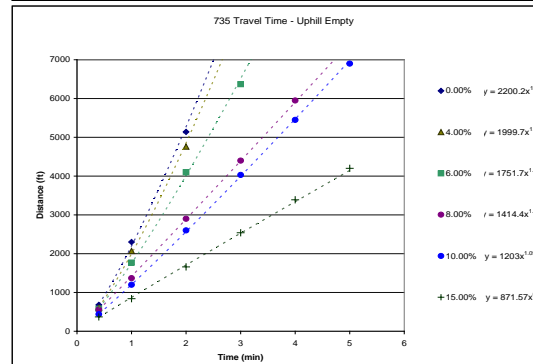
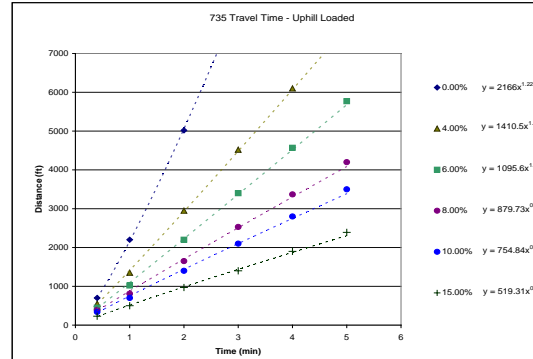
$$\text{Travel Time (min)} = \sqrt{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35

735 Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			
0	680	2,300	5,140			2200.2	1.2606	
4	610	2,070	4,760			1999.7	1.2795	
6	580	1,770	4,100	6,370		1751.7	1.1953	
8	560	1,370	2,900	4,400	5,950	1414.4	1.0306	
10	440	1,200	2,600	4,030	5,450	1203	1.0924	
15	370	840	1,660	2,540	3,390	871.57	0.969	

$$\text{Travel Time (min)} = \sqrt{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



Closure Cost Estimate Productivity

Productivity - Articulated Trucks (cont.)

740 Articulated Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			
0	600	2,340	5,500	4,960	6,780	2190.6	1.3823	
4	500	1,390	3,190	4,960	6,780	1415	1.1389	
6	420	1,020	2,200	3,400	4,580	1066.4	1.0438	
8	350	800	1,650	2,560	3,400	842.87	1.0012	
10	290	640	1,350	2,040	2,750	686.02	0.9889	
15	200	450	940	1,400	1,830	474.86	0.9789	

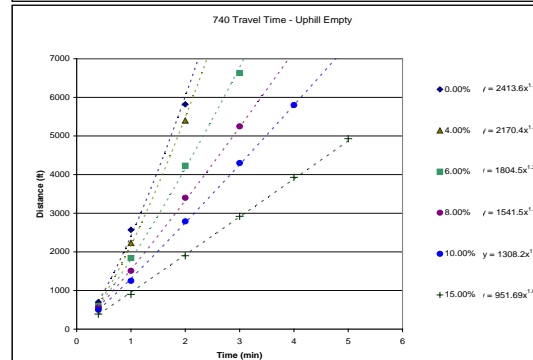
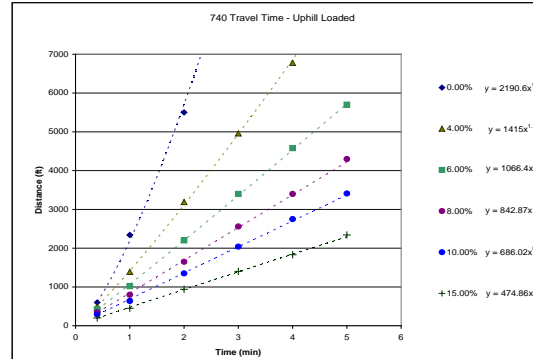
$$\text{Travel Time (min)} = \sqrt{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35

740 Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			
0	700	2,570	5,820			2413.6	1.3214	
4	630	2,230	5,400			2170.4	1.3372	
6	590	1,840	4,230	6,630		1804.5	1.2048	
8	560	1,510	3,400	5,250	7,120	1541.5	1.1112	
10	500	1,250	2,790	4,300	5,800	1308.2	1.074	
15	390	900	1,900	2,920	3,930	951.69	1.0146	

$$\text{Travel Time (min)} = \sqrt{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



Closure Cost Estimate
Productivity

Productivity - Wheel Loaders

Wheel Loader Specifications													
Description	924G	928G	950G	966G	972G	972G (2)	980G	986G	986G(2)	990	992G	992G(2)	994D L2350
Payload Capacity (cy)													
Struck	2.2	2.5	3.46	4.46	4.71	4.71	6.34	6.9	6.9	9.5	13.2	13.2	18
Heaped	2.7	3.25	4	5.25	5.5	5.5	7.25	8.33	8.33	11.25	16	16	22.5
Average	2.45	2.875	3.73	4.855	5.105	5.105	6.795	7.615	7.615	10.375	14.6	14.6	20.25
Matched Truck	N/A	N/A	N/A	725	730	735	N/A	740	769D	773D	777D	785C	793C 797B
Average Cycle Time (min)	0.45	0.45	0.5	0.5	0.5	0.5	0.55	0.55	0.55	0.55	0.6	0.6	0.75
Passes to Fill Truck	N/A	N/A	N/A	3	4	5	N/A	4	3	4	5	6	7
Altitude Deration Factor	1	1	1	1	1	1	1	1	1	1	1	1	1
Operator Efficiency	1	1	1	1	1	1	1	1	1	1	1	1	1
Job Efficiency	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Time to Fill Truck	N/A	N/A	N/A	1.5	2	2.5	N/A	2.2	1.65	2.2	3	3.6	4.2
Rolling Resistance**	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Loader matched to small truck fleet													
Loader matched to medium truck fleet													
Loader matched to large truck fleet													
Loader matched to extra large truck fleet													
**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered													
992G (2) - can be used to load 785 with 6 passes													
Source: Caterpillar Performance Handbook Edition 35; LeTourneau/actual Chilean mine operating data for L2350.													

Wheeled Loaders	General Purpose	Spade Nose-Rock
928G	3.25 cubic yard	not available
966G	5.0 cubic yard	not available
972G	5.5 cubic yard	not available
986G	not available	8.3 cubic yard
992G	not available	16.0 cubic yard
note: capacities are 2:1 heaped, SAE standards		
NOTES: Buckets for both Track Excavators and Wheel Loaders are offered by CECs & available for the rental rates quoted. Bucket sizes and capacities obtained from CATERPILLAR PERFORMANCE HANDBOOK, ED 34; Section 12, Wheel Loader and Section 4, Excavators		
Bucket capacity and width dictated by material weight and configuration, i.e., shot, loose, tight bank, stockpile, rock, etc. Typical Nevada applications were used to determine above bucket capacities as related to materials & densities. Job site specifics may alter specific bucket requirements. (Cashman Equipment, Elko, Nevada - February 21, 2005)		

Productivity - Shovels

Shovel Specifications (Komatsu equivalent)					
Description	PC2000	PC3000	PC4000	PC5500	PC8000
Payload Capacity (cy)					
Struck	10.46	18.64	26.16	33.48	47.09
Heaped	14.39	25.9	35.97	46.04	64.75
Average	12.43	22.37	31.07	39.76	55.92
Matched Truck	740	777D	785C	793C	797B
Average Cycle Time (min)	0.49	0.49	0.59	0.59	0.69
Passes to Fill Truck	2.05	2.84	3.38	4.69	5.11
Altitude Deration Factor	1	1	0.9	1	1
Operator Efficiency	1	1	1	1	1
Job Efficiency	0.83	0.83	0.83	0.83	0.83
Time to Fill Truck	1.68	2.33	3.32	4.61	5.86
Rolling Resistance**	2.5	2.5	2.5	2.5	2.5
Shovel matched to small truck fleet					
Shovel matched to medium truck fleet					
Shovel matched to large truck fleet					
Shovel matched to extra large truck fleet					
**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered					
992G (2) - can be used to load 785 with 6 passes					
Source: Caterpillar Performance Handbook Edition 35; Komatsu actual Peruvian mine (Lagunas Norte) operating data for PC4000.					

Closure Cost Estimate
Productivity

Productivity - Motor Graders				
Motor Grader Specifications				
Description	120H	140H	160H	24M
Grader Width (ft)	8	9.25	10.08	14.04
Blade Width (ft)	12	14	16	16
Ripper Width (7 shanks) (ft)	7.6	8.5	9.75	12.83
Road Maintenance Speed (mph)				
Minimum	3	3	3	3
Maximum	9.5	9.5	9.5	9.5
Average	6.25	6.25	6.25	6.25
Hourly Production	33,000	33,000	33,000	33,000
Ripping Speed (mph)	1	1	1	1
Minimum	0	0	0	0
Maximum	3	3	3	3
Average	1.5	1.5	1.5	1.5
Altitude Deration Factor	1	1	1	1
Hourly Production (with job efficiency correction & altitude deration factors) (excluding maneuver time)	6,574	6,574	6,574	6,574
Maneuver time per pass (min)	0.5	0.5	0.5	0.5
Operator Efficiency	1	1	1	1
Job Efficiency	0.83	0.83	0.83	0.83
Source: Caterpillar Performance Handbook Edition 35				

Closure Cost Estimate
Productivity

Productivity - Excavators

Track Excavator Specifications							
Description	312C	320C	325C	330C	345B	365BL	385BL
Bucket Capacity (cy)	0.68	1.57	2.22	2.22	3	4.6	7.3
Fill Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Average Bucket Load (cy)	0.612	1.413	1.998	1.998	2.7	4.14	6.57
Soil Type	packed earth	hard clay	hard clay	hard clay	hard clay	hard clay	hard clay
Job Condition	med-hard	med-hard	med-hard	med-hard	med-hard	med-hard	med-hard
Cycle Times (minutes) - based on hard clay							
Load Bucket	0.07	0.09	0.09	0.09	0.13	0.1	0.19
Swing Loaded	0.06	0.06	0.06	0.07	0.07	0.09	0.06
Dump Bucket	0.03	0.03	0.04	0.04	0.02	0.04	0.03
Swing Empty	0.05	0.05	0.06	0.07	0.06	0.07	0.07
Total Cycle Time	0.21	0.23	0.25	0.27	0.28	0.3	0.35
Job Efficiency	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Operator Efficiency	1	1	1	1	1	1	1
Altitude Deration Factor	1	1	1	1	1	1	1
Corrected Productivity (LCY/hr)	145	306	398	369	480	687	935
Exploration Road Cycle Time ⁽¹⁾ (min)	N/A	0.38	0.4	N/A	0.42	N/A	N/A
Exploration Road Corr Prod (LCY/hr)	N/A	185	249	N/A	320	N/A	N/A
Track Width (ft)	8.17	9.17	9.83	10.5	11.42	11.5	11.5
Ditch/Trench Excavation							
Bucket Capacity (cy)	0.42	0.58	0.88	0.89	2.09	3.27	2.75
Fill Factor	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Corrected Productivity (LCY/hr)	50	63	88	82	186	271	196

Source: Caterpillar Performance Handbook Edition 35

Track Excavators	Hvy Duty Rock	Extreme Service Exc (e.g. haulroad recontour)	Hvy Duty Trench
312C	30", 0.68 cubic yd	47", 0.94 cubic yd	22", .42 cubic yd
320C	30", 0.90 cubic yd	55.1", 1.57 cubic yd	23.6", .58 cubic yd
325C	36", 1.25 cubic yd	60", 2.22 cubic yd	30", .88 cubic yd
330C	36", 1.25 cubic yd	60", 2.22 cubic yd	30", .88 cubic yd
345B	43.2", 1.69 cubic yd	65", 3.0 cubic yd	48", 2.09 cubic yd
365BL	60", 3.25 cubic yd	82", 4.6 cubic yd	59", 3.27 cubic yd
385BL	85", 6.30 cubic yd	96.0, 7.30 cubic yd	57", 2.75 cubic yd

Note: capacities are 2:1 heaped, SAE standards

NOTES: Buckets for both Track Excavators and Wheel Loaders are offered by CECO &

available for the rental rates quoted. Bucket sizes and capacities obtained from CATERPILLAR

PERFORMANCE HANDBOOK, ED 34; Section 12, Wheel Loader and Section 4, Excavators

Bucket capacity and width dictated by material weight and configuration, i.e., shot, loose,

right bank, stockpile, rock, etc. Typical Nevada applications were used to determine above

bucket capacities as related to materials & densities. Job site specifics may alter specific

bucket requirements (Cashman Equipment, Elko, Nevada - February 21, 2005)

(1) Exploration cycle time assumes feathering/smoothing performed by excavator

Concrete Breaking Production

Track Excavator w/Hammer Specifications			
Description	325C	345B	385BL
Hydraulic Hammer	H120D s	H160D s	H180D s
Material	reinforced concrete		
Min Shift Production (yd3/8hr)	160	300	350
Max Shift Production (yd3/8hr)	300	850	1,550
Avg Shift Production (8hr)	230	575	950
Job Efficiency	0.83	0.83	0.83
Altitude Deration Factor	1	1	1

Source: Caterpillar Performance Handbook Edition 35

**Closure Cost Estimate
Productivity**

Drill Hole Plugging Productivity		
Drill Hole Plugging Productivity		
Description	Drill Rig	Pump Rig
Move-to-hole, set-up, tear-down ⁽¹⁾	2	2
Trip in tremmie pipe ⁽¹⁾	500	
cemented ⁽¹⁾	200	
Single-pass perforating (water wells)	Productivity(all p	Passes
4	60	4
6	60	4
8	50	4
12	45	6
18	40	9
24	28	12
time ⁽²⁾ (hr)	2	
Perforation tool cost (wear cost) ⁽³⁾	2.5	
Inert Material Placement (backfill)		
Grouting/Cement ⁽⁴⁾ (cy/hr)		5.33
Cuttings (see below) (cy/hr)		3.5
<p>1. Drillers daily logs from Newmont, Barrick, New West Gold, Agrico Eagle, Isaho General Mines Inc.</p> <p>2. Drillers daily logs from Newmont, Barrick, Target Minerals</p> <p>3. Drillers daily logs from Newmont</p> <p>4. WDC Exploration, Dec 2005</p> <p style="text-align: right;">Source: WDC Exploration, Dec 2005</p>		
Cuttings Placement Productivity		
Shift productivity (Means 02210-700-0120, Crew B11M)	28	cy / shift
Shift length	8	hours
Estimated Hourly Productivity	3.5	cy / hour

Closure Cost Estimate
Productivity

Altitude Deration Table

MODEL	Elevation											
	0-760 m (0-2500')		760-1500 m (2500-5000')		1500-2300 m (5000-7000')		2300-3000 m (7500-10,000')		3000-3800 m (10,000-12,000')		3800-4600 m (12,500-15,000')	
	CAT	User	CAT	User	CAT	User	CAT	User	CAT	User	CAT	User
Buildozers												
D6R	100		100		100		100		92		84	
D6R w/ Winch	100		100		100		100		92		84	
D7R	100		100		100		100		100		96	
D8R	100		100		100		93		85		77	
D9R	100		100		100		93		85		77	
D10R	100		100		100		100		97		89	
D11R	100		100		100		93		85		77	
Wheeled Dozers												
824G	100		100		100		100		92		84	
834G	100		100		100		100		92		84	
844	100		100		100		100		100		96	
854G	100		100		100		93		85		77	
Graders												
120H	100		100		100		100		96		93	
14GH	100		100		100		100		98		96	
16GH	100		100		100		100		98		96	
24M	100		100		100		100		98		96	
Excavators												
312C	100		100		100		83		78		73	
320C	100		100		90		87		83		76	
325C	100		100		100		100		100		100	
330C	100		100		100		100		100		100	
345B	100		100		100		100		93		93	
365BL	100		100		100		96		86		86	
385BL	100		100		100		93		85		78	
Scrapers												
631G	100		100		100		100		97		90	
637G	100		100		100		95		87		80	
Loaders												
924G	100		100		100		100		97		89	
928G	100		100		100		100		92		85	
950G	100		100		100		100		100		100	
966G	100		100		100		100		96		88	
972G	100		100		92		84		77		70	
980G	100		100		100		100		96		88	
988G	100		100		100		95		85		75	
990	100		100		100		100		92		85	
992G	100		100		100		100		93		87	
994D	100		100		100		100		96		88	
L2350	100		100		100		100		96		90	
Shovels												
PC2000	100		100		100		100		96		90	
PC3000	100		100		100		100		96		90	
PC4000	100		100		100		100		96		90	
PC5500	100		100		100		100		96		90	
PC8000	100		100		100		100		96		90	
Other Equipment												
420D 4WD Backhoe	99		97		95		91		91		91	
428D 4WD Backhoe	99		97		95		91		91		91	
CS533E Vibratory Roller	100		100		98		95		91		86	
CS633E Vibratory Roller	100		100		100		100		91		86	
CP533E Sheepsfoot Compactor	100		100		96		95		91		100	
CP633E Sheepsfoot Compactor	100		100		100		100		91		86	
Light Truck - 1.5 Ton												
Supervisor's Truck												
Flatbed Truck												
Air Compressor + tools												
Welding Equipment												
Heavy Duty Drill Rig												
Pump (plugging) Drill Rig												
Concrete Pump												
Gas Engine Vibrator												
Generator 5KW												
HDEP Welder (pipe or liner)												
5 Ton Crane												
20 Ton Crane												
50 Ton Crane												
120 Ton Crane												
Trucks												
725	100		100		100		100		100		95	
730	100		100		100		100		100		95	
735	100		100		100		100		99		91	
740	100		100		100		100		99		91	
769D	100		100		100		93		88		82	
773E	100		100		100		100		93		85	
777D	100		100		100		100		93		87	
785C	100		100		100		93		86		80	
793C	100		100		100		100		100		93	
797B	100		100		100		100		100		93	
613E (5,000 gal) Water Wagon	100		100		100		100		95		87	
621E (8,000 gal) Water Wagon	100		100		100		100		97		90	
777D Water Truck	100		100		100		100		93		87	
785C Water Truck	100		100		100		93		86		80	
Dump Truck (10-12 yd ³) (5)												

Notes:

Closure Cost Estimate
Productivity

User entered deration value will override values from CAT Performance Handbook, except L2350 Loader: data from actual mine performance in Chile.
Komatsu altitude deration assumed from LeTourneau L2350

STANDARDIZED RECLAMATION COST ESTIMATOR

User Tools

Version 1.4.1

These tools allow easy access to some useful VBA routines and macros that are include in this Model Version

Keyboard Shortcuts	
SHORTCUT KEYS	ACTION
<i>Ctrl-Shift-C</i>	<i>Go to Table of Contents</i>
<i>Ctrl-Shift-O</i>	<i>Open Toe Offset Calculator</i>
<i>Ctrl-Shift-P</i>	<i>Go to Property Information Sheet</i>
<i>Ctrl-Shift-S</i>	<i>Show Slope Conversion Table</i>
<i>Ctrl-Shift-T</i>	<i>Go to Tools sheet</i>
<i>Ctrl-Shift-Z</i>	<i>Paste Formulas - First Use Ctrl-C to copy a range, then use the mouse (or keyboard) to select the paste range and then use this shortcut to paste formulas only from the copy range to the paste range. Equivalent to the Paste Special/Formulas command.</i>

Closure Cost Estimate Seed Mixture

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Seed Mixture						
Common Name	Scientific Name	Species Number of Seeds / lb	Species % in Mix	PLS/acre	Cost/Lb	Cost/Acre
Grasses						
Indian ricegrass	<i>Achnatherum hymenoides</i>		14.16	1.30		
Plains lovegrass	<i>Eragrostis intermedia</i>		0.44	0.04		
NM feathergrass	<i>Hesperostipa newmexicana</i>		5.45	0.50		
Sideoats grama	<i>Bouteloua curtipendula</i>		11.98	1.10		
Blue grama	<i>Bouteloua gracilis</i>		2.72	0.25		
Cane beardgrass	<i>Bothriochloa barbinodis</i>		2.18	0.20		
Galleta	<i>Pleuraphis jamesii</i>		11.98	1.10		
Green sprangletop	<i>Leptochloa dubia</i>		2.18	0.20		
Plains bristlegrass	<i>Seteria vulpiseta</i>		3.27	0.30		
Sand dropseed	<i>Sporobolus cryptandrus</i>		0.44	0.04		
Forbs						
White prairie clover	<i>Dale candida c</i>		4.36	0.40		
Blue flax	<i>Linum lewisii c</i>		3.81	0.35		
Prairie coneflower	<i>Ratibida colomnifera c</i>		1.09	0.10		
Desert globemallow	<i>Sphaeralcea ambigua c</i>		4.36	0.40		
Shrubs						
Four-wing saltbush	<i>Atriplex canescens</i>		19.06	1.75		
Rubber rabbitbrush	<i>Ericamerica intermedia c</i>		3.81	0.35		
Apache plume	<i>Fallugia paradoxa c</i>		1.09	0.10		
Winterfat	<i>Krascheninnikovia lanata</i>		7.63	0.70		
Total				\$9.18		\$0.00

Source:

Notes:

Closure Cost Estimate User 1

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1
 Seed Mix Cost Quotes



TO: Feliz Toprak, Mining Consultant, SRK Consulting, Inc.
 CC: Jeff Smith, Chief Operating Officer, NMCC
 FROM: Katie Emmer, Permitting & Environmental Compliance Manager, NMCC
 DATE: 20 March 2018
 SUBJECT: Seed Mix Quotes – Average cost \$175.00/acre PLS

The purpose of this memorandum is to summarize research into seed mix costs for seed mixes identified in the Copper Flat Mine Operation & Reclamation Plan (MORP) and to present the estimated cost of pure live seed (PLS) per acre.

The MORP calls for a specific seed mix and rate of application for interim and final reclamation:

Table E7: Interim and Final Reclamation Seed Mixes

Scientific Name	Common Name	PLS/ac ¹	
		Interim	Final
Grasses – Warm Season			
<i>Bothriochloa barbinodis</i>	Cane bluestem	0.15	0.20
<i>Bouteloua curtipendula</i>	Sideoats grama	1.00	1.10
<i>Bouteloua gracilis</i>	Blue grama	0.20	0.25
<i>Pleuraphis jamesii</i>	Galleta	0.75	1.10
<i>Leptochloa dubia</i>	Green sprangletop	0.15	0.20
<i>Seteria vulpiseta</i>	Plains bristlegrass	0.20	0.30
<i>Sporobolus cryptandrus</i>	Sand dropseed	0.03	0.04
Grasses – Cool, Intermediate Season			
<i>Achnatherum hymenoides</i>	Indian ricegrass	0.60	1.30
<i>Eragrostis intermedia</i>	Plains lovegrass	0.05	0.04
<i>Hesperostipa newmexicana</i>	NM feathergrass	0.70	0.50
Shrubs			
<i>Atriplex canescens</i>	Four-wing saltbush	0.30	1.75
<i>Ericamerica nauseosus</i>	Rubber rabbitbrush	0.10	0.35
<i>Fallugia paradoxa</i>	Apache plume	--	0.10
<i>Krascheninnikovia lanata</i>	Winterfat	0.15	0.70
Forbs			
<i>Dalea candida</i>	White prairie clover	0.10	0.40
<i>Linum lewisii</i>	Blue flax	0.15	0.35
<i>Ratibida colomnifera</i>	Prairie coneflower	--	0.10
<i>Sphaeralcea ambigua</i>	Desert globemallow	0.10	0.40
	Total	4.73	9.18

Notes:

1 - Rate is in pounds of pure live seed (PLS) per acre; Substitutions may change seeding rates.

Closure Cost Estimate

User 1

In the week of 12 March 2018, I requested recommendations for seed mix suppliers from knowledgeable personnel at the Bureau of Land Management (BLM) Las Cruces office and Golder & Associates.

Emily Clark, Soil Scientist at Golder, indicated that they commonly work with Granite Seed. Shannon Gentry, Rangeland Management Specialist, suggested Bamert Seed, Granite Seed, and Curtis & Curtis Seed companies. Based on these recommendations, I contacted all three companies and provided MORP Table E7 and requested quotes on PLS/acre that would be certified weed free at the final reclamation rate. I instructed each company that comparable seed substitutions could be made based on availability. Quotes for PLS/acre were received from each company and are presented in the table below.

Seed Mix Quotes for MORP Table E7, Final Rate, March 2018

Company	Date	Price quote PLS/acre	Notes
Curtis & Curtis, Inc.	15 March 2018	\$174.72	Low acreage Quote attached
Curtis & Curtis, Inc.	15 March 2018	\$163.79	100 acres+ Quote attached
Granite Seed	15 March 2018	\$186.50	Quote attached
Bamert Seed	16 March 2018	\$750.00	Quote via email, attached.

In further correspondence with Bamert, the supplier speculated the quote could be decreased "as much as 2/3rds" if strategic substitutions of similar seeds were made based on availability. If the Bamert quote was decreased by 67%, it would be about \$247.50/acre. Based on the difference in price from the other two suppliers, I conclude this quote is an outlier that is based on differing assumptions from those communicated in the quote request and have not included it in our estimated average seed mix cost.

Based on these quotes, attached, I conclude the average cost of PLS that would meet MORP requirements for final seed rates shown in Table E7 would be \$175.00 per acre.

Attachments:

Curtis & Curtis, Inc. Quote

Granite Seed Quote

Bamert Seed Quote (via email)

Closure Cost Estimate
User 1

CURTIS & CURTIS, INC.

4500 North Prince, Clovis, New Mexico 88101
PH: 575-762-4759 FAX: 575-763-4213

Irrigated Pasture Grasses
Mountain Pasture Grasses
Native Pasture Grasses

Yard and Playground Grasses
Golf Course Grasses
Alfalfa/Clovers

PRICE QUOTATION

TO:	Themac Resources	DATE:	March 15, 2018
ATTENTION:	Katie Emmer	SALESPERSON:	Tyler Stuemky
PHONE:	505-400-7925	SHIPPING DATE:	As Directed
EMAIL:	kemmer@themacresourcesgroup.com	FOB:	Clovis
PROJECT:	Sierra County Mine Reclamation	TERMS:	30 Days Net

DESCRIPTION	PRICE	AMOUNT
Custom Seed Mix:	\$174.72/Acre (Low Acreage)	
	\$163.79/Acre (100 Acres+)	

COMMON NAME	BOTANICAL NAME	PLS/ACRE
Cane Bluestem	<i>Bouteloua dactyloides</i>	0.20
Sub. Buffalograss		
Sideoats Grama	<i>Bouteloua curtipendula</i>	1.10
Blue Grama	<i>Bouteloua gracilis</i>	0.25
Galleta Grass	<i>Pleuraphis jamesii</i>	1.10
Green Sprangletop	<i>Leptochloa dubia</i>	0.20
Plains Bristlegrass	<i>Setaria vulpiseta</i>	0.30
Sand Dropseed	<i>Sporobolus cryptandrus</i>	0.04
Indian Ricegrass	<i>Oryzopsis hymenoides</i>	1.30
Plains Lovegrass	<i>Eragrostis trichodes</i>	0.04
Sand Lovegrass		
NM Feathergrass	<i>Hesperostipa comata</i>	0.50
Needle and Thread		
Four-Wing Saltbush	<i>Atriplex canescens</i>	1.75
Rubber Rabbitbrush	<i>Ericameria nauseosa</i>	0.35
Apache Plume	<i>Rhus trilobata</i>	0.10
Sub. Three-Leaf Sumac		
Winterfat	<i>Krascheninnikovia lanata</i>	0.70
White Prairie Clover	<i>Dalea purpurea</i>	0.40
Sub. Purple Prairie Clover		
Blue Flax	<i>Linum lewisii</i>	0.35
Prairie Coneflower	<i>Ratibida columnifera</i>	0.10
Desert Globemallow	<i>Sphaeralcea ambigua</i>	0.40

THIS QUOTE IS GOOD FOR 10 DAYS

ALL PRICES SUBJECT TO AVAILABILITY**SUBJECT TO BEING UNSOLD

Here is our quotation on the goods named, subject to the conditions noted:

The prices and terms on this quotation are not subject to verbal changes or other agreements unless approved in writing by the Home Office of the Seller. All quotations and agreements are contingent upon strikes, accidents, fires, availability of materials and all other causes beyond our control. Prices are based on costs and conditions existing on date of quotation and are subject to change by the Seller before final acceptance.

Typographical and stenographic errors are subject to correction. Purchaser agrees to accept either overage or shortage not in excess of ten percent to be charged for pro-rata. Purchaser assumes liability for patent and copyright infringement when goods are made to Purchaser's specifications. When quotation specifies material to be furnished by the purchaser, ample allowance must be made for reasonable spoilage and material must be of suitable quality to facilitate efficient production. Conditions not specifically stated herein shall be governed by established trade customs. Terms inconsistent with those stated herein, which may appear on Purchaser's formal order will not be binding on the Seller.

**Closure Cost Estimate
User 1**

QUOTE



Tren Hagman
1697 West 2100 North
Lehi, UT 84043

tren@graniteseed.com
Phone: (801) 768-4422
Fax: (801) 701-9413

Date: March 15, 2018
To: Katie Emmer
Company: Themac Resources
From: Tren Hagman
Re: Seed Quote

Katie,

We can provide the mix below for \$186.50/acre

Species	PLS lbs./acre
Cane beardgrass (<i>Bothriochloa barbinodis</i>)	0.20
Sideoats grama (<i>Bouteloua curtipendula</i>)	1.10
Blue grama (<i>Bouteloua gracilis</i>)	0.25
Galleta grass (<i>Pleuraphis jamesii</i>)	1.10
Green sprangletop (<i>Leptochloa dubia</i>)	0.20
Plains bristleglass (<i>Setaria vulpiseta</i>)	0.30
Sand dropseed (<i>Sporobolus cryptandrus</i>)	0.04
Indian ricegrass (<i>Achnatherum hymenoides</i>)	1.30
Fourwing saltbush (<i>Atriplex canescens</i>)	1.75
Rubber rabbitbrush (<i>Ericameria nauseosa</i>)	0.35
Apache plume (<i>Fallugia paradoxa</i>)	0.10
Winterfat (<i>Krascheninnikovia lanata</i>)	0.70
White prairie clover (<i>Dalea candida</i>)	0.40
Blue flax (<i>Linum perenne</i>)	0.35
Prairie coneflower (<i>Ratibida columnifera</i>)	0.10
Desert globemallow (<i>Sphaeralcea ambigua</i>)	0.40
Total:	8.64

If you have any questions, please contact me at the number above or by email tren@graniteseed.com.

Thanks

Closure Cost Estimate
User 1

Katie Emmer

From: Colby Scroggins <cscroggins@bamertseed.com>
Sent: Friday, March 16, 2018 12:18 PM
To: Katie Emmer
Subject: RE: Seed mix quote

Katie,

I would estimate that the attached blend may be near \$750 per acre.

Please let me know if I may be of help in the future!

Have a great day,

Colby F. Scroggins

Reclamation Specialist
cscroggins@BamertSeed.com
Office | 800.262.9892
Fax | 888.378.0419
www.BamertSeed.com



[Sign Up for Our Newsletter!](#)

From: Katie Emmer [<mailto:kemmer@themasourcesgroup.com>]
Sent: Wednesday, March 14, 2018 4:25 PM
To: Colby Scroggins <cscroggins@bamertseed.com>
Subject: Seed mix quote

Here's the seed mix I'm looking at, see attached.

Katie Emmer | Permitting & Environmental Compliance Manager

M: +1 505.400.7925 | **F:** +1 505.881.4616
A: 4253 Montgomery Blvd. NE, Suite 130, Albuquerque, NM 87109
W: themasourcesgroup.com | **E:** kemmer@themasourcesgroup.com



Closure Cost Estimate

User 2

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

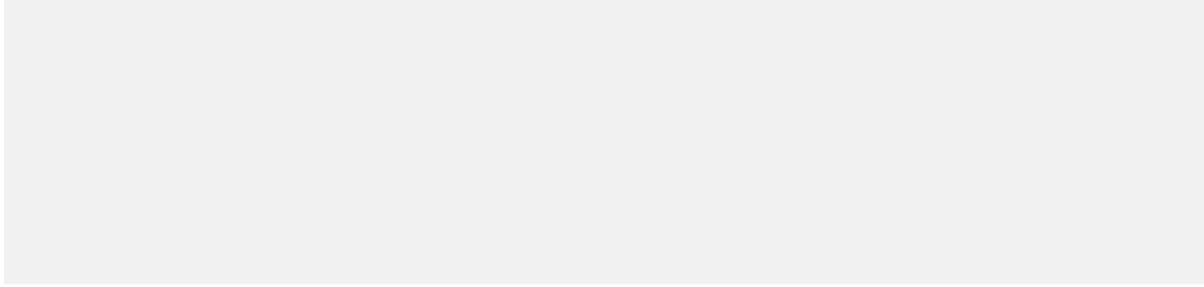
Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 2



Closure Cost Estimate

User 3

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

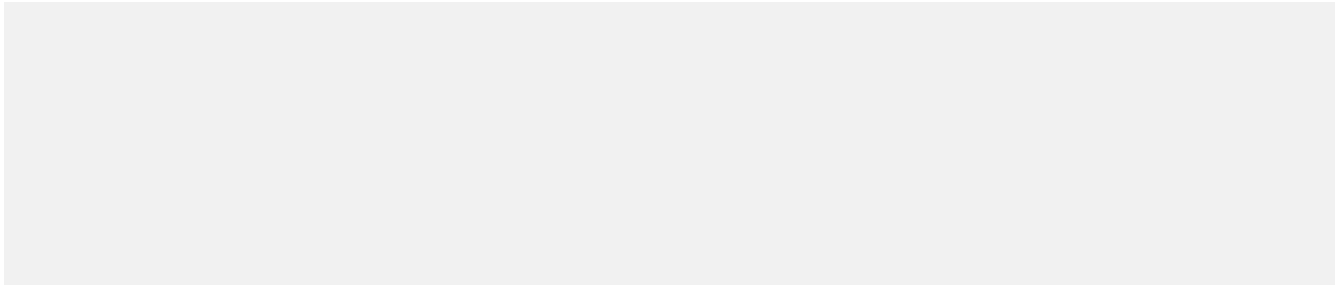
Model Version: Version 1.4.1

Cost Data: User Data

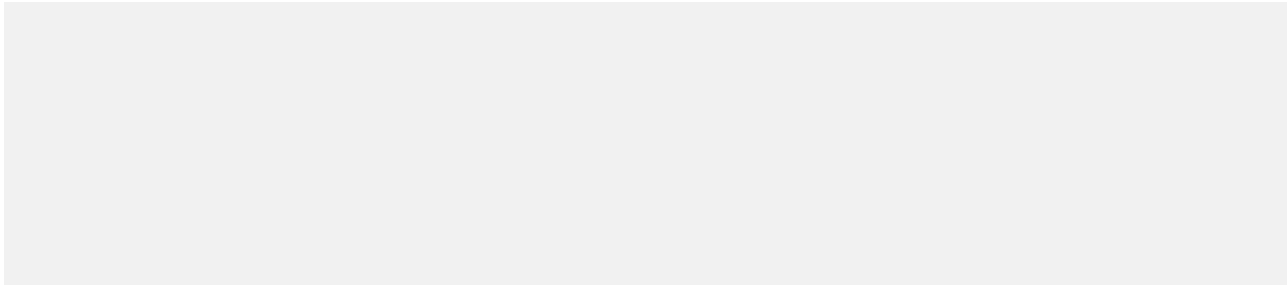
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

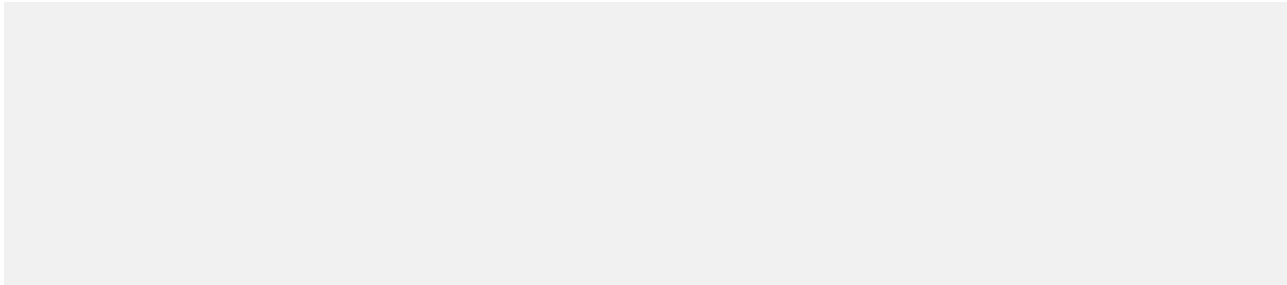
Closure Cost Estimate
User 3



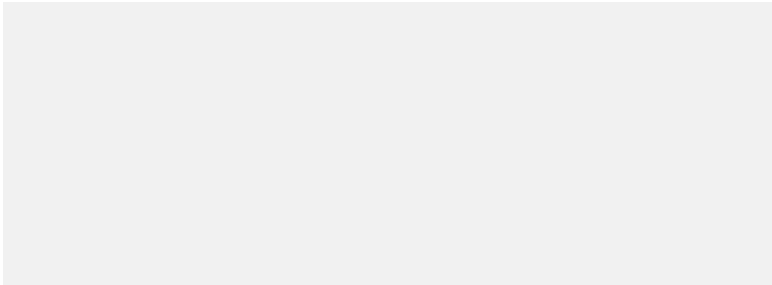
Closure Cost Estimate
User 3



Closure Cost Estimate
User 3



Closure Cost Estimate
User 3



Closure Cost Estimate

User 4

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

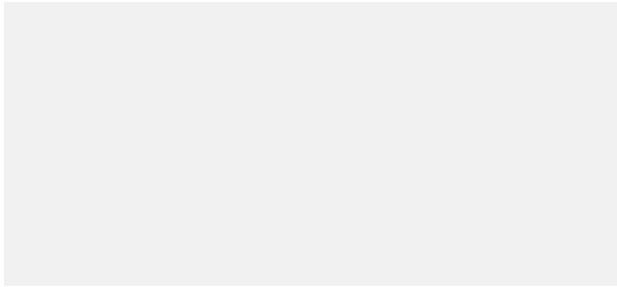
Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 4



Closure Cost Estimate

User 5

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

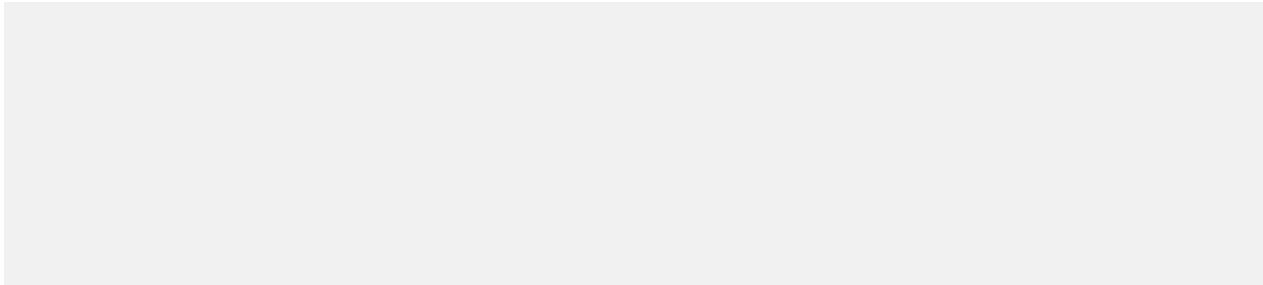
Model Version: Version 1.4.1

Cost Data: User Data

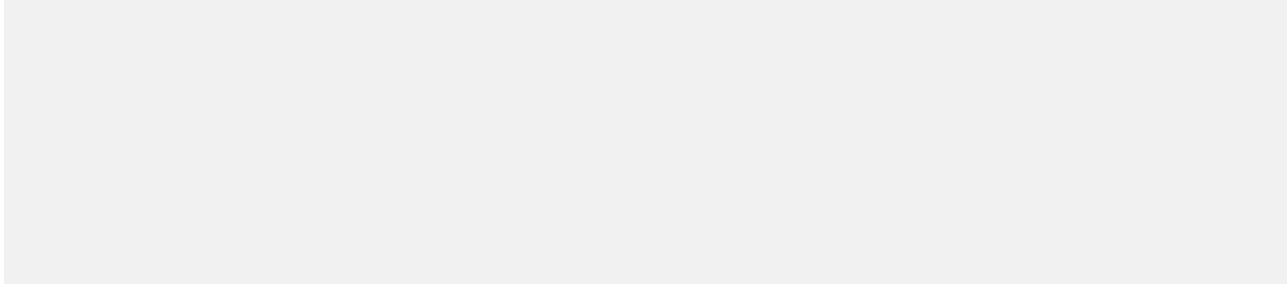
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

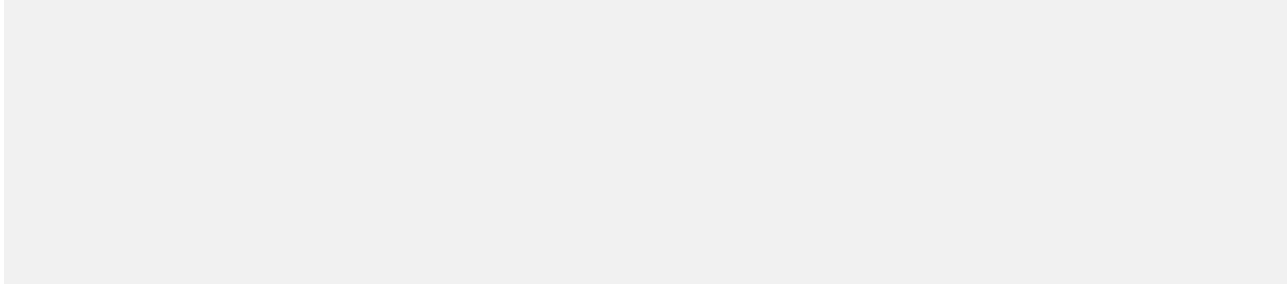
Closure Cost Estimate
User 5



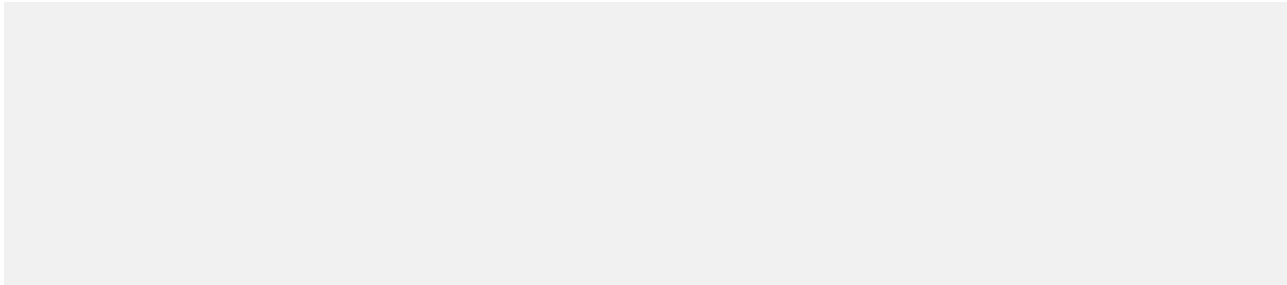
Closure Cost Estimate
User 5



Closure Cost Estimate
User 5

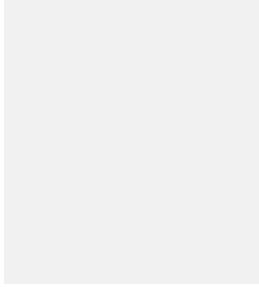


Closure Cost Estimate
User 5



Closure Cost Estimate

User 5



Closure Cost Estimate

User 6

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

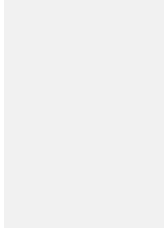
Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Closure Cost Estimate
User 6



Closure Cost Estimate

User 7

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

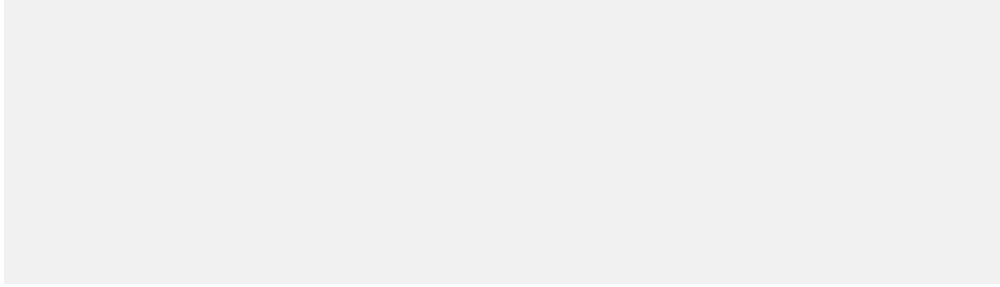
Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 7



Closure Cost Estimate

User 8

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 8



Closure Cost Estimate

User 9

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

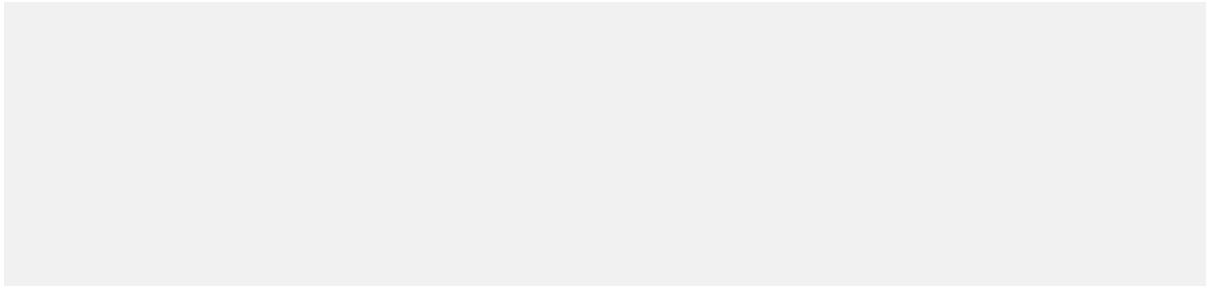
Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 9



Closure Cost Estimate

User 10

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 10



Closure Cost Estimate

User 11

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

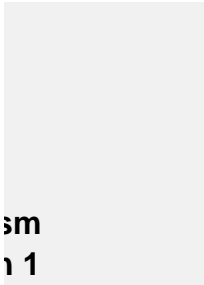
Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 11



sm
11

Closure Cost Estimate

User 12

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 12



Closure Cost Estimate

User 13

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

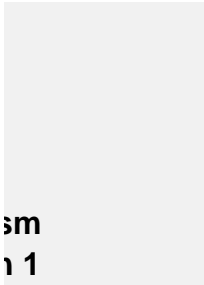
Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 13



Closure Cost Estimate

User 14

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 14



Closure Cost Estimate

User 15

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

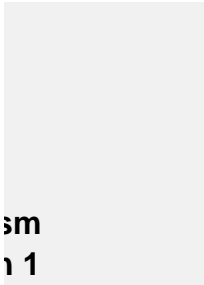
Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 15



sm
11

Closure Cost Estimate

User 16

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

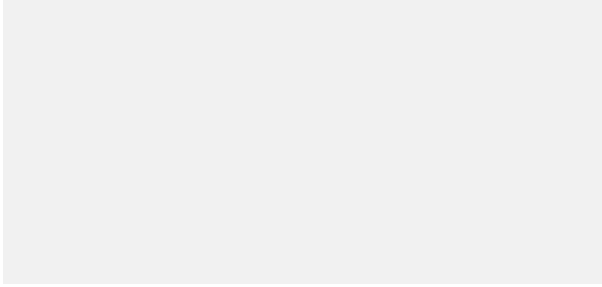
Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 16



Closure Cost Estimate

User 17

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

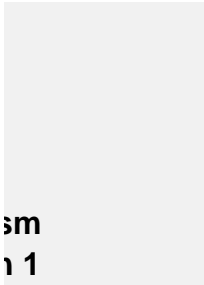
Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 17



sm
11

Closure Cost Estimate

User 18

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 18



Closure Cost Estimate

User 19

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

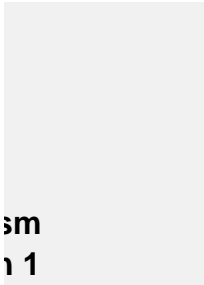
Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 19



sm
11

Closure Cost Estimate

User 20

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 1_Cost Estimate for Reclamation after Exploration.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

**Closure Cost Estimate
Property Information**

Enter Data Below in Green and Blue Spaces

STANDARDIZED RECLAMATION COST ESTIMATOR

Version 1.4.1
Build 017b (Revised 16 May 2019)

Approved for use in Nevada, August 1, 2012

COST DATA FILE INFORMATION	
File Name:	Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Cost Data File:	SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Data Date:	September 29, 2020
Cost Data Basis:	User Data Data Cost Units: Imperial
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coos

PROJECT INFORMATION			
Property/Mine Name:	Foothill Dolomite Mine	Property Code:	N/A
Project Name:	Foothill Dolomite Mine		
Date of Submittal:	09-29-2020	Average Altitude:	4865 ft.
Select One:	<input type="radio"/> Notice or Sm Exploration Plan <input type="radio"/> Lg Exploration Plan <input checked="" type="radio"/> Mine Operation		
Select One:	<input type="radio"/> Private Land <input checked="" type="radio"/> Public or Public/Private		
Cost Estimate Type:	Surety		
Cost Basis Category:	American Magnesium - Option 1		
	American Magnesium - Foothill Dolomite Mine - Northern Nevada Equipment		
Cost Basis Description:			

**Closure Cost Estimate
Table of Contents**

Project Name: Foothill Dolomite Mine

Project Date: 09-29-2020

**?_Cost Estimate for Reclamation at End of Mining.xlsm
Reclamation Plan**

Table of Contents

Property Information
Cost Summary
Exploration
Exploration Roads & Pads
Waste Rock Dumps
Heap Leach Pads
Tailings
Roads
Pits
Quarries & Borrow Pits
Underground Openings
Material Hauling
Foundations and Buildings
Other Demo & Equipment Removal
Sediment & Drainage Control
Process Ponds
Landfills
Yards, Etc.
Waste Disposal
Well Abandonment
Misc. Costs
Monitoring
Construction Management
Solution Management
Other User
Reclamation Quantities
Labor Costs
Equipment Costs
Material Costs
Misc. Unit Costs
Fleets (Crews)
Productivity
User Tools
Seed Mixture
User Sheet 1
User Sheet 2
User Sheet 3
User Sheet 4
User Sheet 5
User Sheet 6
User Sheet 7
User Sheet 8

Description

Closure Cost Estimate
Table of Contents

User Sheet 9
User Sheet 10
User Sheet 11
User Sheet 12
User Sheet 13
User Sheet 14
User Sheet 15
User Sheet 16
User Sheet 17
User Sheet 18
User Sheet 19
User Sheet 20

**Closure Cost Estimate
Cost Summary**

Project Name: Foothill Dolomite Mine

Project Date: 09-29-2020

Model Version: Version 1.4.1

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

A. Earthwork/Recontouring	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Exploration	\$0	\$0	\$0	\$0
Exploration Roads & Drill Pads	\$0	\$0	\$0	\$0
Roads	\$543	\$2,929	\$0	\$3,472
Well Abandonment	\$0	\$0	\$0	\$0
Pits	\$0	\$0	N/A	\$0
Quarries & Borrow Areas	#NAME?	#NAME?	\$0	#NAME?
Underground Openings	\$0	\$0	\$0	\$0
Process Ponds	\$0	\$0	\$0	\$0
Heaps	\$0	\$0	\$0	\$0
Waste Rock Dumps	\$0	\$0	\$0	\$0
Landfills	\$0	\$0	\$0	\$0
Tailings	\$0	\$0	\$0	\$0
Foundation & Buildings Areas	\$26	\$137	\$0	\$163
Yards, Etc.	\$793	\$4,108	\$0	\$4,901
Drainage & Sediment Control	\$0	\$0	\$0	\$0
Generic Material Hauling	\$0	\$0	\$0	\$0
Other User Costs (from Other User sheet)	\$0	\$0	\$271,364	\$271,364
Other**				\$0
Subtotal	#NAME?	#NAME?	\$271,364	#NAME?
Mob/Demob if included in Other User sheet	\$0	\$0	\$0	\$0
Mob/Demob				\$0
Subtotal "A"	#NAME?	#NAME?	\$271,364	#NAME?
B. Revegetation/Stabilization	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Exploration	\$0	\$0	\$0	\$0
Exploration Roads & Drill Pads	\$0	\$0	\$0	\$0
Roads	\$210	\$75	\$9,601	\$9,886
Well Abandonment			N/A	
Pits	\$0	\$0	\$0	\$0
Quarries & Borrow Areas	#NAME?	#NAME?	#NAME?	#NAME?
Underground Openings				N/A
Process Ponds	\$0	\$0	\$0	\$0
Heaps	\$0	\$0	\$0	\$0
Waste Rock Dumps	\$0	\$0	\$0	\$0
Landfills	\$0	\$0	\$0	\$0
Tailings	\$0	\$0	\$0	\$0
Foundation & Buildings Areas	\$140	\$50	\$640	\$830
Yards, Etc.	\$280	\$100	\$12,802	\$13,182
Drainage & Sediment Control	\$0	\$0	\$0	\$0
Generic Material Hauling	\$0	\$0	\$0	\$0
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Other**				\$0
Subtotal "B"	#NAME?	#NAME?	#NAME?	#NAME?
C. Detoxification/Water Treatment/Disposal of Wastes**	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Process Ponds/Sludge				\$0
Heaps				\$0
Dumps (Waste & Landfill)				\$0
Tailings				\$0
Surplus Water Disposal				\$0
Monitoring				\$0
Miscellaneous				\$0
Solid Waste - On Site	\$212	\$1,095	N/A	\$1,307
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Other**				\$0
Subtotal "C"	\$212	\$1,095	\$0	\$1,307
D. Structure, Equipment and Facility Removal, and Misc.	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Foundation & Buildings Areas	\$0	\$0	\$0	\$0
Other Demolition	\$0	\$0	\$0	\$0
Equipment Removal	\$4,000	\$7,000	\$0	\$11,000
Fence Removal	\$5,921	\$6,198		\$12,119
Fence Installation	\$0	\$0	\$0	\$0
Culvert Removal	\$0	\$0	N/A	\$0
Pipe Removal	\$0	\$0	N/A	\$0
Powerline Removal	\$0			\$0
Transformer Removal	\$0			\$0
Rip-rap, rock lining, gabions	\$0	\$0	\$0	\$0
Other Misc. Costs	\$0	\$0	\$0	\$0
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Other**				\$0
Subtotal "D"	\$9,921	\$13,198	\$0	\$23,119
E. Monitoring	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials	Total
Reclamation Monitoring and Maintenance	#NAME?	#NAME?	#NAME?	#NAME?
Ground and Surface Water Monitoring	\$0	\$0	\$0	\$0
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Subtotal "E"	#NAME?	#NAME?	#NAME?	#NAME?
F. Construction Management & Support	Labor	Equipment ⁽²⁾	Materials	Total
Construction Management	\$20,671	\$2,974	N/A	\$23,645
Construction Support	\$0	\$428	\$0	\$428
Road Maintenance	\$2,694	\$13,835	\$726	\$17,255
Other User Costs (from Other User sheet)	\$0	\$0	\$0	\$0
Other**				\$0
Subtotal "F"	\$23,365	\$17,237	\$726	\$41,328
Subtotal Operational & Maintenance Costs	Labor ⁽¹⁾	Equipment ⁽²⁾	Materials ⁽³⁾	Total
Subtotal A through F	#NAME?	#NAME?	#NAME?	#NAME?

