



SCREENING DECISION REPORT NIRB FILE No.: 17QN032

NPC File No.: 148483

September 13, 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 – Community and Government Services' "Resolute Bay 2017 Quarry Administration Agreement" is not required pursuant to paragraph 92(1)(a) of the *Nunavut Planning and Project Assessment Act* (NuPPAA).

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

OUTLINE OF SCREENING DECISION REPORT

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REGULATORY FRAMEWORK

The primary objectives of the NIRB are set out in 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 27, 2017 the NIRB received a referral to screen the Government of Nunavut – Community and Government Services’ (GN-CGS) “Resolute Bay 2017 Quarry Administration Agreement” 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 Nunavut Agreement and section 87 of the NuPPAA, the NIRB commenced screening this project proposal and assigned it file number 17QN032.

PROJECT OVERVIEW & THE NIRB ASSESSMENT PROCESS

1. Project Scope

The proposed “Resolute Bay 2017 Quarry Administration Agreement” project is located within the Qikiqtani region, in the municipality of Resolute Bay. The Proponent intends to develop three (3) quarry sites within the municipality to meet current and future development needs in the area, which would be managed through a quarry administration agreement with the Hamlet of Resolute Bay. The program is proposed to commence in March 2017 and would remain active until the quarry sites are depleted of aggregate.

As required under subsection 86(1) of the NuPPAA, the Board accepts the scope of the “Resolute Bay 2017 Quarry Administration Agreement” project as set out by GN-CGS in the proposal. The scope of the project proposal includes the following undertakings, works, or activities:

- Extraction of aggregate resources by expanding quarry sites #2 and #3;
- Use of industrial vehicles, heavy machinery, and passenger vehicles for personnel transportation, quarry site operations, and aggregate hauling;
- Use of existing municipal roads to access the quarry sites;
- Use of local fuel and chemical stores for equipment and vehicle needs; and
- Reclamation of quarry sites following closure (once aggregate sources are depleted) by the Hamlet of Resolute Bay.

2. Inclusion or Exclusion to Scoping List

The NIRB has identified no additional works or activities in relation to the project proposal. As a result, the NIRB proceeded with screening the project based on the scope as described above. However, the NIRB notes that on August 22, 2017 the Proponent notified the NIRB that it had removed quarry #1 from the aforementioned scope, and as such any municipal activities associated with quarry #1 would now be required to undergo a separate assessment by the NIRB.

3. Key Stages of the Screening Process

The following key stages were completed:

Date	Stage
February 27, 2017	Receipt of project proposal and positive conformity determination (North Baffin Regional Land Use Plan) from the NPC
March 7, 2017	Information request(s)
May 4, 2017	Proponent responded to information request(s)
May 4, 2017	Scoping pursuant to subsection 86(1) of the NuPPAA
May 15, 2017	Public engagement and comment request
June 5, 2017	Receipt of public comments

June 19, 2017	Ministerial extension requested from the Minister of Community & Government Services
June 26, 2017	Proponent provided with an opportunity to address comments/concerns raised by public
August 22, 2017 August 24, 2017	Proponent responded to comments/concerns raised by public

4. Public Comments and Concerns

Notice regarding the NIRB's screening of this project proposal was distributed on May 15, 2017 to community organizations in Resolute Bay, as well as to relevant federal and territorial government agencies, Inuit organizations and other parties. The NIRB requested that interested parties review the proposal and provide the Board with any comments or concerns by June 5, 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:

Environment and Climate Change Canada (ECCC)

- Noted that the proposed project is located within Nesting Zone N10 and could interact seasonally with migratory birds and their respective habitats. Recommended that the Proponent employ measures for the protection of migratory birds and their habitats consistent with legislation and regulations and provide relevant examples of mitigation and links to best-practice mitigation resources.
- Identified Species at Risk that are known to occur with the proposed project area including Ivory Gull, Peregrine Falcon, Polar Bear, Red Knot, Ross's Gull, and Wolverine. Recommended that the Proponent employ specific mitigation and monitoring measures for the protection of Species at Risk including avoidance, effects monitoring, and adaptive management procedures.

Indigenous and Northern Affairs Canada (INAC)

- Noted that there were no details regarding community consultation and it is unclear if the Proponent conducted meaningful consultation. Recommended Proponent provide detailed discussion of the community consultation to date.
- Noted that no details were provided on the remediation techniques to be applied during the quarry closure phase. Recommended the information be provided as well as the expectations for the proposed post closure reclamation.

