



SCREENING DECISION REPORT NIRB FILE No.: 19UN013

Related to NIRB File Nos.: 19WA006, 13UN034
NPC File No.: 149007
NWB Water Licence: 3AM-IQA1626 Amendment No.1
DFO Authorization 18-HCAA-01025

April 17, 2019

Following the Nunavut Impact Review Board's (NIRB or Board) assessment of all materials provided, the NIRB is recommending that a review of City of Iqaluit's "Apex River Drinking Water Supply" is not required pursuant to Article 12, Section 12.4.4(a) of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement)* and s. 92(1)(a) of the *Nunavut Planning and Project Assessment Act*, S.C. 2013, c. 14, s. 2 (NuPPAA).

Subject to the Proponent's compliance with the terms and conditions as set out in below, the NIRB is of the view that the project proposal is not likely to cause significant public concerns, and it is unlikely to result in significant adverse environmental and social impacts. The NIRB therefore recommends that the responsible Minister accepts this Screening Decision Report.

OUTLINE OF SCREENING DECISION REPORT

- 1) REGULATORY FRAMEWORK
- 2) PROJECT REFERRAL
- 3) PROJECT OVERVIEW & THE NIRB ASSESSMENT PROCESS
- 4) ASSESSMENT OF THE PROJECT PROPOSAL IN ACCORDANCE WITH PART 3 OF NuPPAA
- 5) VIEWS OF THE BOARD
- 6) RECOMMENDED PROJECT-SPECIFIC TERMS AND CONDITIONS
- 7) MONITORING AND REPORTING REQUIREMENTS
- 8) OTHER NIRB CONCERNS AND RECOMMENDATIONS
- 9) REGULATORY REQUIREMENTS
- 10) CONCLUSION
- 11) APPENDIX A: SPECIES AT RISK IN NUNAVUT
- 12) APPENDIX B: ARCHAEOLOGICAL AND PALAEONTOLOGICAL RESOURCES TERMS AND CONDITIONS FOR LAND USE PERMIT HOLDERS

The primary objectives of the NIRB are set out in Article 12, Section 12.2.5 of the *Nunavut Agreement* and are confirmed by s. 23 of the *NuPPAA*:

Nunavut Agreement, Article 12, Section 12.2.5: In carrying out its functions, the primary objectives of NIRB shall be at all times to protect and promote the existing and future well-being of the residents and communities of the Nunavut Settlement Area, and to protect the ecosystemic integrity of the Nunavut Settlement Area. NIRB shall take into account the well-being of the residents of Canada outside the Nunavut Settlement Area.

The purpose of screening is provided for under Article 12, Section 12.4.1 of the *Nunavut Agreement* and s. 88 of the *NuPPAA* which states:

NuPPAA, s. 88: The purpose of screening a project is to determine whether the project has the potential to result in significant ecosystemic or socio-economic impacts and, accordingly, whether it requires a review by the Board...

To determine whether a review of a project is required, the NIRB is guided by the considerations as set out under Article 12, Section 12.4.2(a) and (b) of the *Nunavut Agreement* and s. 89(1) of *NuPPAA* which states:

NuPPAA, s. 89(1): The Board must be guided by the following considerations when it is called on to determine, on the completion of a screening, whether a review of the project is required:

- (a) a review is required if, in the Board's opinion,
 - i. the project may have significant adverse ecosystemic or socio-economic impacts or significant adverse impacts on wildlife habitat or Inuit harvest activities,
 - ii. the project will cause significant public concern, or
 - iii. the project involves technological innovations, the effects of which are unknown; and
- (b) a review is not required if, in the Board's opinion,
 - i. the project is unlikely to cause significant public concern, and
 - ii. its adverse ecosystemic and socioeconomic impacts are unlikely to be significant, or are highly predictable and can be adequately mitigated by known technologies.

It is noted that under Article 12, Section 12.4.2(c) and s. 89(2) of the *NuPPAA* provides that the considerations set out in s.89(1)(a) prevail over the considerations set out in s. 89(1)(b) of the *NuPPAA*.

As set out under Article 12, Section 12.4.4 of the *Nunavut Agreement* and s. 92(1) of the *NuPPAA*, upon conclusion of the screening process, the Board must provide its written report the Minister. The contents of the NIRB's report are specified under *NuPPAA*:

NuPPAA, s. 92(1): The Board must submit a written report to the responsible Minister containing a description of the project that specifies its scope and indicating that:

- (a) a review of the project is not required;
- (b) a review of the project is required; or
- (c) the project should be modified or abandoned.

Where the NIRB determines that a project may be carried out without a review, the NIRB has the discretion to recommend specific terms and conditions to be attached to any approval of the project proposal pursuant to paragraph 92(2)(a) of *NuPPAA* as follows:

NuPPAA, s. 92(2) In its report, the Board may also

- (a) recommend specific terms and conditions to apply in respect of a project that it determines may be carried out without a review.

PROJECT REFERRAL

On January 11, 2019 the Nunavut Impact Review Board (NIRB or Board) received a referral to screen The City of Iqaluit's "Apex River Drinking Water Supply" project proposal from the Nunavut Planning Commission (NPC or Commission). The NPC noted that the project proposal is outside the area of an applicable regional land use plan and is to amend the City of Iqaluit's existing Type A Water licence No. 3AM-IQA1626. The NPC determined that the project proposal was a significant modification as it involved the renewal of the emergency authorization to withdraw up to 500,0000 cubic metres (m³) of water annually from the Apex River (NIRB File No. 19WA006) (the Emergency Pumping Program) and to pump this water overland to the Lake Geraldine reservoir during open-water conditions, as needed until a permanent, long-term solution to the shortage of drinking water supply is implemented; and to the increase of the amount of water proposed to be withdrawn from Lake Geraldine from 1,100,000 m³ to 2,000,000 m³.

Pursuant to Article 12, Sections 12.4.1 and 12.4.4 of the *Nunavut Agreement* and s. 87 of the *NuPPAA*, the NIRB commenced screening this project proposal and assigned it file number **19UN013**.

PROJECT OVERVIEW & THE NIRB ASSESSMENT PROCESS

1. Application to NIRB

On February 13, 2019 the NIRB accepted the Proponent's online application and commenced screening pursuant to Part 3 of the *NuPPAA*.

2. Project Scope

All documents received and pertaining to this project proposal can be accessed from the NIRB's online public registry at www.nirb.ca/project/125429.

The proposed "Apex River Drinking Water Supply" project proposal is located within the Qikiqtani region (South Baffin), within the municipal boundaries of the City of Iqaluit. The Proponent intends to conduct water transfer via pumping from the Apex River to the Lake

Geraldine Reservoir to meet the City of Iqaluit's water requirements (the Proposal or the Project). The Project is proposed to take place from July 2019 to June 2026.

As required under s. 86(1) of the *NuPPAA*, the Board accepts the scope of the "Apex River Drinking Water Supply" project proposal as set out by the City of Iqaluit in the project proposal. The scope of the project proposal includes the following undertakings, works, or activities:

- Withdrawal of up to 500,000 cubic metres (m³) of water annually from the Niaqunguk (Apex) River and surrounding watershed to supplement the Lake Geraldine reservoir;
- Use of up to three (3) submersible pumps in the Niaqunguk (Apex) River for water withdrawal;
- Use of a 100 kilowatt (kW) generator to power the pumps;
- Use of up to 540 litres of diesel per day for the generator;
- Use of flexible hose or pipe laid overland from pumps to Lake Geraldine Reservoir;
- Use of an excavator to install pumps and hose;
- Use of existing municipal roads and trails; and
- Use of facilities in the City of Iqaluit.

