



Nunatsiavut Construction Inc. (EA Reg # 2336) - Water Management Plan (5.0 ha Quarry Area) Veterans Memorial Bridge Quarry – Quarry File # 711:7605

June 14, 2023
(Quarry Permit Application Submitted)

February 17, 2025
(Water Resource Management Plan Submission Date)

Attached Documentation: Figure 1, Figure 2, Figure 3 & Google Earth Images

Introduction

The Veterans Memorial Bridge Quarry is a 5.0 ha quarry permit application (File #711:7605) for sand and gravel located 2 km west of the Veterans Memorial Bridge, and 11 km west of Happy Valley-Goose Bay, Labrador (**Figure 1**). Nunatsiavut Construction Inc. (NCI) is a wholly owned subsidiary of the Nunatsiavut Group of Companies (NGC) offering general contracting services to Happy Valley-Goose Bay, Lake Melville and the surrounding area. The Veterans Memorial Bridge quarry will provide materials needed to meet future industry growth while the location will ensure the operation meets the safety, environmental protection and regulatory approvals and requirements.

The submission of this Water Management plan is required for issuance of the 5.0-ha quarry permit (File #711:7605) and is conditional to its release from Environmental Assessment (Reg #2336). The quarry application area was previously issued to Glenn Corporation Ltd. under a former 5 ha quarry permit. Hickeys Contracting Ltd. operate two adjacent sand and gravel quarry permits (File# 711:7385 -5 ha & 711:9880 -3 ha - **Figure 2**). This water management plan will conform to the regulations for environmental protection set by the Water Resources Management Division of the Department of Environment and Climate Change.

Site Location and Access

The quarry project is accessed by an existing gravel road adjacent to the Trans Labrador Highway (TLH), ~11 km west of Happy Valley Goose-Bay on NTS Map Sheet 13F\07 (**Figure 1**). Existing quarry permits (File #711:9880 - 3.0 ha and 711:7385 – 5 ha) located 50 m to 200 m west of the proposed quarry project are operated by Hickeys Contracting Ltd. Both sites are accessed by a ~200 m long gravel road located south of the TLH and between the two quarry areas (**Figure 2**). NCI has submitted a 0.35 ha Crown Land (License to Occupy) application area to encompass part of the access road adjacent to the western permit boundary that contains an existing scale house and vehicle weigh scales (**Figure 3**).

The 5.0 ha quarry permit application area is buffered 50 m from an adjacent watercourse in the east, and 90 m from the TLH in the north (**Figure 3**). These buffer areas are forested and will

minimize direct views of the quarry from nearby receptors while protecting the surrounding environment. The elevation inside the proposed quarry permit application ranges from ~48 m to ~55 m above sea level (asl). The topography is mostly flat lying with a gentle decline towards the east. The existing quarry development area contains sloping quarry faces, in the natural sand and gravel, and a quarry floor at ~53 m asl.

Existing Site Plan

The site will be accessed throughout the year and operations will correspond with seasonal demand for the sand products. The existing access road enters the center of the western quarry permit boundary. Haul roads will be used by equipment inside the quarry to extract the materials and will gradually change to suit the operations. Development and maintenance of the access and haul roads will be completed using an excavator and/or grader as required.

The quarry permit area contains ~3.67 ha of undeveloped and naturally forested areas located in the north and south of the quarry permit boundary. A 5 m wide buffer zone along and within the permit boundary will remain undeveloped except near the western boundary adjacent to the access road. This buffer area will be used to create a berm from stripped overburden that will help to restrict access, control drainage and minimize site visibility. The topsoil removed during construction will be separated for preservation and used as later reclamation material to cover the site.

A 50 m wide buffer to a watercourse in the east is a requirement of the Mineral Lands Division of DIET and will provide a sufficient area for the natural filtering of any site water flowing beyond the permit boundary. The southern lease boundary is ~300 m north of the Churchill River and provides a vegetated buffer to protect the natural environment from any site water discharged from the quarry. The natural permeability of the underlying sand and gravel inside the quarry will prevent significant pooling of surface water.

Site Drainage

Surface water drainage from inside the quarry will be managed through installed drainage/collection ditches varying in length and depth to suit the footprint of the quarry floor. The ditches will direct drainage toward the southwest and away from the nearby brook. Check dams, hay bails and silt screen will be used as needed for filtration along the ditches and at the discharge point (**Figure 3**). In the occasion of a 1 in 100 year 24-hour climate change rainfall event, additional check dams, hay bales and silt screen can be implemented to filter or temporarily hold water allowing suspended particles to settle out prior to discharge. The water exiting the quarry will meet the quality standards outlined in the Environmental Control Water and Sewage Regulations, 2003.

