



SCREENING DECISION REPORT NIRB FILE No.: 17XN030

NPC File No.: 148432

October 2, 2017

Following the Nunavut Impact Review Board's (NIRB or Board) assessment of all materials provided, the NIRB is recommending that a review of Government of Nunavut (GN) "Pond Inlet Marine Infrastructure" 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 Ministers accept 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 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 February 22, 2017 the Nunavut Impact Review Board (NIRB or Board) received a referral to screen Government of Nunavut’s (GN) “Pond Inlet Marine Infrastructure” project proposal from the Nunavut Planning Commission (NPC or Commission), with an accompanying positive conformity determination with the North Baffin 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 has assigned it file number **17XN030**.

PROJECT OVERVIEW & THE NIRB ASSESSMENT PROCESS

1. Project Scope

The proposed “Pond Inlet Marine Infrastructure” project is located within the Qikiqtani region (North Baffin) in the Hamlet of Pond Inlet. The Proponent intends to construct a new small craft harbour and associated infrastructure in Pond Inlet to improve marine access and safety by providing a protected harbour for private, local, and recreational users, community re-supply, as well as cruise ships and associated vessels. Construction is expected to take two (2) years from 2018 through 2020, followed by ongoing operations and maintenance. Construction would be managed by GN-Community & Government Services, and operations and maintenance conducted by GN - Economic Development and Transportation.

As required under subsection 86(1) of the NuPPAA, the Board staff recommend that the Board accept the scope of the “Pond Inlet Marine Infrastructure” as set out by GN in the project proposal which includes the following undertakings, works, or activities:

- Develop in-water infrastructure and conduct underwater works:
 - Construction of two (2) rock breakwaters to create a 2.5 hectare harbour. Inner harbour to be swept for rocks and boulders (but not dredged), with installation of two (2) floating docks inside the harbour for moorage of up to 80 vessels, with floats removed prior to freeze-up.
 - Construction of a fixed wharf approximately 80 metres offshore of the sealift laydown area with a dredge berth pocket and an approach channel to provide larger boats with access to the wharf.
 - Dredging of an estimated 16,000 m³ of sediment to achieve the planned depth alongside the new fixed wharf and provide the access channel to deeper water.
- Onshore upgrading and development of infrastructure:
 - Improvement of vehicle access along the shoreline in the inner harbour by topping beach with a crushed gravel road surfacing, grading and packing.
 - Development of a new sealift laydown area adjacent to the west breakwater approximately one (1) hectare in size with an access ramp between the laydown area and the west breakwater for vehicle access.
 - Use of dredged materials from the fixed wharf berth pocket and approach channel for fill material.
 - Crushed granular road structure to be placed on top of dredged sediments.
- Quarrying, transport, and deposition of approximately 200,000 tonnes of rock from a new quarry located five (5) kilometres (km) from the Hamlet to Pond Inlet, including:
 - Vegetation clearing and overburden removal.
 - Drilling and blasting of approximately 75,000 cubic metres (m³) of bedrock, over an area of approximately 10 hectares.
 - Use of explosives to blast rock in quarry.
 - Sorting and stockpiling blasted rock to produce run of quarry and riprap.
 - Crushing, screening and stockpiling of run of quarry.

- Transport of quarried material to the dock development via two (2) alternatives being considered: either use of existing roads within the Hamlet of Pond Inlet, or a new bypass road built near the Hamlet. If the alternative haul route was to be developed, the following would occur:
 - Stripping of overburden material;
 - Cut-fill operations where in-situ materials would be used to build the road core from nearby cuts, depending on final alignment, topography, and overburden materials; and
 - Develop perimeter drainage ditches, culverts, diversion berms, and erosion control structures, as necessary to control surface water.
- Transport of equipment and supplies to site for construction, operations, and maintenance of the small craft harbour via cargo ships (barges/sealift) and aircraft.
- Use of heavy equipment and vehicles, as well as workboats and tugboats for construction, operation, and maintenance of the facility.
- During construction, fuel would be sourced through suppliers in Pond Inlet; however, if the hamlet has insufficient reserve fuel capacity the contractor would be responsible for the transport and storage of the required fuel. Refuelling of heavy equipment in designated fuelling areas, and marine fleet to refuel at sea from bunker tanks.
- Also during construction, the use of facilities in Pond Inlet for accommodations, water source, and waste management and purchasing of local supplies for local and non-local construction workers.
 - Sanitary and non-hazardous waste disposal managed through Hamlet of Pond Inlet services and facilities.
 - Use of water for dust control, drinking water, sanitary facilities, earthworks (compaction if necessary), and equipment wash down.
- Hazardous wastes barrelled and transported to the appropriate facilities for disposal.
- Periodic maintenance of the facility using heavy equipment through operations.

2. Inclusion or Exclusion to Scoping List

At this time, the NIRB has identified no additional works or activities in relation to the project proposal; however, the NIRB notes that as the project is proposed as permanent, reclamation of the site would be assessed as a separate project at a time when more would be understood about the activities required of that stage. Additionally, the NIRB notes that if the Hamlet of Pond Inlet would be using the rock quarry and the alternate haul road if constructed, both would be required to undergo a separate assessment for use by the Hamlet. As a result, the NIRB will proceed with screening the project based on the scope as described above.

3. Key Stages of the Screening Process

The following key stages were completed:

Date	Stage
February 22, 2017	Receipt of project proposal and positive conformity determination (North Baffin Land Use Plan) from the NPC
February 28, 2017 & May 30, 2017	Information request

June 9, 2017	Proponent responded to information request
June 9, 2017	Scoping pursuant to subsection 86(1) of the NuPPAA
July 18, 2017	Public engagement and comment request
August 8, 2017	Receipt of public comments
August 16, 2017	Proponent provided with an opportunity to address comments/concerns raised by public
August 30, 2017	Proponent responded to comments/concerns raised by public
July 21, 2017	Ministerial extension requested from the responsible Ministers

4. Public Comments and Concerns

Notice regarding the NIRB's screening of this project proposal was distributed on July 18, 2017 to community organizations in Pond Inlet, 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 August 8, 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:

Government of Nunavut (GN)

- Noted that there are four (4) known archeological sites in the general area of the proposed project; however, no systematic reconnaissance has been completed in the area and therefore there may be additional sites. Recommended an archeological assessment of the project area along the access/haul routes and quarry borrow source and all other locations where land disturbance activities are planned to occur.
- Noted that the building of inuksuit is not recommended.
- Noted that identifying, assessing, and addressing infrastructure needs is integral to providing a competitive cruise product and that increasing the amount of small craft harbours in Nunavut has significant benefits for cruise tourism. Tourism and Cultural Industries strongly supports the small craft harbor project and its benefits as the small craft harbour could lead to increased cruise visits which would result in increased benefits to the community through increased art purchases and increased payments for performances and other cultural products.

