April 23, 2021

Nunavut Planning Commission
Attention Ms. Ehaloak and Mr. Aglukark
PO Box 1797
Iqaluit, NU X0A 0H0

RE: Kivalliq Hydro-Fibre Link (KHFL) Research Permit Application

Dear Ms. Ehaloak and Mr. Aglukark,

Attached to this letter is a formal application for research permits associated with baseline data collection for a future environmental assessment of the Kivalliq Hydro-Fibre Link (KHFL). President Kono Tattuinee of the Kivalliq Inuit Association (KIA), as the proponent of the Project, is acting as signatory to this application. InterGroup Consultants, on behalf of the KIA, is coordinating the Nunavut Planning Commission (NPC) application process.

The KIA is pursing the development of the KHFL, a 230kV electric transmission and broadband fibre-optic infrastructure link extending from Manitoba into the Kivalliq region of Nunavut, delivering reliable renewable energy and broadband service. In order to advance the development of this important project for the region, baseline studies are being planned to support the project's development. This work is being supported in partnership with the Canadian Northern Economic Development Agency.

Please see the March 2021 Data Collection Summary Report, included with the Application, that describes work undertaken south of the Nunavut border and our planned work program. Also attached is a fieldwork summary that describes preliminary studies along the Nunavut segment of the proposed KHFL project corridor. A summary description of the estimated phasing and specific work plan activities is provided below.

The studies are expected to start in Summer of 2021, however due to COVID-19 the timeline may be affected. Timing to begin fieldwork in snow and frost-free studies is understandably tight. The Project team has pursued ongoing engagement with Hamlets, Hunter and Trapper Organizations and other stakeholders within the proposed project corridor. The corridor as proposed is within the speculative infrastructure corridor as defined in Schedule B Valued Ecosystem and Socio-Economic Components of the Draft Nunavut Land Use Plan.

While we have made every effort to provide information relevant to this application, if there is information you require to complete your review and approval process please advise and we will address requests immediately. If you have any questions about this description or the work permit application documentation, please contact John Osler directly (josler@intergroup.ca).

Regards,

Kono Tattuinee
President Kivalliq Inuit Association

FIELDWORK SUMMARY

Introduction

Early and ongoing engagement has been a priority for the Project. Previous engagement efforts reflect the preparation for and implementation of Project meetings with community leadership and members in five communities in Nunavut, Hunter and Trapper Organizations, the Kivalliq Wildlife Board, the KIA Board, as well as environmental regulatory organizations. These engagement activities will continue to help inform the development of the Project description, including framework for continued Public Participation Plans and Inuit Partnership Participation Plans under the IAA.

The Project will continue to pursue ongoing engagement with Inuit Elders, Hunters and Trappers Organizations, Kivalliq Wildlife Board, land users and community members to direct and provide focus to field investigations.

Wildlife

Migratory Waterfowl and Breeding Bird Survey

Migratory birds survey including waterfowl, birds of prey will be surveyed by helicopter along the proposed Nunavut corridor. Where creeks and rivers intersect the proposed corridor shorelines will be surveyed to determine the presence of nesting or staging waterfowl or any other incidental sightings of stick nests and other incidental mammal sightings or signs. Other observations including documentation of caribou, polar and grizzly bears and muskox incidental observations will be documented. Wetland areas including marshes with emergent aquatic vegetation will be identified for mapping and Impact Assessment characterizing purposes. This will provide baseline data to assist in the identification of mitigation methods and to allow for future monitoring to assess conclusions on potential Project effects and to allow for adaptive management during construction and operation if necessary. Autonomous Recording Units (ARUs) or bird call recorders will also be installed in locations that will be determined during the survey to provide baseline data on song and waterbird presence. An estimated 25 ARUs will be installed along the proposed Nunavut corridor during this period. ARU installation sites may be coordinated with trail camera installations using aluminum tripods. Utilization of local participants in the installation of ARUs (and trail cameras - below) is an objective. Also use of community participants to provide bear guard services is anticipated. Trail camera installation sites associated with ARU's will be determined based on field observations and logistics.

