



## Sahlu Land and Water Board

### Staff Report

<b>Division:</b> Land Program	<b>Report No.</b> 1
<b>Date Prepared:</b> March 4, 2019	<b>File No.</b> S19S-001
<b>Meeting Date:</b> March 8, 2019	

**Subject:** Type A Land Use Permit Application submitted by GNWT – Department of Infrastructure for the Great Bear Bridge Geotechnical Investigation

#### 1. Purpose/Report Summary

The purpose of this Report is to present to the Sahlu Land and Water Board for consideration:

- a) the new Land Use Permit (LUP or Permit) Application S19S-001 as submitted by GNWT – Department of Infrastructure (INF) (Attachment 1);
- b) Summary of stakeholder review comments and proponent responses;
- c) the draft Preliminary Environmental Screening Report;
- d) Engagement Record and Plan;
- e) Archaeological Impact Assessments;
- f) Land Use Plan Conformity;
- g) Management Plans (Spill Contingency, Waste Management, and Sediment and Erosion Control); and
- h) the draft terms and conditions for the new LUP.

#### 2. Background

##### 2.1 Process Requirements

**Application Received:** January 21, 2019

**Application Deemed Complete:** February 11, 2019

**Application Forwarded for Review:** February 11, 2019

**Number of Review Agencies:** 46

**Review Period End Date:** February 25, 2019

**Proponent Response:** March 1, 2019

**End of 42-day timeline:** March 25, 2019

**Board Meeting:** March 8, 2019

The activities as described trigger a Type A Permit in accordance with paragraph 4(a)(ii, iii, v) and (b)(i, ii) of the MVLUR:

- 4 No person shall, without a Type A permit, carry on any activity that involves
  - (a) on land outside the boundaries of a local government,
  - (ii) the use of a vehicle or machine of a weight equal to or exceeding 10 t, other than on a road or on a community landfill, quarry site or airport,

- (iii) the use of a single container for the storage of petroleum fuel that has a capacity equal to or exceeding 4 000 L,
  - (v) the levelling, grading, clearing, cutting or snowploughing of a line, trail or right-of-way, other than a road or existing access trail to a building, that exceeds 1.5 m in width and 4 ha in area, for a purpose other than the grooming of recreational trails;
- (b) on land within or outside the boundaries of a local government,
- (i) the use of motorized earth-drilling machinery the operating weight of which, excluding the weight of drill rods, stems, bits, pumps and other ancillary equipment, equals or exceeds 2.5t, for a purpose other than the drilling of holes for building piles or utility poles or the setting of explosives within the boundaries of the local government,
  - (ii) the use of a campsite outside a territorial park for a duration of or exceeding 400 person-days.

## 2.2 Project Overview

In order to strengthen the Mackenzie Valley Winter Road network, the Government of the Northwest Territories (GNWT) Department of Infrastructure (INF) is proposing to construct a permanent 460 metre bridge over the Great Bear River, located at kilometer 938 on the Mackenzie Valley Winter Road, in the Hamlet of Tulita. This application for Land Use Permit is to complete the geotechnical investigations necessary to inform and support the design of the Great Bear River Bridge (GBRB) in preparation for the construction of the GBRB.

The Project scope is to investigate ten (10) prospect material sources for their potential to supply bedrock, aggregates, granular and common fill and to conduct drilling to determine geotechnical conditions in the area of proposed bridge abutments and roadway approaches during the winter and summer of 2019. A total of 88 boreholes and 126 test pits are proposed.

The prospect material sites include new sites and sites previously used for granular extraction. The prospect material sites are located near transportation alignments to the north, south and east of the bridge location, with the exception of prospect site CA 5 (FN19), which is located near the Little Bear River on the opposite side of the Mackenzie River from Tulita.

### *Site Access and Winter Road Construction*

Access to sites investigated during the winter will be by travel over a prepared frozen ground surface. Three of the sites will require access to cross the Enbridge Pipeline. Winter access to site CA 5 (FN19), Little Bear River, also requires travel over an ice crossing of the Mackenzie River and an ice crossing of the Little Bear River.

Establishment of trails to access prospect sites may require some clearing of vegetation. Wherever possible, the reopening of existing cutline alignments to a maximum width of 10 m will be utilized for site access to reduce the amount of clearing required. Clearing will be done by a equipment with blades that will not cut into/disturb the frozen ground. All timber over 125 mm in diameter will be salvaged and placed along the edge of the clearing. Clearing in the vicinity of water courses will be done by hand.

As the clearing of the access routes proceeds, the contractor will prepare the route as a winter road with a 10 cm thickness of compacted snow and ice over the original ground. Ice crossings of

watercourses will be prepared as required depending on whether the watercourse has all-season flow (addition of snow or water to increase the thickness of ice) or no flow (snow fill crossing).

Access for drilling at the bridge site on the south side of Great Bear River will be by existing municipal roadway with access to the north side of the river either by ice crossing of the river, winter access from Winter Road on the north side of the river or by helicopter during summer.

Water will be sourced from water bodies either on or off the cleared routes. If water sources off the access routes are selected, then further access trails to reach those sources will be required. The Department of Fisheries and Oceans Canada (DFO) protocols for the withdrawal of water will be applied. The water use per day will be less than 100m<sup>3</sup>/day.