**Closure Cost Estimate
Cost Summary**

Project Name: Foothill Dolomite Mine

Project Date: 09-29-2020

Model Version: Version 1.4.1

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

** Other Operator supplied costs - additional documentation required.

**Closure Cost Estimate
Cost Summary**

Project Name: Foothill Dolomite Mine

Project Date: 09-29-2020

Model Version: Version 1.4.1

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Indirect Costs					Include?	Total
1. Engineering, Design and Construction (ED&C) Plan (7)						#NAME?
2. Contingency (8)						#NAME?
3. Insurance (9)						#NAME?
4. Performance Bond (10)						#NAME?
5. Contractor Profit (11)						#NAME?
6. Contract Administration (12)						#NAME?
7. Government Indirect Cost (13)						#NAME?
Subtotal Add-On Costs						#NAME?
Total Indirect Costs as % of Direct Cost						#NAME?
GRAND TOTAL						#NAME?
Administrative Cost Rates (%)						
		Cost Ranges for Indirect Cost Percentages				
		<=	<=	<=	>	
1. Engineering, Design and Construction (ED&C) Plan (7)		\$1,000,000	\$25,000,000		\$25,000,000	Small Plan
Variable Rate		8%	6%		4%	0%
2. Contingency (8)		\$500,000	\$5,000,000	\$50,000,000	\$50,000,000	Small Plan
Variable Rate		10%	8%	6%	4%	0%
3. Insurance (9)		1.5%	of labor costs			
4. Bond (10)		3.0%	of the O&M costs if O&M costs are >\$100,000			
5. Contractor Profit (11)		10%	of the O&M costs			
6. Contract Administration (12)		<=	<=	<=	>	
Variable Rate		\$1,000,000	\$25,000,000		\$25,000,000	
0		10%	8%		6%	
		21%	of contract administration			

RECLAMATION COST ESTIMATION SUMMARY SHEET FOOTNOTES

1. Federal construction contracts require Davis-Bacon wage rates for contracts over \$2,000. Wage rate estimates may include base pay, payroll loading,
2. The reclamation cost estimate must include the estimated plugging cost of at least one drill hole for each active drill rig in the project area. Where the
3. Miscellaneous items should be itemized on accompanying worksheets.
4. Fluid management should be calculated only when mineral processing activities are involved. Fluid management represents the costs of maintaining
5. Handling of hazardous materials includes the cost of decontaminating, neutralizing, disposing, treating and/or isolating all hazardous materials used,
6. Any mitigation measures required in the Plan of Operations must be included in the reclamation cost estimate. Mitigation may include measures to avoid,
7. Engineering, design and construction (ED&C) plans are often necessary to provide details on the reclamation needed to contract for the required work. To
8. A contingency cost is included in the reclamation cost estimation to cover unforeseen cost elements. Calculate the contingency cost as a percentage of the
9. Insurance premiums are calculated at 1.5% of the total labor costs. Enter the premium amount if liability insurance is not included in the itemized unit
10. Federal construction contracts exceeding \$100,000 require both a performance and a payment bond (Miller Act, 40 USC 270et seq.). Each bond premium
11. For Federal construction contracts, use 10% of estimated O&M cost for the contractor's profit.
12. To estimate the contract administration cost, use 6 to 10% of the operational and maintenance (O&M) cost. Calculate the contract administration cost as a
13. Government indirect cost rate is 21% of the contract administration costs.

Closure Cost Estimate
Other User

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Other Cost Items Calculated Elsewhere												
	Description (required)	ID Code	Facility Type	Quantity	Units	Total Capital Cost \$	Material Unit Cost \$	Labor Unit Cost \$	Equipment/ Operating Unit Cost \$	Cost Type (select)	Total Cost \$	Comments
1	Topdressing Purchase and Hauling		Off Site - Other Load Out	18,529	1	\$70,658.00	\$10.83			A. Earthwork	\$271,364	
						\$70,658	\$200,706	\$0	\$0		\$271,364	

Notes: Capital cost is lump sum (i.e. not multiplied by the quantity).
Material, Labor and Equipment/Operating costs are unit costs (i.e. multiplied by the quantity).
Note: Assumes 20% discount on purchased soil for bulk discount at \$13.54/cy original Cost
Note: Assumes Capitol Cost as Delivery cost at \$3.50 per mile using an 18 cy dump truck at 19.6 miles for delivery.

**Closure Cost Estimate
Reclamation Quantities**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Data Cost File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Reclamation Quantity Summary																	
												Unit Costs					
	Description	Total Regrade or Haul Volume cy	Total Regrade or Haul Cost \$	Total Cover Volume cy	Cover Placement Cost \$	Total Growth Media Volume cy	Growth Media Placement Cost \$	Total Surface Area acres	Total Scarify Cost \$	Total Revetation Cost \$	TOTALS \$	Regrade Unit Cost \$/CY	Material Haul or Backfill Unit Cost \$/CY	Cover Unit Cost \$/CY	Growth Media Unit Cost \$/CY	Scarify Unit Cost \$/CY	Area Unit Cost \$/acre
1	Waste Rock Dumps		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
2	Tailings Impoundments		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
3	Heap Leach Pads		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
5	Open Pits		\$ -							\$ -	\$ -		N/A				
4	Quarries & Borrow Pits		\$ -	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?		N/A	#NAME?	#NAME?	#NAME?	#NAME?
6	Roads		\$ -			2,420	\$ 3,309	1.5	\$ 163	\$ 9,886	\$ 13,358		N/A		\$1.37	\$108.67	\$8,905.33
7	Landfills		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -		N/A				
8	Buildings		\$ -		\$ -		\$ -	0.1	\$ 163	\$ 830	\$ 993		N/A			\$1,630.00	\$9,930.00
9	Yards		\$ -		\$ -	3,227	\$ 4,574	2	\$ 327	\$ 13,182	\$ 18,083		N/A		\$1.42	\$163.50	\$9,041.50
10	Ponds		\$ -				\$ -			\$ -	\$ -	N/A					
11	Exploration Roads		\$ -				\$ -	2.93	\$ -	\$ -	\$ -		N/A			\$0.00	\$0.00
12	Exploration Trenches		\$ -							\$ -	\$ -		N/A				
13	Diversion Ditches		\$ -							\$ -	\$ -		N/A				
14	Sediment Ponds		\$ -				\$ -		\$ -	\$ -	\$ -						
15	Generic Haulage/Backfill		\$ -		\$ -		\$ -		\$ -	\$ -	\$ -	N/A					
16	Adit/Decline Backfilling1		\$ -								\$ -	N/A					
17	Shaft Backfilling		\$ -								\$ -	N/A					
TOTALS		-	\$ -	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?						
Average Costs		per CY		per CY	#NAME?	per CY	#NAME?	per acre	#NAME?	#NAME?	#NAME?	per acre					

Closure Cost Estimate Exploration

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration - Cost Summary				
	Labor	Equipment	Materials	Totals
Hole Abandonment Costs	\$0	\$0	\$0	\$0
Trench Backfilling Costs	\$0	\$0	\$0	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Trench Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Exploration Drillhole Abandonment - User Input										
Facility Description			Hole Plugging							
	Description (required)	ID Code	Hole Type (select)	Diameter in	Total Number of Holes	Max Holes Open at One Time	Casing to Remove ft	Average Depth of Hole ⁽¹⁾ ft bgs	Depth to Water ft bgs	Hole Plug Method (select)
1	Exploration Boreholes	N/A	Rotary Pre-dri	3.0	86.0	0.0	0.0	100.0	250.0	Grout Only

Notes:

1. If core holes are pre-drilled, use length of hole below pre-drilled length
2. If Top Plug is selected, assumes maximum 1/2hr laborer time to place plug and backfill with cuttings/soil (including move-to/set up time).

Note: Exploration Boreholes will be mined out during life of mine and not be present for final reclamation.

Closure Cost Estimate Exploration

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

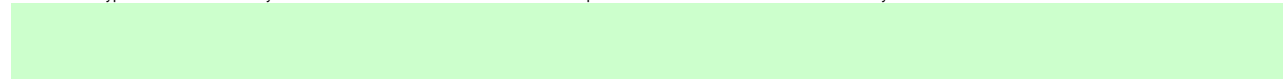
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration - Cost Summary				
	Labor	Equipment	Materials	Totals
Hole Abandonment Costs	\$0	\$0	\$0	\$0
Trench Backfilling Costs	\$0	\$0	\$0	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Trench Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Exploration Trenches - User Input													
Facility Description			Trench Parameters					Backfill			Revegetation		
Description (required)	ID Code		Trench Length ft	Trench Depth ft	Trench Bottom Width ft	Trench Sideslope Angle degrees	Additional Hrs for Walk-in ⁽¹⁾ hr	Backfill Material (select)	Cut Material Type (select)	Backfilling Fleet (select)	Seed Mix (select)	Mulch (select)	Fertilizer (select)

Notes:

1. Include one-way hours necessary to walk equipment in from drop-off point to work area
2. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table



Closure Cost Estimate Exploration

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration - Cost Summary				
	Labor	Equipment	Materials	Totals
Hole Abandonment Costs	\$0	\$0	\$0	\$0
Trench Backfilling Costs	\$0	\$0	\$0	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Trench Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Exploration Drillhole Abandonment														
	Description (required)	Vol/foot of depth ft3	Hole Plugging Material ⁽¹⁾	Total Grout Volume ⁽²⁾ cy	Total Cuttings Volume cy	Total Top Seal Volume ^(3,4) cy	Total Drillhole Abandon. Hours ^(6,7) hrs	Casing Removal Labor Cost ⁽⁵⁾ \$	Casing Removal Equipment Cost \$	Plugging Labor Cost \$	Plugging Equipment Cost \$	Plugging Material Cost \$	Top Seal Material Cost ^(2,3) \$	Total Cost ^(6,7) \$
1	Exploration Boreholes	0.050	Cuttings	0.19			3	\$0	\$0	\$0	\$0	\$0	\$0	\$0
				0.19			3	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Notes:

1. Assumes grout backfill from bottom of hole to 50' (15.24m) above static water level, up to 10' (3m) from top of hole
2. Assumes 25% loss to formation for grout backfill
3. If "Top Plug" hole plug method is used, assumes physical plug installed without backfill, grout or cement. Not available option for Nevada projects
4. Assumes top 20' (6 m) of hole is plugged with cement if "Grout Only", "Backfill + Grout", or "Cement Plug" hole plug method are chosen.
5. Assumes that a) casing is not cemented entire length, b) does not include temporary surface casing
6. Assumes minimum 1 hr per hole for abandonment (excluding move-to and casing removal)
7. Assumes fixed hours per hole for setup & tear-down and moving between holes (see Productivity Sheet) per drill hole (includes rig time if grouting required, labor crew only if cuttings backfill only)

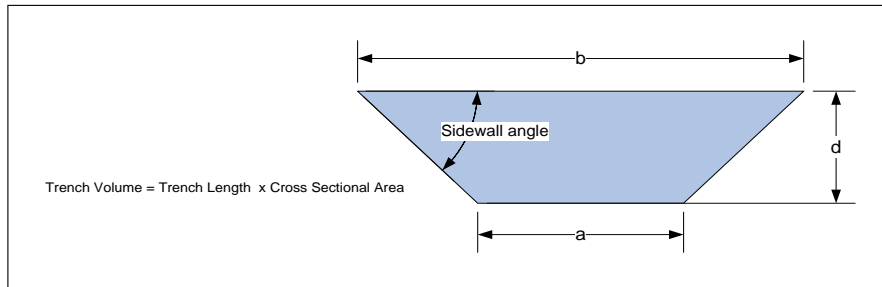
Closure Cost Estimate Exploration

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration - Cost Summary				
	Labor	Equipment	Materials	Totals
Hole Abandonment Costs	\$0	\$0	\$0	\$0
Trench Backfilling Costs	\$0	\$0	\$0	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Trench Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Exploration Trenches - Calculations

Exploration Trench Volume Calculation



Dozing & Ripping/Scarifying Calculations

Dozing: Dozing distance = 1/2 trench length or 400 ft (max push) whichever is less
 Assumes flat push (grade correction factor = 1)

Revegetation: 10 ft added to trench width to account for revegetation under spoil pile

**Closure Cost Estimate
Exploration**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration - Cost Summary				
	Labor	Equipment	Materials	Totals
Hole Abandonment Costs	\$0	\$0	\$0	\$0
Trench Backfilling Costs	\$0	\$0	\$0	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Trench Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Exploration Trenches - Backfill/Regrading Costs												
Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83)												
	Description (required)	Trench Backfill Volume	Dozer Push Distance	Equipment Productivity	Dozing Material	Density Correction	Backfilling Fleet	Corrected Hourly Productivity	Total Dozer Hours	Trench Backfill Labor Cost	Trench Backfill Equipment Cost	Total Trench Backfill Cost
		LCY (BCY+30%)	ft	yd3/hr				yd3/hr	hr	\$	\$	\$
										\$0	\$0	\$0

**Closure Cost Estimate
Exploration**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration - Cost Summary				
	Labor	Equipment	Materials	Totals
Hole Abandonment Costs	\$0	\$0	\$0	\$0
Trench Backfilling Costs	\$0	\$0	\$0	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Trench Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Exploration Trenches - Revegetation Costs						
	Description (required)	Surface Area acres	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
			\$0	\$0	\$0	\$0

**Closure Cost Estimate
Expl. Roads & Pads**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration Roads & Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0		\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Exploration Roads & Pads - User Input																	
You must fill in ALL green cells and relevant blue cells in this section for each road																	
Facility Description			Physical (1) - MANDATORY										User Overrides		Growth Media		
	Description (required)	ID Code	Underlying Ground Slope % grade	Ungraded Slope _H:1V	Cut Slope degrees	Road + Drill Pad Length ft	Road Width ft	Number of Drill Pads	Individual Sump Volume cy	Drill Pad Width ft	Drill Pad Length ft	Slope Replacement Percent %	Regrade Volume (if calculated elsewhere) cy	Disturbed Area (if calculated elsewhere) acres	Growth Media Thickness ft	Distance to Growth Media Stockpile ft	Slope from Road to Stockpile % grade
1	Exploration Roads	N/A	15.0	2.0	66.7	0	12.0	86	0	12.0	10	115%		2.93	12	1,379	15.0

Notes:

1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. Slope replacement refers to the percentage of cut volume replaced during regrading.
3. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)
4. Sump volume will be applied to all roads on slopes <20%. On slopes >20% pad width (i.e. cut volume) should be adequate to account for sump volume.

Note: Exploration Roads will be mined out during life of mine and not be present for final reclamation.

Closure Cost Estimate Expl. Roads & Pads

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration Roads & Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0		\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Exploration Roads & Pads - User Input (cont.)														
You must fill in ALL green cells and relevant blue cells in this section for each road														
		Grading				Growth Media				Revegetation				
	Description (required)	Regrade Material Condition (select)	Cut Material Type (select)	Recontouring Equipment Fleet (select)	Additional Hrs for Walk-in ⁽¹⁾	Growth Media Material Type (select)	Growth Media Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Additional Hrs for Walk-in ⁽¹⁾	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarifying/ Ripping? (select)	Ripping Fleet (select)
1	Exploration Roads													

Notes:

1. Include one-way hours necessary to walk equipment in from drop-off point to work area
2. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Closure Cost Estimate Expl. Roads & Pads

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

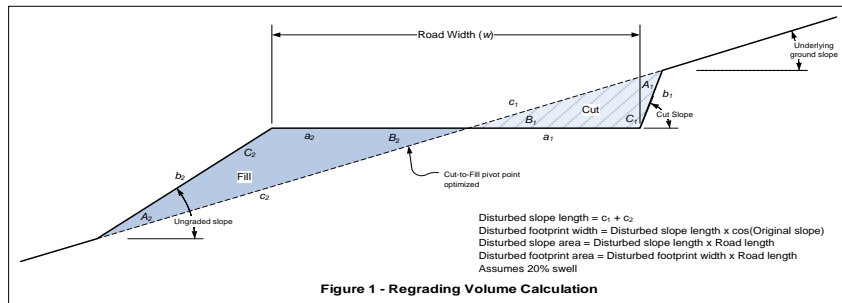
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration Roads & Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0		\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Exploration Roads & Pads - Calculations

Regrading Volume and Footprint Volume



Will not allow dozer for slopes greater than 30%
 For dozer regrading push distance = road width
 Assumes dozer push is uphill
 Assumes minimum push distance of 100 ft

Swell Factor: 1.2

Ripping/Scarifying Calculations

Minimum 1 hr ripping/scarifying time per area
 Number of passes = Final slope length \div Grader width
 Travel distance = Number of passes \times Road length
 Total hours = (Travel distance \div Grader productivity) + (Number of passes \times Grader maneuver time)
 For dozer regrading assumes push distance = 3 \times road width

Revegetation Calculations

Minimum of 1 acre crew time per area

Closure Cost Estimate
Expl. Roads & Pads

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

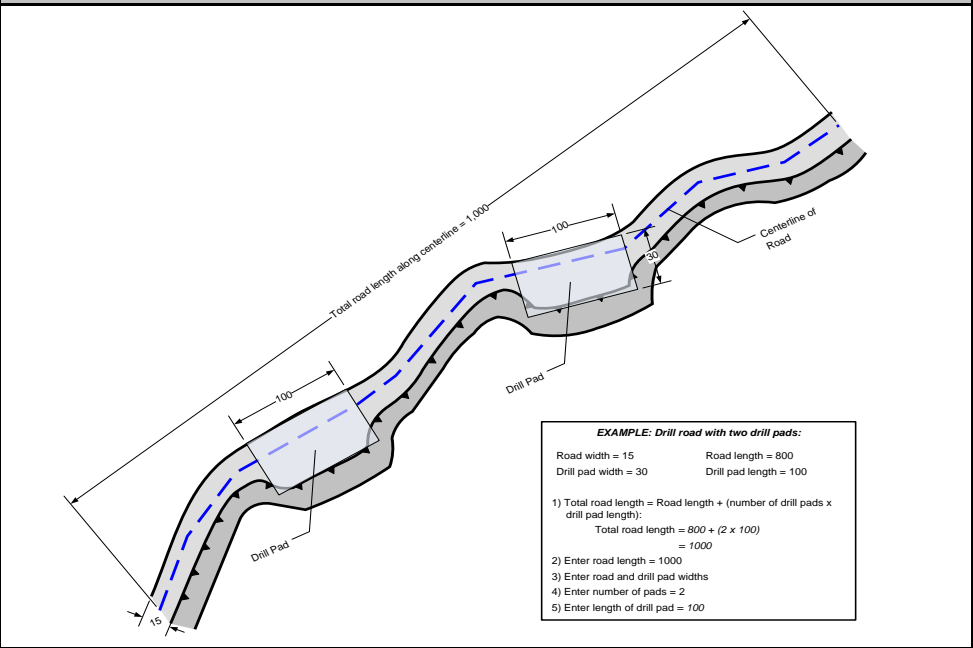
Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration Roads & Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0		\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Inputting Exploration Roads and Drill Pads



Closure Cost Estimate
Expl. Roads & Pads

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration Roads & Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0		\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Exploration Roads & Pads - Regrading Costs										
	Description (required)	Total Road Length ft	Total Drill Pad Length ft	Regrading Volume cy	Recontouring Fleet	Equipment Productivity cy/hr	Total Equipment Hours ⁽¹⁾ hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
1	Exploration Roads	Excess Pads!	860			Material Type!		\$0	\$0	\$0
			860					\$0	\$0	\$0

(1) Includes walk-in time based on distance and travel speed (see Productivity sheet for speeds)

Closure Cost Estimate
Expl. Roads & Pads

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration Roads & Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0		\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Exploration Roads & Pads - Growth Media Costs									
	Description (required)	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$
1	Exploration Roads	0					\$0	\$0	\$0
							\$0	\$0	\$0

Closure Cost Estimate
Expl. Roads & Pads

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Exploration Roads & Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0		\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Exploration Roads & Pads - Scarifying/Revegetation Costs											
	Description (required)	Surface Area acres	Ripping/ Scarifying Fleet	Ripping Hours hrs	Ripping Labor Costs \$	Ripping Equipment Cost \$	Total Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
1	Exploration Roads	2.93						\$0	\$0	\$0	\$0
		2.93			\$0	\$0	\$0	\$0	\$0	\$0	\$0

Closure Cost Estimate
Waste Rock Dumps

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost		\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Waste Rock Dumps - User Input																					
You must fill in ALL green cells in this section for each dump, lift or dump category																					
Facility Description				Physical - MANDATORY										Cover				Growth Media			
	Description (required)	ID Code	Type	Underlying Ground Slope % Grade	Ungraded Slope _H:1V	Final Slope _H:1V	Final Top Slope % Grade	Lift (dump) Height ft	Mid-Bench Length ft	Average Flat Area Long Dimension (ripping distance) ft	Final (Regraded) Dump Footprint acres	Regrade Volume (1) (if calculated elsewhere) cy	Cover Thickness Slopes in	Cover Thickness Flat Areas in	Distance from Cover Borrow ft	Slope from Dump to Cover Borrow % grade	Slope Growth Media Thickness in	Flat Area Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Dump to Stockpile % grade	

- Notes:
- 1. All Physical parameters must be input even if manual overrides for volume or area are used.
 - 2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)



Closure Cost Estimate
Waste Rock Dumps

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost		\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Waste Rock Dumps - User Input (cont.)																		
You must fill in ALL green cells and relevant blue cells in this section for each dump, lift or dump category																		
Grading					Cover		Growth Media		Revegetation									
Description (required)	Regrading Material Condition (select)	Regrading Material Type (select)	Regrading Equipment Fleet (select)	Slot/Side-by- Side (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Seed Mix Slopes (select)	Seed Mix Areas (select)	Flat Slopes (select)	Mulch Slopes (select)	Mulch Flat Areas (select)	Fertilizer Slopes (select)	Fertilizer Flat Areas (select)	Slope Scarify/ Rip? (select)	Flat Area Scarify/ Rip? (select)	Scarify/ Ripping Fleet (select)

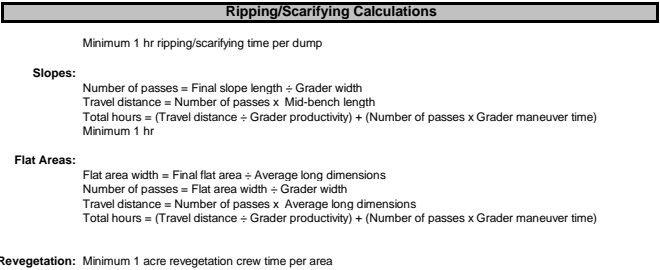
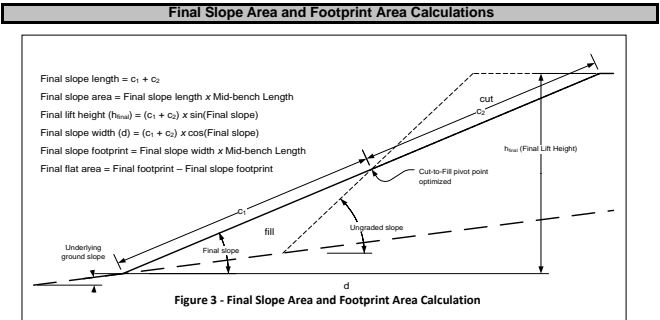
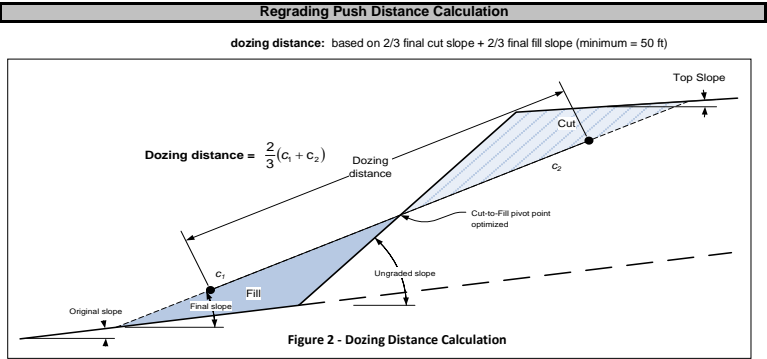
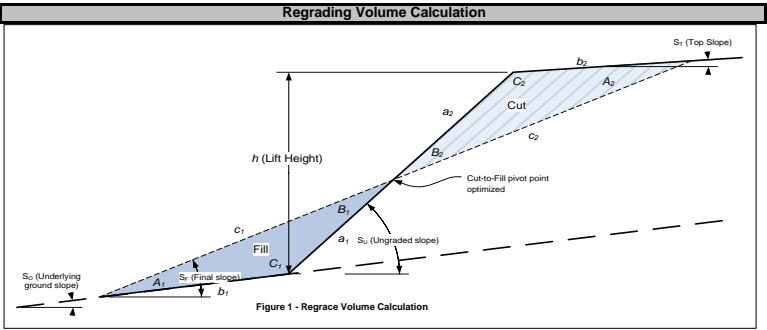
Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Closure Cost Estimate
Waste Rock Dumps

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Waste Rock Dumps - Calculations



**Closure Cost Estimate
Waste Rock Dumps**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost		\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Waste Rock Dumps - Regrading Costs														
Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side) x (Altitude Deration)														
	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Grade Correction	Dozing Material	Density Correction	Side-by-Side or Slot Dozing	Total Hourly Productivity cy/hr	Total Dozer Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
												\$0	\$0	\$0

**Closure Cost Estimate
Waste Rock Dumps**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost		\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Waste Rock Dumps - Cover and Growth Media Costs																	
		Cover (lower layer)								Growth Media Placement							
	Description (required)	Cover Volume cy	Cover Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Cover Labor Cost \$	Cover Equipment Cost \$	Total Cover Cost \$	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity BCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$
							\$0	\$0	\$0						\$0	\$0	\$0

**Closure Cost Estimate
Waste Rock Dumps**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost		\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Waste Rock Dumps - Scarifying/Revegetation Costs																
	Description (required)	Slope Area acres	Flat Area acres	Total Surface Area acres	Final Slope Length ft	Flat Area Long Dimension ft	Ripping/ Scarifying Fleet	Slope Scarifying/ Ripping Hours hrs	Flat Area Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
												\$0	\$0	\$0	\$0	\$0

Notes: 1) Minimum total ripping hours = 1 (i.e. If total ripping hrs (slope + flat) < 1, then one hour of fleet time is assumed, regardless of acres shown in in scarifying table.)

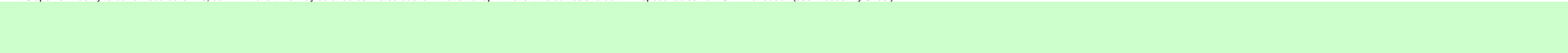
Closure Cost Estimate
Heap Leach

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
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Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Heap Leach Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Drain Installation	\$0	\$0	\$0	\$0
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Heap Leach Pads - User Input																					
Facility Description				Physical (1) - MANDATORY										Cover				Growth Media			
You must fill in ALL green cells and relevant blue cells in this section for each heap, lift or heap category																					
Description (required)	ID Code	Type		Underlying Ground Slope % grade	Ungraded Slope _H:1V	Final Slope _H:1V	Final Top Slope % grade	Lift (heap) Height ft	Mid-Bench Length ft	Average Flat Area Long Dimension (ripping distance) ft	Final (Regraded) Heap Footprint acres	Regrade Volume (if calculated elsewhere) cy		Cover Thickness Slopes in	Cover Thickness Flat Areas in	Distance from Cover Borrow ft	Slope from Heap to Cover Borrow % grade	Slope Growth Media Thickness in	Flat Area Growth Media Thickness in	Distance from Growth Material Stockpile ft	Slope from Heap to Stockpile % grade

- Notes:
- 1. All Physical parameters must be input even if manual overrides for volume or area are used.
 - 2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)



Closure Cost Estimate
Heap Leach

Project Name: Foothill Dolomite Mine - Reclamation Plan
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Heap Leach Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Drain Installation	\$0	\$0	\$0	\$0
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Heap Leach Pads - User Input (cont.)																			
You must fill in ALL green cells and relevant blue cells in this section for each heap, lift or heap category																			
	Description (required)	Grading				Cover		Growth Media		Revegetation									
		Regrading Material Condition (select)	Regrading Material Type (select)	Regrading Equipment Fleet (select)	Slot/ Side-by-Side (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Seed Mix Slopes (select)	Seed Mix Flat Areas (select)	Flat	Mulch Slopes (select)	Mulch Flat Areas (select)	Fertilizer Slopes (select)	Fertilizer Flat Areas (select)	Slope Scarify/ Rip? (select)	Flat Area Scarify/ Rip? (select)	Scarifying/ Ripping Fleet (select)

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Closure Cost Estimate
Heap Leach

Project Name: Foothill Dolomite Mine - Reclamation Plan
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Heap Leach Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Drain Installation	\$0	\$0	\$0	\$0
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Heap Leach Pads - User Input (cont.)												
		Solution Collection Ditch Fill							Piping			
	Description (required)	Collection Ditch Length ft	Collection Ditch Top Width ft	Collection Ditch Depth ft	Volume (if calculated elsewhere) cy	Distance from Borrow ft	Slope to Borrow % grade	Drain Rock Equipment Fleet (select)	Solid Pipe Length ft	Solid Pipe Type (select)	Drainage Pipe Length ft	Drainage Pipe Type (select)

Notes:

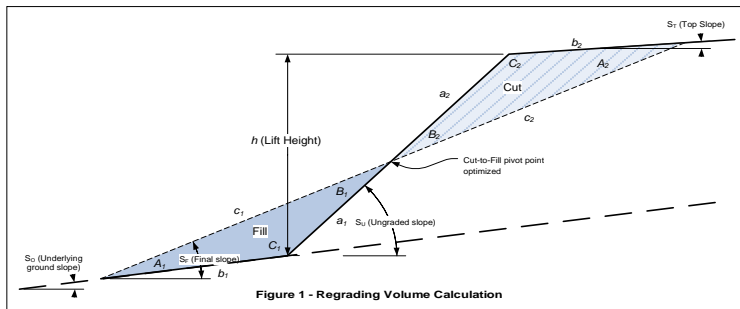
Closure Cost Estimate Heap Leach

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Heap Leach Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Drain Installation	\$0	\$0	\$0	\$0
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

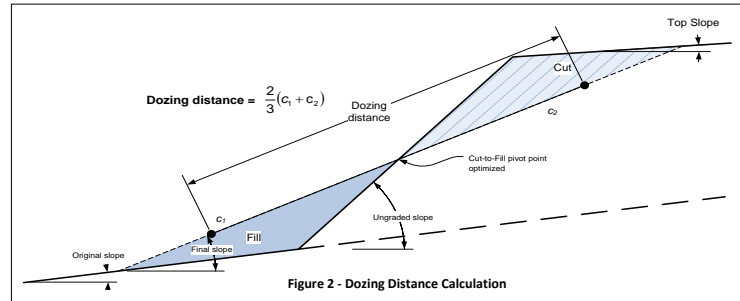
Heap Leach Pads - Calculations

Regrading Volume Calculation



Regrading Push Distance Calculation

dozing distance: based on 2/3 final cut slope + 2/3 final fill slope (minimum = 50 ft)



Ripping/Scarifying Calculations

Minimum 1 hr ripping/scarifying per area

Slopes:

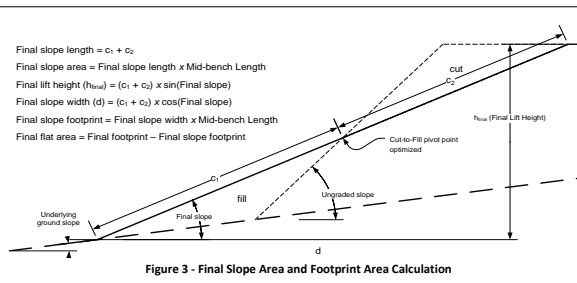
Number of passes = Final slope length ÷ Grader width
Travel distance = Number of passes x Mid-bench length
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)

Flat Areas:

Flat area width = Final flat area ÷ Average long dimensions
Number of passes = Flat area width ÷ Grader width
Travel distance = Number of passes x Average long dimensions
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)

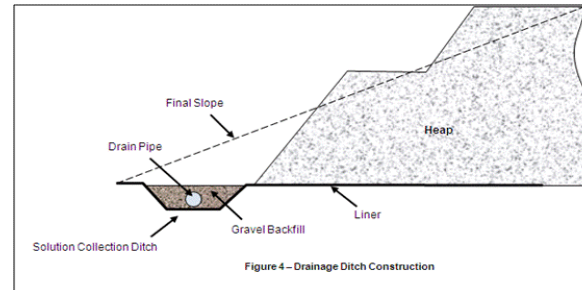
Revegetation: Minimum 1 acre revegetation crew time per area

Final Slope Area and Footprint Area Calculations



Solution Collection Ditch Calculations

Use when existing heap material is not suitable drain rock
Assume to be constructed in existing solution channels
Assume 2H:1V ditch sideslopes
Drain rock assumed to be Gravel - Dry at 2,550 lb/cy (1,510 kg/m³) from CAT Handbook 35th Ed.



**Closure Cost Estimate
Heap Leach**

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Heap Leach Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Drain Installation	\$0	\$0	\$0	\$0
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Heap Leach Pad - Drainage Channel Fill & Drainage Pipe Installation														
		Drain Rock Placement							Drainpipe Installation					
	Description (required)	Drain Rock Volume cy	Drain Rock Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours hrs	Drainage Labor Cost \$	Drainage Equipment Cost \$	Total Drainage Cost \$	Piping Crew Hours hrs	Piping Labor Cost \$	Piping Equipment Cost \$	Piping Material Cost \$	Total Pipe Installation Cost \$
						0	\$0	\$0	\$0		\$0	\$0	\$0	\$0

**Closure Cost Estimate
Heap Leach**

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Heap Leach Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Drain Installation	\$0	\$0	\$0	\$0
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Heap Leach Pad - Regrading Costs														
Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side) x (Altitude Deration)														
	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Grade Correction	Dozing Material	Density Correction	Side-by-Side or Slot Dozing	Total Hourly Productivity cy/hr	Total Dozer Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
												\$0	\$0	\$0

**Closure Cost Estimate
Heap Leach**

Project Name: Foothill Dolomite Mine - Reclamation Plan
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Heap Leach Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Drain Installation	\$0	\$0	\$0	\$0
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Heap Leach Pad - Cover and Growth Media Costs																		
		Cover (lower layer)								Growth Media Placement								
Description (required)	Cover Volume cy	Cover Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Cover Labor Cost \$	Cover Equipment Cost \$	Total Cover Cost \$	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity BCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$		
						\$0	\$0	\$0						\$0	\$0	\$0		

Closure Cost Estimate
Heap Leach

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Heap Leach Pads - Cost Summary				
	Labor	Equipment	Materials	Totals
Drain Installation	\$0	\$0	\$0	\$0
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Heap Leach Pad - Scarifying/Revegetation Costs																
	Description (required)	Slope Area acres	Flat Area acres	Total Surface Area acres	Final Slope Length ft	Flat Area Long Dimension ft	Ripping/ Scarifying Fleet	Slope Scarifying/ Ripping Hours hrs	Flat Area Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
										\$0	\$0	\$0	\$0	\$0	\$0	\$0

1) Minimum total ripping hours = 1 (i.e. If total ripping hrs (slope + flat) < 1, then one hour of fleet time is assumed, regardless of acres shown in in scarifying table.)

Bond Calculation
Tailings

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

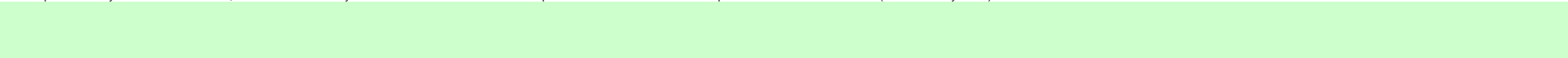
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Tailings - Cost Summary				
	Labor	Equipment	Materials	Totals
Embankment Regrading Cost	\$0	\$0	N/A	\$0
Tailings Surface Grading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Tailings - User Input																	
You must fill in ALL green cells and relevant blue cells in this section for each tailings impoundment																	
Facility Description			Physical - MANDATORY								Cover				Growth Media		
	Description (required)	ID Code	Underlying Ground Slope % Grade	Ungraded Slope _H:1V	Final (Regraded) Embankment Slope _H:1V	Final Embankment Height ft	Final Tailings Surface Area acres	Mid- Embankment or Ripping Length ft	Embankment Regrade Volume (if calculated elsewhere) cy	Surface Regrade Volume (calculated elsewhere) cy	Embankment Cover Thickness in	Tailings Surface Cover Thickness in	Distance from Cover Borrow ft	Slope from Tailings to Borrow % grade	Embankment Growth Media Thickness in	Tailings Surface Growth Media Thickness in	Distance from Growth Material Stockpile ft

- Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
 2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)



Bond Calculation
Tailings

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

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Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Tailings - Cost Summary				
	Labor	Equipment	Materials	Totals
Embankment Regrading Cost	\$0	\$0	N/A	\$0
Tailings Surface Grading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Tailings - User Input (cont.)		You must fill in ALL green cells and relevant blue cells in this section for each tailings impoundment															
		Grading				Cover		Growth Media		Revegetation							
	Description (required)	Regrading Material Condition (select)	Embankment Material Type (select)	Regrading Equipment Fleet (select)	Slot/Side-by- Side (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Seed Mix Embankment Slope (select)	Seed Mix Tailings Surface (select)	Mulch Embankment Slopes (select)	Mulch Tailings Surface (select)	Fertilizer Embankment Slopes (select)	Fertilizer Tailing Surface (select)	Embankment Slope Scarify/ Rip? (select)	Tailings Surface Scarify/ Rip? (select)

Notes:

1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Bond Calculation Tailings

Project Name: Foothill Dolomite Mine - Reclamation Plan

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Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Tailings - Cost Summary

	Labor	Equipment	Materials	Totals
Embankment Regrading Cost	\$0	\$0	N/A	\$0
Tailings Surface Grading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Tailings - Calculations

Surface Area Calculations

Top Surface Area provided by user

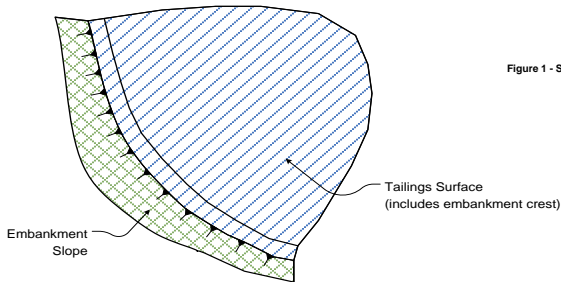


Figure 1 - Surface Areas

Final Slope Area and Footprint Area Calculations

$$\text{Overall slope length (c)} = \frac{\text{Embankment height}}{\cos(\text{Overall slope angle})}$$

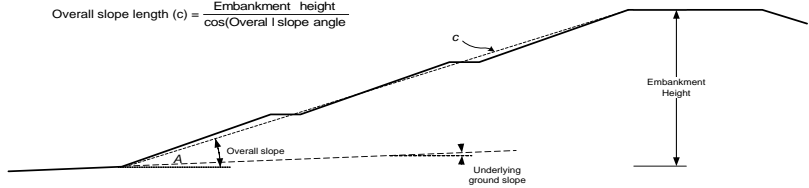


Figure 2 - Final Slope Area and Footprint Area Calculation

Grading Calculations

Grading assumed on impoundment surface only, not embankment
Average push distance assumed to be 2/3 of the 600 feet maximum from Caterpillar Handbook or 400 feet
Material assumed to be loose stockpile (1.2 productivity factor)
Dozing density correction based on dry sand = $2300/2400 = 0.96$
Slope assumed to be 0 to 5% (1.0 productivity factor)

Ripping/Scarifying/Revegetation Calculation

Minimum 1 hr ripping/scarifying per area
Minimum 1 acre revegetation crew time per area

Regrading Volume Calculation

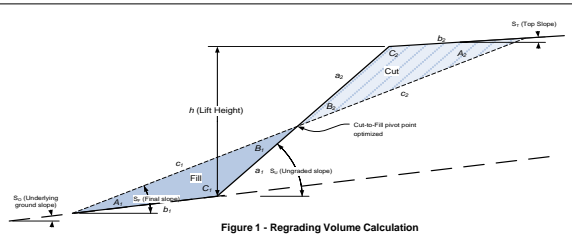


Figure 1 - Regrading Volume Calculation

Regrading Push Distance Calculation

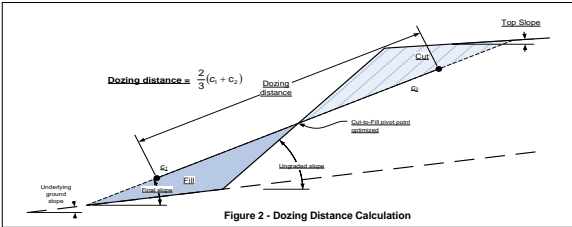


Figure 2 - Dozing Distance Calculation

Bond Calculation
Tailings

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Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Tailings - Cost Summary				
	Labor	Equipment	Materials	Totals
Embankment Regrading Cost	\$0	\$0	N/A	\$0
Tailings Surface Grading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Tailings - Embankment Regrading Costs														
Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side) x (Altitude Deration)														
	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Grade Correction	Dozing Material Condition	Density Correction	Side-by-Side or Slot Dozing	Total Hourly Productivity cy/hr	Total Dozer Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
												\$0	\$0	\$0

Bond Calculation
Tailings

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Tailings - Cost Summary				
	Labor	Equipment	Materials	Totals
Embankment Regrading Cost	\$0	\$0	N/A	\$0
Tailings Surface Grading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Tailings - Surface Regrading Costs														
Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side) x (Altitude Deration)														
	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Grade Correction	Density Correction	Dozing Material	Side-by-Side or Slot Dozing	Total Hourly Productivity cy/hr	Total Dozer Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
												\$0	\$0	\$0

**Bond Calculation
Tailings**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Tailings - Cost Summary				
	Labor	Equipment	Materials	Totals
Embankment Regrading Cost	\$0	\$0	N/A	\$0
Tailings Surface Grading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Tailings - Cover and Growth Media Costs																	
Description (required)		Cover Placement							Growth Media Placement								
		Cover Volume cy	Cover Placement Fleet	Cover Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Cover Placement Cost \$	Growth Media Volume cy	Growth Media Placement Fleet	Growth Media Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$
							\$0	\$0	\$0						\$0	\$0	\$0

Bond Calculation Tailings

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

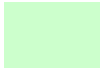
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Tailings - Cost Summary				
	Labor	Equipment	Materials	Totals
Embankment Regrading Cost	\$0	\$0	N/A	\$0
Tailings Surface Grading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Tailings - Scarifying/Revegetation Costs															
	Description (required)	Embankment Slope Area acres	Tailings Surface Area acres	Total Surface Area acres	Final Slope Length ft	Ripping/ Scarifying Fleet	Slope Scarifying/ Ripping Hours hrs	Flat Area Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Cost \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Cost \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
									\$0	\$0	\$0	\$0	\$0	\$0	\$0

Bond Calculation
Tailings

Slope from Tailings to Stockpile % grade



Bond Calculation
Tailings

Scarifying/ Ripping Fleet (select)

**Bond Calculation
Tailings**

**Bond Calculation
Tailings**

**Bond Calculation
Tailings**

**Bond Calculation
Tailings**

**Bond Calculation
Tailings**

Closure Cost Estimate Roads

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Roads - Cost Summary			
	Labor	Equipment	Materials
Grading Costs	\$0	\$0	N/A
Cover Placement Cost	\$517	\$2,792	N/A
Ripping/Scarifying Cost	\$26	\$137	N/A
Subtotal Earthworks	\$543	\$2,929	\$3,472
Revegetation Cost	\$210	\$75	\$9,601
TOTALS	\$753	\$3,004	\$9,601

Roads - User Input														
You must fill in ALL green cells and relevant blue cells in this section for each road														
Facility Description				Physical (1) - MANDATORY						User Overrides		Growth Media		
	Description (required)	ID Code	Type	Underlying Ground Slope % grade	Ungraded Slope _H:1V	Cut Slope degrees	Road Width ft	Road Length ft	Slope Replacement Percent %	Regrade Volume (if calculated elsewhere) cy	Disturbed Area (if calculated elsewhere) acres	Growth Media Thickness in	Haul Distance from Growth Media Stockpile ft	Slope from Road to Stockpile % grade
1	Access Roads		Haul Road	2.0	3.0	50.0	16.0	1,350	115%		1.50	12.0	1,379	-2%

Notes:

1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)
3. Because the work required for building roads with a dozer is similar to that required to regrade a road with a dozer, this sheet could be used to provide a rough estimate of road construction costs if a dozer is selected as the grading fleet.

Note: Assumes any improvements made to existing BML road will be left in place and not require reclamation.

Closure Cost Estimate Roads

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Roads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$517	\$2,792	N/A	\$3,309
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$543	\$2,929		\$3,472
Revegetation Cost	\$210	\$75	\$9,601	\$9,886
TOTALS	\$753	\$3,004	\$9,601	\$13,358

Roads - User Input (cont.)						
Haul Road Safety Berms						
	Description (required)	Berm Length ft	Berm Height ft	Berm Base Width ft	Berm Sideslope Angle _H:1V	Number of Berms (2) (1 or 2 sides)
1	Access Roads	0.0	2.0	6.0	1.3	2

(2) Enter 1 if berm on only one side of road, 2 if both sides of road are bermed.

