8 March 2018

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RE: Mary River Project - Modification Request No. 7 – 2018 Upgrades at the Mine Site and Milne Port (Water Licence 2AM-MRY1325 - Amendment No. 1)

1 – INTRODUCTION

Baffinland Iron Mines Corporation (Baffinland) is pleased to submit this request for approval for planned modifications to the Mary River Project (the Project), in accordance with Part G of Type A Water Licence 2AM-MRY1325 - Amendment No. 1 (Type A Water Licence). As part of this modification request, consistent with guidance from the Nunavut Impact Review Board (NIRB), Baffinland has completed a self-assessment to demonstrate that the changes proposed do not constitute significant modifications to the Project as originally approved under Project Certificate No. 005 (as Amended) and that the potential ecosystemic and socio-economic effects associated with the modifications are insignificant.

On January 10, 2018, Baffinland submitted Rev. 1 of its 2018 Work Plan to the Nunavut Water Board (NWB) and the Qikiqtani Inuit Association (QIA) (Baffinland, 2018a). Seven (7) of the proposed activities presented in the revised 2018 Work Plan are relevant to a modification request under the Type A Water Licence. These include the following:

- **Milne Port Laydown Areas (2018 Work Plan Item No. 1) -** Three of seven laydown areas (LP2, LP3 and LP5) that will be developed in 2018 within the Milne Port area to improve efficiency of material storage and management will require water management structures (berms, ditching, and culverts) to convey water around or through the laydown areas.
- **Mine Site Waste Rock Sedimentation Pond Improvements (2018 Work Plan Item No. 5) -** Installation of a conventional water treatment plant at the waste rock sedimentation pond located north of the mining area, so that effluent discharged from the pond will meet the discharge limits specified in the Type A Water Licence.
- **Truck Shops (2018 Work Plan Item No. 8) -** Construction of a truck shop at the Mine Site, which will be equipped with a sump and a water treatment module, and a truck shop at Milne Port with a portable water treatment system.
- **Milne Port Road Upgrades (2018 Work Plan Item No. 25) -** Construction of up to 3 km of Port Site access roads to improve port traffic management.
- **Milne Port Water Management (2018 Work Plan Item No. 26) -** Improvements to water management at the Milne Port, which includes installation of berms, ditching and culverts.
- **Milne Port Effluent Discharge Point Relocation (2018 Work Plan Item No. 27) -** Relocation of the effluent discharge point to the barge landing area to reduce environmental spill risk.

- **Milne Port Marine Fuel Manifold Building Relocation (2018 Work Plan No. 29) -** Relocation of the marine manifold building to upgraded freight dock location.

An additional modification is being requested, which will be included in the 2018 Work Plan addendum to be submitted to the QIA following the submission of this modification request, as follows:

- **Mine Haul Road Cross Cut and Widening -** Realignment and upgrades to the mine haul road between the crusher and the active mining area. This change to the mine haul road is part of the normal evolution of the mine plan.

The above items are shown on Figure 1 (Milne Port) and Figure 2 (Mine Site), both of which are presented as Attachment 1.

2 – SELF-ASSESSMENT OF PROPOSED MODIFICATIONS

Baffinland has undertaken a self-assessment of the proposed modifications in accordance with the *Process for Seeking Approval for Modifications to Previously-Approved Projects* (NIRB, 2018). This self-assessment consists of four main components:

- Comparison of the modifications with the scope of the Approved Project
- An assessment of significance applying the factors set out in Section 90 of the *Nunavut Project Planning and Assessment Act* (*NuPPAA*)
- Identification of other new or modified permits, licences or approvals necessary to complete the proposed modifications
- Determination as to whether or not reconsideration of the existing Project Certificate is appropriate, considering *Nunavut Agreement* Section 12.8.2 and *NuPPAA* Section 112.

2.1 COMPARISON OF MODIFICATIONS TO APPROVED PROJECT

Baffinland undertook a comparison of the proposed modifications with the scope of the Approved Project, as described in the Final Environmental Impact Statement (FEIS) and the FEIS Addendum (Baffinland, 2012 and 2013) for the Early Revenue Phase (ERP) of the Project. In completing this review, Baffinland considered the following question:

Was the modification activity assessed previously, or does it represent a reasonably expected modification or optimization of that which was assessed in the FEIS or FEIS Addendum?

All of the activities identified in this modification request have been either assessed previously, or are optimizations consistent with previously assessed activities. The results of this review are presented in Table 1.

Table 1 Comparison of Proposed Modifications to the Scope of the Approved Project

Item No.	Activity/Infrastructure	Comparison to the Scope of the Approved Project	FEIS Reference
1	Milne Port Laydown Areas	The Approved Project included laydown areas within the Milne Port area. The size of the laydown areas will increase, but all laydown areas remain contained in the assessed potential development area (PDA) in the FEIS and FEIS Addendum.	FEIS Vol 3, Section 2.3; FEIS Addendum Vol 3, Section 2.2
5	Mine Site Waste Rock Sedimentation Pond Improvements	The proposed waste rock sedimentation pond improvements involve the installation of a water treatment plant to manage acid-rock drainage/metal (ARD/ML) runoff from the waste rock stockpile. In the FEIS, Baffinland committed to install a water treatment plant should ARD/ML conditions develop despite the application of best practices, to ensure compliance with the discharge limits of the Type A Water Licence.	FEIS Vol 3, Section 3.4.5
8	Truck Shops	The Approved Project included truck service shops. This is an optimization consistent with the scope of the Approved Project and its assessment by NIRB.	FEIS Vol 3, Sections 2.4 and 3.4; FEIS Addendum Vol 3, Section 2.5.5
25	Milne Port Road Upgrades	An optimization consistent with the scope of the Approved Project and its assessment by NIRB.	FEIS Vol 3, Sections 2.2.3, 3.2.1.1, 2.3; FEIS Addendum Vol 3, Section 2.2
26	Milne Port Water Management	An optimization consistent with the scope of the Approved Project and its assessment by NIRB.	FEIS Vol 3, Section 2.3; FEIS Addendum Vol 3, Section 2.2
27	Port Effluent Discharge Point Relocation	An optimization consistent with the scope of the Approved Project and its assessment by NIRB.	FEIS Vol 8, Section 4.5.2.1
29	Marine Manifold Building Relocation	An optimization consistent with the scope of the Approved Project and its assessment by NIRB.	FEIS Vol 8, Section 4.5.2.1
-	Mine Haul Road Cross Cut and Widening	An optimization consistent with the scope of the Approved Project and its assessment by NIRB.	FEIS Vol 3, Section 3.4.1

2.2 SIGNIFICANCE ASSESSMENT

A screening level assessment of potential changes to the assessment of the Approved Project effects was completed for each of the valued ecosystem components (VECs) and valued socio-economic components (VSECs) identified in the FEIS. This assessment is presented in Table 2.

