Mary River 2024 Security Estimate

January 31, 2024

okane

Integrated Mine Closure and Relinquishment Solutions

Mary River 2024 Security Estimate

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Prepared for:

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EXECUTIVE SUMMARY

Okane Consultants (Okane) was retained by the Qikiqtani Inuit Association (QIA) to perform a detailed security estimate for the Mary River site, a high-grade iron ore mine located north of the Arctic Circle in the Qikiqtani region of North Baffin Island, Nunavut, Canada. The mine, operated by Baffinland, began operation in 2015 and is required to post financial security to complete closure activities for the current site disturbance. The security estimate is updated annually, relying on the structure of the original 2014 estimate. Annual security estimates are completed by Baffinland and QIA and compared to ascertain security accuracy.

The site consists of four main areas: Milne Port, Tote Road, Steensby Port, and the Mine Site. To date, major infrastructure has been developed at the Milne Port, Tote Road and the Mine site including an open pit, waste rock and overburden piles, quarries and ore/aggregate stockpiles, buildings and equipment, mining infrastructure, disposal areas and water management systems, all which must be removed or reclaimed upon closure of the Mary River site.

Okane utilized the RECLAIM 7.0 Model for Closure and Reclamation Cost Estimates (RECLAIM) (Brodie Consulting Ltd. 2017) to develop unit rates and costs associated with the security estimate. The RECLAIM model is specifically designed to manage the multiple components of mine site closure cost estimates. The security estimate provided is considered a Class 4 cost estimate in accordance with ISO, 21975, which is based on typical unit costs and has an expected accuracy range of -30% to +50% after contingency (ISO, 2021).

The security estimate was broken into two parts; direct costs, which were developed to reflect reclamation activities for each major project component and indirect costs which include post-closure monitoring and maintenance, mobilization and demobilization of workers, equipment and fuel, project administration, engineering, and contingency costs (Table ES.1).

Table ES.1: Security Estimate Total

	Cost (CAD $)
Direct Costs	66,225,500
Indirect Costs	74,088,660
Security Estimate Total	**$140,314,100**

Okane's security estimate of $140,314,100 totals $32,061,675 more than Baffinland's estimate (BIM 2023b) due primarily to Okane's inclusion of the construction of a 4 m thick non-acid generating rock cover system on the Waste Rock Facility. Cover system construction is not included in Baffinland's security estimate, however it is a direct commitment within Baffinland's Interim Closure and Reclamation Plan (BIM 2018) and necessary to prevent significant environmental impacts to the area in the future.

Additionally, three key areas of uncertainty were identified during Okane's review of Baffinland's security estimate:

- There is no provision for stabilization of pit-walls. Baffinland states within their Interim Closure and Reclamation Plan that pit-wall stabilization will be analyzed to ensure long-term stability but has not undertaken this analysis. Physical and geochemical stabilization of the pit-walls was estimated to add $7.7 million in direct costs and $3.4 million in indirect costs to the security estimate.

- The thickness of the NAG cover system does not consider the effects of climate change, which has potential to increase the necessary thickness. Assuming a 50% increase in required cover system thickness would result in an estimated $9 million in direct costs and $4.5 million in indirect costs be added to the security estimate.

- Water quality modelling has not been updated since active mining began, which would provide clarity regarding water treatment timelines. Based on current water treatment volumes, extended water treatment is estimated to increase costs by approximately $150 thousand per year beyond the originally estimated three years.

While Okane acknowledges that the inclusion of the above items may be conservative, it is recommended that studies be completed to confirm scope and provide a basis for a cost estimate. Okane recommends that these additional studies be completed by Baffinland before October 1st, 2024 to provide verification that additional associated security does not need to be posted.

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1 INTRODUCTION

The Mary River Project(MRP) is a high-grade iron ore mine owned and operated by Baffinland Iron Mines (Baffinland) located north of the Arctic Circle in the Qikiqtani region of North Baffin Island, Nunavut, Canada. The majority of MRP is located on Inuit-Owned Land (IOL) administered by the Qikiqtani Inuit Associated (QIA). Under Section 6.1 of Commercial Lease No. Q13C301, Baffinland is required to provide annual assessments of reclamation security incorporating existing and planned future disturbances for the site. The reclamation security ensures funds are available to execute closure work and reclaim disturbed areas in the event of unplanned closure. To ensure accuracy within annual reclamation securities, Qikiqtani Inuit Association has retained Okane Consultants (Okane) to complete an annual environmental audit and financial security review for MRP.

1.1 Project Objectives and Scope

The overarching objective of the annual environmental audits and security estimate reviews is to provide QIA with a transparent, detailed understanding of closure obligations and liabilities associated with MRP. Okane has developed the security estimate using spreadsheets within Microsoft Excel (Appendix B) which transparently provides unit costs and related quantities (e.g. areas and volumes) for each major site component.. In completing the above, Okane hopes to enhance QIA's understanding of associated closure costs and inform on the current and possible future misalignments in security costs between Baffinland and QIA.

Okane's security estimate includes the cost for reclamation activities of major site components at Milne Porte, Mine Site and Tote Road to bring the areas into alignment with their respective closure configurations. Closure configurations for each site component have been outlined in the interim closure and reclamation plan (Baffinland, 2018) and is the basis of estimated reclamation activities. The main reclamation activities for final mine closure and reclamation include (Baffinland 2018):

- Filling the open pit with water to stabilize the pit walls and mitigate falling hazards.
- Installation of boulder fence and signage around the open pit to prevent inadvertent access.
- Removal of all mining and transportation infrastructure other than the Open Pit, Waste Rock Stockpile, Tote Road, and Milne Port Ore Dock. The Tote Road and Milne Port Ore Dock will be left in place after the project life, but not maintained.
- Demolition and removal of all buildings and foundations.
- All mining materials and equipment will either be removed from site or disposed of in on-site landfills/approved waste disposal areas.

- Removal of all hazardous materials and wastes to licensed disposal facilities.
- Storage of non-hazardous waste on site.
- Placement of a NAG cover system on the WRF.
- Removal of water management systems and infilling of mine water ponds.
- Re-contouring of roads, airstrips, and development areas as required.
- Removal of water crossings to restore natural drainage patterns.
- Scarification of disturbed areas of former mine infrastructure to encourage natural vegetation; and
- Monitoring during closure and post closure periods.

1.2 Report Organization

For convenient reference, this report has been divided into the following subsections:

- Section 2 – Presents the findings of Okane's background review and summarizes key takeaways.
- Section 3 – Describes the methodology used and basis of the security estimate.
- Section 4 – Summarizes the security estimate.
- Section 5 – Discusses uncertainties surrounding the security estimate.
- Section 6 – Presents recommendations from Okane to help refine security estimate costs in the future.
- Section 7 – Discusses Okane's conclusions and findings from the security estimate process.

2 BACKGROUND

2.1 Property Description and Location

The Mary River Mine is a high-grade iron ore mine located north of the Arctic Circle in the Qikiqtani region of North Baffin Island, Nunavut, Canada (Figure 2.1). The Project is wholly owned by Canadian miner Baffinland Iron Mines Corporation (Baffinland). The site consists of four main areas: Milne Port, Tote Road, Steensby Port, and Mine Site. To date, major infrastructure has been developed at the Milne Port, Tote Road and Mine site. Major infrastructure will remain in place throughout operations and intended to have similar lifespan as the Project. The Steensby Port will be connected to the Mine Site via a 149 km railway. It is expected that the Steensby Port facilities and railway will take four years to construct. To date, no development of the Steensby Port or railway has been completed.

