



## SCREENING DECISION REPORT NIRB FILE No.: 16WN066

NPC File No.: 148384  
Previous NWB No.: 3BM-PAN1417

**March 17, 2017**

Following the Nunavut Impact Review Board's (NIRB or Board) assessment of all materials provided, the NIRB is recommending that a review of the Government of Nunavut – Community and Government Services' "Renewal of the Municipality of Pangnirtung Water Licence #3BM-PAN1417 TYPE B to TYPE A" is not required pursuant to paragraph 92(1)(a) of the *Nunavut Planning and Project Assessment Act* (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(s) accepts this Screening Decision Report.

### OUTLINE OF SCREENING DECISION REPORT

- 1) REGULATORY FRAMEWORK
- 2) PROJECT REFERRAL
- 3) PROJECT OVERVIEW & THE NIRB ASSESSMENT PROCESS
- 4) FACTORS FOR DETERMINING SIGNIFICANCE OF IMPACTS
- 5) VIEWS OF THE BOARD
- 6) RECOMMENDED PROJECT-SPECIFIC TERMS AND CONDITIONS
- 7) OTHER NIRB CONCERNS AND RECOMMENDATIONS
- 8) REGULATORY REQUIREMENTS
- 9) CONCLUSION

### REGULATORY FRAMEWORK

The primary objectives of the NIRB are set out in Section 12.2.5 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (Nunavut Agreement) as follows:

*"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."*

These objectives are confirmed under section 23 of the NuPPAA.

The purpose of screening is provided for under section 88 of the NuPPAA:

*“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 subsection 89(1) of NuPPAA:

*“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 subsection 89(2) provides that the considerations set out in paragraph 89(1)(a) prevail over those set out in paragraph 89(1)(b).

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. Specifically, paragraph 92(2)(a) of NuPPAA provides:

*“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 November 22, 2016 the Nunavut Impact Review Board (NIRB or Board) received a referral to screen the Government of Nunavut – Community and Government Services’ (GN-CGS) “Renewal of the Municipality of Pangnirtung Water Licence #3BM-PAN1417 Type B to Type A” project proposal from the Nunavut Planning Commission (NPC or Commission), which noted that the project proposal is outside the area of an applicable regional land use plan.

Pursuant to Article 12, Sections 12.4.1 and 12.4.4 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (Nunavut Agreement) and section 87 of the *Nunavut Planning and Project Assessment Act* (NuPPAA), the NIRB commenced screening this project proposal and assigned it file number 16WN066.

## PROJECT OVERVIEW & THE NIRB ASSESSMENT PROCESS

### 1. Project Scope

The proposed “Renewal of the Municipality of Pangnirtung Water Licence #3BM-PAN1417 Type B to Type A” project is located within the Qikiqtani (South Baffin) region, in the municipality of Pangnirtung. To continue the licenced operation of municipal services and to permit water use in excess of 300 cubic metres (m<sup>3</sup>) per day, the Proponent is proposing to upgrade its existing Nunavut Water Board (NWB) Type “B” Water Licence (Licence No. 3BM-PAN 1417, expires September 15, 2017) to a NWB Type “A” Water Licence. The municipal services under the proposed upgraded Type “A” Water Licence would be permitted to continue operations from September 16, 2017 through September 15, 2027.<sup>1</sup>

As required under subsection 86(1) of the NuPPAA, the Board accepts the scope of the “Renewal of the Municipality of Pangnirtung Water Licence #3BM-PAN1417 Type B to Type A” project as set out by GN-CGS in the proposal. The scope of the project proposal includes the following undertakings, works, or activities:

- Increase the total amount of water drawn for community water supply needs from Duval River to a storage reservoir, as expected to support community growth projections;
- Continued operation of three (3) municipal facilities including the Water Treatment and Supply Facility, Wastewater Treatment Plant, and Waste Management Facility to treat and store water for municipal use, treat and dispose of wastewater and sewage, and dispose of solid and hazardous wastes generated within the municipality;
- Continued use of heavy machinery and industrial vehicles to transport and process solid wastes, transport and deliver sewage, and to transport and deliver water throughout the community;
- Continued use of existing municipal roads to facilitate ongoing municipal service operations; and
- Use of local fuel supplies to facilitate ongoing machinery and vehicle operations.