3. Inclusion or Exclusion to Scoping List

The NIRB has identified no additional works or activities in relation to the project proposal. As a result, the NIRB proceeded with screening the project based on the scope as described above.

4. Key Stages of the Screening Process

The following key stages were completed:

Date	Stage
January 11, 2019	Receipt of project proposal from the NPC
February 13, 2019	Acceptance of Online Application and scoping pursuant to s. 86(1) of the <i>NuPPAA</i>
February 14, 2019	Public engagement and comment request
March 7, 2019	Receipt of public comments
March 8, 2019	Proponent provided with an opportunity to address comments/concerns raised by public
March 21, 2019	Proponent responded to comments/concerns raised by public
March 26, 2019	Ministerial extension requested from the Minister of Intergovernmental Affairs and Northern Affairs and Internal Trade

5. Public Comments and Concerns

Notice regarding the NIRB's screening of this project proposal was distributed on February 14, 2019 to community organizations in Iqaluit, as well as to relevant federal and territorial government agencies, Inuit organizations and other parties. The NIRB requested that interested parties review the proposal and provide the Board with any comments or concerns by March 7, 2019 regarding:

- Whether the project proposal is likely to arouse significant public concern; and if so, why;

- Whether the project proposal is likely to cause significant adverse eco-systemic or socio-economic effects; and if so, why;
- Whether the project proposal is likely to cause significant adverse impacts on wildlife habitat or Inuit harvest activities; and if so, why;
- Whether the project proposal is of a type where the potential adverse effects are highly predictable and mitigable with known technology, (and providing any recommended mitigation measures); and
- Any matter of importance to the Party related to the project proposal including if a Review is required any additional factors that should be considered as part of that process.

On or before March 7, 2019 the NIRB received comments from the following interested parties (see Comments and Concerns section below):

- **Government of Nunavut (GN)**
 - Department of Culture and Heritage
 - Department of Environment
 - Department of Health
 - Nunavut Research Institute (NRI)
- **Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)**
- **Environment and Climate Change Canada (ECCC)**
- **Fisheries and Oceans Canada – Fisheries Protection Program (DFO-FPP)**
- **Dr. Alex Medeiros, Dalhousie University**
- **Robert Carveth**

On March 8, 2019, due to the substantive concerns and questions identified in the comments, the NIRB provided an opportunity for the Proponent to respond to the concerns raised during the public commenting period. The Proponent provided a response to concerns on March 21, 2019.

On March 29, 2019, the NIRB received additional comments from:

- **Dr. Alex Medeiros, Dalhousie University**

a. Summary of Public Comments and Concerns Received during the Public comment period of this file

The following is a *summary* of the comments and concerns received during the public comment period for this file:

- **Government of Nunavut**
 - Recommends that an archaeological field assessment should be conducted along the pipe route;
 - Recommends that a clear assessment be done of the residual effects of the proposed water withdrawal from the Niaqunguk (Apex) River;
 - Requests that the Proponent provide a written overview describing its long-term solution to the City of Iqaluit's water shortage including various alternative options;
 - Recommends that the Proponent address the results presented by Bakaic and Medeiros (2016) and Bakaic *et al* (2018) and explain how the predictions of that research relate to the findings of Golder and Associates (2018 and 2013).

- Recommends that the Proponent coordinate with the Water Survey of Canada to ensure that data from the new gauge upstream of the withdrawal site is publicly available;
 - Recommends an explanation as to why approval is being sought until 2026 and that NIRB should consider whether this is necessary or if a shorter period may be more appropriate; and
 - Proponent should confirm with HTA and other local organizations whether the Niaqunguk River is an important commercial recreational aboriginal (CRA) fishery.
- **Crown-Indigenous Relations and Northern Affairs Canada**
 - Recommends information regarding consultation (comments and feedback) with the Amaruq Hunters and Trappers Association (HTA) and residents of Iqaluit and Apex be provided;
 - Recommends that the Proponent provide an alternatives assessment that explains why pumping water from Apex River to supplement Lake Geraldine is the most suitable option to address annual water shortages until a more permanent solution can be implemented;
 - Recommends that the NIRB include terms and conditions:
 - that would require the Proponent to cease withdrawal from the Apex River if the DFO withdrawal parameters cannot be met and for pumping to continue only under the advisement of DFO; and
 - with regards to fuel and hazardous waste use, and spill response.
- **Environment and Climate Change Canada**
 - No comments or concerns at this time.
- **Fisheries and Oceans Canada**
 - No concerns with the project as proposed pursuant to the fisheries protection provisions of the *Fisheries Act* and the relevant prohibitions of the *Species at Risk Act*;
 - Notes that if the proposed Project is implemented in the manner, and during the timeframe described, the Project is unlikely to result in serious harm to fish or prohibited effects on listed aquatic species at risk; and
 - Notes that the Proponent must notify DFO-FPP if they cause, or about to cause serious harm to fish.
- **Dr. Alex Medeiros**
 - Has been actively researching the Lake Geraldine watershed since 2005;
 - Supplied a peer-reviewed publication (Bakaic, M., Medeiros, A. S., Peters, J. F., & Wolfe, B.B. (2018). Hydrologic monitoring tools for freshwater municipal planning in the Arctic: the case of Iqaluit, Nunavut, Canada. *Environmental Science and Pollution Research*, 25(33), 32913-32925.) that includes data and discussion that is able to inform and forecast the effect of the supplemental withdrawal of water from the Apex River that contradicts the efficacy of the project proposal;

- Notes that the Apex River contains a resident population of Arctic Char (resident and anadromous) and that the community uses the Apex River for drinking water and recreational purposes (camping and fishing);
- Notes the amount of water proposed to be withdrawn exceeds the threshold of established fish-bearing waters as set out by DFO¹;
- Calculations of instantaneous withdrawal necessary to supplement Lake Geraldine would have an 80% probability of exceedance of the maximum flow of the Apex River during low flow periods based on measured data available;
- Recommends the Project be rejected outright;
- Identifies that data proposed in response from the City of Iqaluit was the exact same data as calculated and published in a peer-reviewed scientific article;
- Recreates the plot that the City of Iqaluit included in the project proposal, and notes that although the City of Iqaluit's conclusion regarding the volume of water available is correct, but that the curve on the City of Iqaluit's plot is incorrect;
- Identifies concern that the City of Iqaluit would be pumping a notable amount of water out of a small river and not getting a worthwhile extension to the drinking water supply;
- Notes that the figure provided only represents 2008 data and does not account for dry years, cold winters, or any other variable that could compromise the water supply (i.e. infrastructure); and
- Notes comments from a community member during a community consultation of the extreme importance of the small river to a local fishery, Inuit and the community.

▪ **Robert Carveth**

- Expresses that the Proponent will have to pump water beyond 2026 as the City is getting bigger; and
- Provides suggestions to the Mayor on water saving initiatives (e.g., mandatory dual flush toilets and recycling of bath and shower water for flushing toilets).

b. Comments and Concerns with respect to Inuit Qaujimaningit, Traditional, and Community Knowledge

The following is a summary of the comments and concerns received with respect to Inuit Qaujimaningit, traditional and community knowledge:

▪ **Dr. Alex Medeiros**

- Notes that the Apex River contains a resident population of Arctic Char (resident and anadromous) and that the community uses the Apex River for drinking water and recreational purposes (camping and fishing).

¹ "The Department of Fisheries and Oceans Canada outline cumulative flow alterations of >30% [greater than 30%] of the mean annual discharge have a heightened risk of environmental impact." (Medeiros, submitted comments). However, DFO states "Cumulative flow alterations that result in instantaneous flows <30% [less than 30%] of the mean annual discharge (MAD) have a heightened risk of impacts to fisheries." (DFO, http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2013/2013_017-eng.html).

