

**From:** [David Harpley](#)  
**To:** [Jacqueline Ho](#); [Allison Stoddart](#); [Roesch, Michael \(AADNC/AANDC\)](#)  
**Cc:** [Chris Hotson](#); [Jonathan Tsetso](#)  
**Subject:** FW: 18GP0151 Updated Estimates  
**Date:** Thursday, October 03, 2019 7:17:26 PM  
**Attachments:** [IAB RECLAIM Summaries.pdf](#)  
[NNPR RECLAIM Summaries.pdf](#)  
[TERR RECLAIM Summaries.pdf](#)  
[191003 Updated Reclamation Cost Estimate Memorandum.pdf](#)  
[Brodie Consulting Revised CRP and Security Recommendations Aug 28.pdf](#)

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All, CZN has updated its security estimates based on the last Brodie memo. A memo and related attachments are attached. The revised territorial numbers agree with ENR's estimates. The numbers for NNPR and IAB Lands are based on applying the same methodology.

David Harpley  
VP, Environment and Permitting Affairs  
NorZinc (Canadian Zinc)  
Home Office 604 594 3855, Corporate Office 604 688 2001 X35, Cell 778 227 8489

## Memorandum

2011 PG Pulpmill Road, PO Box 968, Prince George, BC V2L 4V1 Phone: 250-614-7291

Date:	3 October 2019	Project Number:	18GP0151
Attention:	David Harpley	Project Description:	Prairie Creek Mine Reclamation Cost Estimate
Company:	Canadian Zinc	File Number:	250
Phone:	604 594 3855	From:	Jordan Smith
Fax:		Email:	jdsmith@allnorth.com
Email:	David.Harpley@norzinc.com		
Copy To:	Gavin Fitzgerald, Mike Padula, Don Williams		

### RE: Updated Reclamation Cost Estimate

Allnorth Consultants Limited previously submitted a Closure and Reclamation Security Estimate for Phase 1 and Phase 2 of the Prairie Creek All Season Road construction. These construction phases are referred to as Rec1 and Rec3 respectively in the attached estimates. In response to the final report submitted by Brodie Consulting Limited (BCL) dated August 28, 2019, the cost estimates have been updated to incorporate all recommendations made by BCL. The final BCL recommendation report is attached for reference.

Previous Security Estimate Totals Submitted by Allnorth:

Stage	Area			
	NNPR Land	Territorial Land	IAB Land	Combined
<b>REC 1</b>	\$1,870,702	\$1,460,937	\$25,345	<b>\$3,356,985</b>
<b>REC 3</b>	\$4,268,498	\$2,787,906	\$80,436	<b>\$7,136,841</b>

Updated Security Estimate Totals:

Stage	Area			
	NNPR Land	Territorial Land	IAB Land	Combined
<b>REC 1</b>	\$1,761,032	\$1,451,650	\$25,981	<b>\$3,238,663</b>
<b>REC 3</b>	\$4,467,865	\$3,043,882	\$82,703	<b>\$7,594,450</b>

Updated security estimate totals reflect the recommendations made in the final BCL report for the territorial lands. NNPR and IAB land estimates were also updated using the same recommendations proposed by BCL. Summary pages from the associated RECLAIM estimates are attached for reference.



We would be pleased to discuss this memorandum with you at your convenience.

Yours truly,

Allnorth Consultants Limited

Jordan Smith, EIT



OCT 03 2019  
Don Williams, P.Eng.  
Division Manager



## MEMORANDUM

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DATE: August 28, 2019

TO: Bill Pain; GNWT – ENR

FROM: Lara Fletcher, P. Eng. (BC, NT/NU)

SUBJECT: Review of Canadian Zinc Corporations Prairie Creek  
Mine All Season Road Revised Security Estimate - Final Recommendations

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### 1 INTRODUCTION

Canadian Zinc Corporation (CZN) have submitted Permit and Licence applications to the Mackenzie Valley Land and Water Board's (MVLWB) and Parks Canada for the Prairie Creek All Season Road. Technical sessions were held June 5 - 7, 2019. In response to Information Request (IR) #8, CZN provided a revised Closure and Reclamation Security Estimate for Phase 1 and Phase 2 of CZN's proposed All Season Road dated July 2, 2019.