- Noted that there are locally working Career Development Officers within the Career Development division at Family Services which would be available to support the human resources activities of the Project including connection to an already trained labour pool.

Environment and Climate Change Canada (ECCC)

- Accepted that the dredged material from the construction of the small craft harbour is being placed for a purpose other than disposal and therefore a Disposal at Sea Permit will not be required for the material used in Project-related construction. ECCC stated that should project activities change, ECCC should be contacted to verify that their determination of the inapplicability of a Disposal at Sea permit remains valid.
- Recommended that the Proponent develop a Sediment and Erosion Control Monitoring Plan that includes where and when the monitoring will occur, as well as contingency and adaptive management plans should monitoring indicate sediment run-off which may have a negative impact on marine water quality.
- Noted it is the Proponent's responsibility to remain in compliance with the pollution provisions of the *Fisheries Act*.
- Concerns regarding the Project potentially located in an identified Nesting Zone, and Project activities may impact migratory birds, nests, or eggs. Recommended the Proponent take proper measures to avoid disturbing birds and nests.
- Noted that 2,000,000 litres of fuel would be transported, stored and used for the project and recommended that the Proponent determine what steps should be taken to protect wildlife (including migratory birds) in the event of a pollution incident and incorporate the information into the Emergency Response Plan.
- Noted the Species at Risk that may occur within the Project area and recommended the Proponent undertake monitoring of species at risk mitigation during Project activities if species at risk are encountered by recording the locations and dates of any observations, behavior or actions taken by the animals, and any actions taken by the Proponent to avoid contact or disturbance to the species and their habitat.

Fisheries and Oceans Canada (DFO)

- Noted that the project will likely result in serious harm to fish and fish habitat and has the potential to impact Inuit harvesting activity in the Eclipse Sound.
- Noted DFO may have a duty to consult before authorizations are issued.
- Noted the project will likely result in adverse impacts to fish and fish habitat.
- Noted DFO is working with the Proponent on avoidance, mitigation, and offset plans to reduce potential impacts related to the Project.
- Recommended project screening with terms and conditions.

Indigenous and Northern Affairs Canada (INAC)

- Noted that the project was proposed so as to improve access for marine use in the community and that an increase in shipping or any future commercial development using the small craft harbor was not included in the scope. INAC recommended that the Proponent provide a discussion on the estimate increase in marine traffic and associated mitigation measures as there is a potential for increased use of the local marine environment as a result of harbour development.

- Noted that the effects of climate change were not fully considered in the application and recommended the Proponent provide some evaluation of the cumulative effects of climate change on the design and operation of the Small Craft Harbour.
- Recommended that the Proponent provide an overview of what types of emergencies may arise from the project during both construction and operation and the types of mitigation measures that may be employed with understanding that more detail will be provided in the Project Emergency Response Plan.
- Recommended that the Proponent provide more details regarding marine construction monitoring as insufficient detail was provided regarding the marine construction monitoring program in the application. However, it is understood that the detailed monitoring plan will be developed by the contractor.
- Recommended that the Proponent provide more detail related to how the data collected during compliance monitoring and environmental effects monitoring will be reported to applicable regulatory agencies. This includes what frequency and what types of data would be collected.
- Recommended that the Proponent ensure that refueling of mobile equipment occurs at least thirty one (31) metres away from the normal high water mark.

Natural Resource Canada (NRCan)

- Required conformation of explosive storage and if explosives are to be stored at a magazine located in the proposed quarry to determine if it was a regulatory authority through the *Explosives Act* or if the explosives permit would fall under the Worker's Safety and Compensation Commission under the territorial government.

Parks Canada (PC)

- Noted that the proposal is located within the proposed national marine conservation area (NMCA) in Lancaster Sound, the management of which is the subject of ongoing discussions between Parks Canada, the Government of Nunavut, and the Qikiqtani Inuit Association.
- Noted that an updated boundary is expected in the coming weeks and the establishment of an Inuit Impact and Benefit Agreement along with the development of an interim management plan and interim zoning plan would follow.
- Noted the NMCA is of critical importance to most of the world's narwhal, 20% of Canada's beluga, bowhead whales, walrus, and ringed and bearded seals. Further, the area also important to millions of breeding, summering and staging seabirds such as Thick-Billed murres, Black-legged kittiwakes, Northern Fulmars, Dovekies, Black guillemots, and seaducks such as eiders and long-tailed ducks.
- Stated that Parks Canada and DFO would share responsibility for the management of the marine mammal component of an NMCA in Lancaster Sound and will rely on DFO for comments in this area.
- Stated that parks Canada and ECCC have overlapping mandates for seabirds and water quality and will rely on ECCC for comments in this area.
- Recommended that government departments and agencies who regulate the cruise ship industry in the area of the proposed project be made aware of the timing of construction at least a year in advance so appropriate planning could be put in place.

Transport Canada (TC)

- Noted that GN-CGS must submit a Notice of Works to Transport Canada as the Arctic Ocean is part of the Scheduled waters listed under the Navigation Protection Act (NPA) and any work in, on, over, under or through sections of the Arctic Ocean will require NPA approval prior to action.
- Recommended the GN review the amendments to the Minor Works and Waters Order and self-assess to determine if any of the proposed in-water works may be considered a minor work. Further, TC will participate in any coordinated “whole of government” Aboriginal consultation resulting from the Northern Project Management Office and/or the NIRB environmental assessment process.

5. 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; however, as noted above DFO indicated concerns with respect to the proposed project potentially causing significant harm to fish and potentially impacting Inuit fishing rights.

