7th Floor - 4922 48th Street,
P.O. Box 2130, Yellowknife NT X1A 2P6

Tel: 867-669-0506 Fax: 867-873-6610
www.mvlwb.com

Preliminary Screening Determination and Reasons for Decision

Issued pursuant to section 121 of the *Mackenzie Valley Resource Management Act* (MVRMA)

Land Use Permit Application Preliminary Screening	
Preliminary Screener	MVLWB
Reference/File Number	MV2020Q0016
Company	Arctic Holdings and Leasing Ltd.
Project	Quarrying near Yellowknife, NT
Date of Decision	January 14, 2021

These Reasons for Decision set out the Mackenzie Valley Land and Water Board's (the Board or MVLWB) decision on the preliminary screening of a Type A Land Use Permit Application made by Arctic Holdings and Leasing Ltd. (Arctic Holdings) to the Board on December 7, 2020 for Land Use Permit (Permit) MV2020Q0016.

1.0 Project Summary

Arctic Holdings plans to develop and operate a new 42-hectare quarry to be located approximately 3.5 km west of the Hwy 3 / Deh Cho Blvd intersection near Yellowknife, NT. Land use activities include the operation of a semi-permanent asphalt plant, use of explosives, use of equipment, vehicles and machines, use of motorized earth-drilling machinery, storage of fuel, and construction of an access road.

Arctic Holdings is planning to implement the development of the quarry in three phases. Phase 1 includes drilling and blasting from the proposed access road, with granular material production beginning in roughly 100 m x 100 m blast areas. The Phase 1 area will be used as an operations area for crushing, stockpiling storage, and a location for facilities. Explosives will not be stored onsite, except temporarily in preparation for each blast. Arctic Holdings intends for Phase 2 to be developed following depletion of material from Phase 1, and that a Future Development Area will be developed following depletion of material from Phase 2.

A camp will not be needed for the quarry project. Mobile buildings will consist of an office/safety station/lunchroom trailer and portable sanitary facilities. The typical number of people on site will be 2-10 personnel per day, and work will mostly occur in the spring, summer, and fall seasons. Crushing and hauling may occur during the winter months.

Arctic Holdings intends to develop an all-season access road approximately 300 m long and 8 m wide to access the quarry from Highway 3. To accommodate a proposed scale area, Arctic Holdings plans to widen

the road to a total width of 20 m for an approximately 67 m section. The road would be doglegged to minimize sightlines from the highway and access controlled with a gate and signage.

Arctic Holdings will temporarily store garbage in wildlife-proof food waste containers prior to regular transfer to the Yellowknife Solid Waste Facility. Sewage will be regularly transferred from portable sanitary facilities to the Yellowknife Sewage Management System. Brush and trees will be cut and set aside if large enough for alternative use or will be mulched and added to overburden that will be excavated and stockpiled for future reclamation.

The following equipment, or that of a similar type, size, and number, will be used for the project:

Earthmoving, Blasting, Crushing, and Offsite Equipment

- 3 Pickup Trucks
- 1 Service Truck
- 3 Loaders (35 tonnes)
- 1 Winch Truck (14 tonnes)
- 1 Water Truck (7 tonnes)
- 3 Excavators (28 tonnes)
- 2 Articulated Rock Trucks (44 tonnes)
- 1 Mulcher (5 tonnes)
- 2 Rock Drills (5 tonnes)
- 1 Jaw Crusher (64 tonnes)
- 1 Cone Crusher (64 tonnes)
- 1 Screen Deck (54 tonnes)
- 1 Super Stacker (35 tonnes)
- 1 Feeder (35 tonnes)
- 1 Surge Bin (24 tonnes)
- 1 Power Van (15 tonnes)
- Crusher support Equipment (Offsite – Various sizes)
- Conveyors (Offsite – Various sizes)
- Dump Truck (Offsite – Various sizes)

Asphalt Plant Equipment

- 3 Cold Feed Bins (2 tonnes)
- 1 Conveyor (10 tonnes)
- 1 Bag House (50 tonnes)
- 1 Diesel Dryer (7 tonnes)
- 1 Pug Mill (20 tonnes)
- 1 Silo (5 tonnes)
- 1 Rap Bin (2 tonnes)
- 2 AC Oil Tanks (40 tonnes)
- 1 Oil Heater (0.25 tonne)

A maximum of 10,900 litres of fuel will be stored in two 5,000 litre double-walled tanks and two 450 litre tidy tanks. Refueling will be carried out with electric or hand pumps at dedicated refueling areas immediately adjacent to the fuel storage tanks.