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Table 2 Comparison of Effects of Requested Modifications to Approved Project

Theme	FEIS VEC	FEIS Key Indicator	Change in Effect and Significance	Description of Change in Potential Effects	Additional Mitigation Measures
Atmospheric Environment	Climate change	Greenhouse gases (GHGs)	Change; not significant	One-time 10% increase in annual GHG emissions of ERP that is immeasurable in the context of the Life-of-Mine (LOM) GHG estimate of the Approved Project.	No additional mitigation required
		Climate change	Change; not significant	Immeasurable minor increase.	No additional mitigation required
	Air quality	Particulate matter, SO_2, NO_X	Change; not significant	Site characteristics and effects pathways are unchanged. Short-term localized increases in particulate matter and gaseous emissions associated with additional earthworks, entirely mitigated once modifications are complete.	No additional mitigation required; implement existing Air Quality and Noise Abatement Management Plan.
	Noise and vibration	Atmospheric noise levels, marine noise levels, vibration	Change; not significant	Short-term localized noise increase associated with additional earthworks, entirely mitigated once modifications are complete.	No additional mitigation required; implement existing Air Quality and Noise Abatement Management Plan.
Terrestrial Environment	Landforms, soil and permafrost	Sensitive landforms	No change	There are no sensitive landforms identified within the existing PDAs where the modifications will be undertaken.	No additional mitigation required; implement existing Roads Management Plan and Environmental Protection Plan (EPP).
	Vegetation	Plant abundance and diversity Plants important to Inuit Plant health	No change	Assessment of the Approved Project assumed complete loss of vegetation within the PDAs. Since all modifications will occur within the existing PDAs, no change to vegetation will occur relative to the Approved Project.	No additional mitigation required; implement existing Roads Management Plan and EPP.
	Terrestrial wildlife and habitat	Caribou	No change	Assessment of the Approved Project assumed complete loss of terrestrial habitat within the PDAs. Since all modifications will occur within the existing PDAs, no change to terrestrial wildlife habitat will occur relative to the Approved Project.	No additional mitigation required; implement existing Terrestrial Environment Mitigation and Monitoring Plan (TEMMP).
	Migratory birds and habitat	Peregrine Falcon, Snow Goose, Eider, Red-throated Loon, shorebirds, songbirds, species at risk	No change	Assessment of the Approved Project assumed complete loss of habitat within the PDAs. Any nests located within the footprints of the modifications will be surveyed for bird nests prior to work being undertaken during the nesting season, in accordance with the TEMMP and EPP.	No additional mitigation required; implement existing TEMMP and EPP.
Freshwater Aquatic Environment	Surface water include freshwater quality and quantity	Water quantity Water and sediment quality	Change; not significant	Additional earthworks represent a minor potential increase in sedimentation effects to local watercourses. No major diversions are proposed that will result in material impacts to water quantity.	No additional mitigation required; water management measures will be installed consistent with Baffinland's Civil Design Criteria and with applicable management plans: Surface Water and Aquatic Ecosystems Management Plan, Freshwater, Sewage and Wastewater Management Plan, and EPP.

Theme	FEIS VEC	FEIS Key Indicator	Change in Effect and Significance	Description of Change in Potential Effects	Additional Mitigation Measures
	Freshwater fish, fish habitat and other aquatic organisms	Arctic char	Change; not significant	None of the proposed modifications are situated within or immediately upstream of fish habitat. The potential for changes to water quality affecting fish could result from potential sedimentation during earthworks.	No additional mitigation required; implement existing Surface Water and Aquatic Ecosystems Management Plan, Freshwater, Sewage and Wastewater Management Plan, and EPP.
Marine Environment	Sea ice	Area of shore fast ice in Steensby Inlet	No change	Not applicable to the requested modifications.	No additional mitigation required.
	Water and sediment quality	Water and sediment quality parameters with established guidelines	No change	The ponds, ditching and berms at Milne Port will be upgraded in accordance with Baffinland's Civil Design Criteria as part of the modifications to account for the increased surface area of the ore stockpile area.	No additional mitigation required; implement existing Surface Water and Aquatic Ecosystems Management Plan, Freshwater, Sewage and Wastewater Management Plan, and EPP.
Human Environment	Land and resources use	Wildlife harvesting by Inuit Travel and camps	No change	The scale of the modifications is minor and entirely confined to the existing PDAs and Commercial Lease boundaries. Changes to how Baffinland manages visitors and hunters will not be necessary.	No additional mitigation required.
	Cultural resources	Archaeological sites	No change	Effects to archaeology are not expected, as all modifications are located in areas previously surveyed (and mitigated, if necessary).	No additional mitigation required; implement existing Cultural Heritage Protection Plan and EPP.
	Other Valued Socio-economic Components (VSECs): • Population demographics • Education and training • Human health and wellbeing • Community infrastructure and public services • Governance and leadership • Livelihood and employment • Economic development and self-reliance • Contracting and business opportunities • Benefits, taxes and royalties		No change	Any additional employment and contracting will be undertaken in accordance with the provisions of the Inuit Impact and Benefit Agreement (IIBA) with the Qikiqtani Inuit Association (QIA).	No additional mitigation required.

The modification request as a whole was evaluated against the significance criteria presented in Section 90 of the *Nunavut Project Planning and Assessment Act* (*NuPPAA*):

(a) The size of the geographic area, including the size of wildlife habitats, likely to be affected by the impacts

(b) The ecosystemic sensitivity of that area

(c) The historical, cultural and archaeological significance of that area

(d) The size of the human and animal populations likely to be affected by the impacts

(e) The nature, magnitude and complexity of the impacts

(f) The probability of the impacts occurring

(g) The frequency and duration of the impacts

(h) The reversibility or irreversibility of the impacts

An assessment of the requested modifications as a whole in relation to Section 90 of the *NuPPAA* is presented in Table 3.

Table 3 Significant Modification Self-Assessment Using *NuPPAA* S.90 Significance Criteria

NuPPAA Section 90 Significance Criteria	Evaluation of Modification Request No. 7
(a) the size of the geographic area, including the size of wildlife habitats, likely to be affected by the impacts	All proposed modifications are located within the Commercial Lease Boundaries; the geographic extent of the Project remains unchanged.
(b) the ecosystemic sensitivity of that area	All proposed modifications are confined to the existing project boundaries; no new environmental sensitivities have been identified.
(c) the historical, cultural and archaeological significance of that area	All proposed modifications are confined to the existing project boundaries; no new features of historical, cultural or archaeological significance will be affected.
(d) the size of the human and the animal populations likely to be affected by the impacts	No change.
(e) the nature, magnitude and complexity of the impacts	All proposed modifications have effects that are consistent with the Approved Project.
(f) the probability of the impacts occurring	All proposed modifications have effects that are consistent with the Approved Project.
(g) the frequency and duration of the impacts	All proposed modifications have effects that are similar in frequency and duration to effects assessed for the Approved Project.
(h) the reversibility or irreversibility of the impacts	The proposed modifications have effects that range from fully reversible to irreversible, consistent with the Approved Project.
(i) the cumulative impacts that could result from the impacts of the project combined with those of any other project that has been carried out, is being carried out or is likely to be carried out	Marginal potential increases in the effects to air quality, noise, water quality and consequently fish and fish habitat are confined to the local study areas, and do not overlap with other past, present or reasonably foreseeable activities that would constitute new cumulative effects.
(j) any other factor that the Board considers relevant to the assessment of the significance of impacts	This criterion is not applicable to a proponent self-assessment.

The activities are confined within the boundaries of Baffinland's Commercial Lease and therefore do not represent a change to the previously assessed geographic extent of the Project. These activities will not be located in an area of particular ecosystem sensitivity and the areas of disturbance do not impact areas of historical, cultural or archeological significance. Human and wildlife are not likely to be adversely affected. The activities will not significantly change air emissions, impede water flow, impact any aquatic life, hinder wildlife access or increase noise levels, and the activities will not directly interact with fish or fish habitat. Most the effects are reversible as

reclamation will be carried out once the activity is complete. Additional cumulative effects are not expected given that there are no new residual effects predicted from the requested modifications.

2.3 OTHER REQUIRED APPROVALS

In addition to requiring NWB approval as modifications under the Type A Water Licence, the proposed modifications require approval from the QIA as land owner, as part of the annual work plan approval process. The requested modifications are also being incorporated into the Interim Closure and Reclamation Plan through the annual security review process underway with the NWB, QIA and Indigenous and Northern Affairs Canada (INAC).