Summer access to most sites will be by helicopter; however, summer access to the south side of the Great Bear River will be by municipal roadway. Clearing of drill sites and access between drill sites will be done by hand.

INF has identified a total of 975.8 ha of land for the geotechnical investigation and clearing of access routes. However, the amount of vegetation clearing will be substantially less as initial surveys within the larger boundaries of each prospect site will establish the drill and/or test pit target locations. It is estimated that the program will require clearing of approximately 26 ha; summarized below:

- Cutline clearing for site access and test pits within prospect sites - 14.4 ha
- Clearing for helicopter landing of core drill on bedrock sites - 5.6 ha
- Cutline clearing for drills at CA 5 site - 1.6 ha
- Cutline clearing for drilling at bridge abutments and approaches - 4.5 ha

#### *Investigation of Sites by Drilling*

The use of core drilling is proposed for the investigation and assessment of bedrock sources. The retained cores will be tested for rock quality and environmental suitability. The method of core drilling will require small quantities of water, estimated at 0.5 m<sup>3</sup> per borehole. Usual depth of drilling is to 10 m into target material. The use of auger drilling may be utilized for investigation of granular and common fill prospects, such as at site CA 5 (FN19). Drilling at prospect material sites will occur during summer 2019 with a helicopter portable tracked drilling rig. The rig will be mobilized to each prospect site by helicopter and will be moved to targets within each site either by helicopter or overland.

Drilling to determine geotechnical conditions is proposed to occur at the abutment locations on the north and south side of the Great Bear River and along the road approaches on the north and south side of the river. Maximum drilling depth is estimated at 20-30 m using a 150 mm diameter drill. Drilling at these sites will occur either during winter 2019 using a track mounted drilling rig or during the summer of 2019 with a helicopter portable tracked drilling rig. It is proposed that 58 boreholes in total be drilled at the prospect material sites and a maximum of 18 and 12 boreholes on the roadway approaches and bridge abutment locations, respectively.

#### *Material Prospect Sites Test Pitting*

Test pitting will be conducted throughout the prospect sites using a tracked excavator with a reach to 6 m depth. A usual surface area size for a test pit excavation is approximately 5 m by 3 m; the test

pits will be approximately 3 m<sup>3</sup> in volume and to a depth of 6 m. Test pits will likely be spaced 150-200 m apart and in areas that show viable material sources, the spacing will be reduced to a spacing of 50-100 m. Boreholes and test pits will be logged, samples will be taken for laboratory analysis, and comprehensive reports will be developed to inform INF in finalizing the project. Upon completion of each test pit, the contractor will, unless otherwise directed, immediately backfill the pit with the excavated material and the material will be mounded to account for subsidence in the backfilled material. A total of 86 test pits are proposed to be excavated at the prospect material sites during winter 2019.

## 2.3 Program Components

### **Management Plans**

The following Management Plans and Studies were submitted with the Application:

- Engagement Record and Plan
- Archaeological Impact Assessment Summary
- Waste Management Plan
- Spill Contingency Plan
- Sediment and Erosion Control Plan

### **Equipment and Infrastructure (Camp and Helicopter Landing Areas)**

The following equipment is identified as required for the geotechnical drilling program in the LUP Application:

- Snowcat
- Grader
- Plow truck Tandem axle
- Loader
- Tracked Dozer (D8 or equivalent)
- Water truck (Tandem axle or semitrailer)
- Tracked Excavator equipped with or without mulcher head (Cat 320 or equivalent) Bucket attachment will be used for test pitting.
- Tracked mulcher
- Fuel truck
- Helicopter
- Geotechnical drill rig (track or truck mounted)
- Core drill unit (track, skid or truck mounted)
- Heli-portable Drill
- Service Pickup ½ to 5 ton capacity
- Highway tractor with lowboy or highboy
- Skidoos
- Chainsaws
- Portable Diesel and Gas Generators
- Portable lighting/generator set
- Various construction and winter road equipment

The exact types, numbers, and weights of the equipment which will be used are not known until a

contractor has been selected. However, equipment that would be used for a geotechnical project of this calibre would include: heavy construction equipment, a drill rig, pick-up trucks, a water truck, a sewage truck and possibly a fuel truck.

There is a camp associated with this operation. A mobile camp will be used for the estimated 20 people that will be required for the Project. The camp will be composed of skid-mounted trailers and will include a separate kitchen, wash and accommodation units. The proposed mobile camp locations will be provided to GNWT Lands Inspector for approval.

The camp supply of potable water will be hauled to the camp by water truck from domestic water supply at Tulita. Wastewater (sewage and grey water) is proposed to be handled by collecting in a heated and insulated holding tank and removal by sewage truck to the Municipal facility at Tulita. GNWT -INF has received a letter from the Hamlet of Tulita on February 26, 2019 accepting the wastewater at their municipal facility (Attachment 2).

Where the use of helicopter transport for the investigation is necessary, landing locations will be selected in closest proximity to testing locations.

### **Fuels**

INF expects the external fuel tanks required for the project will include: stationary fuel tanks for heating and powering the work camp and for vehicle refueling; fuel tanks mounted in the back of pickup trucks for refueling mobile equipment and vehicles away from the camp; and a designated fuel truck for refueling a camp.

