



NIRB Application for Screening #125436

BBC Perfect Planet - Ahiak Migratory Bird Sanctuary (Karrak Lake) - Arctic Foxes

Application Type: New

Project Type: Scientific Research

Application Date: 1/16/2019 12:31:12 PM

Period of operation: from 0001-01-01 to 0001-01-01

Proposed Authorization: from 0001-01-01 to 0001-01-01

Project Proponent: Sarah Walsh
Silverback Films Ltd
Silverback Films, 1 Augustines Yard, Gaunts Lane
Bristol Bristol BS1 5DE
United Kingdom
Phone Number:: +44 (0) 117 992 7277, Fax Number::

DETAILS

Non-technical project proposal description

English: Project Title BBC Perfect Planet - Ahiak Migratory Bird Sanctuary (Karrak Lake) - Arctic Foxes There will be 4 members of crew present on location; Sarah-Jane Walsh – Field Director Alain Lusignan – Expedition Leader Ivo Norenberg – Camera Operator Tom Crowley - Camera Operator Perfect Planet is a 5-part wildlife television documentary series, which has been filmed over a 4-year period and is due to air on BBC1 in 2020. Episode 1 focuses on how changes in the distribution of sunlight across the globe drive unique animal behaviours and adaptations. Two of our key sequences will showcase how animals cope with periods of no sunlight and perpetual sunlight. We have already filmed the polar night in Ellesmere Island and now wish to film the Midnight sun in the Ahiak (Queen Maud Gulf) Migratory Bird Sanctuary. This location interests us because there is just a short 5-week window when there is no snow on the ground and it is a race against time for animals to rear their young and get ready for the rapidly approaching winter. Our primary objective will be to film arctic foxes at an active den to document the pups in their first few weeks as they begin to explore their new world beyond their den. An additional part of our filming activities will be to document the large numbers of snow geese that nest around Karrak Lake with the aim to film predation by foxes and other opportunistic predators such as wolves, wolverines and bears. We would also like to film some scenic landscapes with an unmanned aerial vehicle (drone) and wide shots to showcase the nesting goose colonies. There will be two members of the team at Karrak lake within the Ahiak Migratory Bird Sanctuary from the 15th May – 17th July 2019 and the other two members of crew will be present from the 9th June – 9th July 2019. The crew will be based at a permanent research station which has been in use ever summer since 1991 for migratory bird research. No additional camp or infrastructure will be needed. The crew will arrive when the bird research crew arrives and stay with them until they close camp on the 1st day of the research season and leave as the research station is being closed. This is the only location they will visit with the exception of stopping at Perry River to swap from a helicopter to a twin otter on departure. The crew will use commercial airlines to reach their point of entry and departure in Cambridge Bay, then charter aircraft as detailed below to reach the research station. All charter aircraft from Cambridge Bay is managed by the Polar Continental Shelf Program. These flights will be shared by the other scientific research teams who will also be working out of the research station. The flights are just used for moving people and equipment in and out of the location and not used for filming or scouting for fox den locations. Crew 1 Outbound: Twin Otter from Cambridge Bay to Karrak Lake – 3.5-hour return flight. Return: Helicopter from Karrak Lake to Perry River, then Twin Otter from Perry River to Cambridge Bay. We are using Perry River as a midway stop to save money on helicopter costs. a twin otter is unable to fly in to Karrak Lake due to unsuitable landing conditions. Crew 2 Outbound: Helicopter from Cambridge Bay to Karrak Lake, a twin otter is unable to make the journey this late in the season. Return: Helicopter from Karrak Lake to Cambridge Bay On location crew will travel on foot and in small boats (10ft aluminium with 16 hp engines) owned by the Karrak Lake Research Station to reach the mainland from the station, which is situated on an island. The research station have 3 boats in total which are stored permanently on site. The boats can only be used once the lake melts from around the 10th June and are just used for crossing from the accommodation which is situated on an island to the main land. Karrak Lake has been the subject of an extensive Arctic Fox study over the past 20 years. Due to the knowledgeable research scientist, it is one of the best places in the world to film at an active den with fox cubs. Arctic foxes - We will be following the advice of the scientific experts who will help us locate the best dens for filming. Filming will take place in a camouflaged blind/hide located close to the den location. The crew will also place remotely operated camouflaged cameras to film much closer to the fox dens (less than 10m). This is already being undertaken by scientists at the same location and involves putting the camera down as quickly as possible, ideally before the pups emerge from the den to avoid disturbance and may need occasional maintenance i.e. Battery changes and memory card swaps. Opportunities to do this will be carefully chosen to avoid disturbance and under the guidance of the scientists. Nesting Geese - One of the objectives will be to film predation on goose nests by arctic foxes and other predators. Filming will be conducted at a distance and the crew will not approach the nest at a distance deemed to cause disturbance to the geese. The crew will attempt to showcase the scale of the goose colony using a drone (unmanned aerial vehicle). This will be done after egg laying and prior to hatching and fledging when all geese are grounded and on the nest. These flights will only be done at the strict discretion of the research scientists. Take off and landing zones will be >100m from the nesting colony and flights will be conducted at a height which does not illicit any signs of disturbance such as head cocking or leaving the nest. Flights will be conducted at an angle to the birds rather than directly overhead to reduce disturbance. The team will begin at a 100m height above the geese and if no disturbance is seen this height may be reduced. At all times during flight a spotter will watch the behaviour of the geese through binoculars. The aim of these UAV flights will be to showcase the scale of these nesting geese and so generally flight will be high and wide. The team are staying with the Karrak Lake research station who have a pre-existing waste management plan; Dry garbage is burned, food waste is buried, recyclables returned to Cambridge Bay, human waste is buried, grey water released away from open water Potential environmental impacts and mitigation measures The camera operators have worked with

