DILLON CONSULTING

NUNAVUT NUKKIKSAUTIIT CORPORATION

Project Proposal

Iqaluit Nukkiksautiit Project

April 2026 – 25-1319

April 6, 2026

Nunavut Nukkiksautiit Corporation
922 Niaqunngusiaq Road
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Iqaluit, Nunavut
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Project Proposal – Iqaluit Nukkiksautiit Project

Dillon Consulting Limited (Dillon) is pleased to submit this Project Proposal for the Iqaluit Nukkiksautiit Project (INP) on behalf of the Nunavut Nukkiksautiit Corporation (NNC). This document has been prepared to support review by the Nunavut Impact Review Board (NIRB) for project screening under the *Nunavut Planning and Project Assessment Act* (NuPPAA).

This document introduces the early plans for the Iqaluit Nukkiksautiit Project (INP). Inside, you will find our initial ideas for how the project will be built and run, what the local environment looks like, and the approval steps we need to take. It also explains how we plan to study the land, gather feedback, and most importantly, use Inuit Qaujimajatuqangit (IQ) to guide our decisions. Because this project is still in its early planning stages, the details here are just a starting point. We will continue to update and improve the design as we learn more from engineering studies, environmental fieldwork, and ongoing conversations with the community.

Should you have any questions or require additional information in support of this submission, please do not hesitate to contact the undersigned.

Sincerely,

DILLON CONSULTING LIMITED

Michelle Roche, EP, RPF
Associate/Project Manager

MR:sk
cc: Jill Byrne, Project Manager, Nunavut Nukkiksautiit Corporation

Our file: 25-1319

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Dillon Consulting Limited

Table of Contents

Figures

Tables

Appendices

References

Acronyms, Abbreviations, Definitions

CAAQS	Canadian Ambient Air Quality Standards
CEA	Cumulative Effects Assessment
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
DFO	Fisheries and Oceans Canada
ECCC	Environment and Climate Change Canada
ECR	Environmental Commitments Register
EIA	Environmental Impact Assessment
EIAS	Environmental Impact Assessment Scope
EIS	Environmental Impact Statement
EPP	Environmental Protection Plan
ESC	Erosion and Sediment Control
FEED	Front-End Engineering Design
GHG	Greenhouse Gas
GN	Government of Nunavut
HADD	Harmful alteration, disruption or destruction
HTA	Hunters and Trappers Associations
IAAC	Impact Assessment Agency of Canada
IQ	Inuit Qaujimajatuqangit (Inuit Traditional Knowledge)
INP	Iqaluit Nukkiksautiit Project
kV	Kilovolt
LPA	Local Project Area
MBCA	*Migratory Birds Convention Act*
Mm^3	million cubic meters
MW	Megawatt
NAD83	North American Datum 1983
NAPS	National Air Pollution Surveillance
NIRB	Nunavut Impact Review Board
NLUP	Nunavut Land Use Plan

NNC	Nunavut Nukkiksautiit Corporation
NPC	Nunavut Planning Commission
NRI	Nunavut Research Institute
NuPPAA	*Nunavut Planning and Project Assessment Act*
PDA	Project Development Area
QIA	Qikiqtani Inuit Association
RSA	Regional Study Area
SARA	*Species at Risk Act*
SAR	Species at Risk
SEIA	Socio-Economic Impact Assessment
TDG	Transportation of Dangerous Goods
TSS	Total Suspended Solids
VEC	Valued Ecosystem Component

Plain Language Summary

The Iqaluit Nukkiksautiit Project (INP) is an Inuit-led renewable energy project. It proposes to build a hydroelectric power facility in the Kuugaaluk River system on the Hall Peninsula. The Project is led by the Nunavut Nukkiksautiit Corporation (NNC), a 100% Inuit-owned clean energy company. The goal of the Project is to provide a reliable source of renewable electricity for Iqaluit and to reduce the use of diesel fuel brought in from outside Nunavut.

The Project would include a hydroelectric facility with a planned power capacity of about 15 megawatts (MW). Electricity would be produced by storing water from an existing lake and river system and releasing it through turbines. The main parts of the Project would include a dam, a reservoir, and a powerhouse with turbines and generators. Other water control structures, such as spillways and intake structures, would help manage water levels and flows. The reservoir is expected to cover about ~7,037 hectares, and water levels would be managed to support power generation while allowing water to continue flowing downstream.

Other Project infrastructure would include approximately 66 km of new all-season access roads, smaller roads within the Project area along the north section of reservoir, the 66 km transmission line will be twinned along the access roads right of way, to carry electricity to Iqaluit. A new substation near Iqaluit would connect the power to the existing electrical system. Temporary facilities, such as seasonal camps, work areas, and material borrow sites, would be needed during study and construction work. These temporary areas would be removed or restored once they are no longer needed.

Currently, the Project is still in the planning stage. The exact size, location, and design of Project components are being finalized. Details such as road routes, construction methods, water management plans, and operating rules will be updated as more engineering work, environmental studies, and Inuit engagement are completed.

The Project area includes tundra, frozen ground (permafrost), and freshwater systems that support fish, wildlife, and Inuit travel and harvesting. Inuit Qaujimajatuqangit (IQ), or Inuit knowledge, has played an important role in shaping the Project. IQ helps guide decisions about where Project components may be located, how access routes are planned, when work should happen during the year, and how wildlife, fish habitat, and culturally important areas are protected. IQ will continue to guide the Project through all future stages.

The Project is currently completing environmental, socio-economic and technical studies. These studies look at water flow, water quality, fish and wildlife, permafrost, and ground stability. The information collected will help prepare future environmental reports, including an Environmental Impact Statement (EIS), and will help improve Project design and safety measures.

The Project is being reviewed under the *Nunavut Planning and Project Assessment Act* (NuPPAA). It requires review by the Nunavut Planning Commission and screening by the Nunavut Impact Review Board (NIRB). Based on current information, the Project does not require a federal impact assessment. Federal permits will still be needed for specific activities, such as work in water or near navigable waters.

If the Project is approved and built, it could greatly reduce diesel use in Iqaluit, lower greenhouse gas emissions, and improve long-term energy security. The Project would also support Inuit jobs, training, and business opportunities. NNC will continue to work with Inuit communities, regulators, and partners to make sure the Project reflects Inuit values, protects the environment, and meets territorial priorities.

Executive Summary

The Iqaluit Nukkiksautiit Project (INP) is an Inuit-led renewable energy initiative proposing the development of a 15-megawatt (MW) hydropower facility within the Kuugaaluk River system, approximately 60 kilometres (km) northeast of Iqaluit. The Project is designed to deliver clean, renewable electricity to the city by harnessing waterpower from a major river and associated lake system.

The Kuugaaluk River system; meaning “big river” or “large river area” in local terminology is a large, interconnected watershed of rivers and lakes that supports travel, harvesting, and important ecological functions. These values have been identified and documented through Inuit Qaujimajatuqangit (IQ).

The Project is being advanced by the Nunavut Nukkiksautiit Corporation (NNC) to provide a long-term, reliable source of renewable energy for Iqaluit and to reduce reliance on imported diesel fuel, while respecting Inuit knowledge, land use, and environmental values.

This Project Proposal outlines the conceptual design, baseline field program, and anticipated regulatory pathway for the INP. It has been prepared to support both the Nunavut Planning Commission (NPC) conformity determination and the Nunavut Impact Review Board (NIRB) Screening under Section 3.1 of the NIRB Proponents’ Guide. Detailed engineering, modelling, and operational planning will occur as permitting progresses and as community-driven design refinements continue.

The Project concept includes a dam and reservoir, a powerhouse, access roads, temporary camps, and a transmission line connecting the facility to the Iqaluit grid. All component footprints and locations are conceptual and will be refined through engineering studies, multi-year hydrological and environmental monitoring, and ongoing Inuit rightsholder engagement.

At this early stage, the INP has the potential to materially reduce Iqaluit’s diesel consumption and greenhouse gas emissions, improve long-term energy cost stability, and strengthen Inuit leadership in clean energy development. The Project also presents opportunities for Inuit employment, training, and business participation during planning, construction, and operations.

This document provides an overview of the Project rationale, setting, proposed infrastructure, regulatory requirements, plans for socio-economic assessments and early design considerations. It summarizes the approach to engagement, the results of initial baseline data collection, and the preliminary identification of Valued Ecosystem Components (VECs).

The Project is being advanced not only as an energy infrastructure initiative, but as a long-term Inuit-owned asset intended to support employment, capacity development, and energy sovereignty in Nunavut. NNC remains committed to transparent, ongoing engagement with Inuit rightsholders, communities, regulators, and stakeholders. As additional field data, engineering details, and community perspectives emerge, the Project Proposal will continue to be refined to align with territorial priorities and regulatory review processes.

1.0 Introduction and Project Overview

1.1 Purpose and Scope

This Project Proposal has been prepared to support the Nunavut Planning Commission (NPC) conformity determination received on February 02, 2026, and Nunavut Impact Review Board (NIRB) screening under the *Nunavut Planning and Project Assessment Act* (NuPPAA). The purpose of this document is to describe the Project at a conceptual level sufficient to enable early regulatory screening and scoping.

This Project Proposal does not represent a final project design, does not seek approval of specific infrastructure configurations, and does not predetermine the outcomes of future environmental assessment, permitting, or regulatory decisions. Project design, alternatives evaluation, and effects assessment will continue to be refined through subsequent planning, multi-season baseline studies, and the Environmental Impact Statement (EIS) process.

The Iqaluit Nukkiksautiit Project (INP) has been developed to support energy transition and resilience in Nunavut (NU) through the displacement of diesel-based electricity generation in Iqaluit. The Project proposes to harness renewable hydropower from the Kuugaaluk River system to supply approximately 15 MW of clean, reliable energy, with the potential for future build-out capacity up to 30 MW. By offsetting imported diesel, the Project aims to advance territorial and federal clean-energy commitments while creating Inuit-led economic opportunities and supporting long-term community well-being.

The scope of this document includes a description of the proposed project components, anticipated construction and operational activities, potential environmental and socio-economic interactions, and the preliminary Valued Ecosystem Components (VECs) identified through early engagement and the Environmental Impact Assessment Scope (EIAS) process. It also outlines the roadmap for baseline studies, environmental effects assessment, cumulative-effects analysis, and ongoing consultation.

1.1.1 Status of Information (Baseline vs. Engineering)

This submission reflects the preliminary design phase and utilizes results from the 2024 site reconnaissance, 2025 terrestrial field summary, and a 41-year synthetic hydrological record to establish an annual inflow volume of approximately 767,902,000 m^3. For regulatory clarity, the information presented is categorized as follows:

- Investigative & Baseline Results: Includes data from completed site visits and ongoing hydrometric and weather data collection initiated in 2024/2025;
- Conceptual Engineering: Includes preliminary layouts for the ~66 km all-season access road, the parallel 66 km transmission line, and the main reservoir (FSL 550 m); and

- Future Design Confirmation: Final engineering parameters for permafrost-sensitive foundations (e.g., use of thermopiles or thermosyphons) and specific reservoir operating rules remain conceptual. These will be finalized following the 2025/2026 detailed geotechnical drilling program and geophysical exploration.

Nunavut Nukkiksautiit Corporation (NNC) is committed to maintaining ongoing engagement with regulators, communities, and stakeholders throughout all Project phases. This commitment includes the incorporation of community knowledge and Inuit Qaujimajatuqangit (IQ) into project design, monitoring, and future applications for a Type 'A' Water Licence from the Nunavut Water Board (NWB).

For clarity, this Project Proposal does not:

- finalize Project design, layout, or construction methods;
- establish reservoir operating rules, flow targets, or energy dispatch regimes; or
- assess the significance of environmental or socio-economic effects.

These elements will be addressed through subsequent phases of Project development and regulatory review.

1.2 Regulatory Context

The INP is currently permitted for investigate studies. Authorizations have been issued for water use, to operate a field camp, and to conduct research. The list of permitted activities is provided in **Table 1**. A preliminary list of approvals to evolve the Project beyond the investigative studies is provided in **Table 2**.

Table 1: List of Approved Activities for the Project

Authorization/Agency	Permit Number	Issued	Expiry	Scope of Activities
Land Use Conformity Determination (Nunavut Planning Commission) – for investigative studies	150770	2025-04-15	n/a	Conformity determination for environmental investigative studies
Screening (Nunavut Impact Review Board)	25YN033	2025-07-08	n/a	Screening determination
Class A Land Use Permit (Crown Indigenous Relations and Northern Affairs)	N2025N0016	2025-08-12	2030-08-11	Field camp
Scientific Research Licence (Nunavut Research Institute)	01 032 25N-A	2025-07-28	2025-12-31	Collection of environmental baseline data

Authorization/Agency	Permit Number	Issued	Expiry	Scope of Activities
	01 043 25R-M	2025-10-30	2025-12-31	Collection of environmental baseline data (hydro modelling)
Water Licence (Nunavut Water Board)	8WLC-INP2526	2025-07-16	2026-07-15	1 m^3/day use of water and deposit of waste
Wildlife Research Permit (GN Department of Environment)	2025-046	2025-06-15	2025-09-15	Assessment of existing wildlife populations and habitats in and around the proposed Project area
Class 1 Archaeology and Palaeontology Permit (GN Department of Culture and Heritage)	2025-11A	2025-06-04	2025-10-31	Assessment of archaeology and palaeontology findings in and around the proposed Project area
Licence to Fish for Scientific Purposes	S-25/26-1053-NU	2025-08-29	2025-09-15	Opportunistic fishing (e.g., angling, minnow traps) for the proposed reservoir area to collect preliminary data on fish species presence, relative abundance, condition.
Land Use Conformity Determination (Nunavut Planning Commission) – for investigative studies	151033	2026-02-02	n/a	Conformity determination for INP.

Table 2: Anticipated Approvals Required for the Project

Permit/Approval/ License/Authorization	Agency	Activity
Conformity Determination	Nunavut Planning Commission	Conformity to Land Use Plan Determination
Project Certificate	Nunavut Impact Review Board	Required to obtain further development permits and licences to proceed with the Project
Type 'B' Water Licence	Nunavut Water Board	Water use for pre-development of the Project
Type 'A' Water Licence	Nunavut Water Board	Water use, waste disposal and discharge to the environment for the Project

Permit/Approval/ License/Authorization	Agency	Activity
Archaeology Permit	GN Department of Culture and Heritage	Field investigations within proposed project footprint
Class 'A' Land Use Permit	Crown Indigenous Relations and Northern Affairs Canada	Development of hydro dam and related infrastructure on Crown Land
Fisheries Authorization	Fisheries and Oceans Canada	Authorization and appropriate compensation for development of hydro dam and related infrastructure in waterbodies
Navigable Waters – Application for Approval	Transport Canada	Authorization to construct on any navigable body of water

1.2.1 Federal Impact Assessment Act

At this stage, the Project is not listed under the Physical Activities Regulations of the federal Impact Assessment Act (**Appendix A**). The Project has been identified on the federal Nation-Building Projects List, reflecting its strategic importance in advancing clean energy, energy security, and long-term infrastructure development in Nunavut. This designation is intended to facilitate coordination among federal departments and agencies.

Territorial review under the Nunavut Planning and Project Assessment Act (NuPPAA) remains the primary regulatory pathway for the Project. Federal involvement is expected to occur through discrete regulatory authorizations such as those under the *Fisheries Act* and the *Canadian Navigable Waters Act* and through coordinated processes where applicable, without altering statutory requirements or the independence of the NPC and NIRB.

Any determination regarding the applicability of a federal impact assessment, including potential section 82 considerations, will be confirmed in consultation with the Impact Assessment Agency of Canada (IAAC) as Project scope and design continue to advance.

1.3 Proponent Information

Proponent: Nunavut Nukkiksautiit Corporation (NNC)
Type: 100% Inuit-owned clean energy corporation
Address: 922 Niaqunngusiaq Road, PO Box 1228 Iqaluit, Nunavut X0A 0H0
Contact: Heather Shilton, Director or Jill Byrne, Project Manager, NNC
Consultant: Dillon Consulting Limited – Environmental Assessment and Permitting Lead: Michelle Roche.

1.4 Project Overview

Project Name: Iqaluit Nukkiksautiit Project (INP)
Type: Hydroelectric Generation Facility
Capacity: 15 MW (approximately)
Location: Kuugaaluk River system, 60 kilometres northeast of Iqaluit

1.4.1 Community Benefits and Inuit-Led Opportunities

The INP is intended to deliver long-term community and socio-economic benefits beyond the provision of renewable electricity. As an Inuit-led initiative, the Project is being developed to strengthen Inuit participation, leadership, and capacity in clean-energy development while supporting Iqaluit's transition away from diesel-based power generation.

The Project presents opportunities for Inuit employment and skills development across all phases of Project planning, construction, operations, and monitoring. These opportunities are expected to include participation in baseline field programs, environmental monitoring, construction activities, operations and maintenance, and long-term asset management. Training and capacity-building will be integrated into Project delivery to support the development of a local workforce with transferable skills in renewable energy, environmental management, and infrastructure operations.

Long-term Inuit ownership of the Project is a foundational element of the INP. By advancing an Inuit-owned renewable energy asset, the Project supports energy sovereignty, increased local control over essential infrastructure, and long-term economic benefits that remain within Nunavut communities. These outcomes are being considered alongside technical and environmental factors as the Project continues to evolve through engagement and regulatory review.

1.5 Relationship to Energy Policy

The INP advances Nunavut's Climate Change Secretariat objectives, contributes to Canada's Indigenous Climate Leadership targets, and supports the QIA long-term clean energy priorities (Qikiqtani Inuit Association, 2024).

2.0 Project Location and Setting

2.1 Geographic Context

The INP is located within the Kuugaaluk River system on the Hall Peninsula, approximately 60 kilometres (km) northeast of Iqaluit (**Figure 1**). Site selection was guided by hydropower potential, low cultural conflict, and alignment with IQ site evaluation criteria (Nunavut Nukkiksautiit Corporation, 2025).

