



## SCREENING DECISION REPORT NIRB FILE No.: 16AN060

NPC File No.: 148355  
KIA File No.: KTX116F009  
INAC File No.: N2016U0009

**December 22, 2016**

Following the Nunavut Impact Review Board's (NIRB or Board) assessment of all materials provided, the NIRB is recommending that a review of Kudlik Construction Limited's (Proponent) "Overland Mobilization from Kugaaruk to CAM-E" 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(s) accepts this Screening Decision Report.

### OUTLINE OF SCREENING DECISION REPORT

- 1) REGULATORY FRAMEWORK
- 2) PROJECT REFERRAL
- 3) PROJECT OVERVIEW & THE NIRB ASSESSMENT PROCESS
- 4) FACTORS FOR DETERMINING SIGNIFICANCE OF IMPACTS
- 5) VIEWS OF THE BOARD
- 6) RECOMMENDED PROJECT-SPECIFIC TERMS AND CONDITIONS
- 7) MONITORING AND REPORTING REQUIREMENTS
- 8) OTHER NIRB CONCERNS AND RECOMMENDATIONS
- 9) REGULATORY REQUIREMENTS
- 10) CONCLUSION

### 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 October 6, 2016 the NIRB received a referral to screen the project proposal from the Nunavut Planning Commission (NPC or Commission). Pursuant to section 86 of the *Nunavut Planning and Project Assessment Act* (NuPPAA), the NIRB commenced screening this project proposal and assigned it file number 16AN060.



## 1. Project Description

The proposed “Overland Mobilization from Kugaaruk to CAM-E” project is located within the Kitikmeot region, approximately 75 kilometres (km) east of Kugaaruk. The Proponent intends to construct a 90 km winter access road to facilitate overland mobilization and transportation of equipment and materials from Kugaaruk to the CAM-E (Keith Bay) distant early warning (DEW) line site that was operational from 1957 to 1963. The program is proposed to operate seasonally from winter 2017 through 2019.

According to the project proposal, the scope of the project includes the following undertakings, works or activities:

- Construction of a 90 km winter access road to facilitate mobilization of equipment, materials and 16 personnel from Kugaaruk to the CAM-E site and would include;
  - Use of four (4) tractors equipped with wide rubber tracks to pull steel sleds on the winter trail;
  - Use of eleven (11) steel sleds to transport equipment and supplies;
  - Use of one (1) Hagglund off road vehicle for trail opening and validation, as well as for emergency;
  - Use of one (1) snow groomer for trail maintenance; and 2 snow mobiles for trail opening;
- Use of poles equipped with reflectors to mark the winter access road at every 100 metres and to be removed at the end of the mobilization;
- Transportation, use and storage of up to 354,240 litres (L) of diesel, 4,100 L of gasoline and 4,100 L Jet A aviation fuel to support mobilization and demobilization activities, as well as plane refuelling;
- Installation of two (2) complete emergency spill kits near by the fuel storage area;
- Transportation, use and storage of up to 2 x 100 pounds of propane for cooking; and
- Establishment of a refueling area for heavy equipment and vehicles.

## 2. Scoping

The NIRB has identified no additional works or activities in relation to the project proposal.

## 3. Key Stages of the Screening Process

The following key stages were completed:

Date	Stage
October 6, 2016	Receipt of project proposal from the NPC
October 14, 2016	Information request(s)
October 27, 2016	Proponent responded to information request(s)
October 27, 2016	Scoping pursuant to subsection 86(1) of the NuPPAA
November 4, 2016	Public engagement and comment request
November 25, 2016	Receipt of public comments
November 30, 2016	Proponent responded to comments/concerns raised by public
December 12, 2016	Ministerial extension requested from the Minister of INAC



#### **4. Public Comments and Concerns**

Notice regarding the NIRB's screening of this project proposal was distributed on November 4, 2016 to community organizations in Kugaaruk, 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 November 25, 2016 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 and socio-economic effects; and if so, why;
- Whether the project is likely to cause significant adverse impacts on wildlife habitat or Inuit harvest activities; if so, why;
- Whether the project is of a type where the potential adverse effects are highly predictable and mitigable with known technology, (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:

##### **Government of Nunavut – Department of Environment (GN-DOE)**

- Recommended that the Proponent conduct den surveys for wildlife (fox, polar bear and wolverine) along the proposed route prior to the operation of a winter CAT train;
- Noted the potential for the proposed activities to interact with 16 archaeological sites recorded in the vicinity of Keith Bay camp and Kugaaruk, as well as other unidentified archeological sites and cultural features along the winter access road;
- Requested that the Proponent provide a map of an appropriate scale to clearly identify the precise overland route;
- Recommended that the Proponent not build inuksuit, or disturb any cultural or heritage resource sites in the course of undertaking project activities; and
- Requested that the Proponent clarify whether or not the exact track or winter access route would be followed each year through duration of the proposed project

##### **Environment and Climate Change Canada (ECCC)**

- The Proponent should comply with its obligations under relevant legislations such as the *Canadian Environmental Protection Act*, the pollution prevention provisions of the *Fisheries Act*, the *Migratory Birds Convention Act*, and the *Species at Risk Act*.

##### **Indigenous and Northern Affairs Canada (INAC)**

- Do not have any comments or concerns related to the activities as proposed.

#### **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 November 30, 2016:

- Reported that two (2) den surveys were already conducted along the proposed trail between Kugaaruk and Keith Bay in April 2016, and noted that with the exception of few caribou observed around Keith Bay, no other wildlife was observed along the route;
- Noted that the CAT train activities would not have any negative impacts on the surrounding wildlife, and that wildlife monitoring would be undertaken along the proposed route during project activities;
- Committed to ensure that all archaeological and cultural sites identified within and around the vicinity of the proposed winter access route are avoided during overland mobilization;
- Committed to ensure that personnel do not undertake any building of inuksuit to mark the proposed trail during overland mobilization and transportation of equipment to the project site;
- Indicated that reflective poles would be used along the proposed trail during overland mobilization, and subsequently removed at the end of the mobilization; and
- Clarified that the same trail developed for the overland mobilization would be used for demobilization.

### FACTORS FOR DETERMINING SIGNIFICANCE OF IMPACTS

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 size of the geographic area for the project proposal would encompass a winter access road corridor of approximately 90 kilometres (km) between the Hamlet of Kugaaruk to the CAM-E (Keith Bay) Distant Early Warning (DEW) line site, and would include the establishment of a designated refueling area for heavy equipment and vehicles. The proposed activities may take place within habitats for many far-ranging wildlife species, such as caribou, fox, polar bear and wolverine, and non-migratory birds such as ravens, snowy owl, and ptarmigan as identified by the Proponent and mapping sources, and may potentially affect animal migratory patterns.



2. *The ecosystemic sensitivity of that area.*

The proposed project would occur in an area with no particular identified ecosystemic sensitivity; however the Government of Nunavut has noted the potential for the operation of a winter CAT train to cause disturbance and damage to wildlife dens along the proposed route, and recommended that the Proponent conduct den surveys along the route prior to operation of the winter CAT train. Further, the vicinity of the proposed route has been identified as having value and priority to the local community for:

- i. Terrestrial wildlife, such as caribou, fox, wolverine, wolf, and
- ii. Polar bears.

The Proponent noted that two (2) den surveys were already conducted along the proposed trail between Kugaaruk and Keith Bay in April 2016, reported that, with the exception of few caribou observed around Keith Bay, no other wildlife was observed along the route.

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

The project Proponent has indicated that there are no known areas of historical, cultural and archaeological significance associated with the proposed project; however, during the NIRB commenting period for this file the Government of Nunavut noted the potential for project activities to interact with some archaeological sites, as well as other unidentified cultural features along the route. Should the project be approved to proceed, the Proponent would be required to undertake an archaeological/paleontological survey of the proposed route following the recommendation of the Government of Nunavut.

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

The proposed project would take place along a 90 km winter access road from Kugaaruk, the nearest community to CAM-E DEW line site; as such human populations are likely to be affected by project impacts. Comments with respect to the potential impacts of the proposed project activities on wildlife distribution, and their natural habitats were specifically noted by the Government of Nunavut during the NIRB's commenting period for this file.