Estimated fuel requirements include:

- Diesel – two 25,000 L double wall enviro tanks
- Gasoline – two 5,000 L double wall enviro tanks.

### **Eligibility**

GNWT-INF is eligible per subsection 18(b) of the MVLUR: "...has the right to occupy the land and either contracts to have the land-use operation carried out or is the person who is to carry out the operation."

### **Fees**

An application fee of \$150.00 was not required by the applicant as it is the territorial government.

### **Term**

The length of the winter field program is proposed from permit issuance to the closure of the Mackenzie Valley Winter Road, anticipated to be on or about March 31, 2019. Summer work would occur during snow- free conditions, likely May to September 2019. However, to accommodate potential delays or setbacks in project execution, INF requests the permit be issued for a 5-year period.

## **3. Comments**

The application was distributed to all three of the Sahtu region Distribution Lists – Deline, Tulita and K'asho Got'ine. Of the 46 organizations to which the application was distributed, 24 are represented within the Sahtu Settlement Area. Review comments were received from:

- Environment and Climate Change Canada (ECCC);
- Government of the Northwest Territories – Education, Culture and Employment (ECE);

- Government of the Northwest Territories – Environment and Natural Resources (GNWT-ENR);
- Government of the Northwest Territories – Lands – Sahtu Region;
- NWT Legislative Assembly – Daniel McNeely - MLA Sahtu;
- Sahtu Renewable Resources Board (SRRB)

The Review Comment Summary Table and submitted letter from ECCC, GNWT-ENR and NWT Legislative Assembly are attached to this report (Attachment 3).

### 3.1 Permission of Land Owner, Community Consultations, Traditional Knowledge and Archaeological Impact Assessment

#### **3.1.1 Permission of Land Owner**

Three prospect material sites (CA2, CA3 and CA4) are situated within Sahtu Settlement lands. Additionally, access to prospect material site CA5 (FN 19) will likely require access across Sahtu Settlement lands. The remaining sites are located on crown lands (now Territorial Land). The Department of Infrastructure has acquired permission to access Sahtu land for the purposes of this Project. The Tulita District Land Corporation provided an email on October 29, 2018 granting INF access to Sahtu Lands for the purpose of conducting these investigations and clearing from Executive Director Louise Reindeer.

#### **3.1.2 Community Consultation**

GNWT-INF consulted with all Sahtu communities prior to submission of the LUP application as INF recognizes that the bridge will be a vital community structure for all residents of the Sahtu. Board staff have completed a conformity check of the Engagement Plan and Record against the Board’s *Engagement and Consultation Policy* (the Policy) and the *Engagement Guidelines for Applicants and Holders of Water Licences and Land Use Permits* (the Guidelines). As a result of this conformity check (Table 1), Board staff have recommended that the Plan meets the criteria of the policy.

**Table 1: Conformity Table, Assessment of Engagement Plan (The Policy, Appendix B)**

<b>Engagement Criteria</b>	<b>Board Assessment</b>
Who was engaged?	Appropriate affected Aboriginal organizations/governments and other affected parties have been contacted; There have been reasonable responses and engagement from the affected parties.
Timing of engagement	Original engagement for this project began with two meetings held in 2005 to discuss bridge design, location, safety, potential water quality impacts, socioeconomic benefits. Applicant began engagement for this new LUP application in December 2017 and has been actively engaged since, delaying the project start in order to complete wildlife studies (raptor nest survey, bear den survey, fisheries study and updated Traditional Knowledge Study)
Achieved results	All relevant documents have been shared with affected communities; The Engagement Plan reflects Board’s policy; Applicant has invested much time in community meetings face-to-face; All responses from affected Aboriginal groups have been noted and included in

	<p>the record;</p> <p>Applicant has a dispute resolution protocol/process;</p> <p>Applicant has responded to community concerns and noted actions taken to address concerns raised.</p> <p>Overall, this project received broad support from the community organizations and no major concerns or issues were brought up during engagement.</p>
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In addition to the Policy assessment tool, the Engagement Guidelines outlines six (6) components that an Engagement Plan must satisfy in order to be considered complete. Board staff has conducted a conformity check to ensure the Plan satisfies these requirements (Table 2).

**Table 2: Conformity Table, Engagement Guidelines Requirements**

<b>Engagement Plan Must Have's:</b>	<b>How GNWT-INF's Engagement Plan satisfies these requirements:</b>
1. Describe the goals and methods of engagement;	Goals and objectives of the community engagement plan are described; Methods of engagement are described and include: <ul style="list-style-type: none"> <li>• Information letters, public notices</li> <li>• Face-to-face community meetings in all five Sahtu communities</li> </ul>
2. Outline a frequency of engagement that allows for relevant and timely information sharing;	GNWT-INF's Engagement Plan describes eleven triggers that would require engagement to take place throughout the life of the project.
3. Establish a process that allows the affected party to raise concerns on issues;	The purpose for each engagement trigger is described.
4. Allow opportunities for, when appropriate, community meetings to take place to be inclusive of perspectives from all sectors of the community, including women, youth, and Elders;	GNWT-INF has identified 17 organizations as primary contacts in their engagement processes.
5. Ensure the proponent has procedures in place to understand and respond to issues as they arise; and	GNWT-INF has a feedback and evaluation process to ensure all concerns are addressed. Stakeholder feedback is used to understand concerns, information sharing and inform decision making.
6. Provide the opportunity for relationships to be built proactively, not just when issues occur	GNWT-INF has responded to all community concerns, and delayed start of the project for one year to collect additional information

No reviewer comments were related to engagement.

