



SCREENING DECISION REPORT NIRB FILE No.: 12XN027

NPC File No.: 148786
NWB File No.: 1BR-RBL1419

June 22, 2018

Following the Nunavut Impact Review Board's (NIRB or Board) assessment of all materials provided, the NIRB is recommending that a review of Transport Canada's "Resolute Bay Airport Landfill Risk Management" project proposal is not required pursuant to paragraph 92(1)(a) of the *Nunavut Planning and Project Assessment Act*, S.C. 2013, c. 14, s. 2 (*NuPPAA*).

Subject to the Proponent's compliance with the terms and conditions as set out in below, the NIRB is of the view that the project proposal is not likely to cause significant public concerns, and it is unlikely to result in significant adverse environmental and social impacts. The NIRB therefore recommends that the responsible 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)* and are confirmed by section 23 of the *NuPPAA*:

Nunavut Agreement, Article 12, Section 12.2.5: In carrying out its functions, the primary objectives of NIRB shall be at all times to protect and promote the existing and future well-being of the residents and communities of the Nunavut Settlement Area, and to protect the ecosystemic integrity of the Nunavut Settlement Area. NIRB shall take into account the well-being of the residents of Canada outside the Nunavut Settlement Area.

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

NuPPAA, s. 88: The purpose of screening a project is to determine whether the project has the potential to result in significant ecosystemic or socio-economic impacts and, accordingly, whether it requires a review by the Board...

To determine whether a review of a project is required, the NIRB is guided by the considerations as set out under subsection 89(1) of *NuPPAA*:

NuPPAA, s. 89(1): The Board must be guided by the following considerations when it is called on to determine, on the completion of a screening, whether a review of the project is required:

- (a) a review is required if, in the Board's opinion,
 - i. the project may have significant adverse ecosystemic or socio-economic impacts or significant adverse impacts on wildlife habitat or Inuit harvest activities,
 - ii. the project will cause significant public concern, or
 - iii. the project involves technological innovations, the effects of which are unknown; and
- (b) a review is not required if, in the Board's opinion,
 - i. the project is unlikely to cause significant public concern, and
 - ii. its adverse ecosystemic and socioeconomic impacts are unlikely to be significant, or are highly predictable and can be adequately mitigated by known technologies.

It is noted that subsection 89(2) of the *NuPPAA* provides that the considerations set out in paragraph 89(1)(a) prevail over those set out in paragraph 89(1)(b) of the *NuPPAA*.

As set out under subsection 92(1) of the *NuPPAA*, upon conclusion of the screening process, the Board must provide its written report the Minister:

NuPPAA, s. 92(1): The Board must submit a written report to the responsible Minister containing a description of the project that specifies its scope and indicating that:

- (a) a review of the project is not required;
- (b) a review of the project is required; or
- (c) the project should be modified or abandoned.

Where the NIRB determines that a project may be carried out without a review, the NIRB has the discretion to recommend specific terms and conditions to be attached to any approval of the project proposal pursuant to paragraph 92(2)(a) of *NuPPAA* as follows:

NuPPAA, s. 92(2) In its report, the Board may also

- (a) recommend specific terms and conditions to apply in respect of a project that it determines may be carried out without a review.

PROJECT REFERRAL

On March 27, 2018 the NIRB received a referral to screen Transport Canada's (TC) "Resolute Bay Landfill Risk Management" project proposal from the Nunavut Planning Commission (NPC or Commission), with an accompanying positive conformity determination with the North Baffin Regional Land Use Plan. The NPC noted that the previous conformity determination issued on May 17, 2012 for the activities associated with the current proposal continues to apply and has determined that the project proposal is a significant modification to the project because of it includes the development of a new quarry site on the airport lands.

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. Due to the proposal containing activities that were sufficiently related to previously assessed activities under NIRB file number **12XN027** the NIRB viewed this project proposal as an amendment to the previously screened project and assigned this proposal with this previous file number. A summary of the previously screened project activities can be found in **Appendix A**.

PROJECT OVERVIEW & THE NIRB ASSESSMENT PROCESS

1. Project Scope

The "Resolute Bay Landfarm Maintenance and Operation" project activities as previously screened by the NIRB (File No. 12XN027) included the operation, maintenance, and decommissioning of Resolute Bay Airport's landfarm as part of remediation to address environmental issues at site. A complete description of the scope of activities previously approved has been included within [Appendix A](#).