6. Proponent's Response to Public Comments and Concerns

The following is a summary of the Proponent's response to concerns as received on March 21, 2019:

- The Proposal meets criteria established by DFO for water withdrawal that are protective of riverine ecosystems, namely not withdrawing more than 10% of instantaneous flow, and not withdrawing water unless flows are greater than 30% of the mean annual discharge;
- The original proposal for the Emergency Pumping Program included a contingency of exceeding these criteria only if necessary, but the City of Iqaluit is now withdrawing the contingency of pumping at a rate that exceeds DFO criteria;
- The Proponent is withdrawing its proposed Fish and Fish Habitat Monitoring Plan noting that this Plan should not be required because the withdrawals are not intended to exceed DFO criteria;
- The Proponent notes that the Proposal would not exceed the threshold for low probability of detectable impacts, nor the threshold for heightened risk of impacts to fisheries, and therefore no further assessment [of the residual effects] should be required;
- The Proponent notes that Niaqunguk (Apex River) was previously identified as a potential source of supplemental water in the Iqaluit General Plan (By-law #703; Fotenn, 2010), and was protected under this plan; and further studies of Niaqunguk (Apex River) as a temporary supplemental water source, if not long-term additional water source have been conducted;
- The Proponent notes that studies were done in 2014 that found that the Apex River can meet the City's supplementation requirements if there are no requirements to maintain minimum flow in the River; that conclusion was premised on the assumption that there is no commercial or recreational fishery, but the City of Iqaluit has since changed this assumption to a more conservative/protective approach by committing to maintain minimum flows where possible;
- The Proponent also notes that they successfully completed a similar supplementation program in 2018, without serious harm to the resident population of Arctic char;
- The Proponent reports that during the Emergency Pumping Program, the rate of withdrawal exceeded DFO criteria by 10-18% on 10 of the 33 days of pumping, triggering additional monitoring of fish and fish habitat;
- In contrast to the Emergency Pumping Program, the (withdrawal) rates proposed in the Proposal will be based and adjusted (daily) according to observed flows, in order to remain below the DFO criteria;
- The Proponent explains how Mean Annual Discharge (MAD) was calculated for open water season and provides the analysis conducted; based on this analysis the Proponent concludes that water withdrawal within the accepted ecological limits established by DFO can be achieved;
- The Proponent notes that climate change effects were not considered in this analysis – due to the short-term nature of the permit application timeframe (7 years), internal natural climatological and hydrological variability is expected to govern effects, rather than effects resulting from climate change extremes;
- A new hydrometric station will be installed at the proposed pumping location to obtain site-specific flow information;

- The Proponent is studying the feasibility of using three permanent supplemental potable water sources: The Sylvia Grinnell River, Unnamed Lake, and the Apex River;
- Desalinization of seawater through reverse osmosis process is not being considered due to its high cost;
- Task teams with the City are improving the potential for future water shortages through various efforts such as:
 - Monitoring of water demand usage and comparing with historical levels.
 - Instituting a Drinking Water Management Program aimed at engaging the public in order to address excess water usage, while continuing to promote water wise practices.
 - Monitoring and addressing water leaks within the water distribution system once they are identified.
 - Continued development of an asset management program aimed at addressing both short and long term Utilidor (water distribution) issues.
 - Investigation of a viable long-term water supplementation solution for the Lake Geraldine water reservoir.
- The Proponent identifies that it has provided opportunity for the residents and businesses in the City of Iqaluit to comment on the Proposal (Dec 2018) and met with Amaruq HTA in February 2019 and included an Engagement Plan and Record;
- The Proponent notes that, to date, it did not receive any comments from residents, business, council or HTA that raise concerns about cultural significance [of the Apex River]; and
- The Proponent will be providing an update on water supply/conservation initiatives during an upcoming Public Works and Engineering public meeting on April 17, 2019.

7. Time of Report Extension

As a result of the time required to allow parties sufficient time to comment on the project as well as the time granted to let the Proponent provide a response to the comments, the NIRB was not able to provide its screening decision report to the responsible Minister within 45 days as required by Article 12, Section 12.4.5 of the *Nunavut Agreement* and s. 92(3) of the *NuPPAA*. Therefore, on March 26, 2019 the NIRB wrote to the Minister of Intergovernmental Affairs and Northern Affairs and Internal Trade, Government of Canada, seeking an extension to the 45-day timeline for the provision of the Board's Report.

ASSESSMENT OF THE PROJECT PROPOSAL IN ACCORDANCE WITH PART 3 OF *NuPPAA*

In determining whether a review of the project is required, the Board considered whether the project proposal had potential to result in significant ecosystemic or socio-economic impacts.

Accordingly, the assessment of impact significance was based on the analysis of those factors that are set out under s. 90 of the *NuPPAA*. The Board took particular care to take into account Inuit Qaujimaningit, traditional and community knowledge in carrying out its assessment and determination of the significance of impacts.

The following is the Board's assessment of the factors that are relevant to the determination of significant impacts with respect of this project proposal:

1. *The size of the geographic area, including the size of wildlife habitats, likely to be affected by the impacts.*

The proposed withdrawal of up to 500,000 cubic metres (m³) of water annually from the Niaqunguk (Apex) River and surrounding watershed to supplement the Lake Geraldine reservoir may affect habitat for small mammals and migratory and non-migratory birds, and fish and fish habitat. Due to the proximity of the Project to the City of Iqaluit and ongoing human activity of the area, it is unlikely there will be significant additional disturbance to large mammals such as caribou or Species at Risk such as Polar Bear from the undertaking of the proposed Project.

2. *The ecosystemic sensitivity of that area.*

The proposed Project would occur in an area with no particular identified ecosystemic sensitivity. However, this area has been identified as having value and priority to the local community for:

- i. Recreation;
- ii. Camping;
- iii. Drinking Water; and
- iv. Fish.

3. *The historical, cultural and archaeological significance of that area.*

No specific areas of historical, cultural and archaeological significance have been identified by the Proponent or parties within the physical footprint of the proposed Project.

4. *The size of the human and the animal populations likely to be affected by the impacts.*

The residents of Iqaluit use the land and waters on or adjacent to the river for year-round outdoor recreational and traditional activities and drinking water management. The proximity of the proposed Project to the City of Iqaluit in general, and more specifically to an existing public access road used by the community to access the area year-round, demonstrates a level of human disturbance of the area. As the proposed Project would involve only intermittent access and use of the area by the same methods already used by the community, the additional activity generated by the Project would likely have limited potential to impact the same animal populations already affected by community use of the area, and with the intermittent use of the area, have the potential to intermittently impact the people visiting that area to use the land and resources.

The overlapping uses of the area for water withdrawal and traditional activities could, however, potentially contribute to public concern developing if the people using the area are unaware of the Project and are unaware that the Proposal is required for supplementing the City of Iqaluit's reservoir.

5. *The nature, magnitude and complexity of the impacts; the probability of the impacts occurring; the frequency and duration of the impacts; and the reversibility or irreversibility of the impacts.*

The proposed Project includes a withdrawal of up to 500,000 cubic metres (m³) of water annually from the Niaqunguk (Apex) River and surrounding watershed to supplement the Lake

Geraldine reservoir. A zone of influence of up to 20 km from the most potentially-disruptive project activities was selected for the NIRB's assessment. Based on past evidence from projects with a similar scope of activities, the potential adverse impacts are considered to be well-known, with potential for localized impacts to the biophysical environment that are mitigable with due care. With adherence to the relevant regulatory requirements and application of the mitigation measures recommended by the NIRB, no significant residual effects are expected to occur, provided water quantities withdrawn from the river are monitored and adjusted so as to maintain adequate flow.