- The timing of this work is proposed during a two-week period in June and July of 2021 and 2022

Winter Aerial Multi-Species Survey

A late winter aerial multi-species survey will include aerial transects flown at 500 m and 5 km on each side of the proposed KHFL project corridor (four transects). Both observations of caribou and tracks as well as muskox will be documented to provide baseline data on the presence and relative density of caribou activity. During this survey incidental wildlife sign will be recorded, including wolf, wolverine, muskox and polar bear tracks that may indicate potential den emergence sites. Other incidental observations including ptarmigan and raptors will also be documented. Community participation is expected where logistics permit.

- Timing of survey is expected to require two weeks of effort during late March or early April 2022.

Fall Caribou Abundance Near Corridor

A late fall aerial survey will be conducted in known fall caribou areas as identified by previous kernel density estimates provided by NU. A minimum of two transects will parallel the ROW approximately 2.5 kilometers on each side. Observations and counts of caribou concentrations will be undertaken, as well as a photographic record to assist in completing group counts. Other observations of wolves, muskox and grizzly bears will be recorded as well as other incidental observations including ptarmigan and raptors. Survey altitude will ensure that animals are not dispersed, and any circling will be minimal at an altitude sufficient to not cause disturbance. Crew would consist of two biologists and one community participant.

- These activities are expected to occur between September and October 2021.

Trail Camera Deployments

Approximately 30 trail cameras will be deployed at strategic locations along the proposed KHFL project corridor. Trail cameras will be installed on portable tripods near a suitable helicopter landing location. Each camera is programmed to capture five images when triggered. The trail cameras will be setup to record the specific geographic location as well as a time-date stamp. Further, automatic recording of the image quality (contrast, brightness, etc.) and temperature will be captured for future analysis. To the greatest extent possible local knowledge keepers will be consulted on appropriate placement and cameras. Deployment of cameras may coincide with avian surveys and may be integrated at ARU sites to reduce the number of sites and increase

efficiencies in deployment. Most deployments would occur as a separate flight, requiring the presence of a local bear guard, during summer and fall surveys. Subsequent retrieval of data cards would be conducted during future surveys during the winter, spring, summer and fall of 2021.

- Deployment of cameras may coincide with avian surveys and may be integrated at ARU sites to reduce the number of sites and increase efficiencies in deployment. (March to July 2021).
- Subsequent retrieval of data cards would be conducted during future surveys during the winter, spring, summer and fall of 2021.

Aquatic

Stream Classification Field Overview

Desktop analysis using satellite imagery has identified 2,734 water courses (235 streams, 1,689 wetlands, 809 lakes, as well as Hudson's Bay) within proposed KHFL project corridor. The studies will ground truth and confirm waterbody classifications as well as presence/absence studies of fish species. A subset of waterbodies, using a stratified-random design will be ground truth by type (i.e. stream, lake, wetland) and by class (e.g. Lake class 1-5), with sites within these grouping selected randomly, throughout spring, summer and fall of 2021. Estimated ground sampling will take place during 4 – 6 weeks within this period. Field assessment sites will be evaluated for physical habitat characteristics such as water velocities, discharge, stream bed and bank profiles and substrate characteristics and water quality, such as temperature, dissolved oxygen, pH, conductivity, turbidity. Presence/absence surveys of fish communities will be conducted using a variety of equipment dependent upon the water body size. In small, wadable waterbodies, fish communities will be evaluated by backpack electrofishing and/or seine netting. For backpack electrofisher, several electrofishing passes will be conducted within the right-of-way of the proposed development corridor footprint. All captured fish with be identified to species, enumerated, and photographed, and subsequently released unharmed.

- These activities are expected to occur between July and September 2021.

Environmental DNA (eDNA)

To supplement fisheries surveys, the use of environmental DNA (eDNA) as an assessment technique is being considered. eDNA is a non-invasive method to acquire presence/absence data on fish communities. It requires collection and filtration of raw water, then DNA amplification and sequencing, followed by comparisons to existing libraries on the genetic sequences fish most likely present. eDNA may be advantageous because it is less time intensive (i.e. sample collection within minutes), is non-invasive, and is effective at monitoring rare or low abundance species that may otherwise not be effectively sampled with more traditional fisheries methods.