Arctic Holdings will slope, regrade, and contour the site following operations to blend it into the surrounding landscape as much as possible. Reinstating natural drainage via grading and construction drainage channels will occur for reclamation. Arctic Holdings will undertake progressive reclamation as areas of the proposed quarry become depleted. For final closure of the quarry, stored topsoil and overburden will be returned and placed on top of disturbed areas, and natural revegetation will be used as the main strategy for revegetation. Trees and planting of native species will be utilized if natural regeneration is not being observed to be effective in a reasonable time.

Arctic Holdings has indicated that there are no water bodies in the quarry area, and do not anticipate deposition of waste into water, gravel washing, pit dewatering or building of structures that would affect watercourses.

2.0 Scope of Preliminary Screening

2.1 Scope

- Development and operation of a quarry;
- Operation of a semi-permanent asphalt plant;
- Use of explosives;
- Use of equipment, vehicles and machines;
- Use of motorized earth-drilling machinery;
- Storage of fuel; and
- Construction of an access road.

2.2 Principal Activities

- Construction
- Operation
- Quarry

2.3 Principal Development Components

- Access Road – construction
- Blasting
- Cutting of Trees or Removal of Vegetation
- Drilling other than Geoscientific
- Excavation
- Topsoil, Overburden or Soil – removal, storage
- Waste Management – waste generation, sewage, and disposal of sewage
- Site Restoration – re-contouring

2.4 NTS topographic map sheet number

85J07

2.5 Latitude / longitude and UTM system

NAD 1983 UTM Zone 11V

SW corner: 62.46188° N, -114.54013° W
NE corner: 62.46846° N, -114.52879° W

2.6 Nearest community and water body

Yellowknife; Fiddlers Lake

2.7 Land Status

Commissioner's Land

2.8 Transboundary/Transregional Implications

None

3.0 Land Use Eligibility – Section 18 Mackenzie Valley Land Use Regulation

Arctic Holdings holds Quarry Permit QP-2000019T from the Government of the Northwest Territories (GNWT) Department of Lands. Arctic Holdings is therefore eligible for a permit under subparagraph 18(a)(i) of the MVLUR:

18) A person is eligible for a permit who
(a) Where the proposed land-use operation is in the exercise of a right to search for, win or exploit minerals or natural resources,
(i) holds the right

4.0 Public Review

- November 26, 2020 – Land Use Permit Application received;
- December 4, 2020 – Application deemed incomplete;
- December 7, 2020 – Updated Land Use Permit Application received;
- December 8, 2020 – Application deemed complete and review commenced;
- December 29, 2020 – Comments and recommendations due and received;
- January 5, 2021 – Responses due and received; and
- January 14, 2021 – Application, including preliminary screening presented to the Board for decision.

Pursuant to Schedule 4.1 of the **Northwest Territory Métis Nation** (NWTMN) Interim Measures Agreement, the Board determined that written notice was given to the NWTMN and that a reasonable period of time was allowed for NWTMN to make representations with respect to the application.

Pursuant to subsection 1.6, paragraphs (*a*) and (*b*) of the **Akaitcho Territory Dene First Nations** (ATDFN) Interim Measures Agreement, the Board determined that written notice was given to the ATDFN and that a reasonable period of time was allowed for ATDFN to make representations with respect to the Application.

4.1 Preliminary Screener / Referring Body Information

The Type A Land Use Permit Application was distributed to the Distribution List for public review on the Board's Online Review System (ORS). As part of the public review, comments and

recommendations to assist with the Board's preliminary screening determination were requested. The organizations notified through the distribution list are included in Appendix A, Table 1.