Closure Cost Estimate Roads

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Roads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$517	\$2,792	N/A	\$3,309
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$543	\$2,929		\$3,472
Revegetation Cost	\$210	\$75	\$9,601	\$9,886
TOTALS	\$753	\$3,004	\$9,601	\$13,358

Roads - User Input (cont.)													
You must fill in ALL green cells and relevant blue cells in this section for each road													
		Grading				Growth Media			Revegetation				
	Description (required)	Regrading Material Condition (select)	Regrading Material Type (select)	Regrading Equipment Fleet (select)	No. of Excavators if grade >30% (select)	Growth Media Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarifying/ Ripping? (select)	Ripping Fleet (select)
1	Access Roads	1	Alluvium	Sm Dozer		Alluvium	Small Truck		User Mix 1	Straw Mulch	None	Yes	Small Dozer

Notes:

1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table
2. If original slope >30% only excavators are allowed.

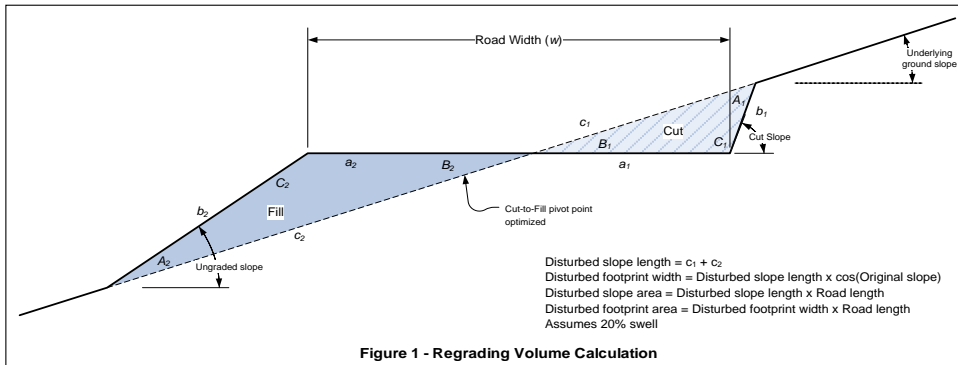
Closure Cost Estimate Roads

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Roads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$517	\$2,792	N/A	\$3,309
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$543	\$2,929		\$3,472
Revegetation Cost	\$210	\$75	\$9,601	\$9,886
TOTALS	\$753	\$3,004	\$9,601	\$13,358

Roads - Calculations

Regrading Volume and Footprint Volume



Will not allow dozer for slopes greater than 30%
 For dozer regrading push distance = road width
 Assumes dozer push is uphill
 Assumes minimum push distance of 100 ft

Ripping/Scarifying Calculations

Minimum 1 hr ripping/scarifying time per area
 Number of passes = Final slope length ÷ Grader width
 Travel distance = Number of passes x Road length
 Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)
 For dozer regrading assumes push distance = 3 x road width

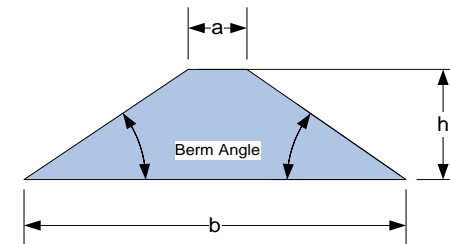
Revegetation Calculations

Minimum of 1 acre crew time per area

Safety Berm Volume Calculation

$$\text{Cross Sectional Area} = \frac{(a+b)}{2} \times h$$

$$\text{Berm Volume} = \text{Berm Length} \times \text{Cross Sectional Area} \times \text{No. Sides}$$



Total berm volume doubled if both sides of road are bermed.
 If length of berm on each side of road is different, input total length of both berms and input 1 for number of sides

Closure Cost Estimate Roads

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Roads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$517	\$2,792	N/A	\$3,309
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$543	\$2,929		\$3,472
Revegetation Cost	\$210	\$75	\$9,601	\$9,886
TOTALS	\$753	\$3,004	\$9,601	\$13,358

Roads - Regrading Costs								
	Description (required)	Regrading Volume cy	Recontouring Fleet	Fleet Productivity cy/hr	Total Fleet Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
1	Access Roads	0				\$0	\$0	\$0
						\$0	\$0	\$0

Closure Cost Estimate Roads

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Roads - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$517	\$2,792	N/A	\$3,309
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$543	\$2,929		\$3,472
Revegetation Cost	\$210	\$75	\$9,601	\$9,886
TOTALS	\$753	\$3,004	\$9,601	\$13,358

Roads - Growth Media Costs									
	Description (required)	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$
1	Access Roads	2,420	725/966G/D7R	548	3	4	\$517	\$2,792	\$3,309
		2,420				4	\$517	\$2,792	\$3,309

Closure Cost Estimate Roads

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Roads - Cost Summary			
	Labor	Equipment	Totals
Grading Costs	\$0	\$0	N/A
Cover Placement Cost	\$517	\$2,792	N/A
Ripping/Scarifying Cost	\$26	\$137	N/A
Subtotal Earthworks	\$543	\$2,929	\$3,472
Revegetation Cost	\$210	\$75	\$9,601
TOTALS	\$753	\$3,004	\$9,601

Roads - Scarifying/Revegetation Costs												
	Description (required)	Total Surface Area acres	Final Slope Length ft	Ripping/ Scarifying Fleet	Ripping Hours hrs	Ripping Labor Costs \$	Ripping Equipment Cost \$	Total Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
1	Access Roads	1.50	48.0	D7R	1	\$26	\$137	\$163	\$210	\$75	\$9,601	\$9,886
		1.50			1	\$26	\$137	\$163	\$210	\$75	\$9,601	\$9,886

Closure Cost Estimate
Pits

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Pits - Cost Summary				
	Labor	Equipment	Materials	Totals
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Safety Berm Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Pits - User Input																		
Facility Description				Pit Berms					Berm Construction		Excavate or Doze	Hauling (if selected method)				Revegetation		
	Description (required)	ID Code	Type	Berm (or Highwall) Length ft	Berm Height ft	Berm Base Width ft	Berm Sideslope Angle _H:1V	Volume (if calculated elsewhere) cy	Construction Method (select)	Berm Material Type (select)	Berm Construction Equipment Fleet (select)	Berm Hauling Fleet (select)	Distance to Borrow Source ft	Slope to Borrow Source % grade	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)

- Notes:
- 1. All Physical parameters must be input even if manual overrides for volume or area are used.
 - 2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)
 - 3. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table



**Closure Cost Estimate
Pits**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Pits - Cost Summary				
	Labor	Equipment	Materials	Totals
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Safety Berm Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Pits - Calculations

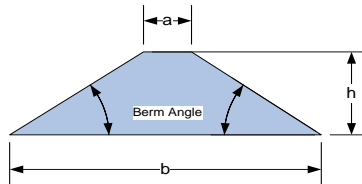
Safety Berm Volume Calculation

$$\text{Cross Sectional Area} = \frac{(a + b)}{2} \times h$$

$$\text{Berm Volume} = \text{Berm Length} \times \text{Cross Sectional Area}$$

Dozer productivity assumes push distance of:

100 feet



Dozer:

Length x (Berm Base Width + Dozer Push Distance) - accounts for disturbance created in borrow area

Excavator:

Length x (Berm Base Width + (2 x Excavator Track Width)) - accounts for disturbance created in borrow area

Haul & Place:

Length x Berm Base Width - if necessary use Yards sheet to account for disturbance created in borrow area

Revegetation Calculations

Minimum 1 acre revegetation crew time per area

Closure Cost Estimate
Pits

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Pits - Cost Summary				
	Labor	Equipment	Materials	Totals
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Safety Berm Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Pits - Safety Berm Construction Costs									
Safety Berm									
	Description (required)	Safety Berm Volume cy	Selected Fleet	Number of Trucks/ Scrapers	Corrected Fleet Productivity cy/hr	Total Hours	Safety Berm Labor Cost \$	Safety Berm Equipment Cost \$	Total Safety Berm Cost \$
							\$0	\$0	\$0

Closure Cost Estimate
Pits

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Pits - Cost Summary				
	Labor	Equipment	Materials	Totals
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Safety Berm Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Pits - Safety Berms - Revegetation Costs						
	Description (required)	Flat Area acres	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
			\$0	\$0	\$0	\$0

**Closure Cost Estimate
Quarries & Borrow Pits**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	#NAME?	#NAME?	N/A	#NAME?
Topsoil Placement Cost	#NAME?	#NAME?	N/A	#NAME?
Ripping/Scarifying Cost	#NAME?	\$0	N/A	#NAME?
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Subtotal Earthwork	#NAME?	#NAME?	\$0	#NAME?
Revegetation Cost	#NAME?	#NAME?	#NAME?	#NAME?
Safety Berm Revegetation Cost	\$140	\$50	\$0	\$190
	#NAME?	#NAME?	#NAME?	#NAME?
TOTALS	#NAME?	#NAME?	#NAME?	#NAME?

Quarries & Borrow Pits - User Input																					
Facility Description				Physical - MANDATORY										Cover				Growth Media			
	Description (required)	ID Code	Type	Underlying Ground Slope % Grade	Ungraded Slope H:1V	Final Slope H:1V	Final Top Slope % Grade	Bench or Highwall Height ft	Mid-Bench Length ft	Average Flat Area Long Dimension (ripping distance) ft	Final (Regraded) Footprint acres	Regrade Volume (1) (if calculated elsewhere) cy	Cover Thickness Slopes in	Cover Thickness Flat Areas in	Distance from Cover Borrow ft	Slope from Dump to Cover Borrow % grade	Slope Growth Media Thickness in	Flat Area Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Dump to Stockpile % grade	
1	Main Quarry		Quarry	1.0	3.0	3.0	1.0	20	8,411	1,089	21.75		0.0	0.0	1,379	-2.0	12.0	12.0	1,379	-2.0	

- Notes:
1. All Physical parameters must be input even if manual overrides for volume or area are used.
 2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)

**Closure Cost Estimate
Quarries & Borrow Pits**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	#NAME?	#NAME?	N/A	#NAME?
Topsoil Placement Cost	#NAME?	#NAME?	N/A	#NAME?
Ripping/Scarifying Cost	#NAME?	\$0	N/A	#NAME?
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Subtotal Earthwork	#NAME?	#NAME?	\$0	#NAME?
Revegetation Cost	#NAME?	#NAME?	#NAME?	#NAME?
Safety Berm Revegetation Cost	\$140	\$50	\$0	\$190
	#NAME?	#NAME?	#NAME?	#NAME?
TOTALS	#NAME?	#NAME?	#NAME?	#NAME?

Quarries & Borrow Pits - User Input (cont.)																			
You must fill in ALL green cells and relevant blue cells in this section for each dump, lift or dump category																			
		Grading				Cover		Growth Media		Revegetation									
	Description (required)	Regrading Material Condition (select)	Regrading Material Type (select)	Regrading Equipment Fleet (select)	Slot/Side-by-Side (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Seed Mix Slopes (select)	Seed Mix Flat Areas (select)	Flat Slopes (select)	Mulch Flat Areas (select)	Fertilizer Slopes (select)	Fertilizer Flat Areas (select)	Slope Scarify/Rip? (select)	Flat Area Scarify/Rip? (select)	Scarify/Ripping Fleet (select)	
1	Main Quarry	0.8	LS - broken	Small		Alluvium	Small Truck	Alluvium	Small Truck	User Mix 1	User Mix 1		Straw Mulch	Straw Mulch	None	None	Yes	Yes	Small Dozer

Notes:
 1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Closure Cost Estimate Quarries & Borrow Pits

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	#NAME?	#NAME?	N/A	#NAME?
Topsoil Placement Cost	#NAME?	#NAME?	N/A	#NAME?
Ripping/Scarifying Cost	#NAME?	\$0	N/A	#NAME?
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Subtotal Earthwork	#NAME?	#NAME?	\$0	#NAME?
Revegetation Cost	#NAME?	#NAME?	#NAME?	#NAME?
Safety Berm Revegetation Cost	\$140	\$50	\$0	\$190
TOTALS	#NAME?	#NAME?	#NAME?	#NAME?

Quarries & Borrow Pits - User Input (cont.)																
Facility Description		Highwall Berms					Berm Construction		Excavate or Doze	Hauling (if selected method)				Revegetation		
	Description (required)	Berm (or Highwall) Length ft	Berm Height ft	Berm Base Width ft	Berm Sideslope Angle _H:1V	Volume (if calculated elsewhere) cy	Construction Method (select)	Berm Material Type (select)	Berm Construction Equipment Fleet (select)	Berm Hauling Fleet (select)	Distance to Borrow Source ft	Slope to Borrow Source % grade	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)
1	Main Quarry	3,917.0	0.0	0.0	2.0		Haul & Place	Alluvium	Small	Small Truck	1,379	-5.0		User Mix 1	Straw Mulch	None

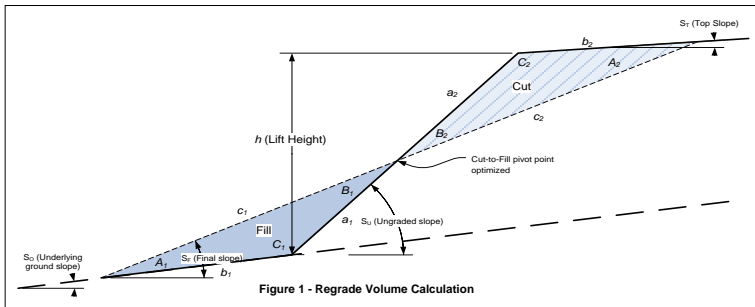
Notes:

1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)
3. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Note: Assumes no berm will be required due to regraded 3:1 slopes.

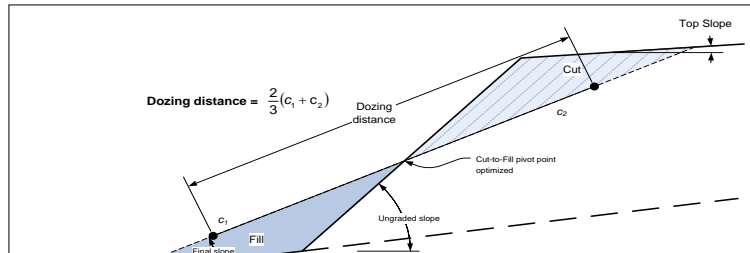
Quarries & Borrow Pits - Calculations

Regrading Volume Calculation

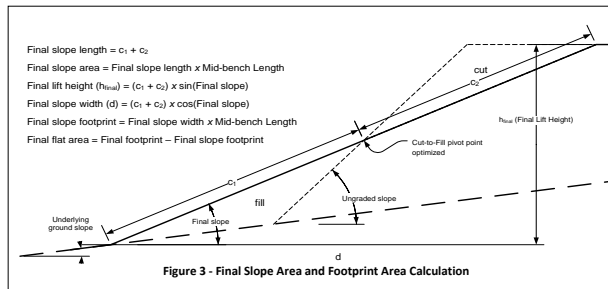


Regrading Push Distance Calculation

dozing distance: based on 2/3 final cut slope + 2/3 final fill slope (minimum = 50 ft)



Final Slope Area and Footprint Area Calculations



Ripping/Scarifying Calculations

Minimum 1 hr ripping/scarifying time per dump

Slopes:

Number of passes = Final slope length ÷ Grader width
Travel distance = Number of passes x Mid-bench length
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)
Minimum 1 hr

Flat Areas:

Flat area width = Final flat area ÷ Average long dimensions
Number of passes = Flat area width ÷ Grader width
Travel distance = Number of passes x Average long dimensions
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)

Revegetation: Minimum 1 acre revegetation crew time per area

**Closure Cost Estimate
Quarries & Borrow Pits**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	#NAME?	#NAME?	N/A	#NAME?
Topsoil Placement Cost	#NAME?	#NAME?	N/A	#NAME?
Ripping/Scarifying Cost	#NAME?	\$0	N/A	#NAME?
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Subtotal Earthwork	#NAME?	#NAME?	\$0	#NAME?
Revegetation Cost	#NAME?	#NAME?	#NAME?	#NAME?
Safety Berm Revegetation Cost	\$140	\$50	\$0	\$190
TOTALS	#NAME?	#NAME?	#NAME?	#NAME?

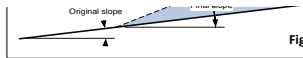


Figure 2 - Dozing Distance Calculation

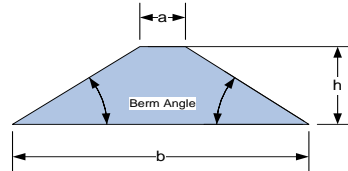
Safety Berm Volume Calculation

$$\text{Cross Sectional Area} = \frac{(a + b)}{2} \times h$$

$$\text{Berm Volume} = \text{Berm Length} \times \text{Cross Sectional Area}$$

Dozer productivity assumes push distance of:

100 feet



Dozer:

Length x (Berm Base Width + Dozer Push Distance) - accounts for disturbance created in borrow area

Excavator:

Length x (Berm Base Width + (2 x Excavator Track Width)) - accounts for disturbance created in borrow area

Haul & Place:

Length x Berm Base Width - if necessary use Yards sheet to account for disturbance created in borrow area

**Closure Cost Estimate
Quarries & Borrow Pits**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
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 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	#NAME?	#NAME?	N/A	#NAME?
Topsoil Placement Cost	#NAME?	#NAME?	N/A	#NAME?
Ripping/Scarifying Cost	#NAME?	\$0	N/A	#NAME?
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Subtotal Earthwork	#NAME?	#NAME?	\$0	#NAME?
Revegetation Cost	#NAME?	#NAME?	#NAME?	#NAME?
Safety Berm Revegetation Cost	\$140	\$50	\$0	\$190
	#NAME?	#NAME?	#NAME?	#NAME?
TOTALS	#NAME?	#NAME?	#NAME?	#NAME?

Quarries & Borrow Pits - Regrading Costs														
Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side) x (Altitude Deration)														
	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Grade Correction	Dozing Material	Density Correction	Side-by-Side or Slot Dozing	Total Hourly Productivity cy/hr	Total Dozer Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
1	Main Quarry	0		D7R								\$0	\$0	\$0
												\$0	\$0	\$0

**Closure Cost Estimate
Quarries & Borrow Pits**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
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 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	#NAME?	#NAME?	N/A	#NAME?
Topsoil Placement Cost	#NAME?	#NAME?	N/A	#NAME?
Ripping/Scarifying Cost	#NAME?	\$0	N/A	#NAME?
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Subtotal Earthwork	#NAME?	#NAME?	\$0	#NAME?
Revegetation Cost	#NAME?	#NAME?	#NAME?	#NAME?
Safety Berm Revegetation Cost	\$140	\$50	\$0	\$190
	#NAME?	#NAME?	#NAME?	#NAME?
TOTALS	#NAME?	#NAME?	#NAME?	#NAME?

Quarries & Borrow Pits - Cover and Growth Media Costs																	
		Cover (lower layer)								Growth Media Placement							
	Description (required)	Cover Volume cy	Cover Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Cover Labor Cost \$	Cover Equipment Cost \$	Total Cover Cost \$	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity BCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$
1	Main Quarry	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?
		#NAME?				#NAME?	#NAME?	#NAME?	#NAME?	#NAME?				#NAME?	#NAME?	#NAME?	#NAME?

**Closure Cost Estimate
Quarries & Borrow Pits**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
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 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Rock Dumps - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	#NAME?	#NAME?	N/A	#NAME?
Topsoil Placement Cost	#NAME?	#NAME?	N/A	#NAME?
Ripping/Scarifying Cost	#NAME?	\$0	N/A	#NAME?
Safety Berm Construction Cost	\$0	\$0	N/A	\$0
Subtotal Earthwork	#NAME?	#NAME?	\$0	#NAME?
Revegetation Cost	#NAME?	#NAME?	#NAME?	#NAME?
Safety Berm Revegetation Cost	\$140	\$50	\$0	\$190
	#NAME?	#NAME?	#NAME?	#NAME?
TOTALS	#NAME?	#NAME?	#NAME?	#NAME?

Quarries & Borrow Pits - Scarifying/Revegetation Costs																
	Description (required)	Slope Area acres	Flat Area acres	Total Surface Area acres	Final Slope Length ft	Flat Area Long Dimension ft	Ripping/ Scarifying Fleet	Slope Scarifying/ Ripping Hours hrs	Flat Area Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
1	Main Quarry	#NAME?	#NAME?	#NAME?	#NAME?	1,089	D7R	#NAME?	#NAME?	#NAME?	\$0	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?
		#NAME?	#NAME?	#NAME?				#NAME?	#NAME?	#NAME?	\$0	#NAME?	#NAME?	#NAME?	#NAME?	#NAME?

Notes: 1) Minimum total ripping hours = 1 (i.e. If total ripping hrs (slope + flat) < 1, then one hour of fleet time is assumed, regardless of acres shown in in scarifying table.)

Closure Cost Estimate
Underground Openings

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Underground Openings Cost Summary				
	Labor	Equipment	Materials	Totals
Adits, Portals & Declines Plugging	\$0	\$0	\$0	\$0
Shaft Backfill/Cover	\$0	\$0	N/A	\$0
Shaft Capping	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Adits, Portals & Declines - User Input										
Facility Description			Physical Characteristics				Backfill Material			
	Description (required)	ID Code	Height ft	Width ft	Backfill/ Plug Type	Distance to Bulkhead ft	Backfill Material Condition (select)	Backfill Material Type (select)	Distance to Backfill Borrow ft	Slope from Adit to Borrow Area % grade

Notes: 1) Foam (adit) option is for smaller openings that can be plugged with simple forms and a 5 ft thick plug.
2) Foam (production) option is for larger production openings (declines, etc.) and requires larger form construction and minimum 10 ft thick plug.
3) All foam plugs include minimum 15ft of backfill from opening to plug.
4) Bat gate option is for small openings and the material cost is the same for any size opening.
5) Backfilling assumes that small dozer will push material from nearby stockpile or dump
6) Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table



Closure Cost Estimate
Underground Openings

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Underground Openings Cost Summary				
	Labor	Equipment	Materials	Totals
Adits, Portals & Declines Plugging	\$0	\$0	\$0	\$0
Shaft Backfill/Cover	\$0	\$0	N/A	\$0
Shaft Capping	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Shaft Openings - User Input											
You must fill in ALL green cells and relevant blue cells in this section for each shaft											
Facility Description			Physical Characteristics			Backfill or Foundation Cover					
	Description (required)	ID Code	Diameter ft	Shaft Depth (for backfill method) ft	Backfill/ Plug Type (select)	Backfill Material Type (select)	Cover/ Backfill Fleet (select)	Thickness (if not complete backfill) ft	Distance to Backfill Borrow ft	Slope from Shaft to Borrow Area % grade	Maximum Fleet Size (user override)

Notes:

1. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)
2. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Closure Cost Estimate Underground Openings

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

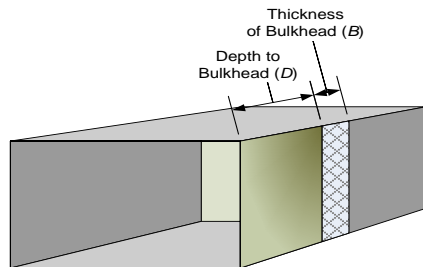
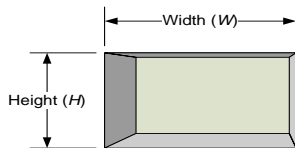
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Underground Openings Cost Summary				
	Labor	Equipment	Materials	Totals
Adits, Portals & Declines Plugging	\$0	\$0	\$0	\$0
Shaft Backfill/Cover	\$0	\$0	N/A	\$0
Shaft Capping	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Underground Openings - Calculations

Adits, Declines and Portals - Volume Calculations



Cross-Sectional Area (A) = $W \times H$
 Volume of Concrete Bulkhead = $A \times B$
 Volume of Backfill = $A \times D$

Concrete Cover/Bulkhead Volume Calculation

Using Means Heavy Construction Cost Data (2004)

Estimate cover/bulkhead thickness
 Assumes that all concrete works are reinforced
 Productivity for crew from Means Heavy Construction Cost Data (2004) adjusted for supervision
 (addressed in Misc. Costs) and Davis-Bacon Wage Rates
 Assumes 18 in thick slab

Backfill Calculations

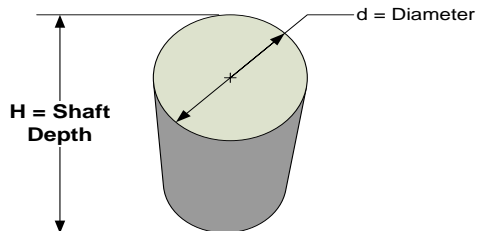
Uses 1 large and 1 small dozer for adit backfill

Assumes max 400 foot push
 Assumes average operator and 50 min/hr availability

Uses truck & loader load, haul place fleets for shafts

Concrete cap will be 1.5 feet thick, reinforced, structurally supported.
 If concrete cap is used, assume 10 feet of rock backfill on top of cap.
 Assumes that all concrete works are reinforced
 If backfill is used, assume overfill by 5 feet
 Carpenter rate incl Fringe: per hour

Shaft Volume Calculations



Radius (r) = $\frac{1}{2}d$
 Cross-Sectional Area (A) = πr^2
 Volume = $A \times H$

Closure Cost Estimate Underground Openings

Project Name: Foothill Dolomite Mine - Reclamation Plan
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 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Underground Openings Cost Summary				
	Labor	Equipment	Materials	Totals
Adits, Portals & Declines Plugging	\$0	\$0	\$0	\$0
Shaft Backfill/Cover	\$0	\$0	N/A	\$0
Shaft Capping	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Adits, Portals & Declines Plugging																			Uses RS Means Heavy Construction Cost Data for bulkhead production rate, material costs and crews									
						Bulkhead Construction				Backfill or Foam (1)				Bat Gate or Culvert (2,3,4)														
	Description (required)	Bulkhead Volume cy	Backfill (rock) Volume cy	Backfill Equipment Fleet	Backfill Productivity LCY/hr	Backfill Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Material Cost \$	Total Bulkhead Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Material (Foam) Cost \$	Total Backfill Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Material Cost \$	Total Bat Gate Cost \$										
							\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										

Notes:

- 1) Foam costs include 1 hour move to and setup + 1 hr. minimum crew time
- 2) Assumes 1 hr walk-in/walk-out time for equipment
- 3) Batgate assumes 8 hr install time each
- 4) Bat culvert backfill costs based on one 8-hr day (i.e. backfilling hours = 8 hrs).

**Closure Cost Estimate
Underground Openings**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
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 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Underground Openings Cost Summary				
	Labor	Equipment	Materials	Totals
Adits, Portals & Declines Plugging	\$0	\$0	\$0	\$0
Shaft Backfill/Cover	\$0	\$0	N/A	\$0
Shaft Capping	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Shaft Plugging														
		Cover/Cap										Backfill/Cover		
	Description (required)	Cover Area ft2	Backfill or Cover Volume cy	Backfill Equipment Fleet	Number of Trucks	Backfill Productivity LCY/hr	Backfill Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Material Cost \$	Total Shaft Cap Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Backfill Cost \$
								\$0	\$0	\$0	\$0	\$0	\$0	\$0

Closure Cost Estimate
Underground Openings

Closure Cost Estimate
Underground Openings

Closure Cost Estimate
Underground Openings

Closure Cost Estimate
Underground Openings

Total Labor Cost \$
\$0

Closure Cost Estimate
Underground Openings

Closure Cost Estimate
Haul Material

Project Name: Foothill Dolomite Mine - Reclamation Plan
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Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Generic Material Hauling - Cost Summary				
	Labor	Equipment	Materials	Totals
Hauling/Crush/Screen/Compact	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Generic Material Hauling - User Input																		
Facility Description				Physical		Hauled Material			Crushing & Screening					Cover			Growth Medi	
	Description (required)	ID Code	Type	Final Surface Area acres	Average Ripping Distance ft	Material Volume Required cy	Distance from Borrow Source (1) ft	Slope to Borrow Source % grade	Crush Material	Screen Material	Loss to Crushing/ Screening %	Distance to Placement Location (2) ft	Slope to Placement % grade	Cover Thickness in	Distance to Cover Borrow ft	Slope to Borrow % grade	Growth Media Thickness in	Distance to Growth Material Stockpile ft

- Notes:
- 1. Input distance to crusher if material to be crushed
 - 2. Input distance from crusher to placement if material to be crushed
 - 3. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)



Closure Cost Estimate
Haul Material

Project Name: Foothill Dolomite Mine - Reclamation Plan
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Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Generic Material Hauling - Cost Summary				
	Labor	Equipment	Materials	Totals
Hauling/Crush/Screen/Compact	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Generic Material Hauling - User Input (cont.)																
		Hauling Material				Cover			Growth Media			Revegetation				
	Description (required)	Haul Material Type (select)	Material Hauling Fleet (select)	Each Fleet Size (from/to crusher) (user override)	Compact After Placement?	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch Type (select)	Fertilizer Type (select)	Scarify/ Rip? (select)	Scarifying/ Ripping Fleet (select)

Notes:
1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Closure Cost Estimate
Haul Material

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Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Generic Material Hauling - Cost Summary				
	Labor	Equipment	Materials	Totals
Hauling/Crush/Screen/Compact	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Generic Material Hauling - Load, Haul, Place and Grade													
		Material Haulage							Crush and/or Compact				
	Description (required)	Material Volume to Crusher cy	Final Material Volume cy	Material Haulage Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Hauling Labor Cost \$	Hauling Equipment Cost \$	Total Crush/ Screen Cost \$	Compact Labor Cost \$	Compact Equipment Cost \$	Total Load/Haul/ Place Cost \$
								\$0	\$0	\$0	\$0	\$0	\$0

Notes: Final Material Volume includes allowance for additional material hauled to crushing/screening plant based on Loss to Crushing/Screening input above.

Closure Cost Estimate
Haul Material

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
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Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Generic Material Hauling - Cost Summary				
	Labor	Equipment	Materials	Totals
Hauling/Crush/Screen/Compact	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Generic Material Hauling - Cover and Growth Media Costs																	
		Cover Placement								Growth Media Placement							
	Description (required)	Cover Volume cy	Cover Placement Fleet	Cover Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Cover Placement Cost \$	Growth Media Volume cy	Growth Media Placement Fleet	Growth Media Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$
							\$0	\$0	\$0						\$0	\$0	\$0

Closure Cost Estimate
Haul Material

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Generic Material Hauling - Cost Summary				
	Labor	Equipment	Materials	Totals
Hauling/Crush/Screen/Compact	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Generic Material Hauling - Scarifying/Revegetation Costs											
	Description (required)	Total Surface Area acres	Ripping/ Scarifying Fleet	Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Cost \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Cost \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
					\$0	\$0	\$0	\$0	\$0	\$0	\$0

Closure Cost Estimate
Haul Material

a
Slope to Stockpile % grade

Closure Cost Estimate
Haul Material

Closure Cost Estimate
Haul Material

Closure Cost Estimate
Haul Material

Closure Cost Estimate
Haul Material

Closure Cost Estimate
Foundations & Buildings

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Buildings & Foundation Demolition Cost Summary				
	Labor	Equipment	Materials	Totals
Building Demolition Cost	\$0	\$0	N/A	\$0
Wall Demolition Cost	\$0	\$0	N/A	\$0
Slab Demolition	\$0	\$0	N/A	\$0
Subtotal Demolition	\$0	\$0	\$0	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$26	\$137	\$0	\$163
Revegetation Cost	\$140	\$50	\$640	\$830
TOTALS	\$166	\$187	\$640	\$993

Buildings & Foundation - User Input																
You must fill in ALL green cells and relevant blue cells in this section for each building or facility																
Facility Description			Physical - MANDATORY								Foundation Cover (1)			Growth Media (1) (entire footprint)		
Description (required)	ID Code	Type	Length ft	Width ft	Eve Height ft	Slab Thickness in	Foundation Wall Thickness in	Foundation Wall Height ft	Average Flat Area Long Dimension (ripping distance) ft	Building Area Footprint (including surrounding facilities) acres	Foundation Cover Thickness in	Distance from Foundation Cover Borrow Area ft	Slope from Facility to Stockpile % grade	Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Facility to Stockpile % grade
1	Concrete slab ford across the arroyo	Other Facilities	70	16	0	8	0	0	70	0.00	0	1	1.0	12	35	1.0

Notes:
1. Foundation cover only calculated to cover slab. Growth media estimated over entire footprint area
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)

NOTE: Arroyo concrete slab ford crossing will be broken in place and concrete will be removed and disposed off site.

NOTE: All on site facilities will be mobile equipment and only require demobilization.

**Closure Cost Estimate
Foundations & Buildings**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Buildings & Foundation Demolition Cost Summary				
	Labor	Equipment	Materials	Totals
Building Demolition Cost	\$0	\$0	N/A	\$0
Wall Demolition Cost	\$0	\$0	N/A	\$0
Slab Demolition	\$0	\$0	N/A	\$0
Subtotal Demolition	\$0	\$0	\$0	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$26	\$137	\$0	\$163
Revegetation Cost	\$140	\$50	\$640	\$830
TOTALS	\$166	\$187	\$640	\$993

Buildings & Foundation - User Input (cont.)																	
You must fill in ALL green cells and relevant blue cells in this section for each building or facility																	
	Description (required)	Construction Materials			Slab Demolition		Foundation Cover			Growth Media			Revegetation				
		Building Type (select)	Foundation Type (select)	Wall (select)	Slab Demo Method (select)	Slab Breaking Equipment Fleet (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarify/ Rip? (select)	Ripping Fleet (select)
1	Concrete slab ford across the arroyo	Sm. concrete	Conc 8 in (200 mm) thick		Sm Excavator	Alluvium	Small Truck		Alluvium	Small Truck			User Mix 1	Straw Mulch	None	Yes	Small Dozer

Notes:
 1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

**Closure Cost Estimate
Foundations & Buildings**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Buildings & Foundation Demolition Cost Summary				
	Labor	Equipment	Materials	Totals
Building Demolition Cost	\$0	\$0	N/A	\$0
Wall Demolition Cost	\$0	\$0	N/A	\$0
Slab Demolition	\$0	\$0	N/A	\$0
Subtotal Demolition	\$0	\$0	\$0	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$26	\$137	\$0	\$163
Revegetation Cost	\$140	\$50	\$640	\$830
TOTALS	\$166	\$187	\$640	\$993

Buildings & Foundation - Calculations
<div> <div>Building Volume Calculations</div> <p>Using Means Heavy Construction Cost Data (2004) calculates cubic feet from building dimensions Estimate slab thickness and wall thickness if not known Assumes that all concrete slabs are reinforced Productivity for crew from Means Heavy Construction Cost Data (2004) adjusted for supervision (addressed in Misc. Costs) and Davis-Bacon Wage Rates Demolition costs do not include hauling or disposing if debris - Use Waste Disposal module</p> </div>
<div> <div>Slab Demolition Calculations</div> <p>Minimum 1 hr excavator time for slab demolition</p> </div>
<div> <div>Cover Volume Calculation</div> <p>Foundation area x cover thickness If "Bury in Place" is selected as slab demolition method, cover thickness is adjusted such that total cover (cover + growth media) equals value entered in "Minimum thickness of cover over unbroken slab" cell above</p> </div>
<div> <div>Ripping/Scarifying Calculations</div> <p>Flat area width = Final flat area ÷ Average long dimensions Number of passes = Flat area width ÷ Grader width Travel distance = Number of passes x Average long dimensions Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)</p> </div>
<div> <div>Revegetation</div> <p>Minimum 1 acre revegetation crew time per area</p> </div>

Closure Cost Estimate
Foundations & Buildings

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Buildings & Foundation Demolition Cost Summary				
	Labor	Equipment	Materials	Totals
Building Demolition Cost	\$0	\$0	N/A	\$0
Wall Demolition Cost	\$0	\$0	N/A	\$0
Slab Demolition	\$0	\$0	N/A	\$0
Subtotal Demolition	\$0	\$0	\$0	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$26	\$137	\$0	\$163
Revegetation Cost	\$140	\$50	\$640	\$830
TOTALS	\$166	\$187	\$640	\$993

Building & Foundation Demolition Costs										Uses RS Means Heavy Construction Cost Data for building and wall demolition cost calculations. Uses CAT Handbook for slab breaking production.									
								Building Demolition			Wall Demolition			Slab Demolition			Total Costs		
	Description (required)	Building Footprint (slab area) sq ft	Building Volume cu ft	Wall Length ft	Wall Area sq ft	Slab Demolition Fleet	Slab Volume cu ft	Total Labor Cost \$	Total Equipment Cost \$	Total Building Demolition Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Wall Demolition Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Slab Breaking Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Demolition Costs \$
1	Concrete slab ford across the arroyo	1,120	0	172	0	325C	28	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
							28	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

**Closure Cost Estimate
Foundations & Buildings**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Buildings & Foundation Demolition Cost Summary				
	Labor	Equipment	Materials	Totals
Building Demolition Cost	\$0	\$0	N/A	\$0
Wall Demolition Cost	\$0	\$0	N/A	\$0
Slab Demolition	\$0	\$0	N/A	\$0
Subtotal Demolition	\$0	\$0	\$0	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$26	\$137	\$0	\$163
Revegetation Cost	\$140	\$50	\$640	\$830
TOTALS	\$166	\$187	\$640	\$993

Building & Foundation - Foundation Cover and Growth Media Costs																				
		Foundation Cover							Growth Media							Total Cover & Growth Media Costs				
	Description (required)	Cover Volume cy	Cover Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Cover Cost \$	Growth Media Volume cy	Growth Media Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Growth Media Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Costs \$
1	Concrete slab ford across the arroyo						\$0	\$0	\$0						\$0	\$0	\$0	\$0	\$0	\$0
							\$0	\$0	\$0						\$0	\$0	\$0	\$0	\$0	\$0

**Closure Cost Estimate
Foundations & Buildings**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Buildings & Foundation Demolition Cost Summary				
	Labor	Equipment	Materials	Totals
Building Demolition Cost	\$0	\$0	N/A	\$0
Wall Demolition Cost	\$0	\$0	N/A	\$0
Slab Demolition	\$0	\$0	N/A	\$0
Subtotal Demolition	\$0	\$0	\$0	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$26	\$137	N/A	\$163
Subtotal Earthworks	\$26	\$137	\$0	\$163
Revegetation Cost	\$140	\$50	\$640	\$830
TOTALS	\$166	\$187	\$640	\$993

Building & Foundation - Scarifying/Revegetation Costs															
				Scarifying/Ripping			Revegetation				Total Scarify & Revegation Costs				
	Description (required)	Flat Area acres	Ripping/ Scarifying Fleet	Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Material Cost \$	Total Costs \$
1	Concrete slab ford across the arroyo	0.10	D7R	1	\$26	\$137	\$163	\$140	\$50	\$640	\$830	\$166	\$187	\$640	\$993
		0.10		1	\$26	\$137	\$163	\$140	\$50	\$640	\$830	\$166	\$187	\$640	\$993

Closure Cost Estimate Other Demo & Equip Removal

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Other Demolition and Equipment Removal - Cost Summary				
	Labor	Equipment	Materials	Totals
Other Demolition	\$0	\$0	\$0	\$0
Equipment Removal	\$4,000	\$7,000	\$0	\$11,000
TOTALS	\$4,000	\$7,000	\$0	\$11,000

Other Demolition									
Facility Description									
	Description (required)	ID Code	Type	Quantity	Units	Labor Unit Cost \$	Equipment Unit Cost \$	Material Unit Cost \$	Total Cost \$
						\$0	\$0	\$0	

Notes:

Closure Cost Estimate Other Demo & Equip Removal

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Other Demolition and Equipment Removal - Cost Summary				
	Labor	Equipment	Materials	Totals
Other Demolition	\$0	\$0	\$0	\$0
Equipment Removal	\$4,000	\$7,000	\$0	\$11,000
TOTALS	\$4,000	\$7,000	\$0	\$11,000

Equipment & Material Removal									
Facility Description									
	Description (required)	ID Code	Type	Quantity	Units	Labor Unit Cost (\$)	Equipment Unit Cost (\$)	Material Unit Cost (\$)	Total Cost (\$)
1	Portable 5000 Gallon Mobile Water Tank		Site Facilities - Mobile/Fixed Equip	1	1	\$1,000.00	\$1,000.00	\$0.00	\$2,000
2	Portable Office Trailer		Site Facilities - Mobile/Fixed Equip	1	1	\$1,000.00	\$1,000.00	\$0.00	\$2,000
3	Mobile Tracked Crusher		Site Facilities - Mobile/Fixed Equip	1	1	\$2,000.00	\$5,000.00	\$0.00	\$7,000
						\$4,000	\$7,000	\$0	\$11,000

Notes:

**Closure Cost Estimate
Sediment & Drainage Control**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Drainage Control - Cost Summary				
	Labor	Equipment	Materials	Totals
Diversion Ditch Construction	\$0	\$0	N/A	\$0
Diversion Ditch Liner	\$0	\$0	\$0	\$0
Diversion Ditch Rip-Rap	\$0	\$0	\$0	\$0
Sed Pond Construct/Regrade	\$0	\$0	N/A	\$0
Liner Installation	\$0	\$0	\$0	\$0
Sed Pond Cover	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Diversion Ditch Revegetation	\$0	\$0	\$0	\$0
Sediment Pond Revegetation	\$0	\$0	\$0	\$0
Subtotal Revegetation	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Diversion Ditches - User Input															
			Diversion Ditches						Revegetation			Liner and Rip-Rap Installation			
Description (required)	ID Code	Diversion Length ft	Diversion Depth ft	Ditch Bottom Width ft	Ditch Sideslope Angle _H:1V	Excavate Volume (if calculated elsewhere) cy	Excavating Material Condition (select)	Excavating Equipment Fleet (select)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Liner Area S.Y.	Liner Type (select)	Rip-Rap Area S.Y.	Rip-Rap Type (select type)

Notes:

**Closure Cost Estimate
Sediment & Drainage Control**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Drainage Control - Cost Summary				
	Labor	Equipment	Materials	Totals
Diversion Ditch Construction	\$0	\$0	N/A	\$0
Diversion Ditch Liner	\$0	\$0	\$0	\$0
Diversion Ditch Rip-Rap	\$0	\$0	\$0	\$0
Sed Pond Construct/Regrade	\$0	\$0	N/A	\$0
Liner Installation	\$0	\$0	\$0	\$0
Sed Pond Cover	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Diversion Ditch Revegetation	\$0	\$0	\$0	\$0
Sediment Pond Revegetation	\$0	\$0	\$0	\$0
Subtotal Revegetation	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Sediment/Evaporation Pond Construction/Removal - User Input												
			Sediment Ponds							Growth Media		
Description (required)	ID Code	Pond Width ft	Pond/Berm Length ft	Berm Height ft	Crest Width ft	Sideslope Angle _H:1V	Final Area (if calculated elsewhere) acres	Regrade Volume (if calculated elsewhere) cy	Cover Volume (if calculated elsewhere) cy	Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Pond to Borrow % grade

Notes:

1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)
3. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

**Closure Cost Estimate
Sediment & Drainage Control**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Drainage Control - Cost Summary				
	Labor	Equipment	Materials	Totals
Diversion Ditch Construction	\$0	\$0	N/A	\$0
Diversion Ditch Liner	\$0	\$0	\$0	\$0
Diversion Ditch Rip-Rap	\$0	\$0	\$0	\$0
Sed Pond Construct/Regrade	\$0	\$0	N/A	\$0
Liner Installation	\$0	\$0	\$0	\$0
Sed Pond Cover	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Diversion Ditch Revegetation	\$0	\$0	\$0	\$0
Sediment Pond Revegetation	\$0	\$0	\$0	\$0
Subtotal Revegetation	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Sediment/Evaporation Pond Construction/Removal - User Input (cont.)													
		Sediment Ponds				Growth Media			Revegetation			Ripping/Scarifying	
Description (required)	Excavating Material Condition (select)	Material Type (select)	Excavating Equipment Fleet (select)	Liner Type (select)	Growth Media Material Type (select)	Growth Media Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarify/ Rip? (select)	Scarify/ Ripping Fleet (select)	

Notes:

1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

**Closure Cost Estimate
Sediment & Drainage Control**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Drainage Control - Cost Summary				
	Labor	Equipment	Materials	Totals
Diversion Ditch Construction	\$0	\$0	N/A	\$0
Diversion Ditch Liner	\$0	\$0	\$0	\$0
Diversion Ditch Rip-Rap	\$0	\$0	\$0	\$0
Sed Pond Construct/Regrade	\$0	\$0	N/A	\$0
Liner Installation	\$0	\$0	\$0	\$0
Sed Pond Cover	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Diversion Ditch Revegetation	\$0	\$0	\$0	\$0
Sediment Pond Revegetation	\$0	\$0	\$0	\$0
Subtotal Revegetation	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Drainage Control - Calculations

Diversion Ditch Volume Calculation

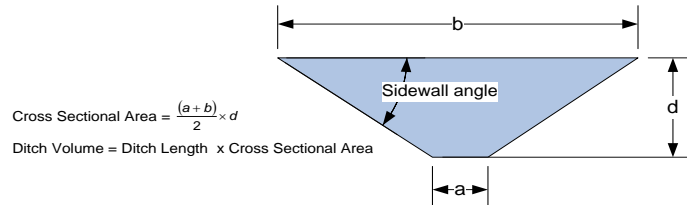


Figure 1 - Ditch Volume Calculation

- 1) Assume 20% swell for excavations
- 2) Assumes heavy duty trenching bucket is used

Sediment/Evaporation Pond Construction Calculation

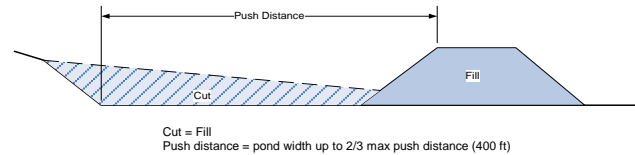


Figure 2 - Sediment Ponds

- 1) Assume balanced cut-to-fill for berm construction
- 2) Include cost for liner, if required.
- 3) Include line items for removal, if necessary.
- 4) Assume 20% swell for excavations
- 5) Minimum 1 hr ripping/scarifying per area
- 6) Minimum 1 acre revegetation crew time per area

**Closure Cost Estimate
Sediment & Drainage Control**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Drainage Control - Cost Summary				
	Labor	Equipment	Materials	Totals
Diversion Ditch Construction	\$0	\$0	N/A	\$0
Diversion Ditch Liner	\$0	\$0	\$0	\$0
Diversion Ditch Rip-Rap	\$0	\$0	\$0	\$0
Sed Pond Construct/Regrade	\$0	\$0	N/A	\$0
Liner Installation	\$0	\$0	\$0	\$0
Sed Pond Cover	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Diversion Ditch Revegetation	\$0	\$0	\$0	\$0
Sediment Pond Revegetation	\$0	\$0	\$0	\$0
Subtotal Revegetation	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Diversion Ditches - Excavation Costs								Liner Installation				Rip-Rap Installation			
Description (required)	Diversion Ditch Volume LCY	Diversion Ditch Equipment	Corrected Excavator Productivity LCY/hr	Total Hours	Diversion Ditch Labor Cost \$	Diversion Ditch Equipment Cost \$	Total Diversion Ditch Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Material Cost \$	Total Liner Cost \$	Labor Cost \$	Equipment Cost \$	Material Cost \$	Total Cost \$
					\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Notes: LCM assumes 20% swell from ditch volume

**Closure Cost Estimate
Sediment & Drainage Control**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Drainage Control - Cost Summary				
	Labor	Equipment	Materials	Totals
Diversion Ditch Construction	\$0	\$0	N/A	\$0
Diversion Ditch Liner	\$0	\$0	\$0	\$0
Diversion Ditch Rip-Rap	\$0	\$0	\$0	\$0
Sed Pond Construct/Regrade	\$0	\$0	N/A	\$0
Liner Installation	\$0	\$0	\$0	\$0
Sed Pond Cover	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Diversion Ditch Revegetation	\$0	\$0	\$0	\$0
Sediment Pond Revegetation	\$0	\$0	\$0	\$0
Subtotal Revegetation	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Diversion Ditches - Revegetation Costs						
	Description (required)	Surface Area acres	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
			\$0	\$0	\$0	\$0

**Closure Cost Estimate
Sediment & Drainage Control**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Drainage Control - Cost Summary				
	Labor	Equipment	Materials	Totals
Diversion Ditch Construction	\$0	\$0	N/A	\$0
Diversion Ditch Liner	\$0	\$0	\$0	\$0
Diversion Ditch Rip-Rap	\$0	\$0	\$0	\$0
Sed Pond Construct/Regrade	\$0	\$0	N/A	\$0
Liner Installation	\$0	\$0	\$0	\$0
Sed Pond Cover	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Diversion Ditch Revegetation	\$0	\$0	\$0	\$0
Sediment Pond Revegetation	\$0	\$0	\$0	\$0
Subtotal Revegetation	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Sediment/Evaporation Ponds - Construction/Regrading Costs																
Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83)										Earthwork			Liner			
	Description (required)	Regrading Volume cy	Sed/Evap Pond Equipment	Dozing Distance (see above) ft	Uncorrected Dozer Productivity LCY/hr	Grade Correction	Density Correction	Excavating Material	Corrected Productivity LCY/hr	Total Dozer Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Constr/ Regrading Cost \$	Total Labor Cost \$	Total Equipment Cost \$	Total Material Cost \$
											\$0	\$0	\$0	\$0	\$0	\$0

**Closure Cost Estimate
Sediment & Drainage Control**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Drainage Control - Cost Summary				
	Labor	Equipment	Materials	Totals
Diversion Ditch Construction	\$0	\$0	N/A	\$0
Diversion Ditch Liner	\$0	\$0	\$0	\$0
Diversion Ditch Rip-Rap	\$0	\$0	\$0	\$0
Sed Pond Construct/Regrade	\$0	\$0	N/A	\$0
Liner Installation	\$0	\$0	\$0	\$0
Sed Pond Cover	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Diversion Ditch Revegetation	\$0	\$0	\$0	\$0
Sediment Pond Revegetation	\$0	\$0	\$0	\$0
Subtotal Revegetation	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Sediment/Evaporation Ponds - Growth Media Costs									
		Growth Media							
	Description (required)	Growth Media Volume cy	Growth Media Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Cover Placement Cost \$
							\$0	\$0	\$