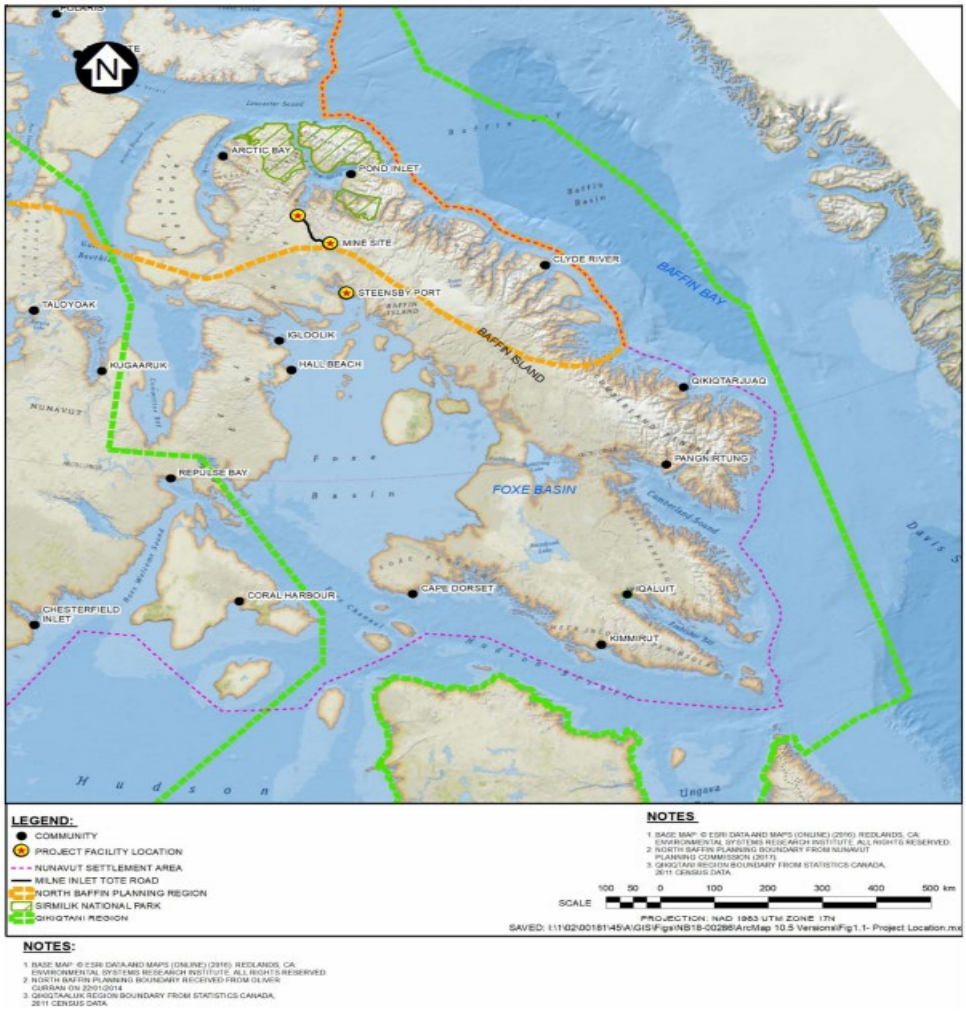

Figure 2.1: Mary River Mine Site Location.

(Baffinland, 2018)

2.2 Summary of Disturbance Areas and Associated Reclamation Activities

The following sections provide a brief description of the various mine facilities, and the current plan for closure and reclamation.

2.2.1 Open Pit

Mining commenced on a hill crest outcrop and will progress until Year 10 to 12 of operation at full production volume (based on a nominal 21.5 Mtpa) before an open pit is formed (BIM, 2018). The mine plans call for conventional open pit mining methods utilizing 7.5 m benches. Ore is delivered to the primary crusher located south of the deposit via the east main haul road. The general configuration of the mine pit, haul road and waste rock dump is presented in Figure 2.2.

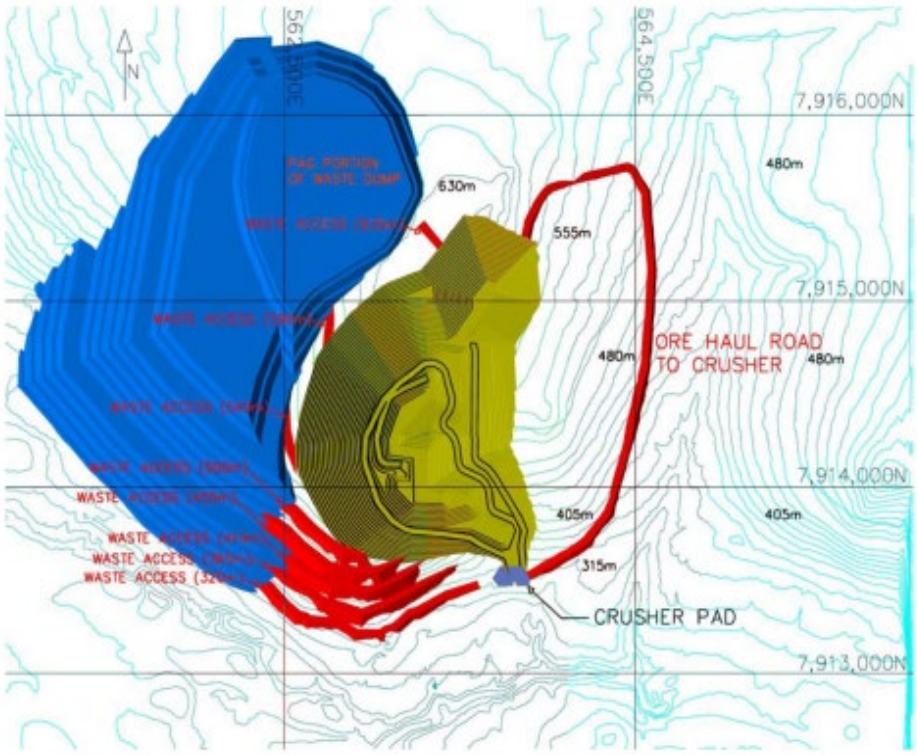

Figure 2.2: General Layout and Development of Deposit 1 Pit.

(Baffinland, 2018)

The current mine workings are free draining and there is no open pit. The final site condition of the open pit will be a pit lake that drains to the natural environment. It is currently anticipated that discharge from the open pit will not require treatment, however long-term water quality modelling predictions have not been updated since the submittal of the original 2013 Environmental Impact Study (BIM 2013). The main work items for closing the final open pit disturbance area are:

- Conducting an engineering stability analysis to confirm long-term stability.

- Barricading ramps, constructing perimeter boulder fence, and installation of hazard signage.
- Removal of dewatering infrastructure.
- Cleanup of contaminated soils.
- Flooding the open pit (either naturally or enhanced filling); and
- Spillway construction.

The pit lake will be filled either by natural flooding or enhanced pit filling (which uses pumps from nearby lake). The proposed closure scenario suggests the open pit to be naturally flooded and will take an estimated 85 to 150 years. However, if enhanced pit filling is selected, it is anticipated that pumping will occur from Mary River during the summer months (four months per year). The pumping system would operate 24 hours a day and could deliver 8,700 m^3/hour, over approximately a 1 km distance and an approximate elevation head of 200 m (Baffinland 2018).

2.2.2 Waste Rock Facility and Overburden Piles

The waste rock disposal area is located north of the open pit. The Waste Rock Facility (WRF) has sufficient capacity to stockpile the entire volume of waste produced by the mine. At closure, the WRF will contain approximately 630 Mt of waste rock and overburden, with average side slopes of 2H: 1V. Waste within the WRF is characterized as potentially acid generating (PAG), non-potentially acid generating (NAG) and overburden. Each waste stream is handled separately and strategically placed within the WRF (Figure 2.3). Potentially acid generating waste will be encapsulated within a minimum 4 m of NAG material to reduce environmental risks (WSP 2023). Based on current modelling and monitoring, 4 m is a sufficiently thick layer for underlying PAG material to remain frozen permanently; however, climate change effects have yet to be accounted for in thermal modelling.

