



Canadrill-CBCL Joint Venture
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June 9, 2021

Mr. Goump Djalogue
Senior Planner, Nunavut Planning Commission
P.O. Box 2101
Iqaluit, Nunavut X0B 0C0

Dear Mr. Djalogue:

RE: Clyde River Harbour Development, NU, Application for Land Use Conformity Review

1 Introduction

Canadrill-CBCL Joint Venture (Canadrill-CBCL) has been retained by Public Services and Procurement Canada (PSPC) on behalf of Fisheries and Oceans Canada (DFO) to develop the detailed designs and to oversee construction of a proposed small craft harbour (SCH) in Clyde River, Nunavut (the Project). This letter provides an overview of the proposed Project to support the Nunavut Planning Commission's review of the application for land use conformity.

2 Project Contact information

2.1 Project Name

Clyde River Harbour Development

2.2 Proponent and Representative Details

Proponent

Fisheries and Oceans Canada – Small Craft Harbours (DFO-SCH)

Proponent Contact

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Senior Project Engineer
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Consultant Representative

Canadrill-CBCL Joint Venture

Consultant Contact

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3 Project Description

3.1 Project Purpose and Need

As part of the creation of the Tallurutiup Imanga National Conservation Area and the Inuit Impact and Benefit Agreement, the Government of Canada, through DFO-SCH, are committed to establishing a commercial fishing harbour in the community of Clyde River, Nunavut. As with most SCH facilities, the primary function of the Project is to provide safe and accessible facilities for the community to pursue the local livelihood, including marine fish and mammal harvesting, and provide infrastructure needed to develop commercial fisheries.

Currently, the beach is used as access for fishing and marine mammal harvesting. The current use of the beach as a fishing harbour does not meet the needs of the community; there are issues associated with vessel damage, equipment loss, safety, overcrowding, extensive sedimentation associated with beach sands, logistical conflicts during sealift operations, and other general inefficiencies. The Project will provide safe access to land and sea to meet current and future needs, taking into consideration climate change. The intent is to enhance the local facilities for the benefit of both its direct users and the broader community.

The Project will also support the developing inshore and offshore commercial fisheries, ensuring that local fishing operations have access to safe harbours and landing facilities.

3.2 Project Location and Land Use

3.1.1 Project Location

The Project will be located at Clyde River, Nunavut (Figure 1, attached), specifically in and on the shore of Patricia Bay (Figure 2, attached).

3.1.2 Planning Region

The project will be carried out in the Qikiqtaaluk Region, in the North Baffin Planning Region.

3.1.3 Land Use and Ownership

Current land use at the proposed location for the SCH falls into the following categories:

- ▶ Commercial harvesting
- ▶ Marine-based activities
- ▶ Transportation

The land in the location where the Project will be carried out is on the shore and seabed of Patricia Bay. The seabed is federal Crown land under the administration and control of Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). The shore is territorial Crown land under the administration and control of the Nunavut Department of Community and Government Services.

DFO - SCH Branch is currently in the process of acquiring administration and control of the property from the Government of Nunavut and CIRNAC and will have administration and control of the property prior to the start of construction.

3.2 Project Overview and Components

The proposed Project consists of the construction of the following key components:

- ▶ Three breakwaters (southern, northern, and sealift breakwaters)
- ▶ A revetment along the shoreline
- ▶ Floating wharves
- ▶ A community boat launch within the SCH basin
- ▶ A sealift positioned outside of the SCH
- ▶ A new fixed wharf for larger vessels
- ▶ A laydown area for storage of materials and goods
- ▶ A new mooring bollard installed on the southern breakwater
- ▶ An access road along the southern breakwater to the new fixed wharf
- ▶ Harbour lighting along the breakwater access road, fixed wharf and floating wharves landing area, and an electrical service on the fixed wharf
- ▶ Aids to navigation at the ends of the northern and southern breakwaters

In addition to the physical components of the Project, the following activities will be carried out during construction:

- ▶ Establishment of temporary construction work camp
- ▶ Establishment of temporary construction staging, laydown, and storage areas
- ▶ Replacement of two existing culverts located to the east and west of the Project site
- ▶ Haul road and river crossing upgrades
- ▶ Dredging and disposal of dredged material
- ▶ Quarrying (drilling, blasting, excavation)
- ▶ Pile driving
- ▶ Infilling
- ▶ Utility pole and lighting installation

Rock and gravel required to construct the SCH will be sourced from a local quarry. The proposed quarry is an existing quarry located approximately 5 km by road from the SCH site. The haul road from the quarry crosses a watercourse and the existing bridge will require upgrades or a new crossing will be required. Infilling will be carried out to establish the SCH facilities and expand the upland area for the SCH laydown area. Dredging will be required to at least -5.0 m Chart Datum (CD) at the fixed wharf, entrance channel, and turning circle to accommodate larger vessels. Dredging will also be required to a depth of -1.5 m Chart Datum at the floating wharves to accommodate vessels at low tide. Dredged material will be reused for infilling, if the material is

appropriate for such reuse; dredged material that cannot be reused at the site will be disposed of at sea. Figure 3 (attached) depicts the location of the quarry, the area where the river crossing is proposed, the proposed haul road, and the disposal at sea location in relation to the SCH.