2.2 Coordinates and Mapping

Approximate Coordinates: 63°43'N, 68°28'W (North American Datum 1983 [NAD83]), Maps include:

- **Figure 1** Regional setting (1:250,000 scale);
- Regional Study Area (**Figure 2**);
- Archaeological and environmental sensitivity overlays (**Figure 3**);
- Environmental Study Areas (**Figure 4**);
- Land Use (**Figure 5**);
- Consolidated Layout: **Figure 6** (Project Layout) for the spatial relationship between the main dam and Iqaluit substation;
- Road and Transmission Alignment: The proposed all-season access road is approximately 66 km from the hydro plant to the new interconnection substation in Iqaluit, the 69 kV transmission line will follow the all-season access road corridor (**Figure 7**);
- Reservoir Configuration: The main reservoir Full Supply Level (FSL) is established at 550 m (**Figure 8**); and
- Temporary Camp layout (**Figure 9**).

2.3 Environmental and Cultural Setting

The Project Area (**Figure 1**) is characterized by Low Arctic tundra ecosystems, continuous permafrost, and a landscape shaped by frost action, shallow drainage networks, and glacial landforms. Vegetation communities include dry lichen tundra, mesic and wet graminoid tundra, and sparsely vegetated fellfield and riparian habitats (EcoLogics, 2025). Human activity in the area is seasonally limited, with intermittent travel, harvesting, and land use occurring along portions of the Kuugaaluk River System, as identified through IQ and early engagement with HTAs (NNC, 2025a).

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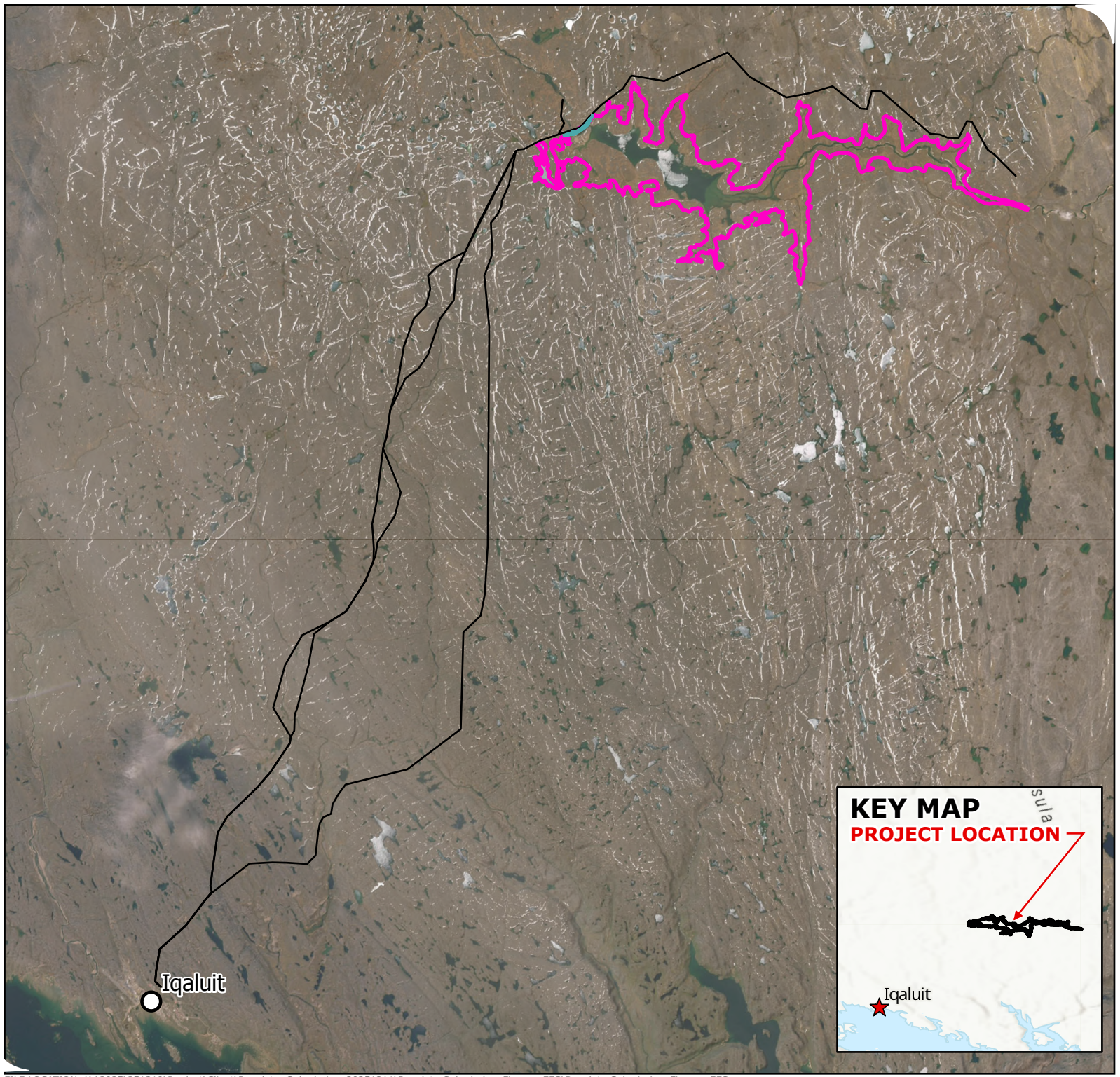
IQALUIT
NUKKIKSAUTIIT PROJECT

REGIONAL SETTING

FIGURE 1



- Iqaluit
- Dam
- Potential Access Roads
- Main Reservoir

MAP DRAWING INFORMATION DATA PROVIDED BY: NUNAVUT NUKKIKSAUTIIT CORPORATION, GOVERNMENT OF NUNAVUT, NATURAL RESOURCES CANADA, DILLON CONSULTING LIMITED, ECOLOGIC CONSULTANTS LIMITED

MAP CREATED BY: -EES
MAP CHECKED BY: -MR
MAP PROJECTION: NAD 1983 CSRS UTM Zone 19N

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STATUS: DRAFT
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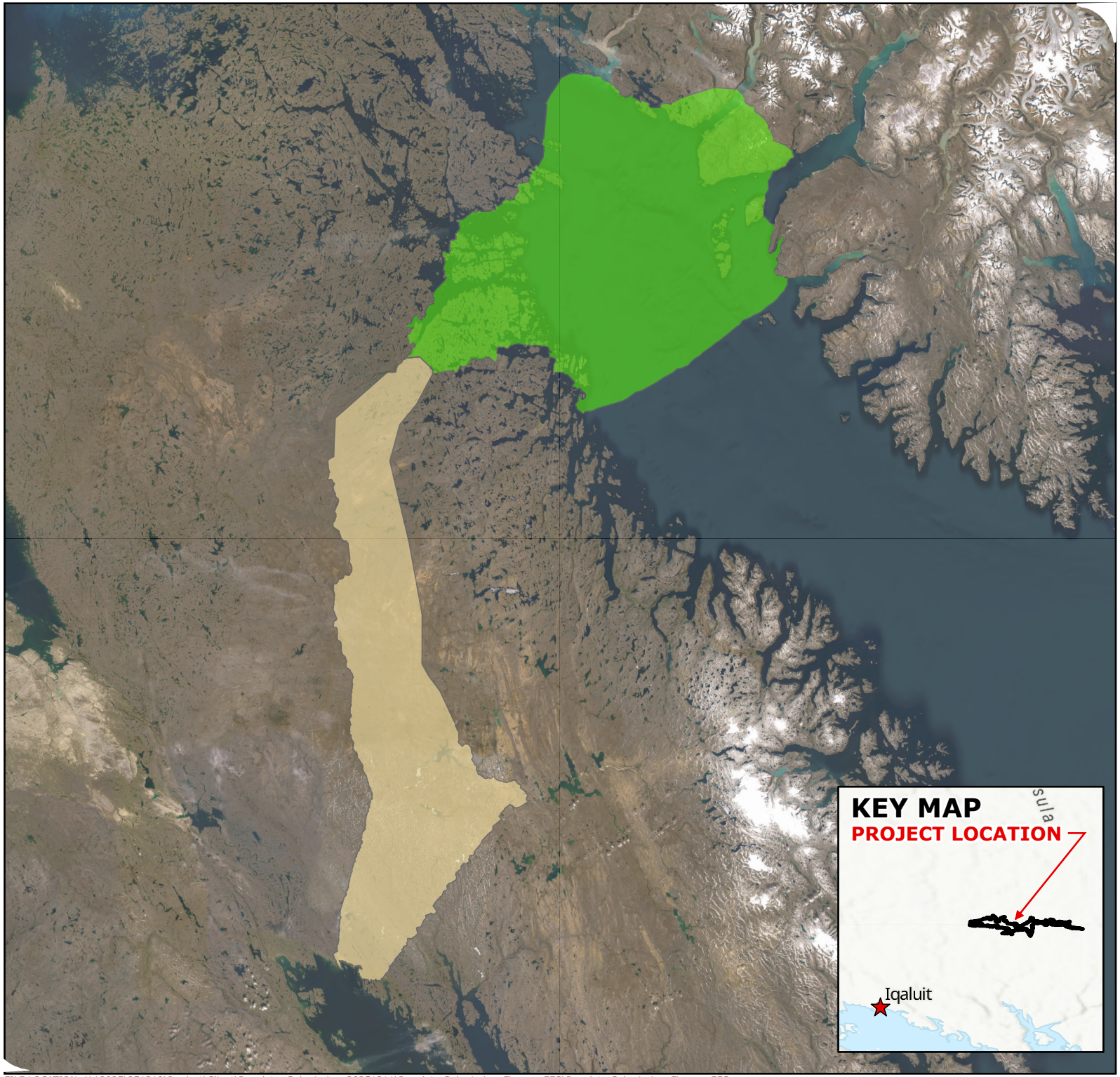
REGIONAL STUDY AREA

FIGURE 2



Downstream Sampling Extent
Summer Study Area

MAP DRAWING INFORMATION DATA PROVIDED BY: NUNAVUT NUKKIKSAUTIIT CORPORATION, GOVERNMENT OF NUNAVUT, NATURAL RESOURCES CANADA, DILLON CONSULTING LIMITED, ECOLOGIC CONSULTANTS LIMITED, ESRI

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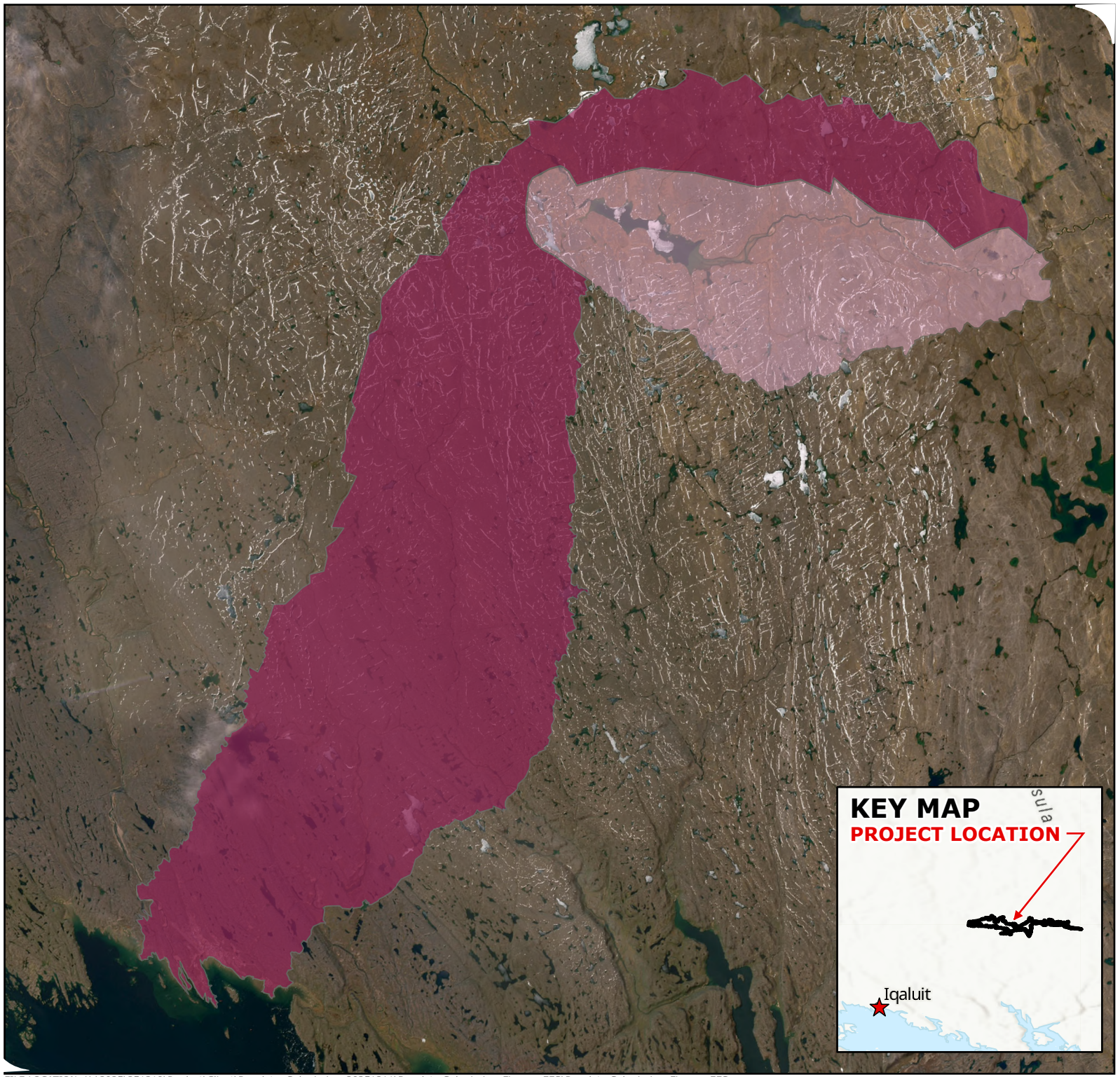
ARCHAEOLOGICAL AND ENVIRONMENTAL SENSITIVITY AREAS OVERLAYS

FIGURE 3



Proposed Archaeological Assessment Area 2026
Approximate Archaeological Assessment Area 2025

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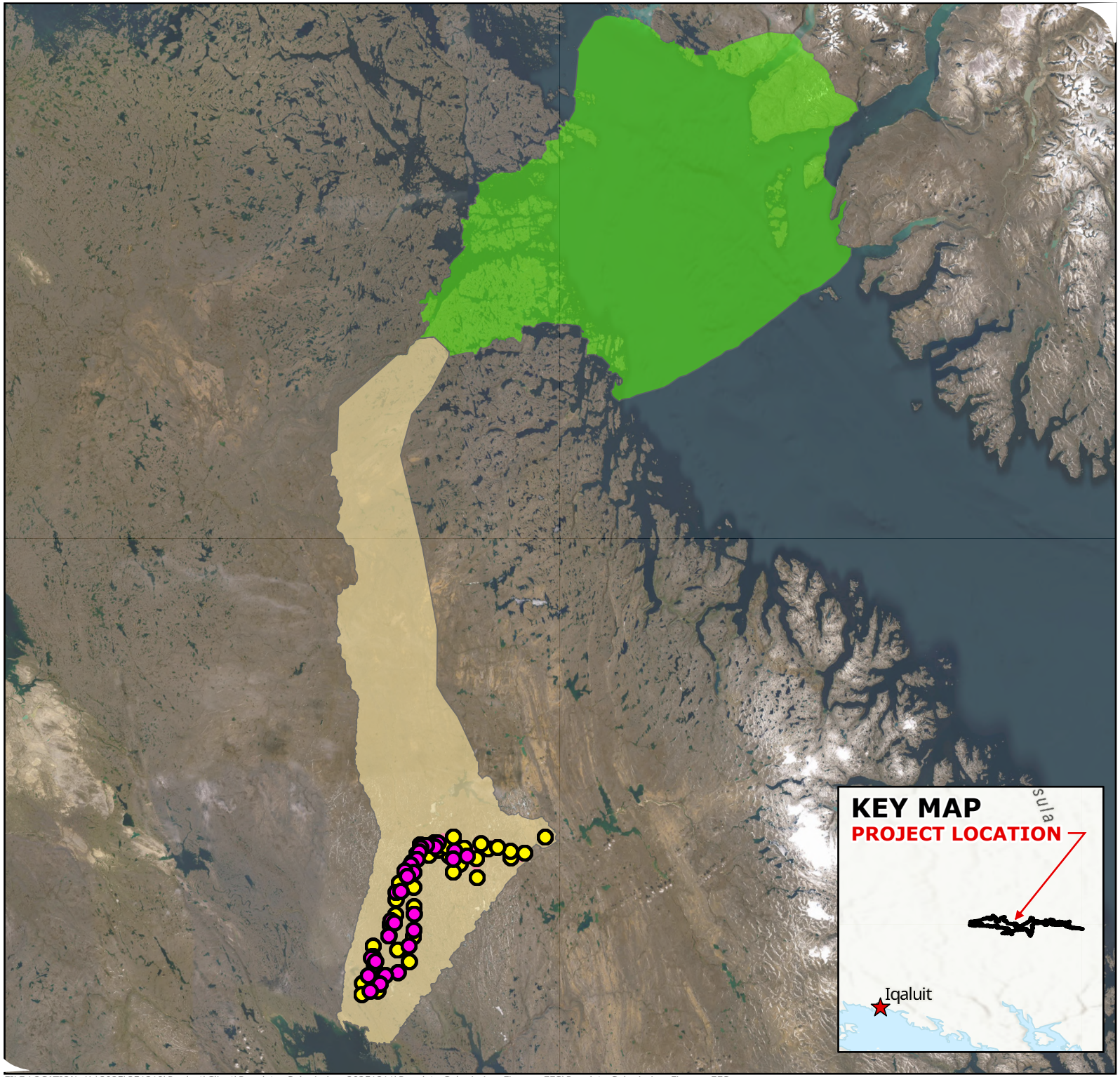