The NIRB notes that the Waste Management Capital Project for the relocation of the waste management facility referenced in the project proposal, but not part of the current project, is outside of the current scope of assessment.

### 2. Key Stages of the Screening Process

The following key stages were completed:

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<sup>1</sup> Development activities associated with the future Waste Management Capital Project referenced throughout the project proposal are not considered part of the current scope under assessment.

<b>Date</b>	<b>Stage</b>
November 22, 2016	Receipt of project proposal from the NPC
December 2, 2016	Information request(s)
January 30, 2017	Proponent responded to information request(s)
January 30, 2017	Scoping pursuant to subsection 86(1) of the NuPPAA
February 3, 2017	Public engagement and comment request
February 24, 2017	Receipt of public comments
February 27, 2017	Proponent responded to comments/concerns raised by public

### **3. Public Comments and Concerns**

Notice regarding the NIRB's screening of this project proposal was distributed on February 3, 2017 to community organizations in Pangnirtung, 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 February 24, 2017 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; if so, why;
- Whether the project proposal is of a type where the potential adverse effects are highly predictable and mitigable with known technology, (please provide any recommended mitigation measures); and
- Any matter of importance to the Party related to the project proposal.

The following is a summary of the comments and concerns received by the NIRB:

#### **Indigenous and Northern Affairs Canada:**

- Noted a lack of clarity in the project proposal regarding select features that were identified in the NIRB's application including:
  - How all-weather roads/access roads would be utilized;
  - Why there would be an increase in water use in the community;
  - What, if any, new infrastructure would be developed as part of the proposal;
  - What operational activities would result in potential impacts; and
- Recommended that the Proponent clearly identify what new activities would be associated with the current proposal and identify what impacts could result and how they would be mitigated.

#### **Environment and Climate Change Canada:**

- Acknowledged that the Municipality of Pangnirtung has made progress as it moves into compliance with its Water Licence and noted that further improvements can be addressed during the Nunavut Water Board licence renewal process.

#### **4. Comments and Concerns with respect to Inuit Qaujimaningit, Traditional, and Community Knowledge**

No concerns or comments were received with respect to Inuit Qaujimaningit or traditional and community knowledge in relation to the proposed project.

#### **5. Proponent's Response to Public Comments and Concerns**

The following is a summary of the Proponent's response to concerns as received on February 27, 2017:

- Clarified that the proposed project does not include any new or upgrading of infrastructure works associated with the Pangnirtung water supply system, landfill, wastewater treatment plant, or all-weather roads.

#### **FACTORS FOR DETERMINING SIGNIFICANCE OF IMPACTS**

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 section 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 a summary of 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 project would occur in a geographic area of approximately eight (8) square kilometres (km<sup>2</sup>) within the municipal boundaries of Pangnirtung and would include the ongoing operation of three (3) municipal service facilities located in the community. In addition, the project would include the continued use of heavy machinery and industrial vehicles around the community to service the municipal facilities and to provide services to local residents. Due to the proposed project occurring in an inhabited and developed area, consistent interaction with wildlife is unlikely. However, proposed activities do have the potential to interact intermittently with habitats for various terrestrial and marine wildlife including migratory birds, wolves, caribou, fish, and polar bear. This interaction would not be expected to affect wildlife beyond the current disturbances borne in the project area, however, could contribute to temporary avoidance from visual and auditory disturbances, and in certain cases, attraction.

2. *The ecosystemic sensitivity of that area.*

Due to the nature of select project components that would resume operation as part of the proposed project, namely the Wastewater Treatment Plant, the Water Treatment and Supply

Plant, and the Waste Management Facility, select environmental features within and adjacent to the proposed project area would require continued management as they have likely been exposed to varying degrees of environmental stress and contamination throughout past operations. The ecosystemic features in the project area that have been identified as being potentially sensitive include soil, surface and ground water, and air.

Additionally, this area has been identified as having value and priority to the local community for:

- i. Fish;
- ii. Caribou; and
- iii. Freshwater ecosystems.

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

Neither the Proponent nor the Government of Nunavut have identified any areas of historical, cultural, or archaeological significance associated with the project area. Further, because the proposed project would occur in a developed and inhabited municipal area, it would not be expected to impact any additional areas of historical, cultural, or archaeological significance. Should the project be approved to proceed, the Proponent would be required to contact the Government of Nunavut – Department of Culture and Heritage if any sites of historical, cultural, or archaeological significance are encountered.