- Noted concern with respect to impacts to vegetation from increased propagation of dust. Recommended the Proponent incorporate mitigation measures for such potential effects into the design and planning of the project and include such measures in a quarry management plan.

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.

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 24, 2017:

- In response to concerns regarding dust mitigation, the Proponent indicated that water or non-toxic and biodegradable additives for dust suppression would be used as necessary:
 - Water would be delivered via Hamlet's trucked water service or a locally contracted water truck.
 - Water would be from the Hamlet's existing water supply.
- In response to concerns regarding community consultation, the Proponent indicated that the quarry sites listed in the application all fall within the areas approved for quarry use as per the approved Community Plan & Zoning By-Law:
 - Extensive community consultations were completed in order for the Community Plan to be passed by the Hamlet.
- In response to concerns regarding effects on Wildlife and Birds and Habitat, the Proponent indicated that the existing quarry sites are low of value habitat for terrestrial mammals and birds and noted the following:
 - Movement of vehicles and machinery would be restricted as required for any wildlife occurrences in the area.
 - Species at Risk or other features such as bird nests would trigger documentation and wildlife management protocols to minimize wildlife disturbance.
- The Proponent would comply with the Migratory Birds Regulation pursuant to the Migratory Bird Convention Act.
 - If active nests are encountered, the nesting will be avoided until nesting is complete.
 - The nest would be protected with a buffer zone appropriate for the species.
 - Best practices would be applied as appropriate as per the Regulations.
- The Proponent has indicated the following regarding a Closure and Reclamation Plan:
 - Camp reclamation is not applicable;
 - During closure of quarry operations the active quarry face would be regraded to match surrounding terrain;
 - Waste disposal would be removed daily;
 - Stockpile removal is not applicable;
 - Road closure is not applicable as the existing road would be used;
 - Soil remediation is not applicable.

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 June 19, 2017 the NIRB wrote to the Minister of 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 occur in a geographic area of approximately 12 square kilometres (km²), approximately four (4) kilometres west of the community of Resolute Bay, and would include the use of existing municipal roads to access the proposed project sites. The proposed project has the potential to interact with various wildlife and wildlife habitats, migratory and non-migratory birds, as well as Species at Risk, including Ivory Gull, Peregrine Falcon, Polar Bear, Red Knot, Ross's Gull, and Wolverine, and could affect animal migratory patterns. Effects on migratory birds or nesting in subsequent years would likely be minimal due to the animals avoiding the disturbed area and equipment of quarrying operations and of the road adjacent to the quarry sites.

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 quarry sites are located in an area known for Species at Risk, specifically Ivory Gull. Further, this area has been identified as having value and priority to the local community for:

- i. Polar Bear denning,
- ii. Migratory birds, especially Ivory Gull; and
- iii. Inuit Harvesting activities.

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

Neither the Proponent nor the Government of Nunavut identified any known areas of historical, cultural, and archaeological significance associated with the project area. Should the project be approved to proceed, the Proponent would be required to conduct an archaeological assessment of the project area, and contact the Government of Nunavut-Department of Culture and Heritage if any sites of historical, cultural, or archaeological significance are encountered.

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

The proposed project would occur at a location approximately four (4) kilometres west of Resolute Bay, the nearest community; as such, human populations are likely to be affected by project impacts. During the commenting period, it was noted that far-ranging wildlife species such as Wolverine, Polar Bear, and migratory birds are likely to be to be encountered within the project area, and may be impacted by the project proposal. Terms and conditions have been recommended in the following section to mitigate any potential impacts on their populations.

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 “Resolute Bay 2017 Quarry Administration Agreement” project is a proposed quarry program involving extraction of aggregate resources at existing quarry sites and the nature of potential impacts is 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. Based on past evidence of 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 proposed activities occur in the community of Resolute Bay and the area is potentially used by residents for recreational/traditional pursuits could potentially contribute to public concern developing. However, it the Proponent noted that there was no subsistence harvesting or tourism activity within or surrounding the existing quarries. 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 quarry activities being or to be conducted.

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 a 100 kilometre radius to a number of other projects that are currently active, in addition to other projects proposed and currently

undergoing assessment by the Board as listed in Table 1 below. However, it is noted that this project is not likely to result in residual or cumulative impacts. The potential for cumulative impacts to terrestrial wildlife, fish and, migratory birds, marine mammals, and their respective habitats; water, soil, and air quality; cultural and archaeological resources; permafrost, resulting from the quarrying 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 eliminate the potential for cumulative effects to occur.