The individual drainage channels (0.5 to 1 m deep) will direct surface water across the existing quarry floor for discharge along the southwest permit boundary. A depiction of the drainage channels for the development area is shown on **Figure 3**. Maintaining site drainage and minimizing pooling water on the quarry floor will be facilitated by the nature of sand and gravel

to filter and transmit surface water into the subsurface. The vegetated buffer zone will provide additional filtration and protect nearby water courses.

Adjacent Water Courses

The nearest watercourse to the quarry permit area is an unnamed brook located ~50 m east, and the Churchill River is located ~350 m south of the quarry boundary (**Figure 2**). The unnamed river (40 to 45 m asl) drains south into the Churchill River (0 to 1 m asl) and are both shown on 1:50,000 NTS scale provincial maps. Establishing and maintaining these vegetated buffer zones is a requirement of the Department of Fisheries, Forestry and Agriculture.

Quarrying Method and Production Related to Water Management

The project contains existing quarry development areas covering ~1.33 ha. Site clearing and cutting of the remaining 3.67 ha undeveloped area will be performed as required to expose additional underlying sand and gravel material. The stripped grubbing will be stockpiled or windowed in the 5 m buffer zone where no materials will be extracted (**Figure 3**). Topsoil will be separated and preserved for use as reclamation material to cover the site upon closure of the quarry and promote revegetation.

The quarry operations will include heavy equipment (excavator, front end loader, etc.) excavating sand and gravel from within the quarry area. Production will advance northward along a development face not exceeding 5 m in height (**Figure 3**). The annual production volume is anticipated to be 1,800 m³ and is considered small-scale for commercial quarry operations. At this production rate it would take over 40 years to exhaust the estimated available resources, but it should be noted that the annual requirements can fluctuate. Processing the sand and gravel within the quarry will utilize a mobile crusher/ screener set up to achieve product size specifications. The stockpiled products will then be loaded onto trucks and transported throughout the region.

Drainage channels ranging up to 300 m in length, and up to 1 m deep will direct surface water across the quarry floor to the southwest permit boundary (**Figure 3**). The channel locations will vary to fit the perimeter of the quarry footprint.

Site Water Management

The Water Resources Management Plan for the proposed quarry will utilise shallow drainage channels to collect overland runoff from the quarry and direct it toward the southwest quarry boundary (**Figure 3**) for controlled discharge. The discharge point will be monitored to ensure adequate filtration of site water using rock check dams, silt screens and/or hay bales prior to exiting the quarry. Should a 1 in 100-year 24-hour climate change rainfall event occur, additional containment inside the project area may be required to adequately remove suspended fine-grained particles. NCI commits to this Water Management Plan, ensuring that site runoff conforms to the Environmental Control Water and Sewage Regulations, 2003 and that siltation

will not enter the adjacent watercourses. A minimum 50 m buffer to all watercourses will be maintained as required by the Quarry Materials Division.

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Figure 2: Regional Map of Rivers, Waterbodies and Wetlands (1:50,000 scale map features)