Transport Canada (TC) is currently proposing the "Resolute Bay Airport Landfill Risk Management" project which would be located in the same area as previously approved and would be located within the Qikiqtani (North Baffin) region, approximately five (5) kilometres (km) northeast from Resolute Bay, within municipal boundaries. The Proponent intends to amend the scope of previously approved activities to include remediation and eventual closure of three (3) landfills at the Airport which Transport Canada refers to as Areas of Environmental Concern (AECs): the solid waste landfill (AEC #1), the historic landfill (AEC #2), and the vehicle storage area (AEC #3). The program is proposed to take place over two (2) years from 2018 to 2020. The scope of activities previously approved for this ongoing remediation program (NIRB File No. 12XN027) has been included within [Appendix A](#).

As required under subsection 86(1) of the *NuPPAA*, the Board accepts the scope of the "Resolute Bay Airport Landfill Risk Management" project as set out by Transport Canada in the proposal. The scope of the project proposal includes the following undertakings, works, or activities:

- Collection of all hazardous waste materials visible on the surface for shipment to a licensed hazardous waste disposal facility;
- Collection all non-hazardous waste visible on the surface (including metal materials and abandoned vehicles) for consolidation into the landfill at AEC #1 (solid waste landfill);
- Potentially developing up to three (3) borrow sites on airport property to acquire approximately 50,000 cubic metres (m³) of aggregate material for the landfill capping;

- Stabilization of the landfill slopes at AEC#1 and AEC #2 (solid waste and historic landfills), along with grading and construction of drainage swales at both locations;
- Capping AEC#1 and AEC#2 (solid waste and historic landfills) with a layer of gravel to prevent water from leaching through the sites;
- Excavating approximately 300 m³ of contaminated soil from AEC#3 (vehicle storage area) and disposing of it at an approved facility;
- Installation of sampling wells for ongoing groundwater monitoring for two (2) years post-construction;
- Use of excavator, dump truck, bulldozer, and backhoe for earthworks; and
- Road maintenance with a grade if required.

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.

3. Key Stages of the Screening Process

The following key stages were completed:

Date	Stage
March 27, 2018	Receipt of project proposal and positive conformity determination (North Baffin Regional Land Use Plan) from the NPC
March 27, 2018, May 9, 2018	Information requests
May 11, 2018	Proponent responded to information requests
May 11, 2018	Scoping pursuant to subsection 86(1) of the <i>NuPPAA</i>
May 15, 2018	Public engagement and comment request
June 5, 2018	Receipt of public comments

4. Public Comments and Concerns

Notice regarding the NIRB's screening of this project proposal was distributed on May 15, 2018 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, 2018 regarding:

- Whether the project proposal is likely to arouse significant public concern; and if so, why;
- Whether the project proposal is likely to cause significant adverse eco-systemic or socio-economic effects; and if so, why;
- Whether the project proposal is likely to cause significant adverse impacts on wildlife habitat or Inuit harvest activities; and if so, why;
- Whether the project proposal is of a type where the potential adverse effects are highly predictable and mitigable with known technology, (and providing any recommended mitigation measures); and
- Any matter of importance to the Party related to the project proposal.

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

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 proposed project would occur near the Resolute Bay Airport and includes three (3) Areas of Environmental Concern (AECs): the solid waste landfill, the historic landfill, and the vehicle storage area. The landfills are on airport property while the vehicle storage area is immediately outside airport property. The project footprint also includes three (3) proposed quarry sites that may be developed, also on airport land. The Proponent has indicated within its application materials that several small ephemeral ponds and drainage streams are located adjacent to the landfills, and that plant cover in the project area is irregular and discontinuous. The proposed project activities may take place within the range of caribou, muskox, wolves, Arctic fox, Arctic hare, wolverine, migratory birds and non-migratory birds, and Species at Risk such as Polar Bear, and Ivory Gull. However, impacts are unlikely to extend far from the footprint, and due to the proposed project occurring in an existing industrial area, birds and small mammals are the most likely wildlife to interact and to be affected by the with the project.

2. *The ecosystemic sensitivity of that area.*

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

- i. Marine wildlife; and

ii. Polar Bears.

