

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 July 12, 2017 the Nunavut Impact Review Board (NIRB) received a referral to screen Parks Canada’s (PC) “Visitor Experience at the Erebus Wreck Site” project proposal from PC pursuant to section 167 of the *Nunavut Planning and Project Assessment Act* (NuPPAA). The NIRB notes that the proposed project is located within the HMS Erebus and HMS Terror National Historic Site and pursuant to subsection 70(1) of the NuPPAA, the Nunavut Planning Commission (NPC or Commission) conformity determination process does not apply.¹

¹ Subsection 70(1) states: This Part and the broad planning policies, priorities and objectives, the specific planning objectives and any land use plan, established under this Part, do not apply in respect of a park that has been

In addition, on July 4, 2017 the NIRB received a referral to screen PC's "HMS Erebus Wreck Site Archaeological Investigation" project proposal directly from PC pursuant to section 167 of the NuPPAA. On July 17, 2017 the NIRB received correspondence from the NPC related to PC's "HMS Erebus Wreck Site Archaeological Investigation" project proposal noting that the project occurred outside of an area with an applicable regional land use plan for the establishment of a temporary camp outside of the national historic site (under NPC's jurisdiction).

As a result of these projects being related but not integrally linked, the NIRB assessed both projects and provided the proposals for parties to comment together, but considered each proposal separately. Due to the proposals containing activities that are sufficiently related to previously assessed activities under NIRB file number **15YN037**; the NIRB viewed these project proposals as an amendment to the previously screened project and has assigned this proposal with this previous file number. A summary of the previously screened project activities can be found in **Appendix A**. 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 NuPPAA, the NIRB has commenced screening of these projects.

PROJECT OVERVIEW & THE NIRB ASSESSMENT PROCESS

1. Project Scope

The proposed "Visitor Experience at the Erebus Wreck Site" is located within the Kitikmeot region, approximately 125 kilometres (km) southwest of Gjoa Haven and 250 km southeast of Cambridge Bay at the Wrecks of HMS Erebus and HMS Terror National Historic Site of Canada. As a pilot project jointly proposed by Parks Canada and Adventure Canada, Adventure Canada would offer passengers from its Ocean Endeavour cruise transiting the Northwest Passage an opportunity to view the HMS Erebus wreck snorkelling from the surface. Parks Canada would be monitoring and providing safety support the excursion in order to better understand the impacts and required mitigation should the activity be offered to visitors of the site in following years. The program is proposed to take place September 2017. The scope of activities previously approved for the ongoing archeological and research activities as well as the temporary camp (NIRB File No. 15YN037) has been included within **Appendix A**.

As required under subsection 86(1) of the NuPPAA, the Board accepts the scope of the Visitor Experience at the Erebus Wreck Site project as set out by PC in the proposal. The scope of the July 12, 2017 project proposal includes the following undertakings, works, or activities:

- Transport cruise ship passengers to and from the National Historic site via motorized vessel, in groups of up to 20 guests in shifts over an eight (8) hour day for a maximum of 200 visitors, supported by at least one (1) auxiliary boat for safety and emergency response.
- Use of two (2) small boats carrying 12 passengers to view the Erebus using bathyscopes;
- Additional viewing opportunities for guests by snorkelling at the surface with support from PC Underwater Archaeology Team; and

established or to a historic place that has been designated under the *Historic Sites and Monuments Act* and is administered by the Parks Canada Agency.

- Use of Parks Canada’s approved temporary camp as a staging area for activities, including guest support, changing, warming, and use of portable toilets for the day.

2. Inclusion or Exclusion to Scoping List

The NIRB has identified no additional works or activities in relation to the project proposal. However, the NIRB notes that the proposed project activities as outlined above are being proposed by Parks Canada, in partnership with Adventure Canada, noting that cruise ship operations have been screened separately under NIRB File No. 06AN041 and the activities were allowed to proceed without a review being required under paragraph 92(1)(a) of the NuPPAA with recommended terms and conditions (August 22, 2017). The NIRB further notes that the above based activities are linked to the undertaking of the ship and tourism activities.

3. Key Stages of the Screening Process

The following key stages were completed:

Date	Stage
July 12, 2017	Receipt of project proposal from Parks Canada
July 14, 2017	Information request
July 27, 2017	Proponent responded to information request
July 27, 2017	Scoping pursuant to subsection 86(1) of the NuPPAA
August 2, 2017	Public engagement and comment request
August 14, 2017	Receipt of public comments

4. Public Comments and Concerns

Notice regarding the NIRB’s screening of this project proposal was distributed on August 2, 2017 to community organizations in Cambridge Bay and Gjoa Haven, 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 14, 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:

Fisheries and Oceans Canada (DFO)

- Noted concern with respect to marine mammals and their habitat.