In the event of overdraw of water, effects on the river ecosystem can be significant, resulting in fish stranding or death, and destruction of fish habitat, and the effects on the river ecosystem downstream of the pumping may be irreversible over the short term. The probability of such an event is dependant on the frequency of water monitoring carried out by the Proponent to adjust or cease pumping at low water levels, and on weather conditions determining the overall water levels in the Niaqunguk (Apex) River watershed.

It is noted that in the report on the 2018 Emergency Pumping Program², the Proponent recorded that it exceeded the 10% threshold of instantaneous flow approximately 1/3 of the total pumping days.

6. *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.*

The proposed project occurs in an area with a history of development including a road, known as The Road to Nowhere, and a bridge that crosses the Apex River. The proposed Project would occur in the same location as the Temporary/Emergency Supplemental Water Supply Project that was undertaken in 2018. The mitigation measures recommended by the NIRB have been designed with consideration for the potential for cumulative effects to result from the impacts of the project combined with other past, present and reasonably foreseeable projects.

Other past, present and reasonably foreseeable projects considered in this assessment:

NIRB Number	Project	Project Title	Project Type
<i>Past Projects</i>			
19WA006		Amendment to Water Licence for City of Iqaluit – 2018 Temporary/Emergency Supplemental Water Supply	Municipal and Industrial Development
13UN034		City of Iqaluit – Type A Water Licence Renewal	Infrastructure

7. *Any other factor that the Board considers relevant to the assessment of the significance of impacts.*

² NIRB File 19WA006, document 322778, www.nirb.ca/project/125439

The Final Report from the City of Iqaluit's "Temporary/Emergency Supplemental Water Supply" project³ provided information following the emergency withdrawal of water from the same river and noted that the water level went below the expected threshold but did not result in any observable impacts to fish down-stream. Further, the NIRB notes that in the project proposal and previous board determination on the Emergency Pumping Program that the increasing municipal demand for water is contributing to the long-term drawdown of the reservoir, reduced precipitation in recent years is contributing to the drawdown of the reservoir, and the community is considering ways to reduce water consumption by reducing leakage in the utilidor system, increasing water conservation initiatives, and planning for ongoing growth of the community.

Correspondence from Dr. Medeiros received March 29, 2019 argues that the Proponent's expectation of the amount of water that may be taken from the river safely will not provide sufficient recharging of Lake Geraldine.⁴ Medeiros also indicated that in a meeting with the local HTA, a concern regarding the health of the river was responded to by assuring residents that the river was "At this point, we are just studying the river"⁵ suggesting a lack of consultation regarding long-term pumping. However, review of the Proponent's notes of that meeting⁶ do not make it clear if the comment was regarding the Niaqunguk (Apex) River or the Sylvia Grinnel River.⁷

Despite the Proponent's plans to work on efficiency in community on water use, as well as understanding concerns from commenters on expectations of actual river water balance, the response to comments notes that they intend to keep the draw limits below the threshold to trigger monitoring under the DFO authorization. This lack of data would limit the information on actual drawdown and potential for observation of impacts which may further limit the Boards' information to draw conclusions on current activities and future recommendations on these activities or components.

Fish and Fish Monitoring

Niaqunguk (Apex) River is known to have Arctic Char that overwinter in the lower pools such as "Swimming Lake" (confirmed by Nunami in 2017). These fish have adapted to the natural variability of the river (natural flow regime). The Proponent has indicated it is withdrawing its proposed Fish and Fish Habitat Monitoring Plan noting that this type of Plan is not required if the withdrawal does not exceed DFO criteria of (10%) while pumping.⁸ The NIRB would recommend that the monitoring required under this Plan should still be carried out by the City of Iqaluit, as the Board would expect that significant alterations to the river flow at the limits of DFO thresholds (30% of MAD) may negatively impact the ecosystem and the supporting fish and fish habitat.

³ NIRB document 322778

⁴ NIRB document 323906, received March 29, 2019

⁵ NIRB document 323906

⁶ Proponent response to comments, Appendix A, NIRB document 323762

⁷ Based on context, it appears the discussion and concern primarily involved the Sylvia Grinnel River, with minimal concern expressed about potential effects on the Niaqunguk (Apex) River, however the material provided is insufficient to have certainty.

⁸ Response to comments, NIRB document 323762

Community Consultation

A review of the documents provided by the Proponent do not make it clear if adequate community consultation has taken place in respect of the proposed multi-year withdrawal from the Niaqunguk (Apex) River. While a meeting with the HTA is recorded, it appears no other public meetings have taken place, causing concern that consultation may have been insufficient to raise public awareness of the Proposal and also to solicit community comments and identify community concerns.

Community Land Use

Submissions from the Proponent and other parties have provided conflicting information regarding community use of the river for recreation and fishing activities.

Views of the Board

In considering the factors as set out above in the screening of the project proposal, the NIRB has identified a number of issues below and respectfully provide the following views regarding whether or not the proposed project has the potential to result in significant impacts. In addition, the NIRB has proposed terms and conditions that would mitigate the potential adverse impacts identified.

Ecosystem, wildlife habitat and Inuit harvesting activities:

Issue 1: Potential adverse effects to surface water quality as a result of negative impacts associated with water withdrawal activities via the pumping station; specifically, sedimentation and disturbance associated with the seasonal installation and removal of the water pumps and pipeline, as well as associated movement of machinery. Potential negative impacts could also occur from accidents and spills related to equipment and its re-fuelling.

Board views: There is the potential for the project to adversely impact surface water quality due to erosion and sedimentation from the seasonal installation and removal of the pumps and pipeline. The potential for sedimentation to occur is considered low, as the Proponent has committed to implementing specific erosion control measures with potential adverse effects anticipated to be low in magnitude, infrequent in occurrence and reversible in nature. For small spills, the consequences to the environment are low and the risk to the environment is therefore negligible. For a large spill, the consequences could be moderate to the environment if the spill cannot be adequately contained and recovered. The Proponent has a Spill Response Plan, which is a requirement of the Nunavut Water Board.

Recommended Mitigation Measures: The Board recommends terms and conditions 4, 5, 7 through 12, 18, 19-20 to mitigate potential adverse impacts to water quality.

Issue 2: Potential adverse impacts to fish and fish habitat (pools and overwintering habitat) from the drawdown of water from the Apex River.

Board views: There is the potential for the Project to negatively impact fish and fish habitat due to significantly large alterations in the water flow. In order to maintain fish populations

and habitat, monitoring of water levels and alteration of pumping rates, including cessation of pumping, will be necessary.

Noted Inuit Qaujimaningit, traditional or community knowledge: Information received varied, noting either no significant fishery or use of the river by the community. The local HTA, according to the Proponent, reported no fishery in the river below the proposed location of the pumps and little to no fish, with reported fish being small.

Recommended Mitigation Measures: As a result of the limited and conflicting information provided from the various sources (conformity determination, application, community sources), the Board recommends that the Proponent implement specific monitoring requirements noted in their proposed Fish and Fish Habitat Monitoring Program regardless of the drawdown levels, to ensure that monitoring of the river and water withdrawal activities takes place, and the Board recommends that this information be provided to the Board to more clearly inform mitigation measures for the ongoing water use in the area and any future applications by the Proponent. In addition, the Board recommends terms and conditions 4 and 5 to mitigate potential impacts to fish and fish habitat.