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 "Overland Mobilization from Kugaaruk to CAM-E" project is a proposed winter access project, the nature of potential impacts is considered to be well-known, with potential for infrequent, localized impacts to the biophysical environment that are temporary in nature, reversible and mitigable with due care.

6. *The cumulative impacts that could result from the impacts of the project combined with those of any other project that has been carried out, is being carried out or is likely to be carried out.*



The proposed project occurs in an area with some history of development, however the development is primarily associated with Hamlet infrastructure and historical clean-up of the Pelly Bay CAM-4 DEW Line station which completed in 2005. No other projects are expected to occur in the project area defined for this project proposal, and the activity was generally considered as part of the assessment for 16DN001, and no concerns of cumulative impacts were raised during that assessment.

Although no significant public concerns were raised during the public commenting period, the NIRB notes that the close proximity of the proposed activities to the community of Kugaaruk could potentially contribute to public concerns developing particularly during overland mobilization and after the project. A term and condition has been recommended to direct engagement with the community, Hunters and Trappers Organization and posting of public notices to ensure residents are aware of the intent and regulatory expectations for the project.

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.

#### 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 non-migratory birds (raven, snowy owl, and ptarmigan) and wildlife (especially caribou, fox, polar bear and wolverine), and their habitats due to increased noise from construction of the winter access road, overland mobilization and transportation of equipment and fuel to the project site.

**Board views:** As discussed above in the assessment of factors relevant to this project proposal, the potential for impact(s) is applicable to a small geographic area encompassing a 90 km winter access road; however birds, and wildlife such as caribou, fox, polar bear and wolverine may be affected by ground disturbance, noise from vehicular movement and hazardous waste materials generated from transportation, construction activities and equipment operations. The Proponent has committed to conducting overland



mobilization during the winter season, and would undertake proper monitoring of wildlife habitats along the proposed route, to ensure no potential adverse effects on birds and wildlife population during the project duration.

The Proponent would also be required to follow the *Species at Risk Act*, the *Nunavut Wildlife Act* and the *Canadian Environmental Protection Act* (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 comply with operational restrictions for use of heavy vehicles for overland transportation, fuel use and general wildlife management. The following terms and conditions are recommended to mitigate the potential adverse impacts: 5, 7, 12 through 14.

**Issue 2:** Potential adverse impacts to surface water quality and fish and fish habitat during the construction of the winter access road, overland mobilization and transportation of equipment to and from the project site.

**Board views:** There is the potential for the project adversely impact surface water quality, fish, and fish habitat from the establishment and/or operation of the winter access, particularly in sections of the alignment that overlap frozen water bodies that support fish. However, the likelihood of such events is considered to be low as the Proponent has committed to proper trail maintenance and protection of the tundra and to properly implement spill prevention, and waste management plans during project activities. The potential adverse impacts to surface water quality, fish, and fish habitat are considered to be of low magnitude, infrequent and reversible.

The Proponent would also be required to follow the *Fisheries Act*, *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:** It is recommended that the potential adverse impacts to surface water quality, fish, and fish habitat may be mitigated by measures such as requiring the Proponent to ensure all project personnel are properly trained in fuel and hazardous waste handling procedures, as well as spill response and waste management. The Board recommends terms and conditions 6, 9 through 11, 16 through 18 and 20 through 23 to mitigate the potential adverse impacts to surface water quality and fish and fish habitat.

**Issue 3:** Potential negative impacts to ground stability, vegetation health and soil quality due to accidental spills of hazardous waste materials and fuel, temporary storage of fuel, as well as ground disturbance from overland transportation of supplies and equipment.