### 3.1.3 Traditional Knowledge

A Traditional Knowledge Study was completed in March 2006 by EBA Engineering Consultants as part of the application for a Water Licence (S06L8-001) for the bridge construction that was not initiated.

This study contained information on items such as:

- *Terrain* – the east approach to the bridge location is known to be very muddy and could be a problem for equipment;

- *Climate* – the bridge was supported with the climate getting warmer each winter, resulting in shortened ice periods, creating safety concerns for winter travel;
- *Vegetation* – a blueberry picking area is located on the west side of the proposed bridge. All along the river banks is good berry picking. No reports of medicinal plants currently being used from the area;
- *Water* – concerns about the pressure ice will put on the piers and the potential for the piers to break. Bear River is too cold for swimming but is very beautiful;
- *Wildlife* – Moose habitat is located on the west side of the bridge location. However, there were no concerns with potential impact on moose habitat. Grayling are present in Great Bear River;
- *Significant Sites* – Bear Rock is a culturally and spiritually important area that is not to be disturbed. There was no knowledge of gravesites or other sacred areas within the vicinity of the bridge location; however, not all sites are marked and may be present;
- *Traditional Use* – The area is popular for play and picnic. There are several fish netting sites nearby.
- *Social Impacts* – There is concerns about the exposure of youth to drugs, alcohol, crime, sex from large numbers of people in construction camps.

An updated Traditional Knowledge Study is being prepared by the Tulita Renewable Resource Council. At present, the Tulita River Bridge Project Committee has given the consent for proceeding with this application review, in advance of the completion of the updated TK study.

No reviewer comments were related to Traditional Knowledge.

### **3.1.4 Archaeological Impact Assessment (AIA)**

Two Archaeological Impact Assessment (AIA) reports were prepared by Stantec Consulting for material prospect sites and the bridge location identified with high potential for archaeological resources:

- Stantec Consulting Limited. 2018a. Archaeological Impact Assessment: Proposed Granular Supply Sources along the Mackenzie (No.1) and Liard (No. 7) Highways and a section of the 2011 proposed Mackenzie Valley Highway, NWT. Prepared for the Government of the Northwest Territories.
- Stantec Consulting Limited. 2018b. Tulita Borrow Sources, AIA Results Summary. Prepared for the Government of the Northwest Territories.

These are confidential documents that have been reviewed by Prince of Wales Northern Heritage Centre (PWNHC). The reports concluded that the program could proceed with low likelihood of disturbing any cultural or archaeological resources at the proposed locations. GNWT-ECE recommended that any material prospect areas not previously assessed will require an AOA. Any areas of high archaeological potential that cannot be avoided by the drilling program will require a pre-disturbance AIA. These standard conditions were added to the Draft Land Use Permit conditions.

Summary results of the AIAs and mitigations for each of the sites are found below:

**Table 3: Archaeological and Heritage Resource Summary**

<b>Sites</b>	<b>Investigation summary and mitigations</b>
Prospect B1	<ul style="list-style-type: none"><li>• No archaeological sites identified</li></ul>
Prospect B2	<ul style="list-style-type: none"><li>• No archaeological sites identified</li></ul>
DHu 1	<ul style="list-style-type: none"><li>• Low archaeological potential, site not assessed in field.</li></ul>
DHu2	<ul style="list-style-type: none"><li>• No archaeological sites identified</li></ul>
CFM2	<ul style="list-style-type: none"><li>• No archaeological sites identified</li></ul>
CA 3	<ul style="list-style-type: none"><li>• One archaeological site detected, will be avoided during program</li></ul>
CA 4	<ul style="list-style-type: none"><li>• One traditional use site detected, will be avoided during program</li></ul>
CA 5 (FN19)	<ul style="list-style-type: none"><li>• One traditional use site detected, unassessed area of site at confluence of Little Bear and Mackenzie rivers and along banks of Little Bear River will be avoided during program.</li></ul>

The PWNHC provided review letters of the report findings. With respect to the management of nine archaeological sites located within 150 m of the GBRB bridge approaches and abutment drilling areas, the Culture and Heritage Division recommended that avoidance is the preferred management option and that sites should be avoided by a minimum distance of 30 m from the established site boundaries. They noted that Conformity Requirement #4 within the Sahtu Land Use Plan regarding Archaeological Sites states that land use activities must not be located within 150 m of known or suspected archaeological sites, unless specific measures are developed in cooperation with the PWNHC and affected communities. Because accurate location data was submitted for site boundaries, Culture and Heritage Division advice is that 30 m buffer is sufficient for five sites, 150 m for three sites, and no further study for one site.

Culture and Heritage Division also noted that a large portion of the GBRB Approaches area has not been previously subject to an AOA or AIA. Therefore, they recommend that an AOA is completed for the proposed footprint area prior to any vegetation clearing and drilling. Any areas of high archaeological potential that cannot be avoided by the drilling program will require a pre-disturbance AIA.