Issue 3: Potential adverse impacts to wildlife, and migratory and non-migratory birds from the noise from the pumping activities and transportation of equipment, materials and personnel to project site.

Board views: Potential for impacts is applicable to a very small geographic area and is limited due to the short period of seasonal pumping. There is potential for noise disturbance from the construction and operational activities that may disturb wildlife and migratory patterns, however due to the proximity of the pumping to the existing road and community as well as human use, this type of disturbance may already be occurring to wildlife in the area.

Recommended Mitigation Measures: The Board recommends terms and conditions 6, 7, 13 through 16, and 19-20 to mitigate potential adverse impacts to wildlife and wildlife habitats.

Issue 4: Potential adverse impact to ground stability, soil and vegetation health along the river bank from the installation and removal of the pumps and pipeline annually.

Board views: Installation and removal of the pumps and pipeline may cause degradation of terrain due to the use of heavy equipment causing rutting of the ground and river bank.

Recommended Mitigation Measures: The Board recommends terms and conditions 17 and 18 to mitigate potential adverse impacts to ground stability, soil and vegetation health.

Socio-economic effects on northerners:

Issue 5: Potential positive impacts to the local community from supplementing water to the Lake Geraldine reservoir and thereby ensuring a sufficient supply of water for residents over

the course of the winter season. Potential local contracting/employment opportunities would be generated from installing, monitoring, and removing pumps and hose/piping.

Board Views: Maintaining a water supply to support community needs is a necessity and as noted by the Proponent, at the current time the Niaqunguk (Apex) River is the only cost-effective method of replenishing the Lake Geraldine reservoir. The operation provides an opportunity for local employment or contracting of local businesses.

Recommended Mitigation Measures: The Board recommends term and condition 23 to maximize the potential of local hiring and contracting.

Significant public concern:

Issue 6: Public concerns were expressed during the public commenting period for the Proposal regarding long-term viability of the river as a water source for Lake Geraldine, community use of the river, and potential impacts on fish and fish habitat.

Board Views: Recognizing the previous consultation efforts of the City of Iqaluit included with the application and the response of the City of Iqaluit to comments received during the NIRB's screening, the Board recommends follow up consultation and involvement of local community members in project planning to mitigate any potential for significant public concern resulting from project activities. In addition, it is recommended that the Proponent considers hiring local residents to undertake project activities.

Recommended Mitigation Measures: The Board recommends term and condition 21 to ensure that the affected community and organizations are informed about the Project, and to provide the Proponent with an opportunity to proactively address or mitigate any concerns that may arise from the project activities findings, and term and condition 22 to minimize the potential of the Project from interfering with traditional activities.

Technological innovations for which the effects are unknown:

No specific issues have been identified associated with the Project.

Administrative Conditions:

To encourage compliance with applicable regulatory requirements and assist the Board and responsible authorities with compliance and effects monitoring for project activities, the following project-specific terms and conditions have been recommended: 1-3.

In considering the above factors and subject to the Proponent's compliance with the terms and conditions necessary to mitigate against the potential adverse environmental and social effects, the Board is of the view that the proposed project is unlikely to cause significant public concern and its adverse ecosystemic and socioeconomic impacts are unlikely to be significant, or are highly predictable and can be adequately mitigated by known technologies.

RECOMMENDED PROJECT-SPECIFIC TERMS AND CONDITIONS

The Board is recommending the following specific terms and conditions to apply in respect of the project:

General

1. City of Iqaluit (the Proponent) shall maintain a copy of the Project Terms and Conditions at the site of operation at all times.
2. The Proponent shall operate in accordance with all commitments stated in correspondence provided to the Nunavut Planning Commission (NPC File No.: 149007), to Fisheries and Oceans Canada (DFO Authorization No.: 18-HCAA-01025) and the NIRB (Online Application Form, January 11, 2019; Response to Comments, March 21, 2019).
3. The Proponent shall operate the site in accordance with all applicable Acts, Regulations and Guidelines.

Water Use

4. The Proponent shall ensure that water extraction from any fish-bearing waterbody is done with appropriate care and caution. The Proponent shall not extract water from any fish-bearing waterbody unless the water intake hose is equipped with a screen of appropriate mesh size to ensure that there is no entrapment of fish.
5. The Proponent shall not use water, including constructing or disturbing any stream, lakebed or the banks of any definable water course unless approved by the Nunavut Water Board.

Waste Disposal

6. The Proponent shall keep all garbage and debris in bags placed in a covered metal container or equivalent until disposed of at an approved facility. All such wastes shall be kept inaccessible to wildlife at all times.

Fuel and Chemical Storage

7. The Proponent shall store all fuel and chemicals in such a manner that they are inaccessible to wildlife.
8. Unless otherwise authorized, the Proponent shall locate all fuel and other hazardous materials a minimum of thirty-one (31) metres away from the high-water mark of any water body and in such a manner as to prevent their release into the environment.
9. The Proponent shall use adequate secondary containment or a surface liner (e.g., self-supporting insta-berms and fold-a-tanks) when storing fuel and chemicals at all locations.
10. The Proponent shall ensure that appropriate spill response equipment and clean-up materials (e.g., shovels, pumps, barrels, drip pans, and absorbents) are readily available during any transfer of fuel or hazardous substances, at all fuel storage sites and when refuelling equipment.
11. The Proponent shall remove and treat hydrocarbon contaminated soils on site or transport them to an approved disposal site for treatment.
12. The Proponent shall ensure that all personnel are properly trained in fuel and hazardous waste handling procedures, as well as spill response procedures. All spills of fuel or other deleterious

materials of any amount must be reported immediately to the 24-hour Spill Line at (867) 920-8130.

Wildlife - General

13. The Proponent shall ensure that there is no damage to wildlife habitat in conducting this operation.
14. The Proponent shall not harass wildlife. This includes persistently circling, chasing, hovering over pursuing or in any other way harass wildlife, or disturbing large groups of animals.
15. The Proponent shall ensure that all project personnel are made aware of the measures to protect wildlife and are provided with training and/or advice on how to implement these measures.

Migratory Birds and Raptors Disturbance

16. The Proponent shall not disturb or destroy the nests or eggs of any birds. If nests are encountered and/or identified, the Proponent shall take precaution to avoid further interaction and or disturbance (e.g., a 100 metres buffer around the nests). If active nests of any birds are discovered (i.e., with eggs or young), the Proponent shall avoid these areas until nesting is complete and the young have left the nest.

Ground Disturbance

17. The Proponent shall not move any equipment or vehicles unless the ground surface is in a state capable of fully supporting the equipment or vehicles without rutting or gouging. Overland travel of equipment or vehicles must be suspended if rutting occurs.
18. The Proponent shall implement suitable erosion and sediment suppression measures on disturbed areas before, during and after construction in order to prevent sediment from entering any water body.

Restoration of Disturbed Areas

19. The Proponent shall ensure that all disturbed areas are restored to a stable or pre-disturbed state as practical as possible upon completion of field work.
20. The Proponent shall complete all clean-up and restoration of the lands used prior to the end of each field season and/or upon abandonment of site.

Other

21. The Proponent should engage with local residents regarding planned activities in the area and should solicit available Inuit Qaujimaningit and information regarding current recreational and traditional usage of the project area which may inform project activities. Posting of translated public notices and direct engagement with potentially interested groups and individuals prior to undertaking project activities is strongly encouraged.
22. The Proponent shall ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities.
23. The Proponent should, to the extent possible, hire local people and access local services where possible.