[illegible]

[illegible]

Inuinnaqtun: Havaagham AtiaBBC-kut Nunaryuatqiktut– Ahiaqmi Tingmitjat Tikitaqtut Nayugait (Hanningayuq) - TiriganniatTughiraqtum atia turaaqviitalu naunaitkutaitNick Jordan, QunngialiuqtiSilverback Qunngialiuqtit Limitit / Nunaryuatqiktut Qunngialiuqtit Limitit.Silverback Qunngialiuqtit, 1 St Augustine’s Yard, Gaunts Lane, Bristol, BS1 5DE, UKQaritauyakkut titiraqviat: nick.jordan@silverbackfilms.tv Hivayaut: +44 (0) 117 992 7257Sarah-Jane Walsh, Qauyihaiyi / Nunainnaqmi IkkuuqtiSilverback Qunngialiuqtit Limitit / Nunaryuatqiktut Qunngialiuqtit.Silverback Qunngialiuqtit, 1 St Augustine’s Yard, Gaunts Lane, Bristol, BS1 5DE, UKQaritauyakkut titiraqviat: sarah.walsh@silverbackfilms.tv Hivayaut: +44 (0) 117 992 7277Naallugit havaktit taapkualu/uniit pulaaqtit ikayuqtauniaqtut piinnarialiutit ataagutHitamauniaqtut qunngialiuqtit talvani qunngialiuqvianit;•Sarah-Jane Walsh – Nunainnaqmi Ikkuuqti•Alain Lusignan – Havaktinut Hivuliqti•Ivo Norenberg – Qunngialiuqtut•Tom Crowley - QunngialiuqtutHavaaghanit InirumayaitNunaryuatqiktut tallimanik qunngiaghalik anngutighanik unipkaaqtut, qunngialiuqhimayut hitamanik ukiunik qunngiaqtaghauplutik BBC1-mi 2020-nguqqat. Hivulliq qunngiagaghaq unipkaalluaqpagaat aallannguqpalliyuq hiqinnaarniq nunaqyuami ingilratjutaunyuk aulatjutauplutiklu anngutighat inuuhinut aulatjuhinnullu. Malruk qunngialiuqtaptinngit unipkaarahuat qanuq anngutighat aularaaqpagaighait hiqinnaaruiraangat hiqinnaanginnaraangallu. Qunngialiuqhimayaqqut nanuit unnuktumi Auyuittumi tajjalu qunngialiurumayaqqut unnuktumi hiqinnaaqtut Ahiaqmi (Ahiam Ikirahaanit) Tingmitjat Tikitaqtut Nayugainit. Hamna nuna ihumagilluaqpaktavut nainmat tallimanik Santiqhiiplutik havakvighaat aputaitillugununami imaalu hivikinihanik anngutighanut irniyuqtunik imaalu ukiaghamut parnaiyaiyunik. Havaaghalluariyumayaqqut qunngialiuqlugit tiriganniat piaraita hitimingnit qunngiaqlugit irniuhaaqtumit anivalliyunut hitimingnit. Ahiaqullu qunngialiuqpangniaqtugut amihuaryungnik kangurnik ivayut Hanningayumi naahurilugit qunngialiuqtaghat tirigannianit anguniaqtauyut ahiniklu