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

Neither the Proponent nor any parties that submitted comments for this project 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 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 5 kilometres from Resolute Bay, the nearest community; as such community residents could be affected. However, the proposed project would occur on industrial lands and has been active for some time, and no significant public concerns were raised during the public commenting period. In addition, no specific animal populations have been identified as likely to be affected by potential project impacts. Nonetheless, 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 remediation 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.*

The “Resolute Bay Landfill Risk Management” project would involve the clean-up and remediation of wastes, hazardous wastes, and contaminated soils as well as the development of several quarries through mechanical excavation. There is potential for adverse impacts associated with the project, however based on the limited geographic and temporal scope of the project (two summers of work at the Resolute Bay airport), and based on past evidence from similar remediation and quarry projects, the potential adverse impacts are likely to be infrequent, temporary, of low magnitude, 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 occur within a 100 kilometres of one currently active project, and several recently completed projects, listed in Table 1 below. The potential for impacts to wildlife and wildlife habitat, water and soil resulting from these projects has been considered during the development of the NIRB’s recommendations for those projects. Terms and conditions recommended for each of these projects are expected to reduce any residual impacts. In addition, the current project proposal would take place at an existing development and as it is focused on addressing environmental contamination from historic

activities, is expected to result overall in positive impacts. As such, cumulative effects are not expected.

Table 1: Project List

NIRB Number	Project	Project Title	Project Type
Active Projects			
17QN032		Resolute Bay 2017 Quarry Administration Agreement	Quarry
17TN054		Complete Expeditions Tourist Operations – Yacht Silver Cloud interpretive trip	Tourism
Past Projects			
17AN005		Exploratory Skidoo Patrol to Qausuittuq National Park	Access
17AN031		Canada C3 led by the Students on Ice Foundation	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
17TN057		MY ARCHIMEDES Northwest Passage 2017	Tourism
16AN072		Northwest Passage Project	Tourism
16DN061		NOREX 18	Defense
16DN063		NUNALIVUT 2018	Defense
12AN025		Canadian Arctic Cruise Tourism aboard m/v Akademik Sergey Vavilov and m/v Akademik Ioffe	Tourism

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

As noted above, the objective of the proposed project is to remediate an area that has identified wastes, hazardous wastes and contaminated soils, which could lead to more serious environmental contamination if not addressed. As such, the predicted long-term outcomes of the proposed project would be expected to offset any short-term negative impacts which may result from the remediation and eventual closure of historical landfills at the Resolute Bay airport site. So long as the NIRB's recommended terms and conditions are adhered to along with applicable regulations and authorizations, it is expected that the proposed remediation activities would provide an increase to the ecosystemic and environmental integrity of the area. In addition, ongoing monitoring is expected to ensure the effectiveness of the remediation efforts and manage risk.

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, which continue to apply to the current project proposal. The Board is also recommending term and condition 24 to ensure complete reference to applicable regulatory requirements.

The Board would also note that, as justified in its previous decision (NIRB File No. 12XN027 dated June 22, 2012), terms and conditions 12 through 14, 16 through 18, and 21 through 23 remain applicable to the project, while the additional impacts identified for the new components of the project (quarrying and landfill remediation) warrant mitigation measures as justified below.

Ecosystem, wildlife habitat and Inuit harvesting activities:

Issue 1: Potential adverse impacts to terrestrial wildlife, migratory and non-migratory birds from quarry development, and the use of heavy equipment during landfill remediation, excavating of contaminated soil, and movement of hazardous materials.

Board views: As discussed above in the assessment of factors relevant to this project proposal, the project would be limited to two (2) seasons of work, and impacts would likely be limited to a small geographic area immediately surrounding the work sites at the Resolute Bay airport. Further, the proposed remediation work would occur at an existing industrial site that is already disturbed from previous development. However, noise during the remediation and quarry works may disturb wildlife passing near the area, and birds and small mammals with limited home ranges habituated to the project area. With the recommended terms and conditions in place, the potential impacts are considered to be temporary and highly mitigable.

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

Recommended Mitigation Measures: It is recommended that the potential adverse impacts to wildlife and birds be mitigated by requiring the Proponent to avoid wildlife, wildlife habitat, and nesting areas, to ensure fuels are inaccessible to wildlife, and to minimize noise. The Board has previously recommended terms and conditions 6, 8 through 11, and 19, which continue to apply to the current project proposal. In addition, the Board

is recommending term and condition 25 to ensure wastes are kept inaccessible to wildlife.