MONITORING AND REPORTING REQUIREMENTS

In addition, the Board is recommending the following:

Annual Report

1. The Proponent shall submit an annual report to the Nunavut Impact Review Board, by March 31st of each year of permitted activities beginning March 31, 2020. The annual report must contain at least the following information:
 - a) A summary of activities undertaken for the year, including:
 - a map showing the locations of pump stations and fill lines;
 - amounts of water withdrawn;
 - any environmental monitoring undertaken;
 - observations of fish and other wildlife in the area;
 - if or when draw rates trigger the requirement for a DFO authorization, the Proponent will provide a summary of communication between agencies to provide notification of triggering and implementation of the associated Fish and Fish Habitat Monitoring Plan;
 - a description of local hires, contracting opportunities and initiatives; and
 - site photos.
 - b) A work plan for the following year, including descriptions of any planned progressive reclamation work undertaken;
 - c) A summary of community consultations undertaken throughout the year, providing a copy of materials presented to community members, a description of issues and concerns raised, discussions with community members and advice offered to the company as well as any follow-up actions that were required or taken to resolve any concerns expressed about the project proposal; and
 - d) A summary of how the Proponent has complied with conditions contained within this Screening Decision, and all conditions as required by other authorizations associated with the project proposal.

Spill Contingency Plan

2. The Proponent shall update its Spill Contingency Plan to include the up to date emergency contact numbers for the Government of Nunavut-Department of Environment, Manager of Environmental Protection (867-975-7748) and Environment and Climate Change Canada, Enforcement Branch (867-975-4644).

OTHER NIRB CONCERNS AND RECOMMENDATIONS

In addition to the project-specific terms and conditions, the Board is recommending the following:

Change in Project Scope

1. Responsible authorities or Proponent shall notify the Nunavut Planning Commission and the NIRB of any significant changes in operating plans or conditions associated with the Project prior to any such change.

Copy of licences, etc. to the Board and Commission

2. As per s. 137(4) of the *NuPPAA*, responsible authorities are required to submit a copy of each licence, permit or other authorization issued for the Project to the Nunavut Planning Commission and the NIRB. Please forward a copy of the licences, permits and/or other authorizations to the NIRB directly at info@nirb.ca or upload a copy to the NIRB's online registry at www.nirb.ca.

Species at Risk

3. The Proponent review Environment and Climate Change Canada's "Environment Assessment Best Practice Guide for Wildlife at Risk in Canada", available at the following link: http://www.sararegistry.gc.ca/virtual_sara/files/policies/EA%20Best%20Practices%202004.pdf. The guide provides information to the Proponent on what is required when Wildlife at Risk, including *Species at Risk*, are encountered or affected by the project.

Migratory Birds

4. The Proponent review Canadian Wildlife Services' "Key migratory bird terrestrial habitat sites in the Northwest Territories and Nunavut", available at the following link: <http://publications.gc.ca/site/eng/317630/publication.html> and "Key marine habitat sites for migratory birds in Nunavut and the Northwest Territories", available at the following link: <http://publications.gc.ca/site/eng/392824/publication.html>. The guide provides information to the Proponent on key terrestrial and marine habitat areas that are essential to the welfare of various migratory bird species in Canada.
5. For further information on how to protect migratory birds, their nests and eggs when planning or carrying out project activities, consult Environment and Climate Change Canada's Incidental Take web page and the fact sheet "Planning Ahead to Reduce the Risk of Detrimental Effects to Migratory Birds, and their Nests and Eggs" available at <http://www.ec.gc.ca/paom-itmb/>.

Nunavut Water Board

6. The Nunavut Water Board impose mitigation measures, conditions and monitoring requirements pursuant to the Water Licence, which require the Proponent to respect the sensitivities and importance of water in the area. These mitigation measures, conditions and monitoring requirements should address: the potential for effects associated with the use of water; spill contingency planning; abandonment and restoration planning; and monitoring programs.

Crown-Indigenous Relations and Northern Affairs Canada – Water Resources Division

7. CIRNAC – Water Resources Division is expected to exercise their authority to conduct regular inspections to assess compliance with the terms and conditions of the Water Licence under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* while the Project is in operation.

Fisheries and Oceans Canada

8. Fisheries and Oceans Canada should evaluate the effects on the fish and fish habitat of the river as a result of water extraction during periods when the river flow is below the Mean Annual Discharge and above the 30% threshold to determine if the existing guidelines are sufficient to prevent effects on the fish and fish habitat.

REGULATORY REQUIREMENTS

The Proponent is also advised that the following legislation may apply to the project:

Acts and Regulations

1. The *Fisheries Act* (<http://laws-lois.justice.gc.ca/eng/acts/F-14/index.html>).
2. The *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (<http://laws-lois.justice.gc.ca/eng/acts/n-28.8/>).
3. The *Migratory Birds Convention Act* and *Migratory Birds Regulations* (<http://laws-lois.justice.gc.ca/eng/acts/M-7.01/>).
4. The *Species at Risk Act* (<http://laws-lois.justice.gc.ca/eng/acts/S-15.3/index.html>).
5. The *Wildlife Act* (Nunavut) and its corresponding regulations (<http://www.canlii.org/en/nu/laws/stat/snu-2003-c-26/latest/snu-2003-c-26.html>).
6. The *Nunavut Act* (<http://laws-lois.justice.gc.ca/eng/acts/N-28.6/>).

CONCLUSION

The foregoing constitutes the Board's screening decision with respect to the City of Iqaluit's "Apex River Drinking Water Supply". The NIRB remains available for consultation with the Minister regarding this report as necessary.

Dated April 17, 2019 at Baker Lake, NU.



Marjorie Kaviq Kaluraq, Acting Chairperson

Attachments: Appendix A: Species at Risk in Nunavut
Appendix B: Archaeological and Palaeontological Resources Terms and Conditions for Land Use Permit Holders

APPENDIX A: SPECIES AT RISK IN NUNAVUT

Due to the requirements of Section 79(2) of the Species at Risk Act (SARA), and the potential for project-specific adverse effects on listed wildlife species and its critical habitat, measures should be taken as appropriate to avoid or lessen those effects, and the effects need to be monitored. Project effects could include species disturbance, attraction to operations and destruction of habitat. This section applies to all species listed on Schedule 1 of SARA, as listed in the table below, or have been assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), which may be encountered in the project area. This list may not include all species identified as at risk by the Territorial Government. The following points provide clarification on the applicability of the species outlined in the table.

- Schedule 1 is the official legal list of Species at Risk for SARA. SARA applies to all species on Schedule 1. The term “listed” species refers to species on Schedule 1.
- Schedule 2 and 3 of SARA identify species that were designated at risk by the COSEWIC prior to October 1999 and must be reassessed using revised criteria before they can be considered for addition to Schedule 1.
- Some species identified at risk by COSEWIC are “pending” addition to Schedule 1 of SARA. These species are under consideration for addition to Schedule 1, subject to further consultation or assessment.

If species at risk are encountered or affected, the primary mitigation measure should be avoidance. The Proponent should avoid contact with or disturbance to each species, its habitat and/or its residence. All direct, indirect, and cumulative effects should be considered. Refer to species status reports and other information on the species at risk Registry at <http://www.sararegistry.gc.ca> for information on specific species.

Monitoring should be undertaken by the Proponent to determine the effectiveness of mitigation and/or identify where further mitigation is required. As a minimum, this monitoring should include recording the locations and dates of any observations of species at risk, behaviour or actions taken by the animals when project activities were encountered, and any actions taken by the proponent to avoid contact or disturbance to the species, its habitat, and/or its residence. This information should be submitted to the appropriate regulators and organizations with management responsibility for that species, as requested.