5.0 Potential Impacts and Mitigations Table

Potential Impacts	X	Potential Project Impacts and Proposed Mitigations
ABIOTIC COMPONENTS		
Land		
Soil contamination	X	Potential soil contamination could occur due to a hydrocarbon spill. Any such spills will be immediately contained and cleaned up as per the Project Spill Contingency Plan.
Soil compaction	X	Soil compaction is unlikely to occur as the quarry is located in an area dominated by bedrock.
Destabilization/erosion	X	Potential for erosion is also limited but site design, various erosion controls, and other best management practices will be utilized to prevent erosion during operation of the proposed quarry including (but not limited to): silt fences or other measures to limit sediment movement, riprap or oversize to reinforce drainage channel corners and water discharge points.
Inability to support vegetation	X	As the quarry area is dominated by bedrock, the ability to support vegetation will be challenging. Natural revegetation will be the main strategy for revegetation. Tree planting and planting of native species will be utilized if natural regeneration is not being observed to be effective in a reasonable time period.
Water		
Permafrost		
Loss or change in extent	X	Permafrost degradation is not anticipated but will be avoided by following best management practices such as (but not limited to): limiting quarry depth to the active layer, minimizing in-pit water by directing surface water away from the site and thawing (if any encountered) of ice-rich materials at a location where the resulting meltwater will not re-enter the quarry.
Surface Water		
Water flow or level changes (permanent, temporary, seasonal)	X	The proposed quarry will be managed in a manner that minimizes water inflow and controls runoff. There is no anticipation of deposition of waste into water, gravel washing, pit dewatering or the building of structures that affect watercourses. Surface water will be diverted away from the development area with the use of berms, constructed swales and other site design considerations. Water in the pit will be minimized by utilizing gravity via swale construction and pit floor grading to naturally direct water out of the quarry.

Potential Impacts	X	Potential Project Impacts and Proposed Mitigations
		A ~200 m proposed drainage swale will be constructed utilizing natural directions of drainage to the southwest from the proposed quarry. The swale will be constructed to ensure drainage away from the proposed quarry during operations and will be integrated into the reclaimed state of the quarry.
Drainage pattern changes	X	The proposed quarry will be managed in a manner that minimizes water inflow and controls runoff. There is no anticipation of deposition of waste into water, gravel washing, pit dewatering or the building of structures that affect watercourses. Surface water will be diverted away from the development area with the use of berms, constructed swales and other site design considerations. Water in the pit will be minimized by utilizing gravity via swale construction and pit floor grading to naturally direct water out of the quarry. A ~200 m proposed drainage swale will be constructed utilizing natural directions of drainage to the southwest from the proposed quarry. The swale will be constructed to ensure drainage away from the proposed quarry during operations and will be integrated into the reclaimed state of the quarry.
Changes in water quality	X	The proposed quarry will be managed in a manner that minimizes water inflow and controls runoff. There is no anticipation of deposition of waste into water, gravel washing, pit dewatering or the building of structures that affect watercourses. Surface water will be diverted away from the development area with the use of berms, constructed swales and other site design considerations. Water in the pit will be minimized by utilizing gravity via swale construction and pit floor grading to naturally direct water out of the quarry. A ~200 m proposed drainage swale will be constructed utilizing natural directions of drainage to the southwest from the proposed quarry. The swale will be constructed to ensure drainage away from the proposed quarry during operations and will be integrated into the reclaimed state of the quarry.
Air		
Changes in air quality	X	Temporary, localized air emissions from the quarry equipment. Asphalt plant emissions include particulate matter which will be mitigated using a baghouse. They are estimated to comply with the Federal Government National Pollutant Release Inventory and reported if thresholds are exceeded. Dust will be managed by the application of water, as necessary.

Potential Impacts	X	Potential Project Impacts and Proposed Mitigations
Increased greenhouse gases	X	Minimal increase in greenhouse gases is anticipated for the quarry equipment and asphalt plant operation.
BIOTIC COMPONENTS		
Vegetation		
Direct loss of vegetation	X	The limited vegetation in the quarry area consists of primarily smaller diameter jack pine species, willow species, other woody brush species and grass species. Larger diameter trees suitable for alternative use will be cut a set aside. Small trees and brush will be mulched in place and removed along with organic overburden, low lying brush, grasses and soil.
Loss of Species at Risk or may-be-at-risk plants	X	None anticipated to be present in the quarry area.
Introduction of non-native (invasive) species	X	Only Yellowknife area mobile equipment will be used in the quarry area. Thus the risk of introducing non- native (invasive) species is expected to be low.
Effects on plant health (dust, metals, toxins)	X	The proposed quarry will produce dust during drilling, blasting and crushing operations. Dust will be mitigated using water sprayed onto the crushing operation, internal access roads and the main access road as needed. Minimal particulate matter will be produced by the asphalt plant.
Increased risk of fire	X	Risk of fire is anticipated to be low due to the bedrock dominated nature of the quarry area.
Terrestrial Wildlife Habitat		
Direct loss or removal of habitat, dens, or nests	X	Not anticipated to occur as the quarry area is dominated by bedrock and the limited vegetation clearing will be undertaken during the winter period.
Loss or removal of keystone species and/or Species at Risk habitat	X	The project overlaps with the range of the barren ground caribou (Threatened in the NWT) and the little brown myotis (Special Concern in the NWT) (GNWT-ENR, comment 1). Arctic Holdings will avoid or minimize impacts to these species by submitting a Tier 1 Wildlife Management and Monitoring Program (WMMP) to GNWT-ENR including mitigations for blasting activities by: 1) Surveying the area for the presence of big game prior to blasting; 2) Delaying blasting until all big game have moved outside of the range of influence; 3) If they do not move within 15 minutes, gently encouraging big game to move away from the site; 4) Deterrence should include the slow approach by vehicle towards the animal or making your presence known by calling out and waving your arms to encourage them to move, and 5) This should be done from behind a vehicle or piece of equipment to prevent personnel from going too close to the animal. Arctic Holdings & Leasing Ltd. will familiarize itself with the WMMP and will capture the statutory requirements related to wildlife and their habitat