- These activities are expected to occur between July and September 2021.

Marine Ecosystem

Review existing shipping capacity and transportation corridors in the region to improve project understanding of existing marine shipping traffic operations and their interactions with the marine aquatic and avian environment. This will include consideration for regional harvest calendars, known migratory processes, and experience of local and regional communities with the interactions of marine shipping with the environment. This information is expected to help better inform the project description.

- Fieldwork activities are expected to occur between July and September 2021.

Geomorphology, Permafrost, and Soils

Field Validation of Preliminary Mapping

A targeted field program will validate completed preliminary desktop-based mapping of the proposed KHFL project corridor. Aerial reconnaissance will be include pre-planned site visits and foot traverses at selected locations to allow collection of near-surface ground information that cannot be interpreted remotely. The team will target existing exposures of subsurface materials and will use a spade and/or hand auger to investigate near-surface ground conditions where there are no pre-existing exposures. A steel frost probe will be used to determine and record active layer thickness within distinct landforms. Evidence of cryoturbation, such as frost (mud) boils, stone nets (circles) and stone stripes, will be documented given the implications for local near-surface (active layer) ground stability. Any visible ground ice will be photographed and described according to its form (e.g. pore, segregated, wedge) and geomorphological context.

- Fieldwork activities are expected to occur between July and September 2021.

Targeted Permafrost Drilling
As part of the ground truthing activities to substantiate desktop-based interpretations of ground ice conditions, field activities will use a lightweight drill to penetrate depths of up to several meters at select locations. Ground temperature sensors will be installed in select drill holes to understanding active layer dynamics and sensitivity to climate change.

Ground activities will include vegetation characterization and observation as well as limited soil sampling to contribute baseline data collection of the proposed KHFLP project corridor.

- Fieldwork activities are expected to occur between July and September 2021.

Inuit Qaujimajatuqangit

Inuit Qaujimajatuqangit refers to Inuit traditional knowledge, while Inuit Qaujimajatuqangit also encompasses Inuit epistemology. It is anticipated that both sets of knowledge, intended to capture local and community knowledge inclusive ecological knowledge will be collected to support the characterization of baseline conditions (in addition to future impact assessment processes). The collection of this information will be approached collaboratively with the KIA, along with other relevant organizations such as Hunter Trapper Organizations. A systematic process will be used for the identification of local traditional knowledge experts, and processes will be used to document the outcomes in keeping with ethical standards and without breaching confidentiality. Activities are anticipated to include key person interview and/or workshops, which will be determined through engagement processes.

- Fieldwork activities are expected to occur between July and November 2021.

Socio-economic

Baseline (Land and Resource Use, Community Health and Well-being, Employment and Economy, Infrastructure and Services)

Baseline development work will include updating secondary data sources and reporting and addressing information gaps with the availability of additional information sources. Primary data collection, through community interview programs, will be the focus of the baseline development. The option for community coordinator training has been included in work plan estimates to

accommodate the opportunity to have community members directly involved in the collection of information and participation in the interview program.

- Fieldwork activities are expected to occur between July and November 2021.

Heritage

Coordination with the Government of Nunavut's Territorial Archaeological Office to review database of the previously known archaeological sites located within the proposed KHFL project corridor. This information will inform the overview assessment of the region and identify future archaeological survey and fieldwork activities. The review will include the culture history of the area, a summary of previous archaeological studies, an inventory of known archaeological and historical sites and future planning.

- Activities are expected to occur between May through July 2021.

LiDAR Imagery

The proponent will acquire LiDAR 10cm-12cm imagery with sensor coverage/swath width of approximately 1200m from an aerial reconnaissance. Efficient flight lines will result in a single swath of the corridor. Local weather and ground conditions will be monitored to ensure high-quality LiDAR imagery will be recorded. There are several web cams in the project area that will be monitored, once ground conditions and weather provide a window of opportunity the LiDAR surveys will be conducted.

- Activities are expected to occur once ground conditions and weather provide a window of opportunity 2021.