In an effort to reconcile differences prior to GNWT making recommendations to the MVLWB, BCL commented on CZN's updated phased Closure and Reclamation and Security Estimate in a Memorandum dated August 1, 2019. CZN responded to BCL's August 1, 2019 Memorandum in a Memorandum dated August 13, 2019.

BCL provided GNWT and Parks Canada with responses to CZN's responses in a Memorandum dated August 14, 2019.

Most of CZN's rationale for costs were accepted and therefore the difference in security is small and considered within the bounds of uncertainty in the estimates. This memo therefore serves to document review as well as includes the few final recommendations for activities or amounts to be included in CZN's estimate.

### 2 COMMENTS

#### 2.1 General to Both Phase 1 and Phase 2

##### 2.1.1 *Productivity for rough and loose approach*

BCL had questions regarding the productivity used in the estimation of costs to carry out the rough and loose approach to reclamation and whether these were adequate to capture the rough and loose surface preparation as well as distribution of salvaged soil and organics.

CZN's response included the following:

*Woody debris is considered incidental to the rough and loose approach. We believe the cost estimate adequately accounts for placing woody debris and organics, as necessary, while the excavator works along the road.*

*Organic material that is stripped will be windrowed local to the disturbance. Costs associated with spreading this material later are considered to be quite small and incidental to the reclamation work.*

Based on this response, BCL suggests that CZN's rates be considered adequate at this time. BCL continues to recommend that the reclamation security provisions for the ASR be confirmed with approval of the Phase 2 ASR Closure and Reclamation Plan and again upon completion of construction; the time when actual conditions, including quantities of salvaged organics to be replaced, can be confirmed.

## **2.2 Phase 1 Winter Road Closure and Reclamation Plan and Security Estimate**

### **2.2.1 Winter Road vs Winter Trail**

CZN's cost estimate for reclamation of the Phase 1 Winter Road is based on what is described as "a rough winter trail". BCL noted that the costs provided for construction of a winter trail were considerably lower than costs for constructing a winter road and that a winter road may be required to limit ground and vegetation disturbance.

CZN responded that:

*We disagree with both of Brodie's justifications for a winter road. Regarding trail vs. road, the reclamation work and machinery involved would be much less than that required to build a winter road. The latter equipment does not operate on a snow/ice road, rather they operate on a frozen ground surface that is able to support the weight of the equipment (standard permit conditions). A winter road suitable for carrying traffic is not needed, neither is one needed for reclamation work.*

*We are not disputing that care and maintenance or reclamation of components at the Mine will require mobilization of heavy equipment. However, these could be mobilized using a winter trail rather than an operating road. In any event, as we noted, CZN's current limited reclamation liabilities associated with the Mine dictate that any costs associated with the Mine site reclamation should be separate from, and excluded from, reclamation costs for the Phase 1 road.*

*The winter trail would use the established corridor of the initial winter road. The trail would be built to a lower standard than the winter road (i.e. width, geometry). The trail would be built to accommodate tracked machinery only for the purposes of access in fully frozen conditions, i.e. mid-winter.*

BCL agrees with CZN's rationale regarding a winter trail for reclamation of the Phase 1 Winter Road.

### **2.2.2 Rough and loose surface preparation of KP0-KP29**

It was noted that the rough and loose approach of the area from KP0 to KP29 had not been included in the Cost Estimate. This would be from KP0 to KP17.1 in territorial land.

CZN responded that this section will be added.

An estimate of this additional cost is as follows:

- KP0 - KP 17.14 (Territorial section) - scaled from lines 2.2.1 of Allnorth's Reclamation Cost Estimate of \$143,727 for 79.17km with average 6 m width to 17.14km with average width 10 m = \$51,861

## **2.3 Phase 2 All Season Road Closure and Reclamation Plan and Security Estimate**

### **2.3.1 Restoration of hydrology**

CZN included provisions in the security estimate for removal of major and minor stream crossings. BCL recommended that given the large number of Non-Classified Drainages (NCD), that the removal and disposal of culverts also be included.