Issue 2: Potential adverse impacts to soils, sediment, vegetation, and surface water quality due to fuel spills associated with the use of heavy machinery and equipment, the development of quarry sites and the remediation activities including movement of contaminated soils and movement of hazardous materials.

Board views: There is the potential for the project to adversely impact soils, sediment, vegetation, and surface water quality from fuel spills associated with the use of heavy machinery and equipment, or through the movement of contaminated soils and hazardous materials. The potential for impacts is applicable to small geographic areas within the project footprint 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.

There is also the potential that from the quarrying activities could adversely impact soils, sediment, vegetation, and surface water – due to dust deposition; due to erosion, sedimentation, and water runoff; or due to permafrost degradation. These potential impacts are considered to be of low magnitude due to the previously disturbed nature of the project area. Impacts would also be expected to be limited to a small geographic area and would be infrequent, temporary, and reversible in nature.

It is expected that standard operational considerations for quarry activities would mitigate any potential adverse impacts to soils, sediment, vegetation, and surface water. In addition, the Proponent has provided a previously-prepared Spill Contingency Plan and has committed to update this plan once it selects a contractor to carry out the currently proposed project. Further, the Proponent would also be required to follow the *Fisheries Act*, the *Transportation of Dangerous Goods Regulations*, *Transportation of Dangerous Goods Act*, the *Canadian Environmental Protection Act* (see Regulatory Requirements section).

Recommended Mitigation Measures: It is recommended that potential adverse impacts to soil, sediment, vegetation, and surface water quality could be mitigated by following safe fuel storage and handling practices, having a spill kit on hand, and implementing erosion and sedimentation control and dust management measures. The Board previously issued terms and conditions 5, 7, 17, 18, 20, 21 and 22, and these continue to apply to the current project. In addition, the Board is recommending terms and conditions 26 through 32 to mitigate potential impacts from quarry activities.

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: There is potential for adverse impacts to air quality due to dust generation and engine emissions from use of heavy equipment and machinery, quarrying activities, and

possible road maintenance. These impacts are expected to be limited to a small geographic area within the municipality or Resolute Bay, low in magnitude, intermittent, and reversible in nature.

Recommended Mitigation Measures: It is recommended that the potential adverse impacts may be mitigated by measures such as requiring the Proponent to implement dust management measures, and to minimize engine idling. The Board has previously recommended terms and conditions 15, 19, and 20, which continue to apply to the current project proposal.

Socio-economic effects on northerners:

Issue 4: Potential adverse impacts to historical, cultural and archaeological sites from remediation activities.

Board Views: The Proponent is proposing to work in an industrial area, in an area of no known historical significance. Therefore, the probability of significant impacts occurring to historical, cultural, and archaeological sites are considered to be low. As mentioned previously, the Proponent would be required to contact the Culture and Heritage Department when encountering historical sites to follow the *Nunavut Act* (as recommended in Regulatory Requirements section).

Recommended Mitigation Measures: The Board is recommending term and condition 33 to ensure that the Proponent solicit available Inuit Qaujimaningit, 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.

Issue 5: Potential positive impacts to the local community from the remediation and eventual closure of three (3) landfills at the Resolute Bay airport.

Board Views: The proposed project is expected to improve the local environment by removing hazardous materials and contaminated soils and consolidating non-hazardous solid wastes. The clean-up is expected to lead to improved community perception of the area. In addition, the project would provide local employment opportunities.

Recommended Mitigation Measures: The Board previously recommended term and condition 23 to support local hiring opportunities, which continues to apply.

Significant public concern:

Issue 6: 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 is recommending term and condition 33 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.

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 June 22, 2012 Screening Decision Report(s) for **File No. 12XN027, and continue to apply to the "Resolute Bay Airport – Landfill Remediation" project:**

General

1. Transport 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 (Part 1 Summary Application Form, February 29, 2012; NIRB Part 2, February 29, 2012; Maps; Non-technical Project Proposal summary in English and Inuktitut; Operation and Maintenance Plan; Abandonment and Restoration Plan; Spill contingency plan) and to the Nunavut Planning Commission (Application to Determine Conformity, May 16, 2012).
4. The Proponent shall operate the site in accordance with all applicable Acts, Regulations and Guidelines.