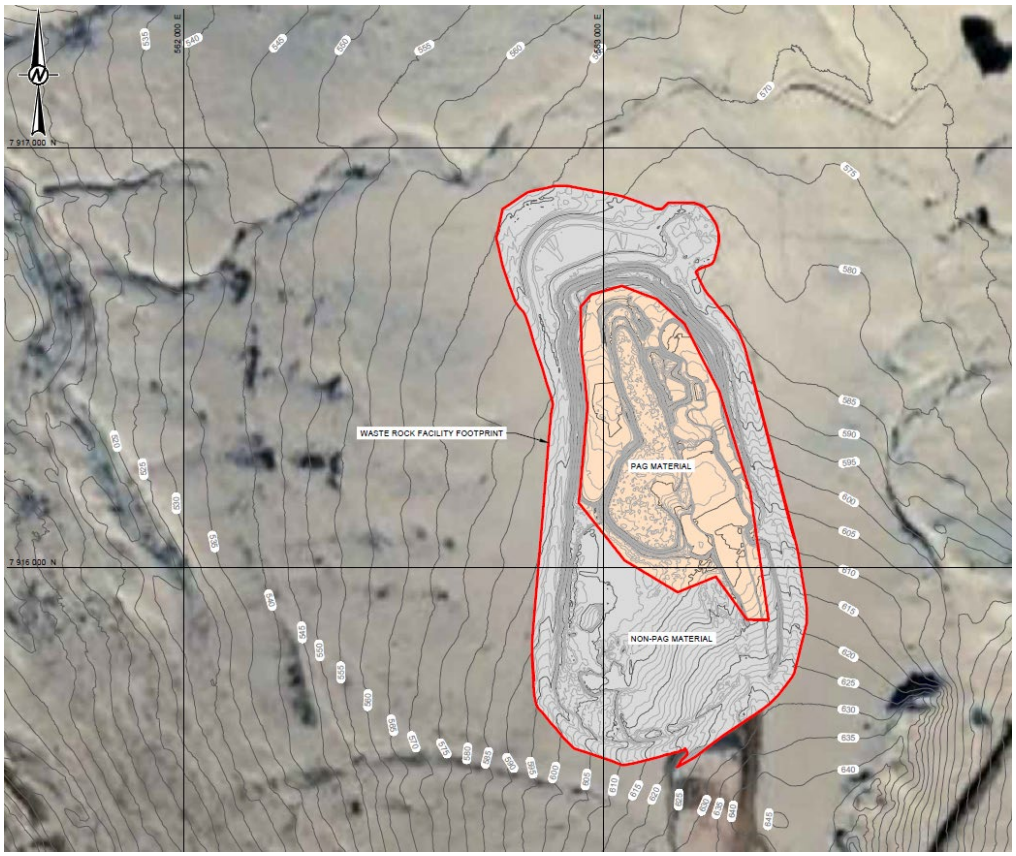

Figure 2.3 Current Placement of PAG and NAG.

(WSP 2023)

The main work items for closing the Waste Rock and Overburden Stockpiles are (Baffinland 2018):

- Clean up of any contaminated soils.
- Monitoring and confirming the freezing of the pile.
- Monitoring seepage water quality.
- Conducting an engineering stability analysis to confirm long-term stability; and
- Grading at associated water management structures to establish final drainage pathways.
- Placement of at least a 4 m layer of NAG material on the outer shell of the Waste Rock Facility

Based on the current state of the Mine Site prior to mining activities, the site is characterized by rugged rocky terrain with minimal vegetation. Therefore, a NAG rock cover system on the WRF is considered an appropriate closure configuration (Baffinland 2018). Runoff from the WRF will be monitored until runoff

meets water quality objectives for closure. Once met, WRF ponds will be decommissioned, and runoff allowed to discharge directly to the environment.

2.2.3 *Quarries and Ore/Aggregate Stockpiles*

The quarries and borrow sources at the Mine Site and Milne Port that were developed to construct the site (Table 2.2) will be progressively reclaimed. At closure, re-contouring and filling with overburden may be required to ensure slope stability and restore natural drainage pathways. Ore/Aggregate stockpiles will be depleted upon closure. Contaminated soils below stockpiles will be treated if required. The ore/aggregate stockpile bases will be re-contoured and scarified to allow for natural re-vegetation. If ore/aggregate stockpiles remain at closure, they will be graded and re-contoured for long-term stability. There are no plans to place cover material at closure. Construction of a fill cover, and/or placement of residual ore as backfill will be assessed if water quality concerns are present (Baffinland 2018).

Table 2.1: Project Component Description

Main Area	Project Component	
Mine Site	Quarry D1Q1	Ore Stockpile
	Quarry D1Q2	ROM Stockpile
	Quarry QMR2	KM 97 Borrow Locations
Milne Port	MP-Q1-01	Quarry No. 1
	MP-Q1-02	Ore Stockpiles
	Borrow Source No. 1	
Tote Road	Extended cuts in bedrock along road corridor	

Closure of active quarry faces will involve removing all materials, equipment and infrastructure. Active quarry walls will be terraced during operation to closely manage issues related to drainage and will not be altered for closure. The quarry development will reduce the creation of pits and depressions to the degree practicable to reduce the potential for standing water. The quarry pit floor will be left as free draining. Quarry access roads will be removed to re-establish desired drainage. Reclamation of uncovered permafrost and ground/ice will involve removing any ponding water and backfilling the impacted permafrost and/or ground ice with available material.

2.2.4 *Buildings and Equipment*

At closure, buildings and infrastructure will be decommissioned and transported to the site landfill. Associated laydown areas will be re-graded to restore natural drainage patterns and scarified to allow for natural re-vegetation at closure.

The main work items for decommissioning building and equipment are (Baffinland 2018):

- Demolish buildings and haul refuse either to the mainland, onsite landfill or open pit.
- Demolish building foundations and concrete slabs.
- Relocate equipment to mainland for resale, dispose of on-site as refuse, or donated to local communities.
- Clean up of contaminated soil; and
- Re-grade and scarify footprints.

2.2.5 *Mining Infrastructure*

Mining infrastructure on site includes camp pads, laydown yards, airstrip, roads, water crossings, crushing and screening assemblies, etc. Remnants of mining infrastructure including buildings, culverts, and equipment will be removed and laydown areas re-graded to restore natural drainage patterns. Milne Port ore docks will remain in place at closure (Baffinland 2018).

2.2.6 *Waste, Landfills, and other Disposal Areas*

At closure the onsite landfill located at the Mine Site will be reclaimed by capping the landfill with 1.5 m of overburden to freeze the core of the landfill. The landfill site will be scarified to encourage natural re-vegetation. The explosives facility, incinerators, waste management buildings, fuels and tank farms will be decommissioned and removed from the site. The affected footprint will be re-graded and scarified to allow for natural re-vegetation. The hazardous waste containment areas will be evaluated for any remaining hazardous material/soils and addressed as per the Hazardous Materials and Hazardous Waste Management Plan. The area will be re-graded and scarified. Liners will be removed from polishing ponds and Polishing Waste Stabilization Ponds (PWSPs), and berms will be re-graded and levelled.

2.2.7 *Water Management Systems*

Sewage and water treatment plants will be decommissioned and either transported offsite or disposed of in the onsite landfill. Site water management ponds will be decommissioned as follows (Baffinland 2018):

- Impacted soils and sediment will be cleaned as necessary.
- Liners, where present, will be removed; and
- Ponds will be filled with clean material, re-graded and scarified to restore natural drainage patterns and re-vegetation.

2.3 Information Review Summary

Okane conducted a background review and summarized information (Appendix A) pertinent to the security estimate to gain familiarity with the Mary River site and assess details that may influence or alter assumptions and methodology.

3 BASIS OF SECURITY ESTIMATION

The following section outlines methodologies, assumptions, and inputs used when developing the security estimate.

3.1 Basic Statement of Methods and Assumptions

Okane utilized the RECLAIM 7.0 Model for Closure and Reclamation Cost Estimates (RECLAIM) (Brodie Consulting Ltd. 2017) to develop unit rates and costs associated with the security estimate. The RECLAIM model is specifically designed to help comprehend the multiple components of mine site closure cost estimates. These estimates are intended to cover government liabilities associated with authorized development project in Nunavut and the Northwest Territories. Additionally, the RECLAIM model is the recognized methodology for calculating reclamation costs for the purposes of financial security by the Land and Water Boards. Okane's security estimate has been developed based on the following assumptions, as outlined in the RECLAIM model:

- All equipment and assets are assumed to have no salvage value.
- Unit costs are based on third-party contractors conducting all reclamation work.
- Mobilization costs are included for all equipment required for completing reclamation work (i.e., does not assume existing mine equipment is available and in working condition); and
- A contingency is applied that reflects the degree of uncertainty in the ICRP.

3.1.1 ISO 21795 – Class 4 Estimate Routine

The security estimate provided by Okane is considered a Class 4 cost estimate in accordance with ISO 21795, which is typically associated with a conceptual or pre-feasibility level design. Class 4 estimates are based upon typical unit costs and have an expected accuracy range of -30% to +50% after contingency (ISO, 2021).

3.2 Unit Rates

Reclamation and closure cost estimates are developed based on an isolated volume price based on specific reclamation activities. Where possible, Okane has developed unit rates for each reclamation activity based on the RECLAIM model unit cost table and first principles. Due to the complex and specific nature of same reclamation activities, Okane was unable to develop select unit rates (e.g., bridge removal, air strip lighting removal). In these instances, Okane has utilized Baffinland's specified unit rates based on third party contractors. The following section outlines the methodology and summary of each reclamation activity.

