



## SCREENING DECISION REPORT NIRB FILE No.: 19XN034

NPC File No.: 149179 and 149225

**October 18, 2019**

Following the Nunavut Impact Review Board's (NIRB or Board) assessment of all materials provided, the NIRB is recommending that a review of the Hamlet of Cambridge Bay's "Freshwater Creek Riverbed Restoration" 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 Ministers accepts this Screening Decision Report.

### OUTLINE OF SCREENING DECISION REPORT

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## REGULATORY FRAMEWORK

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 to 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 June 14, 2019 the NIRB received a referral to screen Hamlet of Cambridge Bay's "Freshwater Creek Riverbed Restoration" 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. On September 10, 2019 the NIRB issued a notice to the Commission that, following consultation with the Proponent, an inclusion has been made to the scope of the project under s. 86(1)(a) of the *NuPPAA*. On September 12, 2019, the NIRB received a second referral from the NPC for the inclusion activities noting that the previous conformity determination issued on June 14, 2019 continues to apply.

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 **19XN034**.

## PROJECT OVERVIEW & THE NIRB ASSESSMENT PROCESS

### 1. Project History

Following receipt of the project and referral for screening from the Commission, on June 19, 2019 the NIRB requested that the Proponent complete the Board's online application form through the NIRB's public registry system. The Proponent was asked to ensure, pursuant to s. 144(1) of the *NuPPAA*, that the information provided is sufficient to determine the scope of the project activities being proposed and facilitate the public screening process. On July 3, 2019 the NIRB released a formal letter requesting that the Proponent provide the Board with the information necessary in order to carry out the screening of the project proposal. The NIRB followed up via email (July 18, 2019) requesting an update on when the information would be provided, including releasing a second formal letter on July 25, 2019 pursuant to s. 144(1) of the *NuPPAA*. On August 14, 2019

the Proponent provided the requested information and the NIRB commenced the screening pursuant to Part 3 of the *NuPPAA*.

On August 29, 2019 the Board notified the Proponent that additional works and activities had been identified to those specified within the scope of the project as submitted, and that these appeared to be sufficiently related so as to form part of the project under assessment. The NIRB requested that the Hamlet of Cambridge Bay provide comments to the NIRB by September 12, 2019 regarding the potential inclusions to the scope being contemplated. The Hamlet of Cambridge Bay provided correspondence in response on August 30, 2019 noting support of the inclusion of scope to the project.

On September 10, 2019 the NIRB provided notice to the Commission that, following consultation with the Proponent, an inclusion had been made to the scope of the project pursuant to s. 86(1)(a) of the *NuPPAA* and that the NIRB was unable to proceed with screening until the updated scope of the project had been considered by the Commission. The NIRB noted that an inclusion was warranted as the activities as listed below was sufficiently related to the original project to form part of it. On September 16, 2019 the Proponent submitted the revised online application and the NIRB commenced the screening.

## **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/125480](http://www.nirb.ca/project/125480).

The proposed “Freshwater Creek Riverbed Restoration” project is located within the Kitikmeot region, approximately 2.5 kilometres (km) northwest from Cambridge Bay. The Proponent intends to conduct restoration activities at the existing Freshwater Creek crossing with the removal of an old bridge between the local cemetery and the town of Cambridge Bay and upgrade a new bridge crossing. The program is proposed to take place in September 2019.

As required under s. 86(1) of the *NuPPAA*, the Board accepts the scope of the “Freshwater Creek Riverbed Restoration” project as set out by the Hamlet of Cambridge Bay in the proposal. The scope of the project proposal includes the following undertakings, works, or activities:

- Transportation of personnel via truck to site;
- Removal of an existing 30 metre Bailey Bridge;
- Excavation and removal of the causeway and adjacent upstream buffer berm;
- Use of heavy equipment to excavate, load, and remove excavated materials;
- Restoration of the riverbed and riverbanks after project completion;
- Use of fuel from the local community for refueling; and
- Use of local facilities and accommodations.

### **3. Inclusion to Scoping List**

In addition to the above scope, additional works or activities were identified as being sufficiently related to the project to form part of it as per s. 86(1)(a) of the *NuPPAA*. Following consultation with the Proponent and a referral by the Commission on September 12, 2019, the NIRB resumed the assessment of the project proposal and included the following within the scope of the project:

- Excavated materials to be used for upgrading the road to the new bridge; and
- Completion of the new bridge by installation of timber deck and railings.