- Noted the Marine Mammal Regulations are to be found in Section 7 of the *Fisheries Act* and that disturbance is interpreted as disruption to an animal's normal life processes which could include intentional human activities including divers, kayaks, motor boats and aircrafts.
- Recommended that the watercraft should survey the area for marine mammals and efforts made to avoid disturbing them by rerouting, slowly navigating around their location at a reduced speed and maintaining their distance.
- Stated that watercraft should not accelerate within 400 metres (m) of the marine mammals and should not be approached closer than 100 m at any time.

Indigenous and Northern Affairs Canada (INAC)

- No comments or additional terms and conditions to offer at this time.

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.

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 "Visitor Experience at the Erebus Wreck Site" project proposal is currently a one-time activity that would occur in both marine and terrestrial environments and would consist of both tourism (snorkeling and boating) and research activities (observing the impacts of the aforementioned activities to assist with the determination of whether this type of activity should continue in the future). The visitor's experience would occur within the habitat of far-ranging marine and fish species, and the proposed staging area of the visitor's experience (warming and changing areas and washroom) associated with the "HMS Erebus Wreck Site Archaeological Investigation" project's camp temporarily would occur within the range of several species of far-ranging terrestrial wildlife. The staging area may be located within habitat for muskox, Arctic fox, Arctic hare, migratory and non-migratory birds, and Species at Risk such as Polar Bear. However, the minimal size of the staging area, limited access location, and single day duration, it is unlikely to create significant disturbance.

2. *The ecosystemic sensitivity of that area.*

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

- i. Fish species especially char, whitefish, trout;
- ii. Muskoxy;
- iii. Grizzly bear;
- iv. Polar Bear; and
- v. Tourism including kayaking and sport hunts.

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

The proposed marine and terrestrial activities are both within, and adjacent to, the Wrecks of HMS Erebus and HMS Terror National Historic Site which is managed by Parks Canada and staging area on crownland managed by INAC. Should the project be approved to proceed, the Proponent would be required to contact the Government of Nunavut-Department of Culture and Heritage if any sites of historical, cultural or archaeological significance are encountered or disturbed in the vicinity of the staging area.

Marine activities would occur above and around the wreck of the HMS Erebus and is the main feature of this experience/research. If any sites of historical, cultural, or archaeological significance are encountered or disturbed within the National Historic Site, they would be managed by Parks Canada.

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

The proposed project would occur at a location approximately 125 kilometres from Gjoa Haven, the nearest community; as such, no human populations are likely to be affected by project impacts. The proposed project has the potential to interact with various marine wildlife species, and could affect migratory patterns.

Although no significant public concerns were raised during the public commenting period, the NIRB notes that 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 research 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 “Visitor Experience at the Erebus Wreck Site” project would involve observation of the HMS Erebus from the surface from either a boat or by snorkeling within the National Historic Site and the staging area providing logistical support with no other land-based activities, impacts are expected to be minimal. Based on past evidence of similar scope of

activities, the potential adverse impacts would be short in duration and may be of low magnitude, reversible and mitigable with due care.

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 with one (1) other project which currently underwent screening by the Board, the Parks Canada “HMS Erebus Wreck Site Archaeological Investigation” project; however, it is noted that this project is not likely to result in residual or cumulative impacts as the project proposal is one (1) day and is limited in geographic area. Additionally the project is associated with Adventure Canada’s cruise ship previously screened under 06AN041, and the visitors experience is a portion of the aforementioned project and would not be expected to increase the cumulative effects. Therefore, the potential for cumulative impacts resulting from the visitor’s experience activities and other research 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 eliminate the potential for cumulative effects to occur.

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

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

IEWS 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 Board has previously recommended terms and conditions 1 through 4, and 22 which continue to apply to the current project proposal. The Board is also recommending term and condition 26 to ensure complete reference to applicable regulatory requirements.

The Board would also note that, as justified in its previous decision (NIRB File No. 15YN037 dated August 31, 2017), terms and conditions 5, 6, and 21 remain applicable to the project archaeological activities, while the additional impacts identified for the new components of the visitor’s experience warrant mitigation measures as justified below.

