



## SCREENING DECISION REPORT NIRB FILE No.: 22YN012

NPC File No.: 149703

**April 25, 2022**

Following the Nunavut Impact Review Board’s (NIRB or Board) assessment of all materials provided, the NIRB is recommending that a review of California Institute of Technology’s “Reconstructing ancient sea level and seafloor conditions in the 1.9-billion-year-old Rocknest Formation” is not required pursuant to Article 12, Section 12.4.4(a) of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement)* and s. 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.

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The primary objectives of the NIRB are set out in Article 12, Section 12.2.5 of the *Nunavut Agreement* and are confirmed by s. 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 Article 12, Section 12.4.1 of the *Nunavut Agreement* and s. 88 of the *NuPPAA* which states:

*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 Article 12, Section 12.4.2(a) and (b) of the *Nunavut Agreement* and s. 89(1) of *NuPPAA* which states:

*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 under Article 12, Section 12.4.2(c) and s. 89(2) of the *NuPPAA* provides that the considerations set out in s. 89(1)(a) prevail over the considerations set out in s. 89(1)(b) of the *NuPPAA*.

As set out under Article 12, Section 12.4.4 of the *Nunavut Agreement* and s. 92(1) of the *NuPPAA*, upon conclusion of the screening process, the Board must provide its written report the Minister. The contents of the NIRB's report are specified under *NuPPAA*:

*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 February 25, 2022, the Nunavut Impact Review Board (NIRB) received a referral to screen California Institute of Technology's (Caltech) "Reconstructing ancient sea level and seafloor conditions in the 1.9-billion-year-old Rocknest Formation" project proposal from the Nunavut Planning Commission (Commission), which noted that the project proposal is outside the area of an applicable regional land use plan. Pursuant to Article 12, Sections 12.4.1 and 12.4.4 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement)* and s. 87 of the *Nunavut Planning and Project Assessment Act*, S.C. 2013, c. 14, s. 2 (*NuPPAA*), the NIRB has commenced screening this project proposal and has assigned it file number **22YN012**.

#### PROJECT OVERVIEW & THE NIRB ASSESSMENT PROCESS

### 1. Screening Process Timelines

The following key stages were completed for the screening process:

Date	Stage
February 25, 2022	Receipt of project proposal and referral from the Commission.
February 25, 2022	Request to complete public registry online and provide information pursuant to s. 144(1) of the <i>NuPPAA</i>
March 14, 2022	Receipt of online application from Proponent
March 14, 2022	Scoping pursuant to s. 86(1) of the <i>NuPPAA</i>
March 28, 2022	Public engagement and comment request
April 7, 2022	Receipt of public comments
April 25, 2022	Issuance of Screening Decision Report

## 2. Project Scope

All documents received and pertaining to this project proposal can be accessed from the NIRB's online public registry at [www.nirb.ca/project/125674](http://www.nirb.ca/project/125674).

<b>Project:</b>	Reconstructing ancient sea level and seafloor conditions in the 1.9-billion-year-old Rocknest Formation				
<b>Region:</b>	Kitikmeot				
<b>Location:</b>	Eokuk Lake				
<b>Closest Community:</b>	Kugluktuk	<b>Distance (approximate)</b>	101 kilometres (km)	<b>Direction</b>	Southeast
<b>Summary of Project Description:</b>	The Proponent intends to conduct geological research and hand-sampling to study the Rocknest Formation to better understand ancient climates.				
<b>Project Proposed Timeline:</b>	June 2022 to August 2022				

As required under s. 86(1) of the *NuPPAA*, the Board accepts the scope of the project as set out by Caltech in the proposal. The scope of the project proposal includes the following undertakings, works, or activities:

- Pick up and drop off by float plane;
- Establishment of a temporary three (3) person camp for six (6) weeks from June to August;
  - Use of fuel for camp stove and generator;
  - Disposal of human waste in a hand-dug pit, which will be covered upon departure;
  - Disposal of wastes in Yellowknife, Northwest Territories;
- Research activities of the Rocknest Formation;
  - Access to research sites by foot;
  - Use of handheld equipment (camera, magnifying glass, GPS, and hammer);
  - Collection of eight (8) five (5) gallon buckets of small rock chips (approximately thumb sized).