CZN responded that:

*The cost of removing the NCD's was factored into the cost of the rough and loose approach. The NCD culverts are typically 500-600 mm in diameter, and unlike stream crossings, require much less effort to install and remove which is considered incidental to the overall work.*

BCL suggests that whether it is a small additional effort beyond the work already being carried out to achieve a rough and loose approach or not, this will not amount to a material difference to the overall costs and therefore BCL accepts that it can be considered incidental.

### **2.3.2 Seeding**

CZN has not included a provision for seeding but have included provisions for dense live staking of riparian areas. Section 5.2.2 ASR Footprint states that:

*The abundance of pioneering species adjacent to the road will provide ample seed for the recovery of the rough and loose road surface. Cuts and fills will be built in a stable configuration and made rough and loose at the time of construction so that only the running surface of the road will remain for recovery once mining is complete.*

CZN also stated:

*It is anticipated that the consistent application of the rough and loose treatment approach, followed by the application of woody debris, organic matter including any salvaged soil for the ASR road bed and adjacent areas requiring treatment will effectively eliminate the need to develop site-specific reclamation strategies for most if not all of the ASR alignment.*

BCL had previously recommended provisions for aerial application of seed and fertilizer be included in the estimate. However, at this time, we recommend that no additional costs be included in the security estimate but the need for, and method of, re-vegetation continue to be evaluated with approval of the Closure and Reclamation Plans, CZN's proposed reclamation trials, and monitoring of active and natural re-vegetation of disturbed areas.

### **2.3.3 Post Closure Maintenance**

BCL continues to recommend an allowance for post-reclamation maintenance to be carried out with manual labour and helicopter access. It is recommended that the costs be based on one follow-up campaign shared between territorial land and NNPR. The provisions are recommended to include a three week campaign of six labourers. These provisions should be refined based on results of monitoring and experience gained with any progressive reclamation that is completed.

CZN responded that:

*A provision will be included, but six labourers for 3 weeks in considered excessive. At that stage, any follow-up reclamation work should be minimal. A 10 day program for both NNPR and territorial land should be adequate.*

BCL continues to recommend a provision for a longer post closure maintenance campaign given the length of road. Given that due to the limited access any maintenance that is required would be costly, adequate provisions should be held. As shown in Table 2.1, this amounts to \$139,350 to be added to both NNPR and territorial land.

**Table 2.1 Recommendation for Post-Closure Maintenance**

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost
MAINTENANCE						
Follow up program						
Develop program, coordinate logistics, and follow up reporting		hrs	40	envcoH	\$130	\$5,200
Labour	6 people, three weeks	hrs	1260	lab-sH	\$50	\$63,000
Helicopter time		days	21	MWS	\$10,000	\$210,000
Materials		allow	1	#N/A	\$500	\$500
					<b>Subtotal</b>	<b>\$278,700</b>
Number of post-closure campaigns	1 campaign shared between territorial and NNPR			0.5 campaigns		
						<b>\$139,350</b>

#### 2.3.4 *Liard River barge crossing*

Removal of the Liard River landings infrastructure have not been included in the security estimates. BCL recommended that CZN provide an estimate of costs for decommissioning and reclamation of the Liard River barge crossing.

CZN responded that:

*Again, we believe the cost estimate is adequate since the length of the landings has been accounted for in the rough and loose costs, which are considered to be equivalent in terms of reclamation effort.*

BCL intended the costs to include removal of all concrete and infrastructure at the crossing. It is recommended that an allowance of \$75,000 be included for removal of the pre-cast concrete running surface, removal of fill, etc. This is in the range of costs for major crossing removals proposed by CZN.

#### 2.3.5 *Contingency*

CZN has applied a project contingency of 15%. BCL continues to recommend a contingency of minimum 20% for the ASR estimate given that the road has yet to be constructed and therefore actual areas of disturbance are not known. Further, there remains a lack of well defined criteria for ecological restoration and therefore what may ultimately be required to achieve them.

CZN responded:

*We agree to a 20% contingency provided costs for a winter access trail for Phase 1 reclamation are not escalated to a winter road.*

In evaluating what this change would equate to when applied to CZN's estimate it was noted that in Allnorth's Reclamation Cost Estimate, costs that are calculated as percentages (i.e. engineering, project management, H&S and QA/QC, bonding/insurance and contingency) were applied to overall costs including what is typically considered in RECLAIM to be indirect costs. In RECLAIM v7 these percentages are not applied to mobilization/demobilization and monitoring and maintenance but in Allnorth's estimate they were. Therefore increases in security resulting from an increase in contingency from 15% to 20% were offset by these percentages being applied to only direct costs.