INF and the Contractor will adhere to conditions included in the land use permit (LUP) concerning the discovery of potential archaeological sites during the investigation. INF will continue to finalize its scope of work and will collaborate with PWNHC once exact proposed drilling sites are determined, in order to meet the avoidance and mitigation recommendations.

### 3.2 Management Plans

#### **3.2.1 Waste Management Plan**

A Waste Management Plan (WMP) was submitted for this Project. The following are the primary waste management methods in the WMP:

- Non-hazardous garbage (domestic waste, construction waste, rubber/used tires, bulky materials) will be taken to an approved solid waste facility.

- Camp sewage and grey water will be stored and removed off-site to an approved facility or disposed of in a sump.
- Hazardous waste (waste oil, used filters, contaminated snow or soil, used hydrocarbon containers and absorbents, waste antifreeze, waste solvents, batteries) will be taken to an approved hazardous waste facility under INF's registered generator of hazardous waste number 'NTG027'.
- Trees and brush cleared along the alignment will be mulched, or windrowed and compacted by heavy equipment along the side of the cleared area.
- Animal carcasses (if encountered) will be removed from site through discussion with GNWT-ENR.

Board staff reviewed the Waste Management Plan (Version 1.0) with consideration of the basic requirements of MVLWB *Guidelines for Developing a Waste Management Plan* (2011) and have the opinion the Plan generally conforms with the intent of the Guidelines. There were several reviewer comments regarding the WMP version 1.0. These comments should be addressed and a revised WMP version 2.0 submitted for approval.

**Use of sumps:** Due to the proximity of approved waste management facilities, the Department of Lands, Sahtu Region, recommends no sumps on this project. Unless the permittee can justify the use of a sump to dispose of grey water (e.g., A remote camp location during the summer months), we do not support the use of a sump. We will require all wastewater to be stored in heated tanks and trucked out to a proper disposal facility.

**Cleared Vegetation:** On page 4, in Table 1 of the WMP, it states all cleared vegetation will be mulched or windrowed. The Department of Lands, Sahtu Region recommends any salvageable timber to be collected and placed in an area approved by the Lands Inspector.

**Industrial and Solid, Liquid, or Sewage Waste Disposal:** GNWT-ENR noted that if the Proponents Waste Management Plan or methods of waste disposal indicate that project waste, or industrial waste, will be transported to community infrastructure for disposal, the Proponent should not assume they may deposit industrial wastes, generated outside of community boundaries, in Northwest Territories community Solid and Liquid Waste Disposal Facilities. The Proponent must demonstrate that the community can accept such wastes in their Water Licence and have obtained permission from the community regarding the use of its infrastructure for disposal of the waste streams and quantities.

The Hamlet of Tulita Water Licence S16L3-001 'Commercial and Industrial Operators Waste Management Plan' states that waste originating outside the Hamlet is not accepted. Water Licence Part D, conditions 16 and 17 state that Hazardous Waste and Contaminated Soil generated by industrial or commercial operators (originating inside the municipal boundaries) will not be accepted at the SWDF unless authorized in writing by an Inspector. INF accepts this recommendation. If the successful proponent is generating hazardous waste, they will be registered in the NWT and will track hazardous waste disposal as required by ENR. INF has also received a letter from the Hamlet of Tulita accepting the camp wastewater at the municipal facility.

### 3.2.2. Spill Contingency Plan

A Spill Contingency Plan was submitted for this Project. Board staff reviewed the Spill Contingency Plan (Version 1.0) with consideration of the basic requirements of Aboriginal Affairs and Northern Development Canada's *Guidelines for Spill Contingency Planning* (April 2007) and have the opinion

the Plan conforms with the intent of the Guidelines. There were several reviewer comments submitted regarding the Spill Contingency Plan version 1.0.

GNWT-ENR acknowledged the proponent's Spill Contingency Plan and recommended the Proponent should also follow best practices for fuel storage and spill containment during project activities provided in EPA Spill Contingency Planning and Reporting Regulations including:

- Reporting of all spills
- Clean-up of all spills
- Fuel storage greater than 100 m from water
- Fuel storage with secondary containment
- Provision of spill kits
- Portable spill kits

All of these recommendations for best practices concerning spills are included as standard conditions in the Permit.

The SCP - Distribution List, section 1.3, page 2 has an incorrect phone number for Department of Lands – Sahtu Region Inspector. The correct contact numbers are 867-587-7206 (Trevor Bremner) or 867-587-7205 (Jonathan Gillingham).

The contact number should be corrected and a revised SCP version 2.0 submitted for approval.

### **3.2.3 Sediment and Erosion Control Plan**

A Sediment and Erosion Control Plan (SECP) was submitted with the application. The SECP was developed in accordance with Fisheries and Oceans Canada (DFO) requirements and guidance, the Northern Land Use Guidelines, and GNWT-INF's Sediment and Erosion Control Manual.

The document (Table 1) describes each of the project activities, potential effects of these activities to generate erosion, and mitigation measures to reduce the potential for negative effects. For all of these activities, the final mitigation measure recommended is: "As necessary, install erosion and sediment control measures". The Department of Lands – Sahtu region commented on this mitigation measure and recommended that it be revised for each of the activities to read: "As necessary, install and regularly maintain all active sediment and erosion measures".

Board staff recommend that Table 1 in the SECP be revised to address the reviewer comment above and a revised SECP version 2.0 be submitted for approval.