Ecosystem, wildlife habitat and Inuit harvesting activities:

Issue 1: Potential adverse impacts to migratory and non-migratory birds, and marine wildlife as a result of the noise generated by human activity (snorkeling and boating) in the area.

Board views: As discussed above in the assessment of factors relevant to this project proposal, the potential for adverse impacts is applicable to a small geographic area and is limited in nature due to the short duration of the project with the majority of the activities to occur in the marine environment. Migratory bird, non-migratory birds and marine mammals with limited home range sizes habituated to the project area may be affected by surface disturbance and from the human generated noise. However, it is noted that any resulting impacts would be expected to be temporary and minimal with operational restrictions in place.

The Proponent would be required to follow the *Canada National Parks Act*, the *Migratory Birds Convention Act*, *Migratory Birds Regulations*, *Species at Risk Act*, the *Arctic Waters Pollution Prevention Act*, and the *Canada Shipping Act* (see Regulatory Requirements section) within the parks boundary and also be required to follow the *Wildlife Act (Nunavut)* outside the parks boundary.

Recommended Mitigation Measures: It is recommended that the potential adverse impacts to birds and marine wildlife may be mitigated by measures such as requiring the Proponent to not interfere with marine wildlife and be aware of the wildlife around them. The Board has previously recommended terms and conditions to mitigate potential adverse impacts to migratory and non-migratory birds and marine wildlife, specifically: 11 through 15 and 18, which continue to apply to the current project proposal.

Issue 2: Potential adverse impacts to surface water quality and quantity, and fish and fish habitat from the tourism and research activities as well as the staging area that includes changing and warming areas, waste storage and disposal, and transportation of equipment and personnel to and from the cruise ship.

Board views: There is the potential for the project to adversely impact marine water quality, fish and fish habitat from fuel spills during marine activities, specifically the transport by motorized boats. In addition, there is potential for impacts from waste material generated by the staging area to affect both the terrestrial and marine environment. The potential for impacts is applicable to a small geographic area for one (1) day for this year and the probability of impacts occurring is considered to be low, with potential adverse effects anticipated to be low in magnitude, infrequent in occurrence and reversible in nature.

The Proponent has committed to standard operational that would be expected to mitigate any potential adverse impacts to marine water quality and fish and fish habitat in the direct project area and areas adjacent to the proposed project.

The Proponent would also be required to follow the *Canada National Parks Act*, the *Fisheries Act*, the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*, the *Nunavut Act*, and the *Arctic Waters Pollution Prevention Act* (see Regulatory Requirements section).

Recommended Mitigation Measures: It is recommended that the potential adverse impacts to surface water quality and quantity, and fish and fish habitat may be mitigated by measures such as requiring the Proponent to ensure waste is contained and nothing is deposited into the marine environment. The Board has previously recommended terms and conditions to mitigate potential adverse impacts to marine water quality, fish and fish habitat, specifically: 7 through 10 and 17, which continue to apply to the current project proposal.

Issue 3: Potential adverse impacts to vegetation health and soil quality from increased activity at the staging area as well as the storage and use of waste storage and disposal.

Board Views: There is potential for adverse impacts to vegetation health and soil quality from the establishment and operation of the staging area as well as the tourism and research activities. However, given the short duration of the planned activities (one (1) day) and small number of personnel on site the potential adverse impacts to vegetation health and soil quality are considered to be of low magnitude, temporary, and reversible.

Recommended Mitigation Measures: The Proponent has committed to removing waste associated with the visitors experience from the staging area to the cruise ship and transporting it to the landfill in Gjoa Haven. It is recommended that the potential adverse impacts to the terrestrial environment, particularly for vegetation and soils would be mitigated by measures requiring the Proponent to remove all garbage and to undertake restoration of the site as appropriate upon completion of project activities. The Board has previously recommended terms and conditions to mitigate potential adverse impacts to vegetation and soils, specifically: 16 and 23 through 25, which continue to apply to the current project proposal.

Issue 4: Potential adverse impacts to public and traditional land use activities in the area due to transportation of personnel and equipment to project area and staging activities.

Board Views: The proposed staging area is located on an island unlikely to be used for harvesting or recreational activities; however, the area is within a region indicated as being used from time to time for hunting and fishing by residents of Gjoa Haven. The possibility of disturbance is low given the minimal size of the staging area and the one (1) day of operation.

Recommended Mitigation Measures: The Board has previously recommended term and condition 20 to mitigate potential adverse impacts to public and traditional land use activities, which continue to apply to the current project proposal.