## 3. 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.

## 4. Public Comments and Concerns

Notice regarding the NIRB's screening of this project proposal was distributed on March 28, 2022 to community organizations in Kugluktuk, 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 the NIRB's proposed project-specific terms and conditions, and provide the Board with any comments or concerns by April 7, 2022 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.

On or before April 7, 2022 the NIRB received comments from the following interested parties:

- **Crown-Indigenous Relations and Northern Affairs Canada**
- **Transport Canada**

*a. Summary of Public Comments and Concerns Received during the Public comment period of this file*

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

Crown-Indigenous Relations and Northern Affairs Canada recommended:

- Prioritisation of the employment and training of local Inuit as well as procurement with Inuit-owned businesses; and
- Consultation with the Hamlet of Kugluktuk and the Kugluktuk Angoniatit Association regarding:
  - Incorporations of Inuit knowledge, Inuit Qaujimajatuqangit and the experience of community members who participate in traditional and non-traditional activities within the project area;
  - Training and employment opportunities;
  - Procurement opportunities for local businesses;
  - Mitigation measures to reduce disturbance to wildlife and the environment; and
  - Provision of regular updates on the status of project activities; and
- That the Proponent contact the Government of Nunavut's Department of Culture and Heritage to determine if any actions are needed to ensure the protection of Nunavut's archaeological and paleontological resources.

Transport Canada:

- Noted that flight operations and the transport of fuels must be done in compliance with the Canadian Aviation Regulations and Transportation of Dangerous Goods Act and Regulations, respectively.

*b. 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 s. 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:

Factor	Comment
The size of the geographic area, including the size of wildlife habitats, likely to be affected by the impacts.	<ul style="list-style-type: none"> <li>▪ The proposed project activities would include a three (3) person camp area as well as research activity within a 150 square kilometres (km<sup>2</sup>) range by Eokuk Lake.</li> <li>▪ The proposed project would take place within habitats of far-ranging wildlife species such as migratory and non-migratory birds, arctic fox, arctic hare and Species at Risk such as Grizzly Bear and Dolphin and Union Caribou Populations.</li> </ul>
The ecosystemic sensitivity of that area.	<ul style="list-style-type: none"> <li>▪ The Proponent noted that the camp will be near caribou freshwater crossings.</li> </ul>
The historical, cultural and archaeological significance of that area.	<ul style="list-style-type: none"> <li>▪ No specific areas of historical, cultural and archaeological significance have been identified by the Proponent within the physical footprint of the proposed project.</li> </ul>
The size of the human and the animal populations likely to be affected by the impacts.	<ul style="list-style-type: none"> <li>▪ The proposed project is unlikely to result in impacts to local human and animal populations.</li> </ul>
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.	<ul style="list-style-type: none"> <li>▪ A zone of influence of up to 10 km from the most potentially disruptive project activities was selected for the NIRB's assessment.</li> <li>▪ With adherence to the relevant regulatory requirements and application of the mitigation measures recommended by the NIRB, no significant residual effects are expected to occur.</li> </ul>
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.	<ul style="list-style-type: none"> <li>▪ The NIRB has not identified any past, present, and reasonably foreseeable projects at this time; however, the mitigation measures recommended by the NIRB have been designed to reduce</li> </ul>

Factor	Comment
	cumulative effects should projects occur in the area in the future.
Any other factor that the Board considers relevant to the assessment of the significance of impacts.	<ul style="list-style-type: none"> <li>No other relevant factors were identified.</li> </ul>

#### 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.

The NIRB has listed specific Acts and Regulations below that may be applicable to the project proposal, but this list should not be considered as a complete list and the Proponent is responsible to ensure that it follows all Acts and Regulations that may be applicable to the project proposal.