In the RECLAIM v7 estimate summary sheets provided in Addendum 1 percentages are applied only to what are included as direct costs. Therefore for Phase 1, although there is a recommended additional costs, the net result is a reduction from CZN's estimate.

### 3 SUMMARY

Table 3.1 provides a summary of the recommendations for increases to CZN's security estimate. These amounts have been included in RECLAIM summary worksheets provided in Addendum 1 to derive the recommended total security estimate. Differences are shaded yellow.

Indirect costs are typically split into land liability versus water liability according to the percentage of direct costs. However, a number of the activities serve a dual purpose between achieving land and water restoration objectives and the division is somewhat arbitrary. For example, a rough and loose approach is intended to reduce erosion and thus sedimentation, as well as promote re-vegetation. An even split can be justified if preferable, or the split can remain as presented.

**Table 3.1 Summary of recommendations for revisions to CZN's security estimate.**

Reference Section	Recommendation	Approximate Amount	
		Phase 1	Phase 2
2.2.2 Rough and loose	Include the rough and loose approach for KP0-KP17.14	\$51, 861	
2.3.3 Post-closure maintenance	Include provisions for post-closure and reclamation maintenance based on a three week campaign.	-	\$139, 350
2.3.4 Liard River barge crossing	Include costs to remove concrete running surface, removal of fill etc.	-	\$75,000
2.3.5 Contingency	Increase contingency from 15% to 20%, apply percentages to direct costs only	-\$56,148	\$41,625
	<b>Total</b>	<b>\$-4,287</b>	<b>\$255,975</b>

**Table 3.2 Comparison of CZN and BCL Territorial Security Estimate**

Stage	Phase 1 Security Estimate			Phase 2 Security Estimate		
	Total	Land	Water	Total	Land	Water
CZN Estimate	\$1,460,937	\$1,090,402	\$370,535	\$2,787,906	\$1,288,193	\$1,499,713
BCL Estimate	\$1,451,650	\$1,115,309	\$336,341	\$3,043,881	\$1,335,217	\$1,708,665



**Addendum 1**  
**Phase 1 and Phase 2 Security Estimates**  
**RECLAIM Summary**

**SUMMARY OF COSTS - Phase 1 Winter Road**

<b>CAPITAL COSTS</b>	<b>Reference</b>	<b>COST</b>	<b>LAND LIABILITY</b>	<b>WATER LIABILITY</b>
OPEN PIT		\$0	\$0	\$0
UNDERGROUND MINE		\$0	\$0	\$0
TAILINGS FACILITY		\$0	\$0	\$0
ROCK PILE		\$0	\$0	\$0
BUILDINGS AND EQUIPMENT - CZN Estimate		\$547,836	\$408,889	\$138,947
BUILDINGS AND EQUIPMENT - BCL Estimate of rough and loose KP0-KP17.14	Section 2.2.2	\$51,861	\$51,861	\$0
CHEMICALS AND CONTAMINATED SOIL MANAGEMENT		\$0	\$0	\$0
SURFACE AND GROUNDWATER MANAGEMENT		\$0	-	\$0
INTERIM CARE AND MAINTENANCE		\$0	-	\$0
<b>SUBTOTAL: Capital Costs</b>		<b>\$599,697</b>	<b>\$460,750</b>	<b>\$138,947</b>
<b>PERCENT OF SUBTOTAL</b>			<b>77%</b>	<b>23%</b>
<b>INDIRECT COSTS</b>		<b>COST</b>	<b>LAND LIABILITY</b>	<b>WATER LIABILITY</b>
MOBILIZATION/DEMOBILIZATION		\$370,874	\$284,944	\$85,930
POST-CLOSURE MONITORING AND MAINTENANCE		\$289,176	\$222,175	\$67,001
ENGINEERING	5%	\$29,985	\$23,038	\$6,947
PROJECT MANAGEMENT	5%	\$29,985	\$23,038	\$6,947
HEALTH AND SAFETY PLANS/MONITORING & QA/QC	1%	\$5,997	\$4,608	\$1,389
BONDING/INSURANCE	1%	\$5,997	\$4,608	\$1,389
CONTINGENCY	20%	\$119,939	\$92,150	\$27,789
MARKET PRICE FACTOR ADJUSTMENT	0%	\$0	\$0	\$0
<b>SUBTOTAL: Indirect Costs</b>		<b>\$851,953</b>	<b>\$654,559</b>	<b>\$197,394</b>
<b>TOTAL COSTS</b>		<b>\$1,451,650</b>	<b>\$1,115,309</b>	<b>\$336,341</b>