3.2.1 Okane Developed Unit Rates

Okane utilizes the RECLAIM model unit cost table and first principles to develop unit rates for reclamation activities. To the extent possible, the RECLAIM model unit cost table is based on independent third-party costs that have been obtained from a review of northern reclamation projects. As specified in the RECLAIM model, unit rates are inclusive of equipment, labour, maintenance, fuel, consumables, and contractor profit. When necessary, Okane assumed the type and model of construction equipment that would be utilized to perform certain types of reclamation work, and subsequently referenced equipment manuals to develop production rates which could then be used in the security estimate.

3.2.2 Baffinland Unit Rates

In instances where Okane was unable to develop unit rates using the RECLAIM model, Okane reviewed and evaluated the validity of unit rates developed by Baffinland. Baffinland's 2018 unit rates were based on multiple third-party contractors and are considered to be an accurate representation of project specific costs unless otherwise noted. It is also noted that Baffinland unit costs include labour and fuel costs.

3.2.3 Inflation

Both unit rates developed from the RECLAIM model or taken from Baffinland rely on costs derived from previous contractor prices and as such are not reflective of 2023 costs. Unit costs taken from the RECLAIM model were last updated in March 2014, more than nine years ago, while Baffinland contractor quotes were developed in 2018. The RECLAIM model recommends adjusting unit costs for inflation based on national rates obtained from the Bank of Canada (https://www.bankofcanada.ca/rates/related/inflation-calculator/). Unit rates were adjusted for inflation to December 2023. An analysis on the effect inflation has on the overall security estimate can be found in Section 4.2.3.

3.2.4 Summary of Unit Rates

Unit rates were developed for each reclamation activity following the above methodology (Table 3.1). Okane utilized other industry tools such as the Standard Reclamation Cost Estimator (Nevada Division of Environmental Protection 2023) and the B.C. Blue Book (BC Road Builders 2023), as a comparison to ensure that utilized unit rates are justifiable.

Table 3.1: 2024 Unit Rates

Reclamation Activity	Rate ($)	Unit
Fill Application	55.54	m^2
Fill Application	37.02	m^3
NAG Waste Rock Cover	18.07	m^3
Grade & Recontour	1.71	m^2
Liner Removal	4.05	m^2
Culvert Removal	99.50	m
Modular Building Removal – Not Contaminated	52.07	m^2
Modular Building Removal –Contaminated	117.09	m^2
Foldaway Building Removal – Not Contaminated	82.55	m^2
Foldaway Building Removal –Contaminated	147.57	m^2
ISO Container Removal	92.56	m^2
Piping Removal	59.69	m
Cable Removal	32.39	m
Contaminated Soil Remediation	47.33	m^3
Drainage Channel Development	22.54	m^3
Drill and Blast Rock	13.54	m^3
Excavate, Load, Short Haul (1km)	6.02	m^3
Demolish Fence	55.94	m
Load, Short Haul Demolished Material	12.17	m^3
Light Equipment Removal	1,884.72	ea
Medium Equipment Removal	4,037.08	ea
Heavy Equipment Removal	39,210.50	ea
Light Mobile Equipment Removal	867.75	ea
Medium Mobile Equipment Removal	1,383.38	ea
Heavy Mobile Equipment Removal	2,469.25	ea
Light Tank Removal	2,035.38	ea
Medium Tank Removal	7,021.00	ea
Light Diesel Tank Removal (10,000 to 20,000 L)	3,202.49	ea
Medium Mobile Diesel Tank (3,000 to 500,000 L)	9,973.75	ea
Medium Diesel Tanks (500,000 to 750,000 L)	15,384.92	ea
Large Diesel Tanks Load & Transport (5,000,000 L)	101,337.43	ea
Large Diesel Tanks (10,000,000 to 12,000,000 L)	163,360.23	ea
Timber Cribbing	19.87	m^2
Precast Concrete Foundations	36.77	m^2

Reclamation Activity	Rate ($)	Unit
Slab on Grade	35.70	m^2
Bridge Removal	192,666.71	ea
Conveyor Reclaim	1,517.25	m
Airstrip Lighting Removal	25.35	m
Open Pit Stabilization	6.55	m^3
Vendor Package – Incinerator	9,430.75	Lump Sum
Vendor Package – Potable Water	9,430.75	Lump Sum
Vendor Package – Sewage Treatment Plant	10,422.25	Lump Sum
Vendor Package – WRS Water Treatment Plant	73,482.50	Lump Sum
Vendor Package – Tower Removal	1,781.56	Lump Sum
Mobilization of Remote Workers	92.64	person-day
Mobilization of Local Workers	81.31	person-day
Worker Accommodation	150.00	person-day
Fuel Consumables	1.00	L
Mobilization of Fuel	0.43	L
Demobilization of Fuel	0.14	L
Water Treatment	1.00	m^3

3.3 Disturbance Area Analysis and Reclamation Volumes

Okane performed a disturbed area analysis based on aerial imagery of the site, provided by BIM in August 2023. Using the previously established standard operating procedure (BIM 2022c), Okane was able to verify each of the BIM reported disturbed areas without significant discrepancies. However, Okane did discover inconsistencies in previous year's work, where areas were removed from the security estimate as a result of being taken off that specific year's workplan and not included in subsequent security estimate when the area was again added to the workplan. For this reason, Okane chose to split the areas into two simpler categories, "Disturbed areas" and "Proposed Work areas".

The remaining reclamation volumes (equipment removal, sea can removal, building removal etc.) were verified using a combination of aerial imagery and shipment manifests for incoming/outgoing materials, or assumptions based on Okane's professional judgement and experience.

The Baffinland 2024 security estimate has estimated water treatment volumes based on lifetime seepage averages for the WRF and additional water treatment areas. It is Okane's opinion that this methodology underestimates the future volumes required for water treatment. As the footprint of WRF and contaminated areas expand throughout the life of mine, the total seepage volume will also increase due to the increased footprint area. For this reason, seepage from early operating years when facility

footprints were just beginning to expand are not representative of future years. Water treatment volumes within Okane's security estimate is based on removing the early operating years and averaging the four most recent seepage volumes. Note that 2023 volumes are not yet available for inclusion in the estimate.

Table 3.2: Water Treatment Discharge Volumes

Year	WRSF Water Treatment	Additional Water Treatment
	Annual Average Seepage (m^3)	
2019	117,000	3,231
2020	63,000	1,797
2021	63,919	1,772
2022	117,000	1,611
Overall Average	**105,951**	**2,103**

(Baffinland 2022b)

3.4 Security Estimate Structure

The security estimate was completed as a total cost calculation, the closure and reclamation for Inuit Owned Land (IOL) on the Mary River Mine was calculated fully, rather than incrementally from previous year's estimates. The security estimate is broken into direct and indirect costs. Direct costs are expenses directly associated with completing reclamation activities (e.g., fill application, grade and recontour, liner removal). While indirect costs are those associated with maintaining and running reclamation operations. The following section outlines methodologies for developing direct and indirect costs within the security estimate.

3.4.1 Direct Costs

Direct costs were developed to reflect reclamation activities for each major project component: Milne Port, Tote Road, Mine Site, site equipment, and construction facilities and services. Direct costs were developed through unit rate application. By multiplying all unit rates by the total reclamation quantities an accurate estimation of project costs is calculated.

3.4.2 Indirect Cost Analysis

As outlined in the RECLAIM model, indirect costs include post-closure monitoring and maintenance, mobilization and demobilization of workers, equipment and fuel, project administration, engineering, and contingency costs. Indirect costs were developed either from unit cost estimations or as a percentage of direct costs.

Mobilization/demobilization of fuel and workers required to complete reclamation activities was developed utilizing unit rates and total person-days on site as outlined in Baffinland's 2024 security

estimate (Baffinland 2023b). The security estimate assumed that a 70/30 split of workers will be sourced from southern and local communities, respectively. Mobilization/demobilization of reclamation equipment has been assumed to be 10% of direct costs.

Project management, supervision, and control, and engineering costs were assumed to be 9.4% and 5% of total direct costs, respectively, as outlined in the Baffinland 2024 security estimate (Baffinland 2023b). Okane notes that the 5% engineering rate applied follows the RECLAIM model recommendations; however, 9.4% rate for project management, supervision, and control is greater than what is typically applied, but likely necessary for management in such a remote location.

A contingency has been added as an indirect cost to cover both the uncertainty in the cost estimate and the possibility that some aspects of the closure and reclamation activities may be more difficult to perform. Following the RECLAIM model contingency guidelines (Table 3.3), Okane has a applied a 20% contingency to direct costs given the current project description and established security estimate process. The contingency added aligns with the Baffinland security estimate.