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

The proposed project would occur within the municipality of Pangnirtung, and as such, interaction with human populations is expected. Although the proposed project would occur in a developed and inhabited area, there also exists the potential for interaction with various wildlife species. However, due to the proposed undertaking of continued municipal services, it is not expected that the proposed project would subject human and wildlife populations to increased levels of disturbance in the proposed project area. The continued implementation of operational protocols and standard mitigation measures would be expected to limit increased interactions from developing. No comments were received from interested parties during the commenting period for this file regarding any concerns related to ongoing or potential future operational disturbances.

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.*

As the “Renewal of the Municipality of Pangnirtung Water Licence #3BM-PAN1417 Type B to Type A” project would involve the continuation of essential municipal services under a Type “A” Water licence, the nature of potential impacts is considered to be well-known. Potential adverse effects are likely to be of low magnitude, infrequent, mitigable, and reversible should they occur considering the operational contingencies in place and the mitigation measures that would be adhered to.

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 some history of development, however, past activities have been primarily associated with municipal undertakings such as quarry development (GN-CGS' "Quarry Permit – Hamlet of Pangnirtung", NIRB File No. 05QN105) and bulk fuel storage expansion and renovation works (GN-CGS' "Bulk Fuel Storage Facility Expansion and Upgrade", NIRB File No. 10XN042), all required to meet the needs of the residents of Pangnirtung. The proposed project could contribute cumulatively to soil and water contamination in the area, as well as impacts from dust, spills, and outflow to terrestrial and marine wildlife habitats, as result of the ongoing operation of municipal facilities and services throughout the community. However, mitigation and management would be considered with each of those projects to reduce residual impacts, and so reduce the potential for cumulative impacts. No other projects are proposed to occur in the project area that could interact cumulatively with the potential impacts identified through the NIRB's assessment of the current project. Further, no concerns of cumulative impacts were raised during the commenting period for this file.

The potential for cumulative impacts to terrestrial and marine wildlife; water, soil and air quality; cultural and archaeological resources; and traditional wildlife harvesting pursuits, as a result the proposed continuation of municipal facility operations and services has been considered in the development of the NIRB's recommendations.

The NIRB notes that the Waste Management Capital Project for the relocation of the waste management facility, referenced throughout the project proposal, is not being considered as part of the current scope under assessment, however, this type of undertaking could contribute to potential future cumulative impacts. It is expected that subsequent assessments would consider potential impacts as a result of this type of potential future development.

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

No other specific factors have been identified as relevant to the assessment of this project proposal.

Although no significant public concerns were raised during the public commenting period, the NIRB notes that due to the proposed undertaking of ongoing activities within the community of Pangnirtung, project activities could potentially contribute to public concern developing. A term and condition has been recommended to encourage engagement with community members, groups, the Hunters and Trappers Organization, as well as the posting of public notices to ensure residents are aware of the continuation of municipal service operations.

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.

**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 through 4.

**Ecosystem, wildlife habitat and Inuit harvesting activities:**

**Issue 1:** Potential adverse impacts to terrestrial and marine wildlife, including migratory birds, wolves, caribou, fish, and Polar Bear, and their respective habitats, from ongoing municipal service operations, waste management operations, and municipal facility operations.

**Board views:** As discussed above in the assessment of factors relevant to this project proposal, the potential for impacts is applicable to a small geographic area and is limited due to the proposal of ongoing activities in an already inhabited and disturbed municipal boundary. It is considered unlikely that additional areas would be affected as part of the proposed operations as the Proponent would be utilizing existing facilities, road networks, and machinery within the proposed project area. Further, it is unlikely that project areas are actively used by wildlife due to the existing presence of auditory and visual disturbances, and the unfavourable nature of the project areas as suitable wildlife habitat. However, terms and conditions have been recommended to ensure that wildlife are protected throughout all operations should wildlife be attracted to, or interact with, project activities, and to ensure that project personnel are properly trained to manage encounters with wildlife known to occur in the area.

The Proponent would also be required to follow the *Fisheries Act*, the *Migratory Birds Convention Act*, *Migratory Birds Regulations*, the *Species at Risk Act*, the *Nunavut Wildlife Act*, and the *Arctic Waters Pollution Prevention Act* (see Regulatory Requirements section).