6. Proponent’s Response to Public Comments and Concerns

The following is a summary of the Proponent’s response to concerns as received on August 30, 2017:

- In response to concerns regarding the project construction occurring during the period when marine traffic would be in the area and potential interactions, the Proponent noted that:
 - Reiterated the commitment to maintain access to the beach at Pond Inlet is a requirement within the Construction Environmental Management Plan (CEMP).
 - Consultation with Transport Canada regarding the *Navigation Protection Act* had been initiated.
 - The proposed small craft harbour would be constructed in shallow water and would not affect the shipping in Eclipse Sound.
 - Traffic that could be impacted by construction of the small craft harbour were cruise ships, adventure/pleasure craft, sealift vessels, and fuel tankers calling at Pond Inlet.
 - Larger vessels would continue to anchor offshore in deeper water well away from the construction area, and allowing access to the beach outside the immediate construction zone by shore tenders, and boat launches. It was further noted that the receiving manifold for fuel resupply is 500 meters from the proposed small craft harbour construction site, therefore interference with tanker operations during fuel resupply is not expected.
 - The consultation process with sealift operators and cruise ship companies to date;
- In response to concerns regarding potential for increased activity in Eclipse Sound, the Proponent noted that:
 - The small craft harbour is designed for the use and benefit of the population of Pond Inlet, and the depth restricts its use to shallow-draft vessels, therefore it is unlikely to attract more shipping.

- Acknowledged that there could be an increase in adventurer/pleasure craft traffic to grow but the growth would not be related to the construction of the small craft harbour.
- Re-supply quantities of dry cargo and fuel would not increase related to the construction of the small craft harbour but to the increase in the population of the community.
- Noted that vessel data from NORDREG states that the majority of cruise and adventurer traffic already stops at Pond Inlet and based on consultations with a cruise ship operator, the presence of the small craft harbour would not be viewed as an attractant as zodiacs land on the beach.
- Stated that any commercial operations using the small craft harbour would be subject to its own permitting processes.
- Noted the small craft harbour was designed with sufficient capacity for growth in population and marine use in Pond Inlet.
- Noted no outstanding issues were identified regarding an increase in activity in relation to operations, but that the GN and the community of Pond Inlet are in the initial stages of planning for the operations of the facility.
- In response to concerns regarding the effects of climate change on local use of the port and adjacent waters and that should be considered for both construction and operations of the small craft harbour, the Proponent noted that:
 - Three (3) effects of climate change were considered in the design of the small craft harbour, sea level rise, reduced ice cover, and increased storm intensity.
 - Allowance was made in the design for 0.4 metre of sea level rise which was based on the 95th percentile for emissions predictions over a 50-year period. Should sea spray overtopping of the structure become unmanageable as sea level rises, the crest elevation of the breakwater structures could be raised and geotechnical investigations have demonstrated that the sediments would be able to support the additional weight and the fixed wharf structure could be readily raised without large-scale reconstruction.
 - The small craft harbour was designed to protect the shoreline and reduce erosion as it fronts the entire developed portion of the community shoreline which has a sand substrate sensitive to sea level rise. In addition, the upper beach area would be covered with a gravel surface raising this area and adding protection to the adjacent sheds.
 - Eclipse Sound has an abnormally high degree of calm weather and that the navigable portion of the season has not changed in 30 years. To design the small craft harbour, climate change was considered by using all existing data and modelling for a 1-in-50 year storm event rather than the 1-in-30 year event (e.g., storms, waves, and ice floe) which is typically for such structures was used to account for future potential trends.
 - Pond Inlet is aware that the ice inside the harbour will thaw later and freeze up earlier than the existing nearshore conditions.
 - Based on the relatively warm seawater temperature it is expected that permafrost would not affect the facilities of the small craft harbour and geotechnical drilling showed no evidence of subsea permafrost.

- During operations the expanding open water season due to climate change may see the harbour used for increased lengths of time by cruise ships and subsistence fishing but that the construction of the harbour would not itself be an attractant to additional traffic to Pond Inlet.
- In response to concerns regarding emergency management plans, the Proponent has committed to the Contractor developing an Emergency Response Plan. Further, the GN reiterated that GN-EDT has committed to developing an Emergency Response Plan for the operations phase of the project as well as health and safety plans. These plans would be developed using the GN operated facilities in Iqaluit as an example.
- In response to concerns regarding impacts to the marine environment as a result of onshore erosion, sediment control, and water management during construction and lack of clarity on the monitoring programs to be implemented the Proponent reiterated that a CEMP would be developed for the small craft harbour following best management practices and the commitments made within the application. Further, the Proponent noted that additional measures could be added during the Fisheries Act process and the CEMP would be updated to include those.
- In response to concerns regarding four (4) possible archaeological sites in the proposed project area and that the sites would be protected by law, the Proponent noted that:
 - Reiterated that a registered professional archaeologist was working on the project and that an Archaeological Impact Assessment was being conducted. Once the report was complete it would be submitted to Government of Nunavut – Department of Culture and Heritage, Inuit Heritage Trust, Mittimatalik Hunter and Trappers Organization, and the Hamlet of Pond Inlet. Further, if mitigation plans are required the aforementioned groups would be consulted.
 - Stated that the database maintained by the Canadian Museum of Nature, no significant palaeontological sites in conflict with the small craft harbour were identified.

7. Time of Report Extension

As a result of the time required to allow parties sufficient time to comment on the project as well as to let the Proponent provide a response to the comments, the NIRB was not able to provide its screening decision report to the responsible Minister within 45 days as required by Article 12, Section 12.4.5 of the Nunavut Agreement and subsection 92(3) of the NuPPAA. Therefore, on July 21, 2017 the NIRB wrote to the Ministers of Natural Resources, Transport, and Fisheries and Oceans and the Canadian Coast Guard, Government of Canada; and the Ministers of Culture and Heritage, and Community & Government Services, Government of Nunavut, seeking an extension to the 45-day timeline for the provision of the Board's Report.

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

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

Accordingly, the assessment of impact significance was based on the analysis of those factors that are set out under 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 include a small craft harbour that would fall within an area of approximately 15,000 square meters (m²), a proposed quarry of approximately 10,000 m², and use of either existing hamlet roads or an alternate haul road that would be approximately four (4) kilometers long going around the Pond Inlet airport runway. The small craft harbour and proposed quarry, due to lack of vegetation cover, presence of existing infrastructure, human activities, and dogs located on the beachfront, are considered poor wildlife habitat. The Potential Alternate Haul Road corridor includes vegetated lowland and wetland areas, and as such is likely used by small mammals, and migratory and non-migratory birds. As such, the proximity of the components of the project to Pond Inlet would tend to make the area unattractive to caribou.