2.4 RECONSIDERATION OF THE PROJECT CERTIFICATE

Baffinland reviewed Section 12.8.2 of the Nunavut Agreement and Section 112 of the *NuPPAA* and has determined that reconsideration of the existing Project Certificate is not appropriate.

Section 112 of *NuPPAA* states the following:

> ***112 (1)*** *The Board may, on its own initiative or at the request of the Designated Inuit Organization, the proponent or any interested person, reconsider the terms and conditions set out in a project certificate that it has issued if*
>
> *(a) the terms and conditions are not achieving their intended purpose or are having effects that are significantly different from those anticipated at the time the certificate was issued;*
>
> *(b) the circumstances relating to the project are significantly different from those anticipated at the time the certificate was issued; or*
>
> *(c) technological developments or new information provides a more efficient method of achieving the intended purpose of the terms and conditions.*

Section 12.8.2 of the *Nunavut Agreement* presents nearly identical wording as *NuPPAA* Section 112.

The requested modifications are consistent with the scope of the Approved Project, and hence Baffinland has concluded that the terms and conditions of the Project Certificate are achieving their purpose (Clause a); and that the circumstances related to the project and its effects remain unchanged from the Approved Project (Clause b). No technological developments or new information have been identified in relation to Clause c. The requested modifications do not warrant changes to existing conditions or new conditions within the Project Certificate. As such, reconsideration of the Project Certificate is not appropriate.

Each of the requested modifications are described in Section 3, in accordance with Part G, Item 3 of the Type A Water Licence.

2.5 SELF-ASSESSMENT CONCLUSION

Based on the self-assessment provided in Sections 2.1 through Section 2.4, Baffinland has concluded that:

- The proposed modifications are all activities that were previously assessed by Baffinland.
- The effects of the proposed modifications are not significant.
- Other permits, licences or approvals (or modifications of existing approvals) are required, beyond approval of this modification request by the NWB. It is expected that upon approval of the current modification request, approval by the QIA, as the land owner, will be granted.

- Reconsideration of the terms and conditions in Project Certificate No. 005 is not required.

3 – MODIFICATION REQUEST

In accordance with Part G of Baffinland's Type A Water Licence, the Licensee may carry out modifications after written notification has been provided to the Board, provided such modifications do not place the Licensee in contravention of the Licence or the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*, and such modifications are consistent with the NIRB Project Certificate.

In Section 2, Baffinland confirmed that the requested modifications are consistent with the scope of the Approved Project, and that a reconsideration of the Project Certificate is not appropriate.

Baffinland has also reviewed the proposed modifications to determine which modifications may potentially contravene the Water Licence, thereby requiring written approval from the NWB before proceeding.

The Mine Site waste rock stockpile Water Treatment System (Item No. 5) is a new facility not currently identified in the Water Licence issued by the NWB. In this instance, it is understood that the NWB will need to provide written approval before Baffinland can proceed.

The Milne Port Effluent Discharge Point Relocation (Item No. 27) involves relocation of monitoring station MP-01, identified in Table 13 of the Type A Water Licence. However, since the Licence does not specify the coordinates of monitoring stations, this modification does not contravene the Licence.

All other modifications do not contravene the Licence. Baffinland will proceed with these works 60 days following submission of this modification request. Should the Board respond in writing before the 60 days that approval is not granted for specific works, Baffinland would not proceed with the works until written approval is granted.

3.1 MILNE PORT LAYDOWN AREAS (2018 WORK PLAN ITEM NO. 1)

3.1.1 Description of Facilities and/or Works to be Constructed

A total of seven (7) laydown areas in the Port area (LP1 to LP7) were identified in the 2018 Work Plan (Baffinland, 2018a). The laydown areas are required for efficiency of material storage and management.

Three of the laydown areas (LP2, LP3, and LP5) will be over bodies of water with upstream catchments, and therefore require measures to manage water around or through the laydowns. The laydown areas will be constructed by filling directly over undisturbed ground, including filling in low lying areas that collect water. The laydown areas will be constructed utilizing blasted rock with granular topping to a total maximum thickness of 1 m. Fill will be sourced from existing quarries and borrow pits.

3.1.2 Proposed Location of the Structure

The locations of the three laydown areas are shown in Figure 1. Laydown LP2 is south of the camp site infrastructure and tank farm. Laydown areas LP3 and LP5 are located south of the ore stockpiles to the west of the site access road.

3.1.3 Identification of any Potential Impacts to the Receiving Environment

These activities are consistent with previous construction activities at Milne Port. Potential impacts of the activity have been assessed in the FEIS (Table 1).

The laydowns will add to the disturbance footprint but are within the existing Milne Port PDA. Ponded water will be displaced and drainages will be rerouted; none of the ponds or drainages are fish-bearing but eventually report to Phillips Creek which is fish-bearing. Construction of the laydown areas involves additional earthworks, which presents a risk of sedimentation of local watercourses that will be managed through implementation of the Environmental Protection Plan and Surface Water and Aquatic Ecosystems Management Plan. Aggregate will be extracted from existing approved quarries and borrow pits in accordance with approved quarry management plans.

3.1.4 Monitoring

Periodic environmental inspections will be conducted during construction of the laydown areas and associated water management features by Baffinland's Environmental personnel in conjunction with the Contractor's Health, Safety and Environment Lead. Inspections will ensure that Contractors are complying with the conditions of the Type A Water Licence (in particular Part D, Conditions Applying to Construction and Operation) and Baffinland's management plans and procedures. Inspections will be documented by taking photos and using Baffinland's environmental inspection forms. This includes inspections and photos before and after the work, and during the course of the work to document any deficiencies. Documented deficiencies will be forwarded to the responsible Contractor for corrective action.

Baffinland will prepare a Construction Summary Report for the modifications described in this request, in accordance with Part D, Item 17 of the Type A Water Licence. The Construction Summary Report will include the information specified in Schedule D of the Licence.

3.1.5 Schedule for Construction

Construction is expected to begin 60 days following submission of this modification request in accordance with Part G Item 1 of the Type A Water Licence, or upon written approval from the Board in accordance with Part G Item 2. The work is expected to be completed before the end of the 2018 sealift season.

3.1.6 Drawings of Engineered Structures

The following engineering documents provide details on the water management plans related to the laydown areas:

- Attachment 2 - Civil Design Philosophy (Doc. No. H353004-00000-200-210-0001)
- Attachment 3 – Milne Port Water Management Plan (Doc. No. H353004-40000-200-210-0001)
- Attachment 4 – Milne Port Water Management Drawing (Doc. No. H353004-40000-220-272-0006-0001)

3.1.7 Proposed Sediment and Erosion Control Measures

Baffinland will implement the water management features presented in Attachment 3 to convey water around or through the laydown areas at Milne Port. Sediment and erosion control measures to address sedimentation concerns (check dams, rip-rap, silt fences, etc.) will be implemented during construction in accordance to Baffinland's Environmental Protection Plan (Baffinland, 2016a) and Surface Water and Aquatic Ecosystems Management Plan (Baffinland, 2016b). No sediment or erosion control measures are expected to be required once construction has been completed.

3.2 MINE SITE WASTE ROCK SEDIMENTATION POND IMPROVEMENTS (2018 WORK PLAN ITEM NO. 5)

3.2.1 Description of Facilities and/or Works to be Constructed

Baffinland will build a water treatment system (WTS) for the Mine Site waste rock stockpile sedimentation pond. The WTS will adjust the pH and remove suspended solids from waste rock stockpile runoff collecting in the current sedimentation pond before discharge to the environment. The water treatment process includes coagulation, pH adjustment and precipitation, flocculation, and filtration.