**Closure Cost Estimate
Sediment & Drainage Control**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Drainage Control - Cost Summary				
	Labor	Equipment	Materials	Totals
Diversion Ditch Construction	\$0	\$0	N/A	\$0
Diversion Ditch Liner	\$0	\$0	\$0	\$0
Diversion Ditch Rip-Rap	\$0	\$0	\$0	\$0
Sed Pond Construct/Regrade	\$0	\$0	N/A	\$0
Liner Installation	\$0	\$0	\$0	\$0
Sed Pond Cover	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Diversion Ditch Revegetation	\$0	\$0	\$0	\$0
Sediment Pond Revegetation	\$0	\$0	\$0	\$0
Subtotal Revegetation	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Sediment/Evaporation Ponds - Revegetation Costs												
	Description (required)	Surface Area acres	Long Ripping Distance ft	Ripping/ Scarifying Fleet	Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
					0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Closure Cost Estimate Process Ponds

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Process Ponds - Cost Summary				
	Labor	Equipment	Materials	Totals
Backfilling Costs	\$0	\$0	N/A	\$0
Growth Media Placement Costs	\$0	\$0	N/A	\$0
Liner Cutting & Folding Costs	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Process Ponds - User Input														
You must fill in ALL green cells and relevant blue cells in this section for each pond														
Facility Description			Pond Dimensions (1)					Backfill - (If trucks are used) (1)				Growth Media		
	Description (required)	ID Code	Pond Length ft	Pond Width ft	Pond Depth ft	Pond Sideslope Angle _H:1V	Disturbed Area (if calculated elsewhere) acres	Percent Backfill (100% if blank)	Distance from Backfill Borrow ft	Slope from Facility to Borrow Area % grade	Pond Volume (if calculated elsewhere) cy	Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Facility to Stockpile % grade

Notes:

1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)

Closure Cost Estimate Process Ponds

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Process Ponds - Cost Summary				
	Labor	Equipment	Materials	Totals
Backfilling Costs	\$0	\$0	N/A	\$0
Growth Media Placement Costs	\$0	\$0	N/A	\$0
Liner Cutting & Folding Costs	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Process Ponds - User Input (cont.)											
		Liner	Backfill			Growth Media			Revegetation		
	Description (required)	Crew Cut & Fold Time ⁽²⁾ hrs	Backfill Material Type (select)	Backfill Equipment Fleet (select)	Maximum Fleet Size (user override)	Growth Media Material Type (select)	Growth Media Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)

Notes:

1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

(2) Pond liner removal crew (2Clab + excavator) = 2 General Laborers + 325C Excavator

Closure Cost Estimate Process Ponds

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

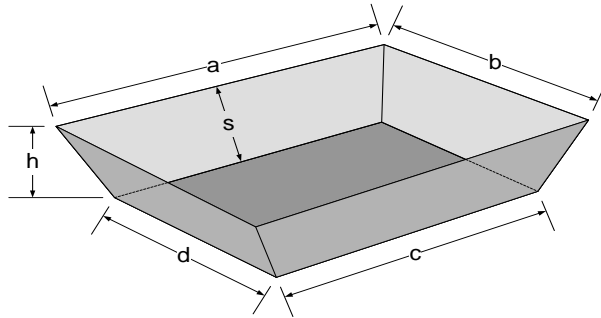
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Process Ponds - Cost Summary				
	Labor	Equipment	Materials	Totals
Backfilling Costs	\$0	\$0	N/A	\$0
Growth Media Placement Costs	\$0	\$0	N/A	\$0
Liner Cutting & Folding Costs	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Process Ponds - Calculations

Pond Volume Calculation



Area and Volume of the Frustum of a Pyramid

$$\text{Surface Area} = ab + cd + (a+b+c+d) \times \frac{s}{2}$$

$$\text{Volume} = \frac{h(ab + cd + \sqrt{abcd})}{3}$$

Revegetation Calculations

Minimum 1 acre revegetation crew time per area

**Closure Cost Estimate
Process Ponds**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Process Ponds - Cost Summary				
	Labor	Equipment	Materials	Totals
Backfilling Costs	\$0	\$0	N/A	\$0
Growth Media Placement Costs	\$0	\$0	N/A	\$0
Liner Cutting & Folding Costs	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Process Ponds - Liner Cutting and Folding					
	Description (required)	Crew Hours hrs	Total Labor Cost \$	Total Equipment Cost \$	Total Liner Removal Cost \$
			\$0	\$0	\$0

Closure Cost Estimate Process Ponds

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Process Ponds - Cost Summary				
	Labor	Equipment	Materials	Totals
Backfilling Costs	\$0	\$0	N/A	\$0
Growth Media Placement Costs	\$0	\$0	N/A	\$0
Liner Cutting & Folding Costs	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Process Ponds - Backfill and Growth Media Costs																
		Pond Backfill								Growth Media						
	Description (required)	Backfill Volume cy	Backfill Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours hrs	Total Labor Cost \$	Total Equipment Cost \$	Total Backfill Cost \$	Growth Media Volume cy	Growth Media Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$
							\$0	\$0	\$0						\$0	\$0

**Closure Cost Estimate
Process Ponds**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Process Ponds - Cost Summary				
	Labor	Equipment	Materials	Totals
Backfilling Costs	\$0	\$0	N/A	\$0
Growth Media Placement Costs	\$0	\$0	N/A	\$0
Liner Cutting & Folding Costs	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Costs	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Process Ponds - Revegetation Costs						
	Description (required)	Surface Area acres	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
			\$0	\$0	\$0	\$0

**Closure Cost Estimate
Process Ponds**

**Closure Cost Estimate
Process Ponds**

**Closure Cost Estimate
Process Ponds**

**Closure Cost Estimate
Process Ponds**

Closure Cost Estimate
Process Ponds

Total Growth Media Cost \$
\$0

**Closure Cost Estimate
Process Ponds**

Closure Cost Estimate Landfills

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Landfills - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Landfills - User Input											
You must fill in ALL green cells and relevant blue cells in this section for each landfill											
Facility Description			Physical (1)			Cover			Growth Media		
Description (required)	ID Code		Final Landfill Footprint acres	Average Long Dimension (ripping distance) ft	Regrade Volume (calculated elsewhere) cy	Cover Thickness in	Distance from Cover Borrow ft	Slope from Landfill to Cover Borrow % grade	Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Landfill to Stockpile % grade

Notes:

1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)

Closure Cost Estimate Landfills

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Landfills - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Landfills - User Input (cont.)																
You must fill in ALL green cells and relevant blue cells in this section for each landfill																
		Grading				Cover			Growth Media			Revegetation				
	Description (required)	Regrading Material Condition (select)	Regrading Material Type (select)	Regrading Equipment Fleet (select)	Slot/ Side-by-Side (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch Type (select)	Fertilizer (select)	Scarify/ Rip? (select)	Scarifying/ Ripping Fleet (select)

Notes:

1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

Closure Cost Estimate Landfills

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Landfills - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Landfills - Calculations

Dozing, Ripping/Scarifying & Revegetation Calculations

Dozing: Dozing distance = 2/3 of the 600 feet maximum from Caterpillar Handbook or 400 feet
Assumes flat push (grade correction factor = 1)
Minimum 1 hr per area

Ripping: Flat area width = Final flat area ÷ Average long dimensions
Number of passes = Flat area width ÷ Grader width
Travel distance = Number of passes x Average long dimensions
Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time)
Minimum 1 hr per area

Revegetation: Minimum 1 acre revegetation crew time per area

Closure Cost Estimate Landfills

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Landfills - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Landfills - Regrading Costs													
Productivity = Dozer Productivity x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side)													
	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Dozing Material	Density Correction	Side-by-Side or Slot Dozing	Total Hourly Productivity LCY/hr	Total Dozer Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
											\$0	\$0	\$0

Closure Cost Estimate Landfills

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Landfills - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Landfills - Cover and Growth Media Costs																
		Cover Placement								Growth Media Placement						
	Description (required)	Cover Volume ft	Cover Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Cover Labor Cost \$	Cover Equipment Cost \$	Total Cover Cost \$	Growth Media Volume ft	Growth Media Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$
							\$0	\$0	\$0						\$0	\$0

Closure Cost Estimate Landfills

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Landfills - Cost Summary				
	Labor	Equipment	Materials	Totals
Grading Costs	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Topsoil Placement Cost	\$0	\$0	N/A	\$0
Ripping/Scarifying Cost	\$0	\$0	N/A	\$0
Subtotal Earthworks	\$0	\$0	\$0	\$0
Revegetation Cost	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Landfills - Scarifying/Revegetation Costs												
	Description (required)	Surface Area acres	Long Dimension ft	Ripping/ Scarifying Fleet	Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
						\$0	\$0	\$0	\$0	\$0	\$0	\$0

**Closure Cost Estimate
Landfills**

**Closure Cost Estimate
Landfills**

Closure Cost Estimate
Landfills

Closure Cost Estimate
Landfills

Closure Cost Estimate
Landfills

Total Growth Media Cost \$
\$0

**Closure Cost Estimate
Landfills**

**Closure Cost Estimate
Yards, Etc.**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Yards, Etc. - Cost Summary				
	Labor	Equipment	Materials	Totals
Regrading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$741	\$3,833	N/A	\$4,574
Ripping/Scarifying Cost	\$52	\$275	N/A	\$327
Subtotal Earthworks	\$793	\$4,108		\$4,901
Revegetation Cost	\$280	\$100	\$12,802	\$13,182
TOTALS	\$1,073	\$4,208	\$12,802	\$18,083

Yards, Etc. - User Input												
You must fill in ALL green cells and relevant blue cells in this section for each building or facility												
Facility Description				Physical			Cover			Growth Media		
	Description (required)	ID Code	Type	Area acres	Average Flat Area Long Dimension (ripping distance) ft	Regrade Volume (calculated elsewhere) cy	Cover Thickness in	Distance from Cover Borrow Area ft	Slope from Facility to Borrow Area % grade	Growth Media Thickness in	Distance from Growth Media Stockpile ft	Slope from Facility to Stockpile % grade
1	Laydown Yard		Other Facilities	2.00	400		0	100	1.0	12	100	1.0

Notes:

1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)

**Closure Cost Estimate
Yards, Etc.**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Yards, Etc. - Cost Summary				
	Labor	Equipment	Materials	Totals
Regrading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$741	\$3,833	N/A	\$4,574
Ripping/Scarifying Cost	\$52	\$275	N/A	\$327
Subtotal Earthworks	\$793	\$4,108		\$4,901
Revegetation Cost	\$280	\$100	\$12,802	\$13,182
TOTALS	\$1,073	\$4,208	\$12,802	\$18,083

Yards, Etc. - User Input (cont.)															
You must fill in ALL green cells and relevant blue cells in this section for each building or facility															
	Description (required)	Grading			Cover			Growth Media			Revegetation				
		Regrading Material Condition (select)	Regrading Material Type (select)	Regrading Equipment Fleet (select)	Cover Material Type (select)	Cover Placement Equipment Fleet (select)	Maximum Fleet Size (user override)	Growth Media Material Type (select)	Growth Media Equipment Fleet (select)	Maximum Fleet Size (user override)	Seed Mix (select)	Mulch (select)	Fertilizer (select)	Scarify/ Rip? (select)	Ripping Fleet (select)
1	Laydown Yard	1	Alluvium	Small	Alluvium	Small Truck		Alluvium	Small Truck		User Mix 1	Straw Mulch	None	Yes	Small Dozer

Notes:

1. Material Types are used for density correction based on material densities in Caterpillar Performance Handbook material density table

**Closure Cost Estimate
Yards, Etc.**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Yards, Etc. - Cost Summary				
	Labor	Equipment	Materials	Totals
Regrading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$741	\$3,833	N/A	\$4,574
Ripping/Scarifying Cost	\$52	\$275	N/A	\$327
Subtotal Earthworks	\$793	\$4,108		\$4,901
Revegetation Cost	\$280	\$100	\$12,802	\$13,182
TOTALS	\$1,073	\$4,208	\$12,802	\$18,083

Yards, Etc. - Calculations
<div>Grading Calculations</div> <p>Average push distance assumed to be 2/3 of the 600 feet maximum from Caterpillar Handbook or 400 feet Material assumed to be loose stockpile (1.2 productivity factor) Slope assumed to be 0 to 5% (1.0 productivity factor)</p>
<div>Cover Volume Calculation</div> <p>Yard area x cover thickness</p>
<div>Ripping/Scarifying Calculations</div> <p>Flat area width = Final flat area ÷ Average long dimensions Number of passes = Flat area width ÷ Grader width Travel distance = Number of passes x Average long dimensions Total hours = (Travel distance ÷ Grader productivity) + (Number of passes x Grader maneuver time) Minimum 1 hr ripping/scarifying per area</p>
<div>Revegetation</div> <p>Minimum 1 acre revegetation crew time per area</p>

Closure Cost Estimate
Yards, Etc.

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Yards, Etc. - Cost Summary				
	Labor	Equipment	Materials	Totals
Regrading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$741	\$3,833	N/A	\$4,574
Ripping/Scarifying Cost	\$52	\$275	N/A	\$327
Subtotal Earthworks	\$793	\$4,108		\$4,901
Revegetation Cost	\$280	\$100	\$12,802	\$13,182
TOTALS	\$1,073	\$4,208	\$12,802	\$18,083

Yards, Etc. - Regrading Costs													
Productivity = Dozer Productivity x Grade Correction x Density Correction x Operator (0.75) x Material x Visibility x Job Efficiency (0.83) x (Slot/Side-by-Side)													
	Description (required)	Regrading Volume cy	Dozing Distance (see above) ft	Regrading Fleet	Uncorrected Dozer Productivity cy/hr	Grade Correction	Dozing Material	Density Correction	Total Hourly Productivity cy/hr	Total Dozer Hours hr	Total Labor Cost \$	Total Equipment Cost \$	Total Regrading Cost \$
1	Laydown Yard			D7R							\$0	\$0	\$0
											\$0	\$0	\$0

**Closure Cost Estimate
Yards, Etc.**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Yards, Etc. - Cost Summary				
	Labor	Equipment	Materials	Totals
Regrading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$741	\$3,833	N/A	\$4,574
Ripping/Scarifying Cost	\$52	\$275	N/A	\$327
Subtotal Earthworks	\$793	\$4,108		\$4,901
Revegetation Cost	\$280	\$100	\$12,802	\$13,182
TOTALS	\$1,073	\$4,208	\$12,802	\$18,083

Yards, Etc. - Cover and Growth Media Costs																
		Cover								Growth Media						
	Description (required)	Cover Volume cy	Topsoil Replacement Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$	Total Cover Cost \$	Growth Media Volume cy	Growth Media Fleet	Fleet Productivity LCY/hr	Number of Trucks/ Scrapers	Total Fleet Hours	Total Labor Cost \$	Total Equipment Cost \$
1	Laydown Yard						\$0	\$0	\$0	3,227	725/966G/D7R	483	2	7	\$741	\$3,833
							\$0	\$0	\$0	3,227				7	\$741	\$3,833

**Closure Cost Estimate
Yards, Etc.**

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Yards, Etc. - Cost Summary				
	Labor	Equipment	Materials	Totals
Regrading Cost	\$0	\$0	N/A	\$0
Cover Placement Cost	\$0	\$0	N/A	\$0
Growth Media Placement Cost	\$741	\$3,833	N/A	\$4,574
Ripping/Scarifying Cost	\$52	\$275	N/A	\$327
Subtotal Earthworks	\$793	\$4,108		\$4,901
Revegetation Cost	\$280	\$100	\$12,802	\$13,182
TOTALS	\$1,073	\$4,208	\$12,802	\$18,083

Yards, Etc. - Scarifying/Revegetation Costs												
	Description (required)	Surface Area acres	Area Long Dimension ft	Ripping/ Scarifying Fleet	Scarifying/ Ripping Hours hrs	Scarifying/ Ripping Labor Costs \$	Scarifying/ Ripping Equipment Cost \$	Total Scarifying/ Ripping Costs \$	Revegetation Labor Cost \$	Revegetation Equipment Cost \$	Revegetation Material Cost \$	Total Revegetation Cost \$
1	Laydown Yard	2.00	400	D7R	2	\$52	\$275	\$327	\$280	\$100	\$12,802	\$13,182
		2.00			2	\$52	\$275	\$327	\$280	\$100	\$12,802	\$13,182

Closure Cost Estimate
Yards, Etc.

Closure Cost Estimate
Yards, Etc.

Closure Cost Estimate
Yards, Etc.

Closure Cost Estimate
Yards, Etc.

Closure Cost Estimate
Yards, Etc.

Total Growth Media Cost \$
\$4,574
\$4,574

Closure Cost Estimate
Yards, Etc.

Closure Cost Estimate Waste Disposal

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Disposal - Cost Summary				
	Labor	Equipment	Fees	Totals
Solid Waste - On Site	\$212	\$1,095	N/A	\$1,307
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
TOTALS	\$212	\$1,095	\$0	\$1,307

Waste Disposal - User Input - Solid Waste									
						Landfill (Bulk) Disposal		Dumpster	
	Description (required)	ID Code	Waste Type (select)	Disposal Method (select)	Quantity cy	Distance to Landfill ft	Slope to Landfill % grade	Number of Trucks (user override)	Months Dumpster Rental months
1	Concrete slab ford across the arroyo		Waste Mgmt & Disposal	Landfill (bulk)	28	210000	0.0	2	0

Notes:

1. All Physical parameters must be input even if manual overrides for volume or area are used.
2. If Slope from facility to borrow source is >20, downhill travel time may be underestimated due to limitation of uphill travel time curves and downhill speed tables from CAT Handbook (see Productivity Sheet)

Note: SW Solid Waste Authority cost to dispose concrete = \$22.00 per ton. Assumes 56 Tons to dispose of off site.

Closure Cost Estimate Waste Disposal

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

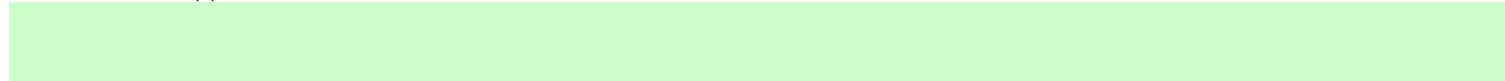
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Disposal - Cost Summary				
	Labor	Equipment	Fees	Totals
Solid Waste - On Site	\$212	\$1,095	N/A	\$1,307
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
TOTALS	\$212	\$1,095	\$0	\$1,307

Waste Disposal - User Input - Hazardous Materials									
	Description (required)	ID Code	Waste Type (select)	Container Type (select)	Vacuum Truck Size (select)	Liquid Quantity gallons	Soild Quantity cy	One Way Travel Distance to Disposal Site mi	One Way Travel Time to Disposal Site hr

Notes:

1. Use Other Demo & Equip Removal Sheet for tank removal



Closure Cost Estimate Waste Disposal

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Disposal - Cost Summary				
	Labor	Equipment	Fees	Totals
Solid Waste - On Site	\$212	\$1,095	N/A	\$1,307
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
TOTALS	\$212	\$1,095	\$0	\$1,307

Waste Disposal - User Input - Hydrocarbon Contaminated Soils						
	Description (required)	ID Code	Waste Type (select)	Disposal Method (select)	Quantity cy	Travel Distance to Offsite Disposal mi

Notes:

1. Use Yards or Landfills Sheets for bioremediation facility reclamation

Closure Cost Estimate Waste Disposal

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety **Cost Basis:** American Magnesium - Option 1

Waste Disposal - Cost Summary				
	Labor	Equipment	Fees	Totals
Solid Waste - On Site	\$212	\$1,095	N/A	\$1,307
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
TOTALS	\$212	\$1,095	\$0	\$1,307

Waste Disposal - Assumptions & Calculations

Solid Waste Disposal

Off site disposal assumes use of average rolloff dumpster [30 cy (m3), 10 ton (tonne)]
 On site disposal assumes use of small loader/truck fleet for haulage
 Average density for on site disposal = 2,600 lb/cy (1,540 kg/m3)
 For on site disposal only 1 truck is required unless total truck hours > 8, only 2 trucks unless total truck hours are > 16

Hazardous Materials Disposal

Assumes all hazardous materials are known
 Enter EITHER solid or liquid quantity each line.
 If container type = 55 gallon (200 liter) drum then solid waste hauling costs apply
 Average density for solids assumed to be 2,600 lb/cy (1,540 kg/m3)
 Vacuum truck sizes: small = 2,200 gal (~8,300 litres), large = 5,000 gal (~19,000 litres)
 Vacuum truck on site for 4 hours for each load

Hydrocarbon Contaminated Soils Disposal

Assumes all hazardous materials are known
 On site disposal assumes biopad treatment
 Exavation productivity =45 cy./hr (35 m3/hr) (Means Heavy Construction, 2006: 02315-424-0360)

Closure Cost Estimate Waste Disposal

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Disposal - Cost Summary				
	Labor	Equipment	Fees	Totals
Solid Waste - On Site	\$212	\$1,095	N/A	\$1,307
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
TOTALS	\$212	\$1,095	\$0	\$1,307

Waste Disposal - Solid Waste Disposal

	Description (required)	Waste Volume cy	Number of Off Site Dumpster Loads	Landfill Fleet Equipment	Landfill Fleet Productivity LCY/hr	Number of Trucks	Total Fleet Hours	Total Dumpster Cost \$	Total Labor Cost \$	Total Equipment Cost \$
1	Concrete slab ford across the arroyo	28		725/966G/D7R	14	2	2	\$0	\$212	\$1,095
		28					2	\$0	\$212	\$1,095

Closure Cost Estimate Waste Disposal

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Disposal - Cost Summary				
	Labor	Equipment	Fees	Totals
Solid Waste - On Site	\$212	\$1,095	N/A	\$1,307
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
TOTALS	\$212	\$1,095	\$0	\$1,307

Waste Disposal - Hazardous Materials Disposal									
	Description (required)	Liquid Waste Volume gallons	Solid Waste Volume cy	Number of Truck Loads	Tons of Waste Tons	Pick-up Fees \$	Transport Fees \$	Disposal Fees \$	Total Hazardous Material Cost \$
						\$0	\$0	\$0	\$0

Closure Cost Estimate Waste Disposal

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Disposal - Cost Summary				
	Labor	Equipment	Fees	Totals
Solid Waste - On Site	\$212	\$1,095	N/A	\$1,307
Solid Waste - Off Site				\$0
Hazardous Materials				\$0
Hydrocarbon Contaminated Soils	\$0	\$0	\$0	\$0
TOTALS	\$212	\$1,095	\$0	\$1,307

Waste Disposal - Hydrocarbon Contaminated Soils										
	Description (required)	Quantity cy	Disposal Equipment Fleet	Total Fleet Hours	Treatment Cost \$	Transport Fees \$	Disposal Fees \$	Total Labor Cost \$	Total Equipment Cost \$	Total Waste Disposal Cost \$
					\$0	\$0	\$0	\$0	\$0	\$0

Closure Cost Estimate
Well Abandonment

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Well Abandonment				
	Labor	Equipment	Materials	Totals
Production, Dewatering, Infiltration Wells	\$0	\$0	\$0	\$0
Monitoring Wells	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Production, Dewatering and Infiltration Well Closure																									
	Description (required)	ID Code	Number of Holes	Casing Diam in	Average Depth ⁽¹⁾ ft bgs	Depth to First Water ft bgs	Original Static Water Level ft bgs	Top of Slotted Casing ⁽²⁾ ft bgs	Blank Casing Below Top of Screen ⁽²⁾ ft	Type of Pump (if any) (select)	Depth to Pump ft bgs	Hole Plug Method (select)	Casing Volume per ft cf	Perforation Length ^(3,4) ft	Grout Volume per Hole ^(4,5) cy	Cement Volume per Hole ⁽⁶⁾ cy	Inert Media Volume per Hole ⁽⁷⁾ cy	Pump Removal Labor Cost \$	Pump Removal Equip Cost \$	Perf Labor Cost \$	Perf Equip Cost ⁽⁸⁾ \$	Grout + Cement Labor Cost ⁽⁹⁾ \$	Grout + Cement Equip Cost ⁽⁹⁾ \$	Grout + Cement Material Cost \$	Inert Media Labor Cost ⁽¹⁰⁾ \$
																		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

- (1) For previously abandoned holes enter "0" for depth
(2) Wells abandoned per Nevada Administrative Code (NAC 534.420). Hole grouted and perforated from bottom to 50 feet (15.24m) above the top of the screen, or first water encountered or original static water level, depending on vertical hydraulic gradient and well construction parameters. Inert media (cuttings or alluvium) used from top of grout to top seal.
(3) Perforation length = amount of blank casing below first water (for confined aquifers) or predicted recovered water table (unconfined aquifers) + 50 feet (15.24m) of blank casing above water table
(4) Assumes 50' (15.24m) sanitary seal at top of hole. Therefore, perforation and grouting only required to bottom of sanitary seal.
(5) Assumes 100% loss to formation for grout (abandonite) for screened and perforated sections.
(6) Assumes 20' (6m) top seal of cement in casing only. See note 4.
(7) Inert material is cuttings or alluvium sourced locally.
(8) Includes perforation tool wear cost/ft of perforation (see Productivty Sheet).
(9) See Productivity Sheet for hourly production. Minimum 1 hr per hole + fixed hours per hole for move and setup. If no perforation required, use standard drill rig.
(10) See Productivity Sheet for hourly production. Minimum 1 hr per hole.

Notes:

Closure Cost Estimate
Well Abandonment

Inert Media Equip Cost ⁽⁹⁾ \$
\$0

Closure Cost Estimate
Well Abandonment

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Well Abandonment				
	Labor	Equipment	Materials	Totals
Production, Dewatering, Infiltration Wells	\$0	\$0	\$0	\$0
Monitoring Wells	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0

Monitoring Well Closure																		
	Description (required)	ID Code	Number of Holes	Casing Diam in	Average Depth ft bgs	Top of Screen ⁽¹⁾ ft bgs	Hole Plug Method (select)	Casing Volume per ft ft3	Grout Volume/ Well ^(2,3) cy	Cement Volume per Hole ⁽⁴⁾ cy	Inert Backfill Volume per Hole ⁽⁵⁾ cy	Total Grouting Hours/ Hole hr	Total Inert Media Hours/ Hole hr	Grout + Cement Labor Cost ⁽⁶⁾ \$	Grout + Cement Equip Cost ⁽⁶⁾ \$	Grout + Cement Material Cost \$	Inert Material Labor Cost ⁽⁷⁾ \$	Inert Material Equip Cost ⁽⁷⁾ \$
														\$0	\$0	\$0	\$0	\$0

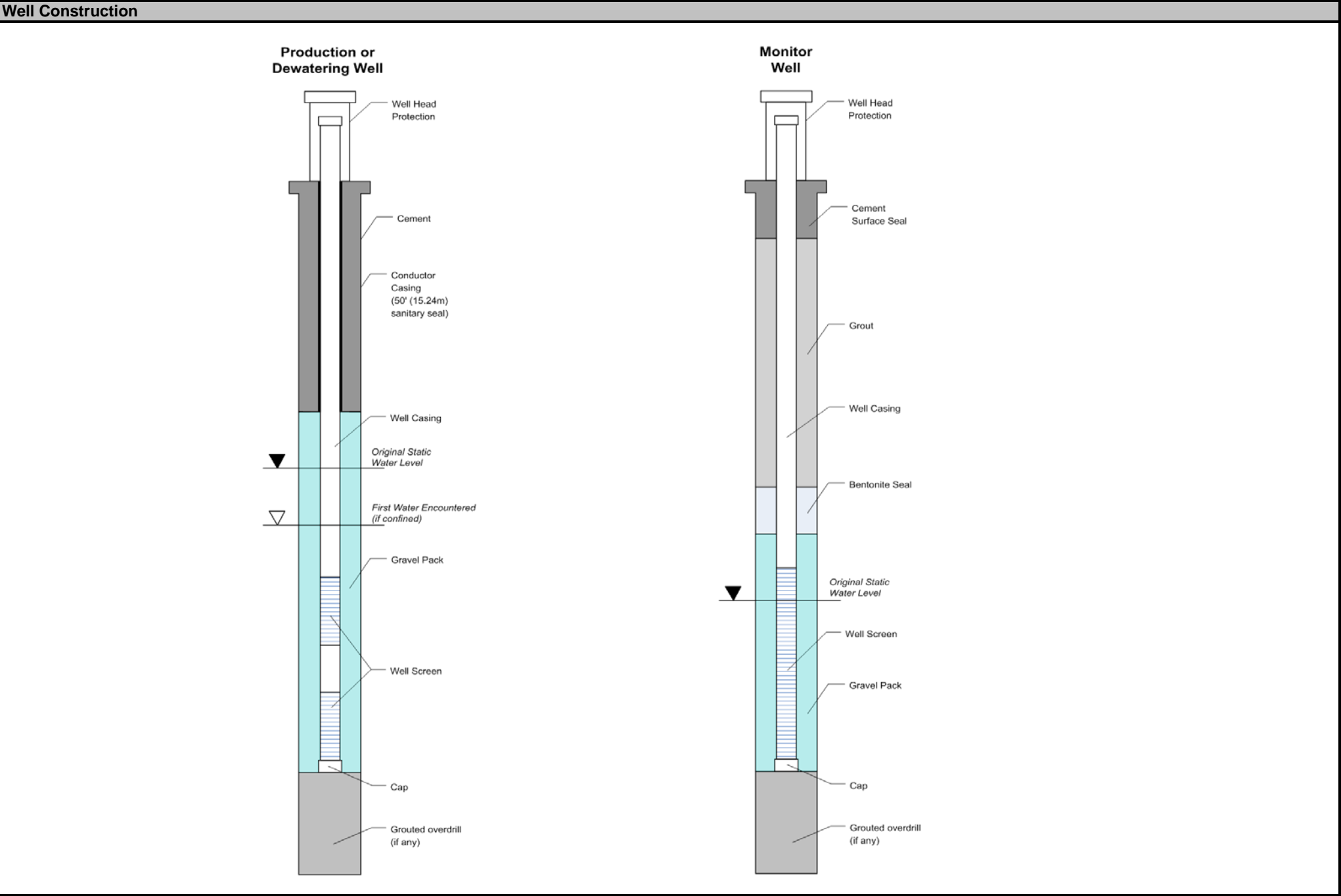
Wells abandoned per NAC 534.420 with bentonite grout placed to 50 feet above the top of the screen (see note 1).
(1) Assumes top of screen is at or above the static water level (in unconfined aquifers) or the depth of first water encountered (in confined aquifers).
(2) Assumes 25% loss to formation for grouting
(3) Grouting only required to 50' (15.24m) above the top of screen because monitor wells are constructed with a seal in the annular space.
(4) Assumes top 20' (6m) plugged with cement.
(5) Assumes hole plugged with inert material (cuttings or alluvium) above grout up to cement surface plug.
(6) See Productivity Sheet for hourly production. Minimum 1 hr per hole + fixed hours per hole for move and setup (see Productivty Sheet).
(7) See Productivity Sheet for hourly production. Minimum 1 hr per hole.

Notes:

Closure Cost Estimate
Well Abandonment

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Well Abandonment				
	Labor	Equipment	Materials	Totals
Production, Dewatering, Infiltration Wells	\$0	\$0	\$0	\$0
Monitoring Wells	\$0	\$0	\$0	\$0
TOTALS	\$0	\$0	\$0	\$0



Closure Cost Estimate Misc. Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Miscellaneous Cost Summary				
	Labor	Equipment	Materials	Totals
Fence Removal	\$5,921	\$6,198	N/A	\$12,119
Fence Installation	\$0	\$0	\$0	\$0
Culvert & Buried Pipe Removal	\$0	\$0	N/A	\$0
Surface Pipe Removal	\$0	\$0	N/A	\$0
Power Lines	\$0	N/A	N/A	\$0
Substations/Transformers	\$0	N/A	N/A	\$0
Rip-rap, rock lining, gabions	\$0	\$0	\$0	\$0
Other Costs	\$0	\$0	\$0	\$0
TOTALS	\$5,921	\$6,198	\$0	\$12,119

Fence Removal							
You must fill in ALL green and blue cells							
					Costs		
	Description (required)	ID Code	Length ft	Type (select type)	Labor Cost \$	Equipment Cost \$	Total Cost \$
1	Main Gate		400	Barbed 5-strand	\$348	\$356	\$704
2	Main Quarry Perimeter		3920	Barbed 5-strand	\$3,410	\$3,489	\$6,899
3	Laydown Yard		600	Chain link 8-10 ft	\$684	\$840	\$1,524
4	Vegetation Reference Area Perimeter		1700	Barbed 5-strand	\$1,479	\$1,513	\$2,992
					\$5,921	\$6,198	\$12,119

Notes: **Note:** Main gate assumes 200 linear feet of fencing on each side of the main gate.
Note: Main Quarry Perimeter assumes the external perimeter of mining phases will be fenced.
Note: Laydown yard assumes 150 feet by 150 feet.

Fence Installation							
You must fill in ALL green and blue cells							
			Input		Costs		
	Description (required)	ID Code	Length ft	Type (select type)	Labor Cost \$	Equipment Cost \$	Material Cost (\$)
					\$0	\$0	\$0

Notes:

Closure Cost Estimate Misc. Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Miscellaneous Cost Summary				
	Labor	Equipment	Materials	Totals
Fence Removal	\$5,921	\$6,198	N/A	\$12,119
Fence Installation	\$0	\$0	\$0	\$0
Culvert & Buried Pipe Removal	\$0	\$0	N/A	\$0
Surface Pipe Removal	\$0	\$0	N/A	\$0
Power Lines	\$0	N/A	N/A	\$0
Substations/Transformers	\$0	N/A	N/A	\$0
Rip-rap, rock lining, gabions	\$0	\$0	\$0	\$0
Other Costs	\$0	\$0	\$0	\$0
TOTALS	\$5,921	\$6,198	\$0	\$12,119

Culvert & Buried Pipe Removal							
You must fill in ALL green and blue cells							
			Input			Costs	
	Description (required)	ID Code	Length ft	Type (select type)	Location (select)	Labor Cost \$	Equipment Cost \$
						\$0	\$0

Notes:

Surface Pipe Removal							
You must fill in ALL green and blue cells							
			Input			Costs	
	Description (required)	ID Code	Length ft	Type (select type)	Location (select)	Labor Cost \$	Equipment Cost \$
						\$0	\$0

Notes:

Closure Cost Estimate

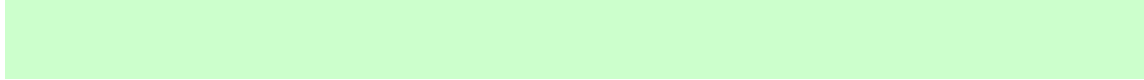
Misc. Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Miscellaneous Cost Summary				
	Labor	Equipment	Materials	Totals
Fence Removal	\$5,921	\$6,198	N/A	\$12,119
Fence Installation	\$0	\$0	\$0	\$0
Culvert & Buried Pipe Removal	\$0	\$0	N/A	\$0
Surface Pipe Removal	\$0	\$0	N/A	\$0
Power Lines	\$0	N/A	N/A	\$0
Substations/Transformers	\$0	N/A	N/A	\$0
Rip-rap, rock lining, gabions	\$0	\$0	\$0	\$0
Other Costs	\$0	\$0	\$0	\$0
TOTALS	\$5,921	\$6,198	\$0	\$12,119

Power Line and Substation Removal							
You must fill in ALL green and blue cells							
			Input				
	Description (required)	ID Code	Power Line Length miles	Power Line Type (select)	Number of Substations #	Location (select)	Power Line Removal \$
							\$0

Notes: If substation owned by operator, use Other Demo & Equipment Removal sheet
User may need to add line items in Foundations & Buildings for substation slab demolition and fence removal
Labor/Equipment costs assume approximately 80% of cost are equipment and 20% are labor related costs



Closure Cost Estimate

Misc. Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Miscellaneous Cost Summary				
	Labor	Equipment	Materials	Totals
Fence Removal	\$5,921	\$6,198	N/A	\$12,119
Fence Installation	\$0	\$0	\$0	\$0
Culvert & Buried Pipe Removal	\$0	\$0	N/A	\$0
Surface Pipe Removal	\$0	\$0	N/A	\$0
Power Lines	\$0	N/A	N/A	\$0
Substations/Transformers	\$0	N/A	N/A	\$0
Rip-rap, rock lining, gabions	\$0	\$0	\$0	\$0
Other Costs	\$0	\$0	\$0	\$0
TOTALS	\$5,921	\$6,198	\$0	\$12,119

Rip-Rap & Rock Lining							
You must fill in ALL green and blue cells							
			Input		Costs		
	Description (required)	ID Code	Area S.Y.	Type (select type)	Labor Cost \$	Equipment Cost \$	Material Cost \$
					\$0	\$0	\$0

Notes:

Closure Cost Estimate
Misc. Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Miscellaneous Cost Summary				
	Labor	Equipment	Materials	Totals
Fence Removal	\$5,921	\$6,198	N/A	\$12,119
Fence Installation	\$0	\$0	\$0	\$0
Culvert & Buried Pipe Removal	\$0	\$0	N/A	\$0
Surface Pipe Removal	\$0	\$0	N/A	\$0
Power Lines	\$0	N/A	N/A	\$0
Substations/Transformers	\$0	N/A	N/A	\$0
Rip-rap, rock lining, gabions	\$0	\$0	\$0	\$0
Other Costs	\$0	\$0	\$0	\$0
TOTALS	\$5,921	\$6,198	\$0	\$12,119

Closure Cost Estimate
Monitoring

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Reclamation Monitoring & Maintenance - Cost Summary				
	Labor	Equipment	Lab & Materials	Totals
Revegetation Maintenance	#NAME?	#NAME?	#NAME?	#NAME?
Erosion Maintenance	#NAME?	#NAME?	N/A	#NAME?
Reclamation Monitoring	\$8,910	\$374	N/A	\$9,284
Subtotal Reclamation Monitoring	#NAME?	#NAME?	#NAME?	#NAME?
Water Quality Monitoring	\$0	\$0	\$0	\$0
TOTAL MONITORING	#NAME?	#NAME?	#NAME?	#NAME?

Reclamation Maintenance								
Description	Total Revegetation Surface Area (1,2 acres	% Area Requiring Reseeding	Seed Mix (select)	Area Requiring Reseeding acres	Seed \$/acres	Labor \$/acres	Equipment \$/acres	Totals \$
Revegetation Maintenance	#NAME?	25%	User Mix 1	#NAME?	\$250.00	\$140.00	\$50.00	
Labor Equipment Materials Cost/Acre								#NAME?
								#NAME?
								#NAME?
								\$440
	Subtotal							#NAME?
Notes: 1) Surface area is NOT the same as footprint disturbance area typically used for permitting purposes.								
	Total Volume Growth Media cy	% Volume Requiring Maintenance	Average Growth Media Placement Cost \$/CY	Volume Requiring Replacement cy		Labor (assume: 25%) \$/acres	Equipment (assume: 75%) \$/acres	Total \$
Erosion Maintenance	#NAME?	15%	#NAME?	#NAME?		#NAME?	#NAME?	#NAME?
Notes:								

Reclamation Monitoring					
Description	Hrs/Day	Days/Year	Number of Years	Rate \$/hr	
Field Work					
Field Geologist/Engineer	8	1	3	\$134.99	\$3,240
Range Scientist				\$119.42	\$0
Reporting					
Field Geologist/Engineer	14	1	3	\$134.99	\$5,670
Range Scientist				\$119.42	\$0
					Subtotal \$8,910
Travel					
	Hrs/Trip hr	Trips/Year	Years	Truck Cost \$/hr	
Travel	4	1	3	\$31.13	\$374
					Subtotal \$374
Total Reclamation Monitoring					\$9,284
Notes: Assumes Engineer will travel from Silver City, NM Assumes 10 hours for reporting and 4 hours for mobilization and demobilization					

Closure Cost Estimate Monitoring

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Reclamation Monitoring & Maintenance - Cost Summary				
	Labor	Equipment	Lab & Materials	Totals
Revegetation Maintenance	#NAME?	#NAME?	#NAME?	#NAME?
Erosion Maintenance	#NAME?	#NAME?	N/A	#NAME?
Reclamation Monitoring	\$8,910	\$374	N/A	\$9,284
Subtotal Reclamation Monitoring	#NAME?	#NAME?	#NAME?	#NAME?
Water Quality Monitoring	\$0	\$0	\$0	\$0
TOTAL MONITORING	#NAME?	#NAME?	#NAME?	#NAME?

Water and Rock Sample Analysis

[illegible]

Notes: Sampling labor cost = No. Samplers x Years x Events/year x Days/event x Hour/Day x Labor Rate
Sampling equipment costs include 1 pickup truck for every two samplers

Ground & Surface Water Monitoring

[illegible]

Description	No. of units		Years		Cost \$
Pump (purchased)		Replacement period (yrs):			\$0
Subtotal Field Work					\$0

Notes: Replacement period = frequency of pump replacement

Reporting

Description	Hrs/Event	Rate \$/hr	Cost \$
Field Geologist/Engineer			
Subtotal Reporting			

Notes:

Closure Cost Estimate Constr. Mgmt

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Construction Management & Road Maintenance - Cost Summary				
	Labor	Equipment	Materials	Totals
Construction Management	\$20,671	\$2,974	N/A	\$23,645
Construction Support		\$428		\$428
Road Maintenance	\$2,694	\$13,835	\$726	\$17,255
TOTAL CONSTRUCTION MANAGEMENT	\$23,365	\$17,237	\$726	\$41,328

Construction Management							
Construction Management Staff							
Description	Duration mo.	Hours/ Month hr.	Number of Supervisors	Supervisor Rate \$/hr	Labor Cost \$	Equipment Cost ⁽¹⁾ \$	Totals \$
Active Reclamation	1	160	1	\$89.10	\$14,256	\$2,051	\$16,307
Monitoring & Maintenance	36	2	1	\$89.10	\$6,415	\$923	\$7,338
Total Staff					\$20,671	\$2,974	\$23,645
Construction Management Support							
Description	Duration mo.	Number of Units		Rental Rate \$/mo	Generator Cost \$/mo	Equipment Cost ⁽¹⁾ \$	Totals \$
Temporary Office Rental						\$0	\$0
Temporary Toilets	1	2		\$214		\$428	\$428
Total Support						\$428	\$428
Notes: Office rental assumes only 1 generator required for every 4 trailers							
Total Construction Management							\$24,073

Road Maintenance							
Description	Fleet Size (select)	Number	Duration mo.	Hours/ Month hr.	Labor Cost \$	Equipment Cost \$	Totals \$
Active Reclamation							
Water Truck	Small	1	1	80	\$1,863	\$10,546	\$12,409
Grader	Small	1	1	32	\$831	\$3,289	\$4,120
Monitoring & Maintenance							
Water Truck	Small	1	36	0	\$0	\$0	\$0
Grader	Small	1	36	0	\$0	\$0	\$0
Description	Gallons/ Day	Days/ Month	Duration mo.	Cost/ Gallon \$			Totals \$
Water Fees							
Water Fees	6000	14	1	0.01			\$726
Total Project Maintenance					\$2,694	\$13,835	\$17,255

Notes: 1) Supervisor equipment = pickup truck
 Note: Assumes water from City of Demning at \$8.64 per 1,000 gallons.

**Closure Cost Estimate
Labor Rates**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
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 Cost Data: User Data
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 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Color Code Key	
User Input - Direct Input	Direct Input
User Input - Pull Down List	Pull Down Selection
Program Constant (can override)	Alternate Input
Program Calculated Value	Locked Cell - Formula or Reference

ZONE ADJUSTMENTS			
Cost Basis/Project Region	American Magnesium - Option 1	American Magnesium - Foothill Dolomite Mine - Northern Nevada Equipment	
Power Equipment Operators	50-150 miles	\$0.00	
Truck Drivers	50-150 miles	\$0.00	
Laborers	50-150 miles	\$0.00	
INDIRECT COSTS			
Unemployment (%)	1.84%		
Retirement/SS/Medicare (%)	7.65%		
Workman's Compensation (%)	13.30%		
Other Indirects			
State Payroll Tax (13),(15),(17)			
Total Other Indirects	0.00%		

HOURLY LABOR RATE TABLE										
EQUIPMENT TYPE (1) OR JOB DESCRIPTION	Labor Group	Base Rate (\$/hr)	Zone Adjustment (\$/hr)	Hourly Wage (\$/hr)	Fringe (\$/hr)	Retirement/ Medicare (\$/hr)	Unemployment Insurance (\$/hr)	Workman's Compensation (\$/hr)	Other Indirect Costs (\$/hr)	Total (\$/hr)
Equipment Operators (\$/hr) (2)										
Bulldozers										
D6R		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
D6R w/ Winch		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
D7R		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
D8R		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
D9R		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
D10R		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
D11R		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
Wheeled Dozers										
824G										
834G										
844										
854G										
Motor Graders										
120H		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
14G/H		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
16G/H		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
24M		\$21.14	\$0.00	\$21.14		\$0.39	\$1.62	\$2.81	\$0.00	\$25.96
Track Excavators										
312C		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
320C		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
325C		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
330C		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
345B		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
365BL		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
385BL		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
Scrapers										
631G		\$14.03	\$0.00	\$14.03		\$0.26	\$1.07	\$1.87	\$0.00	\$17.23
637G		\$14.03	\$0.00	\$14.03		\$0.26	\$1.07	\$1.87	\$0.00	\$17.23
Wheeled Loaders										
924G		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
928G		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
950G		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
966G		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
972G		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
980G		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
988G		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
990		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
992G		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
994D		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
L2350		\$27.12	\$0.00	\$27.12		\$0.50	\$2.07	\$3.61	\$0.00	\$33.30
Shovels										
PC2000										
PC3000										
PC4000										
PC5500										
PC8000										
Hydraulic Hammers										
H-120 (fits 325)										
H-160 (fits 345)										
H-180 (fits 365/385)										
Demolition Shears										
S340 (fits 322/325/330)										
S365 (fits 330/345)										
S390 (fits 365/385)										
Demolition Grapples										
G315 (fits 322/325)										
G320 (fits 325/330)										
G330 (fits 345/365)										

**Closure Cost Estimate
Labor Rates**

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Color Code Key	
User Input - Direct Input	Direct Input
User Input - Pull Down List	Pull Down Selection
Program Constant (can override)	Alternate Input
Program Calculated Value	Locked Cell - Formula or Reference

ZONE ADJUSTMENTS		
Cost Basis/Project Region	American Magnesium - Option 1	American Magnesium - Foothill Dolomite Mine - Northern Nevada Equipment
Power Equipment Operators	50-150 miles	\$0.00
Truck Drivers	50-150 miles	\$0.00
Laborers	50-150 miles	\$0.00
INDIRECT COSTS		
Unemployment (%)	1.84%	
Retirement/SS/Medicare (%)	7.65%	
Workman's Compensation (%)	13.30%	
Other Indirects		
State Payroll Tax (13),(15),(17)		
Total Other Indirects	0.00%	

HOURLY LABOR RATE TABLE										
Other Equipment										
420D 4WD Backhoe		\$14.03	\$0.00	\$14.03	\$0.26	\$1.07	\$1.87	\$0.00	\$17.23	
428D 4WD Backhoe		\$14.03	\$0.00	\$14.03	\$0.26	\$1.07	\$1.87	\$0.00	\$17.23	
CS533E Vibratory Roller		\$14.03	\$0.00	\$14.03	\$0.26	\$1.07	\$1.87	\$0.00	\$17.23	
CS633E Vibratory Roller		\$14.03	\$0.00	\$14.03	\$0.26	\$1.07	\$1.87	\$0.00	\$17.23	
CP533E Sheepsfoot Compactor		\$14.03	\$0.00	\$14.03	\$0.26	\$1.07	\$1.87	\$0.00	\$17.23	
CP633E Sheepsfoot Compactor		\$14.03	\$0.00	\$14.03	\$0.26	\$1.07	\$1.87	\$0.00	\$17.23	
Light Truck - 1.5 Ton		\$0.00		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Supervisor's Truck		\$0.00		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Flatbed Truck										
Air Compressor + tools		\$14.03	\$0.00	\$14.03	\$0.26	\$1.07	\$1.87	\$0.00	\$17.23	
Welding Equipment		\$27.12	\$0.00	\$27.12	\$0.50	\$2.07	\$3.61	\$0.00	\$33.30	
Heavy Duty Drill Rig		\$14.03	\$0.00	\$14.03	\$0.26	\$1.07	\$1.87	\$0.00	\$17.23	
Pump (plugging) Drill Rig		\$14.03	\$0.00	\$14.03	\$0.26	\$1.07	\$1.87	\$0.00	\$17.23	
Concrete Pump										
Gas Engine Vibrator		\$14.03	\$0.00	\$14.03	\$0.26	\$1.07	\$1.87	\$0.00	\$17.23	
Generator 5KW										
HDEP Welder (pipe or liner)										
5 Ton Crane		\$27.12	\$0.00	\$27.12	\$0.50	\$2.07	\$3.61	\$0.00	\$33.30	
20 Ton Crane		\$27.12	\$0.00	\$27.12	\$0.50	\$2.07	\$3.61	\$0.00	\$33.30	
50 Ton Crane		\$27.12	\$0.00	\$27.12	\$0.50	\$2.07	\$3.61	\$0.00	\$33.30	
120 Ton Crane		\$27.12	\$0.00	\$27.12	\$0.50	\$2.07	\$3.61	\$0.00	\$33.30	
NOTES:										
(1) Equipment Type:	Caterpillar model or equivalent, LeTourneau									
(2) Equipment Operator Source:	Davis-Bacon Act WD#NM20200012									
(3) Zone Basis:	From Deming									
Truck Drivers (\$/hr) (4)										
725	truck Driver > 25 yds	\$18.97	\$0.00	\$18.97	\$0.35	\$1.45	\$2.52	\$0.00	\$23.29	
730	truck Driver > 25 yds	\$18.97	\$0.00	\$18.97	\$0.35	\$1.45	\$2.52	\$0.00	\$23.29	
735	truck Driver > 25 yds	\$18.97	\$0.00	\$18.97	\$0.35	\$1.45	\$2.52	\$0.00	\$23.29	
740	truck Driver > 25 yds	\$18.97	\$0.00	\$18.97	\$0.35	\$1.45	\$2.52	\$0.00	\$23.29	
769D	truck Driver > 25 yds	\$18.97	\$0.00	\$18.97	\$0.35	\$1.45	\$2.52	\$0.00	\$23.29	
773E		\$18.97	\$0.00	\$18.97	\$0.35	\$1.45	\$2.52	\$0.00	\$23.29	
777D	truck Driver > 60 yds	\$18.97	\$0.00	\$18.97	\$0.35	\$1.45	\$2.52	\$0.00	\$23.29	
785C				\$0.00						
793C				\$0.00						
797B				\$0.00						
613E (5,000 gal) Water Wagon	ter Truck > 2,500 gal	\$18.97	\$0.00	\$18.97	\$0.35	\$1.45	\$2.52	\$0.00	\$23.29	
621E (8,000 gal) Water Wagon	ter Truck > 2,500 gal	\$18.97	\$0.00	\$18.97	\$0.35	\$1.45	\$2.52	\$0.00	\$23.29	
777D Water Truck				\$0.00						
785C Water Truck				\$0.00						
Dump Truck (10-12 yd3)	Truck Driver > 8 yds <	\$11.90	\$0.00	\$11.90	\$0.22	\$0.91	\$1.58	\$0.00	\$14.61	
NOTES:										
(4) Truck Driver Source:	Davis-Bacon Act WD#NM20200012									
(5) Zone Basis:	From Deming									