Table 3.3: RECLAIM model Guidelines for Contingency Percentage

Level of Project Description	Description	Contingency
Detailed or Project Control	Cost estimate based upon detailed engineering "take offs" and written quotes.	5%
Definitive or Construction Drawing Phase	Engineering mostly complete, some written quotes.	10%
Preliminary or Budget Level	Little detailed engineering and costs based upon verbal quotes	15%
Feasibility or Advanced Conceptual	Engineering may be 10% complete and costs based upon typical unit costs.	20%
Pre-feasibility, Conceptual or Trade-off Study	Very basic engineering only and costs based upon typical unit costs.	25%

(Brodie Consulting Ltd. 2017)

3.4.2.1 Post Closure Monitoring and Maintenance

Post closure monitoring costs outlined within the security estimate reflect the monitoring and maintenance frequencies and activities as outlined in the IRCP (Baffinland 2018). As recommended in the RECLAIM model, post closure monitoring and maintenance costs include all parameters required for performing the monitoring activities and include site access, monitoring, labour, fuel, power, and all supplies. Monitoring activity costs were developed by Okane based on previous project and professional experience (Table 3.4)

Table 3.4: Post Closure Monitoring and Reporting Requirements and Annual Cost

Monitoring Program	Year(s) Post Closure	Location(s)	Annual Cost	Comment
Geotechnical/Engineering Monitoring	18	Site Wide	$166,146; $66,146[1]	Based on previous Okane experience
Aquatic Monitoring and Reporting	18	Site Wide Years 1-3, Mine Site Years 14-18	$236,141; $132,549[2]	Based on previous Okane experience
Environmental Site Assessment	1,4	Site Wide	$117,462	Based on previous Okane experience
Terrestrial Environment Monitoring and Reporting	1-4, 6, 8	Site Wide	$103,487	Based on previous Okane experience
Marine Environment Monitoring Reporting	5	Milne Port	$109,802	Based on previous Okane experience
Safety Compliance Inspections	18	Site Wide Years 1-6, Tote Road and Mine Site Years 6-18	$39,154	Based on previous Okane experience
Socio-economic Reporting	18	Site Wide	$20,000	Assumed
Air Quality Monitoring and Reporting	5	Site Wide	$30,000	Assumed

1 – Additional $100,000 assumed in Year 1 for installation of monitoring equipment (thermistors, vibrating wire piezometers, etc.)
2- $236,141 assumed for Years 1-3 post closure, $132,549 assumed for Years 4-18

As outlined in the RECLAIM model, a discount rate is applied to long-term monitoring costs to calculate the net present value (NPV) of the future series of annual monitoring and maintenance costs. Okane performed a NPV analysis over the assumed 18-year closure period of the Mary River Mine on indirect costs associated with monitoring and maintenance, water treatment, worker accommodation & consumables and mobilization for monitoring works to better evaluate the future cost implications to the security estimate. A real discount rate (discount rate minus inflation rate) of 2% percent annually was assumed for the NPV analysis.

4 SECURITY ESTIMATE

4.1 Security Estimate Summary

The cost to complete reclamation and closure work given the current and 2024 planned disturbances is estimated to be **$140,314,100** (Table 4.1). Costs are considered to be a feasibility or advanced conceptual level, with an accuracy of -30% to +50%. A detailed breakdown of specific reclamation activities for each major cost component is outlined in Appendix B.

Table 4.1: Security Estimate Summary

Item		Component/Activity	Cost Estimate[1]
100		**Milne Port**	
	101	Roads & Laydown Yards	$4,126,800
	102	Stockpile and Material Handling	$7,531,500
	103	Milne Port Infrastructure	$2,674,300
200		**Tote Road**	
	201	Road Embankments and Driving Surface	$2,809,100
	202	Water Crossing	$911,900
300		**Mine Site**	
	301	Roads & Laydown Yards	$10,087,200
	302	Waste Rock Storage Facility	$17,663,000
	303	Open Pit	$13,500
	304	Stockpile and Material Handling	$2,778,000
	305	Water Management Infrastructure	$2,596,900
	306	Mine Site Infrastructure	$3,939,900
400		**Site Equipment**	
	401	Demobilization of Baffinland Owned Equipment	$7,819,900
500		**Construction Facilities & Services**	
	501	Construction Facilities & Services	$3,273,300
		Direct Cost Total	**$66,225,500**
600		**Monitoring and Maintenance (Indirect Cost)**	
	601	Monitoring and Maintenance	$9,472,900
	602	Water Treatment	$1,339,200
	603	Worker Accommodation & Consumables	$2,970,200
	604	Mobilization for Monitoring Works	$5,511,200
700		**Indirect Costs**	
	701	Worker Accommodation & Consumables	$4,256,000

Item	Component/Activity	Cost Estimate[1]
702	Mob/demobilization for Reclamation Work	$27,757,500
703	Administration and Engineering (14.4%)	$9,536,500
704	Contingency (20%)	$13,245,100
	Total	**$140,314,100**

1. Costs rounded to nearest hundred.

4.2 Comparison to Baffinland Security Estimate

Baffinland's security estimate outlined a total closure cost of $108,252,425 for security relating to IOL (Baffinland 2023b), resulting in Okane's security estimate being $32,061,675 higher than that of Baffinland. While differences in unit rate and reclamation volumes between Okane and BIM's estimate were minimal, Okane identified key omissions in the scope of BIM's security estimate that lead to the discrepancy. The following section outlines the key differences between security estimates and the justification of Okane's estimate.

4.2.1 Thermal Cover on WRF

The thermal cover system to be installed over exposed PAG waste rock within the WRF is the main cost driver between Okane's and Baffinland's security estimates. Following commitments within the ICRP as well as findings from recent studies (WSP, 2023), a minimum of 4 m NAG cover system over exposed PAG waste rock results in additional $17,663,023 in direct closure costs and $7,629,977 in indirect costs. The thermal cover system over exposed PAG waste rock was not included in Baffinland's security estimate. However, as the thermal cover system is a direct commitment within the ICRP, Okane views this as a key reclamation activity and therefore, should be included in financial security for closure.

4.2.2 Post-closure Monitoring and Maintenance Costs

As part of the security estimate, Okane developed post-closure monitoring and maintenance costs based on professional experience and reference project sites. Both Okane and Baffinland determined this value on a NPV basis. Okane's estimate is approximately $1,128,900 greater than Baffinland's. Baffinland does not detail how post-closure monitoring and maintenance costs were developed or broken down between monitoring activities; therefore, Okane cannot speak to the variance between security estimates.

4.2.3 Inflation Rates

Another key difference between Okane's and Baffinland's security estimates is how inflation was accounted for in updating unit rates. Okane followed the RECLAIM model's recommendation to use the Canadian national average rate for inflation, while Baffinland uses Nunavut territorial rate for inflation.

To understand the effects the varying methodologies have on the security estimate, Okane has completed a sensitivity analysis on the security estimate using varying inflation rates. The sensitivity analysis outlines that using the national inflation rate can increase closure costs by approximately $5,539,700, compared to the Nunavut territorial rate.

It is Okane's understanding that materials and workers on site are sourced at an approximate 70/30 split between southern and local communities. Therefore, it is felt that using Nunavut inflation rates directly is not appropriate in the project context as the cost for the majority of materials and workers changes independent from Nunavut's consumer price index.

5 SECURITY ESTIMATE UNCERTAINTIES

During Okane's site background review and 2023 Environmental Audit, several uncertainties were identified within the closure plan and security estimates that may have a material change to the security estimate. The following section summarizes the identified uncertainties and outlines the potential effects to security estimates.

Climate Change Effects on Thermal Cover System Configuration: There is uncertainty within the planned thermal cover systems of landfills on site and the effects climate change could have on the active zone depth. Okane notes that the 4 m NAG cover system requirement does not take into account climate change effects, and that it is possible that a thicker cover system is needed. Assuming a 6 m NAG cover system is needed to account for climate change, it would result in an estimated $9,000,000 increase in direct costs, as well as a $4,500,000 increase in indirect costs.

Pit-wall Stability and Exposed PAG in Hill Crest Pit Shell: At closure, BIM plans to fill the open pit with water, which will act as both a physical and geochemical stabilizer. However, current conditions of the active mining area would not allow the plan as detailed in the ICRP to progress, as there is no open pit to fill. Baffinland's ICRP (BIM, 2018) commits to analysis of the pit-wall to ensure stability, as well as water treatment until site discharges are within acceptable ranges. Analysis of the pit-wall stability has not been completed, and water quality predictions have not been updated using the site-specific data. Until the necessary studies have been completed to ensure pit-wall stability and water quality objectives are met with the pit-wall left in its current state, provision for pit-wall stabilization and covering of exposed PAG material should be included in BIM's security estimate. Okane estimates $7,700,000 in direct costs and an additional $3,400,000 in indirect costs should be allocated for this task.

