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October 08, 2018

Assol Kubeisinova
Technical Advisor, Nunavut Water Board
P.O. Box 119
Gjoa Haven, Nunavut
X0B 1J0

Re: Issued for Construction Drawings Submission for Run of Mine Stockpile and Sedimentation Pond, Mary River Project - Type 'A' Water Licence 2AM-MRY1325 – Amend. No. 1

Dear Assol Kubeisinova,

This letter represents the Qikiqtani Inuit Association's (QIA) response to the Nunavut Water Board (NWB) request¹ for involved parties to provide comments regarding Baffinland Iron Mines Corporation's (Baffinland) submission of drawings and documents in accordance with Part D, Item 2 of the Type 'A' Water Licence 2AM-MRY-1325 (the Licence) for the Run of Mine Stockpile and Sedimentation Pond submitted on September 21, 2018. The NWB requested that representations be submitted before October 8, 2018, 5:00 pm Mountain Standard Time. QIA recommendations can be found in Table 1 attached to this letter.

QIA is willing to discuss this letter and the Lease obligations with you and your staff at a time that is mutually agreeable.

Sincerely,

Fai Ndofo
Regulatory Manager

¹ NWB (2018). Email titled: 180924 2AM-MRY1325 Distribution Review & Comment Request-OLAE. Sent by Ida Porter on September 24, 2018.



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² Knight Piesold Consulting (2018). KM107 Stockpile Access Road and Runoff Management Designs. September 18, 2018.



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ID	Relevant section and statement from Baffinland's Letter and Design Brief ²	QIA Comment/Recommendation
	earthworks in 2018. As a result, in the event reclamation of the earthworks associated with the ROM Stockpile would be required prior to the end of 2018, adequate security would be in place to complete the reclamation.	
4	Design Brief Section 4.7 Diversion Berms. The Diversion Berms were sized by treating the space between the berm's upstream slope and the stockpile slope (or the natural ground) as the two sides of a trapezoidal channel, with a base width of approximately 0.5 m. A freeboard depth of 0.3 m was included in the berm sizing to account for minor variations in the berm cross section and grade following construction.	Does the NWB consider the information provided is enough to confirm that the diversion berms are able to collect all runoff water from the Run of Mine Stockpile and demonstrated reporting on how it will meet Water Licence criteria? It is unclear if the water from the Run of Mine Stockpile is considered effluent from the perspective of MMER. QIA believes this water should be considered effluent under the Water Licence and needs to be managed and demonstrated to be within Licence compliance limits prior to discharge.
5	Design Brief Section 5.3 Materials and Parameters. This generalized stratigraphy has been adopted for the stability analysis. The thickness of the Glacial Till layer is not known and is expected to range from 0 m to greater than 10 m. The strength of the foundation is expected to increase with depth through the permafrost and into the bedrock. It is likely that the strength of the upper till layers within the active zone will control the stability of the embankments. As such, the stability models incorporate thick zones of Glacial Till and evaluated the FoS for potential slip surfaces through the Glacial Till layer only. The stability models assume that the Glacial Till consists of well graded	Baffinland to confirm if a geotechnical investigation of the subsurface has been completed in the vicinity of the proposed construction that can substantiate if this assumption is reasonable?



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	Sand and Gravel, and that massive ice is not present.	
6	Design Brief Section 5.4 Results. Slow, steady creep of the Access Road and Sedimentation Pond embankments may occur if the ice rich materials or massive ice are present within the foundation soils. As such, regular monitoring is required to track the deformation and movement of the embankments, if any. Additional fill placement and surface grading may be necessary depending on the magnitude of the observed deformations.	Baffinland to confirm how they plan to include this in a monitoring plan or document to capture the need to collect and analyze this geotechnical information?
7	Design Brief Section 6.4 Foundation Preparation. It is unknown whether the foundation soils are ice rich or contain massive ice. For the purposes of this design, we assume that the foundation materials are not ice rich and do not contain massive ice. Provided that the amount of organics and unsuitable material on the ground surface is negligible, disturbance to the original ground (excavation, scarifying, etc.) should be minimized so as to not impact current permafrost conditions. The foundations must be maintained clear of snow, ponded water and ice.	Baffinland to include confirmation drilling to assess foundation stability, ice richness, and the presence of massive ice.
8	Design Brief Section 6.4 Foundation Preparation. The foundation must be approved and documented by the supervising Engineer prior to fill placement.	Baffinland to include this information in as-built documentation.
9	Design Brief Section 6.10 Construction Quality Assurance/Quality Control (QA/QC). It is assumed that a qualified Baffinland engineer will oversee and document construction of the Access	Baffinland to include each outcome from each of these in the as-built documentation.



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	Road, Sedimentation Pond and associated runoff management measures Geosynthetic materials and culverts will be installed as per the manufacturer's specifications and recommendations. The geosynthetics contractor will be responsible for performing and documenting the geosynthetics QC program. Qualified Baffinland personnel will be responsible for conducting the QC testing and inspections required on all placed and compacted fill materials	Baffinland to provide the frequency and type of QC testing and inspection required on all placed and compacted fill materials.
10	Design Brief Section 7.0 Inspections and Maintenance. KM107 Stockpile material placement and runoff management will need to be closely monitored during operation of the stockpile area, including use of the Access Road, and operation of the Sedimentation Pond and runoff management measures. The Sedimentation Pond will need to be emptied in a timely manner following a storm event or during freshet such that the pond is empty during normal operating conditions. Ongoing inspections and maintenance will be required to ensure that each of these structures are being operated as designed and that the Diversion Berms, culverts, and Sedimentation Pond water removal system and emergency overflow spillway are performing as designed.	Recommended that the Sedimentation Pond be equipped with survey prisms for deformation monitoring. This data would need to be reviewed and assessed by a qualified professional engineer for performance suitability.



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³ Canadian Dam Association (2013). Dam Safety Guidelines 2007 (2013 Edition). 2013.