**SUMMARY OF COSTS - Phase 2 All Season Road**

<b>CAPITAL COSTS</b>	<b>Reference</b>	<b>COST</b>	<b>LAND LIABILITY</b>	<b>WATER LIABILITY</b>
OPEN PIT		\$0	\$0	\$0
UNDERGROUND MINE		\$0	\$0	\$0
TAILINGS FACILITY		\$0	\$0	\$0
ROCK PILE		\$0	\$0	\$0
BUILDINGS AND EQUIPMENT - CZN Estimate		\$1,405,413	\$649,392	\$756,021
BUILDINGS AND EQUIPMENT - Liard River Barge Crossing	Section 2.3.4	\$75,000	\$0	\$75,000
CHEMICALS AND CONTAMINATED SOIL MANAGEMENT		\$0	\$0	\$0
SURFACE AND GROUNDWATER MANAGEMENT		\$0	-	\$0
INTERIM CARE AND MAINTENANCE		\$0	-	\$0
<b>SUBTOTAL: Capital Costs</b>		<b>\$1,480,413</b>	<b>\$649,392</b>	<b>\$831,021</b>
<b>PERCENT OF SUBTOTAL</b>			<b>44%</b>	<b>56%</b>
<b>INDIRECT COSTS</b>		<b>COST</b>	<b>LAND LIABILITY</b>	<b>WATER LIABILITY</b>
MOBILIZATION/DEMOBILIZATION		\$194,983	\$85,530	\$109,453
POST-CLOSURE MONITORING AND MAINTENANCE - CZN Estimate		\$755,403	\$331,362	\$424,041
POST-CLOSURE MONITORING AND MAINTENANCE - Maintenance Campaign	Section 2.3.3	\$139,350	\$61,127	\$78,223
ENGINEERING	5%	\$74,021	\$32,470	\$41,551
PROJECT MANAGEMENT	5%	\$74,021	\$32,470	\$41,551
HEALTH AND SAFETY PLANS/MONITORING & QA/QC	1%	\$14,804	\$6,494	\$8,310
BONDING/INSURANCE	1%	\$14,804	\$6,494	\$8,310
CONTINGENCY	20%	\$296,083	\$129,878	\$166,204
MARKET PRICE FACTOR ADJUSTMENT	0%	\$0	\$0	\$0
<b>SUBTOTAL: Indirect Costs</b>		<b>\$1,563,468</b>	<b>\$685,825</b>	<b>\$877,644</b>
<b>TOTAL COSTS</b>		<b>\$3,043,881</b>	<b>\$1,335,217</b>	<b>\$1,708,665</b>

**SUMMARY OF COSTS**

<b>CAPITAL COSTS</b>	<b>COMPONENT NAME</b>	<b>COST</b>	<b>LAND LIABILITY</b>	<b>WATER LIABILITY</b>
OPEN PIT		\$0	\$0	\$0
UNDERGROUND MINE		\$0	\$0	\$0
TAILINGS FACILITY		\$0	\$0	\$0
ROCK PILE		\$0	\$0	\$0
BUILDINGS AND EQUIPMENT		\$675,181	\$494,739	\$180,442
CHEMICALS AND CONTAMINATED SOIL MANAGEMEN		\$0	\$0	\$0
SURFACE AND GROUNDWATER MANAGEMENT		\$0	-	\$0
INTERIM CARE AND MAINTENANCE		\$0	-	\$0
<b>SUBTOTAL: Capital Costs</b>		<b>\$675,181</b>	<b>\$494,739</b>	<b>\$180,442</b>
<b>PERCENT OF SUBTOTAL</b>			<b>73%</b>	<b>27%</b>