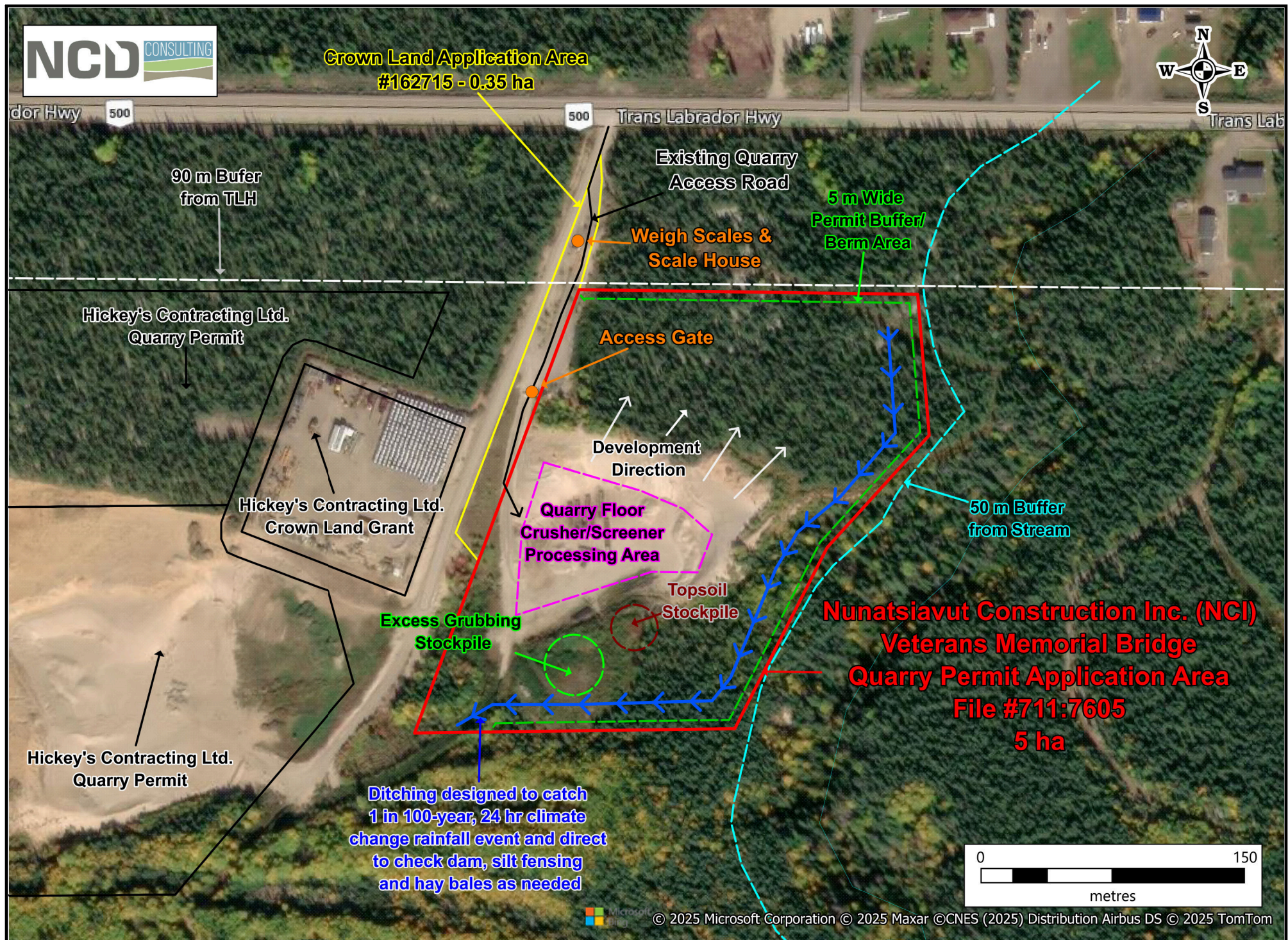


Figure 3: Detailed Quarry Application Area

Google Earth Images