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ENVIRONMENTAL STUDY AREAS

FIGURE 4

- Wildlife Transect
- Wildlife Camera
- Downstream Sampling Extent
- Summer Study Area

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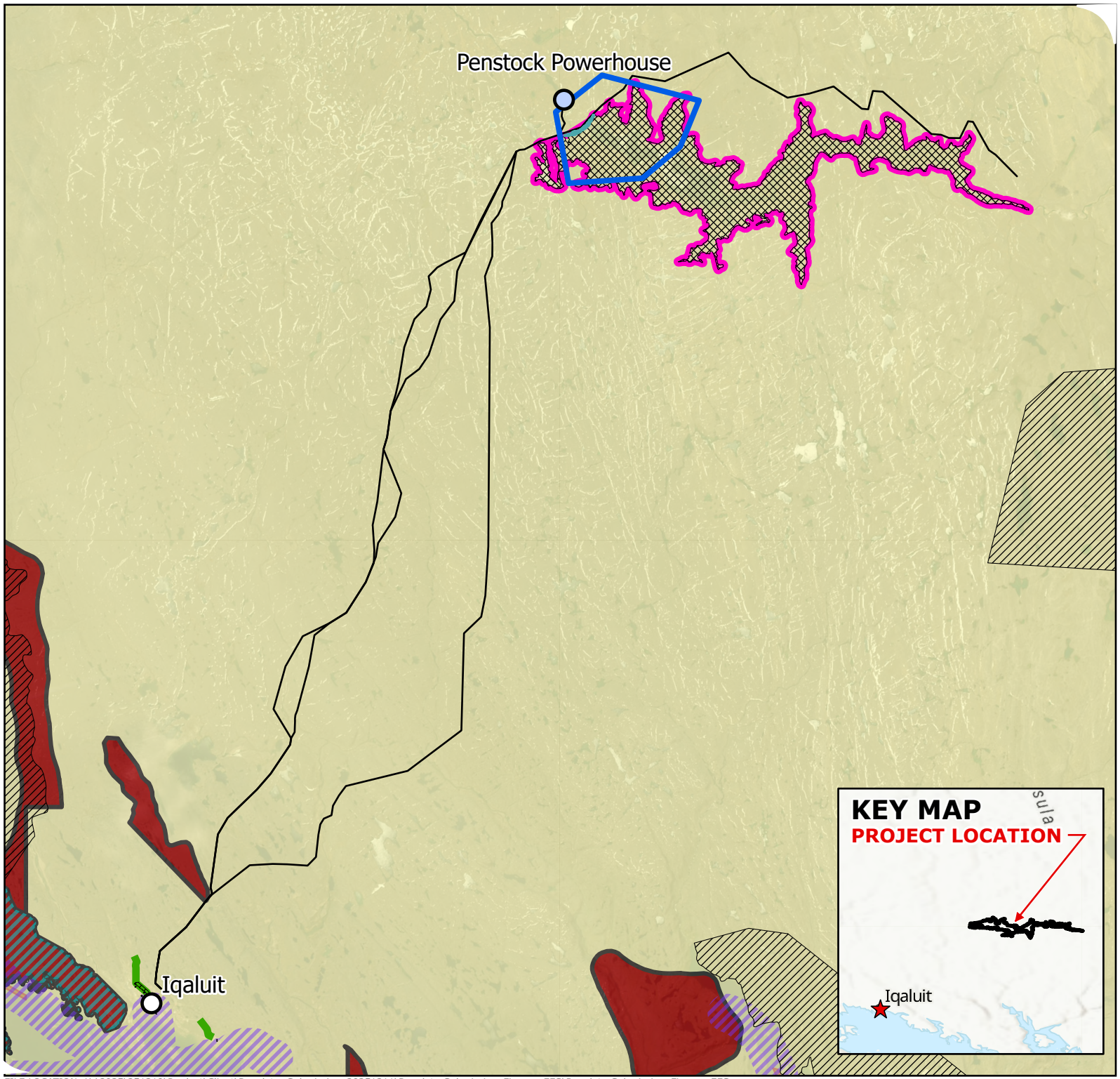

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LAND USE

FIGURE 5

- Iqaluit
- Penstock Powerhouse
- Dam
- Potential Access Roads
- Transmission Lines
- Main Reservoir
- Approximate Temporary Camp Location
- Inuit Owned Lands
- Spillway

Land Use Designations

- Conditional Use
- Limited Use
- Mixed Use
- overlay zone

Land Use Areas

- defense
- settlement
- pollution/waste
- community use
- commercial fisheries
- water
- transportation & communication
- wildlife habitat
- conservation

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The region holds cultural significance due to its relationship to travel routes, seasonal harvesting patterns, and long-term Inuit use of inland waterways. Archaeological reconnaissance, cultural land-use mapping, and additional IQ documentation will be completed prior to confirming the final siting of project components, in accordance with territorial guidance and the recommendations of the Government of Nunavut (GN) (1993). These investigations will guide project design to avoid culturally important areas and support the protection of heritage resources.

2.4 Land Use Compatibility

The INP is located on the Kuugaaluk River system, approximately 60 kilometres (km) northeast of Iqaluit, within the Qikiqtaaluk Region of Nunavut (**Figure 1**). Preliminary review of the NLUP indicates that the Project location is situated primarily within lands designated for resource development and general use, with no overlap with protected areas or special management. The Project is not within Inuit Owned Lands, Territorial or National Parks (**Figure 6**).

On February 2, 2026, the Nunavut Planning Commission (NPC) completed its review under NuPPAA and determined that the Project is located outside the boundaries of any applicable regional land use plan. Consequently, the project's conceptual design and land-use requirements proceed without conflicting with any active NLUP designations.

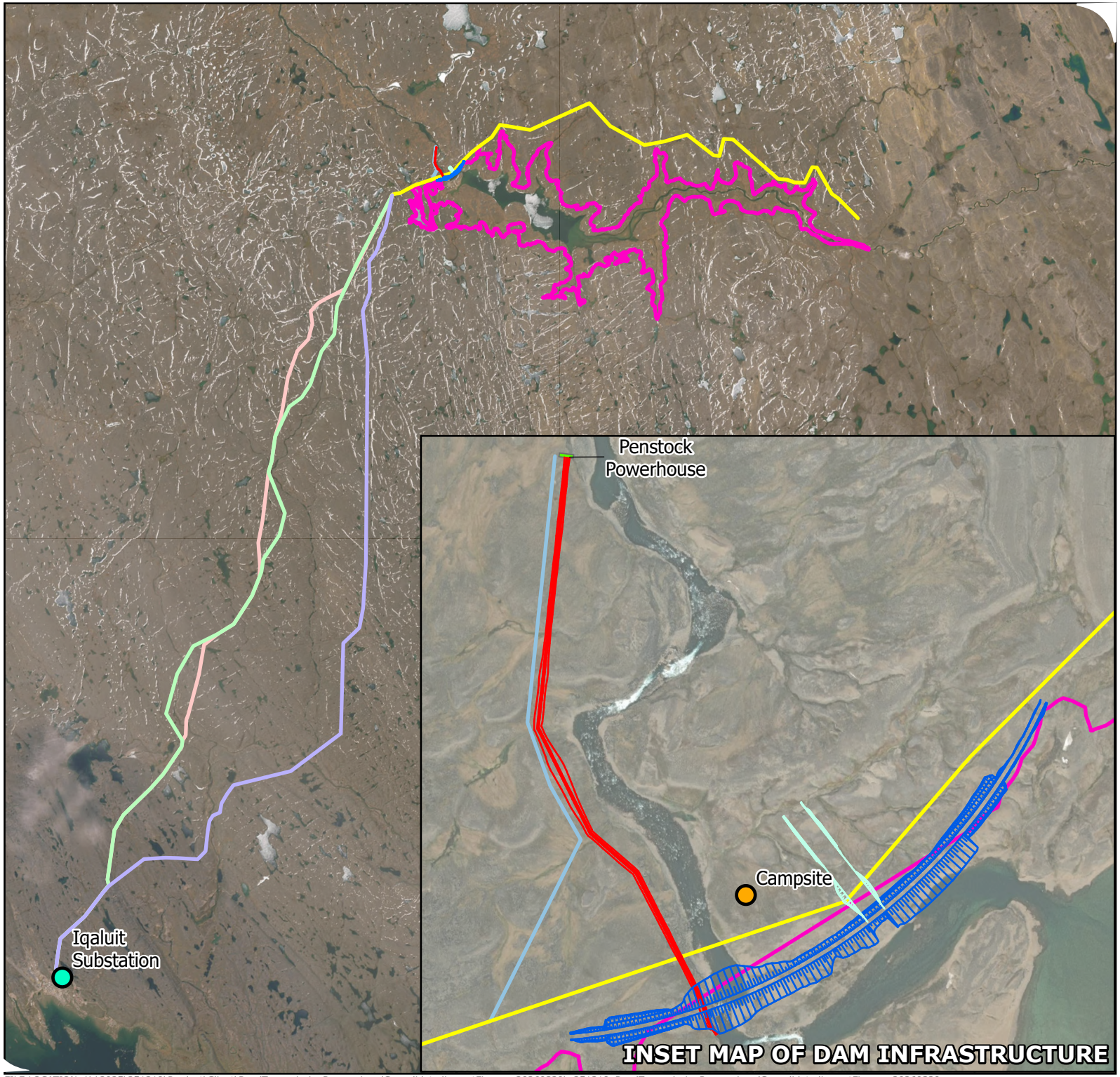
The following **Table 3** summarizes the compatibility of major project components with applicable NLUP zones and designations.

Table 3: Capability of Major Project Components, Locations, Applicable NLUP Zones and Regulations

Project Components	Location/Land Tenure	NLUP Zone Classification	Compatibility Summary
Hydroelectric Facility (Dam, Spillway, Powerhouse)	Kuugaaluk River System, Qikiqtaaluk Region	Mixed Use	Compatible with permitted resource and infrastructure development uses. No conflicts identified.
Reservoir Area	Within Kuugaaluk River system watershed	Mixed Use	Compatible with permitted resource and infrastructure development uses. Water-level changes will be managed under territorial and federal authorizations.
Access Roads and Quarry Sites	Between Kuugaaluk River system site and Iqaluit corridor	Mixed Use (with a small portion adjacent to limited land use zone)	Compatible with infrastructure corridors permitted for resource and community access.

Project Components	Location/Land Tenure	NLUP Zone Classification	Compatibility Summary
Transmission Line (to Iqaluit Grid)	Following proposed alignment to Iqaluit	Mixed Use	Compatible; no overlap with protected or restricted areas. Route refinement will avoid sensitive habitat.
Temporary Camps and Staging Areas	Near Kuugaaluk River system site on QIA-managed lands	Mixed Use	Compatible subject to land-use authorization. No conflicts identified.

Based on current design information, the INP is compatible with the objectives of the NLUP and supports sustainable development consistent with territorial and community priorities. Final confirmation of conformity will be documented through the NPC review process under the *NuPPAA.*



NUNAVUT NUKKIKSAUTIIT CORPORATION

IQALUIT
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CONSOLIDATED LAYOUT

FIGURE 6

- Iqaluit Substation
- Campsite
- Dam
- Spillway
- Penstock Pump Line
- McKeand S - Main Access Road - Direct
- McKeand S - Main Access Road - Flatter
- McKeand S - Main Access Road - High
- Powerhouse Access
- Upper Reservoir Access Road
- Penstock Powerhouse
- Main Reservoir

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MAP CHECKED BY: -MR
MAP PROJECTION: NAD 1983 CSRS UTM Zone 19N

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PROJECT:25-1319
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3.0 Project Description and Activities

3.1 Project Rationale

At this stage of Project development, multiple design and development alternatives are being intentionally carried forward. The INP is in an early, investigative phase, and no irreversible decisions regarding final infrastructure configuration, construction methodology, or operational approach have been made.

Alternatives currently under consideration include, but are not limited to, dam type, spillway configuration, water management structures, access routing, and transmission alignment. These alternatives are being evaluated in parallel to allow flexibility as additional engineering information, baseline environmental data, and IQ are gathered.

Selection of preferred Project components and configurations will occur following completion of multi-year baseline studies, advancement of engineering design, and continued engagement with Inuit rightsholders, communities, and regulators. This iterative approach is intended to support final design decisions that are informed by environmental, cultural, technical, and socio-economic considerations and responsive to feedback received through the NIRB review process (Nunavut Nukkiksautiit Corporation, 2025).

3.2 Phases and Schedule

Table 4: Proposed Project Phase, Timeline, And Key Activities

Phase	Timeline	Key Activities
1	June 2025	Scoping, baseline design, early field studies
2	May 2026 - September 2027	Multi-season baseline studies, permafrost and hydrology monitoring
3	June 2027	Detailed Engineering Design Complete
4	September 2027	Environmental Impact Statement (EIS) preparation and submission
5	December 2027 - December 2030	Permitting, construction, and environmental management

The schedule presented above reflects the best available information but remains dependent on the completion of multi-year baseline studies, pre-Front-End Engineering Design (pre-FEED) engineering, NIRB screening outcomes, and the availability of federal Nation-Building Project support. Key schedule elements including construction start, commissioning, and workforce requirements will be refined as environmental, technical, and socio-economic information is collected.

3.3 Physical Components

Table 5: Proposed Project Physical Components and Description

Component	Description
Dam	The main dam utilizes an existing lake/natural reservoir and is designed to provide the required water storage for the hydropower plant operations. The minimum dam crest elevation is designed to accommodate wave runup and temporary storage increases in response to passing the design flood. The maximum dam height is approximately 50 +/- m from the riverbed to the crest elevation of 553 m. Due to current uncertainties of the sub-surface conditions and given the absence of detailed borehole investigation information, two (2) dam options are being carried through this stage of design for the main dam: • Option 1 - Rockfill/Earth fill embankment with sheet pile core; and • Option 2 – RCC dam with rockfill-sheet pile core abutments. Dam abutments and dam foundation are included with the dam component.
Reservoir	Based on preliminary design the reservoir will extend upstream of the dam location approximately 25 km with a Full Supply Level (FSL) of 550 m and an estimated surface area of ~7,037 ha at FSL. At FSL, the reservoir will have an approximate storage volume of 1,321 Mm^3. Given the current design FSL (550 m) and a Low Supply Level (LSL) of 528 m, the maximum reservoir level fluctuation is expected to be 22 m during normal operations, depending on inflow conditions, operational requirements, and seasonal variability. The natural water level of the existing lake is 513 m.
Powerhouse	Turbines and generator. Final arrangement to be determined.
Spillway	Currently, two (2) spillway alternatives have been considered. These alternatives include: 1. Concrete Chute Spillway with a Labyrinth Weir; and 2. Roller Compacted Concrete (RCC) Stepped Spillway with Broad Crested Weir.
Low-Level Outlet (LLO)	The low-level outlet (LLO) structure is located on the left dam abutment with a wet well configuration. A concrete-encased steel conduit conveys water from the reservoir to the wet wells, from which water is discharged to the downstream river through a conduit downstream of the wells.
Intake and Penstock	The plant intake structure shares the same general layout as the LLO. It is located immediately adjacent to the LLO on the left dam abutment, with its inlet set at a higher elevation. The penstock is installed in a trenched alignment. The trench is excavated to provide soil cover and side clearance to allow for backfilling and compaction.
Access Roads	Approximately 66 kilometres of new all-season roads
Transmission Line	Approximately 66 kilometres to Iqaluit grid
Substation	Located in Iqaluit to connect the transmission line to the existing grid

Component	Description
Camps	Temporary camps will be established to support both ongoing investigative programs and future construction activities. At this stage, camp infrastructure is anticipated to include a seasonal study camp accommodating approximately 30 personnel and a temporary construction camp accommodating approximately 50 personnel. Camp facilities may include accommodation units or tents, kitchen and dining areas, sanitary facilities, fuel storage, waste storage, communications systems, laydown and staging areas, and supporting power and water servicing infrastructure. Final camp locations, layouts, servicing requirements, and duration of use will be confirmed through ongoing engineering, field investigations, and regulatory review.

3.4 Construction Approach

Key civil works for the Project include excavation and rock blasting for permanent structures, reflecting the site's challenging geology, which consists of continuous permafrost and localized bedrock outcrops. Final civil works will include construction of the tailrace and two substations.

Construction activities will also integrate development of a ~66 km, 69 kilovolt (kV) transmission line under a separate contract. The transmission line will be located mostly along the access road with limited cross-country sections to facilitate maintenance and repair with standard vehicles.

3.4.1 Sequencing and Staging

Construction will prioritize establishing reliable site access and worker accommodations. At this stage, all construction methods and sequencing are conceptual and have been developed to support environmental assessment and regulatory review (**Figure 6**).

- Initial Mobilization: Construction will begin with the development of a temporary winter access road built over frozen ground to mobilize heavy equipment;
- Permanent Access: A ~66 km all-season road will be constructed starting from the Project site and advancing toward Iqaluit;
- Onsite Road Network: Approximately 7 km of ancillary onsite access routes will be developed, including a single-lane bridge across the spillway;
- Headworks Sequencing: Construction will consider river diversion requirements, cofferdam installation (designed for a 1:20-year flood), and construction of low-level outlet (LLO) works to support bypass flows and maintain instream flow releases; and
- Concrete Staging: Due to the dam's length (estimated up to 1,800 m), multiple Leapfrog batch plants will be utilized to maintain productivity during construction.