**Recommended Mitigation Measures:** It is recommended that the potential adverse impacts to wildlife and wildlife habitat may be mitigated requiring the Proponent to ensure that wastes are stored properly to limit wildlife attraction, fuel and chemicals managed properly, and that wildlife avoidance, seasonal restrictions, and general wildlife protection measures are employed throughout operations. The following terms and conditions are recommended to address the above concerns: 5, 6, 15 through 17, and 19.

**Issue 2:** Potential adverse impacts to surface and ground water quality, and fish habitat from the ongoing municipal service operations, waste management operations, and municipal facility operations.



Board views: As discussed above in the assessment of factors relevant to this project proposal, the potential for impacts is applicable to a small geographic area and is limited due to the proposal of activities in an already inhabited and disturbed municipal boundary. The Proponent would not be expected to interact with any additional waterbodies in the project area as surface water extraction would continue from the Duval River, with further water storage, treatment, and later disposal, through existing municipal infrastructure and disposal streams. Municipal service and waste management operations, as well as fuel storage activities, would occur using existing infrastructure and are subject to existing operational standards and protocols for the protection of environmental features. In addition to the Proponent's continued application of operational protocols and contingency plans, it is expected that standard operational considerations would mitigate any potential adverse impacts to surface and ground water quality, and fish habitat from the proposed project. These measures would be expected to manage the current environmental sensitivities that may exist within the area, as well as any that may develop as part of ongoing operations. As such, potential impacts would be considered to have a low magnitude, be reversible in nature, and would have a low probability of extending beyond the immediate project area.

The Proponent noted within its application that the landfill site is a source of concern due to its proximity to the community and its limited capacity. The Board acknowledges that future relocation plans may under development to resolve existing concerns, and that such plans would be subject to subsequent NIRB assessment.

The Proponent will require a water licence from the Nunavut Water Board for various project activities. In addition, the Proponent would also be required to follow the *Fisheries Act*, the *Transportation of Dangerous Goods Regulations*, *Transportation of Dangerous Goods Act* and the *Canadian Environmental Protection Act* (see Regulatory Requirements section).

Recommended Mitigation Measures: It is recommended that the potential adverse impacts to water features and fish habitat may be mitigated requiring the Proponent to employ appropriate water use measures, fuel and chemical use protocols, and landfill operational and compliance measures. The following terms and conditions are being recommended to address the above concerns: 5, 7 through 10, 12, 14, and 18.

**Issue 3:** Potential adverse impacts to soil and air quality from the ongoing municipal service operations, waste management operations, and municipal facility operations.

Board Views: As discussed above in the assessment of factors relevant to this project proposal, the potential for impacts is applicable to a small geographic area and is limited due to the proposal of activities in an already inhabited and disturbed municipal boundary. The Proponent would not be expected to interact with any additional areas outside of those already occupied by existing municipal operations, services, and facilities. Municipal service and waste management operations, as well as fuel storage activities, are subject to existing operational standards and protocols for the protection of environmental features. The Proponent has committed to ensuring that measures are

taken during waste management operations to mitigate wind-blown debris and air contamination from waste burning and compaction activities, as well as ensuring that specific hazardous materials processed through the waste management facility are sorted and carefully stored for future shipment and disposal at appropriate facilities in the south. In addition to the Proponent's continued application of operational protocols and contingency plans, it is expected that standard operational considerations would mitigate any potential adverse impacts to soil and air quality. These measures would be expected to manage the current environmental sensitivities that may exist within the area, as well as any that may develop as part of ongoing operations. As such, potential impacts would be considered to have a low magnitude, be reversible in nature, and would have a low probability of extending beyond the immediate project area.

The Proponent noted within its application that the landfill site is a source of concern due to its proximity to the community and its limited capacity. The Board acknowledges that future relocation plans may under development to resolve existing concerns, and that such plans would be subject to subsequent NIRB assessment.

**Recommended Mitigation Measures:** It is recommended that the potential adverse impacts to soil and air quality may be mitigated requiring the Proponent to properly manage the use of fuel and chemicals, employ dust suppression measures during project operations, provide training for landfill personnel, and employ site restoration protocols. The following terms and conditions are being recommended to address the above concerns: 7 through 11, 13, 14, and 18 through 20.