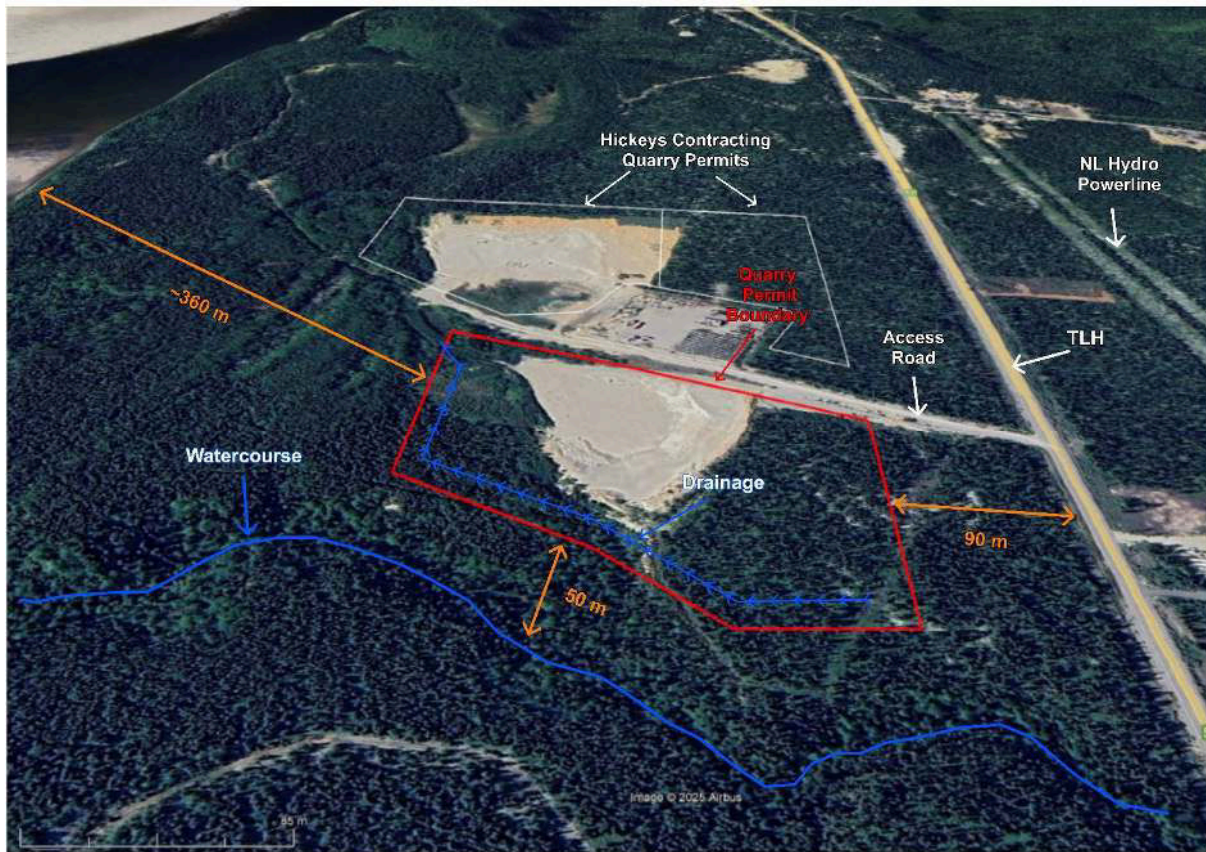


Plate 1: View of the quarry permit area looking west.