The proposed activities may take place within habitat for Arctic fox, Arctic hare, various species of marine fish, marine mammals, and upland and coastal migratory birds, including Species at Risk including Ivory Gull, Peregrine Falcon, Polar Bear, Red Knot, Ross's Gull, and Wolverine.

2. *The ecosystemic sensitivity of that area.*

Although the proposed project would occur in an area with no particular identified ecosystemic sensitivity, it is noted that the locations of the proposed quarry sites in the vicinity of Bylot Island Bird Sanctuary and the Sirmilik National Park. In addition, this area has been identified as having value and priority to the local community for:

- i. Terrestrial wildlife,
- ii. Migratory birds, especially Ivory Gull;
- iii. Migratory birds and nesting areas, especially Canada Geese,
- iv. Polar Bears,
- v. Marine wildlife,
- vi. Importance of shoreline to the community, and
- vii. Sport Hunting.

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

The Proponent has indicated that there are a number of known areas of historical, cultural, and archaeological significance in the vicinity of the project area, and is currently undertaking preconstruction archeological survey in order to identify additional sites that may be present in locations of planned or upgraded infrastructure. 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 additional sites of historical, cultural or archaeological significance are encountered and to determine how to proceed, either through avoidance or mitigation.

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

As the proposed “Pond Inlet Marine Infrastructure” project would be located on the shore front of Pond Inlet and includes establishment of a proposed quarry approximately four (4) kilometres southeast of the community, there is potential for significant human interaction. However, the Proponent has indicated that safety measures would be incorporated to ensure public safety during both construction and operations.

The project proposal included a quarry program and an alternative haul road involving extraction and transportation of aggregate resources, of which the nature of potential impacts are considered to be well-known. However, due to the proximity of the project area to nesting zones of migratory birds, and habitats for various terrestrial Species at Risk, specific mitigation measures for the protection of critical life stages of birds and terrestrial wildlife may be necessary. Further, based on past evidence of projects with a similar scope of activities, potential negative impacts will be reversible and mitigable with due care.

Although no significant public concerns were raised during the public commenting period, the NIRB notes that the close proximity of the proposed activities to the community of Pond Inlet and areas currently used by residents for recreational/traditional pursuits could potentially contribute to public concern developing. However, the proposed project would be improving existing infrastructure and improving access to the water for community members. A term and condition has been recommended to direct engagement with the community, hunters and trappers organization and interested parties, as well as the posting of public notices to ensure residents are aware of the development activities being or to be conducted.

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 “Pond Inlet Marine Infrastructure” project involves the construction of breakwaters, quarries, and a potential alternate haul road, the nature of potential impacts is considered to be well-known. Potential adverse impacts are likely to be localized, however the quantity of material required to construct the small craft harbour and involved in quarrying does increase the potential for dust generation and subsequent impacts on air quality in Pond Inlet. However, based on past evidence of projects with a similar scope of activities and the mitigation measures proposed by the Proponent, the potential adverse impacts would be limited to occurring during the period of construction and may be of moderate magnitude, reversible and mitigable with due care.

The operation of the small craft harbour is not anticipated to lead to a significant increase in marine activities. Any future projects using the marine infrastructure beyond that of the anticipated community use and sealift resupply would involve independent screening.

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 would take place within several kilometers of projects that are currently active, in addition to other currently or recently active projects as listed in Table 1 below. These projects include a number of undertakings within the municipality boundaries of Pond Inlet and would also occur during normal sealift operations and other marine traffic. The need for this project has been identified to improve access to the water for residents of Pond Inlet, reduce environmental risk, improve safety, and allow for more efficient sealift operations and as such the benefits would be expected to outweigh the impacts; however in the assessment of impacts for this proposed project, to ensure that the adverse impacts are minimized, the NIRB would recommend terms and conditions to mitigate the impacts identified above.

Due to the proximity of this project to Pond Inlet and other projects noted, there is potential for cumulative effects to air quality from dust and noise associated with project-related road traffic and quarry activities, and to marine fish and fish habitat from in-water works associated with the establishment of the Pond Inlet Marine Infrastructure; however, it is noted that this project is not likely to result in significant residual cumulative impacts.

The potential for cumulative impacts to terrestrial wildlife and habitat, fish and fish habitat, marine mammals, migratory birds, water quality, soil quality and ground stability, air quality, cultural and archaeological resources, and traditional wildlife harvesting pursuits from the proposed marine infrastructure and quarry activities, and other projects occurring in the region has been identified and considered in the development of the NIRB's recommendations. Terms and conditions recommended for each of these projects are expected to reduce any residual impacts, and as such would limit or reduce the potential for cumulative effects to occur.

Table 1: Project List

NIRB Project #	Project Title	Project Type
<i>Active Projects</i>		
08MN053	Mary River Project	Mine
13YN010	Pond Inlet Air Monitoring	Research
17QN015	2017 Pond Inlet Quarry Administration Agreement	Community Infrastructure
<i>Past Projects</i>		
03QN074	Quarry for Sewage Lagoon Upgrade in Pond Inlet	Community Infrastructure
06AN041	Adventure Canada Expeditions 2017	Cruise/Tourism (seasonal)
12AN025	One Ocean Expeditions	Cruise/Tourism
13AN014	2017 Students on Ice Arctic Expedition	Cruise/Tourism (seasonal)

NIRB Project #	Project Title	Project Type
13AN028	L'AUSTRAL 2016 – Cruise Kangerlussuaq, Greenland to Nome	Cruise Ship
14AN024	MS Silver Explorer, Expedition High Arctic	Cruise Ship
15YN017	Periglacial Biogeosystem dynamics in response to climate change	Research
15YN022	Effects of Climate Change on Snow Geese Nesting Success on Bylot Island	Research
15YN026	Arctic Secrets	Filming
16AN072	Northwest Passage Project	Cruise/tourism
16TN039	MS Crystal Serenity – Crystal Cruises LLC Northwest Passage 2016 and 2017	Tourism (<i>seasonal</i>)
16TN050	MY Galileo G Northwest Passage	Cruise Ship
16TN051	SY HETAIROS Northwest passage 2016	Cruise Ship
16YN046	Geotechnical and Environmental Baseline Studies – Pond Inlet Small Craft Harbour Development	Research
16YN054	Baseline Monitoring of Marine Productivity and Oceanography Spanning the Northwest Passage Using Ships of Opportunity	Research
16YN048	Impacts of Air Pollution on Terrestrial and Aquatic Ecosystems on Baffin Island	Research
17AN031	Canada C3 led by the Students on Ice Foundation	Research
17YN041	A Coastal, Pan-Canadian Collection of plants, microalgae and marine invertebrates for the Canadian Museum of Nature, as part of Canada C3	Research

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

The construction of the proposed marine infrastructure would allow the residents of Pond Inlet more ready access to the water for boating, hunting, fishing, and recreational activities as well as providing infrastructure to assist in the annual resupply sealift. Additionally, use of the small craft harbour would ensure greater control over where cruise ship and adventure travel visitors are likely to access the shore.