Table 1: Project List

NIRB Project #	Project Title	Project Type
<i>Active Projects</i>		
13YN010	Upper Air Building Laboratory, Resolute Bay	Research (<i>ongoing</i>)
12AN032	Le Boreal Cruise Smith – Camp Jan 13 CD	Access
16AN072	Northwest Passage Project	Tourism
17YN041	A Coastal, Pan-Canadian Collection of plants, microalgae and marine invertebrates for the Canadian Museum of Nature, as part of Canada C3	Research
<i>Past Projects</i>		
16DN061	NOREX 17	Defence
16DN063	Operation NUNALIVUT 2017	Other

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; however, the Board notes that the project would provide aggregate to meet current and future development needs in the area for the community of Resolute Bay.

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 negative impacts to small mammals, migratory birds, non-migratory birds, and their habitats due to increased noise and disturbance from rock crushing and breaking, transportation of personnel and equipment to and from site, and temporary stockpiling of aggregate materials.

Board views: As discussed above in the assessment of factors relevant to this project proposal, the potential for impacts is applicable to a small geographic area and is limited due to the proximity of the proposed sites to existing infrastructure, and human activity. Migratory birds, non-migratory birds, terrestrial Species at Risk including Ivory Gull and small mammals with limited home range sizes habituated to the project area may be affected by surface disturbance, excavation, noise from vehicular movement, and equipment operations as noted by the Proponent and commenting parties. In addition, the Proponent has indicated that the habitat available for wildlife and birds in the project area is of low quality. The Proponent has committed to implementing measures that would mitigate effects of the project on wildlife species, including habitats. Operational restrictions regarding overland travel, noise control, waste generation, and wildlife management are expected to mitigate any potential negative impacts to terrestrial wildlife and migratory birds.

The Proponent would also 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 negative impacts may be mitigated by measures such as requiring the Proponent to adhere to guidelines for the work to be conducted in the existing quarries, wildlife management and ensure that vehicles are fitted with appropriate noise suppression devices. The following terms and conditions are recommended to mitigate the potential negative impacts: 6, 9 through 14, and 17.

Issue 2: Potential negative impacts to soil, vegetation, permafrost, surface water quality and fish habitat from quarrying operations, accidental leaks and dust deposition.

Board views: There is potential for negative impacts to soil, vegetation, permafrost, surface water quality and fish habitats from deposition of dust, engine emissions, accidental leaks and spillages of fuels, as well as erosion of waste rocks and overburden materials during excavation, pitting, transportation, and heavy equipment operations. In addition, there is potential for impacts from the quarrying activities due to erosion, sedimentation, and water runoff from the expansion of the quarry areas. The potential for impacts is applicable to small geographic areas 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 ensuring that project-related activities would not negatively affect surface water quality, fish and fish habitat, vegetation, and the integrity of permafrost within the project area,

and that contaminated soils from the project site would be relocated to the community land farm for proper disposal.

The Proponent would also be required to follow the *Fisheries Act*, the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*, the *Transportation of Dangerous Goods Regulations*, *Transportation of Dangerous Goods Act* and the *Canadian Environmental Protection Act* (see Regulatory Requirements section).

Recommended Mitigation Measures: Operational procedures for expansion of the existing quarries, implementation of erosion and suppression measures within the project area, as well as clean-up and restoration of disturbed lands would reduce the risk of uncontrolled releases of deleterious substances into the natural environment. The following terms and conditions are recommended to mitigate the potential negative impacts to surrounding environment from project activities: 5 through 9, 15, 16, 18 through 22.

Issue 3: Potential negative impacts to ambient air quality due to offsite migration of fugitive dust and emissions generated by the use of heavy equipment for site preparation, excavation, grading, and quarrying operations.

Board views: The potential for negative effects to ambient air quality due to dust generation and engine emissions are applicable to a small geographic area within the municipality of Resolute Bay, which is anticipated to be low in magnitude and reversible in nature. The Proponent has indicated that dust management would be used as necessary via the Hamlet's existing water supply and water trucks. In addition, the Proponent has committed to ensuring that the proposed quarry activities would only take place during the summer months, and that dust management would be implemented throughout the project duration to mitigate the potential deposition of silt and dust into the nearby creeks, especially during excavation and loading of aggregate materials. Any water usage not coming from the municipal water system would require a permit from the Nunavut Water Board and would also be required to follow the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* if necessary.