Socio-economic effects on northerners:

Issue 5: Potential adverse impacts to historical, cultural, and archaeological sites from research activities.

Board Views: The Proponent is proposing to work in and adjacent to an area of known historical significance which may cause potential negative impacts. For the terrestrial component of the project, the Proponent is required to contact the Government of Nunavut – Department of Culture and Heritage when encountering historical sites or artefacts and is required to follow the *Nunavut Act* (see Regulatory Requirements section). When within the National Historic Site, the Proponent would be required to adhere to the *Canada National Parks Act* and any conditions that Parks Canada puts in place. Further, the Proponent has committed to following the proposed mitigation measures that were developed by Parks Canada for this one time activity.

Recommended Mitigation Measures: In addition to the requirements of the *Nunavut Act*, the Board is recommending term and condition 19 to ensure that available Inuit Qaujimagatuqangit can inform project activities, and reduce the potential for negative impacts occurring to any additional historical sites.

Issue 6: Potential positive impacts to the local community from the hiring of local guides and the use of wildlife monitors.

Board Views: It is noted that the Proponent has committed to work with the community of Gjoa Haven. The Proponent will be based logistically in Gjoa Haven to support the underwater archeology team and Adventure Canada would be hiring up to four (4) candidates from associated Parks Canada communities for a training program to develop cultural interpreters and cruise ship staff in the future. In addition, two (2) Gjoa Haven community members would be hired to support the visit of the cruise ship and visitors would be able to purchase local carvings.

Recommended Mitigation Measures: The Board has previously recommended Terms and conditions 19 and 20 have been recommended to ensure the Proponent continues to inform the community of the research activities and findings as well as provide community members with information to ensure a successful local hiring and sales opportunities.

Significant public concern:

Issue 7: 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.

Recommended Mitigation Measures: The Board has previously recommended Term and condition 19 was 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. Additionally this term and condition was 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 following terms and conditions were previously issued by the NIRB in the August 31, 2017 Screening Decision Report for File No. 15YN037, **and continue to apply to the "Visitor Experience at the Erebus Wreck Site" project:**

General

1. Parks Canada (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 NIRB (NIRB Part 1 Form, July 2, 2015) and Parks Canada (Parks Canada Permit Application, July 2, 2015).
4. The Proponent shall operate the site in accordance with all applicable Acts, Regulations and Guidelines.

Water Use

5. The Proponent shall not extract water from any fish-bearing waterbody unless the water intake hose is equipped with a screen of appropriate mesh size to ensure that there is no entrapment of fish. Small lakes or streams should not be used for water withdrawal unless approved by the Nunavut Water Board.
6. The Proponent shall not use water, including constructing or disturbing any stream, lakebed or the banks of any definable water course unless approved by the Nunavut Water Board.

Waste Disposal

7. 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

8. The Proponent shall store all fuel and chemicals in such a manner that they are inaccessible to wildlife.
9. The Proponent shall use drip pans or other equivalent device when refuelling equipment on-site. Appropriate spill response equipment and clean-up materials (e.g., shovels, pumps, barrels, drip pans, and absorbents) must be readily available during any transfer of fuel or hazardous substances.
10. The Proponent shall ensure that all personnel are properly trained in fuel and hazardous waste handling procedures, as well as spill response procedures. All spills of fuel or other deleterious materials of any amount must be reported immediately to the 24 hour Spill Line at (867) 920-8130.

Wildlife - General

11. The Proponent shall ensure that there is no damage to wildlife habitat in conducting this operation.
12. The Proponent shall not harass wildlife. This includes persistently worrying or chasing animals, or disturbing large groups of animals. The Proponent shall not hunt or fish, unless proper Nunavut authorizations have been acquired.
13. The Proponent shall ensure that all project personnel are made aware of the measures to protect wildlife and are provided with training and/or advice on how to implement these measures.

Migratory Birds and Raptors Disturbance

14. The Proponent shall minimize activities during periods when birds are particularly sensitive to disturbance such as migration, nesting and moulting.
15. The Proponent shall avoid the seaward site of seabird colonies and areas used by flocks of migrating waterfowl by 3 kilometres.

Restoration of Disturbed Areas

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

Ship-based Activities

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

Marine Transportation

18. The Proponent shall not attempt to intersect or interfere with the movements of marine mammals. Strategic positioning of vessels ahead of the path being traveled by mobile whales and waiting for the whales to pass is also prohibited.