**Issue 4:** Potential adverse impacts to public and traditional land use activities in the area due to ongoing municipal service activities and municipal facility operations.

**Board Views:** Although operations would not extend to areas outside of those already subject to existing operations and activities, there exists the potential for sporadic visual and auditory disturbances to wildlife and human populations in the area which may cause avoidance and general disturbance in the vicinity of the proposed project boundary. While these areas would not be expected to be used for traditional activities, such as hunting, due to their proximity to the community, disturbances could temporarily alter migratory patterns and affect the public enjoyment of the area. If situations arise where the project may interfere with traditional or recreational land use, a term and condition has been recommended to ensure that impacts are minimized.

**Recommended Mitigation Measures:** Term and condition 21 is recommended to ensure that the affected communities and organizations are informed about the project proposal.

**Socio-economic effects on northerners:**

**Issue 5:** Potential adverse impacts to historical, cultural, and archaeological sites should the Proponent extend operations beyond the project boundaries detailed within the current project application.

**Board Views:** The Board acknowledges that neither the Proponent nor the Government of Nunavut identified any areas of historical, cultural, or archaeological significance associated with the proposed project area during the commenting period for this file. However, the Board notes that should project operations intentionally or unintentionally extend beyond the project boundaries currently under assessment, there exists the potential for interaction with historical, cultural, or archaeological sites in the area. As such, the Board is reminding the Proponent that it is required to follow the *Nunavut Act* (as recommended in Regulatory Requirements section) throughout all operations and is further recommending a term and condition to encourage the Proponent to solicit available Inuit Qaujimaningit to inform project activities.

**Recommended Mitigation Measures:** Term and condition 21 is recommended to ensure that available Inuit Qaujimaningit is solicited to inform project activities, and reduce the potential for adverse impacts to sites of historical, cultural, or archaeological significance within and adjacent to the project area.

**Issue 6:** Potential benefits to the local economy and community as the Proponent noted that local community members and Inuit would continue to staff the project throughout operations.

**Board Views:** The Proponent noted within the project application that local community members and Inuit are trained through the Municipal Training Organization to staff and operate the municipal facilities and local service programs. It is expected that these ongoing training and hiring opportunities would continue to benefit the local economy and community throughout ongoing operations.

**Recommended Mitigation Measures:** Terms and conditions 22 is being recommended to ensure that the Proponent considers hiring locally whenever possible.

**Significant public concern:**

**Issue 7:** No significant public concern was expressed during the public commenting period for this file.

**Board Views:** Consultation and involvement of local community members is expected to mitigate any potential for public concern resulting from project activities.

**Recommended Mitigation Measures:** Term and condition 21 is recommended to ensure that the affected community and organizations are informed about the project proposal, and to provide the Proponent with an opportunity to proactively address or mitigate any concerns that may arise from project operations.

**Technological innovations for which the effects are unknown:**

No specific issues have been identified associated with this project proposal.

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. The Government of Nunavut – Community and Government Services (the Proponent) shall maintain a copy of the Project Terms and Conditions at the site of operation at all times.
2. The Proponent shall forward copies of all permits obtained and required for this project to the Nunavut Impact Review Board (NIRB) prior to the commencement of the project.
3. The Proponent shall operate in accordance with all commitments stated in correspondence provided to the Nunavut Planning Commission (Application to Determine Conformity, November 22, 2016), and the NIRB (Online Application Form, January 30, 2017; NIRB Part 2 PSIR Form, January 30, 2017; Project Map, January 6, 2017; Operations, Maintenance, and Contingency Plans, December 12, 2016 and December 28, 2016).
4. The Proponent shall operate the site in accordance with all applicable Acts, Regulations, and Guidelines.

##### **Water Use**

5. 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.

##### **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 ensure that re-fueling of all equipment occurs a minimum of thirty-one (31) metres away from the high water mark of any water body, unless otherwise authorized by the Nunavut Water Board.
8. 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, refuelling stations, and vehicle maintenance areas.
9. The Proponent shall remove and treat hydrocarbon contaminated soils on site or transport them to an approved disposal site for treatment.

10. 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.