anngutighanit taapkuatut amaqqunik, qalvingnik agharniklu. Qunngialiurumayaqqullu nunait ahiittut pinniqtut tingmitaqtitaigut (ingniqutilinnuagut) qulaanitlu piksaluqlutik takughaupkaiyunik upluinik kanguit.Havaaghaita NayugaitAhiaqmi Tingmitjat Tikitaqtut Nayugait Hanningayumi Qauyihaiyit Havakvianit - 67° 13' 59.99 N, -100° 15' 0.00 E Havakvighaat upluq hivitunialu pulaaqvighaat tamangnt munaqtauyunutMalruuniaqtut qunngialiuqtit Hanningayumi talvani Ahiaqmi Tingmitjat Tikitaqtut Nayugainit May 15-mit July 17-mut, 2019-mi ahiillu malruk qunngialiuqtit tikimanahuat June 9-mit July 9-mut 2019-mi. Qunngialiuqtit qauyihavilluami havagahuat atuqtauhimaghaaqtumi 1991-mit tingmitjanik qauyihaiyunit. Ahiaqut tupiqturahuanngittut ikluqpaliulaittutiklu. Qunngialiuqtit tikinniaqtut qauyihaiyit tikitpata nayuqlugillu tupiqtuqviat umighiilugu hivullianit upluanit qauyihaviiunit aullaqlutiklu qauyihaviiunit umiktaukpat. Hamnatuaq nuna pulaaqniaqhimayaat kihimi nutqarlutiklu Kuukyuami halikaaptamit tingmiarmunngaqlutik aullaqvighaanit.Qanuq aullaarahuatQunngialiuqtit aullaarahuat angiyukkut tingmiakkut tikivighaanut aullaqvighaanullu Iqaluktuuttiaqmi, talvanngat saataqlutik tingmiaqmik ilittuqhitihiimayutut ataani talvunga qauyihavighainut. Tamangnik saataqhimayait tingmiat Iqaluktuuttiaqmit munaqtauyut taapkuninnga Ukiuqtaqtumi Nunaqatigiingnit Aulapkaqtigut. Tingmiqatiqarniaqtut ikayuqtigiiklutit taapkualu qauyihaiyit havaqatigiit havangniaqhimayullu talvani qauyihavianit. Tingmivangniat agyaqtarlugit havaktit ingilrutaitalu havakviinut atuqtaulaittutiklu qunngialiuqtunit tirigannianik hitihiurutigilugilluuniit.Havaktiit 1 Aullaqtiqviat: Malruklingmiaq Iqaluktuuttiaqmit Hanningayuqmut – pingahunik avvaaniklu ikaaqqunik tingmiyughat. Utiqlutik: Halikaaptakkut Hanningayumit Kuukyuamut, talvanngat malruklu Kuukyuamut Iqaluktuuttiaqmunngaqlutik. Kuukyuamut nutqaqvinahuaqtaqqut akunngani maniktuqpallaaqtailipluta halikaaptat akighainik. Malruklingmiaq mittaqtulainmat Hanningayumi milvighaillamut.Havaktiit 2Aullaqtiqviat: Halikaaptakkut Iqaluktuuttiaqmit Hanningayumut, malruklingmilainmat talvunga