Water treatment periods: Baffinland's estimate includes provision for treatment of water on site for three years post-closure, assuming that water quality objectives will be met within this timeline. This estimate is based on water quality predictions made in the original 2013 Environmental Impact Statement (BIM, 2013) and has not been updated to reflect current site data and conditions. In Okane's experience, if water treatment is necessary, the timeline often extends significantly longer than three years post-closure. Okane estimates that $150,000 per year should be allocated for this task, extending to Year 18 post-closure, totalling $2,700,000.

While all three of these items have potential to substantially affect the security estimate total, Okane does not feel their inclusion at this point is warranted due to a lack of certainty in their requirement at closure. However, Baffinland has committed to the study of each of the three items and is responsible for conducting appropriate analysis to provide confidence to all parties that they will not be necessary reclamation activities at closure.

6 RECOMMENDATIONS AND CONCLUSIONS

Okane recommends the following actions to provide a more accurate representation of closure costs for future security estimates:

- Inclusion of WRF Thermal Cover System: Okane has identified that the committed 4 m, NAG cover system has not been included in security estimates to date. The WRF thermal cover system is a dominate driver of closure costs and should be represented in security estimates.

- Investigation of Inflation Rates: Okane's sensitivity analysis of inflation rates demonstrate the need to investigate the selection of inflation rates used to adjust unit rates. If the RECLAIM model is followed when developing the security estimate, then the national average inflation rate should be incorporated into annual unit rate updates or else justification be provided on the unit rate selected.

- ICRP Uncertainties: Okane recommends implementation of a deadline of October 1st, 2024 by QIA for BIM to complete studies and investigations to address uncertainties outlined in Section 5 (Pit-wall stability, climate change effects on thermal cover system and water quality predictions), after which the associated reclamation costs be applied to the security estimate. BIM has committed to performing the necessary studies in their ICRP to provide confidence to QIA that they will not incur reclamation costs in addition to the security posted.

- Annual Calculation and Reporting of Closure Costs: To date, annual security estimate updates have been completed based on incremental adjustments for planned disturbed areas and reconciliation of work not completed the previous year. Okane recommends a holistic security estimate be completed annually to provide a transparent representation of closure costs.

7 REFERENCES

Arktis Solutions. 2014. QIA 2014 Comprehensive Security Estimate for Baffinland Iron Mines Corporation's Mary River Project Activities occurring on Inuit Owned Lands. Final - December 12, 2014.

Arktis Solutions. 2022. 2022 Mary River Reclamation Security Report, Final Signed – Baffinland 2022 Work Plan Addendum. June 8, 2022.

Baffinland. 2018. Baffinland Iron Mines Corporation INTERIM CLOSURE AND RECLAMATION PLAN BAF-PH1-830-P16-0012 Revised Draft - Rev 5.

Baffinland. 2023a. 2024 Marginal Closure and Reclamation Financial Security Estimate, Rev 2. June 8, 2022.

Baffinland. 2022b. 2024 Work Plan. December 15, 2022.

Bank of Canada. https://www.bankofcanada.ca/rates/related/inflation-calculator/.

Brodie Consulting Ltd. 2017. RECLAIM 7.0 USER MANUAL MINING VERSION Prepared for: Government of the Northwest Territories. Revised: November 2017.

Murray L Smith. 2020. Reclamation Security Arbitration Final Award. August 10, 2020.

Qikiqtani Inuit Association. 2013. Abandonment and Reclamation Policy for Inuit Owned Lands Qikiqtani Inuit Association - (Version 2.0).

The International Organization for Standardization (ISO). 2021. 21795-2:2021 Mine closure and reclamation planning — Part 2: Guidance.

Baffinland. 2013. Mary River Project Environmental Impact Statement, December 2010.

WSP. 2023. Interim Closure Strategy for Waste Rock Facility. Doc No. 22521615-004-R-RevB interim Closure Strategy for the Waste Rock Facility.

Baffinland. 2022c. Disturbed Area Analysis Standard Operating Procedure DRAFT, October 2022.

8 CLOSURE

We trust information provided is satisfactory for your requirements. Please do not hesitate to contact the undersigned at 1 306 713 1779 for further information or questions.

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Reviewed by:

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LICENSEE
NT/NU

2024-01-30

PERMIT TO PRACTICE
M. A. O'KANE CONSULTANTS INC.
Signature
Date 2024-01-30
PERMIT NUMBER: P 768
NT/NU Association of Professional Engineers and Geoscientists

Dave Christensen
Senior Engineer

Appendix A

Background Document Review Summary

Table A.1: Summary of Information Reviewed.

Document Name	Author (Year)	Description
Abandonment and Reclamation Policy for Inuit Owned Lands, Version 2.0.	Qikiqtani Inuit Association (2013)	The Abandonment and Reclamation Policy establishes guidelines for providing a financial security estimate. These guidelines include reporting results in a methodic and self-explanatory manner, providing evidence to support unit costs and quantities, outlining the limitations in obtaining costing accuracy, and proposing a contingency to account for unknowns and limitations.
QIA 2014 Comprehensive Security Estimate for Baffinland Iron Mines Corporation's Mary River Project Activities occurring on Inuit Owned Lands.	Arktis Solutions (Arktis) (2014)	Arktis completed a comprehensive financial security assessment for the Mary River site in 2014 using information provided by Baffinland Iron Minerals Corporation's (BIMC). The assessment included pre-2013, 2013, and 2014 activities occurring on IOL. The estimate does not address the Type B Exploration licence (2BE-MRY1421), nor does it include activities on Crown lands.
Interim Closure and Reclamation Plan. No. BAF-PH1-830-P16-0012.	Baffinland (2018)	Baffinland's 2018 interim closure and reclamation plan (ICRP) was developed to guide closure activities for each main area and includes both a temporary and permanent closure periods. The ICRP builds upon the Preliminary Closure and Reclamation Plan (PCRP) developed in 2011. The ICRP considers the complete development of the Project and describes expected closure activities at the end of the Project Life (21-year mine life). The ICRP is thus a conceptual benchmark for the intended reclamation and closure activities associated with all components of the Mary River project. The ICRP will be updated as required throughout the life of the Project.
In the Matter of the Reclamation Security Arbitration. 200810 - QIA v. BIM Final Award.	Murray L Smith (2020)	Between 2014 and 2019, the respective security estimates conducted by Arktis and Baffinland continued to diverge. In 2019 the difference was approximately $27M, which was settled in arbitration between QIA and Baffinland. The arbitration was established to determine the appropriate amount of reclamation security for the 2019 Work Plan and to provide guidance for the appropriate methodology for calculating reclamation security including estimating the labour and equipment costs that will be incurred on closure. Under the terms of the Lease, reclamation costs must be estimated in accordance with QIA's Abandonment and Reclamation Policy. • Fuel mobilization and demobilization. • Equipment mobilization and demobilization. • Contingency; and • Supervision, project management, and contract administration.

Document Name	Author (Year)	Description
2022 Mary River Reclamation Security Report, Final Signed – Baffinland 2022 Work Plan Addendum.	Arktis (2022)	The 2022 security estimates by Arktis (2022) builds upon the 2014 security estimate while also reflecting the decisions made in the 2020 arbitration final award, as well as available outcomes from the 2022 Annual Security Review workshops and QIA direction. The report also reflects recent mine conditions by accounting for Baffinland's 2022 Work Plan Addendum and QIA's disturbed area analysis.
2024 Marginal Closure and Reclamation Financial Security Estimate, Rev 2.	Baffinland (2024)	The document provides a summary of the identified project components and activities that have materially changed since the 2024 Work Plan Addendum. Based on these identified material changes, the resulting associated security impacts (+/- $) are incorporated into the 2022 Estimate to ensure accurate representation of the Project based on current planning. The 2022 Estimate represents Baffinland's proposed adjustment to reclamation security to account for work conducted on site to date and planned work to be completed as described in the 2022 Work Plan. The amount of security estimated to be required is based on an estimate of the highest reclamation liability in the upcoming year or 'worst case' scenario.
2024 Work Plan.	Baffinland (2023)	Baffinland has produced a detailed work plan for development activities planned for 2024. Activities outlined in the 2024 Work Plan represent planned works, improvements, infrastructure and equipment required to execute the currently approved phase of the project. Planned disturbance areas for the 2024 work plan are also detailed in the 2024 work plan and security estimate. Disturbance updates are based on the future years work plan and reconciled at the end of the year to ensure new additional work was completed or area left undisturbed. Updated disturbance area per landowner for the 2024 security estimate are based on the land owner, actual and proposed disturbance, and line and proposed lined areas.

