WE ARE HERE TO HELP         Staff at Heritage, Lands and Resources will assist and help guide citizens through the land application process. If you have questions or need help, please call Jimmy at 334-2746 or email Jimmy.kennedy@kdfn.net         PART 1 - APPLICANT CONTACT INFORMATION         APPLICANT INFORMATION         Are you a Kwanlin Dün First Nation Beneficiary and/or Citizen?       Are you a COMPANY? YES X NO         BENEFICIARY       CITIZEN         Company/Organization: Yukon Geological Survey, Government of Yukon         Address: P.O. Box 2703 (k:14)         City/Town:       YT         YT       YL3 ZG6         Contact Person:       First Name: Lipovsky         Email:       Phone No.:         Business Phone No.: (867) 657-8520         Centar Prior       Middle Name: Lipovsky         Parya. Lipovsky@yukon.ca       First Name: Email:       Middle Name: Preferred Method of Contact: Email:         Address:       Country: Canada       Phone No.:       Business Phone No: Business Phone No: (867) 667-8520         Country: Canada       Preferred Method of Contact: Email:       Preferred Method of Contact: Email:         This is to confirm that the person named above may act as the agent on behalf of the applicant(s).       Signed: Country: Canada         Email:       Date:       (co-applicant)	APPLICATION for LAND USE PERMIT KWANLIN DÜN FIRST NATION					
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Starp at herrade, Lands and resources with dssist and help guide citizens through the land application process. If you have questions or need help, please call limmy at 334-2746 or email limmy.kennedy@kdfn.net       Parcel Code Number: R-4A Date / Time Rec'd: 18-MAR-2021 / 14:57 hrs (office use only)         PART 1 – APPLICANT CONTACT INFORMATION       Are you a COMPANY?       Are you currently 19 years of age or older?         Are you a Kwanlin Dün First Nation Beneficiary and/or Citizen?       Are you a COMPANY?       Are you currently 19 years of age or older?         BENEFICIARY       CITIZEN       No       Business Licence #:       Image or older?         Company/Organization: Yukon Geological Survey, Government of Yukon Address: P.O. Box 2703 (k:14)       Territory/Province: YT       Postal Code: Y1A 2C6         Country: Canada       Phone No.:       Business Phone No: Business Phone No: Business Phone No: Business Phone No: Business Phone No: Canada       Middle Name:         Lipovsky       Panya       Preferred Method of Contact: Email       Middle Name:         Address:       City/Town:       Territory/Province: Phone No:       Postal Code: Contact: Email         City/Town:       Territory/Province: Phone No:       Postal Code: Contact: Email       Middle Name:         Address:       Territory/Province: City/Town:       Postal Code: Contact: Email       Postal Code: Contact: City/Town:         City/Town:       Date: Country: Canada       Phone No: Country: Canada	Shuff and United and December 2011 and the	Application Number:	2021-2-LO			
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Cent NO::       Business Phone NO:: (367) 567-3520         Email:       Preferred Method of Contact:         Panya.Lipovsky@yukon.ca       Email         AGENT ACTING ON BEHALF OF APPLICANT(S) (if required)       Middle Name:         Last Name:       First Name:       Middle Name:         Address:       City/Town:       Territory/Province:       Postal Code:         Country:       Phone No.:       Business Phone No:       Business Phone No:         Canada       Preferred Method of Contact:       This is to confirm that the person named above may act as the agent on behalf of the applicant(s).       Signed:       Date:       (applicant)         Signed:       Date:       (co-applicant)       Email       Email		Panya				
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# PART 2 – PROJECT PROPOSAL & LOCATION

### **PROJECT SUMMARY**

#### Describe briefly the activity or project you wish to undertake on settlement land:

This project entails establishing a long-term permafrost monitoring station in a peatland located 500 m west of Fish Creek, near the north end of Fish Lake. This site was one of 7 sites characterized by YGS and Yukon University within the Greater Whitehorse area (report to be published by March 2021 currently in preparation).

This station will be part of a territory-wide network of long-term permafrost monitoring stations maintained by YGS since 2007 (see <a href="http://ygsftp.gov.yk.ca/publications/yeg/yeg08/YEG/16-lipovsky.pdf">http://ygsftp.gov.yk.ca/publications/yeg/yeg08/YEG/16-lipovsky.pdf</a> and <a href="http://ygsftp.gov.yk.ca/publications/yeg/yeg14/yeg/7">http://ygsftp.gov.yk.ca/publications/yeg/yeg08/YEG/16-lipovsky.pdf</a> and <a href="http://ygsftp.gov.yk.ca/publications/yeg/yeg14/yeg/7">http://ygsftp.gov.yk.ca/publications/yeg/yeg08/YEG/16-lipovsky.pdf</a> and <a href="http://ygsftp.gov.yk.ca/publications/yeg/yeg14/yeg/7">http://ygsftp.gov.yk.ca/publications/yeg/yeg14/yeg/7</a> Lipovsky.pdf</a> for more background and previous results of this program).