### **3.3 Potential for Environmental Impacts and Mitigation Measures**

In evaluating the potential effects of this Project, the following factors provide context:

- 1) Construction of land access and excavation of test pits will occur over a 4 to 6 - week period during winter 2019. Drilling along the bridge approaches and at the abutment locations could occur in winter or summer 2019. Drilling at prospect material sites will occur during summer 2019. Summer drilling will be helicopter supported.
- 2) The Project is mobile. The work will constantly progress among the different sites so activity at any particular location will be temporary in nature. The longest activity duration in any one location would be at camp locations should the contractor choose to establish a camp.
- 3) The Project will require some clearing of trees and brush, but it will not require the removal of

the surface organic layer. It is estimated that a maximum of 26 ha will require clearing.

4) The Project will require limited access to undisturbed areas. Many of the prospect sites are on an existing cut lines and or adjacent to existing transportation infrastructure. For those locations where new clearing is required, existing cut lines will be used where possible to reduce the amount of vegetation clearing.

The following sections of the Preliminary Environmental Screening Report form provide specific and important information that may be of interest to the Board:

#### **Physical/Chemical Effects**

Ground Water - water quality changes

Surface Water – water quantity changes; water quality changes

Noise - noise increase

Land – permafrost regime alteration;

Air/Climate/Atmosphere – air quality; climate change

#### **Biological Environment**

Vegetation – species introductions; damage to ground vegetation and permafrost

Wildlife and Fish – effects on rare, threatened or endangered species; fish population changes; breeding disturbances; population reduction; behavioural changes; habitat changes; toxins/heavy metals; wildlife incidents

#### **Social and Economic**

Quality of Life Changes

Employment opportunities

#### **Cultural and Heritage**

Changes to or loss of archaeological resources

Increased pressure on archaeological resources

Effects to Aboriginal lifestyle

Incorporation of local knowledge/community consultation

All relevant environmental impacts and mitigation measures are addressed in the Preliminary Environmental Screening (Attachment 3).

#### **3.4 Preliminary Environmental Screening**

Under the Preliminary Screening Requirements of section 124(1) of the *Mackenzie Valley Resource Management Act* (MVRMA), the Board must conduct a preliminary screening of any proposed development prior to the issuance of a Licence, Permit, or Authorization, unless it is exempt from Part 5 of the MVRMA.

Based on the information provided in the application and by review agencies (see below), a Preliminary Environmental Screening (PES) was performed. The draft PES is attached (Attachment 4) The report concludes that the environmental impact of the proposed project can be mitigated with known technologies and no significant public concerns have been raised. The Draft Preliminary Environmental Screening Report and a Draft Staff Report was forwarded to the MVEIRB on March 4, 2019 and the final version will be forwarded to the MVEIRB once it has received approval from the Board.

### 3.5 Conformity with Land Use Plan

The SLUP was adopted by the Sahtu Land Use Planning Board (SLUPB) in April 2013 and received approval and came into effect on August 8, 2013. Proposed investigation sites are located within three Special Management Zones: Zone 62 – Willow Lake Wetlands (Prospect B1 and B2, DHU1 and 2, CFM-2), Zone 63 – Mackenzie River (CA5) and Zone 33 – Great Bear River (CA 3 and 4). Special Management Zones 33, 62 and 63 require compliance with conformity requirements (CR) 1-13 and 14.

As per Part 3, Section 61(1) of the MVRMA, the Board may not issue, amend, or renew a licence or permit or authorization except in accordance with the applicable land use plan under Part 2. Board staff have required the Proponent demonstrate how the project meets the appropriate SLUP conformity requirements.

Table 4 outlines how these requirements are being addressed as presented by GNWT-INF with review by Board staff. Under evaluation by the SLWB staff, it appears the project conforms to the SLUP and therefore Board staff do not recommend referral to the SLUPB for a conformity determination as set out in Section 47. The SLWB has met the requirements as per Section 46 of the MVRMA.

**Table 4: Great Bear Bridge Geotechnical Investigation – SLUP Conformity Requirements**

Conformity Requirement	Application Section(s)	Supporting Evidence	Board Staff Review
<b>General Conformity Requirement</b>			
CR#1 – Land Use Zoning	N/A	<ul style="list-style-type: none"> <li>Proposed land use is not prohibited within the project area Special Management Zones: Deh Cho Zone 63; Willow Lake Wetlands Zone 62; and Great Bear River Zone 33.</li> <li>No prohibitions except bulk water removal which is not involved.</li> </ul>	Confirmed
CR#2 – Community Engagement and Traditional Knowledge	Appendix B Appendix C Appendix D Appendix E	<ul style="list-style-type: none"> <li>Multiple communications and meetings; Engagement completed in every Sahtu community between January and August 2018 and October 2018.</li> <li>Engagement Plan provides commitment to continue community engagement throughout duration of project.</li> </ul>	Confirmed, details discussed in section 3.1 of the staff report
CR#3 – Community Benefits	Section 6.2.11	Include but not limited to: <ul style="list-style-type: none"> <li>Employment and economic activities, contract work</li> <li>Identification of quarry sources to support construction of GBR bridge and other potential needs which will generate further employment and economic activity for residents</li> </ul>	Confirmed, proposed project addresses community concerns, includes economic benefits, TK studies and documenting Elders knowledge for archival purposes.
CR#4 – Archaeological	Appendix H Section 6.2.10	AOA and AIA's conducted in 2018 by Stantec <ul style="list-style-type: none"> <li>No significant archaeological, cultural, or</li> </ul>	Confirmed, LUP conditions 26(1)(j) 52