Appendix B

Cost Tables

Table B.1: Security Estimate Costing Tables

Log No.	Component/Activity	Length (m)	Width (m)	Height/Depth (m)	Area (m^2)	Volume (m^3)	Total Reclamation Quantity	Unit	Unit Rate	Total Reclamation Cost (CAN)	Subtotal (CAN)	NPV Reclamation Cost	Comment
100	**Milne Port**												
101	**Roads and Laydown Yards**												
	Grade and Recontour Roads and Yards				1,027,293		1,027,293	m^2	$1.71	$1,756,670			
	Remove Culverts	240					240	m	$99.50	$23,880			
	Demolish Buildings - Modular (Not Contaminated)				16,894		16,894	m^2	$52.07	$879,659			
	Demolish Buildings - Modular (Contaminated)				2,354		2,354	m^2	$117.09	$275,603			
	Demolish Buildings - Foldaway (Not Contaminated)				2,475		2,475	m^2	$82.55	$204,323			
	Demolish Buildings - Foldaway (Contaminated)				2,856		2,856	m^2	$147.57	$421,464			
	Remove ISO Containers				1,439		1,439	m^2	$92.56	$133,175			
	Remove Slab on Grade				9,766		9,766	m^2	$35.70	$348,639			
	Remove Concrete Foundations				2,268		2,268	m^2	$36.77	$83,393			
	Component Subtotal										$4,126,805		
102	**Stockpile and Material Handling**												
	Remediate Contaminated Ore Stockpile Soils			0.3	338,693	101,608	101,608	m^3	$47.33	$4,809,395			Assume 0.3 m surface soil contamination

Log No.	Component/Activity	Length (m)	Width (m)	Height/Depth (m)	Area (m^2)	Volume (m^3)	Total Reclamation Quantity	Unit	Unit Rate	Total Reclamation Cost (CAN)	Subtotal (CAN)	NPV Reclamation Cost	Comment
	Grade and Recontour Ore Stockpile				338,693		338,693	m^2	$1.71	$579,165			
	Reclaim Conveyor	854					854	m	$1,517.25	$1,295,732			
	Grade and Recontour Quarries and Borrow Areas				495,466		495,466	m^2	$1.71	$847,246			
	Component Subtotal										$7,531,537		
103	**Milne Port Infrastructure**												
	Liner Removal				45,318		45,318	m^2	$4.05	$183,537			
	Grade and Recontour Lined Areas				45,318		45,318	m^2	$1.71	$77,493			
	Tank Farm Liner Removal				24,048		24,048	m^2	$4.05	$97,393			
	Grade and Recontour Tanks Farm				24,048		24,048	m^2	$1.71	$41,121			
	Removal of Large Diesel Tanks						6	ea	$163,360.23	$980,161			
	Removal of Large Diesel Tanks Load and Transport						2	ea	$101,337.43	$202,675			
	Removal of Medium Diesel Tanks						5	ea	$15,384.92	$76,925			
	Removal of Medium Mobile Diesel Tanks						14	ea	$9,973.75	$139,632			
	Removal of Light Diesel Tanks						14	ea	$3,202.49	$44,835			
	Removal of Medium Tanks						8	ea	$7,021.0	$56,168			
	Remove Power Cables	14,700					14,700	m	$32.39	$476,060			
	Decommissioning Incinerator						3	Lump Sum	$9,430.75	$28,292			1 Additional planned for 2024
	Decommissioning Potable Water						2	Lump Sum	$9,430.75	$18,862			

Log No.		Component/Activity	Length (m)	Width (m)	Height/Depth (m)	Area (m^2)	Volume (m^3)	Total Reclamation Quantity	Unit	Unit Rate	Total Reclamation Cost (CAN)	Subtotal (CAN)	NPV Reclamation Cost	Comment
		Decommissioning Sewage Treatment Plant						2	Lump Sum	$10,442.25	$20,885			
		Removal of Sewage System Piping	3,858					3,858	m	$59.69	$230,284			
		Component Subtotal										$2,674,322		
200		**Tote Road**												
	201	**Road Embankments and Driving Surface**												
		Grade and Recontour Disturbance Areas				1,547,729		1,547,729	m^2	$1.71	$2,646,617			
		Demolish Buildings - Modular (Contaminated)				141		141	m^2	$117.09	$16,510			
		Demolish Buildings - Modular (Not Contaminated)				72		72	m^2	$52.07	$3,749			
		Remove ISO Containers				1,273		1,273	m^2	$92.56	$117,830			
		Remove Slab on Grade				682		682	m^2	$35.70	$24,347			
		Component Subtotal										$2,809,054		
	202	**Water Crossings**												
		Remove Culverts	1,419					1,419		$99.50	$141,191			1,601m total: 1,419m IOL, 182m Crown Land
		Remove Bridges						4	ea	$192,666.71	$770,667			
		Component Subtotal										$911,857		
300		**Mine Site**												
	301	**Roads and Laydown Yards**												
		Grade and Recontour Roads and Yards				2,778,813		2,778,813	m^2	$1.71	$4,751,770			

Log No.	Component/Activity	Length (m)	Width (m)	Height/Depth (m)	Area (m^2)	Volume (m^3)	Total Reclamation Quantity	Unit	Unit Rate	Total Reclamation Cost (CAN)	Subtotal (CAN)	NPV Reclamation Cost	Comment
	Remove Culverts	565					565	m	$99.50	$56,218			
	Demolish Buildings - Modular (Not Contaminated)				26,746		26,746	m^2	$52.07	$1,392,654			
	Demolish Buildings - Modular (Contaminated)				2,810		2,810	m^2	$117.09	$328,985			
	Demolish Buildings - Foldaway (Not Contaminated)				689		689	m^2	$82.55	$56,889			
	Demolish Buildings - Foldaway (Contaminated)				16,275		16,275	m^2	$147.57	$2,401,734			
	Remove ISO Containers				3,500		3,500	m^2	$92.56	$323,961			
	Remove Slab on Grade				7,952		7,952	m^2	$35.70	$283,870			
	Remove Concrete Foundations				13,357		13,357	m^2	$36.77	$491,157			
	Component Subtotal										$10,087,237		
302	**Waste Rock Storage Facility**												
	NAG Waste Rock Cover System			4	242,308	969,232	969,232	m^3	$18.07	$17,516,058			
	Water Treatment Plant for WRF						1	Lump Sum	$73,482.50	$73,483			
	Water Treatment Plant for Sedimentation Pond						1	Lump Sum	$73,482.50	$73,483			
	Component Subtotal										$17,663,023		
303	**Open Pit**												
	Rock Bolder Fence				0		0	m^2	$0.00	$0			
	Perimeter Signage						1	Lump Sum	$0.00	$0			
	Drainage Channel Construction					600	600	m^3	$22.54	$13,526			
	Component Subtotal										$13,526		
304	**Stockpile and Material Handling**												

Log No.	Component/Activity	Length (m)	Width (m)	Height/Depth (m)	Area (m^2)	Volume (m^3)	Total Reclamation Quantity	Unit	Unit Rate	Total Reclamation Cost (CAN)	Subtotal (CAN)	NPV Reclamation Cost	Comment
	Grade and Recontour Quarries and Borrow Areas				424,532		424,532	m^2	$1.71	$725,950			
	Remediate Contaminated Ore Stockpile Soils			0.3	128,999	38,700	38,700	m^3	$47.33	$1,831,769			
	Grade and Recontour Ore Stockpile				128,999		128,999	m^2	$1.71	$220,588			
	Component Subtotal										$2,778,307		
305	**Water Management Infrastructure**												
	Liner Removal				139,445		139,445	m^2	$4.05	$564,753			
	Grade and Recontour Lined Areas				139,445		139,445	m^2	$1.71	$238,451			
	Remove Piping	22,215					22,215	m	$59.69	$1,326,013			
	KM105 Sedimentation Pond - Excavate Load, and Haul					58,800	58,800	m^3	$6.02	$353,976			
	Km 105 Sedimentation Pond Drainage Channel					60	60	m^3	$13.54	$812			
	KM 105 Sediment Pond Gablon Basket Removal					1,550	1,550	m^3	$12.17	$18,864			
	KM 105 Sedimentation Pond Liner Removal				23,200		23,200	m^2	$4.05	$93,960			
	Component Subtotal										$2,596,830		
306	**Mine Site Infrastructure**												
	Remove Power Distribution Cables	23,255					23,255	m	$32.39	$753,113			Additional 2,155 m power cable planned for 2024
	Decommissioning Incinerator						3	Lump Sum	$9,430.75	$28,292			1 Additional planned for 2024
	Decommissioning Potable Water						2	Lump Sum	$9,430.75	$18,862			