Potential Impacts	X	Potential Project Impacts and Proposed Mitigations
		that commonly apply to development projects. If required, an Incident Report will be completed for all wildlife deterrent actions taken and submitted to ENR using the blank incident reporting form.
Direct injury or mortality	X	Blasting activities can result in injury or mortality of wildlife (GNWT-ENR, comment 2). Arctic Holdings will mitigate this risk by submitting a Tier 1 Wildlife Management and Monitoring Program (WMMP) to GNWT-ENR including mitigations for blasting activities by: 1) Surveying the area for the presence of big game prior to blasting; 2) Delaying blasting until all big game have moved outside of the range of influence; 3) If they do not move within 15 minutes, gently encouraging big game to move away from the site; 4) Deterrence should include the slow approach by vehicle towards the animal or making your presence known by calling out and waving your arms to encourage them to move, and 5) This should be done from behind a vehicle or piece of equipment to prevent personnel from going too close to the animal. Arctic Holdings & Leasing Ltd. will familiarize itself with the WMMP and will capture the statutory requirements related to wildlife and their habitat that commonly apply to development projects. If required, an Incident Report will be completed for all wildlife deterrent actions taken and submitted to ENR using the blank incident reporting form.
Disturbances to key lifecycle stages: breeding, feeding, nesting, staging	X	Blasting activities can be a disturbance to wildlife due to noise, light, vibrations, and human presence, and can result in energetic stress and loss of reproductive fitness (GNWT-ENR, comment 2). Arctic Holdings will mitigate this risk by submitting a Tier 1 Wildlife Management and Monitoring Program (WMMP) to GNWT-ENR including mitigations for blasting activities by: 1) Surveying the area for the presence of big game prior to blasting; 2) Delaying blasting until all big game have moved outside of the range of influence; 3) If they do not move within 15 minutes, gently encouraging big game to move away from the site; 4) Deterrence should include the slow approach by vehicle towards the animal or making your presence known by calling out and waving your arms to encourage them to move, and 5) This should be done from behind a vehicle or piece of equipment to prevent personnel from going too close to the animal. Arctic Holdings & Leasing Ltd. will familiarize itself with the WMMP and will capture the statutory requirements related to wildlife and their habitat that commonly apply to development projects. If required, an Incident Report will be completed for all wildlife deterrent actions taken and submitted to ENR using

Potential Impacts	X	Potential Project Impacts and Proposed Mitigations
		the blank incident reporting form.
Human-wildlife conflicts	X	Blasting activities can be a disturbance to wildlife due to noise, light, vibrations, and human presence (GNWT-ENR, comment 2). Potential wildlife attraction is anticipated to be limited due to the ongoing operation of quarry equipment and the asphalt plant. However, to minimize potential for attraction, food wastes will be temporarily stored in designated wildlife-proof food waste containers to be located at the site for regular transfer to the Yellowknife Solid Waste Facility (Landfill).
Aquatic Habitat		
Breeding disturbances	X	Not anticipated to occur as there are no water bodies in the quarry area.
CULTURAL COMPONENTS		
Cultural Integrity and Heritage Resources		
Change to or loss of heritage resource	X	The proposed quarry and road construction activities may place unrecorded archaeological sites at risk of impact (GNWT-PWNHC, comment 1). To mitigate this, the standard Permit conditions called Archaeological Overview and AIA – High Potential have been included in the Permit. Arctic Holdings is required to conduct an Archaeological Overview to identify areas of high and low potential for archaeological and burial sites and shall submit a summary report to the Board and Prince of Wales Northern Heritage Centre. Prior to disturbance in areas of high potential for archaeological or burial sites identified in the Archaeological Overview, the Permittee shall conduct an AIA of the sites where disturbance is planned and shall submit a summary report to the Board and the Prince of Wales Northern Heritage Centre.
Social and Economic Well-being		
Increased human health hazard and risk	X	The quarry project including the asphalt plant will pose some human health hazards and risks which will be managed through the diligent application of the Project's Safe Work Practices & Safe Job Procedures as per the Company Safety Manual.
Economic opportunities or losses (employment, training)	X	The new quarry project and asphalt plant will provide some economic opportunities including employment and associated training, similar to what has been previously offered at the at the NWT Quarry site in Yellowknife.