For species primarily managed by the Territorial Government, the Territorial Government should be consulted to identify other appropriate mitigation and/or monitoring measures to minimize effects to these species from the project.

Mitigation and monitoring measures must be undertaken in a way that is consistent with applicable recovery strategies and action/management plans.

Schedules of SARA are amended on a regular basis so it is important to check the SARA registry (www.sararegistry.gc.ca) to get the current status of a species.

Updated: November 2018

Terrestrial Species at Risk⁹	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility¹⁰
Migratory Birds			
Buff-breasted Sandpiper	Special Concern	Schedule 1	Environment and Climate Change Canada (ECCC)
Common Nighthawk	Threatened	Schedule 1	ECCC
Eskimo Curlew	Endangered	Schedule 1	ECCC
Harlequin Duck	Special Concern	Schedule 1	ECCC
Harris's Sparrow	Special Concern	Schedule 1	ECCC
Horned Grebe	Special Concern	Schedule 1	ECCC
Ivory Gull	Endangered	Schedule 1	ECCC
Olive-sided Flycatcher	Special Concern	Schedule 1	ECCC
Red Knot Islandica Subspecies	Special Concern	Schedule 1	ECCC
Red-necked Phalarope	Special Concern	No Schedule	ECCC
Ross's Gull	Threatened	Schedule 1	ECCC
Rusty Blackbird	Special Concern	Schedule 1	ECCC
Short-eared Owl	Special Concern	Schedule 1	ECCC
Vegetation			
Porsild's Bryum	Threatened	Schedule 1	Government of Nunavut (GN)
Arthropods			
Transverse Lady Beetle	Special Concern	No Schedule	GN
Terrestrial Wildlife			
Caribou (Dolphin and Union Population)	Endangered	Schedule 1	GN
Caribou (Barren-ground Population)	Threatened	No Schedule	GN
Caribou (Torngat Mountains Population)	Endangered	No Schedule	GN
Grizzly Bear (Western Population)	Special Concern	Schedule 1	GN
Peary Caribou	Threatened	Schedule 1	GN
Polar Bear	Special Concern	Schedule 1	GN
Wolverine	Special Concern	Schedule 1	GN
Marine Wildlife			
Atlantic Walrus (High Arctic Population)	Special Concern	No Schedule	Fisheries and Oceans Canada (DFO)
Atlantic Walrus (Central/Low Arctic Population)	Special Concern	No Schedule	DFO
Beluga Whale (Cumberland Sound Population)	Threatened	Schedule 1	DFO
Beluga Whale (Eastern Hudson Bay Population)	Endangered	No Schedule	DFO
Beluga Whale (Eastern High Arctic-Baffin Bay Population)	Special Concern	No Schedule	DFO

9 The Department of Fisheries and Oceans has responsibility for aquatic species.

10 Environment and Climate Change Canada (ECCC) has a national role to play in the conservation and recovery of Species at Risk in Canada, as well as responsibility for management of birds described in the Migratory Birds Convention Act (MBCA). Day-to-day management of terrestrial species not covered in the MBCA is the responsibility of the Territorial Government. Populations that exist in National Parks are also managed under the authority of the Parks Canada Agency.

Terrestrial Species at Risk⁹	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility¹⁰
Beluga Whale (Western Hudson Bay Population)	Special Concern	No Schedule	DFO
Fish			
Atlantic Cod (Arctic Lakes Population)	Special Concern	No Schedule	DFO
Fourhorn Sculpin (Freshwater Form)	Data Deficient	Schedule 3	DFO
Lumpfish	Threatened	No Schedule	DFO
Thorny Skate	Special Concern	No Schedule	DFO

APPENDIX B: ARCHAEOLOGICAL AND PALAEOONTOLOGICAL RESOURCES TERMS AND CONDITIONS FOR LAND USE PERMIT HOLDERS



INTRODUCTION

The Department of Culture and Heritage (CH) routinely reviews land use applications sent to the Nunavut Water Board, Nunavut Impact Review Board and the Indigenous and Northern Affairs Canada. These terms and conditions provide general direction to the permittee/proponent regarding the appropriate actions to be taken to ensure the permittee/proponent carries out its role in the protection of Nunavut's archaeological and palaeontological resources.

TERMS AND CONDITIONS

- 1) The permittee/proponent shall have a professional archaeologist and/or palaeontologist perform the following **Functions** associated with the **Types of Development** listed below or similar development activities:

	Types of Development (See Guidelines below)	Function (See Guidelines below)
a)	Large scale prospecting	Archaeological/Palaeontological Overview Assessment
b)	Diamond drilling for exploration or geotechnical purpose or planning of linear disturbances	Archaeological/ Palaeontological Inventory
c)	Construction of linear disturbances, Extractive disturbances, Impounding disturbances and other land disturbance activities	Archaeological/ Palaeontological Inventory or Assessment or Mitigation

Note that the above-mentioned functions require either a Nunavut Archaeologist Permit or a Nunavut Palaeontologist Permit. CH is authorized by way of the *Nunavut and Archaeological and Palaeontological Site Regulations*¹¹ to issue such permits.

¹¹ P.C. 2001-1111 14 June, 2001

- 2) The permittee/proponent shall not operate any vehicle over a known or suspected archaeological or palaeontological site.
- 3) The permittee/proponent shall not remove, disturb, or displace any archaeological artifact or site, or any fossil or palaeontological site.
- 4) The permittee/proponent shall immediately contact CH at (867) 934-2046 or (867) 975-5500 should an archaeological site or specimen, or a palaeontological site or fossil, be encountered or disturbed by any land use activity.
- 5) The permittee/proponent shall immediately cease any activity that disturbs an archaeological or palaeontological site encountered during the course of a land use operation until permitted to proceed with the authorization of CH.
- 6) The permittee/proponent shall follow the direction of CH in restoring disturbed archaeological or palaeontological sites to an acceptable condition. If these conditions are attached to either a Class A or B Permit under the Territorial Lands Act Indigenous and Northern Affairs Canada directions will also be followed.
- 7) The permittee/proponent shall provide all information requested by CH concerning all archaeological sites or artifacts and all palaeontological sites and fossils encountered in the course of any land use activity.
- 8) The permittee/proponent shall make best efforts to ensure that all persons working under its authority are aware of these conditions concerning archaeological sites and artifacts and palaeontological sites and fossils.
- 9) If a list of recorded archaeological and/or palaeontological sites is provided to the permittee/proponent by CH as part of the review of the land use application the permittee/proponent shall avoid the archaeological and/or palaeontological sites listed.
- 10) Should a list of recorded sites be provided to the permittee/proponent, the information is provided solely for the purpose of the proponent's land use activities as described in the land use application, and must otherwise be treated confidentially by the proponent.

Legal Framework

As stated in Article 33 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement)*:

Where an application is made for a land use permit in the Nunavut Settlement Area, and there are reasonable grounds to believe that there could be sites of archaeological importance on the lands affected, no land use permit shall be issued without written consent of the Designated Agency. Such consent shall not be unreasonably withheld. [33.5.12]

Each land use permit referred to in Section 33.5.12 shall specify the plans and methods of archeological site protection and restoration to be followed by the permit holder, and any other conditions the Designated Agency may deem fit. [33.5.13]

Palaeontology and Archaeology

Under the *Nunavut Act*¹², the federal government can make regulations for the protection, care and preservation of palaeontological and archaeological sites and specimens in Nunavut. Under the *Nunavut Archaeological and Palaeontological Sites Regulations*¹³, it is illegal to alter or disturb any palaeontological or archaeological site in Nunavut unless permission is first granted through the permitting process.