Fuel and Chemical Storage

5. The Proponent shall ensure that storage of fuel and hazardous materials and re-fuelling of project equipment is conducted at a minimum of thirty-one (31) metres away from the high water mark of any water body and in such a manner as to prevent their release into the environment.
6. The Proponent shall store all fuel and chemicals in such a manner that they are inaccessible to wildlife.
7. The Proponent shall ensure that 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

8. The Proponent shall ensure that there is no damage to wildlife habitat in conducting this operation.
9. 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.
10. 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

11. 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 metre 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.

Landfarm Operation

12. The Proponent shall only treat petroleum and hydrocarbon contaminated soils using the landfarm facility. Materials contaminated with other substances such as glycol and heavy metals are not to be stored at the landfarm and shall only be disposed of at an authorized facility.
13. The Proponent shall ensure required standards, set out in the Nunavut Water Board's Water Licence for this project are met prior to any discharge of collected water in the retention cell.
14. The Proponent shall ensure that the equipment used in the landfarm operation for aeration, have been cleaned off within the landfarm facilities prior to exiting to prevent contaminated soil transfer.
15. The Proponent shall take appropriate dust suppression measures when conducting soil turning and removal.
16. All operation personnel shall be adequately trained prior to commencement of any operation of the landfarm facility. Operational personnel must also be trained in the operational guidelines and commitments made by the Proponent for this project.

Ground Disturbance

17. The Proponent shall not move any equipment or vehicles unless the ground surface is in a state capable of fully supporting the equipment or vehicles without rutting or gouging. Overland travel of equipment or vehicles must be suspended if rutting occurs.
18. The Proponent shall implement suitable erosion and sediment suppression measures on disturbed areas before, during and after construction in order to prevent sediment from entering any water body.

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

Restoration of Disturbed Areas

21. 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.
22. The Proponent shall remove all garbage, fuel and equipment upon abandonment.

Other

23. The Proponent should, to the extent possible, hire local people and consult with local residents regarding their activities in the region.

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

General

24. The Proponent shall operate in accordance with all commitments stated in correspondence provided to the Nunavut Planning Commission (NPC File No.: 148786), and the NIRB (Online Application Form, May 11, 2018).

Waste Disposal

25. 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.

Establishment of New Quarries

26. The Proponent shall clearly stake and flag pit and quarry boundaries so they remain visible to other land users.
27. The Proponent shall locate quarry/pit facilities so as to avoid all recreational sites and public use areas, and to protect unique geographical features and natural aesthetics.
28. The Proponent shall ensure there is no obstruction of natural drainage, flooding or channel diversion from quarry/pit access, stockpiles, or other structures or facilities.
29. The Proponent shall ensure that silt fences/curtains are installed down gradient of any quarry activities.
30. The Proponent shall maintain an undisturbed buffer zone between the periphery of quarry sites and the high water mark of any water body that is of an adequate distance to ensure erosion control.
31. The Proponent shall locate screening and crushing equipment on stable ground, at a location with ready access to stockpiles.

32. 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

Other

33. 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.

MONITORING AND REPORTING REQUIREMENTS

The Board has previously recommended the following on June 22, 2012:

Transport of Waste/Dangerous Goods

- The Proponent shall ensure that a waste manifest accompanies the shipment of all waste oil/grease and is registered with the Government of Nunavut Department of Environment (GN-DoE). Contact the Manager of Pollution Control and Air Quality at (867) 975-7748 to obtain a manifest if hazardous waste will be generated during project activities.
- The Proponent shall ensure that an export manifest or the appropriate transportation of dangerous goods (TDG) documentation accompany all potential hazardous samples and/or materials that are transported off site.

In addition to the previously recommended monitoring and reporting requirements, the Board is recommending the following:

Spill Contingency Plan

1. The Proponent shall update its Spill Contingency Plan and 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).

Waste Management Plan

2. The Proponent shall submit a Waste Management Plan that includes management of:
- a) Greywater and sewage;
 - b) Wastes produced while undertaking the work as proposed;
 - c) Efforts made to achieve compliance with NIRB conditions contained within this Screening Decision associated with waste management.