The treatment plant will consist of two trains, each designed to treat maximum flow rate of 140 m^3/h, with a total treatment capacity of 280 m^3/h. Raw water from the existing storage pond will be pumped to the treatment plant with two diesel trash pumps, each rated for 140 m^3/h. Suction intake piping to the pumps will consist of floating intake pipe with screen, located in the feed collection pond. Each train will consist of three reactor onion tanks. These tanks will be self-supporting type with heavy duty air or foam collar for self-rising. The tanks will be installed on a protective laydown.

Three chemical dosing systems will be provided, one each for ferric sulfate, hydrated lime, and polymer. The ferric sulfate and lime makeup systems will be manual, while the polymer makeup system will be automated.

Chemically conditioned water will flow by gravity in heavy-duty, polyurethane lay flat hose to the geotextile tube laydown area. Clarified effluent from the geotubes will flow by gravity to an effluent sump, and two diesel trash pumps will pump the effluent from the sump to the final discharge point. If water quality does not meet the effluent limits, the treated water will be pumped back to the raw water holding pond for retreatment.

3.2.2 Proposed Location of the Structure

The WTS will be located at the existing waste rock stockpile (Figure 2).

3.2.3 Identification of any Potential Impacts to the Receiving Environment

Operation of the water treatment plant will provide a net benefit in improving the quality of the effluent being discharged from the waste rock sedimentation pond at monitoring station MS-08, and will ensure compliance with the Type A Water Licence. Sludge will be disposed of in the landfill in accordance with the Waste Management Plan (Baffinland, 2017a).

3.2.4 Monitoring

Periodic environmental inspections will be conducted during construction of the water treatment system by Baffinland's Environmental personnel in conjunction with the Contractor's Health, Safety and Environment Lead. Inspections will ensure that Contractors are complying with the conditions of the Type A Water Licence (in particular Part D, Conditions Applying to Construction and Operation) and Baffinland's management plans and procedures. Inspections will be documented by taking photos and using Baffinland's environmental inspection forms. This includes inspections and photos before and after the work, and during the course of the work to document any deficiencies. Documented deficiencies will be forwarded to the responsible Contractor for corrective action.

Baffinland will prepare a Construction Summary Report for the modifications described in this request, in accordance with Part D, Item 17 of the Type A Water Licence. The Construction Summary Report will include the information specified in Schedule D of the licence.

The plant operator will monitor the performance of the WTS and will collect end of pipe water quality samples to ensure the discharged water meets discharge limits. Monitoring of the WTS will range from every few hours to monthly, depending on the component of the WTS that is being monitored. Monitoring of the final (treated) effluent quality at MS-08 will be carried out in accordance with the Type A Water Licence.

3.2.5 Schedule for Construction

Construction is expected to begin 60 days following submission of this modification request in accordance with Part G Item 1 of the Type A Water Licence, or upon written approval from the Board in accordance with Part G Item 2. The work is expected to be completed before the onset of freshet in June 2018.

3.2.6 Drawings of Engineered Structures

The following engineering document provides details on the WTS:

- Attachment 5 – Mine Site Waste Rock Stockpile Design Basis Memorandum (Golder, 2018).

3.2.7 Proposed Sediment and Erosion Control Measures

Baffinland will employ a combination of sediment and erosion control measures as outlined in Baffinland's Environmental Protection Plan (Baffinland, 2016a) and Surface Water and Aquatic Ecosystems Management Plan (Baffinland, 2016b), to address and manage sedimentation concerns during installation of the water treatment system.

The WTS will address operational sedimentation issues by reducing TSS in the effluent prior to discharge.

3.3 TRUCK SHOPS (2018 WORK PLAN ITEM NO. 8)

3.3.1 Description of Facilities and/or Works to be Constructed

A mine truck shop will be constructed at the Mine Site that consists of two truck bays:

- A dual purpose wash and lube bay
- A general repair and maintenance bay.

The mine truck shop includes an overhead crane, external tool crib, parts storage, and HVAC modules, reinforced concrete building foundation, concrete floor slab and sump(s). The mine truck shop is currently being tendered; vendor specifications require that the truck wash system will be designed for a high degree of reliability, minimal maintenance, and no contaminant release during servicing. The wash system will include the following components:

- Hose reel stations with de-mucking high pressure hoses
- Water recycling system
- Water treatment system
- Settled solid removal system
- Water heaters
- Supply tanks and pumps
- Biodegradable chemical/soap dosing system
- Modularized tanks, pumps and treatment system
- Raw water supply tank, pumps and discharge hold tank.

Preference shall be given to equipment incorporating clean plant design features that minimize the accumulation and effect of contaminants.

A truck shop will be constructed at Milne Port that consists of:

- A wash bay
- A general repair and maintenance bay.

The truck shop will be a modular concept unit with an attached water treatment facility. The building will be made of a combination of structural aluminum and high strength steel. The modular structure will be approximately 31 m in length comprised of a drive through 2 bay system, with overhead crane, interior tool crib, storage and heaters. The portable wash system will include the following components:

- Water recycling system
- Water treatment system
- Automated lower sides and undercarriage chassis wash with recycled water
- Manual 1 inch hoses with firefighting assault nozzles using recycled water
- Two high pressure Titan wash wands using recycled water
- Two high pressure wands using potable or raw water as cold water rinse
- Settled solid removal system
- Water heaters
- Supply tanks and pumps
- Biodegradable chemical/soap dosing system
- Raw water supply tank, pumps and discharge hold tank.

A conveyor tank will scrap slurry to roll of bins or totes on demand. The conveyor will run while a truck is being washed and will continue to run based on adjustable time-delay off relay control. Flocculent will be injected to aid in settling. The conveyor tank holds 28 m^3 of water/slurry and mud is removed constantly.

The water in both truck shops will be recycled, however the treated effluent will be sampled and trucked and discharged at the effluent discharge location as needed.

3.3.2 Proposed Location of the Structure

The Mine Site mine truck shop will be located on the north side of the mine haul road, on the east side of the crusher pad facilities (Figure 2). The Port Site truck shop will be located in the main services area (Figure 1).

3.3.3 Identification of any Potential Impacts to the Receiving Environment

This is an optimization consistent with the Approved Project and the potential impacts of the activity have been assessed in the FEIS (Table 1).

The proposed location of the Mine Site truck shop is an area of the PDA that is already disturbed. Construction of the mine truck shop involves some additional earthworks and grading, which presents a risk of sedimentation of local watercourses that will be managed through implementation of the Environmental Protection Plan and Surface Water and Aquatic Ecosystems Management Plan.

The proposed location of the Milne Port truck shop is in an already disturbed area of the PDA. No additional potential impacts are anticipated resulting from the construction of the truck shop.

3.3.4 Monitoring

Periodic environmental inspections will be conducted during construction of the truck shops by Baffinland's Environmental personnel in conjunction with the Contractor's Health, Safety and Environment Lead. Inspections will ensure that Contractors are complying with the conditions of the Type A Water Licence (in particular Part D, Conditions Applying to Construction and Operation) and Baffinland's management plans and procedures. Inspections will be documented by taking photos and using Baffinland's environmental inspection forms. This includes inspections and photos before and after the work, and during the course of the work to document any deficiencies. Documented deficiencies will be forwarded to the responsible Contractor for corrective action.

Baffinland will prepare a Construction Summary Report for the modifications described in this request, in accordance with Part D, Item 17 of the Type A Water Licence. The Construction Summary Report will include the information specified in Schedule D of the licence.