Further, the NIRB 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. However, the NIRB noted that any additional works not identified in the application that may be used by the Hamlet of Cambridge Bay would require a separate assessment by the NIRB under s. 86 of the *NuPPAA*.

### **4. Key Stages of the Screening Process**

The following key stages were completed:

<b>Date</b>	<b>Stage</b>
June 14, 2019	Receipt of project proposal from the NPC
June 19, 2019, July 3, 2019, July 25, 2019	Information requests
August 14, 2019	Proponent responded to information requests
September 10, 2019	Inclusion of scope pursuant to s. 86(1)(a) of the <i>NuPPAA</i>
September 16, 2019	Proponent submitted revised project proposal
September 16, 2019	Acceptance of Online Application and scoping pursuant to s. 86(1) of the <i>NuPPAA</i>
September 19, 2019	Public engagement and comment request
September 30, 2019	Receipt of public comments

## 5. Public Comments and Concerns

Notice regarding the NIRB's screening of this project proposal including the inclusion of scope activities was distributed on September 19, 2019 to community organizations in Cambridge Bay, 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 September 30, 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.

On or before September 30, 2019 the NIRB received comments from the following interested parties (see Summary of Comments and Concerns section below):

- **Government of Nunavut (GN)**
- **Crown – Indigenous Relations and Northern Affairs Canada (CIRNAC)**
- **Fisheries and Oceans Canada (DFO)**

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

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

### **Government of Nunavut (GN)**

- Noted that there are recorded archaeological sites near the proposed project location.
- Noted concern that the project activities have the possibility of encroaching on undisturbed areas where there is a potential for the presence of unidentified archaeological sites.
- On the basis that the area proposed for development has not been the object of an archaeological survey, the GN recommended that:
  - The Proponent hires a qualified archaeologist in order to conduct an archaeological assessment of any areas where ground disturbance activities are planned to occur;
  - No activities be conducted in the vicinity of any archaeological/historical sites;
  - If archaeological sites or features are encountered, activities should immediately be interrupted and moved away from this location; and
  - Each site encountered needs to be recorded and reported to the Government of Nunavut's Territorial Archaeology Office.

### **Crown – Indigenous Relations and Northern Affairs Canada (CIRNAC)**

- Noted concern that a Spill Contingency Plan was not included to deal with any potential fuel spill during the implementation of the project.

- Recommended that NIRB include terms and conditions related to:
  - Fuel and hazardous materials, storage and use;
  - Waste management practices; and
  - Disposal of all dredged material.

## **Fisheries and Oceans Canada (DFO)**

- Noted that an authorization under the *Fisheries Act* or a permit under the *Species at Risk Act* is not required.
- Recommended the Proponent:
  - Minimize duration of in-water work.
  - Conduct instream work during periods of low flow to further reduce the risk to fish and their habitat.
  - Plan activities near water such that materials as paint, primers, blasting abrasives, rust solvents, poured concrete or other chemicals do not enter the watershed.
  - Develop a response plan that is to be implemented immediately in the event of a sediment release or spill of a deleterious substance and keep an emergency spill kit on site.
  - Develop and implement an Erosion and Sediment Control Plan for the site that minimizes risk of sedimentation of the waterbody during all phases of the project.
  - Restore bed and banks of the waterbody to their original contour and gradient; if the original gradient cannot be restored due to instability, a stable gradient that does not obstruct fish passage should be restored.
  - If replacement rock reinforcement/armouring is required to stabilize eroding or exposed areas, then ensure that appropriately sized, clean rock is used.
  - Ensure that all in-water activities, or associated in-water structures, do not interfere with fish passage, constrict the channel width, or reduce flows, or result in the stranding or death of fish.
  - Retain a qualified environmental professional to ensure appropriate protocols are applied.
  - Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species and noxious weeds.
  - Whenever possible, operate machinery on land above the high-water mark, on ice, or from a floating barge in a manner that minimizes disturbance to the banks and bed of the waterbody.
  - Wash, refuel, and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water.