OTHER NIRB CONCERNS AND RECOMMENDATIONS

In addition to the project-specific terms and conditions, the Board has previously recommended the following on June 22, 2012:

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.

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.

2. 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 Resolute Bay, phone: (867) 252-3879).

Species at Risk

3. (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.

Change in Project Scope

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

The Board is currently also recommending the following:

Transport of Dangerous Goods and Waste Management

5. Environment and Climate Change Canada recommends that all hazardous wastes, including waste oil, receive proper treatment and disposal at an approved facility.

REGULATORY REQUIREMENTS

The Board previously recommended in the June 22, 2012 Screening Decision Report(s) for the “Resolute Bay Landfarm Maintenance and Operation” project the following legislation, which continues to apply to the current proposal:

Acts and Regulations

1. The *Fisheries Act* (<http://laws-lois.justice.gc.ca/eng/acts/F-14/index.html>).

2. (updated) 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 B** is a list of Species at Risk in Nunavut.
5. (updated) The *Wildlife Act* and its corresponding regulations (<http://www.canlii.org/en/nu/laws/stat/snu-2003-c-26/latest/snu-2003-c-26.html>).
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 C**.
7. (updated) 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/>).

Other Applicable Guidelines

1. (updated) The *Federal Guidelines for Landfarming Petroleum Hydrocarbon Contaminated Soils* (Science Applications International Corporation Canada, March 2006) provide information as it relates to the future operations of the landfarming activities.

In addition, the Proponent is also advised that the following legislation may apply to the project:

Acts and Regulations

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.
9. The *Aeronautics Act* (<http://laws-lois.justice.gc.ca/eng/acts/A-2/>).

Other Applicable Guidelines

10. The *Northern Land Use Guidelines Pits and Quarries* (<http://www.aadnc-aandc.gc.ca/eng/1100100023585>) provide guidelines for progressive reclamation applicable to establishment of pits and quarries.

CONCLUSION

The foregoing constitutes the Board's screening decision with respect to the Transport Canada's "Resolute Bay Airport Landfill Risk Management". The NIRB remains available for consultation with the Minister regarding this report as necessary.

Dated June 22, 2018 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. 12XN027), was received by the Nunavut Impact Review Board (NIRB or Board) on February 29, 2012 from Transport Canada for a Type B Water Licence with the Nunavut Water Board (NWB) for the “Resolute Bay Landfarm Maintenance and Operation” project proposal. On April 4, 2012 the NIRB received correspondence from the NWB related to the project proposal and on May 17, 2012 the NIRB received a positive conformity determination (North Baffin Regional Land Use Plan) from the Nunavut Planning Commission and the project proposal 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 June 22, 2012 the NIRB issued a *Nunavut Agreement* 12.4.4(a) screening decision to the then Minister of Aboriginal Affairs and Northern Development Canada and to the then Chairperson of the Nunavut Water Board, which indicated that the proposed project could proceed subject to the NIRB’s recommended project-specific terms and conditions.

Transport Canada’s (TC) (Proponent) original “Resolute Bay Landfarm Maintenance and Operation” project was located in the Qikiqtani (North Baffin) region, approximately 5 kilometres (km) northeast from Resolute Bay, within the municipal boundaries at the Resolute Bay Airport. The airport as originally constructed in 1949 by the Royal Canadian Air Force and has been operated first by the Canadian Government and later the Government of the Northwest Territories. In 1995, as a condition of the transfer between the aforementioned two governments, it was agreed that the Fire Training Area would be cleaned up to address environmental issues at site. In 1999 the Government of Nunavut assumed ownership of the airport and associated lands. At that time, environmental clean-up remained ongoing and in 2001-2002, a landfarm was constructed to contain the hydrocarbon contaminated soil and to do on site remediation and complete the clean-up. The Proponent indicated that it intended to conduct ongoing operations, maintenance, and decommission activities at Resolute Bay Airport’s landfarm. The program was proposed to take place from 2012 to 2016.

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

Operation of the existing landfarm

- Yearly turning of the soil in both areas and adding fertilizer to encourage biodegrading of hydrocarbons (gasoline, diesel and aviation fuel); and
- Testing of the soil and water to observe hydrocarbon levels and assess fertilizer requirements.

Decommissioning of the landfarm

- Removal of the liner and plastic pipes from the landfarm;
- Disposal of removed materials in the Resolute Bay landfill; and
- Landfarm area to be backfilled with the remediated soil and graded to match the surrounding topography.