#### **Ecosystem, wildlife habitat and Inuit harvesting activities:**

<b>Valued Component</b>	Wildlife including caribou, muskox, carnivores, small game, migratory and non-migratory birds.
<b>Potential effects:</b>	Potential adverse effects to migratory and non-migratory birds and Species at Risk such as Grizzly Bear and Dolphin and Union Caribou Populations from noise and visual disturbance generated from the transportation of personnel and equipment via aircraft to the proposed research sites. As well, potential impacts from disturbance or attractants from establishment of a temporary camp and camp related activities.
<b>Nature of Impacts:</b>	The potential for impacts is considered to be limited due to infrequent and temporary activities and any resulting impacts would be expected to be reversible.
<b>Mitigating Factors:</b>	Proponent proposes to ensure that food and garbage would be stored in wildlife proof containers and that the site is cleaned up to its original state at the end of the season.
<b>Proposed Terms and Conditions:</b>	Waste Management – 9 and 10 Wildlife General – 18 to 20 Migratory Birds and Raptors Disturbance – 21 and 22 Aircraft Flight Restrictions – 23 Caribou and Muskox – 24 Land Use and Restoration of Disturbed Areas – 25 and 27
<b>Related Acts and/or Regulations:</b>	1. The <i>Migratory Birds Convention Act and Migratory Birds Regulations</i> ( <a href="http://laws-lois.justice.gc.ca/eng/acts/M-7.01/">http://laws-lois.justice.gc.ca/eng/acts/M-7.01/</a> ).



	<p>2. The <i>Species at Risk Act</i> (<a href="http://laws-lois.justice.gc.ca/eng/acts/S-15.3/index.html">http://laws-lois.justice.gc.ca/eng/acts/S-15.3/index.html</a>). Attached in <b>Appendix A</b> is a list of Species at Risk in Nunavut.</p> <p>3. The <i>Wildlife Act (Nunavut)</i> and its corresponding regulations (<a href="http://www.canlii.org/en/nu/laws/stat/snu-2003-c-26/latest/snu-2003-c-26.html">http://www.canlii.org/en/nu/laws/stat/snu-2003-c-26/latest/snu-2003-c-26.html</a>).</p>
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<b>Valued Component</b>	Surface water quality, fish and fish habitat, and aquatic environment
<b>Potential effects:</b>	Potential negative effects from establishment of a temporary camp through water retrieval, disposal of human waste, and use and transfer of fuel.
<b>Nature of Impacts:</b>	Impacts expected to be limited and mitigable due to activities being temporary, water retrieval being minimal, and use of proper fuel spill mitigation measures.
<b>Mitigating Factors:</b>	The Proponent noted that human waste will be disposed of at least fifty metres (50 m) away from the high-water mark of any waterbody. The Board has added terms and conditions to ensure that proper spill mitigation measures are used for fuel storage and refuelling at the temporary campsite.
<b>Proposed Terms and Conditions:</b>	Water courses/Water bodies – 6 to 8 Fuel and Chemical Storage – 11 to 17 Land Use and Restoration of Disturbed Areas – 26
<b>Related Acts and/or Regulations:</b>	N/A

<b>Valued Component</b>	Vegetation, land, soils, terrain stability, permafrost.
<b>Potential effects:</b>	Potential impacts from establishment of a temporary camp and use and transfer of fuel.
<b>Nature of Impacts:</b>	Impacts from the temporary camp expected to be minimal due to the small size and short duration of the activities. Negative effects from fuel spills expected be mitigable through use of proper spill mitigation measures.
<b>Mitigating Factors:</b>	The camp area would be cleaned and returned to its pre-disturbed state at the end of the season. The Board has added terms and conditions to ensure that proper spill mitigation measures are used for fuel storage and refuelling at the temporary campsite.
<b>Proposed Terms and Conditions:</b>	Waste Management – 9 and 10 Fuel and Chemical Storage – 11 to 17 Land Use and Restoration of Disturbed Areas – 25 to 27 Camps – 28
<b>Related Acts and/or Regulations:</b>	N/A
<b>Valued Component</b>	Public and traditional land use activities in the area.



<b>Potential effects:</b>	No specific concerns or impacts to public and traditional land use activities in the area have been identified.
<b>Nature of Impacts:</b>	N/A
<b>Mitigating Factors:</b>	The Board is recommending terms and conditions to ensure project activities are informed by available Inuit Qaujimaningit and that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities.
<b>Proposed Terms and Conditions:</b>	Other – 31 and 32
<b>Related Acts and/or Regulations:</b>	1. The <i>Nunavut Act</i> ( <a href="http://laws-lois.justice.gc.ca/eng/acts/N-28.6/">http://laws-lois.justice.gc.ca/eng/acts/N-28.6/</a> ). The Proponent must comply with the proposed terms and conditions listed in the attached <b>Appendix B</b> .