### ***b. 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.

## 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 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:

Factor	Comment
The size of the geographic area, including the size of wildlife habitats, likely to be affected by the impacts.	<ul style="list-style-type: none"><li>▪ The proposed project would take place approximately 2.5 km outside the community of Cambridge Bay but still within the municipal boundaries of Cambridge Bay. Activities would include the use of existing municipal infrastructure, such as roads and heavy equipment; and works within a riverbed.</li><li>▪ The proposed activities would take place within habitats and migration routes of terrestrial wildlife such as arctic hare, arctic fox, wolves and aquatic wildlife such as fish and fish habitat and may potentially affect animal migratory patterns.</li></ul>
The ecosystemic sensitivity of that area.	<ul style="list-style-type: none"><li>▪ A component of the proposed project would occur in a riverbed that is used by Arctic char for spring and fall fish runs. The Proponent noted that dredging activities would take place within a time frame authorized by the DFO that would not affect the fall fish run.</li></ul>
The historical, cultural and archaeological significance of that area.	<ul style="list-style-type: none"><li>▪ No specific areas of historical, cultural and archaeological significance have been identified by the Proponent nor the Government of Nunavut (GN) within the physical footprint of the proposed project. However, the GN noted that the specific area under the current project proposal has never been the object of a systematic archaeological survey and there is a potential for the presence of unidentified archaeological sites.</li></ul>

The size of the human and the animal populations likely to be affected by the impacts.	<ul style="list-style-type: none"> <li>▪ The NIRB notes that the close proximity of the proposed activities to the community of Cambridge Bay could potentially contribute to public concern developing.</li> <li>▪ The proposed project would occur within the municipality boundaries of Cambridge Bay, and as such, interaction with human populations is expected to occur.</li> <li>▪ Although the proposed project would occur in close proximity to the community, there still exists the potential for interaction with various wildlife species.</li> <li>▪ The proposed project has the potential to interact with fish movement and fish habitat due to the dredging activities.</li> </ul>
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.	<ul style="list-style-type: none"> <li>▪ A zone of influence of up to 10 km from the most potentially-disruptive project activities was selected for the NIRB's assessment. 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.</li> </ul>
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.	<ul style="list-style-type: none"> <li>▪ 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.</li> </ul>
Any other factor that the Board considers relevant to the assessment of the significance of impacts.	<ul style="list-style-type: none"> <li>▪ Decommissioning of causeway will reduce erosion and associated siltation into the river due to the bridge resting directly on a high riverbank.</li> </ul>

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

NIRB Project Number	Project Title	Project Type
<b><i>Proposed Developments – undergoing assessment</i></b>		
	Potential Impacts of New Per fluorinated Compounds on Arctic Char	Research
	The Beverly Caribou Herd Calving Ground Abundance Estimate	Research
<b><i>Present Projects – approved or in operation</i></b>		

<b>NIRB Project Number</b>	<b>Project Title</b>	<b>Project Type</b>
03DN119	CAM-M, Cambridge Bay Water Use License Renewal	Defence
17QN048	Land use permit for Quarry #3 and #6 @ Cambridge Bay (Located in Nunavut airport land)	Pits and Quarries
17QN056	Cambridge Bay Material Extraction and Quarrying	Pits and Quarries
17UN042	CAT-TRAIN: Canadian Arctic Tidal Transect Research and Infrastructure Network	Infrastructure
17YN004	Northern Contaminants Air Monitoring: Passive Air Sampling for Organic Pollutants and Mercury	Research
17YN061	Kitikmeot Region Marin Science Study	Research
18UN045	Soil and Water treatment Facility – Cambridge Bay	Infrastructure
19YN001	Reconstructing Past Arctic Sea Ice Cover with Coralline Red Algae	Research
19YN040	RV David Thompson Eastern Arctic Operations 2019	Marine Based Activities
<b><i>Past Projects</i></b>		
17YN026	Geoscience Tools for Supporting Environmental Risk Assessment of Metal Mining	Winter Road/Winter Trail
17YN027	Arctic-Boreal Vulnerability Experiment (ABOVE) Airborne Campaign	Research
17YN062	Satellite-Derived Bathymetry for marine shipping corridors	Research
17YN072	Functional, Structural and Biodiversity Studies of Arctic Freshwaters	Research
17YN074	Connecting Snow Melt to River Discharge in the Kitikmeot Region and Northwest Territories	Research
18YN003	Climate – Terrestrial Biodiversity Investigation in Tundra Vegetation Along an Arctic Latitudinal Gradient	Research
18YN020	Permafrost dynamics in response to climate change on Victoria Island, Nunavut	Research
18YN024	Landfast Ice Deterioration and Break-up data Collection and Modelling for Northern Communities and Low-Impact Shipping in Ice	Research
18YN025	Back for the future: Long-term observations of vegetation and snowcover in the High Arctic	Research
18YN048	Nutrient cycling in Cambridge Bay	Research
19YN002	TundraPeat	Research
19YN010	Effects of permafrost thaw on microbial organic matter utilization in Arctic streams	Research