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*¹ to issue such permits.

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

¹ P.C. 2001-1111 14 June, 2001

- 3) The permittee/proponent shall not remove, disturb, or displace any archaeological artifact or site, or any fossil or palaeontological site.
- 4) The permittee/proponent shall immediately contact CH at (867) 934-2046 or (867) 975-5500 should an archaeological site or specimen, or a palaeontological site or fossil, be encountered or disturbed by any land use activity.
- 5) The permittee/proponent shall immediately cease any activity that disturbs an archaeological or palaeontological site encountered during the course of a land use operation until permitted to proceed with the authorization of CH.
- 6) The permittee/proponent shall follow the direction of CH in restoring disturbed archaeological or palaeontological sites to an acceptable condition. If these conditions are attached to either a Class A or B Permit under the Territorial Lands Act Indigenous and Northern Affairs Canada directions will also be followed.
- 7) The permittee/proponent shall provide all information requested by CH concerning all archaeological sites or artifacts and all palaeontological sites and fossils encountered in the course of any land use activity.
- 8) The permittee/proponent shall make best efforts to ensure that all persons working under its authority are aware of these conditions concerning archaeological sites and artifacts and palaeontological sites and fossils.
- 9) If a list of recorded archaeological and/or palaeontological sites is provided to the permittee/proponent by CH as part of the review of the land use application the permittee/proponent shall avoid the archaeological and/or palaeontological sites listed.
- 10) Should a list of recorded sites be provided to the permittee/proponent, the information is provided solely for the purpose of the proponent's land use activities as described in the land use application, and must otherwise be treated confidentially by the proponent.

Legal Framework

As stated in Article 33 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement)*:

Where an application is made for a land use permit in the Nunavut Settlement Area, and there are reasonable grounds to believe that there could be sites of archaeological importance on the lands affected, no land use permit shall be issued without written consent of the Designated Agency. Such consent shall not be unreasonably withheld. [33.5.12]

Each land use permit referred to in Section 33.5.12 shall specify the plans and methods of archeological site protection and restoration to be followed by the permit holder, and any other conditions the Designated Agency may deem fit. [33.5.13]

Palaeontology and Archaeology

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

² s. 51(1)

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

Definitions

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

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

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

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

“fossil” includes:

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

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

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

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

Introduction

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

CH is the Nunavut Government agency which oversees the protection and management of heritage resources in Nunavut, in partnership with land claim authorities, regulatory agencies, and the federal government. Its role in mitigating impacts of developments on heritage resources is as follows: to identify the need for an impact assessment and make recommendations to the appropriate regulatory agency; set the terms of reference for the study depending upon the scope of the development; suggest the names of qualified individuals

³ P.C. 2001-1111 14 June, 2001

prepared to undertake the study to the developer; issue an archaeologist or palaeontologist permit authorizing field work; assess the completeness of the study and its recommendations; and ensure that the developer complies with the recommendations.

The primary regulatory agencies that CH provides information and assistance to are the Nunavut Impact Review Board, for development activities proposed for Inuit Owned Lands (as defined in Section 1.1.1 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement)*), and the Indigenous and Northern Affairs Canada, for development activities proposed for federal Crown Lands.

A developer is the initiator of a land use activity. It is the obligation of the developer to ensure that a qualified archaeologist or palaeontologist is hired to perform the required study and that provisions of the contract with the archaeologist or palaeontologist allow permit requirements to be met; i.e. fieldwork, collections management, artifact and specimen conservation, and report preparation. On the recommendation of the contract archaeologist or palaeontologist in the field and the Government of Nunavut, the developer shall implement avoidance or mitigative measures to protect heritage resources or to salvage the information they contain through excavation, analysis, and report writing. The developer assumes all costs associated with the study in its entirety.

Through his or her active participation and supervision of the study, the contract archaeologist or palaeontologist is accountable for the quality of work undertaken and the quality of the report produced. Facilities to conduct fieldwork, analysis, and report preparation should be available to this individual through institutional, agency, or company affiliations. Responsibility for the curation of objects recovered during field work while under study and for documents generated in the course of the study as well as remittance of artifacts, specimens and documents to the repository specified on the permit accrue to the contract archaeologist or palaeontologist. This individual is also bound by the legal requirements of the *Nunavut Archaeological and Palaeontological Sites Regulations*.