  

<b>INDIRECT COSTS</b>		<b>COST</b>	<b>LAND LIABILITY</b>	<b>WATER LIABILITY</b>
MOBILIZATION/DEMOBILIZATION		\$549,740	\$402,822	\$146,918
POST-CLOSURE MONITORING AND MAINTENANCE		\$310,054	\$227,192	\$82,862
ENGINEERING	5%	\$33,759.03	\$24,737	\$9,022
PROJECT MANAGEMENT	5%	\$33,759.03	\$24,737	\$9,022
HEALTH AND SAFETY PLANS/MONITORING* & QA/QC	1%	\$16,751.81	\$12,275	\$4,477
BONDING/INSURANCE	1%	\$6,751.81	\$4,947	\$1,804
CONTINGENCY	20%	\$135,036.12	\$98,948	\$36,088
MARKET PRICE FACTOR ADJUSTMENT	0%	\$0	\$0	\$0
<b>SUBTOTAL: Indirect Costs</b>		<b>\$1,085,851</b>	<b>\$795,658</b>	<b>\$290,194</b>

  

<b>TOTAL COSTS</b>		<b>\$1,761,032</b>	<b>\$1,290,396</b>	<b>\$470,636</b>
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**SUMMARY OF COSTS**

<b>CAPITAL COSTS</b>	<b>COMPONENT NAME</b>	<b>COST</b>	<b>LAND LIABILITY</b>	<b>WATER LIABILITY</b>
OPEN PIT		\$0	\$0	\$0
UNDERGROUND MINE		\$0	\$0	\$0
TAILINGS FACILITY		\$0	\$0	\$0
ROCK PILE		\$0	\$0	\$0
BUILDINGS AND EQUIPMENT		\$2,359,827	\$844,781	\$1,515,046
CHEMICALS AND CONTAMINATED SOIL MANAGEMEN		\$0	\$0	\$0
SURFACE AND GROUNDWATER MANAGEMENT		\$0	-	\$0
INTERIM CARE AND MAINTENANCE		\$0	-	\$0
<b>SUBTOTAL: Capital Costs</b>		<b>\$2,359,827</b>	<b>\$844,781</b>	<b>\$1,515,046</b>
<b>PERCENT OF SUBTOTAL</b>			<b>36%</b>	<b>64%</b>

  

<b>INDIRECT COSTS</b>		<b>COST</b>	<b>LAND LIABILITY</b>	<b>WATER LIABILITY</b>
MOBILIZATION/DEMOBILIZATION		\$214,720	\$76,866	\$137,854
POST-CLOSURE MONITORING AND MAINTENANCE		\$1,138,173	\$407,448	\$730,725
ENGINEERING	5%	\$117,991.36	\$42,239	\$75,752
PROJECT MANAGEMENT	5%	\$117,991.36	\$42,239	\$75,752
HEALTH AND SAFETY PLANS/MONITORING* & QA/QC	1%	\$23,598.27	\$8,448	\$15,150
BONDING/INSURANCE	1%	\$23,598.27	\$8,448	\$15,150
CONTINGENCY	20%	\$471,965.44	\$168,956	\$303,009
MARKET PRICE FACTOR ADJUSTMENT	0%	\$0	\$0	\$0
<b>SUBTOTAL: Indirect Costs</b>		<b>\$2,108,038</b>	<b>\$754,644</b>	<b>\$1,353,394</b>

  

<b>TOTAL COSTS</b>		<b>\$4,467,865</b>	<b>\$1,599,425</b>	<b>\$2,868,440</b>
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**SUMMARY OF COSTS**