### **Landfill Operations**

11. The Proponent shall dispose of non-hazardous materials only at the landfill and shall limit this disposal to those materials listed as acceptable for disposal. Hazardous materials, materials listed as unacceptable for disposal at the landfill, or materials that contain asbestos, fluorescent tubes or ozone depleting substances are not to be disposed of in the landfill and must be disposed of at an authorized facility.
12. The Proponent shall ensure that it meets the standards and/or limits as set out in the Nunavut Water Board Water Licence and any other permits as required for this project.
13. The Proponent shall take appropriate dust suppression measures when conducting soil topping of landfill materials, or landfill capping activities.
14. All operations personnel shall be adequately trained prior to commencement of landfill operations, and shall be made aware of all operational guidelines and Proponent commitments relating to the Project.

### **Wildlife - General**

15. The Proponent shall ensure that there is no damage to wildlife habitat in conducting this operation.

### **Migratory Birds and Raptors Disturbance**

16. The Proponent shall not disturb or destroy the nests or eggs of any birds unless they are deemed to be inhibiting the necessary function of municipal facilities and operations. Should a situation arise where intervention is required, the Proponent shall consult with local wildlife authorities (Government of Nunavut) to find an acceptable solution. For all other circumstances, if nests are encountered and/or identified, the Proponent shall take precaution to avoid further interaction and or disturbance until nesting is complete and the young have left the nest.

### **Caribou Disturbance**

17. The Proponent shall not block or cause any diversion to caribou migration, and shall cease activities likely to interfere with migration such as excessive mechanical operations, or movement of equipment or personnel until such time as the caribou have passed.

### **Ground and Noise Disturbance**

18. The Proponent shall implement suitable erosion and sediment suppression measures on all areas before, during and after conducting activities in order to prevent sediment from entering any waterbody.
19. All construction and road vehicles must be fitted with standard and well-maintained noise suppression devices and engine idling is to be minimized.

## **Restoration of Disturbed Areas**

20. The Proponent shall ensure that all disturbed areas are restored to a stable or pre-disturbed state as practical as possible upon completion of project works.

## **Other**

21. The Proponent should engage with local residents regarding planned activities in the area and should solicit available Inuit Qaujimaningit regarding 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 should, to the extent possible, hire local people.

## **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 the Proponent shall notify the Nunavut Planning Commission (NPC) and the NIRB of any changes in operating plans or conditions, including phase advancement, associated with this project prior to any such change.

### **Bear and Carnivore Safety**

2. The Proponent should review the Government of Nunavut's booklet on Bear Safety, which can be downloaded from this link: [http://gov.nu.ca/sites/default/files/bear\\_safety\\_-\\_reducing\\_bear-people\\_conflicts\\_in\\_nunavut.pdf](http://gov.nu.ca/sites/default/files/bear_safety_-_reducing_bear-people_conflicts_in_nunavut.pdf). Further information on bear/carnivore detection and deterrent techniques can be found in the "*Safety in Grizzly and Black Bear Country*" pamphlet, which can be downloaded from this link: [http://www.enr.gov.nt.ca/sites/default/files/web\\_pdf\\_wd\\_bear\\_safety\\_brochure\\_1\\_may\\_2015.pdf](http://www.enr.gov.nt.ca/sites/default/files/web_pdf_wd_bear_safety_brochure_1_may_2015.pdf).
3. There are Polar Bear and grizzly bear safety resources available from the Bear Smart Society with videos on Polar Bear safety available in English, French and Inuktitut at <http://www.bearsmart.com/play/safety-in-polar-bear-country/>. Information can also be obtained from Parks Canada's website on bear safety at the following link: <http://www.pc.gc.ca/eng/pn-np/nu/quttinirpaaq/visit/visit6/d.aspx> or in reviewing the "*Safety in Polar Bear Country*" pamphlet, which can be downloaded from the following link: [http://www.pc.gc.ca/eng/pn-np/nu/quttinirpaaq/visit/visit6/~/\\_media/pn-np/nu/auyuittuq/pdf/shared/PolarBearSafety\\_English.ashx](http://www.pc.gc.ca/eng/pn-np/nu/quttinirpaaq/visit/visit6/~/_media/pn-np/nu/auyuittuq/pdf/shared/PolarBearSafety_English.ashx).
4. Any problem wildlife or any interaction with carnivores should be reported immediately to the local Government of Nunavut, Department of Environment Conservation Office (Conservation Officer of Pangnirtung, phone: 867-473-8937).