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

<b>Valued Component</b>	Historical and archaeological sites.
<b>Potential effects:</b>	No specific concerns or impacts to historical and archaeological sites.
<b>Nature of Impacts:</b>	N/A
<b>Mitigating Factors:</b>	The Board is recommending terms and conditions to ensure that archaeological and paleontological sites are not purposely or inadvertently disturbed should they be encountered.
<b>Proposed Terms and Conditions:</b>	Heritage Sites – 29 and 30
<b>Related Acts and/or Regulations:</b>	1. The <i>Nunavut Act</i> ( <a href="http://laws-lois.justice.gc.ca/eng/acts/N-28.6/">http://laws-lois.justice.gc.ca/eng/acts/N-28.6/</a> ). The Proponent must comply with the proposed terms and conditions listed in the attached <b>Appendix B</b> .

<b>Valued Component</b>	Employment and procurement from local businesses.
<b>Potential effects:</b>	No positive impact expected from employment and procurement from local businesses in Nunavut, however a term and condition is recommended should such an opportunity arise.
<b>Nature of Impacts:</b>	N/A
<b>Mitigating Factors:</b>	The Board has suggested a term and condition for the Proponent to hire local people where possible.
<b>Proposed Terms and Conditions:</b>	Other – 33
<b>Related Acts and/or Regulations:</b>	N/A

#### **Technological innovations for which the effects are unknown:**

- No specific issues have been identified associated with this project proposal

### **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: 1-5.

In considering the above factors and subject to the Proponent's compliance with the terms and conditions necessary to mitigate against the potential adverse environmental and social effects, the Board is of the view that the proposed project is unlikely to cause significant public concern and its adverse ecosystemic and socioeconomic impacts are unlikely to be significant, or are highly predictable and can be adequately mitigated by known technologies.

### **RECOMMENDED PROJECT-SPECIFIC TERMS AND CONDITIONS**

The Board is recommending the following specific terms and conditions to apply in respect of the project:

#### **General**

1. The California Institute of Technology (the Proponent) shall maintain a copy of the Project Terms and Conditions at the site of operation at all times and make it accessible to enforcement officers upon request.
2. The Proponent shall operate in accordance with all commitments stated in correspondence provided to the Nunavut Planning Commission (NPC File No.: 149703), and the NIRB (Online Application Form, March 14, 2022; Project Summary, March 14, 2022, and Additional Information, March 18, 2022). This information should be accessible to enforcement officers upon request.
3. The Proponent shall operate the site in accordance with all applicable Acts, Regulations and Guidelines.
4. The Proponent shall ensure that it meets the standards and/or limits as set out in the authorizing agencies' permits or licences as required for this project.
5. The Proponent shall ensure that all personnel are adequately trained prior to commencement of all project activities, and shall be made aware of all operational plans, management plans, guidelines and Proponent commitments relating to the project.

#### **Water courses/Water bodies (including fresh and marine waters)**

6. The Proponent shall ensure that water extraction from any fish-bearing waterbody is done with appropriate care and caution. Small lakes or streams should not be used for water withdrawal unless approved by the appropriate authorizing agency.
7. The Proponent shall ensure that no disturbance of the stream bed, lakebed or the banks of any definable watercourse be permitted, except where deemed necessary for maintaining

project-specific operational commitments or approved by a responsible authority in cases of spill management.

8. The Proponent shall not deposit, nor permit the deposit of any fuel, chemicals, wastes (including wastewater) or sediment into any water body. The Proponent should have in place an Emergency Spill Response Plan that is approved by the appropriate authorizing agency(ies).

### **Waste Management**

9. The Proponent shall manage all hazardous and non-hazardous waste including food, domestic wastes, debris and petroleum-based chemicals (e.g., greases, gasoline, glycol-based antifreeze) in such a manner to avoid release into the environment and access to wildlife at all times until disposed of appropriately or at an approved facility.
10. The Proponent shall dispose of all combustible wastes as required by the appropriate authorizing agencies. All non-combustible wastes from the project site shall be removed to an approved facility for disposal.