<b>CAPITAL COSTS</b>	<b>COMPONENT NAME</b>	<b>COST</b>	<b>LAND LIABILITY</b>	<b>WATER LIABILITY</b>
OPEN PIT		\$0	\$0	\$0
UNDERGROUND MINE		\$0	\$0	\$0
TAILINGS FACILITY		\$0	\$0	\$0
ROCK PILE		\$0	\$0	\$0
BUILDINGS AND EQUIPMENT		\$599,697	\$460,750	\$138,947
CHEMICALS AND CONTAMINATED SOIL MANAGEMEN		\$0	\$0	\$0
SURFACE AND GROUNDWATER MANAGEMENT		\$0	-	\$0
INTERIM CARE AND MAINTENANCE		\$0	-	\$0
<b>SUBTOTAL: Capital Costs</b>		<b>\$599,697</b>	<b>\$460,750</b>	<b>\$138,947</b>
<b>PERCENT OF SUBTOTAL</b>			<b>77%</b>	<b>23%</b>

  

<b>INDIRECT COSTS</b>		<b>COST</b>	<b>LAND LIABILITY</b>	<b>WATER LIABILITY</b>
MOBILIZATION/DEMOBILIZATION		\$370,874	\$284,945	\$85,930
POST-CLOSURE MONITORING AND MAINTENANCE		\$289,176	\$222,175	\$67,001
ENGINEERING	5%	\$29,984.83	\$23,037	\$6,947
PROJECT MANAGEMENT	5%	\$29,984.83	\$23,037	\$6,947
HEALTH AND SAFETY PLANS/MONITORING* & QA/QC	1%	\$5,996.97	\$4,607	\$1,389
BONDING/INSURANCE	1%	\$5,996.97	\$4,607	\$1,389
CONTINGENCY	20%	\$119,939.32	\$92,150	\$27,789
MARKET PRICE FACTOR ADJUSTMENT	0%	\$0	\$0	\$0
<b>SUBTOTAL: Indirect Costs</b>		<b>\$851,953</b>	<b>\$654,560</b>	<b>\$197,393</b>

  

<b>TOTAL COSTS</b>		<b>\$1,451,650</b>	<b>\$1,115,310</b>	<b>\$336,340</b>
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**SUMMARY OF COSTS**

<b>CAPITAL COSTS</b>	<b>COMPONENT NAME</b>	<b>COST</b>	<b>LAND LIABILITY</b>	<b>WATER LIABILITY</b>
OPEN PIT		\$0	\$0	\$0
UNDERGROUND MINE		\$0	\$0	\$0
TAILINGS FACILITY		\$0	\$0	\$0
ROCK PILE		\$0	\$0	\$0
BUILDINGS AND EQUIPMENT		\$1,480,413	\$649,392	\$831,021
CHEMICALS AND CONTAMINATED SOIL MANAGEMEN		\$0	\$0	\$0
SURFACE AND GROUNDWATER MANAGEMENT		\$0	-	\$0
INTERIM CARE AND MAINTENANCE		\$0	-	\$0
<b>SUBTOTAL: Capital Costs</b>		<b>\$1,480,413</b>	<b>\$649,392</b>	<b>\$831,021</b>
<b>PERCENT OF SUBTOTAL</b>			<b>44%</b>	<b>56%</b>

  

<b>INDIRECT COSTS</b>		<b>COST</b>	<b>LAND LIABILITY</b>	<b>WATER LIABILITY</b>
MOBILIZATION/DEMOBILIZATION		\$194,983	\$85,531	\$109,453
POST-CLOSURE MONITORING AND MAINTENANCE		\$894,753	\$392,489	\$502,265
ENGINEERING	5%	\$74,020.63	\$32,470	\$41,551
PROJECT MANAGEMENT	5%	\$74,020.63	\$32,470	\$41,551
HEALTH AND SAFETY PLANS/MONITORING* & QA/QC	1%	\$14,804.13	\$6,494	\$8,310
BONDING/INSURANCE	1%	\$14,804.13	\$6,494	\$8,310
CONTINGENCY	20%	\$296,082.54	\$129,878	\$166,204
MARKET PRICE FACTOR ADJUSTMENT	0%	\$0	\$0	\$0
<b>SUBTOTAL: Indirect Costs</b>		<b>\$1,563,469</b>	<b>\$685,825</b>	<b>\$877,644</b>

  

<b>TOTAL COSTS</b>		<b>\$3,043,882</b>	<b>\$1,335,216</b>	<b>\$1,708,665</b>
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**SUMMARY OF COSTS**

