

## **APPENDIX A**

### **Project Title:**

Polar Knowledge Canada (POLAR) camp on Greiner Lake, Cambridge Bay

### **Applicants:**

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### **1. Project Activities:**

Polar Knowledge Canada (POLAR) and the Canadian High Arctic Research Station (CHARS) will be conducting a range of field research activities over the summer and early fall of 2018, and a number of visiting research scientists, their graduate students, and northern high school and college students will come to Cambridge Bay to conduct this research. Many of these research activities, and most of the scientific instrumentation deployed in 2016, will be on the northern shore of Greiner Lake, so for safety and convenience it is necessary for researchers to be stationed near these research and monitoring sites. To provide this field accommodation, the POLAR Science & Technology Team would like to set up a field camp near Cambridge Bay, on the northern shore of Greiner Lake (69° 13.145' N, 104° 51.911' W; also see attached map). A range of research projects will be carried out, including work on tundra ecosystem description and mapping, arthropod monitoring, freshwater lake surveys, small mammal trapping, and installation of research instruments such as a weather station, frost tubes and thermistor arrays, river gauging stations, and eddy covariance towers. Researchers will come and go over the summer; there will be no more than 10 people in camp at any one time. Normal occupancy will be 4–5 people.

### **2. Schedule of Activities:**

May 15, 2018	Camp will be set up
June 1 – September 30	Research will be conducted by scientists staying in camp
September 30, 2019	Camp will be dismantled by this date

### **3. Preliminary Plan:**

The proposed camp is at 69° 13.145' N, 104° 51.911' W, within Cambridge Bay administrative area, approximately 14 km NE from the Hamlet of Cambridge Bay, on the northern shore of Greiner Lake, 5 km south of Baby Pelly and 5 km NW of Mount Pelly. Researchers staying in the camp will work in the Greiner Lake watershed (see attached map of the proposed area). The campsite can be accessed by boat on Greiner Lake, or by ATV by a 3-km ride over the tundra from the end of the Mount Pelly road. Field sites around the camp can be accessed by foot, while the more remote ones in Greiner Lake Watershed will be accessed by float plane, helicopter, ATV and boat.

### **4. List of Structures:**

- Arctic Research Foundation Mobile Marine-Archaeological-Geological Network mobile laboratory (6m x 2.5m x 2.5 m) with two fold-down counters, a sink, as well as power source from two wind turbines and 15 solar panels
- 1 Intershelter 14 ft Polar Dome serving as kitchen and common area
- 2 metal frame tents (3m x 4m)—1 for cooking and dining, 1 as a research area, 1 for equipment storage.
- 6-10 individual all season tents for sleeping accommodation
- 1 outhouse tent

## **5. Equipment used**

- ATVs
- 16' skiff with outboard
- Propane Tabletop Stove
- Propane Refrigerator
- Propane Freezer
- Propane space heaters (for heating frame tents)
- Diesel space heaters (for heating frame tents)
- Wind generator (to charge electronic instruments)
- Solar panels (to charge electronic instruments)
- Gas generator(s) (to charge electronic instruments)
- Laptop computers
- Mobile and satellite phones (for safety and communication)
- Line of sight walkie-talkies
- Handheld GPS receivers

## **6. Fuel to be used:**

- 4 x 20lb propane tanks (for stove and heaters; replacement propane tanks will be acquired from Cambridge Bay throughout the season)
- 2x 100lb propane tanks (for freezer and fridge)
- Gasoline for generator, boat outboard motors and ATV's
- Diesel for space heater

## **7. Please see attached spill contingency plan**

## **8. Proposed disposal methods for garbage, sewage, grey water:**

- All waste will be stored in sealed drums and removed from the campsite to the Hamlet landfill.
- Sewage will be collected in plastic bags, which will be stored in drums, and disposed of at the Hamlet landfill.
- Water will be taken from the lake and river for washing and bathing, and drinking water will be brought from the Hamlet in carboys.
- Grey water sump will be located at least 100 m from water sources, and buried at the end of season.

## **9. Methods of transportation:**

- Transportation of researchers from Cambridge Bay airport to camp by pick-up truck, then by boat or ATV
- Transportation by float plane, helicopter, ATV, skiff with outboard motor and hiking for researchers from camp to study areas in the Greiner Lake watershed

## **10. Local Environmental Components:**

The proposed campsite is located on the northern shore of Greiner Lake, some 5 km south of Baby Pelly and 5 km northwest of Mount Pelly, in a region of extensive wetlands. The vegetation at the campsite is composed mostly of mesic to dry tundra, dominated by sedges, mountain avens and purple saxifrage. To the north of the campsite the vegetation is mostly wetlands, dominated by water sedge, mosses, and dwarf shrubs (<40 cm tall). The lakeshore to the south of the campsite has riparian vegetation with water-crowfoot and mosses. Greiner Lake and the chain of lakes upstream of it are locally important for arctic char and lake trout. Greiner Lake will be also the main access route by boat from Cambridge Bay, while the road from Cambridge Bay to Mount Pelly will be a secondary access route by truck and then by ATV over a 3 km stretch of tundra. The area of the campsite is rarely accessed by the residents of Cambridge Bay, since most fishing sites and fishing cabins are on the southern and eastern shore of Greiner Lake.

**11. Summary of potential environmental, wildlife and resource impacts and mitigation:**

The camp will have a minimal impact on the environment. Access to the camp will be made mostly by water, by ATV using road and then tundra, or occasionally, by float plane/helicopter. The tent camp will have a minimal disturbance effect on tundra ecosystems. The most likely threat to the environment is a fuel spill while refuelling the generator, the boat, the stove or the space heater. We have a spill contingency plan in the event that a fuel spill does occur.

**12. Reclamation costs:**

Not applicable to our project

**13. Proposed reclamation plan:**

Not applicable to our project, as only light temporary camps will be established (no permanent structures).

**14. Number of Inuit to be employed:**

A crew of 2–4 Inuit will be employed to set up the frame tents and other camp components. One (or possibly two shifting) Inuit person(s) will be employed as camp cooks throughout the duration of the camp. We will also hire and train 2–4 summer students, Inuit youth from Nunavut Arctic College for the duration of the camp, as field assistants. We will contribute to the local economy by the food, fuel and equipment we will purchase from the local grocery and hardware stores in Cambridge Bay. We also plan to utilize local guides to assist some parties with sampling—guides will be arranged through the EHTO.