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.

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: 1-4.

Ecosystem, wildlife habitat and Inuit harvesting activities:

Issue 1: Potential adverse impacts to fish and fish habitat, benthic organisms, marine mammals, and freshwater and marine water quality, from site preparation, from construction activities, including the development of the small craft harbour infrastructure with the use of heavy equipment, use of explosives, quarry activities with potential increase in noise associated with these activities. In addition, potential adverse impacts may occur during the operations of the small craft harbour.

Board views: As discussed above in the assessment of factors relevant to this project proposal, the potential for impact(s) associated with the proposed activities may overlap with natural ranges of several terrestrial and marine wildlife species. The project may adversely impact fish and fish habitat, benthic organisms, marine mammals, and marine water quality, from destruction benthic habitat from the construction activities. Also, adverse impacts to marine water in proximity to the small craft harbour footprint are likely due to sedimentation into open water during construction of the breakwaters and launch ramp, however, no significant long-term adverse impacts are expected, as the sedimentation should quickly dissipate due to wave and tidal action. The quarry may impact freshwater quality and terrestrial mammals due to construction and activities; however, the impacts are predictable and mitigable.

To mitigate potential project impacts to these natural resources, the Proponent has provided a Spill Prevention and Response Plan which includes storage measures (should fuel storage be required), spill response measures, equipment requirements, and overall handling procedures for the management of fuel and chemicals. Further, the Proponent has committed to implement measures such as sediment and silt fences to minimize the potential environmental impacts within the Construction Environmental Management Plan. In addition to the Proponent's proposed mitigation measures, it is expected that standard operational considerations would mitigate any potential adverse impacts to the surface water quality and quantity, and fish and fish habitat in the direct project area and areas adjacent to the proposed project areas.

The Proponent may require a water licence from the Nunavut Water Board if the alternate haul road for any fuel storage if contractor is required to store fuel. 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*, the *Species at Risk Act*, the *Wildlife Act (Nunavut)*, the *Arctic Waters Pollution Prevention Act*, and the *Canada Shipping Act* (see Regulatory Requirements section).

Recommended Mitigation Measures: It is recommended that the potential adverse impacts may be mitigated by measures such as requiring the Proponent use appropriate measures to prevent unplanned deposition of sediment and runoff during construction, minimizing release of explosive residue into water, and preventing fuel and other hydrocarbon spills during construction and operations. The NIRB recommends the following additional terms and conditions are recommended to mitigate the potential adverse impacts to fish and fish habitat: 5 through 13, 19 through 28 and 31 through 35.

Issue 2: Potential adverse impacts to terrestrial wildlife, migratory birds, non-migratory birds, marine wildlife, fish and their respective habitats from site preparation, quarrying, and from construction activities due to disturbance of habitat.

Board views: As discussed above in the assessment of factors relevant to this project proposal, the potential for impact(s) associated with the proposed activities, such as site preparation and road construction (if required), overlaps the natural ranges of several terrestrial wildlife species including Arctic fox, Arctic hare, and migratory and non-migratory birds. The potential impacts to terrestrial wildlife and migratory and non-migratory birds are associated with destruction of vegetation within the project footprint and potential loss of habitat due to the improvements to the small craft harbour and associated facilities. However, as noted by the Proponent, the location of the proposed project would be predominately located within a previously disturbed area with minimal wildlife habitat identified, therefore no significant disturbance is anticipated and the potential impacts to terrestrial wildlife and migratory and non-migratory birds are considered to be of low magnitude, short duration, and reversible.

The potential road corridor in the Alternate Haul Road Study Area has an increased probability of usage by terrestrial wildlife and migratory and non-migratory birds due to the nature of the habitat. As such, there is greater concern for habitat disturbance should this road be constructed, and greater care must be taken to minimize disruption of habitat and any construction activities during the nesting season.

The watercourses which would potentially be directly affected by the quarry and Alternate Haul Road have no identified fish presence, and thus effects on freshwater fish are unlikely. The closest identified fish-bearing watercourse is outside of the Alternate Haul Road Study Area and effects are unlikely to be significant.

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

Recommended Mitigation Measures: It is recommended that the potential adverse impacts may be mitigated by measures such as requiring the Proponent to minimize activities during periods when birds are particularly sensitive to disturbance such as migration, nesting and moulting, and to ensure that all project personnel are made aware of the measures to protect wildlife. It is recommended that the potential adverse impacts may be mitigated by measures such as ensuring that the Proponent provides dust control measures. In

addition, the NIRB recommends the following terms and conditions: 7, 12, 14 through 18, 29, and 30.

Issue 3: Potential adverse impacts to vegetation, ground stability, and soil quality from the upgrade and construction of the small craft harbour and quarry, and the use of heavy equipment for site preparation and on-land transportation.

Board Views: The activities proposed for the project, including the use of heavy equipment for site preparation and hauling quarried rock to the breakwater site, may result in adverse impacts to soil quality and soil stability from erosion and rutting associated with land disturbance. In addition, fuel spill incidents from general construction and quarrying activities in the proposed small craft harbour area as well as the quarry may adversely impact soil quality. However, the potential for impacts is likely limited to the project footprint, and the probability of long-term impacts occurring is considered to be low. To mitigate potential impacts, the Proponent has committed to avoiding the use of machinery and vehicles over unstable areas and maintaining spill prevention and recuperation materials at the project site. The potential adverse impacts to ground stability and soil quality are considered to be of low magnitude and reversible.