### **Fuel and Chemical Storage**

11. The Proponent shall locate all fuel and other hazardous materials a minimum distance away from the high-water mark of any water body and environmentally sensitive areas as required by the appropriate authorizing agencies. The materials shall be stored in such a manner as to prevent their release into the environment.
12. The Proponent shall use adequate secondary containment or a surface liner (e.g., self-supporting insta-berms and fold-a-tanks) when storing barreled fuel and chemicals at all locations.
13. The Proponent shall ensure that re-fuelling of all equipment occurs a minimum distance away from the high-water mark of any water body as required by the appropriate authorizing agencies.
14. All fuel and chemical storage containers must be clearly marked with the Proponent's name for ease of identification.
15. The Proponent shall have a Spill Contingency Plan in place at all fuel storage or transfer locations and shall ensure that appropriate spill response equipment and clean-up materials (e.g., shovels, pumps, barrels, drip pans, and absorbents) are readily available.
16. The Proponent shall follow the authorizing agencies' direction for management and removal of hazardous materials and wastes (e.g., contaminated soils, sediment and waste oil).

17. The Proponent shall ensure that wildlife deterrent systems are utilized at the time of a spill incident in order to avoid wildlife (terrestrial or marine) and migratory birds from being contaminated.

## **Wildlife – General**

18. The Proponent shall not substantially alter, damage or destroy any wildlife habitat in conducting this operation unless otherwise authorized by the appropriate authorizing agencies.
19. The Proponent shall not chase, weary, harass or molest wildlife. This includes persistently circling, chasing, hovering over, pursuing or in any other way harass wildlife, or disturbing large groups of animals.
20. The Proponent shall not hunt or fish, unless proper Nunavut authorizations have been acquired.

## **Migratory Birds and Raptors Disturbance**

21. The Proponent shall carry out all phases of the project in a manner that protects migratory birds and avoids harming, killing or disturbing migratory birds or destroying, disturbing or taking their nests or eggs. In this regard, the Proponent shall take into account Environment and Climate Change Canada's *Avoidance Guidelines*. The Proponent's actions in applying the *Avoidance Guidelines* shall be in compliance with the *Migratory Birds Convention Act, 1994* and with the *Species at Risk Act*.
22. The Proponent shall not disturb or destroy the nests or eggs of any birds. If active nests of any birds are discovered or located (i.e., with eggs or young), the Proponent shall avoid these areas until nesting is complete and the young have naturally left the vicinity of the nest by establishing a protection buffer zone<sup>1</sup> appropriate for the species and the surrounding habitat.

## **Aircraft Flight Restrictions**

23. The Proponent shall not alter flight paths to approach wildlife and avoid flying directly over animals.

## **Caribou and Muskoxen Disturbance**

24. The Proponent shall avoid interfering with any paths or crossings known to be frequented by caribou during periods of migration as identified by current land use plans in place and/or by Inuit Qaujimaningit.

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<sup>1</sup> Recommended setback distances to define buffer zones have been established by Environment and Climate Change Canada for different bird groups nesting in tundra habitat and can be found at [www.ec.gc.ca/paom-itmb](http://www.ec.gc.ca/paom-itmb).

## **Land Use and Restoration of Disturbed Areas**

25. The Proponent shall ensure that the land use area is kept clean and tidy at all times.
26. The Proponent shall avoid disturbance on slopes prone to natural erosion, and alternative locations shall be utilized.
27. The Proponent shall remove all garbage, fuel and equipment at the end of each field season and/or upon completion of work and/or upon abandonment.

## **Camps**

28. The Proponent shall ensure that all camps are located on durable surfaces, such as gravel or sand that is consolidated and can withstand repeated, heavy use. Measures shall be put in place to prevent erosion, trail formation and damage to the ground.

## **Heritage Sites**

29. The Proponent shall ensure that archaeological and paleontological sites are not purposely or inadvertently disturbed as a result of project activities.
30. The Proponent shall ensure that all personnel are aware of the Proponent's responsibilities and requirements regarding archaeological or palaeontological sites that are encountered during land-based activities. This should include briefings explaining the prohibitions regarding removal of artifacts, and defacing or writing on rocks and infrastructure.

## **Other**

31. The Proponent should consult with local residents and the Kugluktuk Angoniatit Association regarding their activities in the area and solicit available Inuit Qaujimaningit and information that can inform project activities.
32. The Proponent shall ensure that project activities do not interfere with Inuit wildlife harvesting or traditional land use activities.
33. The Proponent should, to the extent possible, hire local people and access local services where possible.

## CONCLUSION

The foregoing constitutes the Board’s screening decision with respect to the California Institute of Technology’s “Reconstructing ancient sea level and seafloor conditions in the 1.9-billion-year-old Rocknest Formation” project proposal. The NIRB remains available for consultation with the Minister regarding this report as necessary.