Closure Cost Estimate

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Color Code Key	
User Input - Direct Input	Direct Input
User Input - Pull Down List	Pull Down Selection
Program Constant (can override)	Alternate Input
Program Calculated Value	Locked Cell - Formula or Reference

ZONE ADJUSTMENTS

Cost Basis/Project Region	American Magnesium - Option 1	American Magnesium - Foothill Dolomite Mine - Northern Nevada Equipment	
Power Equipment Operators	50-150 miles	\$0.00	
Truck Drivers	50-150 miles	\$0.00	
Laborers	50-150 miles	\$0.00	

INDIRECT COSTS

Unemployment (%)	1.84%	
Retirement/SS/Medicare (%)	7.65%	
Workman's Compensation (%)	13.30%	

Other Indirects	
-----------------	--

State Payroll Tax (13),(15),(17),		
Total Other Indirects	0.00%	

HOURLY LABOR RATE TABLE

Laborers (\$/hr) (6,7)

General Laborer	Group 1	\$12.37	\$0.00	\$12.37	\$0.00	\$0.23	\$0.95	\$1.65	\$0.00	\$15.19
Skilled Laborer	Group 4	\$17.97	\$0.00	\$17.97	\$0.00	\$0.33	\$1.37	\$2.39	\$0.00	\$22.06
Driller's Helper	Group 3	\$17.83	\$0.00	\$17.83	\$0.00	\$0.33	\$1.36	\$2.37	\$0.00	\$21.89
Rodmen (reinforcing concrete)	Group 1	\$17.74	\$0.00	\$17.74	\$0.00	\$0.33	\$1.36	\$2.36	\$0.00	\$21.78
Cement finisher	Group 3	\$17.83	\$0.00	\$17.83	\$0.00	\$0.33	\$1.36	\$2.37	\$0.00	\$21.89
Carpenter		\$22.26	\$0.00	\$22.26	\$13.48	\$0.41	\$1.70	\$2.96	\$0.00	\$40.81

NOTES:

(6) Laborer Source:	D-B LABO0169-034 10/1/2017 & Davis-Bacon Act WD#NM20200012
(7) Carpenter Source:	D-B Projected from Southern Nevada
(8) Zone Basis:	From Deming

Project Management and Technical Labor (\$/hr) (9)[illegible]

NOTES:

(9) Project Manager:	R.S.Means 2020 Q2 (01 31 1320 0200 Total Incl.O&P-10%) Adjusted for Elko, NV
(9) Foreman Source:	R.S.Means 2020 Q2 (01 31 1320 0200 Total Incl.O&P-10%) Adjusted for Elko, NV
(9) Technical Labor Source:	Wood plc 2020 Adjusted for Zone,Tax and Ins.
Other Labor Source:	
Other Labor Source:	
†Additional User Markups	
(These are added by the user to the base rate to account for site-specific conditions or corporate requirements)	

Closure Cost Estimate
Equipment Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Monthly Rental Basis: 160 hrs month

EQUIPMENT RENTAL RATE TABLE				
EQUIPMENT TYPE (1)	Monthly Owner/Rental Rate	Equipment Hourly Rate	Fuel/Lube/ Wear	Total Rate
Bulldozers				
D6R	\$6,570.00	\$41.06	\$50.90	\$91.96
D6R w/ Winch	\$6,570.00	\$41.06	\$50.90	\$91.96
D7R	\$18,300.00	\$114.38	\$22.95	\$137.33
D8R	\$20,180.00	\$126.13	\$29.70	\$155.83
D9R	\$30,100.00	\$188.13	\$41.41	\$229.54
D10R	\$44,500.00	\$278.13	\$51.43	\$329.55
D11R	\$56,234.00	\$351.46	\$235.44	\$586.90
Wheeled Dozers				
824G	\$19,849.00	\$124.06	\$113.00	\$237.06
834G	\$24,929.00	\$155.81	\$138.70	\$294.51
844	\$33,734.00	\$210.84	\$184.06	\$394.90
854G	\$33,802.00	\$211.26	\$221.85	\$433.11
Motor Graders				
120H	\$8,670.00	\$54.19	\$48.60	\$102.79
140H	\$14,790.00	\$92.44	\$94.28	\$186.72
160H	\$18,806.00	\$117.54	\$129.63	\$247.16
24M	\$20,686.00	\$129.29	\$158.47	\$287.75
Track Excavators				
312C	\$5,610.00	\$35.06	\$7.59	\$42.65
320C	\$7,750.00	\$48.44	\$15.06	\$63.49
325C	\$10,750.00	\$67.19	\$18.57	\$85.76
330C	\$11,500.00	\$71.88	\$23.64	\$95.51
345B	\$16,730.00	\$104.56	\$29.42	\$133.99
365BL	\$23,119.00	\$144.49	\$113.51	\$258.00
385BL	\$28,472.00	\$177.95	\$134.75	\$312.70
Scrapers				
631G	\$27,700.00	\$173.13	\$70.61	\$243.74
637G	\$36,819.00	\$230.12	\$200.40	\$430.52
Wheeled Loaders				
924G	\$5,610.00	\$35.06	\$19.78	\$54.85
928G	\$6,530.00	\$40.81	\$36.90	\$77.71
950G	\$9,520.00	\$59.50	\$32.45	\$91.95
966G	\$11,500.00	\$71.88	\$37.28	\$109.16
972G	\$13,480.00	\$84.25	\$43.86	\$128.11
980G	\$15,690.00	\$98.06	\$61.05	\$159.11
988G	\$19,589.00	\$122.43	\$151.77	\$274.20
990	\$28,299.00	\$176.87	\$233.36	\$410.23
992G	\$47,500.00	\$296.88	\$225.73	\$522.61
994D	\$45,175.00	\$282.34	\$350.03	\$632.37
L2350	\$82,607.00	\$516.29	\$625.53	\$1,141.82
Shovels				
PC2000	\$70,917.00	\$443.23	\$278.28	\$721.51
PC3000	\$72,526.00	\$453.29	\$345.19	\$798.47
PC4000	\$74,135.00	\$463.34	\$427.42	\$890.76
PC5500	\$81,548.00	\$509.68	\$562.14	\$1,071.82
PC8000	\$89,703.00	\$560.64	\$658.00	\$1,218.64
Hydraulic Hammers				
H-120 (fits 325)	\$3,420.00	\$21.38	\$11.57	\$32.95
H-160 (fits 345)	\$7,028.00	\$43.93	\$23.24	\$67.17
H-180 (fits 365/385)	\$8,168.00	\$51.05	\$24.96	\$76.01
Demolition Shears				
S340 (fits 322/325/330)	\$3,524.00	\$22.03	\$20.50	\$42.53
S365 (fits 330/345)	\$4,131.00	\$25.82	\$25.23	\$51.05
S380 (fits 365/385)	\$6,593.00	\$41.21	\$31.61	\$72.82
Demolition Grapples				
G315 (fits 322/325)				\$0.00
G320 (fits 325/330)				\$0.00
G330 (fits 345/365)				\$0.00
Other Equipment				
420D 4WD Backhoe	\$3,240.00	\$20.25	\$22.10	\$42.35
428D 4WD Backhoe	\$3,870.00	\$24.19	\$22.89	\$46.78
CS633E Vibratory Roller	\$4,402.00	\$27.51	\$27.54	\$55.06
CS633E Vibratory Roller	\$4,291.00	\$26.82	\$31.05	\$57.87
CP633E Sheepfoot Compactor	\$4,085.00	\$25.53	\$33.08	\$58.61
CP633E Sheepfoot Compactor	\$6,588.00	\$41.18	\$40.18	\$81.36
Light Truck - 1.5 Ton	\$2,184.00	\$13.65	\$17.48	\$31.13
Supervisor's Truck	\$834.00	\$5.21	\$7.61	\$12.82
Flatbed Truck	\$621.00	\$3.88	\$21.62	\$25.50
Air Compressor + Tools	\$597.00	\$3.73	\$5.57	\$9.30
Welding Equipment	\$405.00	\$2.53	\$6.30	\$8.83
Heavy Duty Drill Rig	\$52,018.00	\$325.11	\$314.83	\$639.94
Pump (plugging) Drill Rig	\$52,018.00	\$325.11	\$310.45	\$635.56
Concrete Pump	\$14,864.20	\$92.90	\$21.90	\$114.80
Gas Engine Vibrator	\$357.00	\$2.23	\$3.65	\$5.88
Generator 5KW	\$938.00	\$5.86	\$6.87	\$12.73
HDEP Welder (pipe or liner)	\$7,022.96	\$43.89	\$4.38	\$48.27
5 Ton Crane	\$7,159.50	\$44.75	\$42.14	\$86.88
20 Ton Crane	\$7,955.00	\$49.72	\$48.28	\$98.00
50 Ton Crane	\$15,154.00	\$94.71	\$88.82	\$183.54
120 Ton Crane	\$28,943.00	\$180.89	\$177.03	\$357.92
Trucks				
725	\$10,824.00	\$67.65	\$82.89	\$150.54
730	\$14,640.00	\$91.50	\$62.31	\$153.81
735	\$16,730.00	\$104.56	\$70.00	\$174.56
740	\$18,820.00	\$117.63	\$74.01	\$191.63
769D			\$23.86	\$23.86
773E	\$18,267.00	\$114.17	\$160.85	\$275.02
777D	\$37,750.00	\$235.94	\$325.91	\$561.85
785C	\$40,948.00	\$255.93	\$366.30	\$622.22
793C	\$49,547.00	\$309.67	\$470.39	\$780.06
797B	\$89,160.00	\$557.25	\$817.64	\$1,374.89
613E (5,000 gal) Water Wagon	\$8,726.00	\$54.54	\$77.29	\$131.83
621E (8,000 gal) Water Wagon	\$10,006.00	\$62.54	\$103.42	\$165.96
777D Water Truck	\$37,226.00	\$232.66	\$321.40	\$554.07
785C Water Truck	\$40,948.00	\$255.93	\$366.30	\$622.22
Dump Truck (10-12 yd ³)	\$3,752.00	\$23.45	\$32.89	\$56.34
NOTES:				
(1) Power Equipment Source:				
(2) Power Equipment Type:	Caterpillar model or equivalent, LeTourneau loader, Komatsu shovels			
(3) Drilling Equipment Source:	RS Means Heavy Construction (2020 Q2)			
(4) Other Equipment Source:	RS Means Heavy Construction (2020 Q2)			
(5) Drill rig includes support (pipe) truck				

**Closure Cost Estimate
Equipment Costs**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

FUEL, LUBE AND WEAR CALCULATIONS						
EQUIPMENT TYPE	PM Cost Per Hour ⁽¹⁾	Under carriage or Tires ⁽²⁾	G.E.T Consumption ⁽³⁾	Fuel Use Rate gal/hr (4)	Cost @ 2.19/gal	Total Hourly Equipment Cost
Bulldozers						
D6R	\$34.60		\$2.61	6.25	\$13.69	\$50.90
D6R w/ Winch	\$34.60		\$2.61	6.25	\$13.69	\$50.90
D7R	\$2.69		\$3.84	7.50	\$16.43	\$22.95
D8R	\$3.49		\$4.86	9.75	\$21.35	\$29.70
D9R	\$3.61		\$6.59	14.25	\$31.21	\$41.41
D10R	\$3.79		\$8.22	18.00	\$39.42	\$51.43
D11R	\$160.74		\$16.66	26.50	\$58.04	\$235.44
Wheeled Dozers						
824G	\$49.58	\$38.56	\$1.32	10.75	\$23.54	\$113.00
834G	\$59.69	\$49.72	\$1.70	12.60	\$27.59	\$138.70
844	\$77.91	\$70.88	\$2.42	15.00	\$32.85	\$184.06
854G	\$90.20	\$87.64	\$2.40	19.00	\$41.61	\$221.85
Motor Graders						
120H	\$20.32	\$18.90	\$0.62	4.00	\$8.76	\$48.60
14G-H	\$37.21	\$42.00	\$1.38	6.25	\$13.69	\$94.28
16G-H	\$50.42	\$60.78	\$2.00	7.50	\$16.43	\$129.63
24M	\$55.46	\$66.86	\$2.20	15.50	\$33.95	\$158.47
Track Excavators						
312C	\$2.14		\$1.33	1.88	\$4.12	\$7.59
320C	\$2.38		\$1.94	4.80	\$10.73	\$15.05
325C	\$2.64		\$1.48	6.80	\$14.45	\$18.57
330C	\$3.01		\$2.67	8.20	\$17.96	\$23.64
345B	\$3.36		\$2.85	10.60	\$23.21	\$29.42
365BL	\$80.63		\$3.97	13.20	\$28.91	\$113.51
385BL	\$91.31		\$5.11	17.50	\$38.33	\$134.75
Scrapers						
631G	\$3.22	\$32.68	\$1.86	15.00	\$32.85	\$70.61
637G	\$116.00	\$30.28	\$2.11	23.75	\$52.01	\$200.40
Wheeled Loaders						
924G	\$9.33	\$4.24	\$0.19	2.75	\$6.02	\$19.78
928G	\$16.35	\$12.28	\$0.60	3.50	\$7.67	\$36.90
950G	\$2.30	\$20.62	\$0.87	4.00	\$8.76	\$32.45
966G	\$2.42	\$21.40	\$0.87	5.75	\$12.59	\$37.28
972G	\$2.53	\$26.56	\$1.08	6.25	\$13.69	\$43.86
980G	\$2.57	\$40.64	\$1.41	7.50	\$16.43	\$61.05
988G	\$57.81	\$65.20	\$2.26	12.10	\$26.50	\$151.77
990	\$85.58	\$106.84	\$3.71	17.00	\$37.23	\$233.36
992G	\$11.87	\$130.76	\$3.73	23.00	\$50.37	\$225.73
994D	\$122.36	\$143.84	\$4.99	36.00	\$78.84	\$350.03
L2350	\$203.53	\$268.16	\$9.30	66.00	\$144.54	\$625.53
Shovels						
PC2000	\$183.38		\$13.87	37.00	\$81.03	\$278.28
PC3000	\$218.80		\$16.89	50.00	\$109.50	\$345.19
PC4000	\$254.21		\$19.91	70.00	\$153.30	\$427.42
PC5500	\$279.63		\$21.90	119.00	\$260.61	\$562.14
PC8000	\$307.59		\$24.09	149.00	\$326.31	\$658.00
Hydraulic Hammers						
H-120 (fits 325)	N/A		\$11.57			\$11.57
H-160 (fits 345)	N/A		\$23.24			\$23.24
H-180 (fits 365/385)	N/A		\$24.96			\$24.96
Demolition Shears						
S340 (fits 322/325/330)	N/A		\$20.50			\$20.50
S365 (fits 330/345)	N/A		\$25.23			\$25.23
S390 (fits 365/385)	N/A		\$31.61			\$31.61
Demolition Grapples						
G315 (fits 322/325)	N/A					\$0.00
G320 (fits 325/330)	N/A					\$0.00
G330 (fits 345/365)	N/A					\$0.00
Other Equipment						
420D 4WD Backhoe	\$11.81	\$3.18	\$0.54	3.00	\$6.57	\$22.10
428D 4WD Backhoe	\$12.20	\$3.22	\$0.60	3.00	\$6.57	\$22.59
CS633E Vibratory Roller	\$19.33			3.75	\$8.21	\$27.64
CP633E Vibratory Roller	\$20.65			4.75	\$10.40	\$31.05
CP633E Sheepfoot Compactor	\$24.87			3.75	\$8.21	\$33.08
CP633E Sheepfoot Compactor	\$29.78			4.75	\$10.40	\$40.18
Light Truck - 1.5 Ton	\$8.67	\$5.52		1.50	\$3.29	\$17.48
Supervisor's Truck	\$3.62	\$1.80		1.00	\$2.19	\$7.61
Flatbed Truck	\$3.85	\$7.48		4.70	\$10.29	\$21.62
Air Compressor + tools	\$3.38		N/A	1.00	\$2.19	\$5.57
Welding Equipment	\$1.92		N/A	2.00	\$4.38	\$6.30
Heavy Duty Drill Rig	\$278.95		\$9.60	12.00	\$26.28	\$314.83
Pump (plugging) Drill Rig	\$278.95		\$9.60	10.00	\$21.90	\$310.45
Concrete Pump			N/A	10.00	\$21.90	\$21.90
Gas Engine Vibrator	\$1.46		N/A	1.00	\$2.19	\$3.65
Generator 5KW	\$3.58		N/A	1.50	\$3.29	\$6.87
HDEP Welder (pipe or liner)			N/A	2.00	\$4.38	\$4.38
5 Ton Crane	\$23.22	\$12.35		3.00	\$6.57	\$42.14
20 Ton Crane	\$25.80	\$13.72		4.00	\$8.76	\$48.28
50 Ton Crane	\$45.47	\$33.06		4.70	\$10.29	\$88.82
120 Ton Crane	\$80.14	\$65.50		5.20	\$11.39	\$177.03
Trucks						
725	\$28.22	\$41.16	\$3.22	4.70	\$10.29	\$82.89
730	\$2.76	\$44.94	\$3.22	5.20	\$11.39	\$62.31
735	\$2.86	\$47.82	\$3.22	7.35	\$16.10	\$70.00
740	\$2.97	\$51.72	\$3.22	7.35	\$16.10	\$74.01
769D			\$3.60	9.25	\$20.26	\$23.86
773E	\$47.92	\$83.16	\$4.04	11.75	\$25.73	\$160.85
777D	\$95.60	\$189.12	\$4.51	16.75	\$36.68	\$325.91
785C	\$105.16	\$208.03		24.25	\$53.11	\$366.30
793C	\$127.24	\$251.72		41.75	\$91.43	\$470.39
797B	\$204.78	\$484.20		58.75	\$128.66	\$817.64
613E (5,000 gal) Water Wagon	\$45.31	\$18.84		6.00	\$13.14	\$77.29
621E (8,000 gal) Water Wagon	\$50.66	\$29.22		10.75	\$23.54	\$103.42
777D Water Truck	\$95.60	\$189.12		16.75	\$36.68	\$321.40
785C Water Truck	\$105.16	\$208.03		24.25	\$53.11	\$366.30
Dump Truck (10-12 yd3) (5)	N/A	\$21.50	N/A	5.20	\$11.39	\$32.89
Notes:						
(1) PM Source:						
(2) Undercarriage Source:						
(3) G.E.T. Source:						
(4) Fuel Use Source:	Caterpillar Handbook, Edition 35, Ch. 20; or estimated average for smaller vehicles					
(5) Dump Truck Oper. Cost Source:	Means Heavy Construction (2008)					

**Closure Cost Estimate
Equipment Costs**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

TIRE COST TABLES						
Equipment	Tire Size	# of Tires Per Piece of Equipment	Cost Per Tire	Tire Cost (1)(2)	Life Expectancy Hours (Low/Zone A) (3)	Tire Cost per Hour
Bulldozers						
D6R			N/A			
D6R w/ Winch			N/A			
D7R			N/A			
D8R			N/A			
D9R			N/A			
D10R			N/A			
D11R			N/A			
Wheeled Dozers						
824G	29.5R25	4	\$33,740.00	\$134,960.00	3,500	\$38.56
834G	35/65-R33	4	\$43,505.00	\$174,020.00	3,500	\$49.72
844	45/65-R39	4	\$62,020.00	\$248,080.00	3,500	\$70.88
854G	45/65-R45	4	\$76,685.00	\$306,740.00	3,500	\$87.64
Motor Graders						
120H	19PR24	6	\$11,025.00	\$66,150.00	3,500	\$18.90
14G/H	20.5R25	6	\$24,500.00	\$147,000.00	3,500	\$42.00
16G/H	23.5R25	6	\$35,455.00	\$212,730.00	3,500	\$60.78
24M	23.5R25	6	\$39,000.50	\$234,003.00	3,500	\$66.86
Track Excavators						
312C			N/A			
320C			N/A			
325C			N/A			
330C			N/A			
345B			N/A			
365BL			N/A			
385BL			N/A			
Scrapers						
631G	37.25R35	4	\$32,680.00	\$130,720.00	4,000	\$32.68
637G	37.25R35	4	\$30,280.00	\$121,120.00	4,000	\$30.28
Wheeled Loaders						
924G	17.5R25	4	\$4,770.00	\$19,080.00	4,500	\$4.24
928G	17.5R25	4	\$13,815.00	\$55,260.00	4,500	\$12.28
950G	26.5R25	4	\$23,085.00	\$92,340.00	4,500	\$20.52
966G	26.5R25	4	\$24,075.00	\$96,300.00	4,500	\$21.40
972G	26.5R25	4	\$29,880.00	\$119,520.00	4,500	\$26.56
980G	29.5R25	4	\$45,720.00	\$182,880.00	4,500	\$40.64
988G	35/65-33	4	\$73,350.00	\$293,400.00	4,500	\$65.20
990	41.25/70-39	4	\$120,195.00	\$480,780.00	4,500	\$106.84
992G	45/65R45	4	\$147,105.00	\$588,420.00	4,500	\$130.76
994D	55/85R57	4	\$161,815.50	\$647,262.00	4,500	\$143.84
L2350	55/85R57	4	\$301,680.00	\$1,206,720.00	4,500	\$268.16
Shovels						
PC2000			N/A			
PC3000			N/A			
PC4000			N/A			
PC5500			N/A			
PC8000			N/A			
Hydraulic Hammers						
H-120 (fits 325)			N/A			
H-160 (fits 345)			N/A			
H-180 (fits 365/385)			N/A			
Demolition Shears						
S340 (fits 322/325/330)			N/A			
S365 (fits 330/345)			N/A			
S390 (fits 365/385)			N/A			
Demolition Grapples						
G315 (fits 322/325)			N/A			
G320 (fits 325/330)			N/A			
G330 (fits 345/365)			N/A			
Other Equipment						
420D 4WD Backhoe	340/80R18-19.5LR24	2	\$4,770.00	\$9,540.00	3,000	\$3.18
428D 4WD Backhoe	340/80R18-16.9R28	2	\$4,830.00	\$9,660.00	3,000	\$3.22
CS533E Vibratory Roller			N/A			
CS633E Vibratory Roller			N/A			
CP533E Sheepfoot Compactor			N/A			
CP633E Sheepfoot Compactor			N/A			
Light Truck - 1.5 Ton		4	4140	\$16,560.00	3,000	\$5.52
Supervisor's Truck		4	1350	\$5,400.00	3,000	\$1.80
Flatbed Truck		22	1020	\$22,440.00	3,000	\$7.48
Air Compressor + tools			N/A			
Welding Equipment			N/A			
Heavy Duty Drill Rig		4		\$0.00	3,000	
Pump (plugging) Drill Rig		4		\$0.00	3,000	
Concrete Pump			N/A			
Gas Engine Vibrator			N/A			
Generator 9KW			N/A			
HDEP Welder (pipe or liner)			N/A			
5 Ton Crane		4	\$9,261.00	\$37,044.00	3,000	\$12.35
20 Ton Crane		4	\$10,290.00	\$41,160.00	3,000	\$13.72
50 Ton Crane		6	\$16,530.00	\$99,180.00	3,000	\$33.06
120 Ton Crane		6	\$42,750.00	\$256,500.00	3,000	\$85.50
Trucks						
T25	23.5R25	6	\$13,720.00	\$82,320.00	2,000	\$41.16
T30	23.5R25	6	\$14,980.00	\$89,880.00	2,000	\$44.94
T35	26.5R25	6	\$15,940.00	\$95,640.00	2,000	\$47.82
T40	29.5R25	6	\$17,240.00	\$103,440.00	2,000	\$51.72
T69D	18.00R33	6		\$0.00	6,000	
T73E	24.00R35	6	\$69,300.00	\$415,800.00	5,000	\$83.16
T77D	27.00R49	6	\$157,600.00	\$945,600.00	5,000	\$189.12
T85C	33.00R51	6	\$138,688.00	\$832,128.00	4,000	\$208.03
T93C	40.00R57	6	\$167,812.48	\$1,006,874.88	4,000	\$251.72
T97B	40.00R57	6	\$322,800.00	\$1,936,800.00	4,000	\$484.20
613E (5,000 gal) Water Wagon	23.5R25	6	\$18,840.00	\$113,040.00	6,000	\$18.84
621E (8,000 gal) Water Wagon	33.25R29	6	\$38,960.00	\$233,760.00	8,000	\$29.22
T77D Water Truck	27.00R49	6	\$157,600.00	\$945,600.00	5,000	\$189.12
T85C Water Truck	33.00R51	6	\$138,688.00	\$832,128.00	4,000	\$208.03
Dump Truck (10-12 yd3)		10	\$12,900.00	\$129,000.00	6,000	\$21.50
Notes:						
(1) Unit Cost Basis:						
(2) Cost Basis:						
(3) Tire Cost Source:						
(4) Tire Wear Source:						

Closure Cost Estimate Material Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety **Cost Basis:** American Magnesium - Option 1

Revegetation Materials			
Seed Mixes			
Seed Mix	Description		Cost/Acre
None			
Mix 1	Basins		\$302.50
Mix 2	Low Hills		\$332.75
Mix 3	Uplands		\$363.00
Mix 4	Riparian or Custom		\$393.25
User Mix 1	Site Specific Seed Mix		\$250.00
User Mix 2			
User Mix 3			
User Mix 4			
	Cost/lb	lbs/Acre	Cost/Acre
User Mix 5 (from Seed Mix sheet	\$0.00	\$9.18	\$0.00
Notes:			
Mulch			
Item	Cost/lb	lbs/Acre	Cost/Acre
None			
Straw Mulch	\$0.17	36300	\$6,150.83
Hydro Mulch	\$0.25		
Timber Mulch			
Notes:			
	Granite Seed \$500 per Ton in 50 lb bag Wood (Hydro) Mulch (

Closure Cost Estimate Material Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety **Cost Basis:** American Magnesium - Option 1

Amendments			
Item	Cost/lb	lbs/Acre	Cost/Acre
None			
Organic Matter	\$0.70		\$0.00
Treated Sludge			
Chemical	\$0.59		\$0.00
Notes:	Western Nevada Supply \$29.34 per 50 lb. bag 15-15-15 (June 2020)		

Closure Cost Estimate

Material Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Well Abandonment Materials			
Description	Cost/50lb bag	Units	Cost/unit*
Cement	\$7.57	cy	\$36.07
Grout (Low Grade Bentonite)	\$8.85	cy	\$42.14
Inert Material/Cuttings		cy	
		cy	
		cy	
(1) Jentech Drilling Supply quote (June 2020) Type I,II Cement at \$14.24 per 94 lb. bag			
(2) Jentech Drilling Supply (June 2020) 3/8 in. Chunk Bentonite Hole Plug at \$8.85 per 50 lb. bag (5.75 cf/bag at			
* Assumes 1 bag mixes with water to make 0.21 y3 or 0.16 m3 of grout/cement slurry.			

Monitoring Costs		
Description	Units	Cost/unit
Monitor Well Pump	ea.	\$2,788.41
Sampling Supplies	ea.	\$6.51
Water Analysis (Profile I) (1)	ea.	\$411.00
Leach Test (MWMP) w/ analysis	ea.	\$483.40
ABA + S speciation	ea.	\$150.00
WAD Cyanide in water	ea.	\$56.00
Water Analysis (Profile II) (1)	ea.	\$461.00
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
	ea.	
(1) WET Lab, Reno, Nevada (July 2020)		
Well pump and Sample supply costs adjusted to 2020.		
Original source unknown.		

Closure Cost Estimate Material Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety **Cost Basis:** American Magnesium - Option 1



Closure Cost Estimate

Material Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety **Cost Basis: American Magnesium - Option 1**

[illegible]

(1) Source: Oil Price Information Service, average annual cost including freight to Nevada (July 2020).

Source: Federal Government Vehicle Allowance Rate 2020

Source: NV Energy (July 2020) \$0.07872

Closure Cost Estimate

Material Costs

Revegetation Method				
Slopes				
Disturbance Type	Seed Application Method	Labor Cost/Acre	Equipment Cost/Acre	Total Cost/Acre
Waste Rock Dumps	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Heap Leach	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Tailings	Hand Broadcast	\$140.00	\$50.00	\$190.00
Quarries & Borrow Pits	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Flat Areas and Undifferentiated				
Disturbance Type	Seed Application Method	Labor Cost/Acre	Equipment Cost/Acre	Total Cost/Acre
Exploration Trenches	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Exploration Roads	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Waste Rock Dumps	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Heap Leach	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Tailings	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Quarries & Borrow Pits	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Roads	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Pits	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Haul Material	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Foundations & Buildings	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Sediment & Drainage Control	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Process Ponds	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Landfills	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Yards, Etc.	Mechanical Broadcast	\$140.00	\$50.00	\$190.00
Revegetation Maintenance	Mechanical Broadcast	\$140.00	\$50.00	\$190.00

Closure Cost Estimate Misc. Unit Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety **Cost Basis:** American Magnesium - Option 1

Revegetation										
	Means Number	Unit	Crew	Daily Output	Daily Output User	Materials	Labor	Equipment	Total	Notes
Seeding - Broadcast Hand (1)		acres					\$140.00	\$50.00	\$190.00	
Seeding - Broadcast Mechanical (1)		acres					\$140.00	\$50.00	\$190.00	
Seeding - Drill (1)		acres		365			\$140.00	\$120.00	\$260.00	
Seeding - Hydroseeding (1)				365			\$250.00	\$150.00	\$400.00	
Shrub Planting - bare root 6-10 in (150- 250mm) (2)	02910-400-0561	ea.	1 Clab	365					\$0.00	
Tree Planting - bare root 11-16 in (270- 400mm) (3)	02910-400-0562	ea.	1 Clab	260					\$0.00	
Cactus Planting (4)		ea.	1 Clab						\$0.00	
NOTES:										
(1) Seeding Source:	Source: Kelley Erosion Control (July 2020).									
(2) Shrub Source:										
(3) Tree Source:										
(4) Cactus Source:										
Building and Wall Demolition										
Hourly productivity rates and crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data . All equipment, labor and material unit costs are from Labor Costs, Equipment Costs and Material Costs spreadsheets										
	Means Number	Unit	Crew	Daily Output	Daily Output User	Labor	Equipment	Premium	Total	Notes
Building Demolition										
Lg. steel	02220-110-0012	C.F.	B-8	21500		\$0.08	\$0.11		\$0.19	
Lg. concrete	02220-110-0050	C.F.	B-8	15300		\$0.11	\$0.15		\$0.26	
Lg. masonry	02220-110-0080	C.F.	B-8	20100		\$0.08	\$0.11		\$0.19	
Lg. mixed	02220-110-0100	C.F.	B-8	20100		\$0.08	\$0.11		\$0.19	
Sm. steel	02220-110-0500	C.F.	B-3	14800		\$0.10	\$0.10		\$0.20	
Sm. concrete	02220-110-0600	C.F.	B-3	11300		\$0.12	\$0.13		\$0.25	
Sm. masonry	02220-110-0650	C.F.	B-3	14800		\$0.10	\$0.10		\$0.20	
Sm. wood	02220-110-0700	C.F.	B-3	14800		\$0.10	\$0.10		\$0.20	
Wall Demolition										
Block 4 in (100 mm) thick	02220-130-2000	S.F.	1 Clab	180		\$0.68	\$0.00	20%	\$0.82	
Block 6 in (150 mm) thick	02220-130-2040	S.F.	1 Clab	170		\$0.71	\$0.00	20%	\$0.85	
Block 8 in (200 mm) thick	02220-130-2080	S.F.	1 Clab	150		\$0.81	\$0.00	20%	\$0.97	
Block 12 in (300 mm) thick	02220-130-2100	S.F.	1 Clab	150		\$0.81	\$0.00	20%	\$0.97	
Conc 6 in (150 mm) thick	02220-130-2400	S.F.	B-9	160		\$8.04	\$0.47	10%	\$9.36	
Conc 8 in (200 mm) thick	02220-130-2420	S.F.	B-9	140		\$9.19	\$0.53	10%	\$10.69	
Conc 10 in (250 mm) thick	02220-130-2440	S.F.	B-9	120		\$10.72	\$0.62	10%	\$12.47	
Conc 12 in (300 mm) thick	02220-130-2500	S.F.	B-9	100		\$12.87	\$0.74	10%	\$14.97	

**Closure Cost Estimate
Misc. Unit Costs**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Waste Disposal										
Unit rates from Means Heavy Construction 2006 Edition by permission of R.S.Means/Reed Construction Data .										
	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment		Total	Notes
Rubbish Handling										
Dumpster delivery (average for all sizes)	02220-350-0910	ea.			\$51.50				\$51.50	
Haul (average for all sizes)	02220-350-0920	ea.			\$161.00				\$161.00	
Rent per month (average for all sizes)	02220-350-0940	ea.			\$55.00				\$55.00	
Disposal fee per ton (tonne) (average for all sizes)	02220-350-0950	ton			\$60.50				\$60.50	
NOTES:										
Dumpster Cost Source:	R.S. Means Heavy Construction (2020 Q2).									
Dumpster Disposal Fee Source:	R.S. Means Heavy Construction (2020 Q2).									
Hazardous Material Handling - Solids (+ Liquids in drums)										
Pickup fees 55 gal (200 L). drums	02110-300-1100	ea.			\$251.00				\$251.00	
Bulk material (average)	02110-300-1220/1230	ton			\$409.50				\$409.50	
Transport - truck load (80 drums, 25 cy (m3), 18 tons)	02110-300-1260/1270	mile			\$5.88				\$5.88	
Dump site solid disposal fee	02110-300-6000/6020	ton			\$288.50				\$288.50	
NOTES:										
Solid Handling Cost Source:	R.S. Means Heavy Construction (2019 Q2).									
Solid Disposal Fee Source:	2019 Q2 R.S. Means Heavy Const. ave. 02 81									
Hazardous Material Handling - Liquids										
Vacuum Truck Pickup (2200 gal/8300 L)	02110-300-3110	hr.			\$147.00				\$147.00	
Vacuum Truck Pickup (5000 gal/19000 L)	02110-300-3120	hr.			\$213.00				\$213.00	
Dump site liquid disposal fee	02110-300-6000/6020	ton			\$288.50				\$288.50	
NOTES:										
Liquid Handling Cost Source:	R.S. Means Heavy Construction (2020 Q2).									
Liquid Disposal Fee Source:	2020 Q2 R.S. Means Heavy Const. ave. 02 81									
Hydrocarbon Contaminated Soils (HCS)										
Insitu Biotreatment	02115-200-2020/2021	C.Y.			\$17.64				\$17.64	
HCS disposal fee	02115-200-2050/2055	C.Y.			\$278.50				\$278.50	
NOTES:										
Insitu Treatement Cost Source:	2020 Q2 R.S. Means Heavy Const., ave. 02 65									
HCS Disposal Fee Source:	2020 Q2 R.S. Means Heavy Const., ave. 02 65									

Closure Cost Estimate Misc. Unit Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety **Cost Basis:** American Magnesium - Option 1

Concrete Structure Installation										
Weekly dumpster rental rates from Means Heavy Construction 2005 Edition with permission by R.S.Means/Reed Construction Data .										
Weekly dumpster rental rates include haul to off-site disposal site and disposal fees										
	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment	Premium	Total	Notes
Reinforced Concrete Bulkheads and Shaft Covers										
Grade walls - 15 in (400mm) thick, 8 ft (2.5m) high	03310-240-4300	C.Y.	C-14D	80.02	\$163.00	\$93.03	\$13.35		\$269.38	includes reinforcing
Grade walls - 15 in (400mm) thick, 12 ft (3.7m) high	03310-240-4350	C.Y.	C-14D	26.2	\$163.00	\$284.13	\$40.76		\$487.89	includes reinforcing
Elevated conc, 1-way beam & slab - 15ft (4.6m) span	03310-240-2700	C.Y.	C-14B	20.59	\$278.00	\$355.26	\$51.87		\$685.13	includes reinforcing
Elevated conc, 1-way beam & slab - 25ft (7.5m) span	03310-240-2750	C.Y.	C-14B	28.36	\$265.00	\$257.93	\$37.66		\$560.59	includes reinforcing
Bat Gate/Foam Plug Installation										
Bat Gate (5)		ea.			\$3,367.61					materials \$/ea. Installed
Culvert Gate (5)		ea.			\$6,735.21					materials \$/ea. Installed
Adit Foam Plug (6)		ea./C.Y.			\$336.76					materials \$/cy placed
Production Opening Foam Plug (6)		ea./C.Y.			\$336.76					materials \$/cy placed
NOTES:										
(5) Bat Gate Source:	NV BLM, 2/2006: 8 hr + 1hr mob/demob + 1hr setup per gate (adjusted to 2020)									
(6) Foam Plug Source:	NV BLM, 2/2006: 8 hr+ 1hr mob/demob + 1hr setup per adit; 16 hrs per production opening (adjusted to 2020)									

Closure Cost Estimate Misc. Unit Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety **Cost Basis:** American Magnesium - Option 1

Misc. Linear Projects										
Hourly productivity rates and crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data . All equipment, labor and material unit costs are from Labor Costs, Equipment Costs and Material Costs spreadsheets										
	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment	Premium	Total	Notes
Fencing Installation										
Barbed 3-strand	02820-170-1650	L.F.	B-80A	760	\$0.51	\$0.48	\$0.33		\$1.32	
Barbed 4-strand	extrapolated	L.F.	B-80A	570	\$0.68	\$0.64	\$0.44		\$1.76	
Barbed 5-strand	02820-130-0920	L.F.	B-80A	456	\$0.85	\$0.80	\$0.55		\$2.20	
Chain link 8-10ft (2.5-3m) Install	02820-130-0920	L.F.	B-80C	180	\$38.00	\$2.03	\$1.38		\$41.41	
Wood stockade fence 6 ft (2 m) high - Install	02820-510-1240	L.F.	B-80C	150	\$16.00	\$2.43	\$1.66		\$20.09	
	user	L.F.							\$0.00	
	user	L.F.							\$0.00	
	user	L.F.							\$0.00	
	user	L.F.							\$0.00	
Fencing Removal										
Barbed 3-strand Removal	02220-220-1600	L.F.	2 Clab	430		\$0.57	\$0.58		\$1.15	
Barbed 4-strand Removal	extrapolated	L.F.	2 Clab	355		\$0.68	\$0.70		\$1.38	
Barbed 5-strand Removal	02220-220-1650	L.F.	2 Clab	280		\$0.87	\$0.89		\$1.76	
Chain link 8-10 ft (2.5-3 m) Removal	02220-220-1700	L.F.	B-6	445		\$1.14	\$1.40		\$2.54	
Wood, all types 4-6 ft ("1.5-2 m) high - Removal	02220-220-1775	L.F.	2 Clab	430		\$0.57	\$0.58		\$1.15	
	user	L.F.								
	user	L.F.							\$0.00	
	user	L.F.							\$0.00	
	user	L.F.							\$0.00	
Culvert Removal										
12 in (300 mm) Diameter	02220-220-2900	L.F.	B-6	175		\$2.91	\$3.55		\$6.46	
18 in (450 mm) Diameter	02220-220-2930	L.F.	B-6	150		\$3.40	\$4.14		\$7.54	
24 in (600 mm) Diameter	02220-220-2960	L.F.	B-6	120		\$4.25	\$5.18		\$9.43	
36 in (1m) Diameter	02220-220-3000	L.F.	B-6	90		\$5.66	\$6.91		\$12.57	
Pipeline Removal										
0.75 in (20mm) - 4 in (100 mm) diameter	02220-381-1600	L.F.	B-20	700		\$1.37	\$0.36		\$1.73	
6 in (150 mm) - 8 in (200 mm)	02220-381-1700	L.F.	B-20	500		\$1.92	\$0.50		\$2.42	
10 in (250 mm) - 18 in (450 mm)	02220-381-1800	L.F.	B-20	300		\$3.20	\$0.83		\$4.03	
20 in (500 mm) - 36 in (1 m)	02220-381-1900	L.F.	B-20	200		\$4.81	\$1.25		\$6.06	
Pipe and Drainpipe Installation										
Water 4in (100mm) 40ft (12m) length, welded HDPE	02510-760-0100	L.F.	B-22A	400	\$2.70	\$1.91	\$5.44		\$10.05	
Water 6in (150mm) 40ft (12m) length, welded HDPE	02510-760-0200	L.F.	B-22A	380	\$5.85	\$2.01	\$5.72		\$13.58	
Water 12in (300mm) 40ft (12m) length, welded HDPE	02510-760-0500	L.F.	B-22A	260		\$2.94	\$8.36		\$11.30	
Drain 4in (100mm) perforated PVC	02620-630-2100	L.F.	B-14	315	\$1.74	\$4.09	\$1.87		\$7.70	
Drain 6in (150mm) perforated PVC	02620-630-2110	L.F.	B-14	300	\$4.22	\$4.29	\$1.96		\$10.47	
Drain 4in (100mm) corrugated, perf or plain	02620-660-0040	L.F.	2 Clab	1200	\$0.78	\$0.20	\$0.21		\$1.19	
Drain 6in (150mm) corrugated., perf or plain	02620-660-0060	L.F.	2 Clab	900	\$2.18	\$0.27	\$0.28		\$2.73	

Closure Cost Estimate
Misc. Unit Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Drain Rock Preparation										
Crushing		C.Y.							\$0.50	
Screening		C.Y.							\$0.50	
TOTAL									\$1.00	
Misc.										
Backhoe work	02210-700-0120	C.Y.	B-11M	28		\$4.92	\$12.10		\$17.02	
Powerline and Transformer Removal										
Single Pole		mile							\$46,803.69	
Double Pole		mile							\$53,489.93	
Transformer (9)		ea.							\$58,997.31	
NOTES:										
(7) Single Pole Source:	NV Energy estimate (2009) Adjusted to 2020									
(8) Double Pole Source:	NV Energy estimate (2009) Adjusted to 2020									
(9) Transformer Source:	NV Energy estimate (2018) adjusted to 2020									
Erosion and Sedimentation Control										
Hourly productivity rates and crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data .										
All equipment, labor and material unit costs are from Labor Costs, Equipment Costs and Material Costs spreadsheets										
	Means Number	Unit	Crew	Daily Output	Materials	Labor	Equipment	Premium	Total	Notes
Rip-Rap & Rock Lining										
Rip-Rap 3/8 to 1/4 CY (m3) pieces, grouted	02370-450-0110	S.Y.	B-13	80	\$25.00	\$17.69	\$9.80		\$52.49	assumes on-site source of rip-rap
Rip-Rap 18 in (450 mm) min thick, no grout	02370-450-0200	S.Y.	B-13	53	\$7.65	\$26.71	\$14.79		\$49.15	assumes on-site source of rip-rap
Gabions, 6 in (150 mm) deep	02370-450-0400	S.Y.	B-13	200	\$7.05	\$7.08	\$3.92		\$18.05	assumes on-site source rock fill for gabions
Gabions, 9 in (250 mm) deep	02370-450-0500	S.Y.	B-13	163	\$9.85	\$8.68	\$4.81		\$23.34	assumes on-site source rock fill for gabions
Gabions, 12 in (300 mm) deep	02370-450-0200	S.Y.	B-13	153	\$14.30	\$9.25	\$5.12		\$28.67	assumes on-site source rock fill for gabions
Gabions, 18 in (450 mm) deep	02370-450-0200	S.Y.	B-13	102	\$18.35	\$13.88	\$7.69		\$39.92	assumes on-site source rock fill for gabions
Gabions, 36 in (1m) deep	02370-450-0200	S.Y.	B-13	60	\$31.00	\$23.59	\$13.07		\$67.66	assumes on-site source rock fill for gabions
HDEP Liner Installation										
Finish grading large area	2310-100-0100	S.F.	B-11L	18000		\$0.02	\$0.08		\$0.10	
Compaction-riding, vibrating roller - 12in (300mm) lifts	2315-310-5100	C.Y.	B-10Y	2600		\$0.10	\$0.17		\$0.27	
60 mil HDPE	2660-610-0010	S.F.	3 Skwk	1600	\$0.57	\$0.42	\$0.45		\$1.44	
80 mil HDPE	user	S.F.	3 Skwk	149		\$4.48	\$4.87		\$9.35	
40 mil VLDPE	user	S.F.	3 Skwk	150		\$4.45	\$4.83		\$9.28	
	user	S.F.	3 Skwk	149		\$4.48	\$4.87		\$9.35	
	user	S.F.	3 Skwk	149		\$4.48	\$4.87		\$9.35	

Closure Cost Estimate Misc. Unit Costs

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Construction Management Support											
Office Trailer, Furnished, no hook-ups	0150-500-0250	mo.				\$198.00				\$198.00	
Toilet Portable, chemical	1590-400-6410	mo.				\$214.20				\$214.20	
TOTAL						\$412.20				\$412.20	
Pump and Casing Removal											
	Pump Type	Measurement	Unit				Labor	Equipment		Total	Notes
Pump Removal											
	Submersible	ft to pump	L.F.				\$7.65	\$18.86		\$26.51	
	Line Shaft	ft to pump	L.F.				\$7.65	\$18.86		\$26.51	
NOTES:											
(10) Pump Removal Source: Boart Longyear Quote: June 2020											

**Closure Cost Estimate
Fleets (Crews)**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
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Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
RIPPING					
Rip road Waste rock dumps, heaps, tails - rip flat surfaces Surface preparation Scarify					
Small Dozer w/ multi-shank					
D7R		1	\$137.33	\$25.96	\$163.29
Totals			\$137.33	\$25.96	\$163.29
Medium Dozer w/ multi-shank					
D9R		1	\$229.54	\$25.96	\$255.50
Totals			\$229.54	\$25.96	\$255.50
Large Dozer w/ multi-shank					
D10R		1	\$329.55	\$25.96	\$355.51
Totals			\$329.55	\$25.96	\$355.51
Grader w/ multi-shank					
16G/H		1	\$247.16	\$25.96	\$273.12
Totals			\$247.16	\$25.96	\$273.12
GRADING					
Grading storage and structure areas Grading waste rock dumps and heaps Grading landfills Constructing pit safety berms					
Small Dozer Fleet					
D7R		1	\$137.33	\$25.96	\$163.29
Totals			\$137.33	\$25.96	\$163.29
Medium Dozer Fleet					
D9R		1	\$229.54	\$25.96	\$255.50
Totals			\$229.54	\$25.96	\$255.50
Large Dozer Fleet					
D10R		1	\$329.55	\$25.96	\$355.51
Totals			\$329.55	\$25.96	\$355.51
EXPLORATION GRADING					
Backfilling and grading exploration trenches Grading flat exploration roads					
Small Dozer Fleet					
D6R		1	\$91.96	\$25.96	\$117.92
Totals			\$91.96	\$25.96	\$117.92
Medium Dozer Fleet					
D7R		1	\$137.33	\$25.96	\$163.29
Totals			\$137.33	\$25.96	\$163.29
Large Dozer Fleet					
D8R		1	\$155.83	\$25.96	\$181.79
Totals			\$155.83	\$25.96	\$181.79

**Closure Cost Estimate
Fleets (Crews)**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
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Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
EXCAVATING					
Earthen Berms Diversion ditch excavation and backfill Underground openings backfill - excavate and place Pit berm construction (excavator option)					
Small Excavator					
325C		1	\$85.76	\$33.30	\$119.06
Totals			\$85.76	\$33.30	\$119.06
Medium Excavator					
345B		1	\$133.99	\$33.30	\$167.29
Totals			\$133.99	\$33.30	\$167.29
Large Excavator					
385BL		1	\$312.70	\$33.30	\$346.00
Totals			\$312.70	\$33.30	\$346.00
EXCAVATE AND RECONTOUR					
Recontour large roads (haul roads, access roads, etc.) Ponds - Excavate and pull liner and bury					
Small Excavator + Dozer					
325C		1	\$85.76	\$33.30	\$119.06
D7R		1	\$137.33	\$25.96	\$163.29
Total Equipment			\$223.09	\$59.26	\$282.35
Medium Excavator + Dozer					
345B		1	\$133.99	\$33.30	\$167.29
D9R		1	\$229.54	\$25.96	\$255.50
Totals			\$363.53	\$59.26	\$422.79
Large Excavator + Dozer					
385BL		1	\$312.70	\$33.30	\$346.00
D10R		1	\$329.55	\$25.96	\$355.51
Totals			\$642.25	\$59.26	\$701.51
EXPLORATION ROAD/PAD RECONTOUR					
Recontour small roads (exploration roads, service roads, etc.) Cut and Fill reclamation on slopes Drill pad recontour Drill sump backfill					
Small Dozer					
D6R		1	\$91.96	\$25.96	\$117.92
Totals			\$91.96	\$25.96	\$117.92
Large Dozer					
D8R		1	\$155.83	\$25.96	\$181.79
Totals			\$155.83	\$25.96	\$181.79
Grader					
14G/H		1	\$186.72	\$25.96	\$212.68
Totals			\$186.72	\$25.96	\$212.68
Small Excavator					
320C		1	\$63.49	\$33.30	\$96.79
Totals			\$63.49	\$33.30	\$96.79
Medium Excavator					
325C		1	\$85.76	\$33.30	\$119.06
Totals			\$85.76	\$33.30	\$119.06