Log No.		Component/Activity	Length (m)	Width (m)	Height/Depth (m)	Area (m^2)	Volume (m^3)	Total Reclamation Quantity	Unit	Unit Rate	Total Reclamation Cost (CAN)	Subtotal (CAN)	NPV Reclamation Cost	Comment
		Decommissioning Sewage Treatment Plant						2	Lump Sum	$10,442.25	$20,885			
		Decommissioning Communication Tower						1	Lump Sum	$1,781.56	$1,782			
		Decommissioning WRF Water Treatment Plant						1	Lump Sum	$73,482.50	$73,483			
		Decommissioning KM 105 Sedimentation Pond Water Treatment Plant						1	Lump Sum	$73,482.50	$73,483			
		Removal of Large Diesel Tanks						1	ea	$163,360.23	$163,360			
		Removal of Medium Diesel Tanks						4	ea	$15,384.92	$61,540			
		Removal of Medium Mobile Diesel Tanks						4	ea	$9,973.75	$39,895			
		Removal of Light Diesel Tanks						6	ea	$3,202.49	$19,215			
		Removal of Light Tanks						16	ea	$2,035.38	$32,566			
		Removal of Medium Tanks						13	ea	$7,021.00	$91,273			
		Landfill Cover System			1.5	44,370	66,555	66,555	m^3	$37.02	$2,463,899			
		Airstrip Lighting Removal	2,100					2,100	m	$25.35	$53,229			
		Demolish Aerodrome Fence	788					788	m	$55.94	$44,081			
		Load, Haul Demolished Aerodrome Fence					79	79	m^3	$12.17	$959			0.1 m3/m demolished material
		Component Subtotal										$3,939,915		
400		**Site Equipment**												
	401	**Demobilization of Baffinland Owned Equipment**												

Log No.		Component/Activity	Length (m)	Width (m)	Height/Depth (m)	Area (m^2)	Volume (m^3)	Total Reclamation Quantity	Unit	Unit Rate	Total Reclamation Cost (CAN)	Subtotal (CAN)	NPV Reclamation Cost	Comment
		Heavy Equipment						97	ea	$39,210.50	$3,803,419			
		Heavy Mobile Equipment						238	ea	$2,469.25	$587,682			
		Medium Equipment						554	ea	$4,037.08	$2,236,540			
		Medium Mobile Equipment						329	ea	$1,383.38	$455,130			
		Light Equipment						241	ea	$1,884.72	$454,218			
		Light Mobile Equipment						326	ea	$867.75	$282,886			
		Component Subtotal										$7,819,874		
500		**Construction Facilities and Services**												
	501	**Construction Facilities and Services Infrastructure**												
		Demolish Buildings - Modular (Not Contaminated)				2,021		2,021	m^2	$52.07	$105,214			
		Demolish Buildings - Foldaway (Not Contaminated)				20,032		20,032	m^2	$82.55	$1,653,642			
		Demolish Buildings - Foldaway (Contaminated)				5,899		5,899	m^2	$147.57	$870,467			
		Remove ISO Containers				30		30	m^2	$92.56	$2,753			
		Remove Slab on Grade				13,524		13,524	m^2	$35.70	$482,812			
		Remove Concrete Foundations				1,190		1,190	m^2	$36.77	$43,742			
		Removal of Light Tanks						9	ea	$2,035.38	$18,318			
		Removal of Medium Tanks						7	ea	$7,021.00	$49,147			
		Temporary Warehouses and offices						2	ea	$23,620.00	$47,240			
		Component Subtotal										$3,273,336		
600		**Monitoring and Maintenance (Indirect Cost)**												

Log No.	Component/Activity	Length (m)	Width (m)	Height/Depth (m)	Area (m^2)	Volume (m^3)	Total Reclamation Quantity	Unit	Unit Rate	Total Reclamation Cost (CAN)	Subtotal (CAN)	NPV Reclamation Cost	Comment
601	**Monitoring and Maintenance**												
	Geotech/Engineering Monitoring						1	Lump Sum	$1,290,627	$1,290,627			
	Aquatic Monitoring and Reporting						1	Lump Sum	$2,696,663	$2,696,663			
	Environmental Site Assessment (Yr 0 and Yr3)						1	Lump Sum	$234,924	$234,924			
	Terrestrial Environment Monitoring and Reporting (Yr 0 and Yr 1-3)						1	Lump Sum	$620,919	$620,919			
	Safety Compliance Inspection						1	Lump Sum	$704,773	$704,773			
	Socio-economic Reporting						1	Lump Sum	$360,000	$360,000			
	Air Quality Monitoring Program						1	Lump Sum	$150,000	$150,000			
	Marine Environment Monitoring						1	Lump Sum	$549,008	$549,008			
	Regulatory Fees						1	Lump Sum	$2,300,000	$2,300,000			
	Component Subtotal										$8,906,914	$9,472,927	
602	**Water Treatment**												
	WRSF Water Treatment						317,852	m^3	$1.19	$378,243			
	KM 105 Sed Pond Water Treatment						815,510	m^3	$1.19	$970,457			
	Additional Water Treatment						6,308	m^3	$1.19	$7,507			
	Component Subtotal										$1,356,207	$1,339,178	
603	**Worker Accommodation & Consumables for Monitoring**												

Log No.		Component/Activity	Length (m)	Width (m)	Height/Depth (m)	Area (m^2)	Volume (m^3)	Total Reclamation Quantity	Unit	Unit Rate	Total Reclamation Cost (CAN)	Subtotal (CAN)	NPV Reclamation Cost	Comment
		Worker Accommodations & Consumables						13,576	person-days	$150.00	$2,036,328			
		Heat and Power Generation						1,574,760	L	$1.00	$1,574,760			
		Component Subtotal										$3,611,088	$2,970,231	
	604	**Mobilization for Monitoring Works**												
		Mobilization of Remote Workers for Reclamation Activities						9,503	person-days	$92.64	$880,345			
		Mobilization of Local Workers for Reclamation Activities						4,073	person-days	$81.31	$331,148			
		Mobilization of Fuel for Consumables						1,574,760	L	$0.43	$677,147			
		Demobilization of Fuel						41,050,000	L	$0.14	$5,541,750			50% total Capacity
		Component Subtotal										$7,430,390	$5,511,175	
700		**Indirect Costs**												
	701	**Worker Accommodation & Consumables**												
		Worker Accommodations & Consumables						16,000	person-days	$150.00	$2,400,000			
		Heat and Power Generation						1,856,000	L	$1.00	$1,856,000			116L per person per day for heat and power generation
		Component Subtotal										$4,256,000		

Log No.	Component/Activity	Length (m)	Width (m)	Height/Depth (m)	Area (m^2)	Volume (m^3)	Total Reclamation Quantity	Unit	Unit Rate	Total Reclamation Cost (CAN)	Subtotal (CAN)	NPV Reclamation Cost	Comment
702	**Mob/Demobilization for Reclamation Works**												
	Demobilization of Baffinland Site Equipment						163,063	m3	$103.02	$16,798,750			
	Demobilization of 3rd Party Site Equipment						1	Lump Sum	$2,110,230.00	$2,110,230			
	Mobilization of Remote Workers for Reclamation Activities						11,200	person-days	$92.64	$1,037,568			70% workforce sourced remote
	Mobilization of Local Workers for Reclamation Activities						4,800	person-days	$81.31	$390,288			30% workforce sourced local
	Mobilization of Fuel for Consumables						1,856,000	L	$0.43	$798,080			116L per person per day for heat and power generation
	Mobilization of Reclamation Equipment						66,225,622	Lump Sum	10%	$6,622,562			10% of Direct Costs
	Component Subtotal										$27,757,478		
703	**Administration and Engineering**												
	Engineering Fees						66,225,622	Lump Sum	5%	$3,311,281			5% of Direct Costs
	Supervision, Project Management, and Controls						66,225,622	Lump Sum	9%	$6,225,209			9.4% of Direct Costs
	Component Subtotal										$9,536,490		
704	**Contingency**												
	Contingency						66,225,622	Lump Sum	20%	$13,245,124			20% of Direct Costs
	Component Subtotal										$13,245,124		

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