Other

19. The Proponent should, to the extent possible, hire local people and consult with local residents regarding their activities in the area and available Inuit Qaujimagatuqangit that can inform project activities.

20. The Proponent shall ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities.

21. (*updated*) 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.

General

22. The Proponent shall operate in accordance with all commitments stated in correspondence provided to Parks Canada (July 4, 2017) and the Nunavut Planning Commission (Application to Determine Conformity, July 17, 2017), and the NIRB (Online Application Form, July 28, 2017).

Temporary Camps

23. The Proponent shall ensure that all camps are located on gravel, sand or other durable land.

24. The Proponent shall ensure that the land use area is kept clean and tidy at all times.

Restoration of Disturbed Areas

25. The Proponent shall remove all garbage, fuel and equipment upon abandonment.

In addition to the previously issued terms and conditions, the Board recommends the following project-specific terms and conditions:

General

26. The Proponent shall operate in accordance with all commitments stated in correspondence provided to Parks Canada referral (July 12, 2017), and the NIRB (Online Application Form, July 27, 2017).

MONITORING AND REPORTING REQUIREMENTS

The Board has previously recommended the following on August 20, 2015:

Final Report

1. The Proponent shall submit a final report to the Nunavut Impact Review Board upon completion of permitted activities or by January 31, 2016. If subsequent undertakings of the project are permitted, this reporting shall be completed at the end of each operational season. The report must contain, but not be limited to the following information:

- a) A summary of activities undertaken for the year, and if applicable, a work plan for the following year.
- b) A summary of community consultations undertaken throughout the year, specifically:
 - Copies of materials presented to community members,
 - A description of issues discussed and concerns raised,
 - Advice offered by community members to the Proponent,
 - Details on how the advice was incorporated into the project planning, and
 - Any follow-up actions that were required or taken to resolve any concerns expressed about the project proposal.
- c) A summary of encounters with other land users, including local residents or tourists, noting the date and location of the observation, the number of people encountered, the activity being undertaken (e.g. cruise ship/tourism activities, fishing, hunting, etc.), and any actions taken to prevent disturbance.
- d) A summary of how the Proponent has complied with conditions contained within the Screening Decision Report.

OTHER NIRB CONCERNS AND RECOMMENDATIONS

In addition to the project-specific terms and conditions, the Board has previously recommended the following on August 31, 2017:

Other Applicable Guidelines

Bear and Carnivore Safety

1. (*updated*) 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.
2. (*updated*) 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.
3. 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 - Cambridge Bay, phone: (867) 983-4167).

Species at Risk

4. (updated) 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

5. 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.
6. For further information on how to protect migratory birds, their nests and eggs when planning or carrying out project activities, consult Environment 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/>.

REGULATORY REQUIREMENTS

The Board previously recommended in the August 31, 2017 Screening Decision Report for the “Underwater Archaeology and Biology Study of the Wreck of HMS Erebus” (NIRB 15YN037) the following legislation, which continues to apply to the current proposal:

Acts and Regulations

1. The *Canada National Parks Act* (<http://laws-lois.justice.gc.ca/eng/acts/n-14.01/>).
2. The *Fisheries Act* (<http://laws-lois.justice.gc.ca/eng/acts/F-14/index.html>).
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 B** is a list of Species at Risk in Nunavut.
5. (updated) 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 *Arctic Waters Pollution Prevention Act* (<http://laws-lois.justice.gc.ca/eng/acts/A-12/>).
7. The *Canada Shipping Act, 2001* (<http://laws-lois.justice.gc.ca/eng/acts/C-10.15/>).
8. The *Marine Liability Act* (<http://laws-lois.justice.gc.ca/eng/acts/M-0.7/>).

9. The *Navigation Protection Act (NPA)* (<http://laws-lois.justice.gc.ca/eng/acts/N-22/index.html>).
10. 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/>).
11. The *Aeronautics Act* (<http://laws-lois.justice.gc.ca/eng/acts/A-2/>).
12. The *Canadian Aviation Regulations* (<https://www.tc.gc.ca/eng/acts-regulations/regulations-sor96-433.htm>).

Acts and Regulations – activities occurring outside of the National Historic Site

13. The *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (<http://www.canlii.org/ca/sta/n-28.8/whole.html>).
14. 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 C**.

CONCLUSION

The foregoing constitutes the Board's screening decision with respect to the Parks Canada's "Visitor Experience at the Erebus Wreck Site". The NIRB remains available for consultation with the Minister regarding this report as necessary.

Dated September 11, 2017 at Whale Cove, NU.