**Closure Cost Estimate
Fleets (Crews)**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
LOAD, HAUL AND PLACE MATERIAL					
Rock placement Haul overburden for backfill Haul borrow for backfill Haul cover or growth media					
Small Truck/Loader Fleet					
725		Calculated	\$150.54	\$23.29	\$173.83
966G	Loader	1	\$109.16	\$33.30	\$142.46
D7R		1	\$137.33	\$25.96	\$163.29
Totals			\$397.03	\$82.55	\$479.58
Medium Truck/Loader Fleet					
740		Calculated	\$191.63	\$23.29	\$214.92
988G	Loader	1	\$274.20	\$33.30	\$307.50
D8R		1	\$155.83	\$25.96	\$181.79
Totals			\$621.66	\$82.55	\$704.21
Large Truck/Loader Fleet					
769D		Calculated	\$23.86	\$23.29	\$47.15
988G	Loader	1	\$274.20	\$33.30	\$307.50
D7R		1	\$137.33	\$25.96	\$163.29
Totals			\$435.39	\$82.55	\$517.94
Extra Large Truck/Loader Fleet					
777D		Calculated	\$561.85	\$23.29	\$585.14
992G	Loader	1	\$522.61	\$33.30	\$555.91
D7R		1	\$137.33	\$25.96	\$163.29
Totals			\$1,221.79	\$82.55	\$1,304.34
Scraper/Dozer Fleet					
631G		Calculated	\$243.74	\$17.23	\$260.97
D10R		1	\$329.55	\$25.96	\$355.51
D7R		1	\$137.33	\$25.96	\$163.29
Totals			\$710.62	\$69.15	\$779.77
Tandem Scraper Fleet					
637G		2	\$430.52	\$17.23	\$447.75
D7R		1	\$137.33	\$25.96	\$163.29
Totals			\$567.85	\$43.19	\$611.04
MISC. LOAD AND HAUL AND EARTHWORKS					
Sludge removal Drainage controls					
Misc. - Cat 325B Excavator / 10-12 yd3 Truck					
325C		1	\$85.76	\$33.30	\$119.06
Dump Truck (10-12 yd3)		1	\$56.34	\$14.61	\$70.95
Totals			\$142.10	\$47.91	\$190.01
Misc. - Cat D9R Dozer/ Loader (5 yd3) / 10-12 yd3 Truck					
D9R		1	\$229.54	\$25.96	\$255.50
966G		1	\$109.16	\$33.30	\$142.46
Dump Truck (10-12 yd3)		1	\$56.34	\$14.61	\$70.95
Totals			\$395.04	\$73.87	\$468.91
Misc. - Cat D6 Dozer / Cat 966 Loader / 10-12 yd3 Truck					
D6R		1	\$91.96	\$25.96	\$117.92
966G		1	\$109.16	\$33.30	\$142.46
Dump Truck (10-12 yd3)		1	\$56.34	\$14.61	\$70.95
Totals			\$257.46	\$73.87	\$331.33

**Closure Cost Estimate
Fleets (Crews)**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
CONCRETE BREAKING					
Slab demolition Footing demolition Wall demolition					
Small - Cat 325B Excavator w/ H140D s Hammer					
325C		1	\$85.76	\$33.30	\$119.06
H-120 (fits 325)		1	\$32.95	\$0.00	\$32.95
D9R		1	\$229.54	\$25.96	\$255.50
Totals			\$348.25	\$59.26	\$407.51
Medium - Cat 345B Excavator w/ H180D s Hammer					
345B		1	\$133.99	\$33.30	\$167.29
H-160 (fits 345)		1	\$67.17	\$0.00	\$67.17
D9R		1	\$229.54	\$25.96	\$255.50
Totals			\$430.70	\$59.26	\$489.96
Large - Cat 385B Excavator w/ H180D s Hammer					
385BL		1	\$312.70	\$33.30	\$346.00
H-180 (fits 365/385)		1	\$76.01	\$0.00	\$76.01
D9R		1	\$229.54	\$25.96	\$255.50
Totals			\$618.25	\$59.26	\$677.51
DRILL HOLE ABANDONMENT					
Drill Hole - Grout or Cement					
Pump (plugging) Drill Rig		1	\$635.56	\$17.23	\$652.79
Driller's Helper		2	\$0.00	\$43.78	\$43.78
Totals			\$635.56	\$61.01	\$696.57
Drill Hole - Inert Media (Means Crew B-11M+ 1 Laborer)					
420D 4WD Backhoe		1	\$42.35	\$17.23	\$59.58
General Laborer		1	\$0.00	\$15.19	\$15.19
Totals			\$42.35	\$32.42	\$74.77
Drill Hole - Casing Perforation or Removal					
Heavy Duty Drill Rig		1	\$639.94	\$17.23	\$657.17
Driller's Helper		2	\$0.00	\$43.78	\$43.78
Totals			\$639.94	\$61.01	\$700.95
MAINTENANCE FLEET					
Road Grading, Dust Suppression, Clean Up					
Maintenance - Small Water Truck and Cat 14G Grader					
613E (5,000 gal) Water Wagon		1	\$131.83	\$23.29	\$155.12
120H		1	\$102.79	\$25.96	\$128.75
Totals			\$234.62	\$49.25	\$283.87
Maintenance - Medium Water Truck and Cat 16G Grader					
613E (5,000 gal) Water Wagon		1	\$131.83	\$23.29	\$155.12
14G/H		1	\$186.72	\$25.96	\$212.68
Totals			\$318.55	\$49.25	\$367.80
Maintenance - Large Water Truck and Cat 16G Grader					
621E (8,000 gal) Water Wagon		1	\$165.96	\$23.29	\$189.25
16G/H		1	\$247.16	\$25.96	\$273.12
Totals			\$413.12	\$49.25	\$462.37
PROJECT SUPERVISION					
Foreman		1	\$0.00	\$82.88	\$82.88
Supervisor's Truck		1	\$12.82	\$0.00	\$12.82
Totals			\$12.82	\$82.88	\$95.70

**Closure Cost Estimate
Fleets (Crews)**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
MEANS CREW DEFINITIONS					
Crew composition from Means Heavy Construction 2005 Edition by permission of R.S.Means/Reed Construction Data . For use with misc. unit costs where Means is the source for productivity					
1 Clab - Seedling Planting/Block Wall Demolition					
General Laborer		1	\$0.00	\$15.19	\$15.19
Totals			\$0.00	\$15.19	\$15.19
2 Clab - Barbed Wire/Wood Fence Removal, Drainpipe Installation, Pumping, Evaporation					
General Laborer		2	\$0.00	\$30.38	\$30.38
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
Totals			\$31.13	\$30.38	\$61.51
2 Clab + Excavator - Pond Liner Cut and Fold					
General Laborer		2	\$0.00	\$30.38	\$30.38
325C		1	\$85.76	\$33.30	\$119.06
Totals			\$85.76	\$63.68	\$149.44
2 Clab + Welder - Bat Gates					
General Laborer		2	\$0.00	\$30.38	\$30.38
Welding Equipment		1	\$8.83	\$33.30	\$42.13
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
Totals			\$39.96	\$63.68	\$103.64
3 Clab - Foam Adit Plugs					
General Laborer		2	\$0.00	\$30.38	\$30.38
420D 4WD Backhoe		1	\$42.35	\$17.23	\$59.58
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
Totals			\$73.48	\$47.61	\$121.09
3 Clab + Welder - Culvert Bat Gate					
General Laborer		2	\$0.00	\$30.38	\$30.38
Welding Equipment		1	\$8.83	\$33.30	\$42.13
420D 4WD Backhoe		1	\$42.35	\$17.23	\$59.58
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
Totals			\$82.31	\$80.91	\$163.22
3 Clab D - 3 Laborers + Foreman - Decontamination					
General Laborer		3	\$0.00	\$45.57	\$45.57
Foreman		1	\$0.00	\$82.88	\$82.88
Supervisor's Truck		1	\$12.82	\$0.00	\$12.82
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
Totals			\$43.95	\$128.45	\$172.40
3 SKWK - Liner Installation					
Skilled Laborer		3	\$0.00	\$66.18	\$66.18
HDEP Welder (pipe or liner)		1	\$48.27	\$0.00	\$48.27
420D 4WD Backhoe		1	\$42.35	\$17.23	\$59.58
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
Totals			\$90.62	\$83.41	\$174.03

**Closure Cost Estimate
Fleets (Crews)**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
B-3 - Small Building Demolition					
LABOR					
General Laborer		2	\$0.00	\$30.38	\$30.38
Foreman		1	\$0.00	\$82.88	\$82.88
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
EQUIPMENT					
928G		1	\$77.71	\$33.30	\$111.01
Dump Truck (10-12 yd3)		2	\$112.68	\$29.22	\$141.90
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
Totals			\$190.39	\$175.78	\$366.17
B-6 - Chain Link Fence/Culvert Removal					
General Laborer		2	\$0.00	\$30.38	\$30.38
928G		1	\$77.71	\$33.30	\$111.01
Totals			\$77.71	\$63.68	\$141.39
B-8 - Large Building Demolition					
LABOR					
General Laborer		2	\$0.00	\$30.38	\$30.38
Foreman		1	\$0.00	\$82.88	\$82.88
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
EQUIPMENT					
928G		1	\$77.71	\$33.30	\$111.01
20 Ton Crane		1	\$98.00	\$33.30	\$131.30
Dump Truck (10-12 yd3)		2	\$112.68	\$29.22	\$141.90
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
			\$0.00		\$0.00
Totals			\$288.39	\$209.08	\$497.47
B-9 - Concrete Wall Demolition					
General Laborer		4	\$0.00	\$60.76	\$60.76
Foreman		1	\$0.00	\$82.88	\$82.88
Air Compressor + tools			\$9.30	\$17.23	\$26.53
Totals			\$9.30	\$160.87	\$170.17

**Closure Cost Estimate
Fleets (Crews)**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
B-10Y - General Compaction					
General Laborer		1	\$0.00	\$15.19	\$15.19
CS533E Vibratory Roller		1	\$55.06	\$17.23	\$72.29
Totals			\$55.06	\$32.42	\$87.48
B-11L - Fine Grading for Evaporation Pond Liner Base					
General Laborer		1	\$0.00	\$15.19	\$15.19
14G/H		1	\$186.72	\$25.96	\$212.68
Totals			\$186.72	\$41.15	\$227.87
B-11M - Backhoe Work					
420D 4WD Backhoe		1	\$42.35	\$17.23	\$59.58
Totals			\$42.35	\$17.23	\$59.58
B-12G - Rip-Rap Machine Placed (Modified)					
966G		1	\$109.16	\$33.30	\$142.46
325C		1	\$85.76	\$33.30	\$119.06
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
Totals			\$226.05	\$66.60	\$292.65
B-13 - Grouted Rip-Rap & Gabion Baskets					
General Laborer		4	\$0.00	\$60.76	\$60.76
Foreman		1	\$0.00	\$82.88	\$82.88
20 Ton Crane		1	\$98.00	\$33.30	\$131.30
Totals			\$98.00	\$176.94	\$274.94
B-14 PVC Drain Pipe Installation					
Foreman		1	\$0.00	\$82.88	\$82.88
General Laborer		4	\$0.00	\$60.76	\$60.76
420D 4WD Backhoe		1	\$42.35	\$17.23	\$59.58
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
Totals			\$73.48	\$160.87	\$234.35
B-20 - Remove Pipelines					
Foreman		1	\$0.00	\$82.88	\$82.88
Skilled Laborer		1	\$0.00	\$22.06	\$22.06
General Laborer		1	\$0.00	\$15.19	\$15.19
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
Totals			\$31.13	\$120.13	\$151.26
B-22A - HDEP Installation - Pipe or Liner					
Skilled Laborer		1	\$0.00	\$22.06	\$22.06
General Laborer		2	\$0.00	\$30.38	\$30.38
D7R		1	\$137.33	\$25.96	\$163.29
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
420D 4WD Backhoe		1	\$42.35	\$17.23	\$59.58
Generator 5KW		1	\$12.73	\$0.00	\$12.73
HDEP Welder (pipe or liner)		1	\$48.27	\$0.00	\$48.27
Totals			\$271.81	\$95.63	\$367.44
B-80A - Install Barbed Wire Fence					
General Laborer		3	\$0.00	\$45.57	\$45.57
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
Totals			\$31.13	\$45.57	\$76.70

**Closure Cost Estimate
Fleets (Crews)**

Project Name: Foothill Dolomite Mine - Reclamation Plan
Date of Submittal: 09-29-2020
File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
Model Version: Version 1.4.1
Cost Data: User Data
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

EQUIPMENT FLEETS					
ACTIVITY AND FLEET		Standard Crew Size	EQUIPMENT UNIT COST (Hourly)	TOTAL LABOR UNIT COST (Hourly)	TOTAL COST (Hourly)
B-80C - Install Chain Link Fence (Flatbed truck has small crane)					
General Laborer		3	\$0.00	\$45.57	\$45.57
Light Truck - 1.5 Ton		1	\$31.13	\$0.00	\$31.13
Totals			\$31.13	\$45.57	\$76.70
C-14B - Elevated Concrete Slabs (Reinforced Concrete Shaft Covers)					
Foreman		1	\$0.00	\$82.88	\$82.88
Supervisor's Truck		1	\$12.82	\$0.00	\$12.82
Carpenter		16	\$0.00	\$652.96	\$652.96
General Laborer		2	\$0.00	\$30.38	\$30.38
Rodmen (reinforcing concrete)		4	\$0.00	\$87.12	\$87.12
Cement finisher		2	\$0.00	\$43.78	\$43.78
Gas Engine Vibrator		1	\$5.88	\$17.23	\$23.11
Concrete Pump		1	\$114.80	\$0.00	\$114.80
Totals			\$133.50	\$914.35	\$1,047.85
C-14D - Concrete Walls Formed in Place (Reinforced Concrete Adit Bulkheads)					
Foreman		1	\$0.00	\$82.88	\$82.88
Supervisor's Truck		1	\$12.82	\$0.00	\$12.82
Carpenter		18	\$0.00	\$734.58	\$734.58
General Laborer		2	\$0.00	\$30.38	\$30.38
Rodmen (reinforcing concrete)		2	\$0.00	\$43.56	\$43.56
Cement finisher		1	\$0.00	\$21.89	\$21.89
Gas Engine Vibrator		1	\$5.88	\$17.23	\$23.11
Concrete Pump		1	\$114.80	\$0.00	\$114.80
Totals			\$133.50	\$930.52	\$1,064.02

**Closure Cost Estimate
Productivity**

Productivity - Bulldozers

Dozer Specifications						
Description	D11R	D10R	D9R	D8R	D7R	D6R
Blade Width (SU) (ft)	18.33	15.92	14.17	12.92	12.08	10.67
Shank Gauge (3 shanks) (ft)	9.83	8.67	7.67	7.08	6.5	6.5
Pocket Spacing (ft)	4.75	4.33	3.87	3.58	3.25	3.25
Ripping Width (Ripper + 1 Pocket) (ft)	14.58	13	11.54	10.66	9.75	9.75
Ripping Speed (mph)	1	1	1	1	1	1
Ripping Maneuver (turn) Time (min)	0.25	0.25	0.25	0.25	0.25	0.25
Altitude Deration Factor	1	1	1	1	1	1
Ripping Hourly Production (excluding maneuvering time) (ft)	5,280	5,280	5,280	5,280	5,280	5,280

Source: Caterpillar Performance Handbook Edition 35

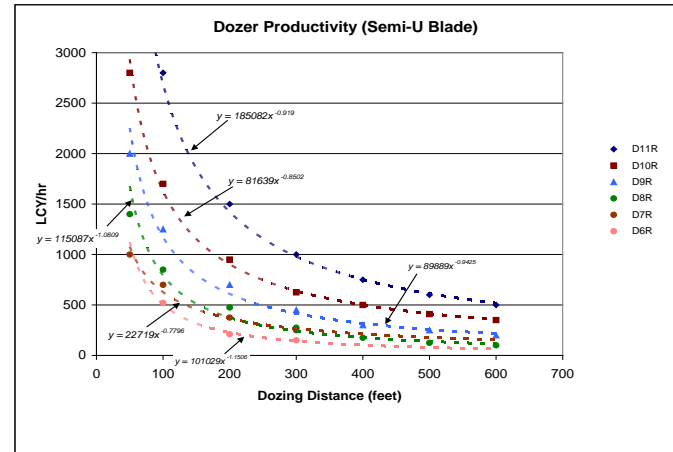
Dozer Productivity vs. Grading Distance						
Average Dozing Distance (feet)	Production (LCY/hr)					
	D11R	D10R	D9R	D8R	D7R	D6R
50	4,800	2,800	2,000	1,400	1,000	
100	2,800	1,700	1,250	850	700	520
200	1,500	950	700	475	375	210
300	1,000	625	450	275	250	150
400	750	500	300	175		
500	600	410	250	125		
600	500	350	200	100		

Source: Caterpillar Performance Handbook Edition 35

dozer productivity = $k \times \text{Dozing Distance}^p$

(see graph)

k =	185082	81639	89889	115087	22719	101029
p =	-0.919	-0.8502	-0.9425	-1.0809	-0.7796	-1.1506



Closure Cost Estimate
Productivity

Productivity - Bulldozers (cont.)

% Grade vs. Dozing Factor	
% Grade	Dozing Factor
-30	1.6
-20	1.4
-10	1.2
0	1
10	0.8
20	0.55
30	0.3

Source: Caterpillar Performance Handbook Edition 35
% Grade Dozing Factor = $-0.0214x + 0.9786$
(see graph)

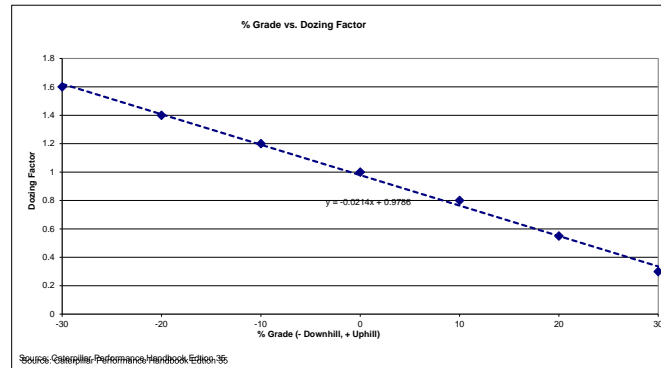
Job Condition Correction Factors - Bulldozers	
OPERATOR	
Average	0.75
MATERIAL ⁽¹⁾	
Loose stockpile	1.2
Normal	1
Hard to cut; frozen — with tilt cylinder	0.8
Hard to drift; "dead" (dry, non-cohesive material) or very sticky material	0.8
Rock, ripped or blasted	0.6
SLOT DOZING OR SIDE BY SIDE (1)	1.2
VISIBILITY	
Good conditions	1
JOB EFFICIENCY	
50 min/hr	0.83

(1) Selected in facility worksheets.
Other factors included as standard factors.
Source: Caterpillar Performance Handbook Edition 35

Material Densities(1)		
Material	lb/cy	kg/m ³
Alluvium	2,900	1,720
Basalt	3,300	1,960
Clay - Dry	2,500	1,480
Granite - broken	2,800	1,660
Gravel	2,550	1,510
LS - broken	2,600	1,540
LS - crushed	2,600	1,540
Sandstone	2,550	1,510
Shale	2,100	1,250
Stone - crushed	2,700	1,600
Tailings - Coarse (dry, loose sand)	2,400	1,420
Tailings - Slimes (loose sand & clay)	2,700	1,600
Topsoil	1,600	950

(1) Source: Caterpillar Performance Handbook Edition 35

Note: uses Sand & Gravel - Dry from Caterpillar Handbook



**Closure Cost Estimate
Productivity**

Productivity - Scrapers

Scraper Specifications		
Description	631G	637G
Empty Weight	100,600	112,760
Payload Capacity (cy)		
Struck	24	24
Heaped	34	34
Average	29	29
Loaded by	One D10R	Self*
Load Time (min)	1	1
Maneuver and Spread (min)	1	1
Job Efficiency	1	1
Rolling Resistance**	3	3
Altitude Deration Factor	1	1
* Requires pair		
**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered		
Source: Caterpillar Performance Handbook Edition 35		

Weight of Materials			Downhill Scraper Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)											
Material	lb/cy	Scraper Load lb	631G						637G PP					
			Loaded Weight (lbs)	22	16	10	5	1	Loaded Weight (lbs)	25	15	10	5	1
Alluvium	2,900	84,100	184,700	7.5	10	13	33	33	196,860	7	10	18.5	34	34
Basalt	3,300	95,700	196,300	7.5	10	13	24.5	33	208,460	7	10	18.5	25	34
Clay - Dry	2,500	72,500	173,100	7.5	10	13	33	33	185,260	7	10	18.5	34	34
Granite - broken	2,800	81,200	181,800	7.5	10	13	33	33	193,960	7	10	18.5	34	34
Gravel	2,550	73,950	174,550	7.5	10	13	33	33	186,710	7	10	18.5	34	34
LS - broken	2,600	75,400	176,000	7.5	10	13	33	33	188,160	7	10	18.5	34	34
LS - crushed	2,600	75,400	176,000	7.5	10	13	33	33	188,160	7	10	18.5	34	34
Sandstone	2,550	73,950	174,550	7.5	10	13	33	33	186,710	7	10	18.5	34	34
Shale	2,100	60,900	161,500	7.5	10	18	33	33	173,660	10	13.5	18.5	34	34
Stone - crushed	2,700	78,300	178,900	7.5	10	13	33	33	191,060	7	10	18.5	34	34
Tailings - Coarse (dry, loose sand)	2,400	69,600	170,200	7.5	10	13	33	33	182,360	7	10	18.5	34	34
Tailings - Slimes (loose sand & clay)	2,700	78,300	178,900	7.5	10	13	33	33	191,060	7	10	18.5	34	34
Topsoil	1,600	46,400	147,000	7.5	10	18	33	33	159,160	10	13.5	18.5	34	34
			Empty	10	18	24.5	33	33	Empty	10	13.5	18.5	34	34
			Source: Caterpillar Performance Handbook Edition 34											

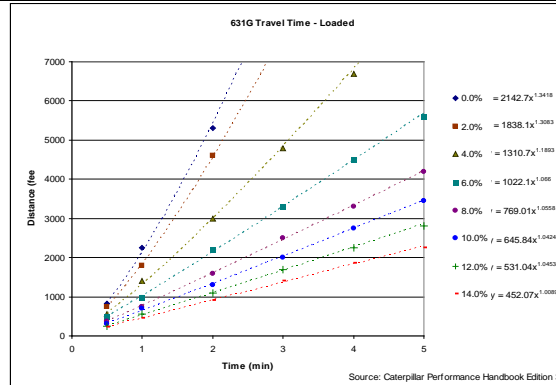
Closure Cost Estimate Productivity

Productivity - Scrapers (cont.)

631G Scraper Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			
0	825	2,250	5,300			2142.7	1.3418	
2	750	1,800	4,600			1838.1	1.3083	
4	550	1,400	3,000	4,800	6,700	1310.7	1.1893	
6	490	1,000	2,200	3,300	4,500	1022.1	1.066	
8	375	750	1,600	2,500	3,300	769.01	1.0558	
10	300	700	1,300	2,000	2,750	645.84	1.0424	
12	250	550	1,100	1,700	2,250	531.04	1.0453	
14	225	450	900	1,400	1,850	452.07	1.0089	

$$\text{Travel Time (min)} = \sqrt[3]{\frac{\text{distance}}{k}}$$

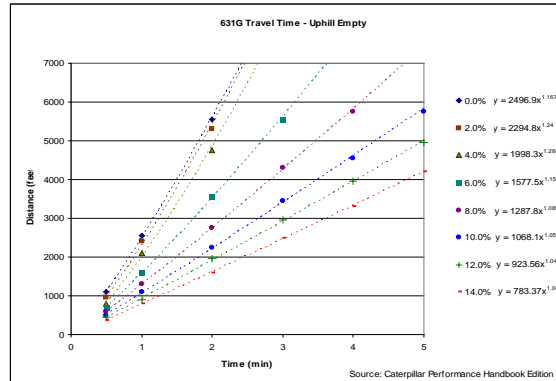
Source: Caterpillar Performance Handbook Edition 35



631G Scraper Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			
0	1,100	2,550	5,550			2496.9	1.1675	
2	950	2,400	5,300			2294.8	1.24	
4	800	2,100	4,750			1998.3	1.2849	
6	700	1,600	3,550	5,550		1557.5	1.1566	
8	600	1,300	2,750	4,300	5,750	1287.8	1.0891	
10	500	1,100	2,250	3,450	4,550	1068.1	1.0552	
12	450	900	1,950	2,950	3,950	923.56	1.0482	
14	375	800	1,600	2,500	3,300	783.37	1.0444	

$$\text{Travel Time (min)} = \sqrt[3]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



Closure Cost Estimate Productivity

Productivity - Scrapers (cont.)

637G Push-Pull Scraper Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4	5		
0	1,000	2,500	5,550				2402.9	1.2362
2	850	2,200	5,150				2127.6	1.2995
4	700	1,700	3,900	6,250			1659.4	1.2212
6	600	1,300	2,750	4,300	5,750		1287.8	1.0891
8	500	1,100	2,200	3,300	4,500	5,600	1059.1	1.0421
10	400	850	1,750	2,700	3,600	4,475	839.89	1.0503
12	375	750	1,500	2,300	3,000	3,800	751.58	1.0055
14	275	600	1,300	2,000	2,650	3,250	595.28	1.0794

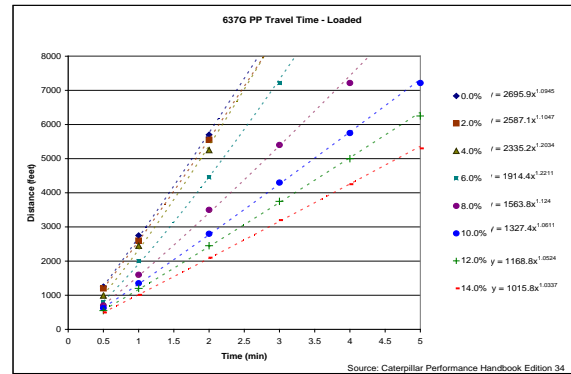
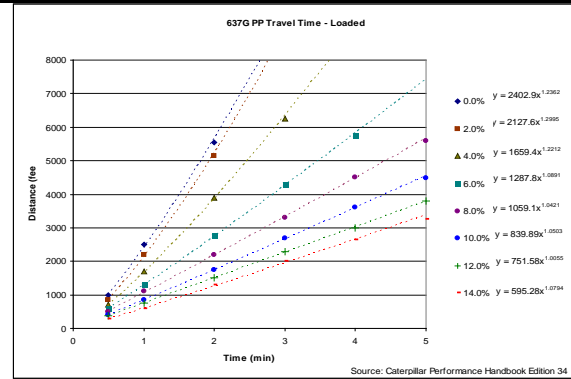
$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35

637G Push-Pull Scraper Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4	5		
0	1,250	2,750	5,700				2695.9	1.0945
2	1,200	2,600	5,550				2587.1	1.1047
4	990	2,450	5,250				2335.2	1.0234
6	800	2,000	4,450	7,216			1914.4	1.2211
8	700	1,600	3,500	5,400	7,216		1563.8	1.124
10	625	1,350	2,800	4,300	5,750	7,216	1327.4	1.0611
12	550	1,200	2,450	3,750	5,000	6,250	1168.8	1.0524
14	495	1,010	2,100	3,200	4,250	5,300	1015.8	1.0337

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



**Closure Cost Estimate
Productivity**

Productivity - Haul Trucks

Haul Truck Specifications						
Description	769D	773E	777D	785C	793C	797B
Chassis Weight (lb)	53,506	70,330	113,160	170,000	259,500	473,600
Body Weight (lb)	17,350	20,300	34,785	36,788	70,785	104,200
Standard Liner Weight (lb)	7,000	8,600	12,040	16,846	24,418	8,800
Total Truck Weight (lb)	77,856	99,230	159,985	223,634	354,703	586,600
Payload Capacity (cy)						
Struck	21.6	34.8	55	78.5	126	228
Heaped	31.7	46	78.6	102	169	290
Average	26.65	40.4	66.8	90.25	147.5	259
Maneuver to Load Time (min)	0.7	0.7	0.7	0.7	0.7	0.7
Maneuver and Dump Time (min)	1.1	1.1	1.1	1.1	1.1	1.1
Job Efficiency	0.83	0.83	0.83	0.83	0.83	0.83
Rolling Resistance**	2.5	2.5	2.5	2.5	2.5	2.5
Altitude Deration Factor	1	1	1	1	1	1

*A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered

Source: Caterpillar Performance Handbook Edition 35

Weight of Materials				Downhill Haul Truck Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)															
				769D					773E					777D					
Material	lb/cy	Truck (769D) Load lb	Truck (773E) Load lb	Truck (777D) Load lb	Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5
Alluvium	2,900	77,285	117,160	193,720	155,141	11	11	15	26	216,390	7	7	13	23	353,705	7	9	12	29
Basalt	3,300	87,945	133,320	220,440	165,801	11	11	11	20	232,550	7	7	13	23	380,425	7	7	12	21
Clay - Dry	2,500	66,625	101,000	167,000	144,481	11	11	15	26	200,230	7	9	13	23	326,985	7	9	16	29
Granite - broken	2,800	74,620	113,120	187,040	152,476	11	11	15	26	212,350	7	7	13	23	347,025	7	9	12	29
Gravel	2,550	67,958	103,020	170,340	145,814	11	11	15	26	202,250	7	9	13	23	330,325	7	9	16	29
LS - broken	2,600	69,290	105,040	173,680	147,146	11	11	15	26	204,270	7	9	13	23	333,665	7	9	12	29
LS - crushed	2,600	69,290	105,040	173,680	147,146	11	11	15	26	204,270	7	9	13	23	333,665	7	9	12	29
Sandstone	2,550	67,958	103,020	170,340	145,814	11	11	15	26	202,250	7	9	13	23	330,325	7	9	16	29
Shale	2,100	55,965	84,840	140,280	133,821	11	11	15	26	184,070	7	9	13	31	300,265	7	9	16	29
Stone - crushed	2,700	71,955	109,080	180,360	149,811	11	11	15	26	208,310	7	7	13	23	340,345	7	9	12	29
Tailings - Coarse (dry, loose sand)	2,400	63,960	96,960	160,320	141,816	11	11	15	26	196,190	7	9	13	23	320,305	7	9	16	29
Tailings - Slimes (loose sand & clay)	2,700	71,955	109,080	180,360	149,811	11	11	15	26	208,310	7	7	13	23	340,345	7	9	12	29
Topsoil	1,600	42,640	64,640	106,880	120,496	11	11	15	26	163,870	7	9	17	31	266,865	9	12	16	29
					Empty	15	15	26	36	Empty	13	17	23	42	Empty	16	16	29	39

Source: Caterpillar Performance Handbook Edition 35

Weight of Materials				Downhill Haul Truck Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)															
				785C					793C					797B					
Material	lb/cy	Truck (785C) Load lb	Truck (793C) Load lb	Truck (797B) Load lb	Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5
Alluvium	2,900	261,725	427,750	751,100	485,359	8	8	14	27	762,453	7	7	10	17	#####	7	7	9	17
Basalt	3,300	297,825	486,750	854,700	521,459	8	8	14	27	841,453	7	7	10	17	#####	7	7	9	17
Clay - Dry	2,500	225,625	368,750	647,500	449,259	8	11	14	36	723,453	7	7	10	25	#####	7	7	9	23
Granite - broken	2,800	252,700	413,000	725,200	476,334	8	8	14	27	767,703	7	7	10	17	#####	7	7	9	17
Gravel	2,550	230,138	376,125	660,450	453,772	8	8	14	36	730,828	7	7	10	25	#####	7	7	9	23
LS - broken	2,600	234,650	383,500	673,400	458,284	8	8	14	27	738,203	7	7	10	25	#####	7	7	9	23
LS - crushed	2,600	234,650	383,500	673,400	458,284	8	8	14	27	738,203	7	7	10	25	#####	7	7	9	23
Sandstone	2,550	230,138	376,125	660,450	453,772	8	8	14	36	730,828	7	7	10	25	#####	7	7	9	23
Shale	2,100	189,525	309,750	543,900	413,159	8	11	14	36	664,453	7	7	10	25	#####	7	7	13	23
Stone - crushed	2,700	243,675	398,250	699,300	467,309	8	8	14	27	752,953	7	7	10	17	#####	7	7	9	23
Tailings - Coarse (dry, loose sand)	2,400	216,600	354,000	621,600	440,234	8	11	14	36	708,703	7	7	10	25	#####	7	7	9	23
Tailings - Slimes (loose sand & clay)	2,700	243,675	398,250	699,300	467,309	8	8	14	27	752,953	7	7	10	17	#####	7	7	9	23
Topsoil	1,600	144,400	236,000	414,400	368,034	8	11	19	36	590,703	7	10	13	25	#####	7	9	13	23
					Empty	14	19	36	36	Empty	10	13	17	33	Empty	13	17	23	42

Source: Caterpillar Performance Handbook Edition 35

Closure Cost Estimate Productivity

Productivity - Haul Trucks (cont.)

769D Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.4	1	2	3	4			
0	1,148	3,428	7,183			3316.3	1.1422	
4	689	1,984	4,198	6,330		1928.3	1.1033	
6	508	1,427	2,952	4,510	6,002	1386.4	1.0725	
8	394	1,082	2,263	3,411	4,592	1061.8	1.06	
10	328	869	1,771	2,690	3,608	857.82	1.0373	
15	213	574	1,181	1,804	2,394	565	1.0482	

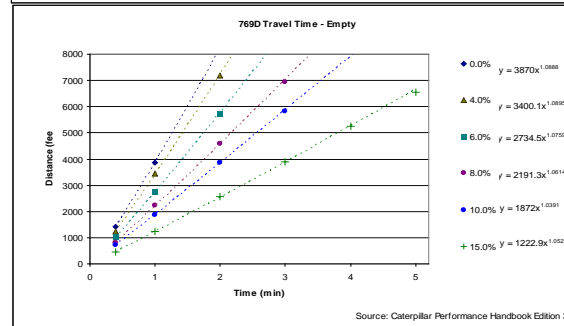
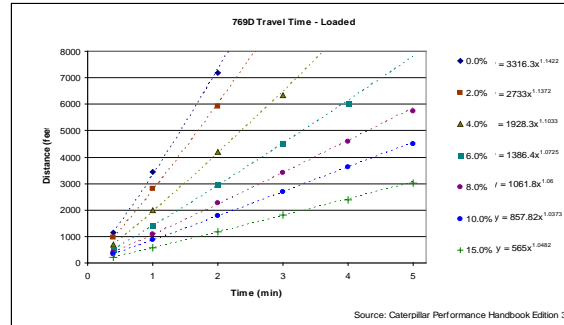
$$\text{Travel Time (min)} = \sqrt{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35

769D Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.4	1	2	3	4			
0	1,427	3,870				3870	1.0888	
4	1,246	3,444	7,183			3400.1	1.0895	
6	1,017	2,755	5,740			2734.5	1.0759	
8	820	2,230	4,592	6,954		2191.3	1.0614	
10	722	1,870	3,870	5,838		1872	1.0391	
15	459	1,246	2,558	3,903	5,248	1222.9	1.0523	

$$\text{Travel Time (min)} = \sqrt{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



Closure Cost Estimate Productivity

Productivity - Haul Trucks (cont.)

773E Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	1,066	3,117	6,496				3027.4	1.1254
4	656	1,952	4,035	6,168			1863.1	1.1109
6	492	1,312	2,756	4,167	5,577	6,955	1304.2	1.0507
8	394	1,017	2,100	3,182	4,265	5,315	1018.2	1.0326
10	328	853	1,804	2,690	3,609	4,528	856.36	1.041
15	226	525	1,083	1,673	2,231	2,789	549.25	1.0038

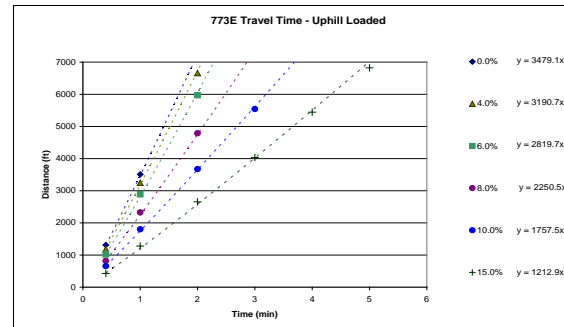
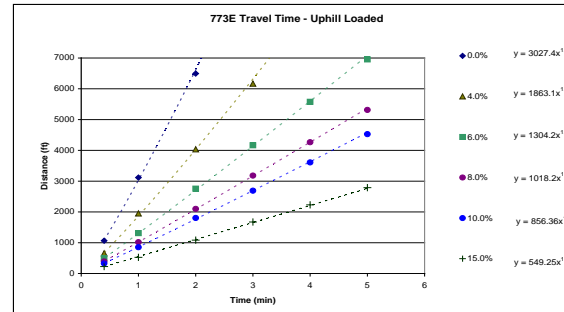
$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35

773E Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	1,312	3,510	7,218				3479.1	1.0602
4	1,181	3,248	6,660				3190.7	1.0763
6	1,017	2,887	5,971				2819.7	1.1018
8	820	2,329	4,790	7,218			2250.5	1.08
10	656	1,804	3,675	5,545			1757.5	1.0592
15	427	1,280	2,657	4,035	5,446	6,824	1212.9	1.0915

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



Closure Cost Estimate Productivity

Productivity - Haul Trucks (cont.)

777D Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	656	2,558	6,068				2403.1	1.3876
4	459	1,509	3,313	5,215	7,085		1412	1.1863
6	394	1,148	2,460	3,706	5,018	6,298	1111	1.0949
8		918	1,886	2,837	3,772	4,756	922.57	1.0197
10		722	1,443	2,165	2,919	3,608	721.44	1.0027
15		525	1,017	1,558	2,034	2,591	520.56	0.9905

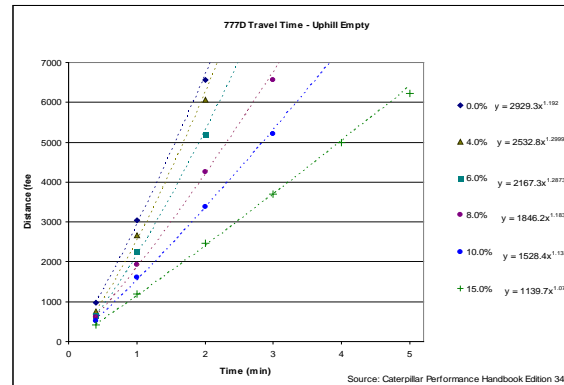
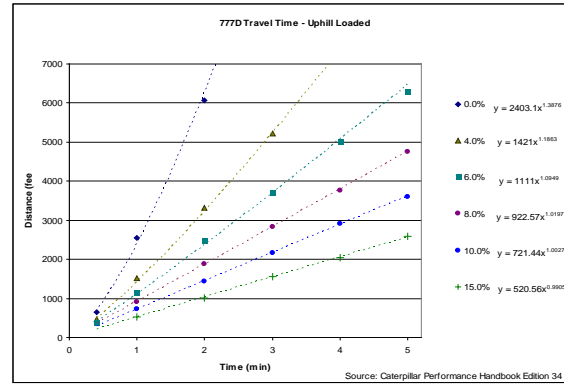
$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35

777D Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	968	3,034	6,560				2929.3	1.192
4	754	2,657	6,068				2532.8	1.2999
6	656	2,247	5,182				2167.3	1.2873
8	607	1,935	4,248	6,560			1846.2	1.1831
10	525	1,607	3,378	5,215	7,282		1528.4	1.1332
15	410	1,197	2,460	3,706	4,986	6,232	1139.7	1.072

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



Closure Cost Estimate Productivity

Productivity - Haul Trucks (cont.)

785C Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	820	2,630	5,500				2491.1	1.1872
4	530	1,600	3,370	5,040			1524.4	1.1206
6	300	1,000	2,190	3,270	4,400	5,570	923	1.1469
8	240	790	1,610	2,480	3,380	4,200	719.64	1.1233
10	190	630	1,400	2,180	2,920	3,650	590.43	1.1678
15	40	370	770	1,200	1,590	2,000	227.29	1.4863

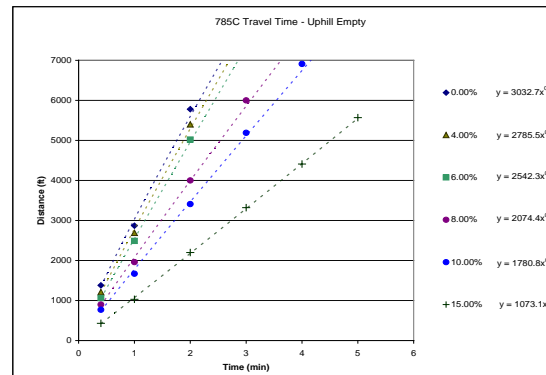
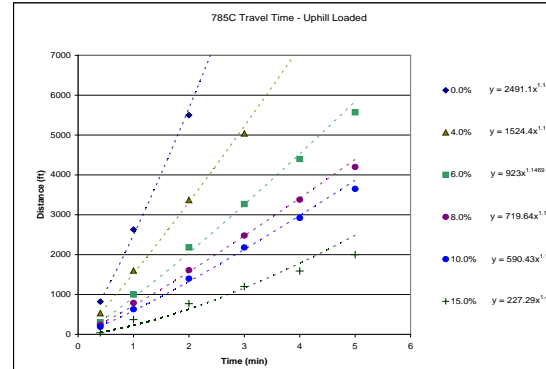
$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35

785C Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.4	1	2	3	4	5		
0	1,380	2,870	5,780				3032.7	0.8852
4	1,210	2,690	5,400				2785.5	0.9264
6	1,060	2,490	5,020				2542.3	0.9645
8	900	1,960	4,000	6,000			2074.4	0.9446
10	770	1,670	3,410	5,190	6,910		1780.8	0.9606
15	430	1,030	2,200	3,320	4,410	5,570	1073.1	1.0209

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



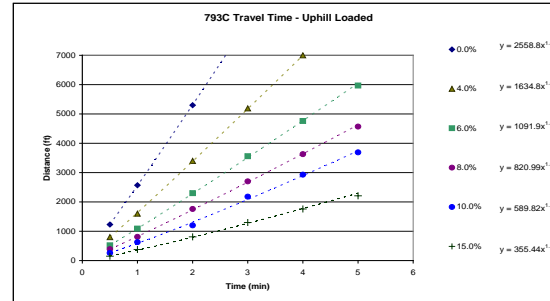
Closure Cost Estimate Productivity

Productivity - Haul Trucks (cont.)

793C Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			
0	1,230	2,570	5,300			2558.8	1.0537	
4	800	1,600	3,400	5,190	7,000	1634.8	1.0485	
6	520	1,090	2,300	3,560	4,760	1091.9	1.0635	
8	390	810	1,760	2,700	3,630	820.99	1.0743	
10	260	630	1,200	2,180	2,930	589.82	1.1481	
15	150	380	810	1,300	1,760	355.44	1.1605	

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

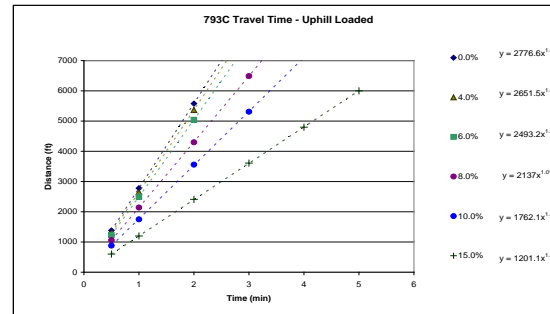
Source: Caterpillar Performance Handbook Edition 35



793C Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)					k	p	
	0.5	1	2	3	4			
0	1,380	2,780	5,580			2776.6	1.0078	
4	1,310	2,650	5,370			2651.5	1.0177	
6	1,230	2,500	5,040			2493.2	1.0174	
8	1,060	2,140	4,300	6,490		2137	1.0107	
10	880	1,750	3,560	5,310		1762.1	1.0059	
15	600	1,200	2,410	3,610	4,800	1201.1	1.0003	

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



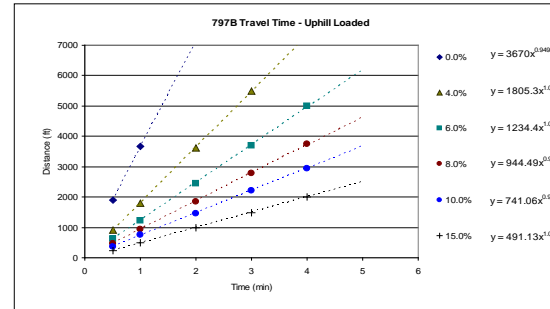
Closure Cost Estimate Productivity

Productivity - Haul Trucks (cont.)

797B Haul Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	1,900	3,670					3670	0.9498
4	900	1,800	3,620	5,480			1805.3	1.0077
6	620	1,230	2,450	3,700	5,000		1234.4	1.0019
8	480	940	1,850	2,790	3,750		944.49	0.987
10	370	750	1,460	2,220	2,950		741.06	0.9957
15	240	500	1,000	1,480	2,000		491.13	1.0142

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

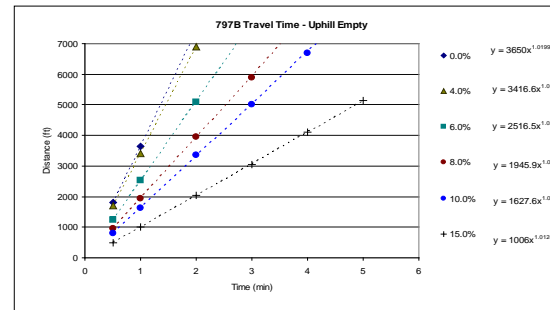
Source: Caterpillar Performance Handbook Edition 35



797B Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	1,800	3,650					3650	1.0199
4	1,700	3,400	6,900				3416.6	1.0105
6	1,240	2,520	5,100				2516.5	1.0201
8	960	1,950	3,960	5,900			1945.9	1.0152
10	800	1,620	3,350	5,000	6,700		1627.6	1.0239
15	500	1,000	2,040	3,050	4,100	5,130	1006	1.0124

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



**Closure Cost Estimate
Productivity**

Productivity - Articulated Trucks

Articulated Truck Specifications				
Description	725	730	735	740
Chassis Weight (lb)				
Body Weight (lb)				
Standard Liner Weight (lb)				
Operating Weight (Empty) (lb)	50,120	51,220	65,830	72,070
Payload Capacity (cy)				
Struck	14.5	17.1	19.3	23.3
Heaped	18.8	22.1	31.8	30.2
Average	16.65	19.6	25.55	26.75
Maneuver to Load Time (min)	0.7	0.7	0.7	0.7
Maneuver and Dump Time (min)	1.1	1.1	1.1	1.1
Job Efficiency	0.83	0.83	0.83	0.83
Rolling Resistance**	2.5	2.5	2.5	2.5
Altitude Deration Factor	1	1	1	1

**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load
 or undulating, maintained fairly regularly, watered

Source: Caterpillar Performance Handbook Edition 35

Weight of Materials				Downhill Haul Truck Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)									
				725					730				
Material	lb/cy	Truck (725) Load lb	Truck (730) Load lb	Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5
Alluvium	2,900	48,285	56,840	98,405	9	9	13	30	108,060	5	8	13	29
Basalt	3,300	54,945	64,680	105,065	5	9	13	22	115,900	5	8	13	29
Clay - Dry	2,500	41,625	49,000	91,745	9	13	13	30	100,220	8	8	13	29
Granite - broken	2,800	46,620	54,880	96,740	9	13	13	30	106,100	5	8	13	29
Gravel	2,550	42,458	49,980	92,578	9	13	13	30	101,200	8	8	13	29
LS - broken	2,600	43,290	50,960	93,410	9	13	13	30	102,180	8	8	13	29
LS - crushed	2,600	43,290	50,960	93,410	9	13	13	30	102,180	8	8	13	29
Sandstone	2,550	42,458	49,980	92,578	9	13	13	30	101,200	8	8	13	29
Shale	2,100	34,965	41,160	85,085	9	13	22	30	92,380	8	13	13	29
Stone - crushed	2,700	44,955	52,920	95,075	9	13	13	30	104,140	8	8	13	29
Tailings - Coarse (dry, loose sand)	2,400	39,960	47,040	90,080	9	13	13	30	98,260	8	8	13	29
Tailings - Slimes (loose sand & clay)	2,700	44,955	52,920	95,075	9	13	13	30	104,140	8	8	13	29
Topsoil	1,600	26,640	31,360	76,760	9	13	22	30	82,580	8	13	22	35
				Empty	13	13	22	30	Empty	13	13	22	35

Source: Caterpillar Performance Handbook Edition 35

Weight of Materials				Downhill Haul Truck Speed - Grade Retarding vs. Effective Grade (Grade - Rolling Resistance)									
				735					740				
Material	lb/cy	Truck (735) Load lb	Truck (740) Load lb	Loaded Weight (lbs)	20	15	10	5	Loaded Weight (lbs)	20	15	10	5
Alluvium	2,900	74,095	77,575	139,925	7	9	13	27	149,645	7	9	17	23
Basalt	3,300	84,315	88,275	150,145	7	9	13	27	160,345	7	9	13	23
Clay - Dry	2,500	63,875	66,875	129,705	7	9	13	27	138,945	9	13	17	31
Granite - broken	2,800	71,540	74,900	137,370	7	9	13	27	146,970	7	9	17	23
Gravel	2,550	65,153	68,213	130,983	7	9	13	27	140,283	7	9	17	31
LS - broken	2,600	66,430	69,550	132,260	7	9	13	27	141,620	7	9	17	31
LS - crushed	2,600	66,430	69,550	132,260	7	9	13	27	141,620	7	9	17	31
Sandstone	2,550	65,153	68,213	130,983	7	9	13	27	140,283	7	9	17	31
Shale	2,100	53,655	56,175	119,485	9	9	18	27	128,245	7	13	17	31
Stone - crushed	2,700	68,985	72,225	134,815	7	9	13	27	144,295	7	9	17	23
Tailings - Coarse (dry, loose sand)	2,400	61,320	64,200	127,150	7	9	13	27	136,270	9	13	17	31
Tailings - Slimes (loose sand & clay)	2,700	68,985	72,225	134,815	7	9	13	27	144,295	7	9	17	23
Topsoil	1,600	40,880	42,800	106,710	9	13	18	36	114,670	9	13	17	31
				Empty	13	18	27	42	Empty	17	17	23	31

Source: Caterpillar Performance Handbook Edition 35

Closure Cost Estimate Productivity

Productivity - Articulated Trucks (cont.)