kinguvaqtinmat.Utiqlutik: Halikaaptakkut aullaqlutik Hanningayumit Iqaluktuuttiaqmut Havakvianit havaktut aullaqpangniat pihughutik mikiyukkullu qayakkut (10 feet-nik takiyaaqtunik 16 hp-nik ingniqutiqlutik) nanminiriyayut Hanningayumi Qauyihavqianit ikaarutighait ahiarmut qauyiharvingnit, qikiqtamiittumit. Qauyihaiyt havakviat pingahunik qayalgit naallugit tutquumavaktut qauyihavqianit. Qainnat atuqtauvaktut tahi q hikuiraangat June 10 haniani ikaarutauvaghutik hiniktarviinit qikiqtamit talvunga ahiarmut.Ilittuqhitit havaanginnit naunaitkutalluHanningayuq tahi q qauyihaivilluanguvaktuq Tirigannianik 20 ukiut naallugit. Ilihimmattiaqtumik qauyihaiyiqaghutik, qunngiaghaliuqvittuq nuna nunaquyumi tamaat hitiqarami tiriganniat piarainik. Tiriganniat – uqauhiita qauyihaiyt ayuittut naalakpangniaqtaqqut paqittinahuaqluta hitinik qunngaliuqtaghat. Qunngialiupangniat ilitturinnaittumik iiraqturviqarlutik haniani hitiita. Qunngialiutit qunngaliuqpanniat ilitturinnaittunik piksalitikkut qunngialiuriamik qanilruanit hitiit (10 meters avatqutaililugu). Taimaa qauyihaiyt havakpaliqtut talvani nayugaanit imaalu piksalitait qilamiurahuaghutit ipirarahuaqpagaat, tiriganniat piarait nuitinnatik hitimit kuinginnainnahuaqhutik ilaanilu ihuaqhaqtauvagtughat taapkua patuliit himiqhugit tutquumaviillu aallannguqtighugit. Himmiqhivighait taapkuninnga pittirarahuaqpangniat kuinginnainnahuaqhutik uqauhiigut qauyihaiyt.Ivayut kanguit – Atauhiq havaariyumayaat taimaa qunngialiuglutit angunahuaqtut kangurnik tiriganniat ahiniklu anngutighanik. Qunngialiupangniat ungahiaqtumit taapkualu qunngialiuglutit upagahuaqtailivangniarait upluta kuinginnautilugit kanguqnut. Qunngialiuglutit tamatkirahuaqniaqtait piksalitikkut kanguit nayugait tingmitaqtukkut piksalitikkut (inuittuq tingmitaqtuq ingilrutik). Taimaa piksaluqpagahuat ivalirumik maninik ahiruqtiqtinnagillu manniit tamangnik kanguit uplunit ivalirumik. Taapkua tingmitaqtut piksalitit atuqtauvangniat pitquyagumik qauyihaiyinit. Aullaqtitauvangniat mittaqtutitaulutik 100 meters haniani uplunit kanguit tingmipkaqtitauvangniatlu aktuqtailiplugit niaquinut upluniklu qimagahuaangamik. Tingmitaqtunik tingmipkaivangniat haniaguqhutik qulauhimaittumik kuinginnainnahuaqhutik. Qauyihaivangniat 100 meters-nik qulaagut kanguit imaalu kuinginnaitkumi kangurnut atpaghivangniat. Tingmitaqtuq tingmitillugu munaqtiqaqpangniat qunngiaqtumik kanguqnik qinngutikkut. Tingmitaqtunik UAV-nik ingilrapkaivangniat tautuktittiyaamik amihuaryuita kanguit talvuuna qulvahiktumi tingmivangniat.IqqakuitHavaktiit nayurahuagtaat Hanningayumi Qauyihavvik talvani iqqakuiniqmik parnaiyautilgit; paniumayut iqqakuit ikulattiyauvaktut, niqivaluit iqqakuit hauyauvaktut, atuqtautqilaqtut utiqtitauvaktut Iqaluktuuttiaqmut, annakuit hauyauvaktut, kuvvikuillu immat kuviyauvaktut imariktut ahianitAvatinut mihingnautaulaqtut ihuaqhautillu havauhiitQunngialiutit qunngialiuhimavagait tiriganniat hivuani talvuuna pitquhiit naluhuiqhimaliqtait taimaalu ilittuqhiyaamik kuinginnautinik ihumaaluutuniklu. Taapkua amirnaqhiyut anngutighat tautungniarahugiyaqqut taapkuanguyut Tuktuit, Aghait Umingmaillu. Qunngialiulaaruptitku, qunngialiurumayaqqut pitquhiita hapkua anngutighat. Amirnaittumik qunngialiulaarupta kuinginnautihimaittumik anngutighanut qunngialiurahuagpanniat hivuraaniillutik anuqqimit amirnaittumillu piksaluqlutik.Havauhighat amirnainniqmut anngutighanik paqittinnirumikAmirnaqtunik anngutighanik paqittiniarahugiyut;Amaruq (Canis lupus arctos); Aghaq (Ursus arctos); Qalvik (Gulo gulo); Umingmak (Ovibos moschatus).Tamangnik nunainnaqmi havaktut hiqquutilgiarniat/titirautiqpaluktuniklu hiqquutinik qaryughainiklu, tamangniklu havaktit tigumiaqpangniat agharnut ihilatjutinik. Nunainnaqmi havaktit haatkaalgiaqpangniattaug iharianaqhikpat atuqtaghainik, havaktinut hivuliqti iniqhimaliqtat taamna Kaniitian Hiqquutiliqiyit Amirnainniqmut Ilihaqtaghaat, tigumiaqtiuliqhuni Tigumialaaliqtuq Piinnarialiutulu laisiutaanik,Nunallaaqnit katimayut ilaupkaiyulluHapkua havakviit hivayaqpangniaqtavut January-mi hapkua naunaitkutat numiktitaataaqqata;•Iqaluktuuttiami Anguniaqtit Naniriaqtuqtillu Katimayit •Uqhuqtuumi Anguniaqtit Naniriaqtuqtillu Katimayit•Umingmaktuq HTOHavakvighaqqut hivikiyaaramik ayurnaqpiaqtuq katimaqatigiyaamik nunallaaqmiut hulilukaaqatigiyaamiklu