Sites and Burial Sites		<p>heritage resources identified or suspected</p> <ul style="list-style-type: none"> <li>• Mitigation will involve avoidance of known sites and unassessed areas</li> </ul>	<p>specifies that the Permittee shall not operate any vehicle or equipment within 150 meters of a known or suspected historical or archaeological site or burial ground; and 53 specifies the Permittee shall not knowingly remove, disturb, or displace any archaeological specimen or site. Conditions added to complete AOA and AIA where required.</p>
CR#5 – Watershed Management	Section 6.2.5	<ul style="list-style-type: none"> <li>• Proposed project has little to no reasonable potential to substantially alter quality, quantity, or rate of flow for waters that flow on, through or are adjacent to Sahtu lands.</li> </ul>	<p>Confirmed, Section 6 is a description of potential environmental impacts on water sources and describes mitigation measures to minimize the effect. There is a Spill Contingency Plan and Waste Management Plan.</p>
CR#6 – Drinking Water	Section 6.2.5	<ul style="list-style-type: none"> <li>• Proposed project will not result in the contamination of surface or groundwater within a community catchment.</li> </ul>	<p>Confirmed.</p>
CR#7 – Fish and Wildlife	Section 6.2.7 Section 6.2.9	<ul style="list-style-type: none"> <li>• Work to be conducted at 8 different sites over an 8-12-week period, activity at any one site will be limited in duration;</li> <li>• Proposed work not likely to have significant impact on fish or wildlife;</li> <li>• Mitigations planned to avoid interactions with fish and wildlife.</li> </ul>	<p>Confirmed</p>
CR#8 – Species Introductions	Section 6.2.8	<ul style="list-style-type: none"> <li>• The proposed project will take all reasonable precautions to prevent the introduction of non-native species or sub-species;</li> <li>• Equipment and vehicles used for the Project that are coming from outside of this area will be cleaned to prevent the spread of non-native plant species.</li> </ul>	<p>Confirmed</p>
CR#9 – Sensitive Species and Features	Section 6.1.6.9 Section 6.2.9	<ul style="list-style-type: none"> <li>• Mitigations are applied to minimize effects on sensitive species;</li> <li>• Potential effects on sensitive species are not significant.</li> </ul>	<p>Confirmed</p>

CR#10 – Permafrost	Section 6.2.4	<ul style="list-style-type: none"> <li>Proposed project will be designed and carried out in a matter that prevents and/or mitigates adverse environmental impacts resulting from the degradation or aggradation of permafrost.</li> <li>Project will increase knowledge of permafrost condition and distribution in the Project area;</li> <li>Tracked dozers may be used for this clearing work by installing shoes on the blade so it cannot cut into/disturb the frozen ground</li> </ul>	Confirmed
CR#11 – Project-Specific Monitoring	Section 6.2.9	<ul style="list-style-type: none"> <li>TDB based on execution of project</li> <li>Wildlife monitor may be hired based on feedback received</li> </ul>	Confirmed
CR#12 – Financial Security	N/A	Not applicable – GNWT does not need to provide financial security	Confirmed. Pursuant to Section 94 (Exemptions) of the MVRMA, GNWT-INF is exempt from posting security.
CR#13 – Closure and Remediation	Section 7.0 Section 9.0	<ul style="list-style-type: none"> <li>All equipment, materials and waste to be removed from Project sites upon project conclusion;</li> <li>Natural revegetation of any disturbed areas , which are expected to be restricted to summer drill locations</li> </ul>	Confirmed.
<b>Special Management Conformity Requirements</b>			
CR#14 – Protection of Special Values	Throughout	<ul style="list-style-type: none"> <li>No indication of impact of project on archaeological and burial sites</li> <li>No lasting or irreversible impacts to water quality of wildlife, and impacts minor and will be minimized through mitigation measures outlined in PDR</li> </ul>	Confirmed.

### 3.6 Draft Permit

A draft Land Use Permit with Terms and Conditions was prepared and posted for review with the Application. Reviewer comments requested some changes and additions to the draft conditions. These were added as requested and with the agreement of GNWT-INF (Attachment 5).

### 3.7 Security Deposit

Pursuant to Section 94 (Exemptions) of the *Mackenzie Valley Resource Management Act* (MVRMA), GNWT-INF is exempt from posting security.

## 4. Other Agency Comments

The application was distributed to members of the Tulita, Deline and K’asho Got’ine District Distribution Lists; which includes 46 review organizations, requesting a reply by February 25, 2019. Six organizations responded.

- Environment and Climate Change Canada (ECCC);
- Government of the Northwest Territories – Education, Employment and Culture (GNWT-ECE)

- Government of the Northwest Territories – Environment and Natural Resources (GNWT-ENR);
- Government of the Northwest Territories – Lands – Sahtu Region;
- NWT Legislative Assembly – Daniel McNeely - MLA Sahtu;
- Sahtu Renewable Resources Board (SRRB).