The Proponent would also be required to follow the *Transportation of Dangerous Goods Regulations*, *Transportation of Dangerous Goods Act*, and the *Canadian Environmental Protection Act* (see Regulatory Requirements).

Recommended Mitigation Measures: It is recommended that the potential adverse impacts may be mitigated by measures such as requiring the Proponent to 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 during construction. The Board recommends the following terms and conditions to mitigate the potential adverse impacts to ground stability and soil quality: 12, 13, 19 through 20 and 22 through 27.

Issue 4: Potential adverse impacts to air quality from project activities, including dust and emissions generated by the use of explosives to blast rock, quarrying activities, and the use of heavy equipment for site preparation, access road construction, and development of the small craft harbour.

Board views: There is potential for adverse impacts to air quality from site preparation, use of heavy equipment and machinery (terrestrial and marine), and blasting with the project, which would be limited to within the project footprint with a low probability of extending beyond the geographic area. The transport of material through Pond Inlet does increase the potential for dust, however the potential adverse impacts to air quality are considered to be of low magnitude, short-term, and reversible.

Recommended Mitigation Measures: It is recommended that the potential adverse impacts may be mitigated by measures such as requiring the Proponent to use water or other non-toxic and biodegradable additives for dust suppression as necessary to maintain ambient air quality during construction of the small craft harbour and quarrying activities. The

Board recommends the following term and condition to mitigate the potential adverse impacts to air quality: 21, 32, 34, and 35.

Issue 5: Potential adverse impacts to traditional land use activities, fishing and other on-land and marine resource use activities in the area due to safety concerns requiring the public to maintain a distance from project activities, from noise and movement disruptions associated with the upgrading and associated construction with the small craft harbour.

Board Views: There is potential for the proposed land- and marine-based activities, such as site preparation, upgrades to existing infrastructure as well as the construction of new infrastructure, and quarrying activities, to disrupt the movement of residents in Pond Inlet to areas for traditional land use pursuits. These project activities may also interfere with other land users and marine resource users. Although the proposed project would include temporary activities (approximately two-year construction period) with limited potential for long-term impacts with respect to noise and disruption of use, there is potential for long-term impacts as a result of navigation interference. Terms and conditions have also been recommended to ensure that potential impacts to traditional land use activities are minimized should they be observed.

Recommended Mitigation Measures: Term and condition 36 is recommended to ensure that the affected communities and organizations are informed about the project proposal and term and condition 37 has been recommended to ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities in the area. In addition, terms and conditions 39 and 40 are recommended to provide for public safety during construction and quarry activities.

Socio-economic effects on northerners:

Issue 6: Potential adverse impacts to historical, cultural, and archaeological sites from development activities.

Board Views: The Proponent is proposing to work in an area of known historical significance which may cause potential negative impacts. The Proponent has committed to complete an Archaeological Impact Assessment of the area for potential archaeological sites and would develop a mitigation plan for any archeological sites falling within the project footprint and is required to contact the Government of Nunavut – Department of Culture and Heritage when encountering additional historical sites and is required to follow the *Nunavut Act* (as recommended in Regulatory Requirements section).

Recommended Mitigation Measures: Term and condition 36 is recommended to ensure that available Inuit Qaujimaningit can inform project activities, and reduce the potential for negative impacts occurring to any additional historical sites.

Issue 7: Potential adverse impacts to human health and safety from the construction of the small craft harbour and from noise associated with the use of heavy equipment and use of explosives.

Board Views: There is potential for injury to community members traversing the project area, including the small craft harbour construction site. Also, an increase in noise levels from explosives use, construction traffic, and the use of heavy equipment for the development of the harbour and quarry may pose a nuisance to community residents. With the implementation of mitigation measures proposed and committed to by the Proponent, the adverse impacts to human health and safety are likely to be infrequent, short-term, and of low magnitude.

Recommended Mitigation Measures: It is recommended that potential adverse impacts to human health and safety be mitigated by measures such as requiring the Proponent to ensure that access to work areas is controlled and restricted to construction personnel. The Board recommends terms and conditions 14, 22, 39, and 40 to mitigate the potential adverse impacts to human health and safety.

Issue 8: Potential positive impacts to the local community from the sourcing of accommodations for personnel within the community, purchasing of local goods and services, the hiring of local guides and the use of wildlife monitors.

Board Views: It is noted that the Proponent will be employing local residents when possible. In addition, the Proponent has committed to the purchasing of local goods and services and to source accommodations within the community which would allow the community to increase income and expenditures within the community.

Recommended Mitigation Measures: Terms and conditions 36 and 38 have been recommended to ensure the Proponent continues to inform the community of the construction activities as well as provide community members with information to ensure a successful local hiring opportunity.

Issue 9: Potential positive impacts to the local community from improved access to the ocean for boat launching and recovery, sealift, and greater public safety.

Board Views: It is noted that the proposed marine infrastructure, if approved and constructed, would allow for more efficient launching and recovery of boats by residents of Pond Inlet, would allow docking of boats during the open water season and would improve sealift operations, all of which also ensures greater safety.

Recommended Mitigation Measures: Terms and conditions 36 and 38 have been recommended to ensure the Proponent continues to inform the community of the construction activities as well as provide community members with information to ensure a successful local hiring opportunity and harbour activities.

Significant public concern:

Issue 10: No significant public concern was expressed during the public commenting period for this file.

Board Views: Follow up consultation and involvement of local community members is expected to mitigate any potential for public concern resulting from project activities. Further it is noted that the Proponent has committed to ongoing consultation with local community members and hamlet authorities during the finalization of design and construction. In addition, it is recommended that the Proponent considers hiring local people for the project activities.

Recommended Mitigation Measures: Term and condition 36 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 the project activities findings. Term and condition 38 is recommended to ensure that the Proponent provide community members with information to ensure a successful local hiring opportunity.

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 (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, February 22, 2017), and the NIRB (Online Application Form, May 19, 2017, supplemental information June 9, 2017, and Response to Comments, August 30, 2017).
4. The Proponent shall operate the site in accordance with all applicable Acts, Regulations and Guidelines.

Water Use

5. The Proponent shall not use water, including constructing or disturbing any stream, lakebed or the banks of any definable water course unless approved by the Nunavut Water Board or Fisheries and Oceans Canada.