3.4.2 Site Access

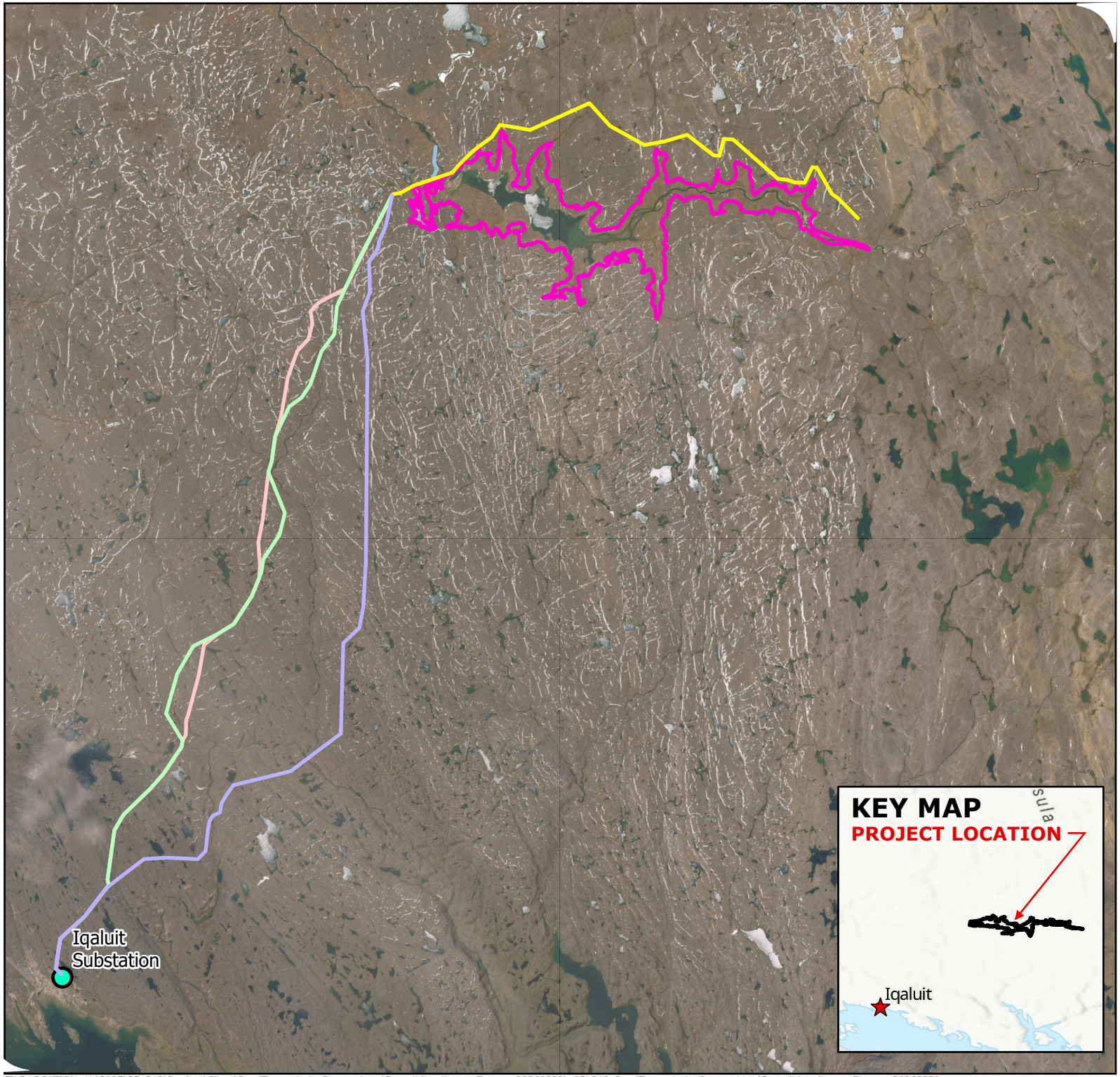
Construction access will rely on a combination of overland, sea, and air logistics. NNC focuses on modular design elements to facilitate transport to the site and construction of the infrastructure.

- Logistics Hub: Existing deep-water port facilities in Iqaluit, including a 100 m dock and barge ramp, will be used during the open water season (typically July through September) to receive equipment and materials;
- Road Access: A new approximately 66 km all-season access road will be constructed to connect the Project site to Iqaluit. The transmission line will follow the same corridor as the access road (**Figure 7**); and
- Aviation Support: Current year-round site access is via helicopter, which is weather-dependent and susceptible to delays from low cloud cover.

3.4.3 Reservoir

The construction of the proposed reservoir and its associated main dam across the Kuugaaluk River will require significant civil works, including excavation and rock blasting, to manage the site's challenging continuous permafrost and bedrock geology. The construction sequencing for the headworks will prioritize river diversion, requiring the installation of a cofferdam designed to withstand a 1:20-year flood, alongside the construction of low-level outlet (LLO) works to support bypass flows and instream releases. Given that the main dam structure is estimated to reach up to 1,800 m in length, the construction plan anticipates using multiple Leapfrog batch plants to maintain steady concrete production. To minimize the project's overall physical footprint, the granular materials required for the dam and engineered fill will be sourced locally via onsite aggregate crushing and quarry development, primarily utilizing morainal and till deposits located directly within the future reservoir inundation zone (**Figure 8**).

To execute these major civil works and establish the reservoir, which will ultimately hold an approximate storage volume of 1,321 Mm^3 at its Full Supply Level (FSL), logistics and access must be carefully sequenced. Initial site mobilization will rely on the development of a temporary winter access road built over frozen ground to transport heavy construction equipment. This will be followed by the construction of a ~66 km all-season access road, which will advance from the project site outward toward Iqaluit. It is important to note that all outlined construction methods, staging, and sequencing are currently conceptual and provided primarily to support preliminary environmental assessments and regulatory reviews. The final construction approach including exact equipment requirements, final foundation engineering (such as the potential use of thermopiles), and material handling procedures remains subject to refinement pending the completion of a detailed 2025/2026 geotechnical drilling program, regulatory input, and the final contractor tendering process.



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ROAD AND TRANSMISSION ALIGNMENT

FIGURE 7

- McKeand S - Main Access Road - Direct
- McKeand S - Main Access Road - Flatter
- McKeand S - Main Access Road - High
- Powerhouse Access
- Upper Reservoir Access Road
- Main Reservoir
- Iqaluit Substation

Note: All structures will maintain a minimum of 3.0m clearance from the road edge. The proposed all-season access road is approximately 66 km from the hydro plant to the new interconnection substation in Iqaluit, the 69 kV transmission line will follow the all-season access road corridor

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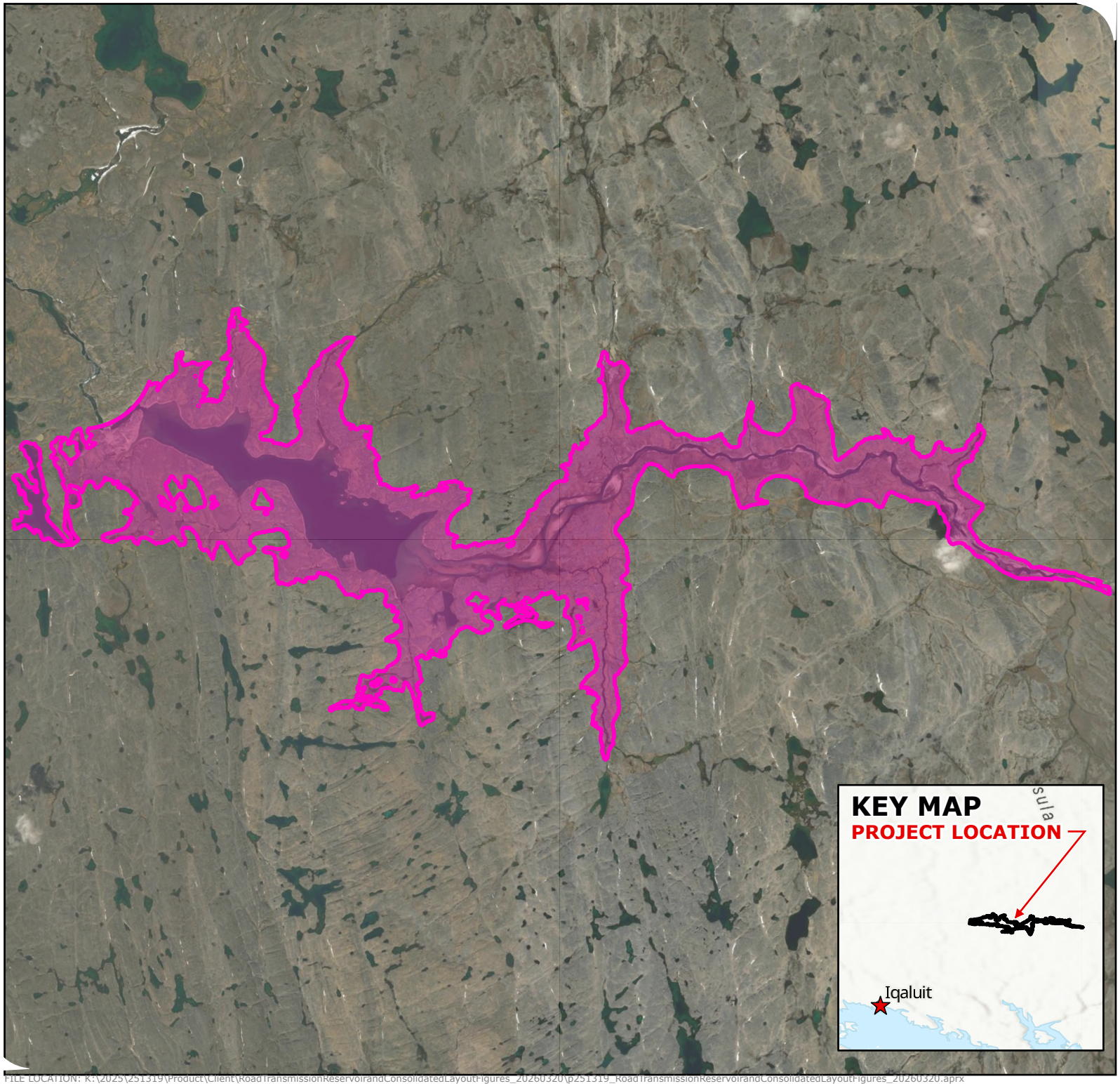

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RESERVOIR CONFIGURATION

FIGURE 8

Main Reservoir at Full Supply Level (550m)

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TEMPORARY CAMP LAYOUT

FIGURE 9

- Fuel Storage
- Groundwater
- Helicopter Landing Pad
- Outhouse
- Water
- Water Hose

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3.4.4 Temporary Camps and Site Support Infrastructure

Temporary camps will support both baseline investigations and construction (**Figure 9**). Two camp types are currently anticipated: a seasonal study camp for about 30 personnel and a larger construction camp for about 50 personnel. Camp locations and layouts will be refined through engineering, field studies, IQ, archaeological review, terrain assessment, and regulatory input to support access while minimizing environmental and cultural disturbance.

The study camp will operate seasonally to support field programs and may include basic accommodation, kitchen, storage, fuel, sanitary, communications, and staging facilities. The construction camp, planned near the main dam site, will support the workforce during construction and reduce reliance on daily flights. It is expected to include accommodations, food services, water and wastewater systems, waste handling, fuel storage, maintenance and laydown areas, power, communications, and emergency response equipment.

Camp operations will be managed through standard environmental protection measures, including fuel handling controls, secondary containment, waste segregation, wastewater management, wildlife attractant control, spill response, and site cleanup and restoration following demobilization. No permanent operations camp is currently proposed, as long-term operations are expected to be managed primarily from Iqaluit.

3.4.5 Material Sourcing

The overarching construction strategy for the Project is to strictly limit the need for imported materials. Material sourcing will rely heavily on quarry development and onsite aggregate processing near the proposed dam site. Where possible, borrow sources will be located directly within the future reservoir footprint (the inundation zone); this approach minimizes the project's overall physical footprint, protects undisturbed permafrost, and significantly reduces long-term site reclamation requirements.

3.4.5.1 Borrow Materials and Quantities

Materials will be sourced from locally available morainal deposits (sand and fine gravel), till blankets (fine-grained material), and exposed bedrock. Preliminary geotechnical terrain analysis has identified massive potential borrow volumes near the site, which will be confirmed during the 2025/2026 geotechnical exploration programs. Identified sources include:

- Hard Rock: Four primary areas have been identified, yielding an estimated combined total of over 200,000,000 m^3 of rock suitable for the dam shell and crushing for concrete aggregate; and
- Sands and Gravels: Two primary areas have been identified yielding an estimated 33,000,000 m^3, suitable for penstock backfill and fine concrete aggregate.

3.4.5.2 Application-Specific Sourcing

- Access Roads: To construct the permanent and temporary access roads, granular materials will be sourced from borrow areas adjacent to the road alignment or processed onsite to meet structural requirements. The road design requires a 300 mm thick base course of 125 mm minus granular fill, topped with a 50 mm surface layer of 25 mm minus material;
- Concrete Work (Main Dam, RCC, and Structures): Because aggregate typically comprises 75% or more of concrete by volume, utilizing onsite sands, gravels, and crushed rock for the mix design is critical for efficiency. While the aggregate will be locally sourced, the required cement and specialized concrete additives will need to be imported and shipped to the site; and
- Penstock and Engineered Fill: The 2,000-meter trenched penstock will utilize the locally sourced sands and gravels for backfill, supplemented by high-density structural foam bedding to provide continuous support and insulation against freezing.

3.4.6 Workforce Management and Employment Strategy for Construction

NNC is committed to delivering long-term socio-economic benefits to the region, primarily through targeted employment, training, and capacity-building initiatives. As an Inuit-led project, maximizing local participation across all phases of development from baseline studies through to long-term operations is a foundational objective.

3.4.6.1 Inuit Employment and Leadership

NNC is dedicated to strong Inuit representation and leadership. This commitment will guide all future hiring, rotation schedules, and project participation.

- **Demonstrated Track Record:** During the 2025 field season, NNC achieved a 70% Inuit employment rate. Furthermore, NNC's corporate partner, Qikiqtaaluk Corporation (QC), maintained strong Inuit employment rates of 50% in 2023 and 45% in 2024;
- **Operational Staffing:** Long-term day-to-day oversight of the facility will be performed from Iqaluit, reducing the need for continuous onsite staffing and maximizing accessible employment opportunities for residents; and
- **Contractor Requirements:** Hiring for both construction and operations will be refined through a formal tendering process. Contractors will be expected to align with NNC's commitments to Inuit employment and local procurement.

3.4.6.2 Training and Capacity Building

The project presents significant opportunities for skills development that will remain within the territory.

- **Integrated Training:** Capacity-building initiatives will be integrated into project delivery to support the development of a local workforce;
- **Transferable Skills:** Training will focus on providing workers with highly transferable skills in renewable energy, environmental monitoring, heavy equipment operation, and infrastructure management; and
- **Ongoing Mentorship:** A core principle of the project's "Phase Gate" engagement model includes ongoing Inuit mentorship and skills development as the project advances.

3.4.6.3 Workforce Accommodations and Logistics

To support the required workforce while managing impacts on the local community, the INP will utilize a phased accommodation strategy.

- **Onsite Temporary Construction Camp:** A temporary construction camp accommodating approximately 50 personnel will be established near the main dam site. This will support the workforce during peak construction, reduce weather-related delays, and minimize reliance on daily flights from Iqaluit;
- **Seasonal Study Camp:** A smaller seasonal camp accommodating approximately 30 personnel will be utilized to support ongoing field programs and environmental monitoring; and
- **Community Housing Contribution:** For longer-term operational and construction needs, NNC will evaluating the development of modular worker accommodations in Iqaluit, if required.

3.5 Operational Philosophy

The operational philosophy for the facility includes automated control and Supervisory Control and Data Acquisition (SCADA) integration, enabling remote monitoring and management from Iqaluit.

- Staffing and Accommodations: Day-to-day oversight will be performed from Iqaluit, reducing the need for continuous onsite staffing. Worker accommodations will be supported through permanent modular structures in Iqaluit to streamline transportation and logistics; and
- Maintenance: No permanent operational camp is anticipated, and seasonal visits will occur using helicopter. Routine activities include inspection of the dam, annual maintenance of intake screens, limited vegetation clearing, and periodic inspection of the transmission line.

4.0 Existing Environment

The Project lies within the Northern Arctic ecozone, spanning the Meta Incognita Peninsula and Hall Peninsula Upland ecoregions. The regional landscape includes exposed bedrock plateaus, fjord-influenced coastal environments, and lake-plain systems associated with the Kuugaaluk River. Climate is Low Arctic, with short, cool summers, long winters, and continuous permafrost (EcoLogic, 2025).

To align with NIRB screening requirements, the Existing Environment section is organized under the following required headings:

- Climate and Permafrost;
- Atmospheric;
- Archaeological;
- Hydrology and Water Quality;
- Fish and Fish Habitat;
- Vegetation and Terrain;
- Wildlife (including Species at Risk); and
- Socio-Economic Environment and Inuit Land Use.

The environmental information presented in **Section 4.0** is intended to summarize baseline conditions and preliminary observations based on available data and the 2025 field programs within the Environmental Study Area (**Figure 4**). No conclusions regarding the magnitude or significance of potential effects are drawn at this stage. Baseline programs are ongoing and will continue over multiple field seasons to support future effects assessment and mitigation planning within the Regional Study Area (**Figure 2**). Each of the following subsection describes baseline conditions, sensitivities, and relevance to potential Project interactions.

4.1 Physical Environment

4.1.1 Climate and Permafrost

Regional climate conditions are characterized by a cold, polar climate, with mean annual air temperatures well below freezing, persistent high winds, and strong marine influences associated with Frobisher Bay. Seasonal patterns include long cold winters; short, cool summers; and highly variable snowfall and wind-driven snow redistribution. These factors shape local snow accumulation, surface water availability, and biological productivity, and are key drivers of ecological and hydrological processes in the Kuugaaluk River system (EcoLogic, 2025).

Permafrost in the region is continuous, with ground temperatures typically remaining below 0°C throughout the year. The active layer thaws only during the brief summer season, resulting in freeze–

thaw cycles that influence soil stability, drainage, and vegetation patterns. Permafrost conditions also play a critical role in determining terrain sensitivity, slope stability, and potential responses to project-related ground disturbance. Initial field observations indicate variations in active-layer depth across terrain types, with deeper thaw in coarse, well-drained soils and shallower thaw in peat-rich or shaded areas (EcoLogic, 2025).