**Board views:** The potential for negative impacts is applicable to a small geographic area along the proposed winter access road; however, ground-based activities such as road



construction, vehicular movement, and facility operations could generate hazardous waste materials along the proposed route which may subsequently contaminate the surrounding soils, snow and vegetation with hydrocarbons. Further, there is potential for adverse impacts to ground stability and soil quality from the use of vehicles on portions of the winter access route with exposed soil. Specifically, the use of heavy equipment on exposed soil may result in soil compaction or rutting, which could contribute to soil erosion during snow melt in late spring. The Proponent has indicated that the only potential adverse effects anticipated to occur on the environment due to overland mobilization and transportation of equipment would be the tracks left on the tundra. The Proponent has committed to mitigating such ground-based impacts by implementing a spill contingency plan, utilize a low ground pressure equipment, and ensuring proper route selection.

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

**Recommended Mitigation Measures:** It is recommended that the potential negative impacts to the terrestrial environment, particularly for ground stability, vegetation and surface soils would be mitigated by measures requiring the Proponent to follow appropriate refueling procedures, remove all garbage and undertake restoration of the site to a stable state upon completion of project activities. The following terms and conditions are recommended to mitigate the potential negative impacts from the proposal: 5, 8 through 11, 15, 19, 20, 22, 24 through 26.

**Issue 4:** Potential negative impacts to public and traditional land use activities from the establishment and operation of the winter access road, overland mobilization and transportation of equipment to the project site.

**Board Views:** There is potential for the proposed project to disrupt traditional land use activities. Specifically, establishment of the winter access route and project-related vehicular travel may temporarily change the distribution of wildlife species commonly harvested which may in turn affect personal enjoyment of the land and the social and cultural activities practiced in the region. Further, the Government of Nunavut has noted the potential for the operation of the winter CAT train to result in disturbance and damage to wildlife dens along the proposed winter access route. Terms and conditions have been recommended to plan operations to avoid disturbance to key wildlife, birds, and humans, to minimize negative impacts to traditional land use activities by ensuring ongoing consultation with the community and community organizations.

**Recommended Mitigation Measures:** Term and condition 27 is recommended to ensure that the affected communities and organizations are informed about the project proposal and term and condition 29 has been recommended to ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities in the area. In addition term and condition 14 has been recommended to minimize the potential effects of noise on wildlife due to project activities.



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

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

**Board Views:** The Government of Nunavut has noted the potential for the proposed activities to interact with 16 archaeological sites, as well as other unidentified archeological sites and cultural features along the winter access road; however, the Proponent has indicated that these identified sensitive cultural features are located outside of the route where overland mobilization will be performed. Therefore it is unlikely that the proposed ground-based activities would interact with any known archaeological and palaeontological resources in the area. In addition, the Proponent has committed to working closely with the community of Kugaaruk to identify potential archeological elements, and would ensure that cultural features are protected during selection of the final winter access route. The Proponent is also required to follow the *Nunavut Act* (as recommended in Regulatory Requirements section) and expected to conduct an archaeological survey during a non-snow period to identify any potential archaeological or historical resources along the proposed overland road as recommended by the Government of Nunavut. The Proponent would be required to contact the Culture and Heritage Department if and when it encounters any historical sites during project activities.

**Recommended Mitigation Measures:** Term and condition 27 is recommended to ensure that available Inuit Qaujimaningit from the community can inform project activities especially with respect to the identification and protection of known and unknown archaeological and cultural features along the proposed route.

### **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. In addition, it is recommended that the Proponent considers hiring local people for the project activities.

**Recommended Mitigation Measures:** Term and condition 28 is recommended to ensure that the affected community and organizations are informed about the project proposal, and to provide the Proponent with an opportunity to proactively address or mitigate any concerns that may arise from the project activities findings.

### **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. Kudlik Construction Limited (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 the NIRB (additional information submitted on October 27, 2016).
4. The Proponent shall operate the site in accordance with all applicable Acts, Regulations and Guidelines.