kihimi tamangnik nunallaat aajjikkutaliuqhimayunik iniqhimayunik havaaghavut
naunaitkutainik tuniyauniaqtut qunngiaghat takughauliqqata qunngiarutininik nunaquyumi
tamaat. Iqaluktuuttiaqmiinniaqtugut atuqlugit hiniktarviit, niriviit taaksiillu qunngialiutqinut
tikitpata hunaqutighaillu qauyiharviup havakviat munaqtauvingniat
Iqaluktuuttiaqmit. Hivunighami parnaiyautit hapummiyauyunut nunanithivunighami
parnaiyautaittugut talvani Ahiaqmi Tingmitjat Tikitaqtut Nayugainit hapkua iniqtauqpata.
Iniqvighaat aullaarvikput hamunga inirutauniaqtuq qunngialiutqunut tamangnut
qunngialiutqait takughauniaqtut qunngiarutinit nungutinnagu ukiuq 2020

Personnel

Personnel on site: 4

Days on site: 64

Total Person days: 256

Operations Phase: from 2019-05-15 to 2019-07-17

Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
Karrak Lake Research Station	Scientific/International Polar Year Research	Crown	The research station at Karrak Lake was established by Dr Ray Alisauskas and the Canadian Wildlife Service in 1991. It is located on the largest island in Karrak Lake and it consists of 4 permanent cabins today.	There are lots of Inuit artifacts in the region - tent rings, meat caches, inukhuks (stone cairns), stone igloos (which may have been used as caches), kayak racks, blinds, and a stone corral.	Ahiak Migratory Bird Sanctuary (Karrak Lake)

Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
Cambridge Bay	cambay@kitikmeothto.ca	Ekaluktutiak Hunters & Trappers Organization	2019-01-15
Gjoa Haven	gjoa@kitikmeothto.ca	Hunters' and Trappers' Organization	2019-01-15
Cambridge Bay	Peter Kapolak chimo@kitikmeothto.ca	Umingmaktok HTO	2019-01-15