Definitions

As defined in the *Nunavut Archaeological and Palaeontological Sites Regulations*, the following definitions apply:

“archaeological site” means a place where an archaeological artifact is found.

“archaeological artifact” means any tangible evidence of human activity that is more than 50 years old and in respect of which an unbroken chain of possession or regular pattern of usage cannot be demonstrated, and includes a Denesuline archaeological specimen referred to in section 40.4.9 of the Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement).

“palaeontological site” means a site where a fossil is found.

“fossil” includes:

Fossil means the hardened or preserved remains or impression of previously living organisms or vegetation and includes:

- (a) natural casts;*
- (b) preserved tracks, coprolites and plant remains; and*
- (c) the preserved shells and exoskeletons of invertebrates and the preserved eggs, teeth and bones of vertebrates.*

Guidelines for Developers for the Protection of Archaeological Resources in the Nunavut Territory

(**Note:** Partial document only, complete document at: www.ch.gov.nu.ca/en/Archaeology.aspx)

Introduction

The following guidelines have been formulated to ensure that the impacts of proposed developments upon heritage resources are assessed and mitigated before ground surface altering activities occur. Heritage resources are defined as, but not limited to, archaeological and historical sites, burial grounds, palaeontological sites, historic buildings and cairns. Effective collaboration between the developer, the Department of Culture, and Heritage (CH), and the contract archaeologist(s) will ensure proper preservation of heritage resources in the Nunavut Territory. The roles of each are briefly described.

CH is the Nunavut Government agency which oversees the protection and management of heritage resources in Nunavut, in partnership with land claim authorities, regulatory agencies, and

¹² s. 51(1)

¹³ P.C. 2001-1111 14 June, 2001

the federal government. Its role in mitigating impacts of developments on heritage resources is as follows: to identify the need for an impact assessment and make recommendations to the appropriate regulatory agency; set the terms of reference for the study depending upon the scope of the development; suggest the names of qualified individuals prepared to undertake the study to the developer; issue an archaeologist or palaeontologist permit authorizing field work; assess the completeness of the study and its recommendations; and ensure that the developer complies with the recommendations.

The primary regulatory agencies that CH provides information and assistance to are the Nunavut Impact Review Board, for development activities proposed for Inuit Owned Lands (as defined in Section 1.1.1 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement)*), and the Indigenous and Northern Affairs Canada, for development activities proposed for federal Crown Lands.

A developer is the initiator of a land use activity. It is the obligation of the developer to ensure that a qualified archaeologist or palaeontologist is hired to perform the required study and that provisions of the contract with the archaeologist or palaeontologist allow permit requirements to be met; i.e. fieldwork, collections management, artifact and specimen conservation, and report preparation. On the recommendation of the contract archaeologist or palaeontologist in the field and the Government of Nunavut, the developer shall implement avoidance or mitigative measures to protect heritage resources or to salvage the information they contain through excavation, analysis, and report writing. The developer assumes all costs associated with the study in its entirety.

Through his or her active participation and supervision of the study, the contract archaeologist or palaeontologist is accountable for the quality of work undertaken and the quality of the report produced. Facilities to conduct fieldwork, analysis, and report preparation should be available to this individual through institutional, agency, or company affiliations. Responsibility for the curation of objects recovered during field work while under study and for documents generated in the course of the study as well as remittance of artifacts, specimens and documents to the repository specified on the permit accrue to the contract archaeologist or palaeontologist. This individual is also bound by the legal requirements of the *Nunavut Archaeological and Palaeontological Sites Regulations*.

Types of Development

In general, those developments that cause concern for the safety of heritage resources will include one or more of the following kinds of surface disturbances. These categories, in combination, are comprehensive of the major kinds of developments commonly proposed in Nunavut. For any single development proposal, several kinds of these disturbances may be involved

- *Linear disturbances: including the construction of highways, roads, winter roads, transmission lines, and pipelines;*
- *Extractive disturbances: including mining, gravel removal, quarrying, and land filling;*
- *Impoundment disturbances: including dams, reservoirs, and tailings ponds;*

- *Intensive land use disturbances: including industrial, residential, commercial, recreational, and land reclamation work, and use of heritage resources as tourist developments.*
- *Mineral, oil and gas exploration: establishment of camps, temporary airstrips, access routes, well sites, or quarries all have potential for impacting heritage resources.*

Types of Studies Undertaken to Preserve Heritage Resources

Overview: An overview study of heritage resources should be conducted at the same time as the development project is being designed or its feasibility addressed. They usually lack specificity with regard to the exact location(s) and form(s) of impact and involve limited, if any, field surveys. Their main aim is to accumulate, evaluate, and synthesize the existing knowledge of the heritage of the known area of impact. The overview study provides managers with baseline data from which recommendations for future research and forecasts of potential impacts can be made. A Class I Permit is required for this type of study if field surveys are undertaken.

Reconnaissance: This is done to provide a judgmental appraisal of a region sufficient to provide the developer, the consultant, and government managers with recommendations for further development planning. This study may be implemented as a preliminary step to inventory and assessment investigations except in cases where a reconnaissance may indicate a very low or negligible heritage resource potential. Alternately, in the case of small-scale or linear developments, an inventory study may be recommended and obviate the need for a reconnaissance.

The main goal of a reconnaissance study is to provide baseline data for the verification of the presence of potential heritage resources, the determination of impacts to these resources, the generation of terms of reference for further studies and, if required, the advancement of preliminary mitigative and compensatory plans. The results of reconnaissance studies are primarily useful for the selection of alternatives and secondarily as a means of identifying impacts that must be mitigated after the final siting and design of the development project. Depending on the scope of the study, a Class 1 or Class 2 Permit is required for this type of investigation.

Inventory: A resource inventory is generally conducted at that stage in a project's development at which the geographical area(s) likely to sustain direct, indirect, and perceived impacts can be well defined. This requires systematic and intensive fieldwork to ascertain the effects of all possible and alternate construction components on heritage resources. All heritage sites must be recorded on Government of Nunavut Site Survey forms. Sufficient information must be amassed from field, library and archival components of the study to generate a predictive model of the heritage resource base that will:

- allow the identification of research and conservation opportunities;
- enable the developer to make planning decisions and recognize their likely effects on the known or predicted resources; and
- make the developer aware of the expenditures, which may be required for subsequent studies and mitigation. A Class 1 or 2 permit is required.

Assessment: At this stage, sufficient information concerning the numbers and locations of heritage resources will be available, as well as data to predict the forms and magnitude of impacts. Assessments provide information on the size, volume, complexity and content of a heritage resource, which is used to rank the values of different sites or site types given current archaeological knowledge. As this information will shape subsequent mitigation program(s), great care is necessary during this phase.

Mitigation: This refers to the amelioration of adverse impacts to heritage resources and involves the avoidance of impact through the redesign or relocation of a development or its components; the protection of the resource by constructing physical facilities; or, the scientific investigation and recovery of information from the resource by excavation or other method. The type(s) of appropriate mitigative measures are dictated by their viability in the context of the development project. Mitigation strategies must be developed in consultation with, and approved by, the Department of Culture and Heritage. It is important to note that mitigation activities should be initiated as far in advance of the construction of the development as possible.

Surveillance and monitoring: These may be required as part of the mitigation program.

Surveillance may be conducted during the construction phase of a project to ensure that the developer has complied with the recommendations.

Monitoring involves identification and inspection of residual and long-term impacts of a development (i.e. shoreline stability of a reservoir); or the use of impacts to disclose the presence of heritage resources, for example, the uncovering of buried sites during the construction of a pipeline.