Data collected from the Fish Lake site will allow us to better understand permafrost conditions specific to subalpine peatlands, which comprise one of several important geological settings where permafrost is encountered in southern Yukon.

#### PARCEL SIZE, LOCATION & SITE COORDINATES

Community, Local or Geographic Area: Fish Lake\_\_\_

Settlement Land Parcel (R, C or S#): KDFN R-4A \_\_\_\_

Legal Description (Lot, Quad, CLSR, LTO): N/A\_\_\_\_\_

What is the area (in hectares) of the extent of land being applied for?

AREA: 5 hectares (monitoring station equipment installed at a point location within a 5 ha peatland).

#### SITE COORDINATES

The applicant must flag the limits of the proposed project area.

The applicant must arrange an in-person on site visit with the KDFN Lands Officer and verify the GPS coordinates in writing below prior to submitting this application for review. The corners of the application area are to be flagged/marked.

• • • • • • • • • • • • • • • • • • • •		••		
Latitude/Northing	6724232 N		UTM Zone 8	
Longitude/Easting	485742 E			
Latitude/Northing				
Longitude/Easting				
NTS Map Sheet No.	Community or Local A Fish Lake	irea:		

## APPLICATION SKETCH

A detailed, legible, and drawn-to-scale sketch must be provided outlining the applied for area and including:

- The boundary and configuration of the proposed parcel,
- The dimensions (in metres) of all proposed parcel boundaries,
- The area (in hectares) of the proposed parcel,
- Any existing, surveyed properties or Road rights-of-way that are adjacent or near the parcel,
- Any existing roads, trails or pathways within or near the proposed parcel,
- Any road, trail or driveway that is proposed to be constructed to connect the parcel to a public road, street, or highway,
- All waterbodies and drainage courses within or near the proposed property,
- Any existing or proposed buildings or other improvements on or near the proposed property,

- An arrow indicating north,
- The scale at which the sketch is drawn,
- (Any other specific information as may be required by HLRD.)

See attached map.

## **PART 3 – SITE CHARACTERISTICS AND INFORMATION**

### **PLANNING and ZONING**

Applicable Land Use Plans or Community Plan in effect for the proposed project area: Fish Lake local area plan currently underway

Current Planning / OCP designation of the proposed project area: \_\_\_\_Undesignated\_

**Current zoning bylaw or zoning regulation designation for the proposed project area:** \_\_\_\_\_ Whitehorse Periphery Development Area Regulation

### SITE CHARACTERISTICS

Describe the Site Characteristics (topography, soil conditions, landscape features, vegetation coverage etc):

The site is located at ~1124 m elevation, within a small peat plateau (area of thick fibric peaty soil accumulation) which formed in a poorly-drained depression contained by a set of low (up to 10 m high) recessional moraine ridges. These moraine ridges were deposited near the end of the last ice age (prior to approximately 11,000 years ago), when the ice front paused for short periods during its retreat to the north.

The monitoring station is located on a palsa, which is a low (<1m high) raised mound produced by the heaving action of segregated ice that grows due to local groundwater movement or the migration of soil moisture within a peaty organic substrate.

Vegetation at the site is dominated by shrub birch (Betula glandulosa), sedges (Carex aquatilis), and brown mosses (Aulacomium, Tomenthypnum). The area is sparsely forested with mature white spruce (Picea glauca). Lichen and lowbush cranberry (vaccinium vitis-idaea) are found where drier soil conditions exist on raised palsa surfaces.

Describe any adjacent or nearby creeks, rivers, lakes or other bodies of water?

Fish Creek is located approximately 500 m to the east. The site is accessed by crossing a small, make-shift wooden foot bridge that crosses Fish Creek. One small (30-m long) thermokarst pond created by ongoing thaw of ice-rich permafrost is located approximately 100 m to the north of the monitoring station, within the surrounding peatland.

## **PART 4 – PROJECT DETAILS**

A clear, concise description of proposed development activity will help determine whether the development activity will require assessment under the YESAA. If an assessment is required, the applicant will be required to complete and submit a YESAA Form 1 application to the YESAB designated office. <u>When filling out the sections below, if the space provided is insufficient, please attach any additional pages you may need to fully explain any activity.</u> DETAILED PROJECT DESCRIPTION: Please described the details, scale, scope and nature of the proposed activity or project:

The permafrost monitoring station consists of a 1-inch PVC tube inserted into a 4.1 m deep borehole. 4 thermistor (temperature) probes are inserted into the tube to measure ground temperatures at 0m, 1m, 2m and 4.1 m depths. The thermistors are connected to a small Hobo data logger that is housed within a 6-inch square electrical junction box which is fastened at the top of the tube, about 50 cm above ground. Temperature readings from each thermistor are recorded every 2 hours and are stored in the data logger which must be manually downloaded at least once per year (although data may be downloaded more frequently (a few times per year) as required). The data logger is powered by 2 AAA batteries which must be changed annually.