3.3.5 Schedule for Construction

Construction is expected to begin 60 days following submission of this modification request in accordance with Part G Item 1 of the Type A Water Licence, or upon written approval from the Board in accordance with Part G Item 2. The work is expected to be completed before the end of 2018.

3.3.6 Drawings of Engineered Structures

The following general arrangements provide details on the truck shops:

- Attachment 6a – Mine Site Truck Shop General Arrangement (DWG No. H353004-18000-220-272-0001-0001)
- Attachment 6b – Milne Port Truck Shop and Portable Water Treatment System

3.3.7 Proposed Sediment and Erosion Control Measures

Baffinland will employ a combination of sediment and erosion control measures (check dams, rip-rap, silt fences, etc.), as outlined in Baffinland's Environmental Protection Plan (Baffinland, 2016a) and Surface Water and Aquatic Ecosystems Management Plan (Baffinland, 2016b), to address and manage sedimentation concerns during construction. No sediment or erosion control measures are expected to be required once construction has been completed.

3.4 MILNE PORT ROAD UPGRADES (2018 WORK PLAN ITEM NO. 25)

3.4.1 Description of Facilities and/or Works to be Constructed

To improve traffic management and allow for offloading and transport of materials on the 2018 sealift, Baffinland intends to construct a new access road connecting the freight dock to the laydown areas. The access road will be located entirely within the Milne Port PDA. Road construction will include leveling and grading of the ground surface, and the placement of fill and final surfacing material, as well as ditches, berms and culverts as required, consistent with the Milne Port Water Management works outlined in Section 3.5. Fill materials will come from existing quarries and borrow pits. The roads will be built to Baffinland's existing civil design criteria for roads.

3.4.2 Proposed Location of the Structure

The proposed freight dock access road location is shown on Figure 1.

3.4.3 Identification of any Potential Impacts to the Receiving Environment

These activities are consistent with previous construction activities at Milne Port, and represent modifications of existing infrastructure. Potential impacts of the activity have been assessed in the FEIS (Table 1).

The access road will add to the disturbance footprint but remains within the existing Milne Port Potential Development Area (PDA). Ponded water will be displaced and drainages will be rerouted consistent with the Milne Port Water Management works detailed in Section 3.5; none of the ponds or drainages are fish-bearing but eventually report to Phillips Creek which is fish-bearing during open water. The roads will be constructed in accordance with the Roads Management Plan (Baffinland, 2016c). The potential risks of sediment entering local watercourses will be managed through implementation of the Environmental Protection Plan (Baffinland, 2016a) and Surface Water and Aquatic Ecosystems Management Plan (Baffinland, 2016b). Aggregate will be extracted from existing approved quarries and borrow pits in accordance with approved quarry management plans.

3.4.4 Monitoring

Periodic environmental inspections will be conducted by Baffinland's Environmental personnel in conjunction with the Contractor's Health, Safety and Environment Lead. Inspections will ensure that Contractors are complying with the conditions of the Type A Water Licence (in particular Part D, Conditions Applying to Construction and Operation) and Baffinland's management plans and procedures. Inspections will be documented by taking photos and using Baffinland's environmental inspection forms. This includes inspections and photos before and after the work, and during the course of the work to document any deficiencies. Documented deficiencies will be forwarded to the responsible Contractor for corrective action.

Baffinland will prepare a Construction Summary Report for the modifications described in this request, in accordance with Part D, Item 17 of the Type A Water Licence. The Construction Summary Report will include the information specified in Schedule D of the licence.

3.4.5 Schedule for Construction

Construction is expected to begin 60 days following submission of this modification request in accordance with Part G Item 1 of the Type A Water Licence, or upon written approval from the Board in accordance with Part G Item 2. The work is expected to be completed before the end of 2018.

3.4.6 Drawings of Engineered Structures

The following engineering documents provide details on the water management plan related to the Milne Port access roads:

- Attachment 2 - Civil Design Philosophy (Doc. No. H353004-00000-200-210-0001)
- Attachment 3 – Milne Port Water Management Plan (Doc. No. H353004-40000-200-210-0001)
- Attachment 4 – Milne Port Water Management Drawing (Doc. No. H353004-40000-220-272-0006-0001)

3.4.7 Proposed Sediment and Erosion Control Measures

Baffinland will employ a combination of sediment and erosion control measures (check dams, rip-rap, silt fences, etc.), as outlined in the Environmental Protection Plan (Baffinland, 2016a) and Surface Water and Aquatic Ecosystems Management Plan (Baffinland, 2016b), to address and manage sedimentation concerns during construction. The Roads Management Plan (Baffinland, 2016c) will apply during and post construction.

3.5 MILNE PORT WATER MANAGEMENT (2018 WORK PLAN ITEM NO. 26)

3.5.1 Description of Facilities and/or Works to be Constructed

Improvements to Milne Port water management are proposed, with the objective of keeping water from coming into contact with Milne Port infrastructure. This will include the construction of berms, ditches, culverts and ponds to divert water around and through developed areas, including roads and laydown areas.

The key water management feature to be constructed is a diversion berm located to the east of the old Tote Road alignment (Figure 1). Diversion channels and ditching (with culverts where necessary to allow for traffic) are proposed. A portion of the water management features are in relation to the three laydown areas (LP2, LP3, and LP5) described in Section 3.1.

3.5.2 Proposed Location of the Structure

The Milne Port water management improvements will occur throughout the Milne Port PDA, as shown on Figure 1.

3.5.3 Identification of any Potential Impacts to the Receiving Environment

This is an optimization consistent with the Approved Project and the potential impacts of the activity have been assessed in the FEIS (Table 1).

The proposed water management features will reduce the interaction of water with project infrastructure. This should lead to an overall improvement in the water quality of site runoff that reports to either Phillips Creek or Milne Inlet. Since none of the directly affected drainages are fish-bearing, the redirection of flows within the site will have no effect on fish and fish habitat. Potential impacts of the activity have been assessed in the FEIS (Table 1).

3.5.4 Monitoring

Periodic environmental inspections will be conducted by Baffinland's Environmental personnel in conjunction with the Contractor's Health, Safety and Environment Lead. Inspections will ensure that Contractors are complying with the conditions of the Type A Water Licence (in particular Part D, Conditions Applying to Construction and Operation) and Baffinland's management plans and procedures. Inspections will be documented by taking photos and using Baffinland's environmental inspection forms. This includes inspections and photos before and after the work, and during the course of the work to document any deficiencies. Documented deficiencies will be forwarded to the responsible Contractor for corrective action.

Baffinland will prepare a Construction Summary Report for the modifications described in this request, in accordance with Part D, Item 17 of the Type A Water Licence. The Construction Summary Report will include the information specified in Schedule D of the licence.

3.5.5 Schedule for Construction

Construction is expected to begin 60 days following submission of this modification request in accordance with Part G Item 1 of the Type A Water Licence, or upon written approval from the Board in accordance with Part G Item 2. The work is expected to be completed before the end of 2018.

3.5.6 Drawings of Engineered Structures

The following engineering documents provide details on the water management plan at Milne Port:

- Attachment 2 - Civil Design Philosophy (Doc. No. H353004-00000-200-210-0001)
- Attachment 3 – Milne Port Water Management Plan (Doc. No. H353004-40000-200-210-0001)
- Attachment 4 – Milne Port Water Management Drawing (Doc. No. H353004-40000-220-272-0006-0001)

3.5.7 Proposed Sediment and Erosion Control Measures

Baffinland will employ a combination of sediment and erosion control measures (check dams, rip-rap, silt fences, etc.), as outlined in the Environmental Protection Plan (Baffinland, 2016a) and Surface Water and Aquatic Ecosystems Management Plan (Baffinland, 2016b), to address and manage sedimentation concerns during construction. Regular maintenance of the installed water management features will be required to ensure they continue to function as intended.