These climatic and permafrost conditions are central considerations for project planning, as they influence infrastructure design, access timing, baseline hydrology, and the selection of appropriate mitigation measures. Additional multi-year climate and permafrost monitoring will refine the understanding of seasonal variability and long-term trends relevant to the Project.

4.1.1.1 Landforms, Geology and Soils

Landforms range from rugged uplands with frost-shattered bedrock to gently rolling till veneers and glaciofluvial deposits. Common features include patterned ground, solifluction lobes, polygonal terrain, and shallow peat depressions (EcoLogic, 2025).

Thin mineral soils dominate uplands, while organic soils occur where drainage is impeded by permafrost (EcoLogic, 2025).

4.1.1.2 Potential Project Interactions

Potential interactions between the Project and climate, permafrost, and associated landforms include:

- Disturbance of thaw-sensitive soils and ice-rich permafrost during construction of access roads, transmission corridors, and Project infrastructure;
- Changes in surface drainage patterns and snow accumulation resulting from linear infrastructure and altered terrain;
- Increased risk of localized thaw settlement, erosion, or slumping in areas with high ground-ice content; and
- Implications for access timing, construction methods, and long-term infrastructure performance under changing climatic conditions.

These interactions represent cross-cutting considerations that may influence multiple Valued Ecosystem Components, including hydrology, aquatic habitat, vegetation, wildlife movement, and travel safety.

4.1.1.3 Proposed Approach and Future Work

Climate and permafrost conditions will be addressed as foundational environmental constraints in Project planning and design. Additional multi-year climate and permafrost investigations are planned to refine baseline understanding of seasonal variability, active-layer dynamics, and long-term trends relevant to the Project.

Future work will include targeted permafrost and terrain assessments, integration of regional climate datasets, and consideration of projected climate change effects on permafrost stability. Information collected through these programs will inform infrastructure design, access planning, mitigation measures, and adaptive management strategies, and will be incorporated into the Environmental Impact Statement (EIS).

4.1.2 Atmospheric

The Project area is located within a cold Arctic climate zone characterized by long, cold winters; short, cool summers; strong and persistent winds; and highly variable snowfall influenced by wind redistribution. Atmospheric conditions are strongly affected by regional marine influences associated with Frobisher Bay. These climatic factors influence snow accumulation, surface water availability, permafrost stability, and seasonal accessibility within the Kuugaaluk River system.

Baseline regional climate data are available from long-term Environment and Climate Change Canada (ECCC) monitoring stations in Iqaluit, which provide representative information on temperature, wind patterns, precipitation, and extreme weather events. At the Project site, atmospheric conditions are expected to be similar to regional trends, with localized variation due to elevation, topography, and exposure.

4.1.2.1 Potential Project Interactions

Potential interactions between the Project and the atmospheric environment during early field investigations, construction, and operations may include:

- Temporary air emissions from diesel-powered equipment, generators, and vehicles;
- Localized dust generation associated with ground disturbance, vehicle traffic, and quarry or borrow activities;
- Short-term emissions associated with construction activities and camp operations; and
- Greenhouse gas emissions related to fuel use during construction and operations.

During operations, the Project is expected to substantially reduce regional greenhouse gas emissions through the displacement of diesel-generated electricity currently used to supply Iqaluit.

4.1.2.2 Proposed Approach and Future Work

At the Project Proposal stage, atmospheric effects are anticipated to be localized, temporary, and manageable through standard best management practices. Air quality effects will be assessed in greater detail during the EIS phase.

Targeted atmospheric and air quality studies, including the characterization of meteorological conditions and potential emission sources, are planned for the 2026 field season. These studies will support

predictive modelling and effects assessment in the EIS, including comparison to applicable regulatory benchmarks such as the Canadian Ambient Air Quality Standards (CAAQS).

Mitigation measures, such as equipment maintenance, dust suppression, fuel management, and emissions controls, will be refined as Project design advances and incorporated into future environmental protection planning.

4.1.3 Archaeological and Heritage Resources

The Project area lies within a region of long-standing Inuit land use and travel, and archaeological and heritage resources may be present within the Project Development Area and surrounding landscape. These resources may include archaeological sites, cultural features, travel routes, and areas of historical significance that reflect both historic and contemporary Inuit use of the land.

During the 2025 field assessment, areas of archaeological and cultural significance were identified in the vicinity of the proposed reservoir area through field reconnaissance and Inuit knowledge input (**Figure 3**). These findings confirm the presence of heritage sensitivities within the broader Project Area and underscore the importance of careful planning as the Project advances.

Previous regional studies and IQ further indicate that archaeological and heritage resources are most likely to occur near water bodies, travel corridors, and prominent landforms within the Hall Peninsula landscape.

4.1.3.1 Potential Project Interactions

Potential interactions with archaeological and heritage resources may occur during ground-disturbing activities associated with field investigations, construction, and infrastructure development, including:

- Geotechnical drilling, trenching, or test pitting;
- Construction of access roads, camps, transmission corridors, and Project infrastructure; and
- Quarrying or borrow material extraction, if required.

Without appropriate planning and mitigation, such activities could result in disturbance or damage to previously unidentified archaeological or cultural resources.

4.1.3.2 Proposed Approach and Future Work

Archaeological and heritage resources will be managed in accordance with the *Nunavut Act*, the Nunavut Archaeological and Palaeontological Sites Regulations (NAPS Regulations), *Nunavut Land Claims Agreement* (NLCA), and applicable guidance from the Government of Nunavut Department of Culture and Heritage.

A staged archaeological assessment program is planned, beginning with desktop review and Inuit knowledge input, followed by field-based archaeological surveys in advance of any ground-disturbing activities. These surveys will be completed under the appropriate territorial permits and, where feasible, with Inuit participation in fieldwork.

Where archaeological or heritage resources are identified from the 2025 program, avoidance will be the preferred mitigation approach through Project design refinement. If avoidance is not feasible, site-specific mitigation measures will be developed in consultation with regulators and Inuit organizations.

A chance-find protocol will be implemented for all Project phases so that any previously unidentified archaeological or cultural resources encountered during fieldwork or construction are protected, with work halted and appropriate authorities notified.

Information collected through ongoing archaeological investigations will be incorporated into the EIS to support effects assessment, mitigation planning, and informed regulatory and community decision-making.

4.1.4 Hydrology and Water Quality

4.1.4.1 Hydrology

The hydrology of the Project area is driven by a cold, polar climate with continuous permafrost, short melt seasons, and highly variable snowfall and runoff patterns. The INP is located within the Kuugaaluk River system, where streamflow is strongly influenced by snowmelt, periodic rainfall events, and freeze-thaw cycles. Initial hydrological investigations initiated in 2024 include continuous hydrometric monitoring at key locations, as well as characterization of snowpack, ice thickness, and permafrost conditions that influence surface-water behaviour.

These multi-year baseline studies are documenting base-flow conditions, seasonal variability, and interannual trends to support future evaluation of the natural water regime. As of 2025, hydrometric datasets remain limited, and additional monitoring is required to define long-term flow patterns, low-flow conditions, and freshet dynamics. No operational hydrology, reservoir rules, or flow targets have been developed at this stage. Current hydrology work is focused exclusively on baseline characterization, consistent with the early planning phase.

As monitoring data accumulate, they will support future assessments related to ecological flow needs, downstream water-level stability, fish migration and spawning periods, and the potential for flow-related changes to terrain or ice conditions. These datasets, together with engineering and environmental analyses completed in later phases, will inform a future application to the Nunavut Water Board under the Nunavut Waters and *Nunavut Surface Rights Tribunal Act* (2002).

4.1.4.2 Water Quality Program

A multi-season water-quality baseline program is underway to characterize the chemical, physical, and biological conditions of the Kuugaaluk River system. Sampling locations include upstream areas, the proposed reservoir footprint, and downstream reaches to capture spatial variability within the watershed. Parameters analyzed include:

- total suspended solids (TSS);
- nutrients (nitrogen, phosphorus);
- major ions;
- key metals (e.g., mercury, selenium, lead); and
- basic field parameters (pH, conductivity, dissolved oxygen, temperature).

Sampling frequency and analytical methods follow Canadian Council of Ministers of the Environment (CCME) Water-Quality Guidelines and relevant requirements of the *Fisheries Act* (1985). The baseline program is designed to establish reference conditions prior to any future development and to support predictive modelling of potential changes during the environmental assessment phase.

Water-quality information will also inform the human health, aquatic ecosystem, and country-foods components under the Valued Ecosystem Components (VEC) framework. As additional years of sampling are completed, the dataset will be used to evaluate natural variability, identify sensitive periods or parameters, and develop thresholds for future adaptive management.

4.1.4.3 Surface Water System

The Project is situated within the Kuugaaluk River system, which features a diverse and dynamic freshwater system influenced by continuous permafrost, glacial landforms, and steep topographic transitions. Key hydrological components include:

- Unnamed Lake, which corresponds to the proposed reservoir area;
- Multiple shallow tributaries, characterized by moderate gradients, gravel and cobble substrates, and clear, cold waters; and
- The Kuugaaluk River mainstem, exhibiting complex channel forms including riffles, rapids, cascades, chutes, and deep pools (Dillon, 2025).

Aerial, drone, and LiDAR surveys conducted in 2025 confirmed that channel morphology is strongly shaped by bedrock control, glacial deposits, and permafrost-dominated drainage pathways (Dillon, 2025). These factors contribute to distinct habitat types and influence seasonal flow distribution, sediment transport, and aquatic productivity.

Additional hydrological work including snow surveys, ice-thickness measurements, and refined watershed delineation will continue throughout the multi-year baseline program to support future impact assessment and design consideration.

4.1.4.4 Potential Project Interactions

Potential interactions between the Project and the hydrological and surface-water environment may include:

- Alteration of natural flow patterns and water levels associated with future water storage and controlled releases;
- Changes in sediment transport and deposition in response to altered flow regimes;
- Interactions between flow, ice formation, and permafrost that may influence downstream stability and travel conditions;
- Potential effects on aquatic habitat availability, connectivity, and seasonal access for fish and other aquatic organisms; and
- Implications for downstream water quality during construction or future operations, particularly during high-flow or ice-affected periods.

At this stage, these interactions are conceptual and are being considered to inform baseline data collection and future assessment needs, rather than to predict effects.

4.1.4.5 Proposed Approach and Future Work

Hydrological and surface-water studies will continue as part of a multi-year baseline program to strengthen understanding of natural variability, seasonal dynamics, and longer-term trends within the Kuugaaluk River system. Planned work includes continued hydrometric monitoring, expanded snow surveys, ice-thickness measurements, and refined watershed delineation.

As baseline datasets mature, they will support future assessments related to ecological flow requirements, fish migration and spawning periods, ice dynamics, and potential terrain or stability interactions. These datasets, together with engineering and environmental analyses undertaken in later phases, will inform the development of reservoir operating concepts and a future application to the Nunavut Water Board under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (2002).

Water-quality data will also inform aquatic ecosystem, human health, and country-foods components under the VEC framework. Over time, the dataset will be used to evaluate natural variability, identify sensitive periods or parameters, and support the development of thresholds and adaptive management measures for future project phases.

4.1.4.6 Operational Hydrology

Operational hydrology for the Project remains at a preliminary, conceptual stage and will continue to be refined through ongoing baseline monitoring, hydrologic modelling, and engineering development. Based on the current Project concept, the 15 MW facility is anticipated to require an estimated annual inflow of approximately 767,902,000 m^3. Preliminary operating assumptions indicate that reservoir levels may fluctuate by approximately 22 m during normal operations, with greater drawdown

potentially required during extended low-flow periods. These values are presented for planning purposes only and do not represent finalized operating rules or approved water management conditions.

NNC is continuing to advance the hydrologic baseline and technical basis for future water management planning through expanded field monitoring and modelling. This includes downstream and upstream hydrometric monitoring, continuous reservoir monitoring, supplemental reservoir bathymetry, baseline coastal monitoring, snow and ice measurements and development of a preliminary reservoir water balance and downstream hydraulic model. These studies are intended to improve understanding of inflow, storage, evaporation, ice processes, discharge behaviour, and downstream hydraulic response under both baseline and future Project and filling conditions.

The current Project concept identifies instream flow release (IFR) as a priority release before generation. A preliminary summer IFR target of 4.0 m^3/s has been identified for planning purposes for the June to August period, while winter flow requirements are currently expected to be met through continuous generation flow. However, IFR values, seasonal release rules, and low-flow operating assumptions remain preliminary and will require further confirmation through hydrologic analysis, aquatic studies, IQ, engineering development, and regulatory engagement.

NNC is also collecting real-time hydrometric data to support calibration and refinement of the synthetic hydrologic record and to inform future effects assessment, reservoir operating concepts, and licensing requirements. A future application to the Nunavut Water Board for a Type 'A' Water Licence will be informed by this ongoing work, together with future engineering and environmental assessment studies. NNC also anticipates ongoing technical engagement with NWB staff to confirm information needs as Project planning advances.

4.2 Biological Environment

4.2.1 Aquatic Ecosystems and Fish Habitat

The aquatic environment within the Kuugaaluk River system is characteristic of a cold, oligotrophic Arctic watershed shaped by bedrock geology, glacial processes, and continuous permafrost. Drone, LiDAR, and aerial-based assessments from 2025 indicate a diverse and dynamic channel network that supports a range of habitat types important for Arctic fish species, particularly Arctic char (*Salvelinus alpinus*).

The mainstem river and its tributaries exhibit complex channel morphology, including riffles, rapids, cascades, pools, and bedrock-controlled chutes. These features create varied hydraulic conditions that influence habitat suitability for different life stages of fish. Substrates are predominantly composed of gravel, cobble, and boulder materials, providing well-drained, stable conditions that can support spawning and juvenile rearing habitats.

Tributary streams entering the proposed reservoir area are generally shallow with moderate gradients, reflecting limited depositional environments and strong geomorphic control. These tributaries contribute cold, well-oxygenated water and provide additional connectivity throughout the watershed.

Overall, the system is defined by clear, cold, and nutrient-poor (oligotrophic) waters with minimal aquatic vegetation. These characteristics are typical of Arctic freshwater ecosystems and support a narrow but well-adapted suite of aquatic species. This habitat structure is consistent with known preferences of Arctic char, the only species confirmed to date within the Project area (Dillon, 2025).

4.2.1.1 Fish Species Presence

Arctic char (*Salvelinus alpinus*) is the only fish species confirmed to occur within the Kuugaaluk River system to date. During the 2025 field program, 28 Arctic char were harvested opportunistically by local community members, providing the only verified records of fish presence within the Project area (Dillon, 2025).

Although several additional species such as:

- Arctic grayling (*Thymallus arcticus*);
- Lake whitefish (*Coregonus clupeaformis*);
- Ninespine stickleback (*Pungitius pungitius*);
- Threespine stickleback (*Gasterosteus aculeatus*); and
- Lake trout (*Salvelinus namaycush*).

All are considered regionally possible based on broader Nunavut distributions; however, none have been documented within the Kuugaaluk River system through either historical studies or the 2025 aquatic assessments.

4.2.1.2 Fish Habitat Suitability

Based on established Arctic char habitat preference criteria (Evans *et al.* 2002) and the results of the 2025 drone, LiDAR, and aerial imagery analysis, the Kuugaaluk River system contains several habitat features indicative of high suitability for various life stages of Arctic char. Riffles and gravel-to-cobble substrates located downstream of the proposed reservoir footprint provide favourable spawning habitat, offering the appropriate mix of substrate size, flow conditions, and oxygenation required for egg deposition and incubation.

In addition, pools and run habitats distributed throughout the system provide important rearing areas for juveniles and serve as movement corridors for adults, supporting seasonal migrations and access to feeding and overwintering habitats.

Preliminary assessments further indicate that upstream reaches and multiple tributaries may also provide suitable spawning, rearing, and migration habitat, although these areas require field-based verification during the next phase of aquatic studies (Dillon, 2025).

4.2.1.3 Potential Project Interactions

Potential interactions between the Project and aquatic ecosystems and fish habitat may include:

- Alteration of flow regimes and water levels that influence habitat availability, connectivity, and suitability for different life stages of Arctic char;
- Changes in sediment transport, deposition, or substrate composition that could affect spawning and rearing habitats;
- Modification of channel morphology or tributary connectivity associated with future infrastructure development;
- Potential barriers to fish movement or migration if connectivity is altered; and
- Changes in water temperature, ice conditions, or water quality that may influence habitat function.

At this stage, these interactions are identified conceptually to inform baseline data collection and future assessment needs and do not represent predicted effects.

4.2.1.4 Proposed Approach and Future Work

Aquatic ecosystem and fish habitat studies will continue as part of a multi-year baseline program designed to confirm habitat use, seasonal patterns, and interannual variability within the Kuugaaluk River system. Future work will include field-based habitat validation, fish presence and movement surveys, and integration of Inuit Qaujimajatuqangit related to fish behaviour, harvesting areas, and seasonal use.

As datasets mature, they will support future assessments of habitat sensitivity, fish passage considerations, and ecological flow needs, and will inform the development of mitigation and monitoring strategies. Information from these studies will be incorporated into the EIS and will support regulatory review under the *Fisheries Act* and future licensing considerations under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*.

4.2.2 Vegetation and Terrain

Baseline fieldwork completed in 2025 documented a range of Low Arctic tundra, wetland, riparian, and frost-influenced ecosystems within the LSA. Vegetation patterns are closely linked to terrain, permafrost conditions, drainage, and substrate type, resulting in distinct ecosystem units across upland, mesic, wetland, and fluvial environments (EcoLogic, 2025).