Waste Disposal

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

Fuel and Chemical Storage

7. The Proponent shall store all fuel and chemicals in such a manner that they are inaccessible to wildlife.
8. Unless otherwise authorized by the Nunavut Water Board, the Proponent shall locate all fuel and other hazardous materials a minimum of thirty-one (31) metres away from the high water mark of any water body and in such a manner as to prevent their release into the environment.
9. The Proponent shall 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.
10. The Proponent shall use adequate secondary containment or a surface liner (e.g., self-supporting insta-berms and fold-a-tanks) when storing barreled fuel and chemicals at all locations.
11. 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 and at drill sites.
12. The Proponent shall remove and treat hydrocarbon contaminated soils on site or transport them to an approved disposal site for treatment.
13. 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

14. The Proponent shall ensure that there is no damage to wildlife habitat in conducting this operation.
15. 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.
16. The Proponent shall ensure that all project personnel are made aware of the measures to protect wildlife and are provided with training and/or advice on how to implement these measures.

Migratory Birds and Raptors Disturbance

17. The Proponent shall not disturb or destroy the nests or eggs of any birds. If nests are encountered and/or identified, the Proponent shall take precaution to avoid further interaction and or disturbance (e.g., a 100 metres buffer around the nests). If active nests of any birds are discovered (i.e., with eggs or young), the Proponent shall avoid these areas until nesting is complete and the young have left the nest.
18. The Proponent shall minimize activities during periods when birds are particularly sensitive to disturbance such as migration, nesting and moulting.

All-Weather Road and Ground Disturbance

19. 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.
20. 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.
21. All construction and road vehicles must be fitted with standard and well-maintained noise suppression devices and engine idling is to be minimized.

Establishment of New Quarries

22. The Proponent shall clearly stake and flag pit and quarry boundaries so they remain visible to other land users.
23. The Proponent shall locate quarry/pit facilities so as to avoid all recreational sites and public use areas, and to protect unique geographical features and natural aesthetics.
24. The Proponent shall ensure there is no obstruction of natural drainage, flooding or channel diversion from quarry/pit access, stockpiles, or other structures or facilities.
25. The Proponent shall ensure that silt fences/curtains are installed down gradient of any quarry activities.
26. The Proponent shall maintain an undisturbed buffer zone between the periphery of quarry sites and the high water mark of any water body that is of an adequate distance to ensure erosion control.
27. The Proponent shall locate screening and crushing equipment on stable ground, at a location with ready access to stockpiles.
28. The Proponent shall use water or other non-toxic and biodegradable additives for dust suppression as necessary to maintain ambient air quality without causing water to pool or runoff.

Marine Based Activities

29. The Proponent shall not deposit, nor permit the deposit of any fuel, chemicals, wastes (including waste water) into any marine waters, and shall manage wastes on board the vessel prior to final disposal at approved harbour facilities.

30. 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 marine waters.
31. The Proponent shall implement measures designed to minimize disturbance to seabed sediments and benthic communities and marine wildlife when carrying out project activities within the marine environment.
32. 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.
33. Small craft harbour construction shall be carried out during periods when wind and wave conditions minimize the dispersion of silt and sediment from the work site.

Restoration of Disturbed Areas

34. The Proponent shall remove all garbage, fuel, and equipment upon abandonment and completion of the construction activities.
35. The Proponent shall complete all clean-up and restoration of the lands used prior to the end of each field season and/or completion of site construction.

Other

36. 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.
37. The Proponent shall ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities.
38. The Proponent should, to the extent possible, hire local people and access local services where possible.
39. The Proponent shall ensure that access to work areas is controlled and restricted to construction personnel. This should include the posting of signs noting hazards during construction activities.
40. The Proponent should discuss potential implications of the project on on-land and marine traffic movement with the Hamlet of Pond Inlet, applicable territorial and federal government agencies, and local facility users before the implementation of the project.

MONITORING AND REPORTING REQUIREMENTS

In addition, the Board is recommending the following:

Environmental Management Plans – Construction and Operations

1. Prior to the start of construction activities, the Proponent will provide the final Construction Environmental Management Plan to the NIRB including an updated Spill Contingency and Emergency Management Plans.

2. Copies of any new or updated operational plans associated with management of the site, especially the most recent Emergency or Spill Response Plan for the operation of the dock that would include, but not be limited to, identification of signage at the site, description of any consultation measures to educate the public on commitments made for re-fueling, and requirements for spill control and reporting from usage of the small craft harbour.

Final Report – Construction

3. The Proponent shall submit a comprehensive final report to the NIRB at the completion of construction activities and prior to operations. This report must contain the following information:
 - a) A summary of activities undertaken during the construction phase, including:
 - The process undertaken to determine if contaminants were present in the dredged material (including whether on-site or laboratory testing was undertaken);
 - Mitigation measures undertaken if contaminants were identified;
 - Reasons for any installation of silt fences or other erosion control measures and location.
 - b) A log of wildlife observed in or near the project site, especially marine mammals, including:
 - Identification of the wildlife observed and a brief description of the animal or group's behaviour;
 - A description of mitigation activities undertaken, specifically stop work events, and the outcome of the encounter; and
 - Discussions that occurred with any regulatory authorities regarding wildlife encounters, recommendations, and any updated procedures that resulted.
 - c) Description of any fuel spills and response measures undertaken to contain or clean up the spill;
 - d) A summary of how the Proponent has complied with terms and conditions contained within this Screening Decision Report, and all conditions as required by other authorizations associated with the project proposal.

OTHER NIRB CONCERNS AND RECOMMENDATIONS

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

Road Management

1. Should the Hamlet of Pond Inlet wish to assume construction of the road following construction of the project, the Government of Nunavut and the Hamlet of Pond Inlet must ensure that the design and management is sufficient to ensure public safety.

Change in Project Scope

2. Responsible authorities or 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

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. 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.
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.
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 Iqaluit, phone: (867) 924-6235).

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. 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

7. 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.
8. 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/>.

Transport of Dangerous Goods and Waste Management

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.
11. The Proponent shall provide a letter of conformation of disposal be obtained from the Hamlet for disposal of project-related wastes at the local landfill.