3.6 MILNE PORT EFFLUENT DISCHARGE POINT RELOCATION (2018 WORK PLAN ITEM NO. 27)

3.6.1 Description of Facilities and/or Works to be Constructed

The Milne Port effluent discharge point will be relocated to the existing barge landing area. The effluent discharge point will continue to discharge into Milne Inlet.

3.6.2 Proposed Location of the Structure

The effluent discharge point will be relocated to the western portion of the barge landing area at coordinates N7976518 E504044. The proposed location is shown on Figure 1.

3.6.3 Identification of any Potential Impacts to the Receiving Environment

This is an optimization consistent with the Approved Project and the potential impacts of the activity have been assessed in the FEIS (Table 1).

Other than minor ground disturbance associated with installing the new effluent discharge pipeline and decommissioning the old pipeline, the impacts to the receiving environment will be unchanged. Minor grading works have the potential to cause erosion and the release of sediment into Milne Inlet. The works will be carried out in accordance with the Environmental Protection Plan (Baffinland, 2016a) and the Surface Water and Aquatic Ecosystems Management Plan (Baffinland, 2016b).

3.6.4 Monitoring

Periodic environmental inspections will be conducted by Baffinland's Environmental personnel in conjunction with the Contractor's Health, Safety and Environment Lead. Inspections will ensure that Contractors are complying with the conditions of the Type A Water Licence (in particular Part D, Conditions Applying to Construction and Operation) and Baffinland's management plans and procedures. Inspections will be documented by taking photos and using Baffinland's environmental inspection forms. This includes inspections and photos before and after the work, and during the course of the work to document any deficiencies. Documented deficiencies will be forwarded to the responsible Contractor for corrective action.

Baffinland will prepare a Construction Summary Report for the modifications described in this request, in accordance with Part D, Item 17 of the Type A Water Licence. The Construction Summary Report will include the information specified in Schedule D of the licence.

3.6.5 Schedule for Construction

Construction is expected to begin 60 days following submission of this modification request in accordance with Part G Item 1 of the Type A Water Licence, or upon written approval from the Board in accordance with Part G Item 2. The work is expected to be completed before the end of 2018.

3.6.6 Drawings of Engineered Structures

Figure 1 shows the new location of the effluent discharge pipeline and final discharge point. As-built drawings will be filed with the NWB following construction.

3.6.7 Proposed Sediment and Erosion Control Measures

Baffinland will employ a combination of sediment and erosion control measures (check dams, rip-rap, silt fences, etc.), as outlined in the Environmental Protection Plan (Baffinland, 2016a) and Surface Water and Aquatic Ecosystems Management Plan (Baffinland, 2016b), to address and manage sedimentation concerns during construction. No sediment or erosion control measures are expected to be required once construction has been completed.

3.7 MILNE PORT MARINE FUEL MANIFOLD BUILDING RELOCATION (2018 WORK PLAN ITEM NO. 29)

3.7.1 Description of Facilities and/or Works to be Constructed

The marine manifold building will be relocated from its current location west of the fuel tank farm to a new location at the existing barge landing (Figure 1). To facilitate the relocation minor leveling and grading will take place within the PDA.

3.7.2 Proposed Location of the Structure

The new location for the marine fuel manifold building is shown on Figure 1.

3.7.3 Identification of any Potential Impacts to the Receiving Environment

This is an optimization consistent with the Approved Project and the potential impacts of the activity have been assessed in the FEIS (Table 1).

This upgrade is expected to improve the safety and efficiency of marine fuel delivery for the Project. Minor grading works have the potential to cause erosion and the release of sediment into Milne Inlet. The works will be carried out in accordance with the Environmental Protection Plan (Baffinland, 2016a) and the Surface Water and Aquatic Ecosystems Management Plan (Baffinland, 2016b).

3.7.4 Monitoring

Periodic environmental inspections will be conducted by Baffinland's Environmental personnel in conjunction with the Contractor's Health, Safety and Environment Lead. Inspections will ensure that Contractors are complying with the conditions of the Type A Water Licence (in particular Part D, Conditions Applying to Construction and Operation) and Baffinland's management plans and procedures. Inspections will be documented by taking photos and using Baffinland's environmental inspection forms. This includes inspections and photos before and after the work, and

during the course of the work to document any deficiencies. Documented deficiencies will be forwarded to the responsible Contractor for corrective action.

Baffinland will prepare a Construction Summary Report for the modifications described in this request, in accordance with Part D, Item 17 of the Type A Water Licence. The Construction Summary Report will include the information specified in Schedule D of the licence.

3.7.5 Schedule for Construction

Construction is expected to begin 60 days following submission of this modification request in accordance with Part G Item 1 of the Type A Water Licence, or upon written approval from the Board in accordance with Part G Item 2. The work is expected to be completed before the end of 2018.

3.7.6 Drawings of Engineered Structures

The new location is shown on Figure 1. As-built drawings will be filed with the NWB following construction.

3.7.7 Proposed Sediment and Erosion Control Measures

Baffinland will employ a combination of sediment and erosion control measures (check dams, rip-rap, silt fences, etc.), as outlined in the Environmental Protection Plan (Baffinland, 2016a) and Surface Water and Aquatic Ecosystems Management Plan (Baffinland, 2016b), to address and manage sedimentation concerns during construction. No sediment or erosion control measures are expected to be required once construction has been completed.

3.8 MINE HAUL ROAD CROSS CUT AND WIDENING

3.8.1 Description of Facilities and/or Works to be Constructed

Baffinland will construct a new haul road to access the Nuluujaak pit starting at approximately KM108. The road will travel up the east face of the mountain from the existing haul road to the pit. The entire mine haul road will be widened from KM104 to KM110 by approximately 8.5 m on average to allow for larger truck traffic to pass safely.

The construction of the new pit access road will significantly increase production capacity by decreasing ore haul cycle time, as well as improving site safety by providing a secondary access road to the pit. The road design specifications are as follows:

- 1,400 m in length at an approximate 10% gradient
- Starting from 620 metres above sea level (masl) going to 485 masl
- Minimum 25 m road width
- Crowned at 4.5% from center
- 3 m high berm on downhill side
- ~275,000 m^3 fill
- ~27,000 m^3 cut
- ~758,000 m^2 of disturbed area.

The following water management structures will be implemented with the road:

- 1 m deep ditch on uphill side

- 2 rock cut ditch sections, 785 m long and 285 m long for upper and lower section respectively
- 1 connecting ditch section 400 m long
- 1 twinned culvert installed to allow the existing mine haul road ditch to flow under the new access road.

The volume and flow of water will not change once it has reached downstream of the mine haul road. The main discharge points will be the culverts located at KM107 and KM106.5.

To accommodate larger Caterpillar 793 mine haul trucks that will be deployed beginning in Q4 2018, the mine haul road must be widened from the existing 18.3 m minimum width up to 25 m minimum width. The road widening specifics are as follows:

- 6,200 m in length of road widening at an approximate 10% gradient
- Includes:
  - Entirety of the existing mine haul road for ~5,500 m
  - 2 access roads to crusher for ~500 m
  - Single lane access to maintenance shop for ~200 m
- Minimum 25 m road width
- Crowned at 4.5% from center
- 3 m high berm on down-hill side
- All widening on downslope side of road
- Maximum of 10 m offset from existing road centerline
- ~550,000 m^3 fill, 2,000 m^3 cut.

The following water management structures will be implemented with the road widening:

- Maintaining existing mine haul road ditch
- Build up current running surface where existing ditch depth is insufficient (> 1 m deep)
- Extend 6 sets of existing twinned culverts
- Possibility to extend old culverts if found to still be functional
- Upgrade outflow structures of existing culverts.