**ECCC** was concerned about the Project work overlapping with the timing of migratory bird nesting. They recommended that if active nests are encountered during Project activities, the nesting area be avoided until nesting is complete (i.e., the young have naturally left the vicinity of the nest). It is recommended that all disruptive activities in the area be halted until nesting is completed, and the nest should be protected with a buffer zone appropriate for the species and the surrounding habitat. INF agreed and accepted ECCC’s recommendations for avoidance and disturbance mitigation. The standard LUP condition 86 for migratory bird disturbance was included and the wording modified to reflect ECCC recommendation.

**GNWT-ECE** – For the material prospect sites recommended that an AOA is completed for any areas not previously assessed (CFM-2) and any areas of high archaeological potential that cannot be avoided by the drilling program will require a pre-disturbance AIA. They provided specific management recommendations for the nine archaeological sites located within 150 m of the GBRB Approaches and Abutment Drilling Area that have been previously assessed. They also noted that a large portion of the GBRB Approaches area has not been previously subject to an AOA or AIA. ECE recommended that an AOA is completed for the proposed footprint prior to any vegetation clearing and drilling. Any areas of high archaeological potential that cannot be avoided by the drilling program will require a pre-disturbance AIA. INF responded that they will continue to finalize the scope of work and will collaborate with PWNHC once exact proposed drilling sites are determined, in order to meet the avoidance and mitigation recommendations.

**GNWT-ENR** ENR acknowledged the proponent’s Spill Contingency Plan but included recommendations for best practices for fuel storage and spill containment during project activities. All of the recommendations have been covered by standard LUP conditions. ENR also reviewed the potential for impacts to species-at-risk and noted that “ although the project overlaps with the range(s) of Grizzly Bear, Boreal Caribou, Little Brown Myotis (bat), and Barren-ground Caribou, ENR is of the opinion that the scope, areal extent, scale and/or timing of the proposed project are such that the likelihood of significant negative impacts to NWT-listed or pre-listed species at risk is minimal. This information was acknowledged by INF and was included in the Preliminary Environmental Screening.

To assist with the tracking of cumulative disturbance effects for wildlife, the Proponent should submit the bounding coordinates or geospatial data for the proposed project footprint and for the completed project footprint to the Land and Water Board for placement on the public registry. The Mackenzie Valley Land and Water Board’s “Standards for Geographic Information Systems (GIS) Submissions” should be followed when submitting spatial data. INF agreed to this request.

Additional comments were provided with recommendations for Permit conditions to be added for:  
 Protection of Wildlife Habitat (beaver lodges, muskrat push-ups, and hibernacula);  
 Pre-activity surveys for wildlife;  
 Bear Dens (location and buffers);

Measures to reduce wildlife attraction to garbage, food, sewage, other waste);  
Removal of Waste Petroleum Products to an approved facility.

All of these comments were acceptable to INF and most have been addressed through standard LUP conditions.

**GNWT Lands – Sahtu Region** – There were some comments on the WMP, SCP, and SECP as noted above. There were several comments on the draft Land Use Permit conditions. The use of sumps for disposal of sewage and greywater was not supported. Some changes were made to standard LUP conditions to address these recommendations.

**NWT Legislative Assembly: Daniel Mcneely MLA Sahtu** submitted a letter of support for the Project stating that “the GNWT’s mandate is to support the Mackenzie Valley Highway, which has been a long desired connection for the Sahtu residents to reduce the cost of living... Initially this application was applied and approved in 2006 to which our support efforts will continue”.

**SRRB** – No concerns or comments.

## 5. Conclusion

The Preliminary Environmental Screening Report did not identify any Significant Adverse Environmental Impacts or Public Concerns with the proposed project. All potential environmental impacts identified by review agencies can be mitigated with known technology and have been addressed in the Term and Conditions of the Land Use Permit.

The draft Permit Conditions are based upon the standard condition list, and stakeholder comments. Board staff conclude that the conditions contained within this draft Permit should mitigate the potential environmental impacts this development may have on the land and water.

A draft Land Use Permit cover page, reasons for decision and issuance letter are attached (Attachments 6, 7 and 8).

## 6. Recommendation

Board staff recommend that the Board proceed with the regulatory process for this Land Use Permit including:

- 1) Approve the draft **Preliminary Screening**;
- 2) Approve the **draft LUP**, with a term of five years;
- 3) Approve the **Engagement Plan**;
- 4) Approve the **Sahtu Land Use Plan Conformity Determination**;
- 5) Approve the **Spill Contingency Plan, Waste Management Plan, and Sediment and Erosion Control Plan** requiring revisions submitted within 10 days of issuance;
- 6) Approve the draft **Reasons for Decision** (attachment 6); and
- 7) Approve the draft **Decision Letter** (attachment 7).

## 7. Reference Material Attached

- 7.1. Land Use Permit Application ([hyperlink only](#))

- 7.2 Letter from Hamlet of Tulita accepting camp wastewater.
- 7.3 Review Comment Summary Table
- 7.4 Preliminary Environmental Screening Report
- 7.5 Draft Land Use Permit Term and Conditions
- 7.6 Draft Permit Cover Page
- 7.7 Draft Reasons for Decision
- 7.8 Draft Decision Letter

Respectfully submitted,



Bonnie Bergsma  
Regulatory Specialist

Executive Director Comments:



Paul Dixon  
Executive Director