725 Articulated Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	600	2,190	5,200				2097.3	1.3455
4	420	1,400	3,200	5,000	6,820		1329.1	1.2109
6	400	1,080	2,390	3,630	4,950	6,200	1091.2	1.0904
8	380	880	1,850	2,850	3,850	4,820	928.59	1.0158
10	300	729	1,450	2,250	3,020	3,800	741.09	1.0076
15	200	500	1,000	1,570	2,100	2,620	504.55	1.0225

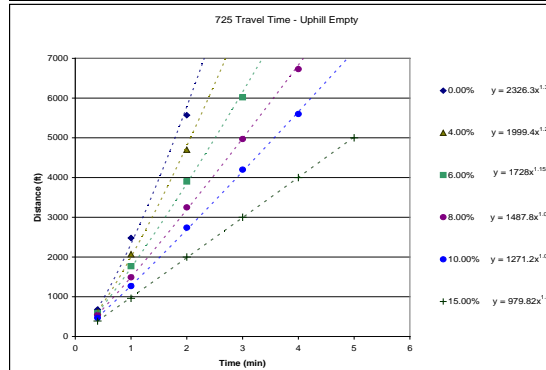
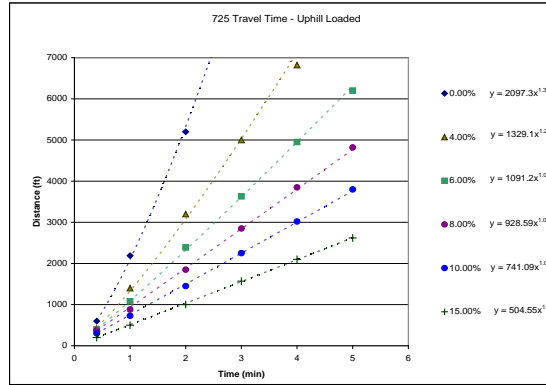
$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35

725 Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	680	2,480	5,570				2326.3	1.3122
4	620	2,070	4,700				1999.4	1.2616
6	590	1,770	3,900	6,020			1728	1.1556
8	540	1,490	3,250	4,970	6,730		1487.8	1.0986
10	470	1,270	2,740	4,200	5,600	7,050	1271.2	1.0754
15	390	960	2,000	3,000	4,000	5,000	979.82	1.0145

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



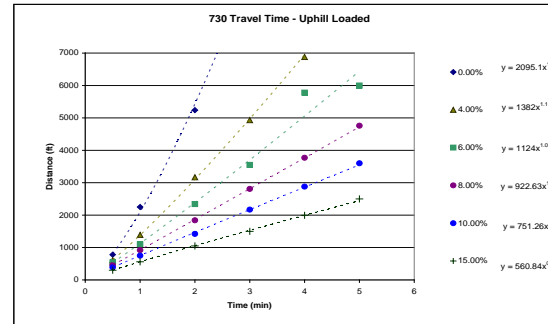
Closure Cost Estimate Productivity

Productivity - Articulated Trucks (cont.)

730 Articulated Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	780	2,250	5,240				2095	1.374
4	610	1,390	3,170	4,930	6,880		1382	1.1651
6	540	1,100	2,340	3,550	5,780	6,000	112	1.0847
8	460	920	1,840	2,810	3,770	4,760	922.63	1.0145
10	390	750	1,420	2,170	2,880	3,600	751.26	0.965
15	300	560	1,050	1,500	1,995	2,500	560.84	0.9152

$$\text{Travel Time (min)} = \sqrt[3]{\frac{\text{distance}}{k}}$$

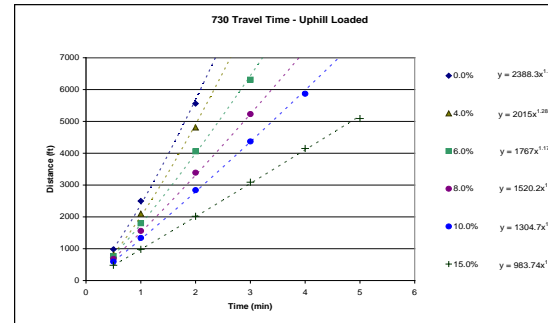
Source: Caterpillar Performance Handbook Edition 35



730 Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	980	2,500	5,560				2388	1.25621
4	810	2,100	4,810				2015	1.285
6	770	1,800	4,060	6,310			1767	1.1766
8	680	1,560	3,390	5,230	7,070		1520.2	1.1252
10	595	1,340	2,840	4,370	5,870		1304.7	1.0994
15	480	980	2,020	3,090	4,150	5,090	983.74	1.0321

$$\text{Travel Time (min)} = \sqrt[3]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



Closure Cost Estimate Productivity

Productivity - Articulated Trucks (cont.)

735 Articulated Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	700	2,200	5,020				2166	1.2254
4	550	1,350	2,950	4,520	6,100		1410.5	1.0528
6	450	1,020	2,200	3,400	4,570	5,770	1095.6	1.0223
8	390	810	1,650	2,530	3,370	4,200	879.73	0.9546
10	340	700	1,400	2,100	2,800	3,500	754.84	0.9332
15	230	500	970	1,400	1,900	2,390	519.31	0.9268

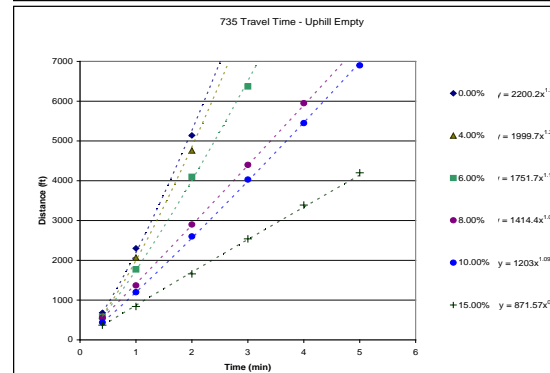
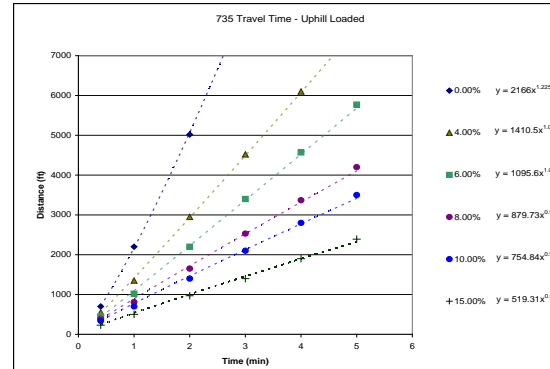
$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35

735 Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	680	2,300	5,140				2200.2	1.2606
4	610	2,070	4,760				1999.7	1.2795
6	580	1,770	4,100	6,370			1751.7	1.1953
8	560	1,370	2,900	4,400	5,950		1414.4	1.0306
10	440	1,200	2,600	4,030	5,450	6,900	1203	1.0924
15	370	840	1,660	2,540	3,390	4,200	871.57	0.969

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



Closure Cost Estimate Productivity

Productivity - Articulated Trucks (cont.)

740 Articulated Truck Travel Time - Uphill Loaded								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	600	2,340	5,500				2190.6	1.3823
4	500	1,390	3,190	4,960	6,780		1415	1.1389
6	420	1,020	2,200	3,400	4,580	5,700	1066.4	1.0438
8	350	800	1,650	2,560	3,400	4,300	842.87	1.0012
10	290	640	1,350	2,040	2,750	3,410	686.02	0.9889
15	200	450	940	1,400	1,830	2,340	474.86	0.9789

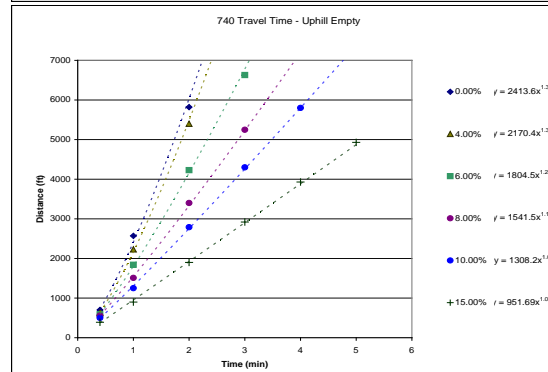
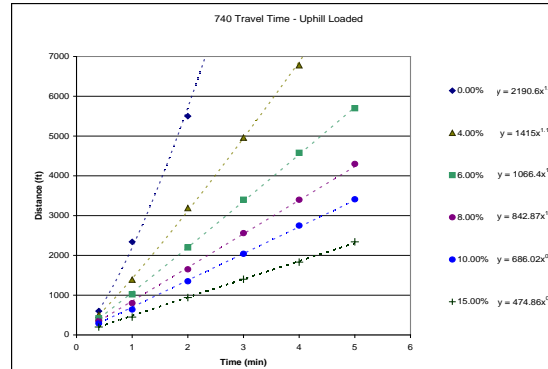
$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35

740 Haul Truck Travel Time - Uphill Empty								
Total Resistance (%) (rolling + grade)	Time (min)						k	p
	0.5	1	2	3	4	5		
0	700	2,570	5,820				2413.6	1.3214
4	630	2,230	5,400				2170.4	1.3372
6	590	1,840	4,230	6,630			1804.5	1.2048
8	560	1,510	3,400	5,250	7,120		1541.5	1.1112
10	500	1,250	2,790	4,300	5,800		1308.2	1.074
15	390	900	1,900	2,920	3,930	4,930	951.69	1.0146

$$\text{Travel Time (min)} = \sqrt[p]{\frac{\text{distance}}{k}}$$

Source: Caterpillar Performance Handbook Edition 35



Closure Cost Estimate
Productivity

Productivity - Wheel Loaders

Wheel Loader Specifications													
Description	924G	928G	950G	966G	972G	972G (2)	980G	988G	988G(2)	990	992G	992G(2)	994D L2350
Payload Capacity (cy)													
Struck	2.2	2.5	3.46	4.46	4.71	4.71	6.34	6.9	6.9	9.5	13.2	13.2	18
Heaped	2.7	3.25	4	5.25	5.5	5.5	7.25	8.33	8.33	11.25	16	16	22.5
Average	2.45	2.875	3.73	4.855	5.105	5.105	6.795	7.615	7.615	10.375	14.6	14.6	20.25
Matched Truck	N/A	N/A	N/A	725	730	735	N/A	740	769D	773D	777D	785C	793C 797B
Average Cycle Time (min)	0.45	0.45	0.5	0.5	0.5	0.5	0.55	0.55	0.55	0.55	0.6	0.6	0.75
Passes to Fill Truck	N/A	N/A	N/A	3	4	5	N/A	4	3	4	5	6	7
Altitude Deration Factor	1	1	1	1	1	1	1	1	1	1	1	1	1
Operator Efficiency	1	1	1	1	1	1	1	1	1	1	1	1	1
Job Efficiency	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Time to Fill Truck	N/A	N/A	N/A	1.5	2	2.5	N/A	2.2	1.65	2.2	3	3.6	4.2
Rolling Resistance**	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Loader matched to small truck fleet													
Loader matched to medium truck fleet													
Loader matched to large truck fleet													
Loader matched to extra large truck fleet													
**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered													
992G (2) - can be used to load 785 with 6 passes													
Source: Caterpillar Performance Handbook Edition 35, LeTourneau/actual Chilean mine operating data for L2350.													

Wheeled Loaders	General Purpose	Spade Nose-Rock
928G	3.25 cubic yard	not available
966G	5.0 cubic yard	not available
972G	5.5 cubic yard	not available
988G	not available	8.3 cubic yard
992G	not available	16.0 cubic yard
note: capacities are 2:1 heaped, SAE standards		
NOTES: Buckets for both Track Excavators and Wheel Loaders are offered by CECco & available for the rental rates quoted. Bucket sizes and capacities obtained from CATERPILLAR PERFORMANCE HANDBOOK, ED 34; Section 12, Wheel Loader and Section 4, Excavators		
Bucket capacity and width dictated by material weight and configuration, ie, shot, loose, tight bank, stockpile, rock, etc. Typical Nevada applications were used to determine above bucket capacities as related to materials & densities. Job site specifics may alter specific bucket requirements. (Cashman Equipment, Elko, Nevada - February 21, 2005)		

Productivity - Shovels

Shovel Specifications (Komatsu equivalent)					
Description	PC2000	PC3000	PC4000	PC5500	PC8000
Payload Capacity (cy)					
Struck	10.46	18.84	26.16	33.48	47.09
Heaped	14.39	25.9	35.97	46.04	64.75
Average	12.43	22.37	31.07	39.76	55.92
Matched Truck	740	777D	785C	793C	797B
Average Cycle Time (min)	0.49	0.49	0.59	0.59	0.69
Passes to Fill Truck	2.05	2.84	3.38	4.69	5.11
Altitude Deration Factor	1	1	0.9	1	1
Operator Efficiency	1	1	1	1	1
Job Efficiency	0.83	0.83	0.83	0.83	0.83
Time to Fill Truck	1.68	2.33	3.32	4.61	5.86
Rolling Resistance**	2.5	2.5	2.5	2.5	2.5
Shovel matched to small truck fleet					
Shovel matched to medium truck fleet					
Shovel matched to large truck fleet					
Shovel matched to extra large truck fleet					
**A firm, smooth, rolling roadway with dirt or light surfacing, flexing slightly under load or undulating, maintained fairly regularly, watered					
992G (2) - can be used to load 785 with 6 passes					
Source: Caterpillar Performance Handbook Edition 35, Komatsu actual Peruvian mine (Lagunas Norte) operating data for PC4000.					

**Closure Cost Estimate
Productivity**

Productivity - Motor Graders				
Motor Grader Specifications				
Description	120H	140H	160H	24M
Grader Width (ft)	8	9.25	10.08	14.04
Blade Width (ft)	12	14	16	16
Ripper Width (7 shanks) (ft)	7.6	8.5	9.75	12.83
Road Maintenance Speed (mph)				
Minimum	3	3	3	3
Maximum	9.5	9.5	9.5	9.5
Average	6.25	6.25	6.25	6.25
Hourly Production	33,000	33,000	33,000	33,000
Ripping Speed (mph)	1	1	1	1
Minimum	0	0	0	0
Maximum	3	3	3	3
Average	1.5	1.5	1.5	1.5
Altitude Deration Factor	1	1	1	1
Hourly Production (with job efficiency correction & altitude deration factors) (excluding maneuver time)	6,574	6,574	6,574	6,574
Maneuver time per pass (min)	0.5	0.5	0.5	0.5
Operator Efficiency	1	1	1	1
Job Efficiency	0.83	0.83	0.83	0.83
Source: Caterpillar Performance Handbook Edition 35				

**Closure Cost Estimate
Productivity**

Productivity - Excavators

Track Excavator Specifications							
Description	312C	320C	325C	330C	345B	365BL	385BL
Bucket Capacity (cy)	0.68	1.57	2.22	2.22	3	4.6	7.3
Fill Factor	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Average Bucket Load (cy)	0.612	1.413	1.998	1.998	2.7	4.14	6.57
Soil Type	packed earth	hard clay	hard clay	hard clay	hard clay	hard clay	hard clay
Job Condition	med-hard	med-hard	med-hard	med-hard	med-hard	med-hard	med-hard
Cycle Times (minutes) - based on hard clay							
Load Bucket	0.07	0.09	0.09	0.09	0.13	0.1	0.19
Swing Loaded	0.06	0.06	0.06	0.07	0.07	0.09	0.06
Dump Bucket	0.03	0.03	0.04	0.04	0.02	0.04	0.03
Swing Empty	0.05	0.05	0.06	0.07	0.06	0.07	0.07
Total Cycle Time	0.21	0.23	0.25	0.27	0.28	0.3	0.35
Job Efficiency	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Operator Efficiency	1	1	1	1	1	1	1
Altitude Deration Factor	1	1	1	1	1	1	1
Corrected Productivity (LCY/hr)	145	306	398	369	480	687	935
Exploration Road Cycle Time ⁽¹⁾ (min)	N/A	0.38	0.4	N/A	0.42	N/A	N/A
Exploration Road Corr Prod (LCY/hr)	N/A	185	249	N/A	320	N/A	N/A
Track Width (ft)	8.17	9.17	9.83	10.5	11.42	11.5	11.5
Ditch/Trench Excavation							
Bucket Capacity (cy)	0.42	0.58	0.88	0.89	2.09	3.27	2.75
Fill Factor	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Corrected Productivity (LCY/hr)	50	63	88	82	186	271	196

Source: Caterpillar Performance Handbook Edition 35

Track Excavators	Hvy Duty Rock	Extreme Service Exc (e.g. haulroad recontour)	Hvy Duty Trench
312C	30", 0.68 cubic yd	47", 0.94 cubic yd	22", .42 cubic yd
320C	30", 0.90 cubic yd	55.1", 1.57 cubic yd	23.6", .58 cubic yd
325C	36", 1.25 cubic yd	60", 2.22 cubic yd	30", .88 cubic yd
330C	36", 1.25 cubic yd	60", 2.22 cubic yd	30", .89 cubic yd
345B	43.2", 1.69 cubic yd	65", 3.0 cubic yd	48", 2.09 cubic yd
365BL	60", 3.25 cubic yd	82", 4.6 cubic yd	59", 3.27 cubic yd
385BL	85", 6.30 cubic yd	96.0, 7.30 cubic yd	57", 2.75 cubic yd

Note: capacities are 2:1 heaped, SAE standards

NOTES: Buckets for both Track Excavators and Wheel Loaders are offered by CECO &

available for the rental rates quoted. Bucket sizes and capacities obtained from CATERPILLAR

PERFORMANCE HANDBOOK, ED 34; Section 12, Wheel Loader and Section 4, Excavators

Bucket capacity and width dictated by material weight and configuration, ie., shot, loose,

tight bank, stockpile, rock, etc. Typical Nevada applications were used to determine above

bucket capacities as related to materials & densities. Job site specifics may alter specific

bucket requirements (Cashman Equipment, Elko, Nevada - February 21, 2005)

(1) Exploration cycle time assumes feathering/smoothing performed by excavator

Concrete Breaking Production

Track Excavator w/Hammer Specifications			
Description	325C	345B	385BL
Hydraulic Hammer	H120D s	H160D s	H180D s
Material	reinforced concrete		
Min Shift Production (yd3/8hr)	160	300	350
Max Shift Production (yd3/8hr)	300	850	1,550
Avg Shift Production (8hr)	230	575	950
Job Efficiency	0.83	0.83	0.83
Altitude Deration Factor	1	1	1

Source: Caterpillar Performance Handbook Edition 35

**Closure Cost Estimate
Productivity**

Drill Hole Plugging Productivity		
Drill Hole Plugging Productivity		
Description	Drill Rig	Pump Rig
Move-to-hole, set-up, tear-down ⁽¹⁾	2	2
Trip in tremmie pipe ⁽¹⁾	500	
cemented ⁽¹⁾	200	
Single-pass perforating (water wells)	Productivity (all p	Passes
4	60	4
6	60	4
8	50	4
12	45	6
18	40	9
24	28	12
time ⁽²⁾ (hr)	2	
Perforation tool cost (wear cost) ⁽³⁾	2.5	
Inert Material Placement (backfill)		
Grouting/Cement ⁽⁴⁾ (cy/hr)		5.33
Cuttings (see below) (cy/hr)		3.5
1. Drillers daily logs from Newmont, Barrick, New West Gold, Agnico Eagle, Idaho General Mines Inc. Sources: 2. Drillers daily logs from Newmont, Barrick, Target Minerals 3. Drillers daily logs from Newmont 4. WDC Exploration, Dec 2006 Source: WDC Exploration, Dec 2006		
Cuttings Placement Productivity		
Shift productivity (Means 02210-700-0120; Crew B11M)	28	cy / shift
Shift length	8	hours
Estimated Hourly Productivity	3.5	cy / hour

**Closure Cost Estimate
Productivity**

Altitude Deration Table

MODEL	Elevation											
	0-760 m (0-2500')		760-1500 m (2500-5000')		1500-2300 m (5000-7000')		2300-3000 m (7500-10,000')		3000-3800 m (10,000-12,000')		3800-4600 m (12,500-15,000')	
	CAT	User	CAT	User	CAT	User	CAT	User	CAT	User	CAT	User
Bulldozers												
D6R	100		100		100		100		92		84	
D6R w/ Winch	100		100		100		100		92		84	
D7R	100		100		100		100		100		96	
D8R	100		100		100		93		85		77	
D9R	100		100		100		93		85		77	
D10R	100		100		100		100		97		89	
D11R	100		100		100		93		85		77	
Wheeled Dozers												
824G	100		100		100		100		92		84	
834G	100		100		100		100		92		84	
844	100		100		100		100		100		96	
854G	100		100		100		93		85		77	
Graders												
120H	100		100		100		100		96		93	
14G/H	100		100		100		100		98		96	
16G/H	100		100		100		100		98		96	
24M	100		100		100		100		98		96	
Excavators												
312C	100		100		100		83		78		73	
320C	100		100		90		87		83		76	
325C	100		100		100		100		100		100	
330C	100		100		100		100		100		100	
345B	100		100		100		100		93		93	
365BL	100		100		100		86		86		86	
385BL	100		100		100		93		85		78	
Scrapers												
631G	100		100		100		100		97		90	
637G	100		100		100		95		87		80	
Loaders												
924G	100		100		100		100		97		89	
928G	100		100		100		100		92		85	
950G	100		100		100		100		100		100	
966G	100		100		100		100		96		88	
972G	100		100		92		84		77		70	
980G	100		100		100		100		96		88	
988G	100		100		100		95		85		75	
990	100		100		100		100		92		85	
992G	100		100		100		100		93		87	
994D	100		100		100		100		96		88	
L2350	100		100		100		100		96		90	
Shovels												
PC2000	100		100		100		100		96		90	
PC3000	100		100		100		100		96		90	
PC4000	100		100		100		100		96		90	
PC5500	100		100		100		100		96		90	
PC8000	100		100		100		100		96		90	
Other Equipment												
420D 4WD Backhoe	99		97		95		91		91		91	
428D 4WD Backhoe	99		97		95		91		91		91	
CS533E Vibratory Roller	100		100		98		95		91		86	
CS633E Vibratory Roller	100		100		100		100		91		86	
CP533E Sheepsfoot Compactor	100		100		98		95		91		100	
CP633E Sheepsfoot Compactor	100		100		100		100		91		86	
Light Truck - 1.5 Ton												
Supervisor's Truck												
Flatbed Truck												
Air Compressor + tools												
Welding Equipment												
Heavy Duty Drill Rig												
Pump (plugging) Drill Rig												
Concrete Pump												
Gas Engine Vibrator												
Generator 5KW												
HDEP Welder (pipe or liner)												
5 Ton Crane												
20 Ton Crane												
50 Ton Crane												
120 Ton Crane												
Trucks												
725	100		100		100		100		100		95	
730	100		100		100		100		100		95	
735	100		100		100		100		99		91	
740	100		100		100		100		99		91	
769D	100		100		100		93		88		82	
773E	100		100		100		100		93		85	
777D	100		100		100		100		93		87	
785C	100		100		100		93		86		80	
793C	100		100		100		100		100		93	
797B	100		100		100		100		100		93	
613E (5,000 gal) Water Wagon	100		100		100		100		95		87	
621E (8,000 gal) Water Wagon	100		100		100		100		97		90	
777D Water Truck	100		100		100		100		93		87	
785C Water Truck	100		100		100		93		86		80	

Closure Cost Estimate
Productivity

Dump Truck (10-12 yd³) (5)

Notes: User entered deration value will override values from CAT Performance Handbook, except L2350 Loader: data from actual mine performance in Chile.
Komatsu altitude deration assumed from LeTourneau L2350

STANDARDIZED RECLAMATION COST ESTIMATOR

User Tools

Version 1.4.1

These tools allow easy access to some useful VBA routines and macros that are include in this Model Version

Keyboard Shortcuts	
SHORTCUT KEYS	ACTION
<i>Ctrl-Shift-C</i>	<i>Go to Table of Contents</i>
<i>Ctrl-Shift-O</i>	<i>Open Toe Offset Calculator</i>
<i>Ctrl-Shift-P</i>	<i>Go to Property Information Sheet</i>
<i>Ctrl-Shift-S</i>	<i>Show Slope Conversion Table</i>
<i>Ctrl-Shift-T</i>	<i>Go to Tools sheet</i>
<i>Ctrl-Shift-Z</i>	<i>Paste Formulas - First Use Ctrl-C to copy a range, then use the mouse (or keyboard) to select the paste range and then use this shortcut to paste formulas only from the copy range to the paste range. Equivalent to the Paste Special/Formulas command.</i>

Closure Cost Estimate Seed Mixture

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Seed Mixture						
Common Name	Scientific Name	Species Number of Seeds / lb	Species % in Mix	PLS/acre	Cost/Lb	Cost/Acre
Grasses						
Indian ricegrass	<i>Achnatherum hymenoides</i>		14.16	1.30		
Plains lovegrass	<i>Eragrostis intermedia</i>		0.44	0.04		
NM feathergrass	<i>Hesperostipa newmexicana</i>		5.45	0.50		
Sideoats grama	<i>Bouteloua curtipendula</i>		11.98	1.10		
Blue grama	<i>Bouteloua gracilis</i>		2.72	0.25		
Cane beardgrass	<i>Bothriochloa barbinodis</i>		2.18	0.20		
Galleta	<i>Pleuraphis jamesii</i>		11.98	1.10		
Green sprangletop	<i>Leptochloa dubia</i>		2.18	0.20		
Plains bristlegrass	<i>Seteria vulpiseta</i>		3.27	0.30		
Sand dropseed	<i>Sporobolus cryptandrus</i>		0.44	0.04		
Forbs						
White prairie clover	<i>Dale candida c</i>		4.36	0.40		
Blue flax	<i>Linum lewisii c</i>		3.81	0.35		
Prairie coneflower	<i>Ratibida colomnifera c</i>		1.09	0.10		
Desert globemallow	<i>Sphaeralcea ambigua c</i>		4.36	0.40		
Shrubs						
Four-wing saltbush	<i>Atriplex canescens</i>		19.06	1.75		
Rubber rabbitbrush	<i>Ericamerica intermedia c</i>		3.81	0.35		
Apache plume	<i>Fallugia paradoxa c</i>		1.09	0.10		
Winterfat	<i>Krascheninnikovia lanata</i>		7.63	0.70		
Total				\$9.18		\$0.00

Source:

Notes:

Closure Cost Estimate User 1

Project Name: Foothill Dolomite Mine - Reclamation Plan
 Date of Submittal: 09-29-2020
 File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm
 Model Version: Version 1.4.1
 Cost Data: User Data
 Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
 Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1
 Seed Mix Cost Quotes



TO: Feliz Toprak, Mining Consultant, SRK Consulting, Inc.
 CC: Jeff Smith, Chief Operating Officer, NMCC
 FROM: Katie Emmer, Permitting & Environmental Compliance Manager, NMCC
 DATE: 20 March 2018
 SUBJECT: Seed Mix Quotes – Average cost \$175.00/acre PLS

The purpose of this memorandum is to summarize research into seed mix costs for seed mixes identified in the Copper Flat Mine Operation & Reclamation Plan (MORP) and to present the estimated cost of pure live seed (PLS) per acre.

The MORP calls for a specific seed mix and rate of application for interim and final reclamation:

Table E7: Interim and Final Reclamation Seed Mixes

Scientific Name	Common Name	PLS/ac ₁	
		Interim	Final
Grasses – Warm Season			
<i>Bothriochloa barbinodis</i>	Cane bluestem	0.15	0.20
<i>Bouteloua curtipendula</i>	Sideoats grama	1.00	1.10
<i>Bouteloua gracilis</i>	Blue grama	0.20	0.25
<i>Pleuraphis jamesii</i>	Galleta	0.75	1.10
<i>Leptochloa dubia</i>	Green sprangletop	0.15	0.20
<i>Setaria vulpiseta</i>	Plains bristlegrass	0.20	0.30
<i>Sporobolus cryptandrus</i>	Sand dropseed	0.03	0.04
Grasses – Cool, Intermediate Season			
<i>Achnatherum hymenoides</i>	Indian ricegrass	0.60	1.30
<i>Eragrostis intermedia</i>	Plains lovegrass	0.05	0.04
<i>Hesperostipa newmexicana</i>	NM feathergrass	0.70	0.50
Shrubs			
<i>Atriplex canescens</i>	Four-wing saltbush	0.30	1.75
<i>Ericamerica nauseosus</i>	Rubber rabbitbrush	0.10	0.35
<i>Fallugia paradoxa</i>	Apache plume	--	0.10
<i>Krascheninnikovia lanata</i>	Winterfat	0.15	0.70
Forbs			
<i>Dalea candida</i>	White prairie clover	0.10	0.40
<i>Linum lewisii</i>	Blue flax	0.15	0.35
<i>Ratibida colomnifera</i>	Prairie coneflower	--	0.10
<i>Sphaeralcea ambigua</i>	Desert globemallow	0.10	0.40
	Total	4.73	9.18

Notes:

1- Rate is in pounds of pure live seed (PLS) per acre; Substitutions may change seeding rates.

Closure Cost Estimate

User 1

In the week of 12 March 2018, I requested recommendations for seed mix suppliers from knowledgeable personnel at the Bureau of Land Management (BLM) Las Cruces office and Golder & Associates.

Emily Clark, Soil Scientist at Golder, indicated that they commonly work with Granite Seed. Shannon Gentry, Rangeland Management Specialist, suggested Bamert Seed, Granite Seed, and Curtis & Curtis Seed companies. Based on these recommendations, I contacted all three companies and provided MORP Table E7 and requested quotes on PLS/acre that would be certified weed free at the final reclamation rate. I instructed each company that comparable seed substitutions could be made based on availability. Quotes for PLS/acre were received from each company and are presented in the table below.

Seed Mix Quotes for MORP Table E7, Final Rate, March 2018

Company	Date	Price quote PLS/acre	Notes
Curtis & Curtis, Inc.	15 March 2018	\$174.72	Low acreage Quote attached
Curtis & Curtis, Inc.	15 March 2018	\$163.79	100 acres+ Quote attached
Granite Seed	15 March 2018	\$186.50	Quote attached
Bamert Seed	16 March 2018	\$750.00	Quote via email, attached.

In further correspondence with Bamert, the supplier speculated the quote could be decreased "as much as 2/3rds" if strategic substitutions of similar seeds were made based on availability. If the Bamert quote was decreased by 67%, it would be about \$247.50/acre. Based on the difference in price from the other two suppliers, I conclude this quote is an outlier that is based on differing assumptions from those communicated in the quote request and have not included it in our estimated average seed mix cost.

Based on these quotes, attached, I conclude the average cost of PLS that would meet MORP requirements for final seed rates shown in Table E7 would be \$175.00 per acre.

Attachments:

Curtis & Curtis, Inc. Quote
Granite Seed Quote
Bamert Seed Quote (via email)

Closure Cost Estimate
User 1

CURTIS & CURTIS, INC.

4500 North Prince, Clovis, New Mexico 88101
PH: 575-762-4759 FAX: 575-763-4213

Irrigated Pasture Grasses
Mountain Pasture Grasses
Native Pasture Grasses

Yard and Playground Grasses
Golf Course Grasses
Alfalfa/Clovers

PRICE QUOTATION

TO:	Themac Resources	DATE:	March 15, 2018
ATTENTION:	Katie Emmer	SALESPERSON:	Tyler Stuemky
PHONE:	505-400-7925	SHIPPING DATE:	As Directed
EMAIL:	kemmer@themasourcesgroup.com	FOB:	Clovis
PROJECT:	Sierra County Mine Reclamation	TERMS:	30 Days Net

DESCRIPTION	PRICE	AMOUNT
Custom Seed Mix:	\$174.72/Acre (Low Acreage)	
	\$163.79/Acre (100 Acres+)	

COMMON NAME	BOTANICAL NAME	PLS/ACRE
Cane Bluestem	<i>Bouteloua dactyloides</i>	0.20
Sub. Buffalograss		
Sideoats Grama	<i>Bouteloua curtipendula</i>	1.10
Blue Grama	<i>Bouteloua gracilis</i>	0.25
Galleta Grass	<i>Pleuraphis jamesii</i>	1.10
Green Sprangletop	<i>Leptochloa dubia</i>	0.20
Plains Bristlegrass	<i>Setaria vulpiseta</i>	0.30
Sand Dropseed	<i>Sporobolus cryptandrus</i>	0.04
Indian Ricegrass	<i>Oryzopsis hymenoides</i>	1.30
Plains Lovegrass	<i>Eragrostis trichodes</i>	0.04
Sand Lovegrass		
NM Feathergrass	<i>Hesperostipa comata</i>	0.50
Needle and Thread		
Four-Wing Saltbush	<i>Atriplex canescens</i>	1.75
Rubber Rabbitbrush	<i>Ericameria nauseosa</i>	0.35
Apache Plume	<i>Rhus trilobata</i>	0.10
Sub. Three-Leaf Sumac		
Winterfat	<i>Krascheninnikovia lanata</i>	0.70
White Prairie Clover	<i>Dalea purpurea</i>	0.40
Sub. Purple Prairie Clover		
Blue Flax	<i>Linum lewisii</i>	0.35
Prairie Coneflower	<i>Ratibida columnifera</i>	0.10
Desert Globemallow	<i>Sphaeralcea ambigua</i>	0.40

THIS QUOTE IS GOOD FOR 10 DAYS

ALL PRICES SUBJECT TO AVAILABILITY**SUBJECT TO BEING UNSOLD

Here is our quotation on the goods named, subject to the conditions noted:

The prices and terms on this quotation are not subject to verbal changes or other agreements unless approved in writing by the Home Office of the Seller. All quotations and agreements are contingent upon strikes, accidents, fires, availability of materials and all other causes beyond our control. Prices are based on costs and conditions existing on date of quotation and are subject to change by the Seller before final acceptance.

Typographical and stenographic errors are subject to correction. Purchaser agrees to accept either overage or shortage not in excess of ten percent to be charged for pro-rata. Purchaser assumes liability for patent and copyright infringement when goods are made to Purchaser's specifications. When quotation specifies material to be furnished by the purchaser, ample allowance must be made for reasonable spoilage and material must be of suitable quality to facilitate efficient production. Conditions not specifically stated herein shall be governed by established trade customs. Terms inconsistent with those stated herein, which may appear on Purchaser's formal order will not be binding on the Seller.

Closure Cost Estimate
User 1

QUOTE



Tren Hagman
1697 West 2100 North
Lehi, UT 84043

tren@graniteseed.com
Phone: (801) 768-4422
Fax: (801) 701-9413

Date: March 15, 2018
To: Katie Emmer
Company: Themac Resources
From: Tren Hagman
Re: Seed Quote

Katie,

We can provide the mix below for \$186.50/acre

Species	PLS lbs./acre
Cane beardgrass (<i>Bothriochloa barbinodis</i>)	0.20
Sideoats grama (<i>Bouteloua curtipendula</i>)	1.10
Blue grama (<i>Bouteloua gracilis</i>)	0.25
Galleta grass (<i>Pleuraphis jamesii</i>)	1.10
Green sprangletop (<i>Leptochloa dubia</i>)	0.20
Plains brome (<i>Setaria vulpiseta</i>)	0.30
Sand dropseed (<i>Sporobolus cryptandrus</i>)	0.04
Indian ricegrass (<i>Achnatherum hymenoides</i>)	1.30
Fourwing saltbush (<i>Atriplex canescens</i>)	1.75
Rubber rabbitbrush (<i>Ericameria nauseosa</i>)	0.35
Apache plume (<i>Fallugia paradoxa</i>)	0.10
Winterfat (<i>Krascheninnikovia lanata</i>)	0.70
White prairie clover (<i>Dalea candida</i>)	0.40
Blue flax (<i>Linum perenne</i>)	0.35
Prairie coneflower (<i>Ratibida columnifera</i>)	0.10
Desert globemallow (<i>Sphaeralcea ambigua</i>)	0.40
Toal:	8.64

If you have any questions, please contact me at the number above or by email tren@graniteseed.com.

Thanks

Closure Cost Estimate
User 1

Katie Emmer

From: Colby Scroggins <cscroggins@bamertseed.com>
Sent: Friday, March 16, 2018 12:18 PM
To: Katie Emmer
Subject: RE: Seed mix quote

Katie,

I would estimate that the attached blend may be near \$750 per acre.

Please let me know if I may be of help in the future!

Have a great day,

Colby F. Scroggins

Reclamation Specialist

cscroggins@BamertSeed.com

Office | 800.262.9892

Fax | 888.378.0419

www.BamertSeed.com



[Sign Up for Our Newsletter!](#)

From: Katie Emmer [<mailto:kemmer@themasourcesgroup.com>]
Sent: Wednesday, March 14, 2018 4:25 PM
To: Colby Scroggins <cscroggins@bamertseed.com>
Subject: Seed mix quote

Here's the seed mix I'm looking at, see attached.

Katie Emmer | [Permitting & Environmental Compliance Manager](#)

M: +1 505.400.7925 | **F:** +1 505.881.4616

A: 4253 Montgomery Blvd. NE, Suite 130, Albuquerque, NM 87109

W: themasourcesgroup.com | **E:** kemmer@themasourcesgroup.com



**NEW
MEXICO
COPPER
CORPORATION**

Closure Cost Estimate

User 2

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

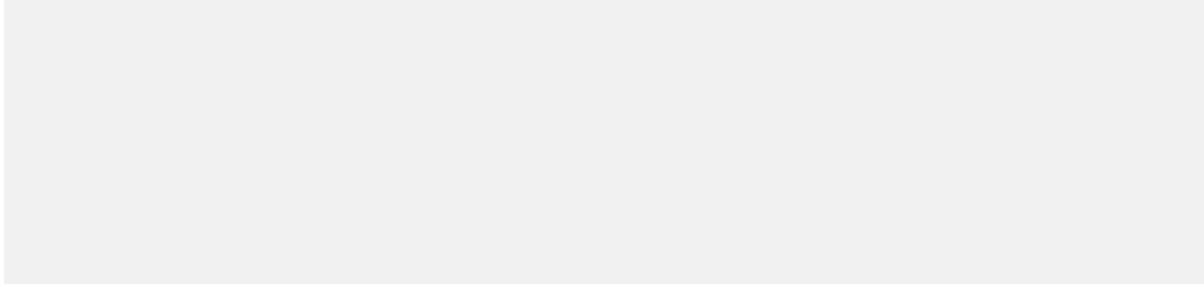
Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 2



Closure Cost Estimate

User 3

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

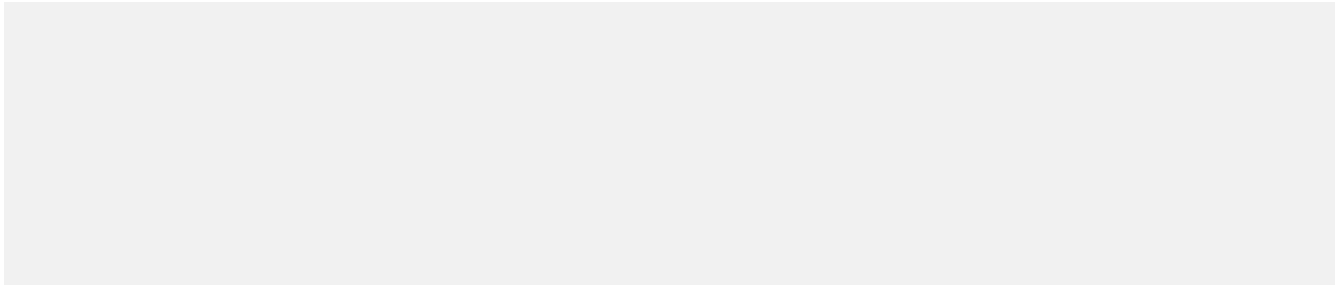
Model Version: Version 1.4.1

Cost Data: User Data

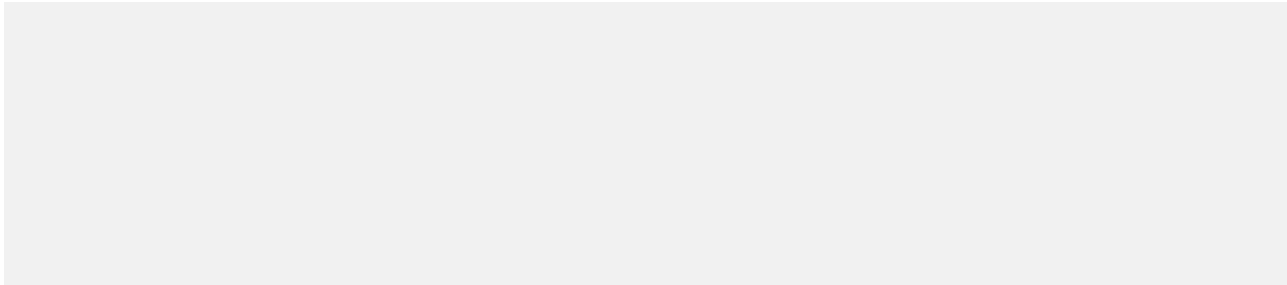
Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

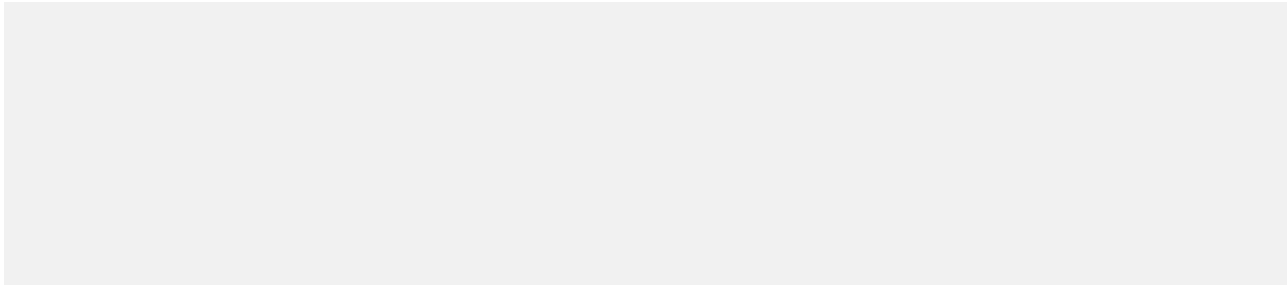
Closure Cost Estimate
User 3



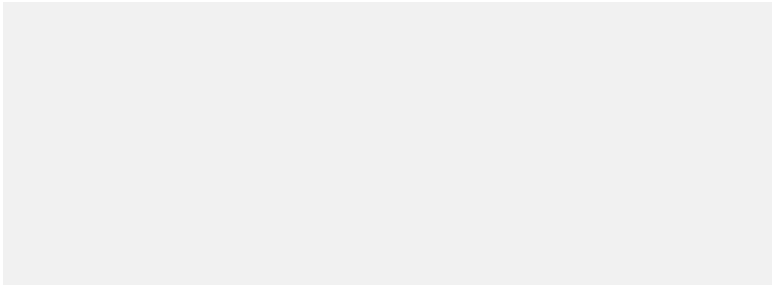
Closure Cost Estimate
User 3



Closure Cost Estimate
User 3



Closure Cost Estimate
User 3



Closure Cost Estimate

User 4

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

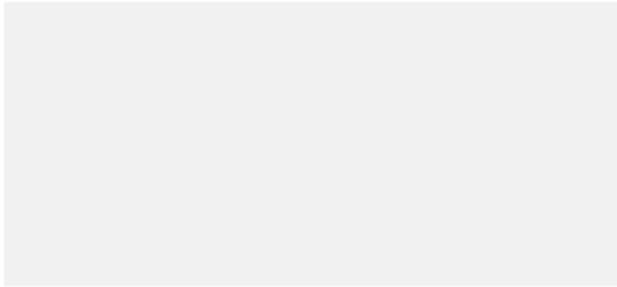
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Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 4



Closure Cost Estimate

User 5

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

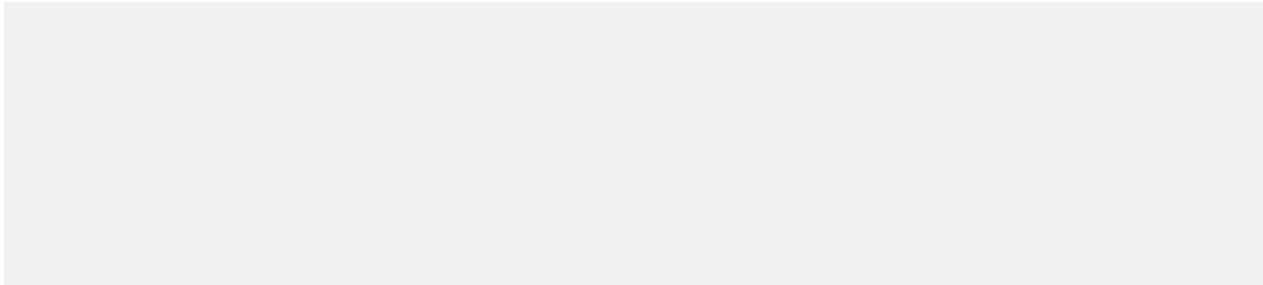
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Cost Data: User Data

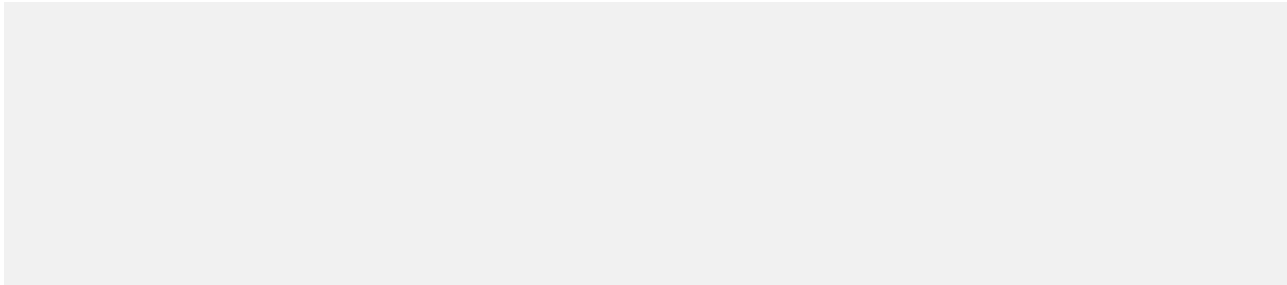
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Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

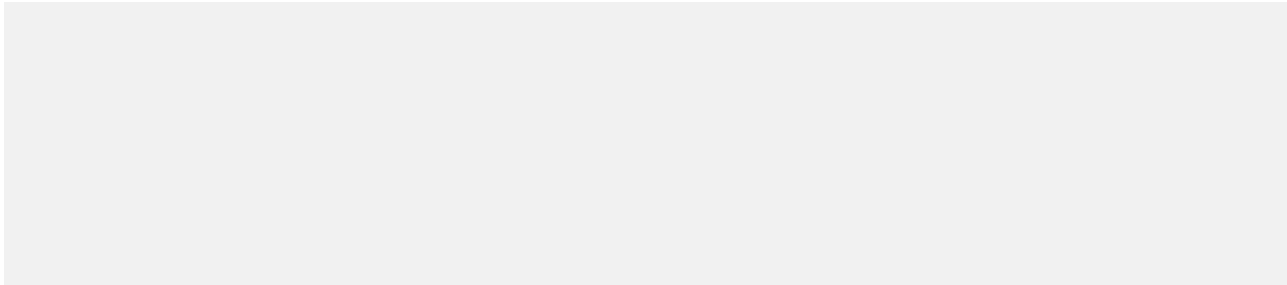
Closure Cost Estimate
User 5



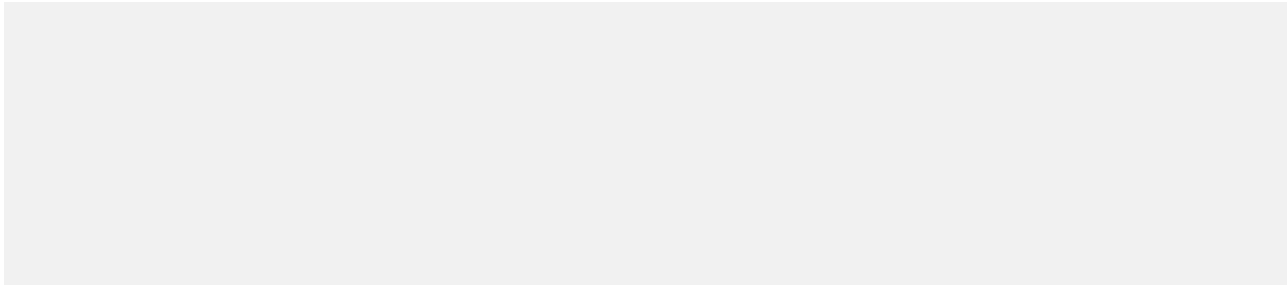
Closure Cost Estimate
User 5



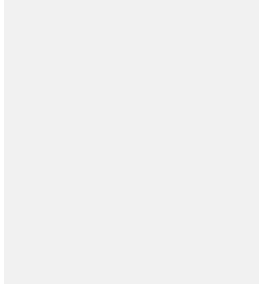
Closure Cost Estimate
User 5



Closure Cost Estimate
User 5



Closure Cost Estimate
User 5



Closure Cost Estimate

User 6

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

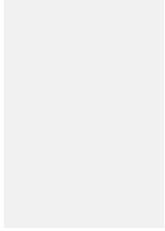
Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety **Cost Basis:** American Magnesium - Option 1

Closure Cost Estimate
User 6



Closure Cost Estimate

User 7

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

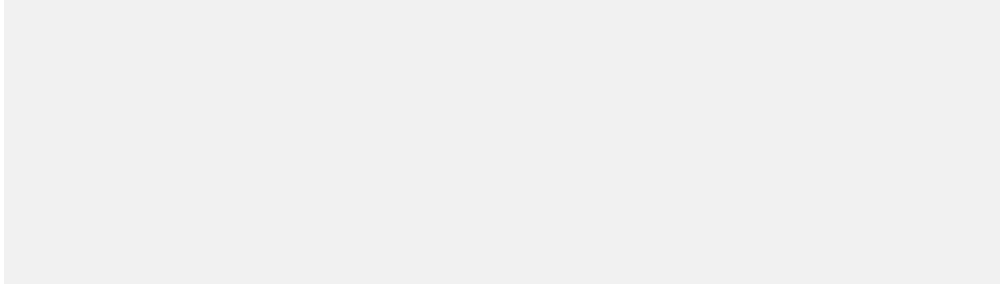
Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 7



Closure Cost Estimate

User 8

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 8



Closure Cost Estimate

User 9

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

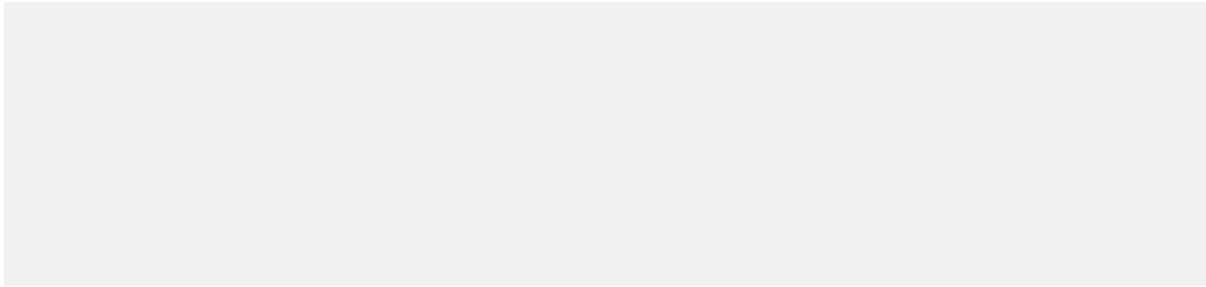
Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 9