Widening of the existing haul road will not change the volume or flow of downstream watercourses. There are no additional culverts being installed; any culvert extensions are to existing culverts only.

3.8.2 Proposed Location of the Structure

The new haul road will begin at KM108 and meet the pit near the south mining face (Figure 2). The widening will encompass the entire existing mine haul road.

3.8.3 Identification of any Potential Impacts to the Receiving Environment

This is an optimization consistent with the Approved Project and the potential impacts of the activity have been assessed in the FEIS (Table 1).

The haul road will add to the disturbance footprint but remains within the existing Mine Site PDA. Construction of the laydown areas involves additional earthworks, which presents a risk of sedimentation of local watercourses that will be managed through implementation of the Environmental Protection Plan and Surface Water and Aquatic Ecosystems Management Plan. Aggregate will be extracted from existing approved quarries and borrow pits in accordance with approved quarry management plans.

3.8.4 Monitoring

Periodic environmental inspections will be conducted by Baffinland's Environmental personnel in conjunction with the Contractor's Health, Safety and Environment Lead. Inspections will ensure that Contractors are complying with the conditions of the Type A Water Licence (in particular Part D, Conditions Applying to Construction and Operation) and Baffinland's management plans and procedures. Inspections will be documented by taking photos and using Baffinland's environmental inspection forms. This includes inspections and photos before and after the work, and during the course of the work to document any deficiencies. Documented deficiencies will be forwarded to the responsible Contractor for corrective action.

Baffinland will prepare a Construction Summary Report for the modifications described in this request, in accordance with Part D, Item 17 of the Type A Water Licence. The Construction Summary Report will include the information specified in Schedule D of the licence.

3.8.5 Schedule for Construction

Construction of the new haul road will begin in July 2018 and will be completed in December 2018, with extension of existing culverts planned for September 2018. Mine haul road widening will begin in January 2019 and it anticipated to be completed in December 2019.

3.8.6 Drawings of Engineered Structures

The following engineering documents provide details on the water management plans at the Mine haul road:

- Attachment 2 - Civil Design Philosophy (Doc. No. H353004-00000-200-210-0001)
- Attachment 7 - Nuluujaak Pit Haul Road Construction Memo (Baffinland, 2018b).

Detailed drawings are provided in Attachment 7, including three plan view drawings of the proposed widening and additional haul road, and drawing typicals for culverts, ditches and sediment traps specific to the haul road.

3.8.7 Proposed Sediment and Erosion Control Measures

Baffinland will employ a combination of sediment and erosion control measures (check dams, rip-rap, silt fences, etc.), as outlined in the Environmental Protection Plan (Baffinland, 2016a) and Surface Water and Aquatic Ecosystems Management Plan (Baffinland, 2016a), to address and manage sedimentation concerns during construction. Additional typical drawings of culvert installations, ditches and sediment traps are provided with Attachment 7.

4 – CLOSURE

We trust that this information meets the requirements under Part G under Baffinland's Type A Water Licence and look forward to the NWB's response. Please do not hesitate to contact the undersigned should you have any questions or comments.

Regards,

Christopher Murray,
Environmental & Regulatory Compliance Manager

Cc:
David Hohnstein, (Nunavut Water Board)
Stephen Williamson Bathory (Qikiqtani Inuit Association)
Jonathan Mesher, Ian Parsons, Karen Costello (Indigenous and Northern Affairs Canada)
Solomon Amuno (Nunavut Impact Review Board)
Todd Burlingame, Megan-Lord Hoyle, Timothy Ray Sewell, Andrew Vermeer (Baffinland)

ATTACHMENTS

1	Site Layouts
2	Civil Design Criteria
3	Milne Port Water Management Plan
4	Milne Port Water Management Drawing
5	Mine Site Waste Rock Stockpile Water Treatment System Design Basis Memorandum
6a	Mine Site Truck Shop General Arrangement
6b	Milne Port Truck Shop and Portable Water Treatment System
7	Mine Haul Road Construction Memorandum

REFERENCES:

Baffinland, 2012. *Mary River Project - Final Environmental Impact Statement*. February.

Baffinland, 2013. *Mary River Project - Addendum to the Final Environmental Impact Statement for the Early Revenue Phase*. June.

Baffinland Iron Mines Corporation (Baffinland), 2016a. *Environmental Protection Plan*. Doc. No. BAF-PH1-830-P16-0008, Rev. 1, August 30, 2016.

Baffinland Iron Mines Corporation (Baffinland), 2016b. *Surface Water and Aquatic Ecosystems Management Plan*. Doc. No. BAF-PH1-830-P16-0026, Rev.4, March 17, 2016.

Baffinland Iron Mines Corporation (Baffinland), 2016c. *Roads Management Plan*. Doc. No. BAF-PH1-830-P16-0023, Rev. 5, March 16, 2016.

Baffinland Iron Mines Corporation (Baffinland), 2017a. *Waste Management Plan*. Doc. No. BAF-PH1-830-P16-0028, Rev. 5, March 29, 2017.

Baffinland Iron Mines Corporation (Baffinland), 2018a. *2018 Work Plan*. Rev. 1 dated January 10, 2018.

Baffinland Iron Mines Corporation (Baffinland), 2018b. *Nuluujaak Pit Haul Road Construction.* Internal Memorandum dated January 23, 2018.

Golder Associates Ltd., 2018. *Baffinland Iron Mines – Mary River Project Waste Rock Pile Facility – Design Basis Memorandum – Waste Rock Pile Water Treatment Facility.* Ref. No. 1665556 (DOC001_Rev 0), January 31, 2018.

Nunavut Impact Review Board (NIRB), 2018. *Process for Seeking Approval for Modifications to Previously-Approved Projects*. Memorandum dated February 14, 2018 issued to the Nunavut Wide Distribution List.

Attachment 1

Site Layouts

SAVED: I:\1\02\00181\43\A\Acad\FIGS\B21_r0, 3/8/2018 11:05:48 AM , MDEMERS PRINTED: 3/8/2018 11:07:06 AM, Layout1, MDEMERS
XREF FILE(S): X-C-TOPO-MILN-INDEX; X-C-TOPO-MILN-SITE-LAY; X-C-TOPO-MINE-MILN-FROM-OTHRS-FEB21-18 IMAGE FILE(S): 170929 - Tote Rd KM 2 to 5 Laydowns_reduced Rev C GIS Baffinland Logo ERASE milne port changes - feb 21-2018

602 200 E
602 800 E
503 400 E
504 000 E
504 600 E
505 200 E

7 976 300 N
7 975 700 N
7 975 100 N
7 974 500 N
7 973 900 N
7 973 300 N
7 972 700 N

MILNE INLET
PHILLIPS CREEK

FORESHORE LEASE BOUNDARY
ORE DOCK
PROPOSED FREIGHT DOCK
EXISTING MARINE MANIFOLD TO BE RELOCATED
FUEL TANK FARM
SERVICE AREA
ORE STOCKPILES
WATER MANAGEMENT BERM
LP2
RELOCATED FACILITIES
P-SWD-3
EXISTING CULVERT
NEW CULVERTS
LAND FARM
SNOW DUMP
RIDGE
MAINTENANCE BUILDING
NEW CULVERT
RIDGE
IMPERMEABLE GEOMEMBRANE TO BE INSTALLED WHERE STANDING SURFACE WATER COMES INTO CONTACT WITH LAYDOWN AREA
CAMP PAD
W10A
W10B
EXISTING TOTE ROAD SIDE DRAIN
P-SWD-5
DAYLIGHT DITCH
NEW CULVERT
LP3
LP5
EXISTING CULVERTS TO BE BLOCKED OFF
LP7
P-SWD-6
NEW CULVERT
TOTE ROAD (OLD ALIGNMENT)
TOTE ROAD (NEW ALIGNMENT)
COMMERCIAL LEASE BOUNDARY
COMMERCIAL LEASE BOUNDARY
TOTE ROAD
HTO CABIN
EXISTING CULVERT
P-SWD-7
RELOCATED EFFLUENT AND FUEL PIPELINES
CAMP SITE INFRASTRUCTURE