##### **Waste Disposal**

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

##### **Fuel and Chemical Storage**

6. The Proponent shall ensure that re-fueling of all equipment occurs a minimum of thirty-one (31) metres away from the high water mark of any water body, unless otherwise authorized by the Nunavut Water Board.
7. The Proponent shall store all fuel and chemicals in such a manner that they are inaccessible to wildlife.
8. The Proponent shall use adequate secondary containment or a surface liner (e.g., self-supporting insta-berms and fold-a-tanks) when storing barreled fuel and chemicals.
9. The Proponent shall use drip pans or other equivalent device when refueling equipment. The Proponent shall also use secondary containment or a surface liner (e.g., self-supporting insta-berms and fold-a-tanks) at all refueling stations.
10. The Proponent shall ensure that appropriate spill response equipment and clean-up materials (e.g., shovels, pumps, barrels, drip pans, and absorbents) are readily available during any transfer of fuel or hazardous substances, at all fuel storage sites, at vehicle maintenance areas and at drill sites.
11. 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**

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

### **Ground Disturbance**

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

### **Winter Road/Trail**

15. The Proponent shall select a winter route that maximizes the use of frozen water bodies.
16. The Proponent shall not erect camps or store materials on the surface ice of lakes or streams, except that which is for immediate use.
17. The Proponent shall ensure that no disturbance of the stream bed or banks of any definable watercourse be permitted.
18. The Proponent shall not move any equipment or vehicles without prior testing the thickness of the ice to ensure the lake is in a state capable of fully supporting the equipment or vehicles.
19. The Proponent shall not move any equipment or vehicles unless the ground surface is in a state capable of fully supporting the equipment or vehicles without rutting or gouging. Overland travel of equipment or vehicles must be suspended if rutting occurs.
20. The Proponent shall ensure that bank disturbances are avoided and no mechanized clearing carried out immediately adjacent to any watercourse.
21. The Proponent shall ensure that stream crossings and/or temporary crossings constructed from ice and snow, which may cause jams, flooding or impede fish passage and or water flow, are removed or notched prior to spring break-up.
22. The Proponent shall avoid disturbance on slopes prone to natural erosion, and alternative locations shall be utilized.
23. The Proponent shall implement sediment and erosion control measures prior to, and during operations to prevent sediment entry into the water during the spring thaw. This includes ensuring that a sufficient thickness of snow and ice is present on the winter road to prevent unnecessary erosion of the underlying ground surface and impact on underneath vegetation.
24. The Proponent shall implement a clean-up and reclamation stabilization plan which should include, but is not limited to, re-vegetation and/or stabilization of exposed soil in road bed.

### **Restoration of Disturbed Areas**

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



26. 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**

27. The Proponent should consult with local residents regarding their activities in the area and solicit available Inuit Qaujimaningit and information that can inform project activities.

28. The Proponent should, to the extent possible, hire local people.

29. 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:

### **Archaeology**

1. Pursuant to the recommendation of the Government of Nunavut, the Proponent shall conduct an archaeological survey during a non-snow period prior to the commencement of activities to identify any potential archaeological and historical resources along the proposed overland route in order to prevent or minimize potential project-related effects on known heritage areas. The assessment should include locations (i.e. latitude and longitude) of where any archaeological sites and features are encountered relative to the project development area, including information on the participation of the community of Kugaaruk in identifying and locating such cultural features. The results of the survey shall be submitted to the NIRB, the Government of Nunavut-Department of Culture and Heritage, and the Hamlet of Kugaaruk.

### **Spill Contingency Plan**

2. The Proponent shall update its 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).

## **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](http://gov.nu.ca/sites/default/files/bear_safety_-_reducing_bear-people_conflicts_in_nunavut.pdf). Further information on bear/carnivore detection and deterrent techniques can be found in the "*Safety in Grizzly and Black Bear Country*" pamphlet, which can be downloaded from this link:



[http://www.enr.gov.nt.ca/sites/default/files/web\\_pdf\\_wd\\_bear\\_safety\\_brochure\\_1\\_may\\_2015.pdf](http://www.enr.gov.nt.ca/sites/default/files/web_pdf_wd_bear_safety_brochure_1_may_2015.pdf).

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](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 Kugaaruk, phone: [867] 769-7011).

### **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](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.

### **Transport of Waste/Dangerous Goods and Waste Management**

6. Environment and Climate Change Canada recommends that all hazardous wastes, including waste oil, receive proper treatment and disposal at an approved facility.
7. The Proponent shall ensure that a waste manifest or the appropriate transportation of dangerous goods (TDG) documentation accompany all potential hazardous samples and/or materials that are transported off site.