### **Species at Risk**

5. 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](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**

6. 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.
7. 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/>.

### **Incineration of Wastes**

8. The Proponent review the Canadian Council of Ministers of the Environment's "Guidance Document for Canadian Jurisdictions on Open-Air Burning", available at the following link: [http://www.ccme.ca/files/Resources/air/wood\\_burning/pn\\_1548\\_CCME%20Guidance%20Document%20on%20Open%20Air%20Burning%20FINAL.pdf](http://www.ccme.ca/files/Resources/air/wood_burning/pn_1548_CCME%20Guidance%20Document%20on%20Open%20Air%20Burning%20FINAL.pdf) as a guidance document for best practices associated with open-air burning.

### **Transport and Management of Dangerous Goods**

9. Environment and Climate Change Canada recommends that all hazardous wastes, including waste oil, receive proper treatment and disposal at an approved facility.
10. The Proponent shall ensure that proper shipping documents (waste manifests, transportation of dangerous goods, etc.) accompany all movements of dangerous goods. Further, the Proponent shall ensure that the shipment of all dangerous goods is registered with the Government of Nunavut Department of Environment, Department of Environment Manager. Contact the Manager (867) 975-7748 to obtain a manifest if dangerous goods including hazardous wastes will be transported.

### **Nunavut Water Board**

11. 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 be in regard to use of water, snow and ice; waste disposal; access infrastructure and operation for camps; drilling operations; spill contingency planning; abandonment and restoration planning; and monitoring programs.

### **Indigenous and Northern Affairs Canada – Water Resources Division**

12. INAC – Water Resources Division should consider the importance of conducting regular inspections, pursuant to the authority of the *Nunavut Waters and Nunavut Surface Rights*

*Tribunal Act*, while the project is in operation. Inspectors should focus on ensuring the Proponent is in compliance with the conditions imposed through the Water Licence.

## 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>). Attached in **Appendix A** is a list of Species at Risk in Nunavut.
5. The *Wildlife Act* (<http://www.canlii.org/en/nu/laws/stat/snu-2003-c-26/latest/snu-2003-c-26.html>) which contains provisions to protect and conserve wildlife and wildlife habitat, including specific protection measures for wildlife habitat and species at risk.
6. The *Nunavut Act* (<http://laws-lois.justice.gc.ca/eng/acts/N-28.6/>). The Proponent must comply with the proposed terms and conditions listed in the attached **Appendix B**.
7. The *Transportation of Dangerous Goods Regulations* (<http://www.tc.gc.ca/eng/tdg/clear-tofc-211.htm>), *Transportation of Dangerous Goods Act* (<http://laws-lois.justice.gc.ca/eng/acts/t-19.01/>), and the *Canadian Environmental Protection Act* (<http://laws-lois.justice.gc.ca/eng/acts/C-15.31/>). The Proponent must ensure that proper shipping documents accompany all movements of dangerous goods. The Proponent must register with the Government of Nunavut, Department of Environment Manager of Pollution Control and Air Quality at 867-975-7748.
8. The *Arctic Waters Pollution Prevention Act* (<http://laws-lois.justice.gc.ca/eng/acts/A-12/>).
9. The *Marine Liability Act* (<http://laws-lois.justice.gc.ca/eng/acts/M-0.7/>).



## CONCLUSION

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## 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](http://www.sararegistry.gc.ca)) to get the current status of a species.