(27) RELOCATION OF EFFLUENT DISCHARGE POINT
(29) MARINE FUEL MANIFOLD BUILDING RELOCATION
(8) TRUCK SHOP
(1) MILNE PORT LAYDOWN AREAS (LP2, LP3, LP5)
(25) PORT SITE ROAD UPGRADES
(26) PORT SITE WATER MANAGEMENT

SCALE A 120 60 0 200 400 600 m

LEGEND:

- WATER
- BORROW AREAS
- QUARRY AREA
- PERMITTED LAYDOWN AREA
- PROPOSED LAYDOWN AREA
- ROAD
- RIVER/STREAM/DRAINAGE
- EXISTING DRAINAGE
- NEW DRAINAGE
- QIA SURFACE COMMERCIAL LEASE IMPACT BOUNDARY
- POTENTIAL DEVELOPMENT AREA BOUNDARY
- FORESHORE LEASE BOUNDARY

NOTES:

1. COORDINATE GRID IS UTM NAD83 ZONE 17N.
2. TOPOGRAPHY PROVIDED BY EAGLE MAPPING (2005).
3. CONTOUR INTERVAL IS 10 METRES.

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	08MAR'18	ISSUED WITH TRANSMITTAL	RAC	MMD	CM

Baffinland

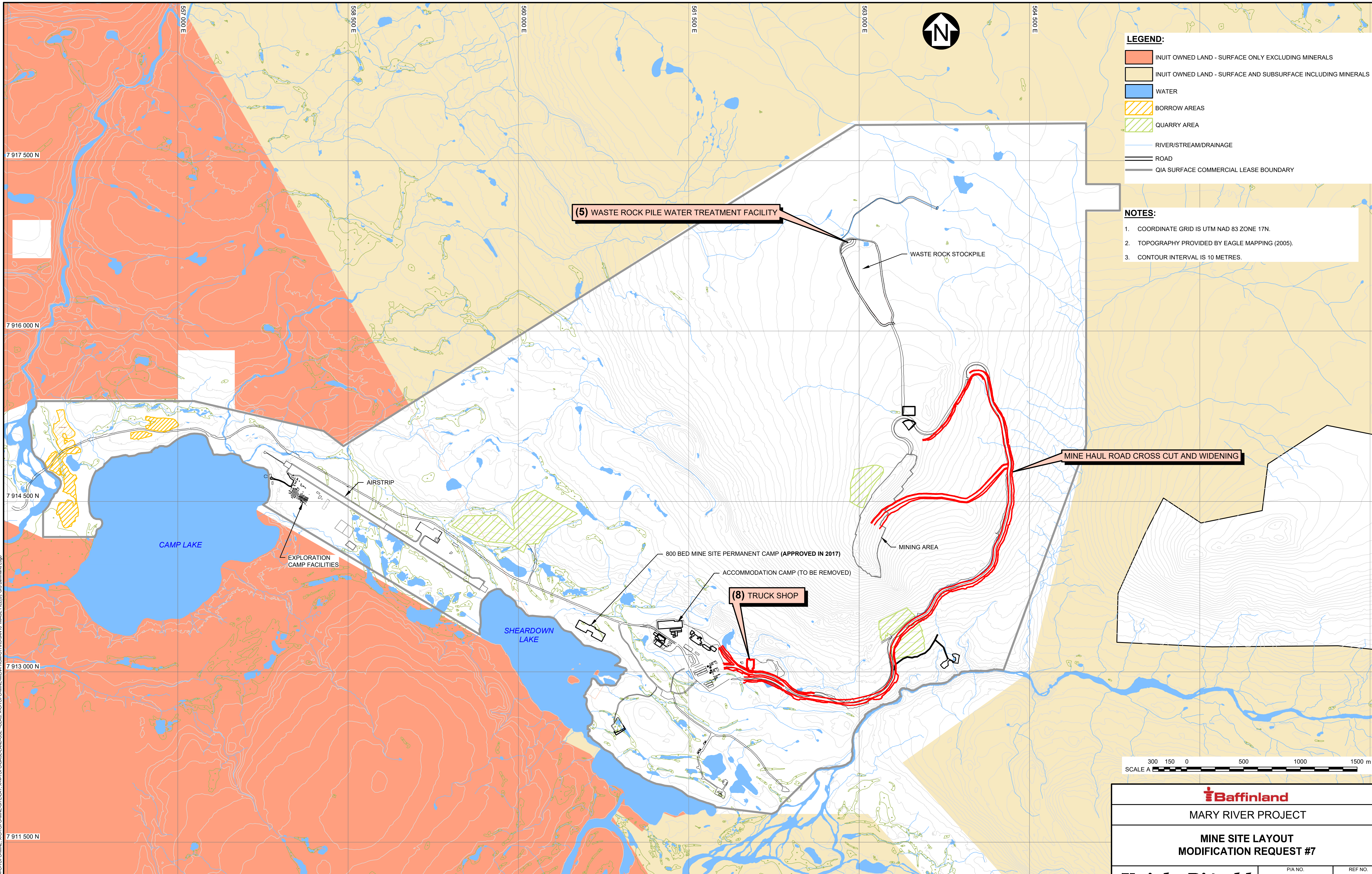
MARY RIVER PROJECT

MILNE PORT LAYOUT MODIFICATION REQUEST #7

Knight Piésold CONSULTING

P/A NO.	REF NO.
NB102-181/43	NB18-00145

FIGURE 1 REV 0


557 000 E
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561 500 E
563 000 E
564 500 E
7 917 500 N
7 916 000 N
7 914 500 N
7 913 000 N
7 911 500 N
N
LEGEND:
INUIT OWNED LAND - SURFACE ONLY EXCLUDING MINERALS
INUIT OWNED LAND - SURFACE AND SUBSURFACE INCLUDING MINERALS
WATER
BORROW AREAS
QUARRY AREA
RIVER/STREAM/DRAINAGE
ROAD
QIA SURFACE COMMERCIAL LEASE BOUNDARY
NOTES:
1. COORDINATE GRID IS UTM NAD 83 ZONE 17N.
2. TOPOGRAPHY PROVIDED BY EAGLE MAPPING (2005).
3. CONTOUR INTERVAL IS 10 METRES.
(5) WASTE ROCK PILE WATER TREATMENT FACILITY
WASTE ROCK STOCKPILE
MINE HAUL ROAD CROSS CUT AND WIDENING
MINING AREA
AIRSTRIP
CAMP LAKE
EXPLORATION CAMP FACILITIES
800 BED MINE SITE PERMANENT CAMP (APPROVED IN 2017)
ACCOMMODATION CAMP (TO BE REMOVED)
(8) TRUCK SHOP
SHEARDOWN LAKE
300 150 0 500 1000 1500 m
SCALE A

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	08MAR'18	ISSUED WITH TRANSMITTAL	RAC	MMD	CM

Baffinland

MARY RIVER PROJECT

MINE SITE LAYOUT
MODIFICATION REQUEST #7

Knight Piésold CONSULTING

P/A NO.	REF NO.	REV
NB102-181/43	NB18-00145	0

FIGURE 2