6.0 Preliminary Screening Decision

The Board is satisfied that the preliminary screening of Arctic Holdings and Leasing Ltd.'s Application for Type A Land Use Permit MV2020Q0016 for quarrying near Yellowknife has been completed in accordance with section 125 of the Mackenzie Valley Resource Management Act (MVRMA).

The Board is satisfied that communities and First Nations affected by the Application have been notified and provided adequate time to provide comment on the Application as required by land claim and self government agreements, the MVRMA, policy directions relating to Interim Measures Agreements, and any other applicable legislation and agreements.

Having reviewed all relevant evidence on the Public Registry, including the submissions of the Applicant, the written comments received by the Board and any Staff Reports prepared for the Board, the Board has decided that in its opinion:

- The proposed development will not have a significant adverse impact on the environment; and
- The proposed development is not a cause of public concern.

The Board is also of the opinion that the Application can proceed through the regulatory process and that any impacts of the development on the environment can be mitigated through the imposition of the terms and conditions in the Land Use Permit approved by the Board.

7.0 Conclusion

Land Use Permit MV2020Q0016 contains provisions that the Board deems necessary to ensure and monitor compliance with the MVRMA and the Regulations made thereunder, and to provide appropriate safeguards in respect of Arctic Holdings and Leasing Ltd.'s use of the land affected by the Permit.

SIGNATURE

Mackenzie Valley Land and Water Board

Mavis Cli-Michaud, Chair

January 20, 2021

Date

Appendix A

Table 1. Organizations included in the Distribution List for the Public Review of Type A Land Use Permit Application MV2020Q0016

Akaitcho IMA Implementation Office	GNWT - Lands - North Slave Region
Bathurst Inlet Development Ltd.	GNWT - Lands - South Slave Region - Fort Smith
Bathurst Inlet Lodge	GNWT - MACA (Municipal and Community Affairs)
Canadian Northern Economic Development Agency – NWT Region	GNWT - PPCA (Policy, Planning, Communications and Analysis (w/in ITI))
CIRNAC - Inspector	GNWT - PWNHC (Prince of Wales Northern Heritage Centre (w/in ECE))
CIRNAC-CARD	Golder Associates
City of Yellowknife	Hamlet of Fort Resolution
Dene Nation	Katlodeeche First Nation
Deninu K'ue First Nation	Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment
Det'on Cho Corporation	Mackenzie Valley Environmental Impact Review Board
Environment and Climate Change Canada	MVLWB
Equity Metals Corporation	North Slave Metis Alliance
Fisheries and Oceans Canada	Northwest Territory Metis Nation
Fort Resolution Metis Government	NWT & Nunavut Chamber of Mines
Forward Mining	NWT- OROGO
Ghotelnene K'odtineh Dene (Manitoba Denesuline)	Salt River First Nation
GNWT - ENR (Environment and Natural Resources)	Smith's Landing First Nation
GNWT - ENR - EAM (Environmental Assessment and Monitoring)	Snap Lake Environmental Monitoring Agency (SLEMA)
GNWT - ENR - North Slave Region	Tlicho Government
GNWT - ENR - South Slave Region - Fort Smith	Tlicho Lands Protection Department
GNWT - Executive and Indigenous Affairs	Town of Hay River
GNWT - HSS (Health and Social Services)	Wek' eezhii Renewable Resources Board
GNWT - INF (Infrastructure)	West Point First Nation
GNWT - ITI (Industry, Tourism and Investment)	WLWB
GNWT - Lands	Wood
GNWT - Lands - Hay River Region	Yellowknives Dene First Nation