Authorizations

Indicate the areas in which the project is located:

Kitikmeot

Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Canadian Wildlife Service	APPLICATION FOR A National Wildlife Area permit or A Migratory Bird Sanctuary Permit	Applied, Decision Pending		
Transport Canada	Special Flight Operations Certificate - to use unmanned air vehicle (UAV) for filming	Not Yet Applied		
Other	Nunavut Planning Commission	Applied, Decision Pending		

Project transportation types

Transportation Type	Proposed Use	Length of Use
Air	Twin Otter and 206 LR Helicopter - transport from Cambridge Bay to Karrak lake	
Water	Boat 10ft aluminium with 16 hp engines - permanent camp is on an island these boats are used to gain access to main land on a daily basis	
Land	Foot	

Project accommodation types

Permanent Camp

Other,

Material Use

Equipment to be used (including drills, pumps, aircraft, vehicles, etc)

Equipment Type	Quantity	Size - Dimensions	Proposed Use
Aircraft	1	twin otter	The crew will use commercial airlines to reach their point of entry and departure in Cambridge Bay, then charter aircraft as detailed below to reach the research station. All charter aircraft from Cambridge Bay is managed by the Polar Continental Shelf Program. These flights will be shared by the other scientific research teams who will also be working out of the research station. The flights are just used for moving people and equipment in and out of the location and not used for filming .
Boat	1	10ft	On location crew will travel on foot and in small boats (10ft aluminium with 16 hp engines) owned by the Karrak Lake Research Station to reach the mainland from the station, which is situated on an island. The research station have 3 boats in total which are stored permanently on site. The boats can only be used once the lake melts from around the 10th June and are just used for crossing from the accommodation which is situated on an island to the main land.
DJI Inspire Drone	1	60cm	Aerial Filming
Camera equipment	1	various	Filming

Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Propane	fuel	1	1	1	Liters	Cooking - this is provided and managed by the Karrak Lake Research Station who are providing our crew with cooked meals. Karrak Lake have a Task Hazard Analyses (THA) and Safe Work

						Procedures (SWP) in place for the use, maintenance and disposal.
Diesel	fuel	1	1	1	Liters	On location crew will travel on foot and in small boats (10ft aluminium with 16 hp engines) owned by the Karrak Lake Research Station to reach the mainland from the station, which is situated on an island. The research station have 3 boats in total which are stored permanently on site. The boats can only be used once the lake melts from around the 10th June and are just used for crossing from the accommodation which is situated on an island to the main land. This diesel is provided by Karrak Lake and there is a Task Hazard Analyses (THA) and Safe Work Procedures (SWP) in place for the use, maintenance and disposal.
Turbo B Fuel	fuel	1	1	1	Liters	The main cabin is heated by an oil stove that burns waste turbo fuel. Turbo B (turbo B is a mixture of ~2/3 kerosene and ~1/3 naptha (the latter also known as white gas)) instead of kerosene). This is provided by and managed by Karrak Lake Research Station, who have Task Hazard Analyses (THA) and Safe Work Procedures (SWP) in place for the use, maintenance and disposal.

Water Consumption

Daily amount (m3)	Proposed water retrieval methods	Proposed water retrieval location
0	Water is obtained by melting snow/ice or collecting lake water. In spring, pack galvanized pails with snow or ice and placed on the oil stove.	Water is primarily used for water and drinking. Showers are limited to 1 per week

Waste

Waste Management

Project Activity	Type of Waste	Projected Amount Generated	Method of Disposal	Additional treatment procedures
Camp	Combustible wastes	1	Dry garbage is incinerated in the burning barrels east of the cabin.	n/a
Camp	Non-Combustible wastes	1	All “non-burnables” (tin cans, various metals, glass, etc.) are shipped to Cambridge Bay for disposal.	n/a
Camp	Overburden (organic soil, waste material, tailings)	1	Compost is dumped into pits near the burning barrels (see below) and then immediately buried, to prevent access by bears. Until we are ready to close a pit, compost bags can be placed in metal trunks, and rockedback, as for lou bags	n/a
Camp	Sewage (human waste)	2	2kg per day We deposit our biological wastes in a container called the Honey Bucket. This finereceptacle is found, not surprisingly, in the outhouse. Tampons and sanitary napkins are to be burnedand not deposited in the lou. Also, no peeing in the lou, please. Lou bags (and compost bags) aretemporarily stored in metal trunks located near the biffy. Once enough lou and compost bags haveaccumulated to fill a pit dug near the burn barrels, the bags are dumped, the plastic bags themselves areburned, and the pits are filled in with ash and soil.	n/a