### **Winter Roads/Trails**

8. If ice bridges are constructed, the Proponent follow the mitigation measures outlined in Fisheries and Oceans Canada's Operational Statement for Ice Bridges, available at the following internet address: now <http://www.dfo-mpo.gc.ca/pnw-ppe/fpp-ppp/guide-eng.html>.
9. Cutting or filling of crossing approaches below the high water mark will require prior review and approval by Fisheries and Oceans Canada - Fish Habitat Management Branch.

### **Kitikmeot Inuit Association**

10. The Kitikmeot Inuit Association impose strict mitigation measures and/or conditions upon the Proponent pursuant to the Inuit Owned Lands License in regard to fuel and chemical storage, drilling, water conditions, ground disturbance and wildlife on Inuit owned land.

## **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://www.canlii.org/ca/sta/n-28.8/whole.html>).
3. The *Species at Risk Act* (<http://laws-lois.justice.gc.ca/eng/acts/S-15.3/index.html>). Attached in **Appendix A** is a list of Species at Risk in Nunavut.
4. The *Wildlife Act* (<http://www.canlii.org/en/nu/laws/stat/snu-2003-c-26/latest/snu-2003-c-26.html>) which contains provisions to protect and conserve wildlife and wildlife habitat, including specific protection measures for wildlife habitat and species at risk.
5. The *Nunavut Act* (<http://laws-lois.justice.gc.ca/eng/acts/N-28.6/>). The Proponent must comply with the proposed terms and conditions listed in the attached **Appendix B**.
6. 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/>). The Proponent must ensure that proper shipping documents accompany all movements of dangerous goods. The Proponent must register with the Government of Nunavut, Department of Environment Manager of Pollution Control and Air Quality at 867-975-7748.

## **CONCLUSION**

The foregoing constitutes the Board's screening decision with respect to the Kudlik Construction Limited "Overland Mobilization from Kugaaruk to CAM-E". The NIRB remains available for consultation with the Minister regarding this report as necessary.

Dated December 22, 2016 at Arviat, 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](http://www.sararegistry.gc.ca)) to get the current status of a species.



Updated: October 2016

Species at Risk <sup>1</sup>	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility <sup>2</sup>
Migratory Birds			
Eskimo Curlew	Endangered	Schedule 1	ECCC
Buff-breasted Sandpiper	Special concern	Pending	ECCC
Ivory Gull	Endangered	Schedule 1	ECCC
Ross's Gull	Threatened	Schedule 1	ECCC
Harlequin Duck (Eastern population)	Special Concern	Schedule 1	ECCC
Rusty Blackbird	Special Concern	Schedule 1	GN
Peregrine Falcon	Special Concern ( <i>anatum-tundrius</i> complex <sup>3</sup> )	Schedule 1 - Threatened ( <i>anatum</i> ) Schedule 3 – Special Concern ( <i>tundrius</i> )	GN
Short-eared Owl	Special Concern	Schedule 3	GN
Red Knot ( <i>rufa</i> subspecies)	Endangered	Schedule 1	ECCC
Red Knot ( <i>islandica</i> subspecies)	Special Concern	Schedule 1	ECCC
Horned Grebe (Western population)	Special Concern	Pending	ECCC
Red-necked Phalarope	Special concern	Pending	ECCC
Vegetation			
Felt-leaf Willow	Special Concern	Schedule 1	GN
Blanket-leafed Willow	Special Concern	Schedule 1	GN
Porsild's Bryum	Threatened	Schedule 1	GN
Terrestrial Wildlife			
Peary Caribou	Endangered	Schedule 1	GN
Peary Caribou (High Arctic Population)	Endangered	Schedule 2	GN
Peary Caribou (Low Arctic Population)	Threatened	Schedule 2	GN
Barren-ground Caribou (Dolphin and Union population)	Special Concern	Schedule 1	GN
Marine Wildlife			
Polar Bear	Special Concern	Schedule 1	GN/DFO
Grizzly Bear	Special Concern	Pending	GN
Wolverine	Special Concern	Pending	GN
Atlantic Cod, Arctic Lakes	Special Concern	Pending	DFO
Atlantic Walrus	Special Concern	Pending	DFO
Beluga Whale (Cumberland Sound population)	Threatened	Pending	DFO
Beluga Whale (Eastern Hudson Bay population)	Endangered	Pending	DFO
Beluga Whale (Western Hudson Bay population)	Special Concern	Pending	DFO
Beluga Whale (Eastern High Arctic – Baffin Bay population)	Special Concern	Pending	DFO
Bowhead Whale (Eastern Canada – West Greenland population)	Special Concern	Pending	DFO
Bowhead Whale (Eastern Arctic population)	Special Concern	Schedule 2	DFO
Killer Whale (Northwest Atlantic / Eastern Arctic populations)	Special Concern	Pending	DFO
Grey Whale (Eastern North Pacific population)	Special Concern	Schedule 1	DFO