Dated April 25, 2022 at Baker Lake, NU.

M. Kaung Kahng

Kaviq Kaluraq, 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: September 2019

Terrestrial Species at Risk <sup>2</sup>	COSEWIC Designation	Schedule of SARA	Government Organization with Primary Management Responsibility <sup>3</sup>
Migratory Birds			
Buff-breasted Sandpiper	Special Concern	Schedule 1	Environment and Climate Change Canada (ECCC)
Common Nighthawk	Threatened	Schedule 1	ECCC
Eskimo Curlew	Endangered	Schedule 1	ECCC
Harlequin Duck	Special Concern	Schedule 1	ECCC
Harris's Sparrow	Special Concern	Schedule 1	ECCC
Horned Grebe	Special Concern	Schedule 1	ECCC
Ivory Gull	Endangered	Schedule 1	ECCC
Olive-sided Flycatcher	Threatened	Schedule 1	ECCC
Peregrine Falcon	Special Concern	Schedule 1	ECCC
Red Knot Islandica Subspecies	Special Concern	Schedule 1	ECCC
Red-necked Phalarope	Special Concern	Schedule 1	ECCC
Ross's Gull	Threatened	Schedule 1	ECCC
Rusty Blackbird	Special Concern	Schedule 1	ECCC
Short-eared Owl	Special Concern	Schedule 1	ECCC
Vegetation			
Porsild's Bryum	Threatened	Schedule 1	Government of Nunavut (GN)
Arthropods			
Transverse Lady Beetle	Special Concern	No Schedule	GN
Terrestrial Wildlife			
Caribou (Dolphin and Union Population)	Endangered	Schedule 1	GN
Caribou (Barren-ground Population)	Threatened	No Schedule	GN
Caribou (Torngat Mountains Population)	Endangered	No Schedule	GN
Grizzly Bear (Western Population)	Special Concern	Schedule 1	ECCC
Peary Caribou	Endangered	Schedule 1	GN
Polar Bear	Special Concern	Schedule 1	ECCC
Wolverine	Special Concern	Schedule 1	GN
Marine Wildlife			
Atlantic Walrus (High Arctic Population)	Special Concern	No Schedule	Fisheries and Oceans Canada (DFO)
Atlantic Walrus (Central/Low Arctic Population)	Special Concern	No Schedule	DFO
Beluga Whale (Cumberland Sound Population)	Threatened	Schedule 1	DFO
Beluga Whale (Eastern Hudson Bay Population)	Endangered	No Schedule	DFO

<sup>2</sup> The Department of Fisheries and Oceans has responsibility for aquatic species.

<sup>3</sup> Environment and Climate Change Canada (ECCC) 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.

<b>Terrestrial Species at Risk<sup>2</sup></b>	<b>COSEWIC Designation</b>	<b>Schedule of SARA</b>	<b>Government Organization with Primary Management Responsibility<sup>3</sup></b>
Beluga Whale (Eastern High Arctic-Baffin Bay Population)	Special Concern	No Schedule	DFO
Beluga Whale (Western Hudson Bay Population)	Special Concern	No Schedule	DFO
<b>Fish</b>			
Atlantic Cod (Arctic Lakes Population)	Special Concern	No Schedule	DFO
Fourhorn Sculpin (Freshwater Form)	Data Deficient	Schedule 3	DFO
Lumpfish	Threatened	No Schedule	DFO
Thorny Skate	Special Concern	No Schedule	DFO

## APPENDIX B: ARCHAEOLOGICAL AND PALAEOLOGICAL 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 Overview Assessment and/or Inventory and Documentation and/or Mitigation
c)	Construction of linear disturbances, Extractive disturbances, Impounding disturbances and other land disturbance activities	Archaeological/Palaeontological Overview Assessment and/or Inventory and Documentation and/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>4</sup> to issue such permits.

<sup>4</sup>P.C. 2001-1111 14 June, 2001

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



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Under the *Nunavut Act*<sup>5</sup>, the federal government can make regulations for the protection, care and preservation of palaeontological and archaeological sites and specimens in Nunavut. Under the *Nunavut Archaeological and Palaeontological Sites Regulations*<sup>6</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

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<sup>5</sup> s. 51(1)

<sup>6</sup> P.C. 2001-1111 14 June, 2001

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 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.