Elizabeth Copland, Chairperson

Attachments: Appendix A: Previously-Screened Project Proposals
Appendix B: Species at Risk in Nunavut
Appendix C: Archaeological and Palaeontological Resources Terms and Conditions for Land Use Permit Holders

APPENDIX A: PREVIOUSLY-SCREENED PROJECT PROPOSALS

The original project proposal NIRB (File No. 15YN037), was received by the NIRB from Parks Canada on July 2, 2015 and was screened by the Board in accordance with Part 4, Article 12 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* (Nunavut Agreement). On August 20, 2015 the NIRB issued a Nunavut Agreement 12.4.4(a) screening decision to the Minister of Environment, Government of Canada (now Minister of Environment and Climate Change) which indicated that the proposed project could proceed subject to the NIRB's recommended project-specific terms and conditions.

Parks Canada's (the Proponent) original "Underwater Archaeology and Biology Study of the Wreck of HMS Erebus" project was located in the Kitikmeot region, approximately 125 kilometres (km) southwest of Gjoa Haven and 250 km southeast of Cambridge Bay in the recently established Wrecks of HMS Erebus and HMS Terror National Historic Site of Canada. The Proponent indicated that it intended to conduct an underwater archaeology exploration program from August to September 2015.

According to the previously screened project proposal, the scope of the project included the following undertakings, works, or activities:

- Transportation to the project site and accommodation for up to 19 personnel aboard the Arctic Research Foundation's (ARF) 35 foot motor vessel (MV) and 65 foot MV *Martin Bergmann*;
- Untethered SCUBA and surface-supplied diving operations conducted from Parks Canada's research vessel (RV) *Investigator* (33 feet) and two (2) rigid hull inflatable boats;
- Use of species sampling equipment and underwater cameras for benthic characterization study and photo documentation of project site;
- Deployment of underwater probe for water data collection with recovery after one (1) year;
- Use of aluminum grid references, water pump activated dredges and remotely operated underwater vehicles (ROV) for archaeological study and artefact recovery operations;
- Periodic resupply and waste disposal trips to Cambridge Bay;
 - All sewage, combustible and non-combustible wastes to be stored aboard the MV *Martin Bergmann* for appropriate disposal in Cambridge Bay or treatment through onboard septic systems;
- Hiring of three (3) Inuit community members to assist on project site and in communities.

On July 4, 2017 the NIRB received a modification requests associated with the "HMS Erebus wreck site archaeological investigation " project and reviewed it and on August 31, 2017 confirmed that the application could proceed without a review pursuant to paragraph 92(1)(a) of the NuPPAA and the activities therein remained subject to the terms and conditions recommended in the original August 20, 2015 Screening Decision Report along with additional terms and conditions. A summary of the additional applications associated with NIRB File No. 15YN037 is presented below:

The scope of the previously screened project associated with the previous July 27, 2017 amendment application included the following undertakings, works or activities:

- Select, construct, and decommission a temporary camp site from three (3) possible sites required to support ongoing dive and archaeological assessment operations;
- Personnel, water, and supplies transported to and from site via twin otter with tundra tires from either Cambridge Bay and/or Gjoa Haven;
- Use of zodiacs to transport project staff to and from the dive site as well as functioning as a diving platform;
- Transport, temporary storage, and use of up to 400 litres of gasoline, stored within fuel containment berm;
- Sewage, combustible, and non-combustible wastes stored in sealed plastic drums for appropriate disposal in Gjoa Haven or Cambridge Bay;
- Continue development of video and photo documentation of the site including 3D photogrammetric modelling and recording;
- Continue mapping of artefacts and features of the HMS *Erebus*:
 - Complete cleaning of Upper Deck
 - Select test excavations including artefacts mapping and collection;
 - Partial disassembly and/or consolidation of upper deck structure of the HMS *Erebus*;
 - Continuation of use of ROV and inspection cameras to explore interior spaces;
- Establishment of 3D reference points and baselines system consolidation and extension;
- Establish a reburial site for artefacts being recorded and reburied; and
- Ongoing hiring of local community members to assist on project site and in communities.

Appendix B

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 population)	Endangered	Pending	DFO

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 C
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*² to issue such permits.

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

² 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*³, the federal government can make regulations for the protection, care and preservation of palaeontological and archaeological sites and specimens in Nunavut. Under

³ s. 51(1)

the *Nunavut Archaeological and Palaeontological Sites Regulations*⁴, 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

⁴ 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.