Species at Risk <sup>1</sup>	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility <sup>2</sup>
Humpback Whale (Western North Atlantic population)	Special Concern	Schedule 3	DFO
Narwhal	Special Concern	Pending	DFO
Fish			
Northern Wolffish	Threatened	Schedule 1	DFO
Atlantic Wolffish	Special Concern	Schedule 1	DFO
Bering Wolffish	Special Concern	Schedule 3	DFO
Fourhorn Sculpin	Special Concern	Schedule 3	DFO
Roundnose Grenadier	Endangered	Pending	DFO
Spotted Wolffish	Threatened	Schedule 1	DFO
Thorny Skate	Special Concern	Pending	DFO
Atlantic Cod, Arctic Lakes	Special Concern	Pending	DFO
Blackline Prickleback	Special Concern	Schedule 3	DFO

Notes: DFO: Fisheries and Oceans Canada; ECCC: Environment and Climate Change Canada; GN: Government of Nunavut

<sup>1</sup>The Department of Fisheries and Oceans has responsibility for aquatic species.

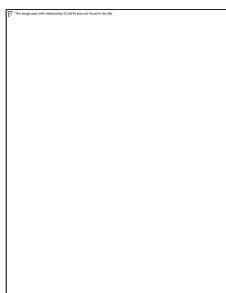
<sup>2</sup>Environment and Climate Change Canada has a national role to play in the conservation and recovery of Species at Risk in Canada, as well as responsibility for management of birds described in the Migratory Birds Convention Act (MBCA). Day-to-day management of terrestrial species not covered 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.

<sup>3</sup>The *anatum* subspecies of Peregrine Falcon is listed on Schedule 1 of SARA as threatened. The *anatum* and *tundrius* subspecies of Peregrine Falcon were reassessed by COSEWIC in 2007 and combined into one subpopulation complex. This subpopulation complex was assessed by COSEWIC as Special Concern.



## Appendix B

### Archaeological and Palaeontological Resources Terms and Conditions for Land Use Permit Holders



#### INTRODUCTION

The Department of Culture and Heritage (CH) routinely reviews land use applications sent to the Nunavut Water Board, Nunavut Impact Review Board and the Indigenous and Northern Affairs Canada. These terms and conditions provide general direction to the permittee/proponent regarding the appropriate actions to be taken to ensure the permittee/proponent carries out its role in the protection of Nunavut's archaeological and palaeontological resources.

#### TERMS AND CONDITIONS

- 1) The permittee/proponent shall have a professional archaeologist and/or palaeontologist perform the following **Functions** associated with the **Types of Development** listed below or similar development activities:

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

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

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

---

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

---

<sup>2</sup> s. 51(1)



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

## **Definitions**

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

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

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

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

*“fossil” includes:*

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

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

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

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

## **Introduction**

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

CH is the Nunavut Government agency which oversees the protection and management of heritage resources in Nunavut, in partnership with land claim authorities, regulatory agencies, and the federal government. Its role in mitigating impacts of developments on heritage resources is as 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

---

<sup>3</sup> 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.