<b>CAPITAL COSTS</b>	<b>COMPONENT NAME</b>	<b>COST</b>	<b>LAND LIABILITY</b>	<b>WATER LIABILITY</b>
OPEN PIT		\$0	\$0	\$0
UNDERGROUND MINE		\$0	\$0	\$0
TAILINGS FACILITY		\$0	\$0	\$0
ROCK PILE		\$0	\$0	\$0
BUILDINGS AND EQUIPMENT		\$16,341	\$16,341	\$0
CHEMICALS AND CONTAMINATED SOIL MANAGEMEN		\$0	\$0	\$0
SURFACE AND GROUNDWATER MANAGEMENT		\$0	-	\$0
INTERIM CARE AND MAINTENANCE		\$0	-	\$0
<b>SUBTOTAL: Capital Costs</b>		<b>\$16,341</b>	<b>\$16,341</b>	<b>\$0</b>
<b>PERCENT OF SUBTOTAL</b>			<b>100%</b>	<b>0%</b>

  

<b>INDIRECT COSTS</b>		<b>COST</b>	<b>LAND LIABILITY</b>	<b>WATER LIABILITY</b>
MOBILIZATION/DEMOBILIZATION		\$670	\$670	\$0
POST-CLOSURE MONITORING AND MAINTENANCE		\$3,741	\$3,741	\$0
ENGINEERING	5%	\$817.05	\$817	\$0
PROJECT MANAGEMENT	5%	\$817.05	\$817	\$0
HEALTH AND SAFETY PLANS/MONITORING* & QA/QC	1%	\$163.41	\$163	\$0
BONDING/INSURANCE	1%	\$163.41	\$163	\$0
CONTINGENCY	20%	\$3,268.18	\$3,268	\$0
MARKET PRICE FACTOR ADJUSTMENT	0%	\$0	\$0	\$0
<b>SUBTOTAL: Indirect Costs</b>		<b>\$9,640</b>	<b>\$9,640</b>	<b>\$0</b>

  

<b>TOTAL COSTS</b>		<b>\$25,981</b>	<b>\$25,981</b>	<b>\$0</b>
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**SUMMARY OF COSTS**

<b>CAPITAL COSTS</b>	<b>COMPONENT NAME</b>	<b>COST</b>	<b>LAND LIABILITY</b>	<b>WATER LIABILITY</b>
OPEN PIT		\$0	\$0	\$0
UNDERGROUND MINE		\$0	\$0	\$0
TAILINGS FACILITY		\$0	\$0	\$0
ROCK PILE		\$0	\$0	\$0
BUILDINGS AND EQUIPMENT		\$45,331	\$45,331	\$0
CHEMICALS AND CONTAMINATED SOIL MANAGEMEN		\$0	\$0	\$0
SURFACE AND GROUNDWATER MANAGEMENT		\$0	-	\$0
INTERIM CARE AND MAINTENANCE		\$0	-	\$0
<b>SUBTOTAL: Capital Costs</b>		<b>\$45,331</b>	<b>\$45,331</b>	<b>\$0</b>
<b>PERCENT OF SUBTOTAL</b>			<b>100%</b>	<b>0%</b>

  

<b>INDIRECT COSTS</b>		<b>COST</b>	<b>LAND LIABILITY</b>	<b>WATER LIABILITY</b>
MOBILIZATION/DEMOBILIZATION		\$0	\$0	\$0
POST-CLOSURE MONITORING AND MAINTENANCE		\$22,866	\$22,866	\$0
ENGINEERING	5%	\$2,266.56	\$2,267	\$0
PROJECT MANAGEMENT	5%	\$2,266.56	\$2,267	\$0
HEALTH AND SAFETY PLANS/MONITORING* & QA/QC	1%	\$453.31	\$453	\$0
BONDING/INSURANCE	1%	\$453.31	\$453	\$0
CONTINGENCY	20%	\$9,066.24	\$9,066	\$0
MARKET PRICE FACTOR ADJUSTMENT	0%	\$0	\$0	\$0
<b>SUBTOTAL: Indirect Costs</b>		<b>\$37,372</b>	<b>\$37,372</b>	<b>\$0</b>

  

<b>TOTAL COSTS</b>		<b>\$82,703</b>	<b>\$82,703</b>	<b>\$0</b>
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