4.2.2.1 Upland and Barren Tundra

Upland areas are characterized by exposed bedrock, thin soils, and strong wind exposure. Dominant terrain and vegetation features include:

- Dry Lichen and Sparse Tundra on upper slopes and ridge crests, composed of *Dryas integrifolia*, *Salix arctica*, dwarf heather species, mosses, and lichen mats;
- Fellfield and Blockfield terrain, where frost-shattered bedrock supports minimal vegetation and reflects high terrain sensitivity; and
- Bedrock Outcrop and Talus slopes with limited plant cover but potential nesting habitat for cliff-associated bird species.

These landforms reflect the influence of periglacial processes, continuous permafrost, and low nutrient availability (EcoLogic, 2025).

4.2.2.2 Mesic and Wet Tundra

Mid-slope and low-lying areas support more moisture-retentive vegetation communities:

- Mesic Graminoid Tundra occurs where drainage is imperfect, often with patterned ground indicative of active permafrost; and
- Wet Graminoid Tundra, fens, and shallow peat wetlands develop in zones with perched water tables and poor drainage, dominated by sedges and mosses.

These ecosystems are sensitive to surface disturbance and thermokarst due to the presence of ice-rich permafrost (EcoLogic, 2025).

4.2.2.3 Riparian and Fluvial Complexes

Vegetation along stream and river corridors reflects dynamic hydrological and geomorphic processes:

- Glaciofluvial terraces, gravel bars, and seasonally flooded benches support low shrubs, sparse graminoids, and early successional vegetation; and
- Willow patches occur in more stable riparian zones, providing important cover and movement corridors for wildlife.

These areas are characterized by variable substrate sizes (gravel to boulder), periodic flooding, and strong ice-related disturbance (EcoLogic, 2025).

4.2.2.4 Coastal and Near-Coastal Heath Tundra

Although limited within the Local Study Area, more productive Shrub–Heath Tundra communities may occur closer to fjord environments, where snow capture, moisture availability, and nutrient accumulation are greater (EcoLogic, 2025).

4.2.2.5 Vegetation Species

Common species observed during 2025 field surveys include:

- Dwarf shrubs: Dryas integrifolia, Betula nana, Salix arctica;
- Graminoids: Carex, Eriophorum, Dupontia, Luzula; and
- Bryophytes and lichens: extensive moss mats, liverworts, and crustose and fruticose lichen cover.

These functional groups reflect the cold, nutrient-limited conditions typical of Low Arctic landscapes (EcoLogic, 2025).

4.2.2.6 Data Gaps and Future Work

Because 2025 surveys occurred outside the optimal growing and flowering period, species-level identification was limited. A more detailed vegetation inventory—including rare plant surveys, community mapping, and biomass characterization—will be conducted during the 2026 field season to complete the baseline dataset (EcoLogic, 2025).

4.2.2.7 Potential Project Interactions

Potential interactions between the Project and vegetation and terrain may include:

- Disturbance or removal of tundra vegetation during construction of access roads, transmission corridors, camps, and other infrastructure;
- Soil compaction, erosion, or vegetation loss in areas with thin soils or frost-sensitive substrates;
- Increased susceptibility to thermokarst development and altered drainage patterns in ice-rich permafrost zones;
- Fragmentation of vegetation communities and localized changes in habitat structure; and
- Challenges to natural revegetation in areas with limited soil development and short growing seasons.

At this stage, these interactions are identified to inform baseline data needs and future assessment considerations rather than to predict effects.

4.2.2.8 Proposed Approach and Future Work

Vegetation and terrain studies will continue as part of a multi-year baseline program designed to refine ecosystem mapping, confirm species composition, and identify sensitive habitats. Because 2025 surveys occurred outside the optimal growing and flowering period, species-level identification was limited.

A more detailed vegetation inventory will be completed during the 2026 field season, including rare plant surveys, community-level mapping, and biomass characterization. This data will support improved understanding of ecosystem distribution, sensitivity to disturbance, and recovery potential.

Information generated through these studies will inform future impact assessment, mitigation planning (e.g., micro-siting, avoidance of sensitive habitats, reclamation approaches), and long-term monitoring strategies, and will be incorporated into the EIS.

4.2.3 Wildlife

4.2.3.1 Remote Camera Observations

Baseline wildlife surveys conducted during the 2025 field season indicate that the Project area supports a range of terrestrial wildlife species typical of the Low Arctic tundra environment. Observations confirm regular seasonal use of the Local Study Area (LSA) by several mammal and bird species, with wildlife distribution closely linked to tundra vegetation, terrain features, and travel corridors.

A network of 23 wildlife cameras deployed across the LSA recorded multiple species during the August–September 2025 monitoring period. Species detected include:

- Barren-ground caribou (*Rangifer tarandus groenlandicus*), with frequent detections across multiple camera locations;
- Arctic hare (*Lepus arcticus*);
- Arctic fox (*Vulpes lagopus*); and
- Ptarmigan (*Lagopus spp*.) and other tundra bird species.

Caribou were consistently recorded across many camera sites, indicating regular seasonal use of the area during the late summer and early fall period (EcoLogic, 2025).

4.2.3.2 Wildlife Transects

During the 2025 summer field surveys, twenty-nine ground-based wildlife transects were completed within the LSA. These surveys documented the presence of:

- Barren-ground caribou;
- Arctic fox;
- Arctic hare; and
- Several tundra bird species.

Late-season timing limited the detectability of migratory birds and raptors, and survey results are therefore considered preliminary with respect to avian diversity and seasonal use (EcoLogic, 2025).

4.2.3.3 Species at Risk

Barren-ground caribou were documented within the Project area during the 2025 field program. This population is classified as Threatened by Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and is currently under consideration for listing under Schedule 1 of the *Species at Risk Act* (*SARA*).

No additional federally listed *SARA* species were detected during the 2025 field surveys.

4.2.3.4 Potential Project Interactions

Potential interactions between the Project and wildlife may include:

- Disturbance or displacement of wildlife resulting from increased human presence, aircraft activity, noise, and vehicle traffic;
- Interference with wildlife movement patterns, particularly for wide-ranging species such as caribou;
- Sensory disturbance affecting foraging, resting, or movement behaviour; and
- Temporary changes in habitat availability associated with future infrastructure development.

At this stage, these interactions are identified to inform baseline data needs and future assessment considerations rather than to predict effects.

4.2.3.5 Proposed Approach and Future Work

Wildlife studies will continue as part of a multi-year baseline program to improve understanding of species presence, seasonal use, and movement patterns within and surrounding the Project area. Future work will focus on expanding temporal coverage to include spring and early summer periods, when wildlife activity and sensitivity may differ from late-season conditions.

Planned studies include continued operation and expansion of the wildlife camera network, additional transect surveys, and targeted surveys for migratory birds and raptors during appropriate seasonal windows. IQ and local observations will continue to inform survey design, interpretation of results, and identification of sensitive areas or periods.

Information generated through these programs will support future effects assessment, mitigation planning (e.g., timing restrictions, micro-siting of infrastructure), and monitoring strategies, and will be incorporated into the EIS.

4.3 Socio-economic Environment

The existing socio-economic environment will be identified and described during 2026. The following are the objectives of the Socio-economic Impact Assessment:

1. Develop a Socio-Economic Impact Assessment (SEIA) that identifies current conditions, predicts both positive and negative potential socio-economic impacts, and proposes mitigation and enhancement measures;
2. Collaboratively conduct robust Inuit-focused community engagement in Iqaluit with NNC, for the purpose of developing a SEIA, ensuring inclusive, intergenerational participation and Free, Prior, and Informed Consent. This engagement will be planned in close partnership with NNC and executed by the proponent following plan approval from NNC. The proponent will maintain consistent

communication with NNC throughout the duration of engagement activities, so that any necessary troubleshooting is handled with context and cultural sensitivities in mind; and

3. Prepare a Socio-Economic Monitoring and Reporting Plan, outlining indicators, responsibilities, and community-driven mechanisms for tracking project impacts over time. Identifying Inuit preferences around monitoring and reporting should be integrated into engagement activities referenced above.

5.0 Environmental Effects and Mitigation

5.1 Valued Ecosystem and Socio-Economic Components

The proposed Valued Ecosystem Components (VECs) for the INP will be identified through the impact assessment screening process, early engagement with Hunters and Trappers Associations (HTAs), Elders, and community representatives, and review of applicable Nunavut Impact Review Board (NIRB) guidance (NNC, 2025b).

At this stage, Valued Socio-Economic Components (VSECs) have not been formally scoped. VSECs will be identified and assessed through a broader, integrated socio-economic assessment planned for 2026, informed by ongoing engagement, IQ, and advancing Project design.

However, the human environment has been considered at a high level for the purposes of early impact assessment screening, to identify potential interactions related to land use, harvesting, community well-being, and socio-economic considerations. This early screening does not constitute a full socio-economic assessment.

As consultation and engagement continue, the list of VECs and VSECs may be refined to reflect new information, IQ, and community-defined priorities.

Proposed VEC and VSEC Categories:

- Terrestrial Environment: wildlife (caribou, polar bear, migratory birds, raptors, furbearers), vegetation communities, and rare or sensitive plant species;
- Aquatic Environment: fish (char) and fish habitat, benthic invertebrates, periphyton, riparian vegetation, and surface-water quality;
- Atmospheric Environment: air quality, greenhouse-gas emissions, noise, and vibration; and
- Human Environment: health and safety, country foods and harvester confidence, land use and travel safety, cultural and archaeological resources, local employment and procurement opportunities, and public and rightsholder concerns.

These proposed components will form the foundation of the effects assessment, baseline studies, and cumulative-effects analysis. Refinements to indicators, boundaries, and thresholds will occur through continued engagement, field findings, and integration of IQ to maintain alignment with community values and regulatory expectations.

The proposed VECs and VSECs are considered preliminary and will be validated and refined through continued community engagement, baseline data collection, and feedback from NIRB during the screening and scoping phases.

5.2 Potential Effects and Mitigation

Potential environmental and socio-economic effects for the INP have been identified through the EIAS scoping process and early consultation with HTAs, QIA, and community representatives. The mitigation measures outlined below are preliminary and will be refined as baseline information and design details advance.

- Fish and Fish Habitat: Possible effects include sedimentation, altered flows, and habitat fragmentation. Mitigation will include erosion- and sediment-control measures, seasonal in-water work timing windows, stabilization of disturbed shorelines, and habitat-offsetting consistent with Department of Fisheries and Oceans (DFO) policy. Adaptive management triggers will be based on turbidity, flow, and fish-use monitoring results;
- Wildlife and Vegetation: Disturbance to wildlife and habitat will be reduced through construction-timing restrictions, flight-path and access-route management, and prevention of food-waste attraction. Reclamation of disturbed areas and progressive revegetation will restore vegetation structure and function. Wildlife monitoring will verify response to noise and movement barriers;
- Atmospheric Environment: Air emissions and dust will be managed through equipment maintenance, water-based dust suppression, and vehicle-speed limits. Noise and vibration will be reduced by limiting heavy construction to daytime hours and maintaining equipment mufflers. Conditions will be monitored at sensitive receptors to confirm compliance with GN and federal standards;
- Archaeological and Heritage Resources: Ground-disturbing activities may interact with archaeological or cultural resources, including areas of archaeological significance identified near the proposed reservoir during the 2025 field assessment, as well as previously unidentified sites. Mitigation will focus on avoidance through project design refinement, completion of permitted archaeological surveys in advance of ground disturbance, and implementation of a chance-find protocol requiring work stoppage and notification of authorities if resources are encountered;
- Human Health and Country Foods: Potential exposure to contaminants such as methylmercury will be tracked through fish and water-quality monitoring. Results will be shared through plain-language reports and community sessions with harvesters. Traditional-foods confidence will be incorporated into health-indicator monitoring and adaptive follow-up; and
- Socio-Economic Environment: Potential effects relate to workforce logistics, training access, and local participation. Mitigation focuses on Inuit employment, training, and contracting, along with early coordination with local suppliers and service providers. Engagement will continue to identify community-defined success measures for benefits distribution.

Mitigation will follow the hierarchy:

- Avoid;
- Minimize;
- Restore; and

- Offset.

Commitments will be tracked through an Environmental Commitments Register (ECR) and reviewed regularly through adaptive management to maintain alignment with project performance objectives and community expectations (NNC, 2025b).

5.3 Alternatives Considered

NNC evaluated multiple renewable-energy options through an Inuit-led "Phase Gate" process that balanced environmental, technical, social, and cultural factors. Early feasibility work identified 17 potential power-system configurations, including hydroelectric, wind, solar, hybrid, and diesel-based options (NNC, 2025a). NNC is committed to strong Inuit representation and leadership throughout all phases of the Project, reflected in the organization's field and administrative staffing. During the first field season, NNC achieved a 70% Inuit employment rate, and Qikiqtaaluk Corporation (QC); NNC's corporate arm maintained 50% Inuit employment in 2023 and 45% in 2024. This commitment will continue to guide hiring, training, and participation as the Project advances.

Phase 1 – Identification of Opportunities

Preliminary screening confirmed that Iqaluit's dependence on diesel created long-term environmental and financial risks due to greenhouse-gas emissions, transport costs, and supply reliability. Findings from the Tusaqtavut Study on Inuit Land Use highlighted community interest in locally managed renewable power that advances energy independence and reflects IQ values (NNC, 2025a).

Phase 2 – Evaluation of Renewable Options

Seventeen renewable-energy configurations were assessed at candidate sites near Iqaluit. Screening criteria were developed jointly with Inuit rightsholders and included:

- technical and hydrological feasibility;
- anticipated effects on wildlife, fish habitat, and terrain;
- distance to Iqaluit and access logistics; and
- cultural and socio-economic alignment with Inuit priorities (NNC, 2025a; NNC, 2025b).

Through a ranked-ballot process, the Kuugaaluk River system site received the highest level of community support. The location offered stable hydrology, moderate proximity to Iqaluit, minimal overlap with harvesting areas, and consistency with local preferences for water-based renewable energy. QIA and community rightsholders endorsed advancing Kuugaaluk to the design phase (NNC, 2025a).

Phase 3 – Refinement of the Concept

Field programs in 2024 collected LiDAR, drone imagery, and geotechnical samples. Results indicated that the proposed dam site contained more gravel and less exposed bedrock than earlier desktop studies suggested (NNC, 2025a, p. 13). These findings guided several design adjustments:

- a smaller reservoir to reduce sedimentation and protect permafrost integrity;
- modified dam height and penstock alignment to match terrain conditions;
- evaluation of a secondary reservoir upstream to maintain generation capacity during low-flow periods; and
- consideration of supplemental wind generation to stabilize output during freeze-up or drought conditions (NNC, 2025a).

5.3.1 Adaptive and Iterative Design Approach

Project development follows an adaptive management framework consistent with NIRB guidance and the EIAS (NNC, 2025b). As new baseline, design, and socio-economic information become available, the preferred configuration will be refined to reduce effects on VECs and VSECs.

Design refinements will incorporate projected changes in climate, permafrost, and hydrology. Ongoing engagement with HTAs, Elders, and the Qikiqtani Inuit Association (QIA) will continue to shape project adjustments, keeping environmental, technical, and cultural objectives aligned (NNC, 2025a; NNC, 2025b). NNC's commitment to Inuit leadership and participation including ongoing focus on Inuit hiring, training, and representation remains a core component of this adaptive process.

5.4 Cumulative Effects

The cumulative-effects assessment for the INP evaluates how Project-related changes may interact with other past, present, and reasonably foreseeable activities within the RSA, consistent with NIRB's environmental assessment framework. The RSA encompasses the Kuugaaluk River system surrounding the proposed reservoir, downstream connections to Cumberland Sound, and areas used for harvesting, travel, and other land-based activities.

For screening-level purposes, the following activities identified through the screening level assessment and community engagement have been selected for inclusion in the cumulative-effects assessment:

- Transportation corridors, including all-season and winter travel routes that may influence wildlife movement, access patterns, and harvest areas;
- Quarrying and granular-resource extraction, including existing and proposed borrow sources that may contribute to terrain disturbance, dust, noise, and habitat alteration;
- Community expansion and municipal infrastructure, including growth of Iqaluit's serviced areas, waste-management infrastructure, and utility upgrades;
- Regional land use, including known harvesting areas, travel corridors, and seasonal use patterns identified by HTAs, Elders, and land users;

- Climate-driven changes, such as permafrost thaw, shifting rainfall patterns, altered freeze–thaw cycles, ice-regime changes, and resulting effects on hydrology, terrain stability, wildlife movement, and country-food access; and
- Other renewable-energy and infrastructure proposals that may emerge during the assessment period and have potential to overlap spatially or temporally with INP activities.

These activities form the basis for identifying cumulative pathways related to wildlife movement, fish and fish habitat, water quality, terrain stability, country foods, socio-economic well-being, and climate resilience.

Potential cumulative interactions include:

- Regional changes in surface-water quality or flow regimes affecting aquatic habitat;
- Incremental disturbance to wildlife movement corridors and migratory pathways;
- Combined effects on permafrost, terrain stability, sediment transport, and erosion potential; and
- Regional implications for harvesting access, travel safety, and country-food confidence.

The screening level assessment indicates that cumulative effects are anticipated to be low to moderate with the mitigation measures proposed for the Project. A full cumulative-effects analysis including refined RSA boundaries, quantified pathways of interaction, measurable indicators, and significance determination will be completed as part of the EIS. IQ and community-identified values will guide the selection of VECs and VSECs and inform the cumulative-effects evaluation across the RSA.

5.4.1 Assessment Focus and Pathways

Cumulative Effects Assessment (CEA) pathways will be examined across environmental and socio-economic domains and will include:

- Wildlife and Habitat Connectivity: potential additive disturbance from transportation corridors, quarrying, or community expansion affecting caribou movement, denning areas, and migratory bird use;
- Aquatic Systems: changes to fish habitat and water quality from overlapping land use, erosion, or runoff associated with other regional activities; and
- Human Environment: combined influences on health, country-foods confidence, and socio-economic stability where multiple projects, infrastructure, and climate pressures intersect.

Each pathway will be evaluated using NIRB criteria; magnitude, geographic extent, duration, frequency, reversibility, and context while incorporating both scientific analysis and IQ perspectives on limits and resilience.