Other activities that may occasionally be carried out on site to further characterize the permafrost may include: digging shallow soil pits (<1m depth) to examine soil structure; active-layer probing; vegetation surveys; and non-invasive ERT (<u>electrical resistivity</u> tomography) geophysical surveys.

TIMEFRAME: Provide an estimated schedule and overall timeframe from project commencement through to completion of development and potential restoration on the site.

It is proposed that the site would be maintained for at least 5-10 years, in order to evaluate whether there are any significant ground temperature changes occurring in response to climate change.

FUEL STORAGE AND CONTAINMENT: Please provide detailed information regarding the delivery, type, volume capacity and storage of fuel to be used on site. Also provide a fuel spill contingency plan.

N/A

EQUIPMENT: Please describe or list any equipment (heavy equipment, drills, pumps etc) intended to be used):

A hand-portable electric "Talon" hammer drill was used to drill the small diameter (2-inch) borehole into which the PVC casing was inserted into. (See <a href="https://talondrill.com/">https://talondrill.com/</a> for photos, demo video and exact specifications of this low impact system).

SITE PREPARATION: Describe all site preparation activities that will occur. Activities such as clearing, grubbing, stripping, drilling, burning of debris, construction of buildings or structures, and any earthworks. Include the use and type of any heavy machinery planned to be used in these activities.

Shallow soil pits up to 1 m deep may occasionally be dug by hand using a shovel. Once the soil structure is examined and described, a small (<1 kg) soil sample may be removed for lab analysis (e.g., soil texture and/or composition). Pits are filled in and surface organic layers and vegetation are replaced for minimal disturbance.

ACCESS: Explain how you will access the site, and if you plan to construct a new road or upgrade an existing access. Also confirm if or how others may be affected by your access plans.

Access is on foot, following a local horse trail. No roads will be constructed.

SERVICES & DISPOSAL: Describe provisions or requirements for:

Supply of Water (for drinking or other purposes): N/A

Garbage Disposal: Any garbage produced on site (e.g. from station maintenance activities, food wrappers, etc.) will be carried out.

Sewage (sanitary or grey water): N/A

**Overburden Disposal (organic soil and waste):** N/A

Brush and Tree Disposal: N/A

PROPOSED RESTORATION: Please describe how the site will be restored or reclaimed upon completion or decommissioning of the activity or project:

The station can be easily dismantled and removed in a single field visit whenever desired. The PVC pipe, temperature sensors and data logger would be pulled out and removed from site location. Any flagging tape will be removed and carried out.

## **APPLICANT CONSENT**

I/we have read all of the information contained in t	his application or have had it explained by a third party and fully understand it.
I/we certify that all submitted information is true a	nd correct to the best of my knowledge and belief.
I/we understand that any misrepresentation in this any land interest resulting from this misinformatior	application may invalidate this application and may result in the revocation of n.
I/we hereby acknowledge and confirm that the sub land for which I/we applied for prior to the approva this application be approved.	mission of this application does not grant me/us any rights to occupy or use the al and completion of all conditions attached to this land authorization, should
I/we have read all of the relevant regulations and p compliance with all requirements.	olicies and believe to the best of my knowledge that my/our application is in
The information contained in or attached to this ap Lands Act (2020). This information may be shared v Care will be taken to protect your personal informa	plication is being collected under the authority of the Kwanlin Dün First Nation with other persons or agencies for the purpose of reviewing the request for land. Ition.
SIGNATURE:	
Panya Lipovsky "signed electronically"	
Applicant:	Co-applicant:
Panya Lipovsky	
Date: February 22, 2021	Date:

### CHECKLIST

The checklist is to help you complete all applicable sections of this application and to ensure that all additional information is attached. Incomplete applications will not be accepted and will be returned to the applicant for completion.

All Land Use Applicants must provide:

#### Fully Completed Application

- Detailed Site Sketch
- $\hfill\square$  GPS coordinates verified by the KDFN Lands Officer
- □ Site flagged consistent with the GPS coordinates
- □ Other documents, permits, authorizations or approvals as may be required on a case by case or use-specific basis.

In addition, Commercial/Industrial Applications must also include:

- Business Plan or Project Plan
- Detailed Site Plan
- Copy of Business Licence
- For quarries and industrial applications, an operations plan and a decommissioning/rehabilitation plan
- Fee with the application