## 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:**

- Potential adverse impacts to terrestrial wildlife from the use of heavy equipment and the construction activities for upgrading the road to the new bridge, completion of the new bridge and decommissioning of the old Bailey Bridge, including an increase in noise due to these activities. As discussed above in the assessment of factors relevant to this project proposal, the project would be limited to a small geographic area within the municipality of Cambridge Bay. 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; therefore, the potential to directly adversely impact terrestrial wildlife is considered low. However, noise during construction may disturb wildlife intermittently passing near or through the area. The potential adverse impacts to terrestrial wildlife and birds may be mitigated by requiring the Proponent to avoid wildlife and wildlife habitat, and to ensure wastes and fuels are inaccessible to wildlife. The NIRB recommends the following terms and conditions: 5, 6, and 9 through 13. Term and condition 17 is recommended to mitigate potential impacts to wildlife from noise.
- Potential negative impacts to fish and fish habitats due increased noise from construction and operations, and sedimentation and water runoff from dredging activities and removal of the causeway. It has been identified that improper waste management, and construction works could lead to impacts to fish and fish habitats. In addition, there is potential for erosion, sedimentation and water runoff from the dredging due to the excavation of materials. Further, the excavation and removal of the causeway may cause permafrost degradation. The proposed activities are likely to take place within areas that directly affect fish and fish habitat. It is recommended that the potential adverse impacts may be mitigated by measures such as requiring the Proponent ensure responsible use of vehicles used for the project activities, ensure the ground surface is stable to fully support equipment and to minimize erosion into waterbodies. The following terms and conditions are to mitigate the potential adverse impacts from the proposed activities on fish and fish habitat: 4, 6 through 8, 15 through 18, and 22 through 25.
- Potential adverse impacts to surface, ground, and vegetation from construction and decommissioning operations, accidental leaks, spillages of fuels and deposition of dust. 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 occurring in an already developed area. It is recommended that potential adverse impacts to surface, ground, and vegetation may be mitigated by requiring the Proponent to employ appropriate waste management measures, fuel and chemical use and storage protocols, and standard operational compliance measures. The following terms and

conditions are being recommended to address the above concerns: 14 through 16, and 19 through 21.

- The Proponent will be required to follow the specific Acts and Regulations as applicable for this project proposal (see Regulatory Requirements section) to mitigate the potential adverse impacts of the project proposal to the valued component as discussed above.
- Potential adverse impacts to public safety, and public and traditional land use activities in the area due to the construction and decommissioning operations. The Board has recommended term and condition 26 to ensure that the Proponent engages with local residents regarding planned activities in the area, and term and condition 27 have been recommended to ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities in the area.
- No specific concerns or impacts to public and traditional land use activities in the area have been identified, however, the Board is recommending terms and conditions 26 and 27 to ensure project activities are informed by available Inuit Qaujimaningit and that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities.

#### **Socio-economic effects on northerners:**

- The GN noted that the specific area under the current project proposal has never been the object of a systematic archaeological survey and there is a potential for the presence of unidentified archaeological sites. The Proponent is required to follow the *Nunavut Act* (as recommended in Regulatory Requirements section) and would be required to contact the Government of Nunavut – Department of Culture and Heritage if any historical sites are encountered. The Board also recommends term and condition 26 to ensure that available Inuit Qaujimaningit can inform project activities and reduce the potential for negative impacts occurring to any historical sites.
- The completion of the new, more efficient, and environmentally secure water crossing will provide safer and more stable infrastructure to meet current and future development needs. Additionally, the Proponent provided support letters for the proposed undertaking, which detailed the Hamlet Council's support for the project and its need to meet current and future development needs essential for the community. Term and condition 26 is recommended to ensure that the affected community and organizations are informed about the project proposal and term and condition 28 is recommended to ensure the Proponent considers hiring local residents for projects works where possible.

#### **Significant public concern:**

- No significant public concern was expressed during the public commenting period for this file. Based on the letter of support as illustrated in the letters and documentation provided in the project application, it is not expected that public concern would develop from the proposed project. However, follow-up consultation and involvement of local community members is expected to mitigate any potential public concern from developing as a result of the proposed project activities. Term and condition 26 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 and 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.

**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. The Hamlet of Cambridge Bay (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.: 149179 and 149225) and the NIRB (Online Application Form, September 16, 2019).
3. The Proponent shall operate the site in accordance with all applicable Acts, Regulations and Guidelines.