5.4.2 Climate Change and Adaptive Management

Climate change is recognized as a cumulative driver that interacts with project effects on permafrost, hydrology, and species movement. The CEA will integrate regional climate datasets and GN projections to characterize long-term temperature, precipitation, and freeze-thaw trends. Adaptive management will be embedded in monitoring programs so that mitigation measures can be modified if environmental or socio-economic indicators diverge from expected trends.

Examples of adaptive responses include revising erosion or drainage systems in response to thaw settlement, adjusting flow management during variable hydrological conditions, or enhancing wildlife monitoring where cumulative disturbance nears community-defined thresholds.

5.4.3 IQ and Community Input

IQ and community knowledge will guide the selection of spatial boundaries, VECs, and thresholds of concern. Engagement with HTAs, Elders, and residents will identify overlapping land uses, harvesting areas, and cumulative pressures not captured through scientific datasets. Cumulative pathways will be discussed during community workshops to confirm linkages most relevant to well-being and land use.

5.4.4 Monitoring and Reporting

Cumulative effects will be tracked through an integrated monitoring framework linked to the Environmental Commitments Register. Indicators such as wildlife presence, habitat condition, air quality, and country-foods confidence will be reviewed annually with communities. Where observed conditions differ from predicted outcomes, corrective actions will be implemented through the adaptive management plan. Findings will be summarized in annual reports and shared with partners to support transparency and continuous improvement.

5.5 Accidents and Malfunctions

Potential unplanned events include fuel spills, dam breach, equipment failure, and wildfire. Emergency response plans will be developed and tested annually. Emergency response planning will be developed in accordance with territorial and federal requirements and will be informed by engagement with local communities and rightsholders prior to construction.

5.6 Fuel and Hazardous Materials Management

All fuels and hazardous materials will be stored, handled, and transported in accordance with the Transportation of Dangerous Goods Regulations (2001) and the *Canadian Environmental Protection Act* (1999).

5.6.1 Temporary Camp

Temporary camp infrastructure will require the storage and handling of fuel and other hazardous materials to support accommodation, heating, electricity generation, vehicle and equipment operation, and general site servicing during investigative and construction activities. Fuel storage associated with temporary camps will be located within designated areas and managed in accordance with applicable regulatory requirements and standard spill prevention and response procedures. Final details respecting fuel types, storage volumes, containment measures, and transfer procedures will be developed during subsequent design and construction planning. Where feasible, camp-related fuel storage and handling areas will be sited and operated to reduce risk to nearby waterbodies, sensitive terrain, wildlife habitat, and areas identified through IQ and field studies.

5.6.2 Logistics and Storage

Construction-phase fuel will be delivered via sealift to the Iqaluit deep-water port and transported to the site via the access road. Temporary bulk storage tanks will be established at the headworks and construction camp areas. Backup generators will utilize 24-hour day tanks equipped with secondary containment and high/low-level alarms.

At this early stage, the exact types and quantities of fuel and hazardous materials required for future Project phases will be finalized through the project tendering process, when contractors provide their proposed equipment, fuel requirements, and material handling procedures.

5.6.3 Granular Material Sourcing

Granular materials for the road and dam construction will be sourced from morainal deposits and till blankets identified within the reservoir footprint. Utilizing materials from within the future inundation zone is a primary strategy to minimize the physical footprint of the project and reduce long-term reclamation needs.

5.6.4 Spill Prevention and Response

Spill prevention and response for the Project will be guided by Nunavut Nukkiksautiit Corporation's (NNC) Spill Prevention and Response Plan, which establishes minimum requirements for fuel storage, handling, refuelling, spill preparedness, and response procedures across all Project activities. This plan will be applied regardless of contractor-specific methods and will be updated, as required, to reflect the scope of activities for each Project phase.

NNC is committed to sharing fuel and hazardous materials information, as well as spill prevention and response procedures, with regulators and communities once details become available. The Project will require the use of secondary containment, approved storage systems, and readily accessible spill kits at all work locations, with refuelling conducted away from waterbodies where practicable.

Spill-response procedures will be documented in the Environmental Protection Plan (EPP) and reviewed with Inuit field teams prior to each field season to support preparedness and clear understanding of roles and responsibilities. Any spill that is greater than, or may be greater than, the reportable quantities under the Spill Contingency Planning and Reporting Regulations (1993) will be reported to the Nunavut Spill Report Line by the Responsible Party, in accordance with regulatory requirements.

5.7 Waste Management

Solid and liquid wastes associated with future construction and camp operations will be managed in accordance with the Nunavut Environmental Guidelines for General Management of Special and Hazardous Waste. A Project-specific Waste Management Plan will be implemented to guide the segregation, handling, storage, transport, and disposal of all waste streams generated during Project activities.

5.7.1 Waste Handling and Systems

At this early stage, the specific waste-handling systems and equipment to be used have not yet been determined and will be confirmed through the project tendering process, once contractors identify the camp infrastructure and waste-management methods they propose. NNC will provide updated information to regulators and communities as these details are finalized.

To reduce environmental risks, waste will be segregated and securely contained, with organic materials stored in wildlife-proof containers and other non-organic wastes collected for transport to approved disposal facilities.

5.7.2 Hazardous Waste and Liquids

Waste oils, lubricants, and other hazardous wastes will be managed in accordance with the Project-specific Waste Management Plan and collected for off-site disposal at an approved facility in Iqaluit or shipped south under Transportation of Dangerous Goods (TDG) manifest control, consistent with applicable regulatory requirements.

Greywater will be managed using portable or modular treatment systems suited to Arctic conditions, with the final configuration confirmed through contractor submissions. Sewage will be treated using self-contained modular units or equivalent systems proposed by the selected contractor. Routine inspections will be undertaken to verify compliance with applicable regulatory requirements and any future water-licence conditions.

5.7.3 Spill Reporting

In the event of a spill, the Responsible Party will report any spill that is greater than, or may be greater than, the reportable quantities defined under the Spill Contingency Planning and Reporting Regulations (1993) to the Nunavut Spill Report Line, in accordance with regulatory requirements.

5.7.4 Temporary Camps Waste Management

Temporary camps will also generate domestic solid waste, food waste, sewage, greywater, and other non-hazardous and hazardous waste streams during field and construction activities. Camp waste management requirements will be addressed through site-specific procedures developed for the Project and will include waste segregation, secure storage, routine collection, and removal or disposal at appropriate approved facilities, as applicable. Sanitary wastes and wastewater generated at temporary camps will be managed using temporary systems appropriate to the scale and duration of camp use and consistent with applicable permitting requirements. Following demobilization, temporary camp areas not required for ongoing Project activities will be cleaned up and restored to the extent practical.

5.8 Air Quality and Greenhouse Gases

Baseline air-quality data collected from the National Air Pollution Surveillance (NAPS) station in Iqaluit will be supplemented, where appropriate, by site-specific monitoring at the proposed powerhouse and camp areas. Air quality parameters to be considered include nitrogen dioxide (NO_2), sulphur dioxide (SO_2), particulate matter ($PM_{2.5}$ and PM_{10}), and carbon dioxide equivalents (CO_2e).

Air dispersion modelling using AERMOD will be conducted to predict potential localized effects associated with construction-phase dust and emissions, as well as operational sources where applicable. Model results will be compared against the Canadian Ambient Air Quality Standards (CAAQS) to support the identification of mitigation measures and confirm regulatory compliance.

Preliminary energy modelling indicates that the Project has the potential to significantly reduce diesel-based electricity generation at the Iqaluit power plant. Quantitative estimates of diesel displacement and associated greenhouse gas reductions will be confirmed through detailed operational modelling and will be reported in subsequent regulatory submissions as project design advances.

6.0 Engagement, Consultation, and Authorizations

6.1 Engagement Summary

Engagement for the INP is guided by Inuit leadership, transparency, and ongoing dialogue. NNC applies a "Phase Gate" engagement model, where Inuit rightsholders, community members, and technical partners participate in decision-making at each project milestone (NNC, 2025a). A core principle of this model is meaningful Inuit participation including employment, training, and leadership throughout all stages of the Project. During the 2025 field season, NNC achieved a 70% Inuit employment rate, and QC has maintained 50% Inuit employment in 2023 and 45% in 2024, demonstrating strong and consistent representation of Inuit in project operations. This commitment forms the foundation for expanding Inuit hiring, mentorship, and skills development as the Project advances.

Engagement and consultation activities undertaken to date include:

- Rightsholder and Community Decision-Making (2023–2025): Through a ranked-ballot process, QIA, HTAs, and Iqalungmiut selected the Kuugaaluk River system as the preferred hydropower site after reviewing 17 renewable-energy options. This process marked a formal decision gate under NNC's Inuit-led project framework (NNC, 2025a);
- Information Sessions and Community Updates: NNC and project partners hosted information sessions with Iqaluit and Pangnirtung HTAs, local leaders, and residents to present field findings, discuss environmental values, and gather feedback on study design. Sessions emphasized two-way dialogue and incorporated IQ perspectives on wildlife, fishing areas, and travel safety (NNC, 2025a);
- Workshops with Elders, Youth, and Land Users: Elders and youth contributed knowledge on culturally significant areas, seasonal wildlife movement, and preferred baseline study locations. This input has guided the design of aquatic, wildlife, and permafrost field programs, as well as the early development of visual impact materials for community review;
- Plain-Language and Bilingual Materials: NNC developed and distributed the Let's Talk Water Power/ᐅᖃᓕᓪᓗᒃᑐᑦ ᐃᒪᖅᑎᑦ ᐅᓴᒪᖅᓯᑎᒃᐅᑎᖃᖅᓯᖅ booklet across Qikiqtani communities to explain hydropower concepts, site findings, and next steps in both English and Inuktitut (NNC, 2025a). The booklet supported dialogue on energy needs, environmental priorities, and community expectations for renewable-power development; and
- Integration of IQ and Local Knowledge: IQ has been embedded in the planning and execution of field programs, including wildlife, fish habitat, and aquatic surveys. Community knowledge supports the identification of VECs and VSECs, particularly those related to country foods, land use, and cultural continuity.

7.0 Integration of Inuit Qaujimajatuqangit (IQ)

The Project is being advanced as an Inuit-led initiative intended to support long-term energy security for Iqaluit, reduce reliance on imported diesel fuel, and create meaningful opportunities for Inuit participation in Project planning, construction, operations, and monitoring. Specific benefit pathways, employment approaches, and community-based programs will be further developed in collaboration with Inuit organizations and communities as Project planning and assessment advance.

The incorporation of IQ into the INP is an ongoing process and is not considered complete at this stage. IQ will continue to serve as a foundational element throughout all phases of Project development. As design work progresses, baseline programs expand, and engagement with Inuit partners deepens, additional IQ will be identified and integrated into Project decision-making. Inuit values, harvesting knowledge, cultural priorities, and land-based insights directly inform how the Project is conceived, evaluated, and refined. Consistent with NIRB expectations, the following subsections describe the specific ways in which IQ has informed and influenced Project decisions to date.

7.1 Influence of IQ on Site Selection and Project Alternatives

IQ highlighted the importance of selecting a site with:

- minimal overlap with high use harvesting areas;
- limited interaction with major inland travel routes; and
- avoidance of culturally sensitive landforms such as eskers and historical camps.

During Inuit-led screening of sixteen renewable energy options and multiple hydroelectric locations, communities identified the Kuugaaluk River system as the site least likely to interfere with active harvesting or culturally meaningful travel corridors. As a result, several technically feasible alternatives such as Nunngarut and Jaynes Inlet were removed from consideration due to IQ-identified concerns related to cultural use, wildlife congregation areas, and winter travel safety.

Design implication: The INP's current location reflects IQ-led site screening outcomes, not only technical or engineering feasibility.

7.2 Road and Transmission Line Routing Refined Using Inuit Qaujimajatuqangit

Through mapping sessions, Elders and harvesters identified:

- known caribou movement corridors;
- water crossings traditionally used during winter travel;
- areas with unstable snow and ice conditions; and

- landscape features (e.g., eskers) used for navigation or cultural purposes.

This knowledge informed a series of design refinements:

- Primary access road alignments were shifted to avoid key caribou routes observed by Inuit monitors and confirmed during 2025 field programs;
- Transmission line corridor options excluded areas identified as high confidence harvesting zones and raptor nesting habitat; and
- Quarry locations and camp sites were adjusted to avoid berry-picking areas, small-game hunting sites, and culturally important landforms.

Design implication: Micro-routing and corridor selection now incorporate IQ-derived constraints on an equal basis with technical and environmental criteria.

7.3 Seasonal Timing of Activities Informed by Harvesting Knowledge

IQ from HTAs and harvesters resulted in the integration of seasonal considerations into planning and scheduling, including:

- avoiding disturbance during caribou migration, calving, and fall harvesting periods;
- planning in-water work outside of Arctic char migration and spawning windows documented through community interviews;
- adjusting aerial surveys to avoid periods when low-flying aircraft disrupt waterfowl staging or harvesting; and
- scheduling quarry and road work to reduce interactions with winter snowmobile routes that support inland travel and country food harvesting.

Design implication: Field programs, construction sequencing, and access planning incorporate seasonal timing windows defined through IQ.

7.4 Changes to Aquatic Design Based on Inuit Knowledge of Fish Movements

Community meetings and harvester interviews provided information on:

- upstream and downstream char migration pathways;
- overwintering pools;
- areas prone to ice instability; and
- preferred harvesting locations.

This knowledge influenced several elements of the aquatic design:

- Fish passage considerations (e.g., fish ladder or alternative structures) were included at the conceptual stage;

- Instream Flow Requirements were informed by community-defined flow patterns rather than modelled hydrology alone; and
- Baseline water quality stations were sited at locations identified by harvesters as sensitive or seasonally variable.

Design implication: IQ directly shaped dam, spillway, and flow-release concepts well before detailed engineering.

7.5 Caribou Corridor Protection Through Design Refinement

IQ provided clarity on caribou use areas not captured through 2025 camera data alone, including:

- traditional herd movement routes between inland feeding zones and coastal areas;
- areas of avoidance near human activity; and
- localized slopes and snow conditions that influence travel.

As a result:

- Several road alignment options on the south and west sides of the reservoir were removed from consideration;
- Monitoring design now includes IQ-defined disturbance indicators, such as behavioural changes or altered crossing locations; and
- Buffer distances in the EIAS reflect IQ-derived tolerances, with further community review planned before finalizing the EIS.

Design implication: Linear infrastructure placement reflects both IQ and western wildlife modelling, giving equal weight to community-based knowledge.

7.6 Cultural and Archaeological Protection Guided by Inuit Qaujimajatuqangit

IQ contributed detailed understanding of:

- long-used travel routes;
- former camps, tool-making areas, and food preparation sites; and
- areas with high potential for buried archaeological materials.

In response:

- Archaeological reconnaissance methodologies were co-developed with Inuit monitors;
- Access routes and temporary camp footprints were shifted to avoid culturally sensitive areas; and
- Stop-work and heritage resource procedures were updated to align with community expectations on how to respectfully handle newly discovered cultural materials.

Design implication: Cultural protection and avoidance measures are informed directly by IQ, rather than relying solely on post-discovery mitigation.

7.7 Shaping the VEC Framework Using Inuit Qaujimajatuqangit

IQ shaped the selection and definition of several VECs and socio-economic indicators, including:

- travel safety and reliability as a distinct valued component;
- confidence in country foods as a human health indicator;
- visual landscape character linked to harvesting experience and sense of place; and
- noise and vibration thresholds aligned with harvester experience rather than generic standards.

Design implication: Several VECs—particularly those relevant to human use—exist because IQ identified them as central to community well-being.

7.8 Monitoring and Adaptive Management Co-Developed with Inuit

IQ has also guided the approach to monitoring and adaptive management by ensuring:

- Inuit monitors are embedded across all baseline programs (wildlife, aquatic, terrestrial, permafrost);
- community knowledge defines thresholds and triggers for adaptive management (e.g., unacceptable changes in caribou or char behaviour); and
- annual data review sessions with Inuit partners will guide iterative refinement of design and mitigation.

Design implication: Monitoring programs respond to community-identified concerns and integrate IQ-defined indicators alongside technical parameters.

7.9 Conceptual Closure Plan

Closure planning for the INP will be guided by the principles of sustainability, IQ, and adaptive management, in alignment with NIRB guidance. Closure objectives are to return the PDA to safe, stable, and productive conditions that support ecosystem recovery, maintain water quality, and enable future Inuit land use consistent with community values.

Key closure considerations include:

- Design Life and Durability: The Project's permanent civil infrastructure, including the dam and powerhouse foundations, is designed for a service life of 90 years, with major equipment overhauls scheduled at 20-to-40-year intervals. Structures will be engineered to withstand 1:10,000-year seismic events and regional ice loads of up to 2.02 m thickness;
- Ecosystem Function and Stability: Activities during decommissioning will focus on restoring natural drainage, re-establishing tundra vegetation, and maintaining permafrost and terrain stability.

Disturbed areas, including access roads, quarry sites, and temporary work areas, will be regraded and revegetated with native species suited to local climatic conditions;

- Water Quality Protection and Reservoir Drawdown: Reservoir drawdown will be conducted gradually to prevent erosion, sediment release, or abrupt hydrological change. Water quality will be monitored during and after drawdown to confirm that downstream aquatic ecosystems remain stable and suitable for fish and wildlife use;
- Infrastructure Removal and Site Rehabilitation: Infrastructure not required for ongoing power generation such as temporary camps, laydown areas, and non-essential access routes—will be dismantled and materials removed from site. Foundations, borrow areas, and disturbed soils will be contoured to match surrounding terrain and promote natural regeneration;
- Adaptive Management and Climate Resilience: Closure measures will be designed to accommodate projected climate change effects, including permafrost thaw, increased precipitation, and variable freeze–thaw cycles. Monitoring data will be reviewed regularly, and adaptive management actions will be implemented where performance indicators (e.g., slope stability, vegetation cover, water quality) deviate from expected trends; and
- Inuit Land Use, IQ, and Community Participation: Inuit knowledge and community input will guide reclamation priorities and post-closure land uses. Engagement with HTAs, Elders, and youth will continue throughout the closure phase to confirm culturally appropriate success criteria and preferred end uses of rehabilitated areas.