Updated: October 2016

Species at Risk <sup>1</sup>	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility <sup>2</sup>
Migratory Birds			
Eskimo Curlew	Endangered	Schedule 1	ECCC
Buff-breasted Sandpiper	Special concern	Pending	ECCC
Ivory Gull	Endangered	Schedule 1	ECCC
Ross's Gull	Threatened	Schedule 1	ECCC
Harlequin Duck (Eastern population)	Special Concern	Schedule 1	ECCC
Rusty Blackbird	Special Concern	Schedule 1	GN
Peregrine Falcon	Special Concern ( <i>anatum-tundrius</i> complex <sup>3</sup> )	Schedule 1 - Threatened ( <i>anatum</i> ) Schedule 3 – Special Concern ( <i>tundrius</i> )	GN
Short-eared Owl	Special Concern	Schedule 3	GN
Red Knot ( <i>rufa</i> subspecies)	Endangered	Schedule 1	ECCC
Red Knot ( <i>islandica</i> subspecies)	Special Concern	Schedule 1	ECCC
Horned Grebe (Western population)	Special Concern	Pending	ECCC
Red-necked Phalarope	Special concern	Pending	ECCC
Vegetation			
Felt-leaf Willow	Special Concern	Schedule 1	GN
Blanket-leafed Willow	Special Concern	Schedule 1	GN
Porsild's Bryum	Threatened	Schedule 1	GN
Terrestrial Wildlife			
Peary Caribou	Endangered	Schedule 1	GN
Peary Caribou (High Arctic Population)	Endangered	Schedule 2	GN
Peary Caribou (Low Arctic Population)	Threatened	Schedule 2	GN
Barren-ground Caribou (Dolphin and Union population)	Special Concern	Schedule 1	GN
Marine Wildlife			
Polar Bear	Special Concern	Schedule 1	GN/DFO
Grizzly Bear	Special Concern	Pending	GN
Wolverine	Special Concern	Pending	GN
Atlantic Cod, Arctic Lakes	Special Concern	Pending	DFO
Atlantic Walrus	Special Concern	Pending	DFO
Beluga Whale (Cumberland Sound population)	Threatened	Pending	DFO
Beluga Whale (Eastern Hudson Bay population)	Endangered	Pending	DFO
Beluga Whale (Western Hudson Bay population)	Special Concern	Pending	DFO
Beluga Whale (Eastern High Arctic – Baffin Bay population)	Special Concern	Pending	DFO
Bowhead Whale (Eastern Canada – West Greenland population)	Special Concern	Pending	DFO
Bowhead Whale (Eastern Arctic population)	Special Concern	Schedule 2	DFO
Killer Whale (Northwest Atlantic / Eastern Arctic populations)	Special Concern	Pending	DFO
Grey Whale (Eastern North Pacific population)	Special Concern	Schedule 1	DFO

Species at Risk <sup>1</sup>	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility <sup>2</sup>
Humpback Whale (Western North Atlantic population)	Special Concern	Schedule 3	DFO
Narwhal	Special Concern	Pending	DFO
Fish			
Northern Wolffish	Threatened	Schedule 1	DFO
Atlantic Wolffish	Special Concern	Schedule 1	DFO
Bering Wolffish	Special Concern	Schedule 3	DFO
Fourhorn Sculpin	Special Concern	Schedule 3	DFO
Roundnose Grenadier	Endangered	Pending	DFO
Spotted Wolffish	Threatened	Schedule 1	DFO
Thorny Skate	Special Concern	Pending	DFO
Atlantic Cod, Arctic Lakes	Special Concern	Pending	DFO
Blackline Prickleback	Special Concern	Schedule 3	DFO

Notes: DFO: Fisheries and Oceans Canada; ECCC: Environment and Climate Change Canada; GN: Government of Nunavut

<sup>1</sup>The Department of Fisheries and Oceans has responsibility for aquatic species.

<sup>2</sup>Environment and Climate Change Canada 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.

<sup>3</sup>The *anatum* subspecies of Peregrine Falcon is listed on Schedule 1 of SARA as threatened. The *anatum* and *tundrius* subspecies of Peregrine Falcon were reassessed by COSEWIC in 2007 and combined into one subpopulation complex. This subpopulation complex was assessed by COSEWIC as Special Concern.

## Appendix B

### Archaeological and Palaeontological 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:

	<b>Types of Development</b> (See Guidelines below)	<b>Function</b> (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*<sup>2</sup> to issue such permits.

- 2) The permittee/proponent shall not operate any vehicle over a known or suspected archaeological or palaeontological site.

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<sup>2</sup> P.C. 2001-1111 14 June, 2001

- 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*<sup>3</sup>, the federal government can make regulations for the protection, care and preservation of palaeontological and archaeological sites and specimens in Nunavut. Under

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<sup>3</sup> s. 51(1)

the *Nunavut Archaeological and Palaeontological Sites Regulations*<sup>4</sup>, 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](http://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 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

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<sup>4</sup> P.C. 2001-1111 14 June, 2001

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.