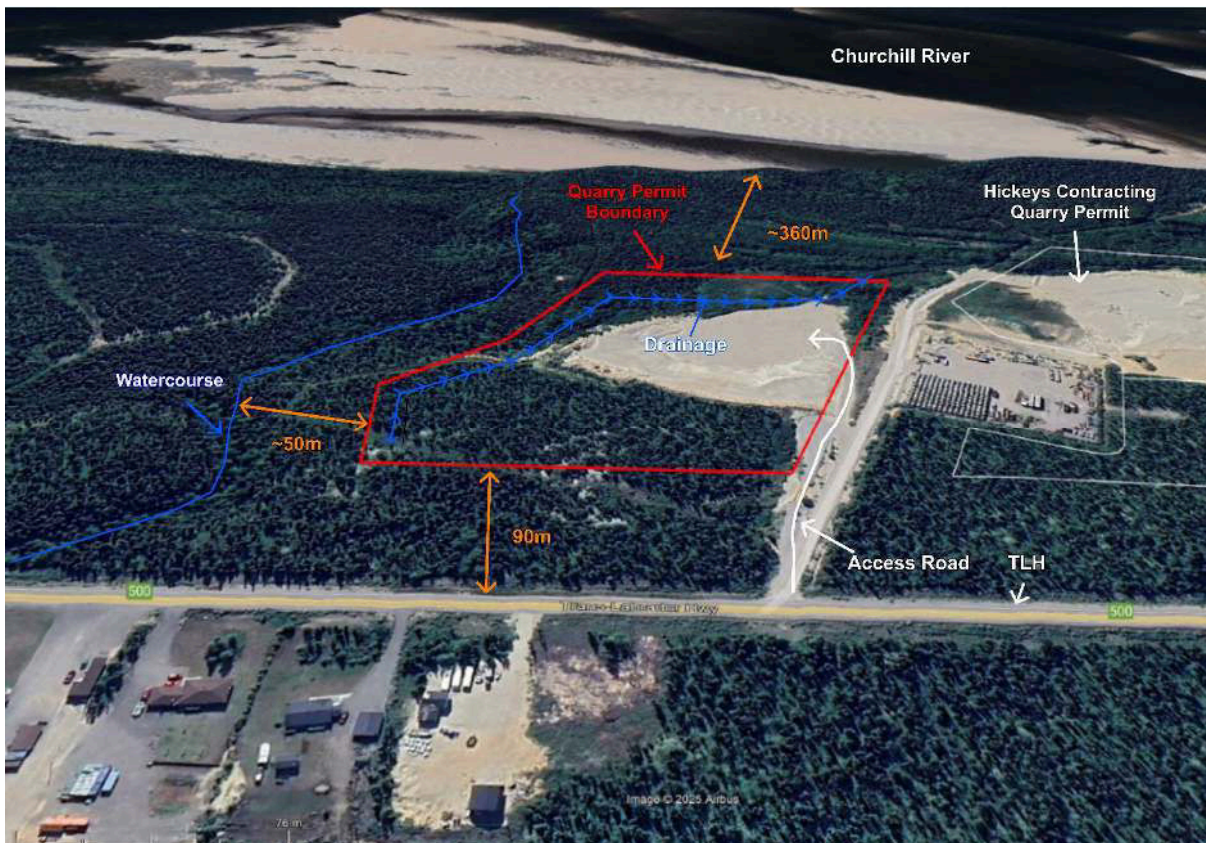


Plate 2: View of the quarry permit area looking south.



Plate 3: View of the quarry permit area looking east.

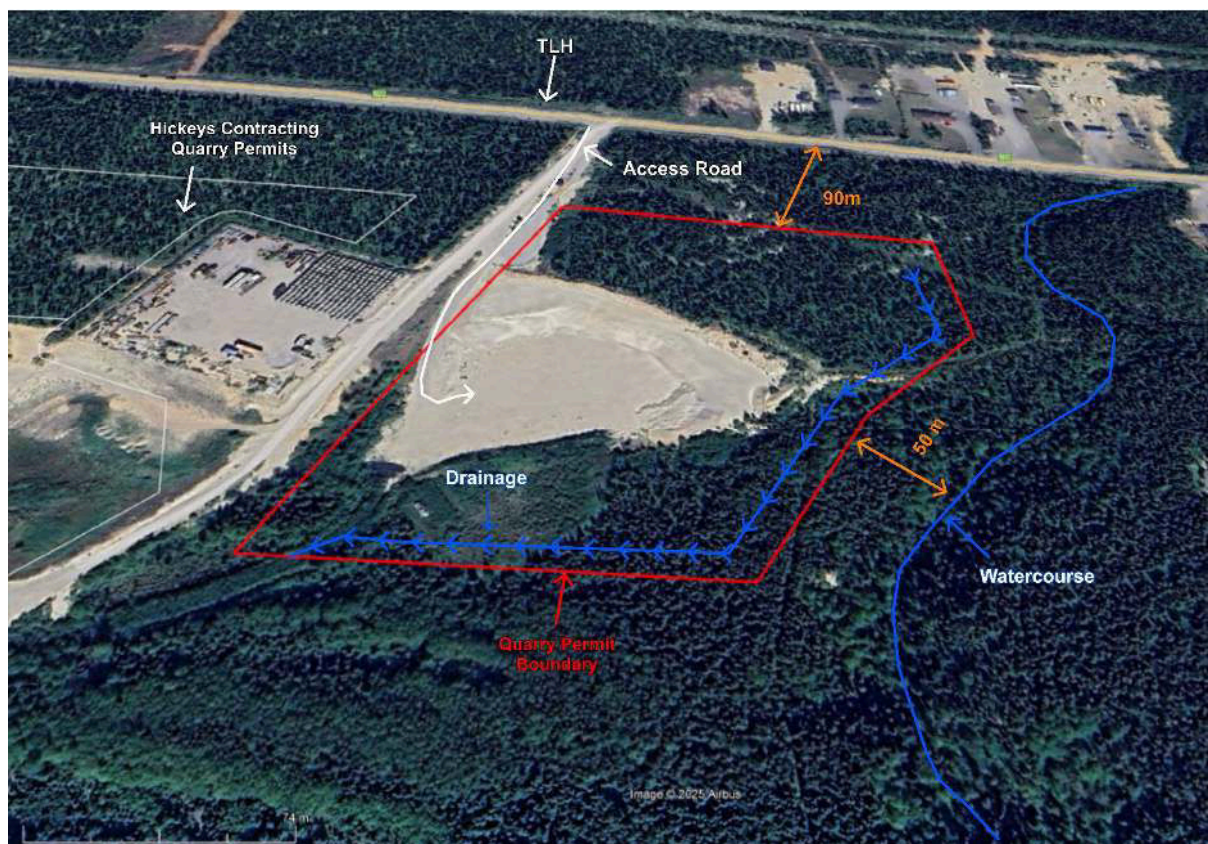


Plate 4: View of the quarry permit area looking north.