Environmental Impacts:

The only species at risk that we expect to encounter are Rangifer tarandus, Ursus arctos & Gulo gulo. We would also like to opportunistically film these species natural behaviours. If any species at risk are sighted the crew will be sure to establish their location in proximity to where they are currently situated and their direction of travel. If it is safe to do so without disturbing the animal the crew will position themselves downwind and at a safe distance with the camera, we would expect this would be somewhere between 30-100m from the animals. However, if they seem calm and not

disturbed the crew may approach closer if it is safe to do so. Whilst travelling around generally the crew will avoid disturbing any nesting birds, particularly those listed above, the crew will be made aware of all species at risk present. Disturbance of arctic fox den sites - Team will be following the advice of the scientific experts who will help us locate the best dens for filming. The camera operators have worked with arctic foxes before and are familiar with their behavior and how to identify signs of disturbance and or stress. The crew will be working in a hide and will start at a distance of 100m for the den site and progressively move closer should there be no signs of disturbance, the aim would be to reach a distance of around 30m from the den location Disturbance of nesting Ross's and Lesser snow geese - The crew will follow the instruction of research staff regarding moving through, approaching and filming nesting geese. Filming will be conducted at a distance and the crew will not approach the nest at a distance deemed to cause disturbance to the geese. The crew will attempt to film the goose colony using a UAV. This will be done after egg laying and prior to hatching and fledging when all geese will be on the ground and on the nest. These flights will only be done at the strict discretion of the research scientists.