Closure Cost Estimate

User 10

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 10



sm
11

Closure Cost Estimate

User 11

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

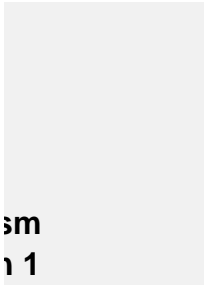
Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 11



Closure Cost Estimate

User 12

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 12



Closure Cost Estimate

User 13

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 13



Closure Cost Estimate

User 14

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 14



Closure Cost Estimate

User 15

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

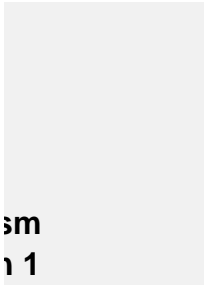
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Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 15



Closure Cost Estimate

User 16

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

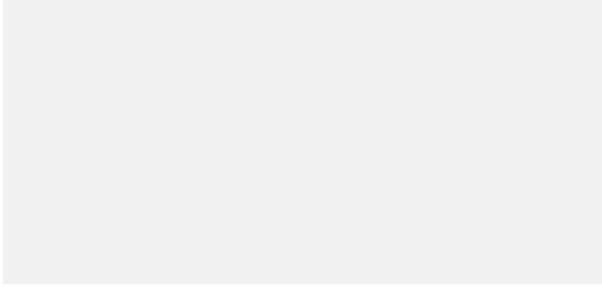
Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 16



Closure Cost Estimate

User 17

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 17



Closure Cost Estimate

User 18

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 18



Closure Cost Estimate

User 19

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

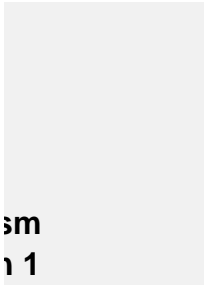
Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xls

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option

Closure Cost Estimate
User 19



Closure Cost Estimate

User 20

Project Name: Foothill Dolomite Mine - Reclamation Plan

Date of Submittal: 09-29-2020

File Name: Att 2_Cost Estimate for Reclamation at End of Mining.xlsm

Model Version: Version 1.4.1

Cost Data: User Data

Cost Data File: SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm

Cost Estimate Type: Surety Cost Basis: American Magnesium - Option 1

Format Version:	SRCE Data File v1.12
File Name:	03_SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Date:	September 29, 2020
Cost Type:	User Data
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coost_Data_File_1_12_Std_2020 & Davis-Bacon Act WD#NM20200012

Units of Measure:	Imperial
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No. of Bases/Regions:	1
------------------------------	---

Basis/Region	Basis/Region Name	Basis/Region Description
Basis 1	American Magnesium - Option 1	American Magnesium - Foothill Dolomite Mine - Northern Nevada Equipment
Basis 2		
Basis 3		
Basis 4		
Basis 5		
Basis 6		
Basis 7		
Basis 8		
Basis 9		
Basis 10		
Basis 11		
Basis 12		
Basis 13		
Basis 14		
Basis 15		

Equipment Costs

File Name:	03_SRCE_Cost_data-Am_Mg_Foothill_Dc
Date:	September 29, 2020
Cost Basis:	User Data
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coost_Data_File_1_

Monthly Rental Basis (operating hrs/ period)	160				
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MONTHLY EQUIPMENT RATE TABLE [Cost Per Month] ⁽¹⁾

EQUIPMENT TYPE ⁽²⁾	Basis 1 <i>American Magnesium - Option 1</i>	Basis 2	Basis 3	Basis 4	Basis 5
Bulldozers					
D6R	\$6,570				
D6R w/ Winch	\$6,570				
D7R	\$18,300				
D8R	\$20,180				
D9R	\$30,100				
D10R	\$44,500				
D11R	\$56,234				
Wheeled Dozers					
824G	\$19,849				
834G	\$24,929				
844	\$33,734				
854G	\$33,802				
Motor Graders					
120H	\$8,670				
14G/H	\$14,790				
16G/H	\$18,806				
24M	\$20,686				
Track Excavators					
312C	\$5,610				
320C	\$7,750				
325C	\$10,750				
330C	\$11,500				
345B	\$16,730				
365BL	\$23,119				
385BL	\$28,472				
Scrapers					
631G	\$27,700				
637G PP	\$36,819				
Wheeled Loaders					
924G	\$5,610				
928G	\$6,530				
950G	\$9,520				
966G	\$11,500				
972G	\$13,480				

Equipment Costs

File Name:	03_SRCE_Cost_data-Am_Mg_Foothill_Dc
Date:	September 29, 2020
Cost Basis:	User Data
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coost_Data_File_1_

Monthly Rental Basis (operating hrs/ period)	160				
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980G	\$15,690				
988G	\$19,589				
990	\$28,299				
992G	\$47,500				
994D	\$45,175				
L-2350	\$82,607				

Shovels

KOM PC2000	\$70,917				
KOM PC3000	\$72,526				
KOM PC4000	\$74,135				
KOM PC5500	\$81,548				
KOM PC8000	\$89,703				

Hydraulic Hammers

H-120 (fits 325)	\$3,420				
H-160 (fits 345)	\$7,028				
H-180 (fits 365/385)	\$8,168				

Demolition Shears

S340 (fits 322/325/330)	\$3,524				
S365 (fits 330/345)	\$4,131				
S390 (fits 365/385)	\$6,593				

Demolition Grapples

G315 (fits 322/325)					
G320 (fits 325/330)					
G330 (fits 345/365)					

Other Equipment

420D 4WD Backhoe	\$3,240				
428D 4WD Backhoe	\$3,870				
CS533E Vibratory Roller	\$4,402				
CS663E Vibratory Roller	\$4,291				
CP533E Sheepsfoot Compactor	\$4,085				
CP663E Sheepsfoot Compactor	\$6,588				
Light Truck - 1.5 Ton	\$2,184				
Supervisor's Truck	\$834				
Flatbed Truck	\$621				
Air Compressor + tools	\$597				
Welding Equipment	\$405				
Heavy Duty Drill Rig	\$52,018				

Equipment Costs

File Name:	03_SRCE_Cost_data-Am_Mg_Foothill_Dc
Date:	September 29, 2020
Cost Basis:	User Data
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coost_Data_File_1_

Monthly Rental Basis (operating hrs/ period)	160				
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Pump (plugging) Drill Rig	\$52,018				
Concrete Pump	\$14,864				
Gas Engine Vibrator	\$357				
Generator 5KW	\$938				
HDEP Welder (pipe or liner)	\$7,023				
5 Ton Crane	\$7,160				
20 Ton Crane	\$7,955				
50 Ton Crane	\$15,154				
120 Ton Crane	\$28,943				

Trucks					
725 (articulated)	\$10,824				
730 (articulated)	\$14,640				
735 (articulated)	\$16,730				
740 (articulated)	\$18,820				
769D					
773E	\$18,267				
777D	\$37,750				
785C	\$40,948				
793C	\$49,547				
797B	\$89,160				
613E (5,000 gal) Water Wagon	\$8,726				
621E (8,000 gal) Water Wagon	\$10,006				
777D Water Truck	\$37,226				
785C Water Truck	\$40,948				
Dump Truck (10-12 yd ³) (5)	\$3,752				

NOTES:

(1) Power Equipment Source:	Catepillar model or equivalent, LeTourneau loader, Komatsu shovels				
(2) Power Equipment Type:	Catepillar model or equivalent, LeTourneau loader, Komatsu shovels	Catepillar model or equivalent, LeTourneau loader, Komatsu shovels	Catepillar model or equivalent, LeTourneau loader, Komatsu shovels	Catepillar model or equivalent, LeTourneau loader, Komatsu shovels	Catepillar model or equivalent, LeTourneau loader, Komatsu shovels
(3) Drilling Equipment Source:	RS Means Heavy Construction (2020 Q2)				
(4) Other Equipment Source:	RS Means Heavy Construction (2020 Q2)				

PREVENTATIVE MAINTENANCE COST [Cost Per Hour] ⁽¹⁾

EQUIPMENT TYPE	Basis 1	Basis 2	Basis 3	Basis 4	Basis 5
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Equipment Costs

File Name:	03_SRCE_Cost_data-Am_Mg_Foothill_Dc
Date:	September 29, 2020
Cost Basis:	User Data
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coost_Data_File_1_

Monthly Rental Basis (operating hrs/ period)	160				
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EQUIPMENT TYPE	Magnesium -				
Bulldozers					
D6R	\$34.60				
D6R w/ Winch	\$34.60				
D7R	\$2.69				
D8R	\$3.49				
D9R	\$3.61				
D10R	\$3.79				
D11R	\$160.74				
Wheeled Dozers					
824G	\$49.58				
834G	\$59.69				
844	\$77.91				
854G	\$90.20				
Motor Graders					
120H	\$20.32				
14G/H	\$37.21				
16G/H	\$50.42				
24M	\$55.46				
Track Excavators					
312C	\$2.14				
320C	\$2.38				
325C	\$2.64				
330C	\$3.01				
345B	\$3.36				
365BL	\$80.63				
385BL	\$91.31				

Equipment Costs

File Name:	03_SRCE_Cost_data-Am_Mg_Foothill_Dc
Date:	September 29, 2020
Cost Basis:	User Data
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coost_Data_File_1_

Monthly Rental Basis (operating hrs/ period)	160				
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Scrapers					
631G	\$3.22				
637G PP	\$116.00				
Wheeled Loaders					
924G	\$9.33				
928G	\$16.35				
950G	\$2.30				
966G	\$2.42				
972G	\$2.53				
980G	\$2.57				
988G	\$57.81				
990	\$85.58				
992G	\$11.87				
994D	\$122.36				
L-2350	\$203.53				
Shovels					
KOM PC2000	\$183.38				
KOM PC3000	\$218.80				
KOM PC4000	\$254.21				
KOM PC5500	\$279.63				
KOM PC8000	\$307.59				
Hydraulic Hammers					
H-120 (fits 325)	N/A	N/A	N/A	N/A	N/A
H-160 (fits 345)	N/A	N/A	N/A	N/A	N/A
H-180 (fits 365/385)	N/A	N/A	N/A	N/A	N/A
Demolition Shears					
S340 (fits 322/325/330)	N/A	N/A	N/A	N/A	N/A
S365 (fits 330/345)	N/A	N/A	N/A	N/A	N/A
S390 (fits 365/385)	N/A	N/A	N/A	N/A	N/A
Demolition Grapples					
G315 (fits 322/325)	N/A	N/A	N/A	N/A	N/A
G320 (fits 325/330)	N/A	N/A	N/A	N/A	N/A
G330 (fits 345/365)	N/A	N/A	N/A	N/A	N/A
Other Equipment					
420D 4WD Backhoe	\$11.81				
428D 4WD Backhoe	\$12.20				
CS533E Vibratory Roller	\$19.33				
CS663E Vibratory Roller	\$20.65				
CP533E Sheepsfoot Compactor	\$24.87				
CP663E Sheepsfoot Compactor	\$29.78				

Equipment Costs

File Name:	<i>03_SRCE_Cost_data-Am_Mg_Foothill_Dc</i>
Date:	<i>September 29, 2020</i>
Cost Basis:	<i>User Data</i>
Author/Source:	<i>Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coost_Data_File_1_</i>

Monthly Rental Basis (operating hrs/ period)	160				
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Light Truck - 1.5 Ton	\$8.67				
Supervisor's Truck	\$3.62				
Flatbed Truck	\$3.85				
Air Compressor + tools	\$3.38				
Welding Equipment	\$1.92				
Heavy Duty Drill Rig	\$278.95				
Pump (plugging) Drill Rig	\$278.95				
Concrete Pump					
Gas Engine Vibrator	\$1.46				
Generator 5KW	\$3.58				
HDEP Welder (pipe or liner)					
5 Ton Crane	\$23.22				
20 Ton Crane	\$25.80				
50 Ton Crane	\$45.47				
120 Ton Crane	\$80.14				

Trucks					
725 (articulated)	\$28.22				
730 (articulated)	\$2.76				
735 (articulated)	\$2.86				
740 (articulated)	\$2.97				
769D					
773E	\$47.92				
777D	\$95.60				
785C	\$105.16				

Equipment Costs

File Name:	03_SRCE_Cost_data-Am_Mg_Foothill_Dc
Date:	September 29, 2020
Cost Basis:	User Data
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coost_Data_File_1_

Monthly Rental Basis (operating hrs/ period)	160				
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793C	\$127.24				
797B	\$204.78				
613E (5,000 gal) Water Wagon	\$45.31				
621E (8,000 gal) Water Wagon	\$50.66				
777D Water Truck	\$95.60				
785C Water Truck	\$105.16				
Dump Truck (10-12 yd3) (5)	N/A				

(1) PM Source:					
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G.E.T CONSUMPTION [Cost Per Hour] ⁽¹⁾ (Wear Items)

EQUIPMENT TYPE	Basis 1	Basis 2	Basis 3	Basis 4	Basis 5
	Magnesium -				

Bulldozers

D6R	\$2.61				
D6R w/ Winch	\$2.61				
D7R	\$3.84				
D8R	\$4.86				
D9R	\$6.59				
D10R	\$8.22				
D11R	\$16.66				

Wheeled Dozers

824G	\$1.32				
834G	\$1.70				
844	\$2.42				
854G	\$2.40				

Motor Graders

120H	\$0.62				
14G/H	\$1.38				
16G/H	\$2.00				
24M	\$2.20				

Track Excavators

312C	\$1.33				
320C	\$1.94				
325C	\$1.48				
330C	\$2.67				
345B	\$2.85				
365BL	\$3.97				
385BL	\$5.11				

Equipment Costs

File Name:	03_SRCE_Cost_data-Am_Mg_Foothill_Dc
Date:	September 29, 2020
Cost Basis:	User Data
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coost_Data_File_1_

Monthly Rental Basis (operating hrs/ period)	160				
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Scrapers					
631G	\$1.86				
637G PP	\$2.11				
Wheeled Loaders					
924G	\$0.19				
928G	\$0.60				
950G	\$0.87				
966G	\$0.87				
972G	\$1.08				
980G	\$1.41				
988G	\$2.26				
990	\$3.71				
992G	\$32.73				
994D	\$4.99				
L-2350	\$9.30				
Shovels					
KOM PC2000	\$13.87				
KOM PC3000	\$16.89				
KOM PC4000	\$19.91				
KOM PC5500	\$21.90				
KOM PC8000	\$24.09				
Hydraulic Hammers					
H-120 (fits 325)	\$11.57				
H-160 (fits 345)	\$23.24				
H-180 (fits 365/385)	\$24.96				
Demolition Shears					
S340 (fits 322/325/330)	\$20.50				
S365 (fits 330/345)	\$25.23				
S390 (fits 365/385)	\$31.61				
Demolition Grapples					
G315 (fits 322/325)					
G320 (fits 325/330)					
G330 (fits 345/365)					
Other Equipment					
420D 4WD Backhoe	\$0.54				
428D 4WD Backhoe	\$0.60				
CS533E Vibratory Roller					
CS663E Vibratory Roller					
CP533E Sheepsfoot Compactor					
CP663E Sheepsfoot Compactor					

Equipment Costs

File Name:	03_SRCE_Cost_data-Am_Mg_Foothill_Dc
Date:	September 29, 2020
Cost Basis:	User Data
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coost_Data_File_1_

Monthly Rental Basis (operating hrs/ period)	160				
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Light Truck - 1.5 Ton					
Supervisor's Truck					
Flatbed Truck					
Air Compressor + tools	N/A	N/A	N/A	N/A	N/A
Welding Equipment	N/A	N/A	N/A	N/A	N/A
Heavy Duty Drill Rig	\$9.60				
Pump (plugging) Drill Rig	\$9.60				
Concrete Pump	N/A	N/A	N/A	N/A	N/A
Gas Engine Vibrator	N/A	N/A	N/A	N/A	N/A
Generator 5KW	N/A	N/A	N/A	N/A	N/A
HDEP Welder (pipe or liner)	N/A	N/A	N/A	N/A	N/A
5 Ton Crane					
20 Ton Crane					
50 Ton Crane					
120 Ton Crane					

Trucks					
725 (articulated)	\$3.22				
730 (articulated)	\$3.22				
735 (articulated)	\$3.22				
740 (articulated)	\$3.22				
769D	\$3.60				
773E	\$4.04				
777D	\$4.51				
785C					
793C					
797B					
613E (5,000 gal) Water Wagon					
621E (8,000 gal) Water Wagon					
777D Water Truck					
785C Water Truck					
Dump Truck (10-12 yd3) (5)	\$3.22				

Notes:					
(1) G.E.T. Source:					

TIRE COST TABLE [Cost Per Tire^(1,2,3)]

EQUIPMENT TYPE	Basis 1	Basis 2	Basis 3	Basis 4	Basis 5
	Magnesium -				
Bulldozers					
D6R	N/A	N/A	N/A	N/A	N/A
D6R w/ Winch	N/A	N/A	N/A	N/A	N/A

Equipment Costs

File Name:	03_SRCE_Cost_data-Am_Mg_Foothill_Dc
Date:	September 29, 2020
Cost Basis:	User Data
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coost_Data_File_1_

Monthly Rental Basis (operating hrs/ period)	160				
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D7R	N/A	N/A	N/A	N/A	N/A
D8R	N/A	N/A	N/A	N/A	N/A
D9R	N/A	N/A	N/A	N/A	N/A
D10R	N/A	N/A	N/A	N/A	N/A
D11R	N/A	N/A	N/A	N/A	N/A

Wheeled Dozers

824G	\$33,740.00				
834G	\$43,505.00				
844	\$62,020.00				
854G	\$76,685.00				

Motor Graders

120H	\$11,025.00				
14G/H	\$24,500.00				
16G/H	\$35,455.00				
24M	\$39,000.50				

Track Excavators

312C	N/A	N/A	N/A	N/A	N/A
320C	N/A	N/A	N/A	N/A	N/A
325C	N/A	N/A	N/A	N/A	N/A
330C	N/A	N/A	N/A	N/A	N/A
345B	N/A	N/A	N/A	N/A	N/A
365BL	N/A	N/A	N/A	N/A	N/A
385BL	N/A	N/A	N/A	N/A	N/A

Scrapers

631G	\$32,680.00				
637G PP	\$30,280.00				

Wheeled Loaders

924G	\$4,770.00				
928G	\$13,815.00				
950G	\$23,085.00				
966G	\$24,075.00				
972G	\$29,880.00				
980G	\$45,720.00				
988G	\$73,350.00				
990	\$120,195.00				
992G	\$147,105.00				
994D	\$161,815.50				
L-2350	\$301,680.00				

Shovels

KOM PC2000	N/A	N/A	N/A	N/A	N/A
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Equipment Costs

File Name:	03_SRCE_Cost_data-Am_Mg_Foothill_Dc
Date:	September 29, 2020
Cost Basis:	User Data
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coost_Data_File_1_

Monthly Rental Basis (operating hrs/ period)	160				
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KOM PC3000	N/A	N/A	N/A	N/A	N/A
KOM PC4000	N/A	N/A	N/A	N/A	N/A
KOM PC5500	N/A	N/A	N/A	N/A	N/A
KOM PC8000	N/A	N/A	N/A	N/A	N/A

Hydraulic Hammers					
H-120 (fits 325)	N/A	N/A	N/A	N/A	N/A
H-160 (fits 345)	N/A	N/A	N/A	N/A	N/A
H-180 (fits 365/385)	N/A	N/A	N/A	N/A	N/A

Demolition Shears					
S340 (fits 322/325/330)	N/A	N/A	N/A	N/A	N/A
S365 (fits 330/345)	N/A	N/A	N/A	N/A	N/A
S390 (fits 365/385)	N/A	N/A	N/A	N/A	N/A

Demolition Grapples					
G315 (fits 322/325)	N/A	N/A	N/A	N/A	N/A
G320 (fits 325/330)	N/A	N/A	N/A	N/A	N/A
G330 (fits 345/365)	N/A	N/A	N/A	N/A	N/A

Other Equipment					
420D 4WD Backhoe	\$4,770.00				
428D 4WD Backhoe	\$4,830.00				
CS533E Vibratory Roller	N/A	N/A	N/A	N/A	N/A
CS663E Vibratory Roller	N/A	N/A	N/A	N/A	N/A
CP533E Sheepsfoot Compactor	N/A	N/A	N/A	N/A	N/A
CP663E Sheepsfoot Compactor	N/A	N/A	N/A	N/A	N/A
Light Truck - 1.5 Ton	\$4,140.00				
Supervisor's Truck	\$1,350.00				
Flatbed Truck	\$1,020.00				
Air Compressor + tools	N/A	N/A	N/A	N/A	N/A
Welding Equipment	N/A	N/A	N/A	N/A	N/A
Heavy Duty Drill Rig					
Pump (plugging) Drill Rig					
Concrete Pump	N/A	N/A	N/A	N/A	N/A
Gas Engine Vibrator	N/A	N/A	N/A	N/A	N/A
Generator 5KW	N/A	N/A	N/A	N/A	N/A
HDEP Welder (pipe or liner)	N/A	N/A	N/A	N/A	N/A
5 Ton Crane	\$9,261.00				
20 Ton Crane	\$10,290.00				
50 Ton Crane	\$16,530.00				
120 Ton Crane	\$42,750.00				

Trucks					
725 (articulated)	\$13,720.00				
730 (articulated)	\$14,980.00				

Equipment Costs

File Name:	03_SRCE_Cost_data-Am_Mg_Foothill_Dc
Date:	September 29, 2020
Cost Basis:	User Data
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coost_Data_File_1_

Monthly Rental Basis (operating hrs/ period)	160				
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735 (articulated)	\$15,940.00				
740 (articulated)	\$17,240.00				
769D					
773E	\$69,300.00				
777D	\$157,600.00				
785C	\$138,688.00				
793C	\$167,812.48				
797B	\$322,800.00				
613E (5,000 gal) Water Wagon	\$18,840.00				
621E (8,000 gal) Water Wagon	\$38,960.00				
777D Water Truck	\$157,600.00				
785C Water Truck	\$138,688.00				
Dump Truck (10-12 yd3) (5)	\$12,900.00				

Notes:					
(1) Unit Cost Basis:					
(2) Cost Basis:					
(3) Tire Cost Source:					
(4) Tire Wear Source (defined in model):					

Labor Rates

File Name:	03_SRCE_Cost_data-Am_Mg_Foothill_Dx
Date:	September 29, 2020
Cost Basis:	User Data
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coost_Data_File_1_12_Std_2020 & Davis-Bacon Act WD#NM20200014

HOURLY LABOR RATE TABLE

EQUIPMENT TYPE ⁽¹⁾ OR JOB DESCRIPTION	Basis 1		Basis 2		Basis 3		Basis 4		Basis 5		Basis 6	
	American Magnesium - Option 1											
HDEP Welder (pipe or liner)												
5 Ton Crane		\$27.12										
20 Ton Crane		\$27.12										
50 Ton Crane		\$27.12										
120 Ton Crane		\$27.12										
Fringe Benefits												
Equip Op Fringe Benefits (\$/hr)						\$0.00		\$0.00		\$0.00		
Zone and Area Adjustments - Miles and Rates (\$/hr) ⁽³⁾												
Equipment Zone 1	0-50 miles	\$0.00	none	\$0.00	none	\$0.00	none	\$0.00	none	\$0.00		
Equipment Zone 2	50-150 miles	\$0.00										
Equipment Zone 3	150-300 miles	\$0.00										
Equipment Zone 4	>300 miles	\$0.00										
Equipment Zone 5												
Equipment Zone 6												
Equipment Zone 7												
NOTES:												
(1) Equipment Type:	Catepillar model or equivalent		Catepillar model or equivalent		Catepillar model or equivalent		Catepillar model or equivalent		Catepillar model or equivalent		Catepillar model or equivalent	
(2) Equipment Operator Source:	Davis-Bacon Act											
(3) Zone Basis:	From Deming											
TRUCK DRIVERS - Labor Groups and Base Pay Rate (\$/hr) ⁽⁴⁾												
725 (articulated)	Dump Truck Driver > 25 yds < 60 yds	\$18.97										
730 (articulated)	Dump Truck Driver > 25 yds < 60 yds	\$18.97										
735 (articulated)	Dump Truck Driver > 25 yds < 60 yds	\$18.97										
740 (articulated)	Dump Truck Driver > 25 yds < 60 yds	\$18.97										
769D	Dump Truck Driver > 25 yds < 60 yds	\$18.97										
773E		\$18.97										
777D	Dump Truck	\$18.97										
785C												
793C												
797B												
613E (5,000 gal) Water Wagon	Water Truck > 2,500 gallons	\$18.97										
621E (8,000 gal) Water Wagon	Water Truck > 2,500 gallons	\$18.97										
777D Water Truck												
785C Water Truck												
Dump Truck (10-12 yd3)	Dump Truck Driver > 8 yds < 18 yds	\$11.90										
Fringe Benefits												
Truck Driver Fringe Benefits (\$/hr)		\$0.00				\$0.00		\$0.00		\$0.00		
Zone and Area Adjustments ⁽⁵⁾												
Truck Zone 1	0-50 miles	\$0.00	none	\$0.00	none	\$0.00	none	\$0.00	none	\$0.00		
Truck Zone 2	50-150 miles	\$0.00										
Truck Zone 3	150-300 miles	\$0.00										
Truck Zone 4	>300 miles	\$0.00										
Truck Zone 5												
Truck Zone 6												
Truck Zone 7												
NOTES:												
(4) Truck Driver Source:	Davis-Bacon Act											
(5) Zone Basis:	From Deming											
LABORERS - Labor Groups and Base Pay Rate (\$/hr) ^(6,7)												
General Laborer	Group 1	\$12.37										
Skilled Laborer	Group 4	\$17.97										
Driller's Helper	Group 3	\$17.83										
Rodmen (reinforcing concrete)	Group 1	\$17.74										
Cement finisher	Group 3	\$17.83										
Carpenter		\$22.26										
Fringe Benefits												
Laborer Fringe Benefits (\$/hr)		\$0.00										
Carpenter Fringe Benefits (\$/hr)		\$13.48										
Zone and Area Adjustments ⁽⁸⁾												
Laborer Zone 1	0-50 miles	\$0.00	none	\$0.00	none	\$0.00	none	\$0.00	none	\$0.00		
Laborer Zone 2	50-150 miles	\$0.00										

Labor Rates

File Name:	03_SRCE_Cost_data-Am_Mg_Foothill_Dr
Date:	September 29, 2020
Cost Basis:	User Data
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coost_Data_File_1_12_Std_2020 & Davis-Bacon Act WD#NM20200012

HOURLY LABOR RATE TABLE

[illegible]

File Name:	03_SRCE_Cost_data-Am_Mg_F
Date:	September 29, 2020
Cost Basis:	User Data
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coost_Data_File_1_12_Std_2020 & Davis

RECLAMATION MATERIAL COST TABLE

MATERIAL TYPE		Basis 1	Basis 2	Basis 3	Basis 4	Basis 5	Basis 6
		American Magnesium - Option 1					
Revegetation Materials							
Seed Mixes							
Seed Mix	Units						
None							
Mix 1	Cost/Acre	\$302.50	\$302.50				
Mix 2	Cost/Acre	\$332.75	\$332.75				
Mix 3	Cost/Acre	\$363.00	\$363.00				
Mix 4	Cost/Acre	\$393.25	\$393.25				
User Mix 1	Cost/Acre						
User Mix 2	Cost/Acre						
User Mix 3	Cost/Acre						
User Mix 4	Cost/Acre						
User Mix 5 (see Seed Mix sheet)	Cost/Acre						
Notes:							
Mulch							
Item	Units						
None							
Straw Mulch	Cost/lb	\$0.17	\$0.17				
Hydro Mulch	Cost/lb	\$0.25	\$0.25				
Timber Mulch	Cost/lb						
	Cost/lb						
	Cost/lb						
Notes:		Straw Spec 60 lb. bale, Cert. weed free, (June 2019)100 bales per load	Straw Spec 60 lb. bale, Cert. weed free, (June 2019)100 bales per load				
		Granite Seed \$500 per Ton in 50 lb bag Wood (Hydro) Mulch (June 2020)	Granite Seed \$500 per Ton in 50 lb bag Wood (Hydro) Mulch (June 2020)				
Amendments							
Item	Units						
None							
Organic Matter	Cost/lb	\$0.70	\$0.70				
Treated Sludge	Cost/lb						
Chemical	Cost/lb	\$0.59	\$0.59				
	Cost/lb						
	Cost/lb						
	Cost/lb						
Notes:		Granite Seed \$0.70 per lb. in 50 lb. bag, 1 Ton min order Sustain 4-6-4 (June 2020)	Granite Seed \$0.70 per lb. in 50 lb. bag, 1 Ton min order Sustain 4-6-4 (June 2020)				
		Western Nevada Supply \$29.34 per 50 lb. bag 15-15-15 (June 2020)	Western Nevada Supply \$29.34 per 50 lb. bag 15-15-15 (June 2020)				
Well Abandonment Materials							
Description	Units						
Cement	50lb bag	\$7.57	\$7.57				
Grout (Low Grade Bentonite)	50lb bag	\$8.85	\$8.85				
Inert Material/Cuttings	cy						
Notes:		(1) Jentech Drilling Supply quote (June 2020) Type I,II Cement at \$14.24 per 94 lb. bag	(1) Jentech Drilling Supply quote (June 2020) Type I,II Cement at \$14.24 per 94 lb. bag				
		(2) Jentech Drilling Supply (June 2020) 3/8 in. Chunk Bentonite Hole Plug at \$8.85 per 50 lb. bag (5.75 cf/bag at 43 gallons slurry and 12.1% solids)+ 10% for bentonite chips added.	(2) Jentech Drilling Supply (June 2020) 3/8 in. Chunk Bentonite Hole Plug at \$8.85 per 50 lb. bag (5.75 cf/bag at 43 gallons slurry and 12.1% solids)+ 10% for bentonite chips added.				

Monitoring Costs							
Description	Units	Cost/unit	Cost/unit	Cost/unit	Cost/unit	Cost/unit	Cost/unit
Monitor Well Pump	ea.	\$2,788.41	\$2,788.41				
Sampling Supplies	ea.	\$6.51	\$6.51				
Water Analysis (Profile I) (1)	ea.	\$411.00	\$411.00				
Leach Test (MWMP) w/ analysis	ea.	\$483.40	\$483.40				
ABA + S speciation	ea.	\$150.00	\$150.00				
WAD Cyanide in water	ea.	\$56.00	\$56.00				
Water Analysis (Profile II) (1)	ea.	\$461.00	\$461.00				
	ea.						
	ea.						
	ea.						
	ea.						
	ea.						
	ea.						
	ea.						
	ea.						
	ea.						
	ea.						
	ea.						
	ea.						
	ea.						
	ea.						
Notes:		(1) WET Lab, Reno, Nevada (July 2020)	(1) WET Lab, Reno, Nevada (July 2020)				
		Well pump and Sample supply costs adjusted to 2020.	Well pump and Sample supply costs adjusted to 2020.				
		Original source unknown.	Original source unknown.				
Fuel, Etc.							
Description	Units	Cost/unit	Cost/unit	Cost/unit	Cost/unit	Cost/unit	Cost/unit
Off-road Diesel - delivered ⁽¹⁾	\$/gal	\$2.19	\$2.19				
Pickup Truck Travel	\$/mi	\$0.58	\$0.58				
Electical Power	\$/kWh	\$0.0787	\$0.0787				
Notes:		(1) Source: Oil Price Infomration Service , average annual cost including freight to Nevada (July 2020).	(1) Source: Oil Price Infomration Service , average annual cost including freight to Nevada (July 2020).				
		Source: Federal Government Vehicle Allowance Rate 2020	Source: Federal Government Vehicle Allowance Rate 2020				
		Source: NV Energy (July 2020) \$0.07872	Source: NV Energy (July 2020) \$0.07872				

Nevada Standardized Bond Calculation
Misc. Unit Costs

File Name:	03_SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Date:	September 29, 2020
Cost Basis:	User Data
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coost_Data_File_1_12_Std_2020 & Davis-Bacon Act WD#NM20200012

MISCELLANEOUS COST TABLE													
JOB DESCRIPTION		Basis 1		Basis 2		Basis 3		Basis 4		Basis 5		Basis 6	
		American Magnesium - Option 1											
REVEGETATION													
Item	Units	Labor	Equip	Labor	Equip	Labor	Equip	Labor	Equip	Labor	Equip	Labor	Equip
Seeding - Broadcast Manual ⁽¹⁾	\$/acres	\$140.00	\$50.00	\$140.00	\$50.00								
Seeding - Broadcast Mechanical ⁽¹⁾	\$/acres	\$140.00	\$50.00	\$140.00	\$50.00								
Seeding - Drill ⁽¹⁾	\$/acres	\$140.00	\$120.00	\$140.00	\$120.00								
Seeding - Hydroseeding ⁽¹⁾	\$/acres	\$250.00	\$150.00	\$250.00	\$150.00								
Item	Units	Materials		Materials		Materials		Materials		Materials		Materials	
Shrub Planting - bare root 6-10 in (150- 250mm) ⁽²⁾	ea.												
Tree Planting - bare root 11-16 in (270- 400mm) ⁽³⁾	ea.												
Cactus Planting ⁽⁴⁾	ea.												
NOTES:													
(1) Seeding Source:		Source: Kelley Erosion Control (July 2020).		Source: Kelley Erosion Control (July 2020).									
(2) Shrub Source:													
(3) Tree Source:													
(4) Cactus Source:													
BUILDING and WALL DEMOLITION													
Item	Units		Premium		Premium		Premium		Premium		Premium		Premium
Building Demolition													
Lg. steel	C.F.												
Lg. concrete	C.F.												
Lg. masonry	C.F.												
Lg. mixed	C.F.												
Sm. steel	C.F.												
Sm. concrete	C.F.												
Sm. masonry	C.F.												
Sm. wood	C.F.												
Wall Demolition													
Block 4 in thick	S.F.		20%		20%		20%		20%		20%		
Block 6 in thick	S.F.		20%		20%		20%		20%		20%		
Block 8 in thick	S.F.		20%		20%		20%		20%		20%		
Block 12 in thick	S.F.		20%		20%		20%		20%		20%		
Conc 6 in thick	S.F.		10%		10%		10%		10%		10%		
Conc 8 in thick	S.F.		10%		10%		10%		10%		10%		
Conc 10 in thick	S.F.		10%		10%		10%		10%		10%		
Conc 12 in thick	S.F.		10%		10%		10%		10%		10%		
WASTE DISPOSAL													
Item	Units	Materials		Materials		Materials		Materials		Materials		Materials	
Rubbish and Waste Handling													
Dumpster delivery (average for all sizes)	ea.	\$51.50		\$51.50									
Haul (average for all sizes)	ea.	\$161.00		\$161.00									
Rent per month (average for all sizes)	ea.	\$55.00		\$55.00									
Disposal fee per ton (tonne) (average for all sizes)	ton	\$60.50		\$60.50									
NOTES:													
Dumpster Cost Source:		R.S. Means Heavy Construction (2020 Q2).		R.S. Means Heavy Construction (2020 Q2).									
Disposal Fee Source:		R.S. Means Heavy Construction (2020 Q2).		R.S. Means Heavy Construction (2020 Q2).									
Hazardous Material Handling - Solids													
Pickup fees 55 gal. drums	ea.	\$251.00		\$251.00									
Bulk material (average)	ton	\$409.50		\$409.50									
Transport - truck load (80 drums, 25 cy (m3), 18 tons)	mile	\$5.88		\$5.88									
Dump site disposal fee	ton	\$288.50		\$288.50									
NOTES:													
Solid Handling Cost Source:		R.S. Means Heavy Construction (2019 Q2).		R.S. Means Heavy Construction (2019 Q2).									
Solid Disposal Fee Source:		2019 Q2 R.S. Means Heavy Const. ave. 02 81		2019 Q2 R.S. Means Heavy Const. ave. 02 81									
Hazardous Material Handling - Liquids													
Vacuum Truck Pickup (2200 gal or 9,700 litres)	hr.	\$147.00		\$147.00									
Vacuum Truck Pickup (5000 gal or 19,000 litres)	hr.	\$213.00		\$213.00									
Dump site disposal fee	ton	\$288.50		\$288.50									
NOTES:													
Liquid Handling Cost Source:		R.S. Means Heavy Construction (2020 Q2).		R.S. Means Heavy Construction (2020 Q2).									
Liquid Disposal Fee Source:		2020 Q2 R.S. Means Heavy Const. ave. 02 81		2020 Q2 R.S. Means Heavy Const. ave. 02 81									
Hydrocarbon Contaminated Soils (HCS)													
Insitu Biotreatment	C.Y	\$17.64		\$17.64									
HCS disposal fee	C.Y	\$278.50		\$278.50									
NOTES:													
Insitu Treatement Cost Source:		2020 Q2 R.S. Means Heavy Const., ave. 02 65		2020 Q2 R.S. Means Heavy Const., ave. 02 65									

Nevada Standardized Bond Calculation
Misc. Unit Costs

File Name:	03_SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Date:	September 29, 2020
Cost Basis:	User Data
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coost_Data_File_1_12_Std_2020 & Davis-Bacon Act WD#NM20200012

MISCELLANEOUS COST TABLE						
JOB DESCRIPTION	Basis 1	Basis 2	Basis 3	Basis 4	Basis 5	Basis 6
	American Magnesium - Option 1					
HCS Disposal Fee Source:	2020 Q2 R.S. Means Heavy Const., ave. 02 65	2020 Q2 R.S. Means Heavy Const., ave. 02 65				

Nevada Standardized Bond Calculation
Misc. Unit Costs

File Name:	03_SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Date:	September 29, 2020
Cost Basis:	User Data
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coost_Data_File_1_12_Std_2020 & Davis-Bacon Act WD#NM20200012

MISCELLANEOUS COST TABLE													
JOB DESCRIPTION		Basis 1		Basis 2		Basis 3		Basis 4		Basis 5		Basis 6	
		American Magnesium - Option 1											
UNDERGROUND OPENING CLOSURE													
Item	Units	Materials	Premium	Materials	Premium	Materials	Premium	Materials	Premium	Materials	Premium	Materials	Premium
Reinforced Concrete Bulkheads and Shaft Covers													
Grade walls - 15 in thick, 8 ft high	C.Y	\$163.00		\$163.00									
Grade walls - 15 in thick, 12 ft high	C.Y	\$163.00		\$163.00									
Elevated conc, 1-way beam & slab - 15ft span	C.Y	\$278.00		\$278.00									
Elevated conc, 1-way beam & slab - 25ft span	C.Y	\$265.00		\$265.00									
Item	Units	Materials		Materials		Materials		Materials		Materials		Materials	
Small Adit Plugging													
Bat Gate ⁽⁵⁾	ea.	\$3,367.61		\$3,367.61									
Culvert Gate ⁽⁵⁾	C.Y	\$6,735.21		\$6,735.21									
Adit Foam Plug ⁽⁶⁾	C.Y	\$336.76		\$336.76									
Production Opening Foam Plug ⁽⁶⁾	C.Y	\$336.76		\$336.76									
NOTES:													
(5) Bat Gate Source:		NV BLM, 2/2006: 8 hr + 1hr mob/demob + 1hr setup per gate (adjusted to 2020)		NV BLM, 2/2006: 8 hr + 1hr mob/demob + 1hr setup per gate (adjusted to 2020)									
(6) Foam Plug Source:		NV BLM, 2/2006: 8 hr+ 1hr mob/demob + 1hr setup per adit; 16 hrs per production opening (adjusted to 2020)		NV BLM, 2/2006: 8 hr+ 1hr mob/demob + 1hr setup per adit; 16 hrs per production opening (adjusted to 2020)									
MISC. LINEAR PROJECTS													
Item	Units	Materials	Premium	Materials	Premium	Materials	Premium	Materials	Premium	Materials	Premium	Materials	Premium
Fencing Installation													
Barbed 3-strand	ft	\$0.51		\$0.51									
Barbed 4-strand	ft	\$0.68		\$0.68									
Barbed 5-strand	ft	\$0.85		\$0.85									
Chain link 8 ft -10 ft Install	ft	\$38.00		\$38.00									
Wood stockade fence 6 ft high - Install	ft	\$16.00		\$16.00									
	ft												
	ft												
Fencing Removal													
Barbed 3-strand Removal	ft												
Barbed 4-strand Removal	ft												
Barbed 5-strand Removal	ft												
Chain link 8 ft -10 ft Removal	ft												
Wood, all types 4 ft -6 ft high Removal	ft												
	ft												
	ft												
Culvert Removal													
12 in (300 mm) Diameter	ft												
18 in (450 mm) Diameter	ft												
24 in (600 mm) Diameter	ft												
36 in (1m) Diameter	ft												
Pipeline Removal													
Plastic Pipe 3/4 in (mm) - 4 in (100 mm) diameter	ft												
6 in (150 mm) - 8 in (200 mm)	ft												
10 in (250 mm) - 18 in (450 mm)	ft												
20 in (500 mm) - 36 in (1 m)	ft												
Pipe and Drainpipe Installation													
Water 4in (100mm) 40ft (12m) length, welded HDPE	ft	\$2.70		\$2.70									
Water 6in (150mm) 40ft (12m) length, welded HDPE	ft	\$5.85		\$5.85									
Water 12in (300mm) 40ft (12m) length, welded HDPE	ft												
Drain 4in (100mm) perforated PVC	ft	\$1.74		\$1.74									
Drain 6in (150mm) perforated PVC	ft	\$4.22		\$4.22									
Drain 4in (100mm) corrugated, perf or plain	ft	\$0.78		\$0.78									
Drain 6in (150mm) corrugated., perf or plain	ft	\$2.18		\$2.18									
Drain Rock Preparation													
Item	Units		Total		Total		Total		Total		Total		Total
Crushing	C.Y		\$0.50		\$0.50								
Screening	C.Y		\$0.50		\$0.50								
Misc.													
Item	Units		Premium		Premium		Premium		Premium		Premium		Premium
Backhoe work	C.Y												
Powerline and Transformer Removal			Total		Total		Total		Total		Total		Total
Single Pole Powerlines ⁽⁷⁾	mile		\$46,804		\$46,804								
Double Pole Powerlines ⁽⁸⁾	mile		\$53,490		\$53,490								
Substation ⁽⁹⁾	unit		\$58,997		\$58,997								
NOTES:													
(7) Single Pole Source:		NV Energy estimate (2009) Adjusted to 2020		NV Energy estimate (2009) Adjusted to 2020									
(8) Double Pole Source:		NV Energy estimate (2009) Adjusted to 2020		NV Energy estimate (2009) Adjusted to 2020									
(9) Transformer Source:		NV Energy estimate (2018) adjusted to 2020		NV Energy estimate (2018) adjusted to 2020									

Nevada Standardized Bond Calculation
Misc. Unit Costs

File Name:	03_SRCE_Cost_data-Am_Mg_Foothill_Dolomite_Mine_1_12.xlsm
Date:	September 29, 2020
Cost Basis:	User Data
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coost_Data_File_1_12_Std_2020 & Davis-Bacon Act WD#NM20200012

MISCELLANEOUS COST TABLE													
JOB DESCRIPTION		Basis 1		Basis 2		Basis 3		Basis 4		Basis 5		Basis 6	
		American Magnesium - Option 1											
EROSION, EVAPORATION and SEDIMENTATION CONTROL													
Item	Units	Materials	Premium	Materials	Premium	Materials	Premium	Materials	Premium	Materials	Premium	Materials	Premium
Rip-Rap & Rock Lining													
Rip-Rap 3/8 to 1/4 C.Y. pieces, grouted	S.Y.	\$25.00		\$25.00									
Rip-Rap 18 in min thick, no grout	S.Y.	\$7.65		\$7.65									
Gabions, 6 in deep	S.Y.	\$7.05		\$7.05									
Gabions, 9 in deep	S.Y.	\$9.85		\$9.85									
Gabions, 12 in deep	S.Y.	\$14.30		\$14.30									
Gabions, 18 in deep	S.Y.	\$18.35		\$18.35									
Gabions, 36 in deep	S.Y.	\$31.00		\$31.00									
Liner Installation													
Item	Units	Materials	Premium	Materials	Premium	Materials	Premium	Materials	Premium	Materials	Premium	Materials	Premium
Site grading	S.F.												
Compaction	S.F.												
Item	Units	Materials		Materials		Materials		Materials		Materials		Materials	
60 mil HDPE Liner	S.F.		\$0.57		\$0.57								
Construction Management Support													
Item	Units	Materials		Materials		Materials		Materials		Materials		Materials	
Office Trailer, Furnished, no hook-ups	month		\$198.00		\$198.00								
Toilet Portable, chemical	month		\$214.20		\$214.20								
PRODUCTION OR DEWATERING WELL PUMP REMOVAL													
Item	Units	Labor	Equip	Labor	Equip	Labor	Equip	Labor	Equip	Labor	Equip	Labor	Equip
Pump Type													
Submersible ⁽¹⁰⁾	ft to pump	\$7.65	\$18.86	\$7.65	\$18.86								
Line Shaft ⁽¹⁰⁾	ft to pump	\$7.65	\$18.86	\$7.65	\$18.86								
NOTES:													
(10) Pump Removal Source:		Boart Longyear Quote: June 2020		Boart Longyear Quote: June 2020									

File Name:	CostData STD 3.xls
Date:	December 1, 2005
Cost Basis:	Standardized Data
Author/Source:	Nevada Division of Environmental Protection (NDEP) & NV BLM & 20200801_SRCE_Coost_Data_File_1_12_Std_2020 & Davis-Bacon Act WDRNM20200012

Administrative Cost Rates (%)					
	Cost Ranges for Indirect Cost Percentages				
	<=	<=	<=	>	
1. Engineering, Design and Construction (ED&C) Plan (7)	\$1,000,000	\$25,000,000		\$25,000,000	Small Plan
Variable Rate	8%	6%		4%	
2. Contingency (8)	<=	<=	<=	>	
	\$500,000	\$5,000,000	\$50,000,000	\$50,000,000	Small Plan
Variable Rate	10%	8%	6%	4%	
3. Insurance (9)	1.5%	of labor costs			
4. Bond (10)	3.0%	of the O&M costs if O&M costs are >\$100,000			
5. Contractor Profit (11)	10.0%	of the O&M costs			
	<=	<=	>		
6. Contract Administration (12)	\$1,000,000	\$25,000,000		\$25,000,000	
Variable Rate	10%	8%		6%	
		21%	of contract administration		

RECLAMATION COST ESTIMATION SUMMARY SHEET FOOTNOTES

1. Federal construction contracts require Davis-Bacon wage rates for contracts over \$2,000. Wage rate estimates may include base pay, payroll loading, overhead and profit. To avoid double counting of any of the identified administrative costs the operator must itemize the components of their labor cost estimates or provide BLM with a signed statement, under penalty of USC 1001, that identifies what specific administrative costs are included in the quoted hourly rate.
2. The reclamation cost estimate must include the estimated plugging cost of at least one drill hole for each active drill rig in the project area. Where the submitted Notice or approved Plan of Operations calls for drill holes to be plugged, but doesn't specifically require the drill holes be plugged before the drill rig has been moved from the drill pad, the reclamation cost estimate must include the plugging cost for those drill holes. For all drill holes and wells scheduled to be left open, the estimated plugging cost must be included in the reclamation cost estimate. Where the approved Plan of Operations proposes immediate mining through an area where the drilling is to occur, and the cost of the post-mining reclamation is included in the reclamation cost estimate, the cost estimate does not need to include the plugging costs for those drill holes.
3. Miscellaneous items should be itemized on accompanying worksheets.
4. Fluid management should be calculated only when mineral processing activities are involved. Fluid management represents the costs of maintaining proper fluid management to prevent overflow of solution ponds through premature cessation or abandonment of operations. Calculate a minimum six month direct cost estimate which includes power, supplies, equipment, labor and maintenance.
5. Handling of hazardous materials includes the cost of decontaminating, neutralizing, disposing, treating and/or isolating all hazardous materials used, produced, or stored on the site.
6. Any mitigation measures required in the Plan of Operations must be included in the reclamation cost estimate. Mitigation may include measures to avoid, minimize, rectify and reduce or eliminate the impact, or compensate for the impact.
7. Engineering, design and construction (ED&C) plans are often necessary to provide details on the reclamation needed to contract for the required work. To estimate the cost to develop an ED&C plan use 4-8% of the O&M cost. Calculate the ED&C cost as a percentage of the O&M cost as follows: up to and including \$1 million, use 8%; over \$1 million to \$25 million, use 6%; and over \$25 million, use 4%. Inclusion of a line item for the development of an ED&C plan may not be necessary for small operations, such as notice-level exploration. With small, uncomplicated reclamation efforts contracting may be able to proceed without developing an ED&C plan. [ED&C is automatically eliminated if "Notice" is selected on the Property Information Sheet]
8. A contingency cost is included in the reclamation cost estimation to cover unforeseen cost elements. Calculate the contingency cost as a percentage of the O&M cost as follows: up to and including \$500,000, use 10%; over \$500,000 to \$5 million, use 8%; over \$5 million to \$50 million, use 6%; and greater than \$50 million, use 4%. As with the ED&C cost, inclusion of a contingency cost may not be necessary for small operations, such as notice-level exploration.
9. Insurance premiums are calculated at 1.5% of the total labor costs. Enter the premium amount if liability insurance is not included in the itemized unit costs.
10. Federal construction contracts exceeding \$100,000 require both a performance and a payment bond (Miller Act, 40 USC 270et seq.). Each bond premium is figured at 1.5% of the O&M cost. Enter the sum of both premium costs on this line.
11. For Federal construction contracts, use 10% of estimated O&M cost for the contractor's profit.
12. To estimate the contract administration cost, use 6 to 10% of the operational and maintenance (O&M) cost. Calculate the contract administration cost as a percentage of the O&M cost as follows: up to and including \$1 million, use 10%; over \$1 million to \$25 million, use 8%; and greater than \$25 million use 6%.
13. Government indirect cost rate is 21% of the contract administration costs.