Post-closure monitoring is anticipated to continue for a minimum of five years, or longer if required, to verify physical stability, ecological recovery, and the effectiveness of adaptive measures. The conceptual closure plan will be refined as new information becomes available through ongoing baseline studies, design development, and regulatory review, and to incorporate recommendations from technical findings and community feedback. Updates will be made as part of the adaptive management process to reflect evolving climate, hydrological, and permafrost conditions. Post-closure monitoring duration and performance criteria will be finalized in consultation with NIRB and the Nunavut Water Board, informed by site-specific conditions and community input.

8.0 Next Steps

The upcoming phase of the INP will build on the environmental and conceptual planning completed to date and transition toward applied investigations, design advancement, and expanded community collaboration. The following next steps reflect anticipated activities following completion of NPC conformity determination and NIRB screening and are subject to regulatory direction and community feedback.

Key next steps for 2026 include the following:

1. Permitting for the 2026 Field Programs
   - Obtain authorizations required to support the 2026 field season, including research permits under the *Wildlife Act* (2003), water-use and access approvals under the *Nunavut Waters* and *Nunavut Surface Rights Tribunal Act* (2002), and scientific-licence amendments as needed for hydrometric, permafrost, and aquatic monitoring installations; and
   - Coordinate early review with the NPC and NIRB so that the proposed studies align with the outcomes of the screening process and the scope of the forthcoming EIS.

2. Detailed Design Development and Geotechnical Program
   - Advance conceptual engineering into preliminary and detailed design to confirm site layouts, foundation conditions, and construction feasibility for the dam, powerhouse, access roads, and transmission line;
   - Implement a multi-season geotechnical and terrain-stability program focused on permafrost characterization, borrow-source quality, and reservoir shoreline behavior; and
   - Integrate design refinements with environmental baseline data to optimize alignment and reduce disturbance to sensitive terrain and wildlife corridors.

3. Socio-Economic and Community Baseline Program
   - Initiate socio-economic and human-environment baseline studies addressing community well-being, employment and procurement opportunities, country-foods use, and health indicators; and
   - Collaborate with local organizations, including the QIA and HTAs, to ensure data collection reflects community priorities and supports future benefit-sharing discussions.

4. Continued Engagement and Consultation on VECs and VSECs
   - Conduct focused engagement sessions with Iqaluit and Pangnirtung communities to validate the proposed list of VECs and VSECs identified in the EIAS;
   - Facilitate workshops with Elders, youth, and land-users to confirm assessment boundaries, indicators, and culturally relevant success criteria; and

- Maintain transparent communication through plain-language updates, community briefings, and shared data review sessions to support informed participation and long-term trust.

5. Integration of Findings into the Draft EIS Guidelines and Conceptual Closure Planning
   - Use results from the 2026 programs to refine project design, inform mitigation measures, and strengthen the Conceptual Closure Plan framework; and
   - Apply lessons from geotechnical, socio-economic, and environmental programs to inform the EIS Guidelines expected in 2026, supporting a defensible and community-aligned environmental assessment.

6. Consideration of the thermal load and how the Project could work to support electrification of Iqaluit
   - Review of similar cases where electrification of the community helped renewable energy serve the existing thermal load;
   - Determine the magnitude of the existing thermal load;
   - Consider solutions and technologies that could serve this load; and
   - Collect data as necessary to determine the feasibility of any considered solutions.

9.0 Closing

This Project Proposal represents an early step in a staged, transparent, and collaborative regulatory process. The information presented is intended to support informed screening and scoping decisions, with the understanding that Project design, environmental assessment, and mitigation planning will continue to evolve in response to regulatory guidance, Inuit knowledge, and technical findings.

Appendix A

IAAC Response - Iqaluit Nukkiksautiit Project

DILLON CONSULTING

Roche, Michelle <mroche@dillon.ca>

Iqaluit Nukkiksautiit Project

PNR / RPN (IAAC/AEIC) <pnr-rpn@iaac-aeic.gc.ca> 5 November 2025 at 19:35
To: "Roche, Michelle" <mroche@dillon.ca>, Jill Byrne <jbyrne@qcorp.ca>
Cc: "Lachine,Tracy (IAAC/AEIC)" <Tracy.Lachine@iaac-aeic.gc.ca>, "Lefebvre,Allisson (IAAC/AEIC)" <Allisson.Lefebvre@iaac-aeic.gc.ca>, "PNR / RPN (IAAC/AEIC)" <pnr-rpn@iaac-aeic.gc.ca>, "Federal Lands / Territoire Domanial (IAAC/AEIC)" <FederalLands-TerritoireDomanial@iaac-aeic.gc.ca>

Hi Michelle and Jill.

It was great to meet you both. Thank you for providing us with the introduction to the project

As discussed in our meeting, the *Physical Activities Regulations* are not triggered by the project. Given this, we would not be assessing the project any further and do recommend that you continue your conversations with NIRB. Regarding your questions to federal funding and questions that relate to section 81-91 of the *Impact Assessment Act*, please see below.

The obligations under sections 81 to 91 of the IAA would apply to non-designated projects on federal lands, including posting public notices on the Canadian Impact Assessment Registry and conducting an environmental effects determination, while considering the factors listed under section 84 of the IAA. We would strongly encourage you to reach out to the responsible authority.

I have included our colleges with the Federal Lands team of our Legislative and Regulatory Affairs department (federallands-territoiredomanial@iaac-aeic.gc.ca) and they would be happy to assist you in determining whether section 82 of the IAA applies to this project. If section 82 of the IAA is not applicable to this project, then there is no need to post the project to the Registry at this time.

For more information, please refer to the IAAC guidance for projects on federal lands: Projects on federal lands and outside Canada: Guidance on Sections 81 to 91 of the Impact Assessment Act - Canada.ca .

Further information on the IAA and associated regulations can be found at https://www.canada.ca/en/impact-assessment-agency.html.

Kindly let me know if you have any further questions.

Sincerely,

Param Joshi

(he/him|il)

Policy Analyst, Prairie and Northern Region
Impact Assessment Agency of Canada / Government of Canada
Param.Joshi@iaac-aeic.gc.ca / Tel: 587-340-2336

Analyste des politiques, Région des Prairies et du Nord
Agence d'évaluation d'impact du Canada / Gouvernement du Canada
Param.Joshi@iaac-aeic.gc.ca / Tél. : 587-340-2336

DILLON CONSULTING

Roche, Michelle <mroche@dillon.ca>

Iqaluit Nukkiksautiit Project

PNR / RPN (IAAC/AEIC) <pnr-rpn@iaac-aeic.gc.ca> 24 November 2025 at 13:48
To: "mroche@dillon.ca" <mroche@dillon.ca>
Cc: "Federal Lands / Territoire Domanial (IAAC/AEIC)" <FederalLands-TerritoireDomanial@iaac-aeic.gc.ca>, "jbyrne@qcorp.ca" <jbyrne@qcorp.ca>, "PNR / RPN (IAAC/AEIC)" <pnr-rpn@iaac-aeic.gc.ca>

Hi Michelle,

Thank you for reaching out to our federal lands team.

I believe our earlier communication may have caused some confusion, so I would like to clarify the following:

Because the project is located within the Nunavut Settlement Area, the *Impact Assessment Act* (IAA) does not apply, in accordance with section 7 of the *Nunavut Planning and Project Assessment Act*. The IAA is not applicable in the Nunavut Settlement Area or the Outer Land Fast Ice Zone. As a result, the IAA does not apply regardless of whether the project would otherwise be considered a designated project under the *Physical Activities Regulations* of the IAA or is situated on federal lands (i.e., section 82 of the IAA does not apply).

We appreciate you doing your due diligence and should you need anything further please let us know.

Sincerely,

Param Joshi

(he/him|il)

Policy Analyst, Prairie and Northern Region
Impact Assessment Agency of Canada / Government of Canada
Param.Joshi@iaac-aeic.gc.ca / Tel: 587-340-2336

Analyste des politiques, Région des Prairies et du Nord
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Param.Joshi@iaac-aeic.gc.ca / Tél. : 587-340-2336

From: Roche, Michelle <mroche@dillon.ca>
Sent: Thursday, November 13, 2025 8:19 AM
To: Federal Lands / Territoire Domanial (IAAC/AEIC) <FederalLands-TerritoireDomanial@iaac-aeic.gc.ca>
Cc: Jill Byrne <jbyrne@qcorp.ca>
Subject: Fwd: Iqaluit Nukkiksautiit Project

Good Morning,

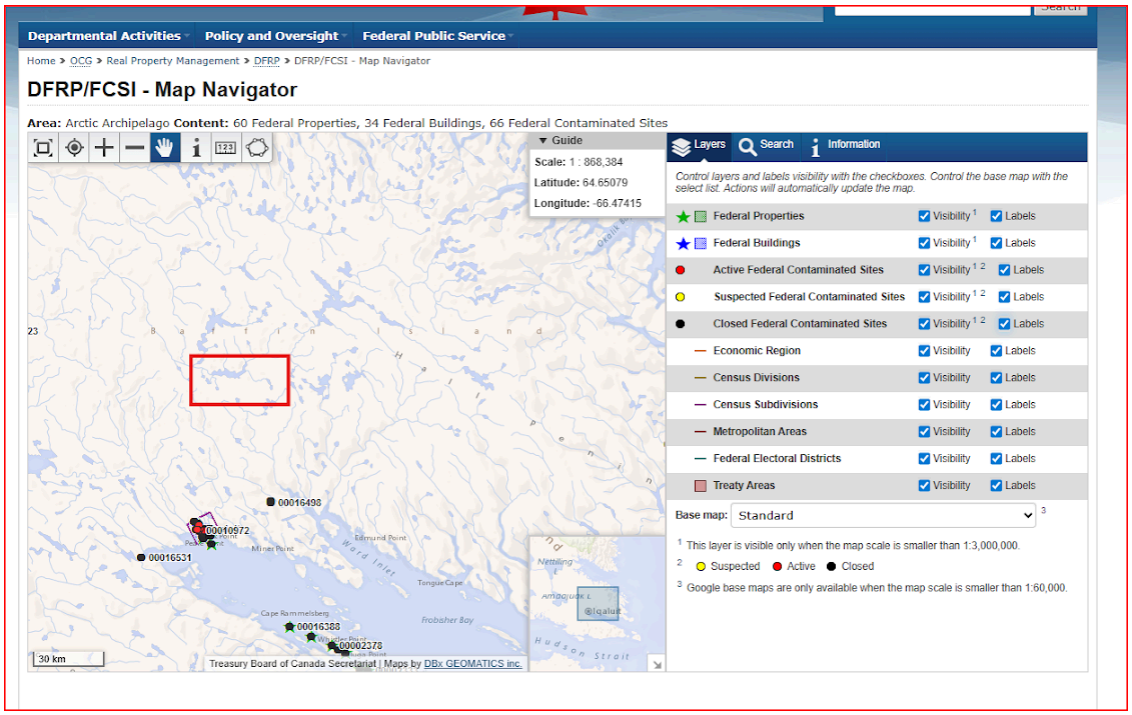
Following our recent meeting with the Impact Assessment Agency of Canada (IAAC), it was confirmed that the Physical Activities Regulations are not triggered by the project.

In an effort to complete our due diligence, I have reviewed the Directory of Federal Real Property (DFRP) and can confirm that no federal lands have been identified within the project footprint (see below).

We would, however, like to confirm with your team that there are indeed no federal lands associated with this project and that the obligations under Section 82 of the Impact Assessment Act (IAA) do not apply. I have attached a figure outlining the project footprint below.

Please let us know if you require any additional information to support this confirmation.

Latitude 64.17054 Longitude -67.91505



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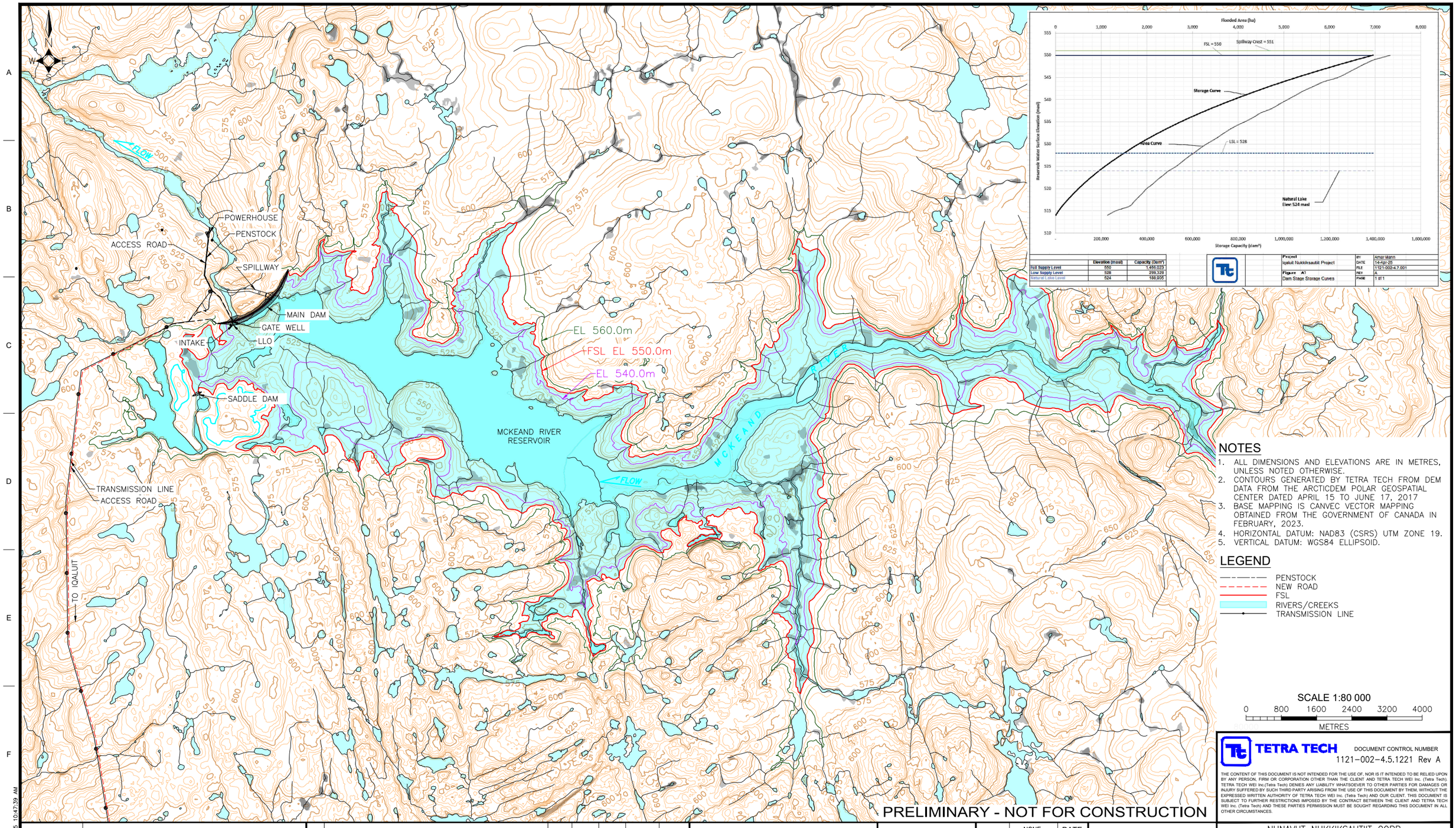
Appendix B

Reservoir Configuration



	Elevation (masl)	Capacity (dam³)
Full Supply Level	550	1,466,020
Low Supply Level	528	299,320
Natural Lake Level	524	188,905

Project	Iqaluit Nukkiksautiit Project
Figure A1	Dam Stage Storage Curves

BY	Amar Mann
DATE	14-Apr-25
FILE	1121-002-4.7.001
REV	A
PAGE	1 of 1

NOTES

1. ALL DIMENSIONS AND ELEVATIONS ARE IN METRES, UNLESS NOTED OTHERWISE.
2. CONTOURS GENERATED BY TETRA TECH FROM DEM DATA FROM THE ARCTICDEM POLAR GEOSPATIAL CENTER DATED APRIL 15 TO JUNE 17, 2017
3. BASE MAPPING IS CANVEC VECTOR MAPPING OBTAINED FROM THE GOVERNMENT OF CANADA IN FEBRUARY, 2023.
4. HORIZONTAL DATUM: NAD83 (CSRS) UTM ZONE 19.
5. VERTICAL DATUM: WGS84 ELLIPSOID.

LEGEND

- PENSTOCK
- NEW ROAD
- FSL
- RIVERS/CREEKS
- TRANSMISSION LINE

SCALE 1:80 000

0 800 1600 2400 3200 4000

METRES

TETRA TECH

DOCUMENT CONTROL NUMBER
1121-002-4.5.1221 Rev A

PRELIMINARY - NOT FOR CONSTRUCTION

DWG. NO.	REFERENCE DRAWINGS	REV. No.	REVISION DESCRIPTION	BY	DESIGN	CHECK	APPROVED	DATE
–	–	A	NEW DRAWING	CPB	PGK	RS	GS	25-05-01

	NONE	DATE
DESIGNED BY:	C. BARON	25-03-27
DRAWN BY:	M.HOPFNER	25-03-27
CHECKED BY:	D. JONES	25-06-04
APPROVED BY:	G. SHEPARD	25-06-05
CLIENT APPROVAL:		

NUNAVUT NUKKIKSAUTIIT CORP

IQALUIT NUKKIKSAUTIIT PROJECT
GENERAL – HEADWORKS
MAIN RESERVOIR
PLAN

DRAWING NUMBER	REV.
1221	A

6/23/2025 10:47:39 AM
BARON, COLIN
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