Recommended Mitigation Measures: It is recommended that the potential negative impacts to air quality would be mitigated by measures such as requiring the Proponent to adhere to the commitment to implement dust management, use appropriate dust suppression measures during excavation and loading of aggregate materials and ensuring that engine idling is minimized. Term and condition 17 has been recommended to address any potential air quality issues that may arise as a result of project activities.

Issue 4: Potential negative impacts to public safety and public and traditional land use activities in the area due to transportation of personnel and equipment to the project sites and the expansion of the quarry sites.

Board Views: Due to the site's close proximity to the community of Resolute Bay, it is possible that personal enjoyment of the land may be affected. The Proponent has indicated that

the proposed project sites are all located near public roads and ATV trails, and that residents of Resolute Bay do not harvest plants or undertake fishing or hunting activities around the quarry areas. If situations arise where the project may interfere with traditional land use and recreational activities, terms and conditions have been recommended to ensure minimal impacts to traditional land use activities and by ensuring ongoing consultation with the community and community organizations.

Recommended Mitigation Measures: Term and condition 23 is recommended to ensure that the affected communities and organizations are informed about the project proposal and term and condition 25 has been recommended to ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities in the area. Terms and conditions 10, and 12 through 14 are recommended to minimize conflict between quarrying activities and public and traditional land use and risks to public safety.

Socio-economic effects on northerners:

Issue 5: Potential for negative impacts to historical, cultural, and archaeological sites from the quarrying activities.

Board Views: Since the geographic area for the project proposal encompasses an area previously disturbed by quarry activities, it is unlikely that the Proponent may come into contact with any archaeological sites, or would interact significantly with any known archaeological and paleontological resources in the area. In addition, the Proponent has indicated that there are no heritage resources or archaeological sites associated with the project area. In the event a historical site is discovered, the Proponent is required to contact the Government of Nunavut – Department of Culture and Heritage and is required to follow the *Nunavut Act* (as recommended in Regulatory Requirements section).

Recommended Mitigation Measures: Term and condition 23 is recommended to ensure that available Inuit Qaujimaningit can inform project activities, and reduce the potential for negative impacts occurring to any historical sites.

Issue 6: Potential positive impacts to the local community from the sourcing of accommodations for personnel within the community, hiring of local contractors, and purchasing of local goods and services.

Board Views: It is noted that the Proponent's workers will be based in Cambridge Bay and the resulting purchasing of local goods and services and accommodations required for any outside personnel within the community would allow the community to increase income and expenditures within the community.

Recommended Mitigation Measures: Terms and conditions 23 and 24 have been recommended to ensure the Proponent continues to inform the community of the quarrying activities

and findings as well as provide community members with information to ensure a successful local hiring opportunity.

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: Term and condition 23 and 24 are recommended to ensure that the affected community and organizations are informed about the project proposal, to mitigate any concerns that may arise from the project activities and for the Proponent to consider hiring locally.

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. Government of Nunavut–Community and Government Services (the Proponent) shall maintain a copy of the Project Terms and Conditions at the site of operation at all times.
2. The Proponent shall forward copies of all permits obtained and required for this project to the Nunavut Impact Review Board (NIRB) prior to the commencement of the project.
3. The Proponent shall operate in accordance with all commitments stated in correspondence provided to the Nunavut Planning Commission (Application to Determine Conformity, February 27, 2017), and the NIRB (Online Application Form, March 31, 2017, April 28, 2017, May 4, 2017) and the letter for removal of quarry site #1 (letter, August 22, 2017) Proponents response to comments (NIRB received Proponents response to comments on August 22, 2017 & August 26, 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.

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 remove and treat hydrocarbon contaminated soils on site or transport them to an approved disposal site for treatment.
8. The Proponent shall ensure that all personnel are properly trained in fuel and hazardous waste handling procedures, as well as spill response procedures. All spills of fuel or other deleterious materials of any amount must be reported immediately to the 24 hour Spill Line at (867) 920-8130.

Wildlife - General

9. The Proponent shall ensure that there is no damage to wildlife habitat in conducting this operation.
10. The Proponent shall not harass wildlife. This includes persistently circling, chasing, hovering over pursuing or in any other way harass wildlife, or disturbing large groups of animals.
11. The Proponent shall 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

12. 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.
13. The Proponent shall minimize activities during periods when birds are particularly sensitive to disturbance such as migration, nesting and moulting.

Caribou Disturbance

14. The Proponent shall cease activities that may interfere with the migration or calving of caribou until the caribou have passed or left the area.