Additional Information

SECTION A1: Project Info

SECTION A2: Allweather Road

SECTION A3: Winter Road

SECTION B1: Project Info

SECTION B2: Exploration Activity

SECTION B3: Geosciences

SECTION B4: Drilling

SECTION B5: Stripping

SECTION B6: Underground Activity

SECTION B7: Waste Rock

SECTION B8: Stockpiles

SECTION B9: Mine Development

SECTION B10: Geology

SECTION B11: Mine

SECTION B12: Mill

SECTION C1: Pits

SECTION D1: Facility

SECTION D2: Facility Construction

SECTION D3: Facility Operation

SECTION D4: Vessel Use

SECTION E1: Offshore Survey

SECTION E2: Nearshore Survey

SECTION E3: Vessel Use

SECTION F1: Site Cleanup

SECTION G1: Well Authorization

SECTION G2: Onland Exploration

SECTION G3: Offshore Exploration

SECTION G4: Rig

SECTION H1: Vessel Use

SECTION H2: Disposal At Sea

SECTION I1: Municipal Development

Description of Existing Environment: Physical Environment

Description of Existing Environment: Biological Environment

Description of Existing Environment: Socio-economic Environment

Miscellaneous Project Information

Identification of Impacts and Proposed Mitigation Measures

Cumulative Effects

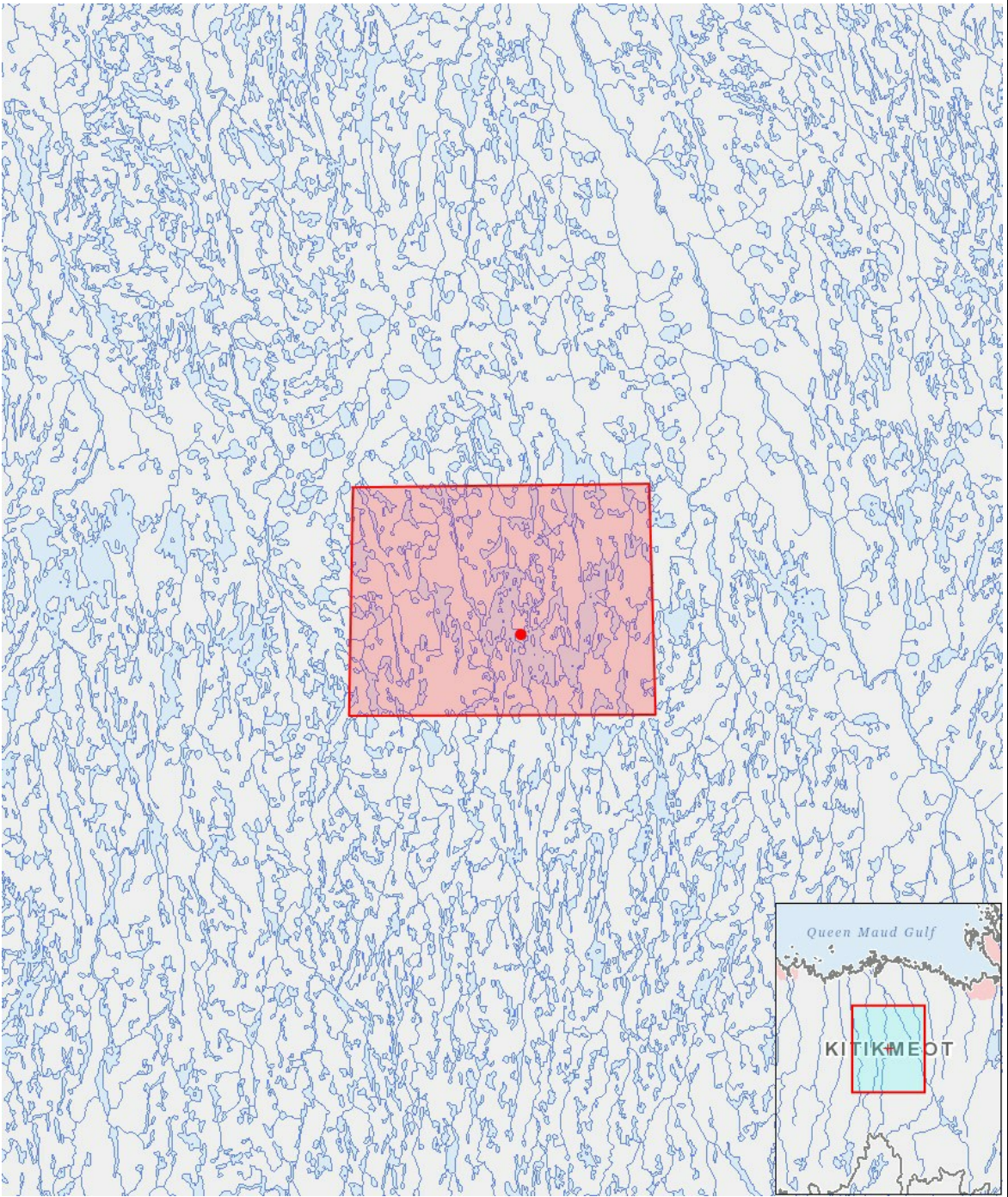
Impacts

Identification of Environmental Impacts

	PHYSICAL	Designated environmental areas	Ground stability	Permafrost	Hydrology / Limnology	Water quality	Climate conditions	Eskers and other unique or fragile landscapes	Surface and bedrock geology	Sediment and soil quality	Tidal processes and bathymetry	Air quality	Noise levels	BIOLOGICAL	Vegetation	Wildlife, including habitat and migration patterns	Birds, including habitat and migration patterns	Aquatic species, incl. habitat and migration/spawning	Wildlife protected areas	SOCIO - ECONOMIC	Archaeological and cultural historic sites	Employment	Community wellness	Community infrastructure	Human health
Construction																									
-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-
Operation																									
Scientific/International Polar Year Research		-	-	-	-	-	N	-	-	-	-	-	-	-	-	-	N	N	-	N	P	-	-	-	-
Decommissioning																									
-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-

(P = Positive, N = Negative and non-mitigatable, M = Negative and mitigatable, U = Unknown)

Project Location



List of Project Geometries

1	polygon	New project geometry
2	point	Karrak Lake Research Station