REGULATORY REQUIREMENTS

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 (Nunavut)* and its corresponding regulations (<http://www.canlii.org/en/nu/laws/stat/snu-2003-c-26/latest/snu-2003-c-26.html>) 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/>).
8. The *Arctic Waters Pollution Prevention Act* (<http://laws-lois.justice.gc.ca/eng/acts/A-12/>).
9. The *Canada Shipping Act, 2001* (<http://laws-lois.justice.gc.ca/eng/acts/C-10.15/>).
10. The *Marine Liability Act* (<http://laws-lois.justice.gc.ca/eng/acts/M-0.7/>).
11. The *Navigation Protection Act* (<http://laws-lois.justice.gc.ca/eng/acts/N-22/index.html>).

12. The *Nunavut Mining Safety Ordinance* and the *Territorial Quarrying Regulations* (<http://www.canlii.org/en/ca/laws/regu/crc-c-1527/latest/crc-c-1527.html>) or equivalent.
13. The *Explosives Act* (<http://laws-lois.justice.gc.ca/eng/acts/E-17/page-1.html#h-5>).

Other Applicable Guidelines

14. The *Guidelines for the use of Explosives in or near Canadian Fisheries Waters* (<http://publications.gc.ca/site/eng/82558/publication.html>).
15. The *Northern Land Use Guidelines Pits and Quarries* (<http://www.aadnc-aandc.gc.ca/eng/1100100023585>) provide guidelines for progressive reclamation applicable to establishment of pits and quarries.

CONCLUSION

The foregoing constitutes the Board's screening decision with respect to the Government of Nunavut's "Pond Inlet Marine Infrastructure". The NIRB remains available for consultation with the Minister regarding this report as necessary.

Dated October 2, 2017 at Whale Cove, NU.



Elizabeth Copland, Chairperson

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

Appendix A

Species at Risk in Nunavut

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

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

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

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

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

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

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

Updated: September 2017

Terrestrial Species at Risk ¹	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility ²
Migratory Birds			
Buff-breasted Sandpiper	Special concern	Schedule 1	ECCC
Eskimo Curlew	Endangered	Schedule 1	ECCC
Harlequin Duck (Eastern population)	Special Concern	Schedule 1	ECCC
Harris's Sparrow	Special Concern	Pending	ECCC
Horned Grebe (Western population)	Special Concern	Schedule 1	ECCC
Ivory Gull	Endangered	Schedule 1	ECCC
Peregrine Falcon	Special Concern (<i>anatum-tundrius</i> complex ³)	Schedule 1 - Schedule 3	ECCC
Red Knot (<i>islandica</i> subspecies)	Special Concern	Schedule 1	ECCC
Red Knot (<i>rufa</i> subspecies)	Endangered	Schedule 1	ECCC
Red-necked Phalarope	Special concern	Pending	ECCC
Ross's Gull	Threatened	Schedule 1	ECCC
Rusty Blackbird	Special Concern	Schedule 1	ECCC
Short-eared Owl	Special Concern	Schedule 1	ECCC
Vegetation			
Blanket-leaved Willow	Special Concern	Schedule 1	Government of Nunavut
Felt-leaf Willow	Special Concern	Schedule 1	Government of Nunavut
Porsild's Bryum (Moss)	Threatened	Schedule 1	Government of Nunavut
Arthropods			
Traverse Lady Beetle	Special Concern	Pending	Government of Nunavut
Terrestrial Wildlife			
Caribou (Barren-Ground population)	Threatened	Pending	Government of Nunavut
Dolphin and Union Caribou	Special Concern	Schedule 1	Government of Nunavut
Grizzly Bear (Western Population)	Special Concern	Pending	Government of Nunavut
Peary Caribou	Endangered	Schedule 1	Government of Nunavut
Peary Caribou (High Arctic Population)	Endangered	Schedule 2	Government of Nunavut
Peary Caribou (Low Arctic Population)	Threatened	Schedule 2	Government of Nunavut
Wolverine	Special Concern	Pending	Government of Nunavut
Wolverine (Western population)	Non-active	Pending	Government of Nunavut
Marine Wildlife			
Atlantic Walrus	Special Concern	Pending	DFO
Beluga Whale (Cumberland Sound population)	Endangered	Schedule 2	DFO
Beluga Whale (Eastern High Arctic – Baffin Bay population)	Special Concern	Pending	DFO
Beluga Whale (Eastern Hudson Bay)	Endangered	Pending	DFO

population)			
Beluga Whale (Southeast Baffin Island – Cumberland Sound population)	Endangered	Schedule 2	DFO
Beluga Whale (Western Hudson Bay population)	Special Concern	Pending	DFO
Bowhead Whale (Eastern Arctic population)	Endangered	Schedule 2	DFO
Bowhead Whale (Eastern Canada – West Greenland population)	Special Concern	Pending	DFO
Killer Whale (Northwest Atlantic / Eastern Arctic populations)	Special Concern	Pending	DFO
Narwhal	Special Concern	Pending	DFO
Polar Bear	Special Concern	Schedule 1	Government of Nunavut/DFO
Fish			
Atlantic Cod, Arctic Lakes	Special Concern	Pending	DFO
Atlantic Wolffish	Special Concern	Schedule 1	DFO
Bering Wolffish	Special Concern	Schedule 3	DFO
Blackline Prickleback	Special Concern	Schedule 3	DFO
Fourhorn Sculpin	Special Concern	Schedule 3	DFO
Fourhorn Sculpin (Freshwater form)	Data Deficient	Schedule 3	DFO
Northern Wolffish	Threatened	Schedule 1	DFO
Roundnose Grenadier	Endangered	Pending	DFO
Spotted Whitefish	Threatened	Schedule 1	DFO
Thorny Skate	Special Concern	Pending	DFO

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

² Environment Canada (EC) 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.

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:

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

Note that the above-mentioned functions require either a Nunavut Archaeologist Permit or a Nunavut Palaeontologist Permit. CH is authorized by way of the *Nunavut and Archaeological and Palaeontological Site Regulations*¹ to issue such permits.

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

¹ 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*², the federal government can make regulations for the protection, care and preservation of palaeontological and archaeological sites and specimens in Nunavut. Under

² s. 51(1)

the *Nunavut Archaeological and Palaeontological Sites Regulations*³, it is illegal to alter or disturb any palaeontological or archaeological site in Nunavut unless permission is first granted through the permitting process.

Definitions

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

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

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

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

“fossil” includes:

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

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

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

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

Introduction

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

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

³ 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.