Ground Disturbance

15. The Proponent shall not move any equipment or vehicles outside the project footprint unless the ground surface is in a state capable of fully supporting the equipment or vehicles without rutting or gouging.

16. 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.
17. All construction and road vehicles must be fitted with standard and well-maintained noise suppression devices and engine idling is to be minimized.

Aggregate Removal within Existing Quarries

18. 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.
19. The Proponent shall not remove any material from below the ordinary high water mark of any lake or stream.
20. The Proponent shall not deposit or permit the deposit of sediment into any water body.

Restoration of Disturbed Areas

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

Other

23. 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.
24. The Proponent should, to the extent possible, hire local people.
25. The Proponent shall ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities.

MONITORING AND REPORTING REQUIREMENTS

In addition, the Board is recommending the following:

Borrow Pit Management Plan

1. The Proponent shall submit a Borrow Pit Management Plan to the Nunavut Impact Review Board, and Indigenous and Northern Affairs Canada prior to undertaking activities in the potential development area. The Borrow Pit Management Plan shall address:
 - a. Measures to control dust for project activities;
 - b. Measures to address potential erosion, sedimentation, and runoff; and
 - c. Measures to protect permafrost and reduce or prevent permafrost degradation.

Borrow Pit Reclamation Plan

2. The Proponent shall submit a Borrow Pit Reclamation Plan to the Nunavut Impact Review Board, and Indigenous and Northern Affairs Canada prior to the end of project activities for review.

Community Consultation Report

3. The Proponent shall submit a public consultation report prior to the commencement of project activities. The report shall include a copy of materials presented to community members, a description of issues and concerns raised, and advice offered to the company as well as any follow-up actions that were required or taken to resolve any concerns expressed about the project proposal.

Spill Contingency Plan

4. The Proponent shall provide an updated Spill Contingency Plan to include the up to date emergency contact numbers for the Government of Nunavut-Department of Environment, Manager of Environmental Protection (867-975-7748) and Environment and Climate Change Canada, Enforcement Branch (867-975-4644) and the NU 24-hour spill line at (867) 920-8130.

OTHER NIRB CONCERNS AND RECOMMENDATIONS

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

Change in Project Scope

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

Bear and Carnivore Safety

2. The Proponent should review the Government of Nunavut's booklet on Bear Safety, which can be downloaded from this link: http://gov.nu.ca/sites/default/files/bear_safety_-_reducing_bear-people_conflicts_in_nunavut.pdf. 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.
3. There are polar bear and grizzly bear safety resources available from the Bear Smart Society with videos on polar bear safety available in English, French and Inuktitut at <http://www.bearsmart.com/play/safety-in-polar-bear-country/>. Information can also be obtained from Parks Canada's website on bear safety at the following link: <http://www.pc.gc.ca/eng/pn-np/nu/quttinirpaaq/visit/visit6/d.aspx> or in reviewing the "*Safety in Polar Bear Country*" pamphlet, which can be downloaded from the following link: http://www.pc.gc.ca/eng/pn-np/nu/quttinirpaaq/visit/visit6/~/_media/pn-np/nu/auyuittuq/pdf/shared/PolarBearSafety_English.ashx.
4. Any problem wildlife or any interaction with carnivores should be reported immediately to the local Government of Nunavut, Department of Environment Conservation Office (Conservation Officer of Pond Inlet, phone: (867)-899-8034).

Species at Risk

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

Migratory Birds

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

REGULATORY REQUIREMENTS

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

Acts and Regulations

1. The *Fisheries Act* (<http://laws-lois.justice.gc.ca/eng/acts/F-14/index.html>).
2. The *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (<http://laws-lois.justice.gc.ca/eng/acts/n-28.8/>).
3. The *Migratory Birds Convention Act* and *Migratory Birds Regulations* (<http://laws-lois.justice.gc.ca/eng/acts/M-7.01/>).
4. The *Species at Risk Act* (<http://laws-lois.justice.gc.ca/eng/acts/S-15.3/index.html>). Attached in **Appendix A** is a list of Species at Risk in Nunavut.
5. The *Wildlife Act (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* ([---

P.O. Box 1360 Cambridge Bay, NU X0B 0C0 Phone: \(867\) 983-4600 Fax: \(867\) 983-2594
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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 *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.

Other Applicable Guidelines

9. The *Northern Land Use Guidelines Access: 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 – Community & Government Services' "Resolute Bay 2017 Quarry Administration Agreement". The NIRB remains available for consultation with the Minister regarding this report as necessary.

Dated September 13, 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 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 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.

¹P.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.