**Water Use**

4. The Proponent shall not use water, including constructing or disturbing any stream, lakebed or the banks of any definable water course unless authorized by the Nunavut Water Board.

**Waste Disposal**

5. 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**

6. The Proponent shall store all fuel and chemicals in such a manner that they are inaccessible to wildlife.
7. 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, at all refuelling stations, at vehicle maintenance areas.

8. 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**

9. The Proponent shall ensure that there is no damage to wildlife habitat in conducting this operation.
10. 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.
11. The Proponent shall not hunt or fish, unless proper Nunavut authorizations have been acquired.
12. The Proponent shall ensure that all wildlife have the right-of-way. Vehicles are required to slow down or stop and wait to permit the free and unrestricted movement of wildlife across the road at any location.
13. 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.

### **Ground Disturbance and Noise Activities**

14. 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.
15. The Proponent shall implement suitable erosion and sediment suppression measures on all areas before, during and after conducting activities in order to prevent sediment or fugitive dust from entering any waterbody or surrounding environment.
16. The Proponent shall implement sediment and erosion control measures by employing erosion prevention measures (e.g., berms or silt fence) in areas during the project operation.
17. All construction and road vehicles must be fitted with standard and well-maintained noise suppression devices and engine idling is to be minimized.
18. All generators must undergo regular maintenance to ensure machinery is kept working and in good condition.

### **Land Use and Restoration of Disturbed Areas**

19. The Proponent shall ensure that the land use area is kept clean and tidy at all times.
20. The Proponent shall ensure that all disturbed areas are restored to a stable state as practical upon completion of the project construction activities.

21. The Proponent shall remove all garbage, fuel and equipment upon completions of the project construction activities.

### **Freshwater-Based Activities**

22. The Proponent shall not deposit, nor permit the deposit of any fuel, chemicals, wastes (including waste water) or sediment into any waters.
23. The Proponent shall suspend all project activities should any dead fish or wildlife, or any injured wildlife be observed during any works or activities in and around the waters.
24. The Proponent shall implement measures designed to minimize disturbance to fish, sediments and benthic communities when carrying out project activities within the freshwater environment.
25. The Proponent shall implement suitable erosion and sediment suppression measures on all areas before, during, and after conducting activities in order to minimize turbidity plumes from the work site into the waterbody including the installation of silt screens.

### **Other**

26. 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.
27. The Proponent shall ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities.
28. The Proponent should, to the extent possible, hire local people and access local services where possible.

## **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 or Parks Canada as appropriate, and the NIRB of any changes in operating plans or conditions, including phase advancement, associated with this 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](mailto:info@nirb.ca) or upload a copy to the NIRB's online registry at [www.nirb.ca](http://www.nirb.ca).

## **Bear and Carnivore Safety**

3. 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).
4. 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).
5. 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 Cambridge Bay, phone: (867) 983-4167).

## **Species at Risk**

6. 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.

## 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 *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.
4. 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>).
5. 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**.

## CONCLUSION

The foregoing constitutes the Board's screening decision with respect to the Hamlet of Cambridge Bay's "Freshwater Creek Riverbed Restoration". The NIRB remains available for consultation with the Minister regarding this report as necessary.

Dated October 18, 2019 at Baker Lake, NU.

A handwritten signature in black ink, appearing to read "M. Kavik Kaluraq". The signature is fluid and cursive, with "M. Kavik" on the top line and "Kaluraq" on the bottom line.

Kavik Kaluraq, A/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](http://www.sararegistry.gc.ca)) to get the current status of a species.

Updated: September 2019

Terrestrial Species at Risk <sup>1</sup>	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility <sup>2</sup>
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	Threatened	Schedule 1	ECCC
Peregrine Falcon	Special Concern	Schedule 1	ECCC
Red Knot Islandica Subspecies	Special Concern	Schedule 1	ECCC
Red-necked Phalarope	Special Concern	Schedule 1	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	ECCC
Peary Caribou	Endangered	Schedule 1	GN
Polar Bear	Special Concern	Schedule 1	ECCC
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

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

2 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.

<b>Terrestrial Species at Risk<sup>1</sup></b>	<b>COSEWIC Designation</b>	<b>Schedule of SARA</b>	<b>Government Organization with Primary Management Responsibility<sup>2</sup></b>
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 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>3</sup> to issue such permits.

<sup>3</sup>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*<sup>4</sup>, 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*<sup>5</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

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<sup>4</sup> s. 51(1)

<sup>5</sup> P.C. 2001-1111 14 June, 2001

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.