Types of Development

In general, those developments that cause concern for the safety of heritage resources will include one or more of the following kinds of surface disturbances. These categories, in combination, are comprehensive of the major kinds of developments commonly proposed in Nunavut. For any single development proposal, several kinds of these disturbances may be involved

- *Linear disturbances: including the construction of highways, roads, winter roads, transmission lines, and pipelines;*
- *Extractive disturbances: including mining, gravel removal, quarrying, and land filling;*
- *Impoundment disturbances: including dams, reservoirs, and tailings ponds;*
- *Intensive land use disturbances: including industrial, residential, commercial, recreational, and land reclamation work, and use of heritage resources as tourist developments.*

- *Mineral, oil and gas exploration: establishment of camps, temporary airstrips, access routes, well sites, or quarries all have potential for impacting heritage resources.*

Types of Studies Undertaken to Preserve Heritage Resources

Overview: An overview study of heritage resources should be conducted at the same time as the development project is being designed or its feasibility addressed. They usually lack specificity with regard to the exact location(s) and form(s) of impact and involve limited, if any, field surveys. Their main aim is to accumulate, evaluate, and synthesize the existing knowledge of the heritage of the known area of impact. The overview study provides managers with baseline data from which recommendations for future research and forecasts of potential impacts can be made. A Class I Permit is required for this type of study if field surveys are undertaken.

Reconnaissance: This is done to provide a judgmental appraisal of a region sufficient to provide the developer, the consultant, and government managers with recommendations for further development planning. This study may be implemented as a preliminary step to inventory and assessment investigations except in cases where a reconnaissance may indicate a very low or negligible heritage resource potential. Alternately, in the case of small-scale or linear developments, an inventory study may be recommended and obviate the need for a reconnaissance.

The main goal of a reconnaissance study is to provide baseline data for the verification of the presence of potential heritage resources, the determination of impacts to these resources, the generation of terms of reference for further studies and, if required, the advancement of preliminary mitigative and compensatory plans. The results of reconnaissance studies are primarily useful for the selection of alternatives and secondarily as a means of identifying impacts that must be mitigated after the final siting and design of the development project. Depending on the scope of the study, a Class 1 or Class 2 Permit is required for this type of investigation.

Inventory: A resource inventory is generally conducted at that stage in a project's development at which the geographical area(s) likely to sustain direct, indirect, and perceived impacts can be well defined. This requires systematic and intensive fieldwork to ascertain the effects of all possible and alternate construction components on heritage resources. All heritage sites must be recorded on Government of Nunavut Site Survey forms. Sufficient information must be amassed from field, library and archival components of the study to generate a predictive model of the heritage resource base that will:

- allow the identification of research and conservation opportunities;
- enable the developer to make planning decisions and recognize their likely effects on the known or predicted resources; and
- make the developer aware of the expenditures, which may be required for subsequent studies and mitigation. A Class 1 or 2 permit is required.

Assessment: At this stage, sufficient information concerning the numbers and locations of heritage resources will be available, as well as data to predict the forms and magnitude of impacts. Assessments provide information on the size, volume, complexity and content of a

heritage resource, which is used to rank the values of different sites or site types given current archaeological knowledge. As this information will shape subsequent mitigation program(s), great care is necessary during this phase.

Mitigation: This refers to the amelioration of adverse impacts to heritage resources and involves the avoidance of impact through the redesign or relocation of a development or its components; the protection of the resource by constructing physical facilities; or, the scientific investigation and recovery of information from the resource by excavation or other method. The type(s) of appropriate mitigative measures are dictated by their viability in the context of the development project. Mitigation strategies must be developed in consultation with, and approved by, the Department of Culture and Heritage. It is important to note that mitigation activities should be initiated as far in advance of the construction of the development as possible.

Surveillance and monitoring: These may be required as part of the mitigation program.

Surveillance may be conducted during the construction phase of a project to ensure that the developer has complied with the recommendations.

Monitoring involves identification and inspection of residual and long-term impacts of a development (i.e. shoreline stability of a reservoir); or the use of impacts to disclose the presence of heritage resources, for example, the uncovering of buried sites during the construction of a pipeline.