3.3 Project Schedule

Construction is scheduled to commence with mobilization of equipment and materials, and potentially some site preparation work in 2022. Site construction works will commence in 2023 and be completed by fall of 2025, with construction shut down over the winter seasons. Operation of the SCH is expected to commence at the start of the open water season in 2026.

3.4 Personnel

During construction, it is estimated that there will be 25 to 30 personnel required. Construction personnel will be required during the open-water season and those that are not residents of Clyde River will depart for the winter. During the active construction seasons, personnel will be onsite over a period of approximately 130 days for a total of 390 construction days per person over the course of the three-year construction phase. During operation, the SCH will be managed by the Harbour Authority but will not include operational staffing.

3.5 Equipment and Materials

Equipment and materials required during construction of the Project will be determined by the contractor; however, the following sections provide an estimate of the equipment and materials that are likely to be required, based on the schematic design of the Project, the Project location, and experience with similar projects.

3.5.1 Equipment

Table 1 provides a summary of the types and quantities (units) of equipment that is estimated to be used during construction of the Project, along with the size (weight or dimensions) and proposed use. No equipment is expected to be required during operation.

Table 1 Estimate of Equipment Use During Project Construction

Type	Units	Description	Size (m)	Use
Drilling rig	2	5 ton	5.5 x 2.3	Quarrying
Excavator	5	30 - 40 ton	4 x 3.5	Quarrying, material handling, excavating
Rock truck	4	35 ton articulating	11.1 x 4.2	Transporting quarried rock
Transport truck	2	40 tons	16 x 2.9	Transporting equipment and materials
Front end loader	3	966 - 988	7.5 x 2.5	Material loading and handling
Compactor	1	20 ton	6.2 x 2.5	Work surface and road compaction
Bulldozer	1	D8	3.2 x 2.7	Work surface and road levelling

Type	Units	Description	Size (m)	Use
Grader	1	140 ton	10.1 x 2.5	Work surface and road grading
Spud barge/ derrick	1	20m x 50m deck with 150 ton crane	20 x 50	Dredging, transporting material and equipment
Material scow	2	500 cubic metre	47 x 11	Dredging and disposal of dredged material
Tug	1	1000 - 1500 horsepower	14.85 x 5.8	Transport and movement of marine equipment
Work boat	2	50 - 500 horsepower	9.75 x 2.9	Transport and movement of marine equipment and personnel
Pick-up truck	3	3/4 ton	4.8 x 1.9	Transport and movement of equipment and personnel
Fuel/service truck	1	10 ton	13 x 2.5	Transport fuel from Government of Nunavut Petroleum Products Division dispensers to mobile equipment
Water truck	1	10 ton	9.5 x 2.5	Transport water from municipal water to work camp and construction site
Wastewater truck	1	10 ton	9.5 x 2.5	Transport wastewater from work camp and construction site to municipal wastewater treatment facility
Telehandler/ forklift	1	5 ton	6.2 x 2.6	Material and equipment loading, handling, and movement
Rough terrain crane	1	250 ton	14.5 x 7.9	Material and equipment loading, handling, and movement
Rock Crusher for quarry	1	125 ton	14.6 x 4.2 14.3 x 4.2 17 x 3.6	Portable jaw crusher, cone and screening plant for the manufacturing of aggregate

3.5.2 Fuel

Table 2 provides a summary of the types and quantities (units and volume) of fuel that is estimated to be used during construction of the Project, along with the proposed storage and use. The SCH will not be actively managed and no fuel is expected to be required during operation.

Table 2 Estimate of Fuel Use During Project Construction

Fuel	Storage Method / Container Volume	Number of Containers	Total Volume (m ³)	Use
Diesel	Fuel will be dispensed on a daily basis from existing facilities in Clyde River.	n/a	3,800	Mobile equipment, remote generators and heaters.

Fuel	Storage Method / Container Volume	Number of Containers	Total Volume (m ³)	Use
Gasoline	Fuel will be dispensed on a daily basis from existing facilities in Clyde River.	n/a	140	Small work boats, small generators and ATVs.
Propane	100-lb (25 gallon) compressed gas tanks	10	1	Camp use (heating, cooking, refrigeration)
Acetylene	4 m ³ compressed gas cylinder	10	40	Metal cutting and welding torches

3.5.3 Hazardous Materials and Chemicals

Table 3 provides a summary of the types and quantities (units and volume) of hazardous materials and chemicals that are estimated to be used during construction of the Project, along with the proposed storage and use. No hazardous materials are expected to be required during operation.

Table 3 Estimate of Hazardous Materials and Chemicals Use During Project Construction

Chemical / Material	Storage Method / Container Volume	Number of Containers	Total Volume	Use
Oils and lubricants	22.7-L (5-gallon) supplier containers	10	227 L (50 gallons)	Maintenance of mobile equipment
Paint	4.5-L (1-gallon) supplier containers	10	45 L (10 gallons)	Painting wharf hardware and miscellaneous components
Explosives	To be determined. Storage and handling will be in accordance with licence, certificate or permit issued under the Explosives Act and Regulations			Quarrying

3.6 Water Use

Because commercial accommodations in Clyde River are limited, it is expected that the contractor will establish a temporary work camp to accommodate personnel during construction. Water will be required primarily for cooking and consumption at the work camp and to a lesser degree at the construction site. It is estimated that approximately 6 m³ per day will be required during construction. Water is not required during the winter shut-down periods. No water is expected to be required during operation.

3.7 Waste Management

Table 4 provides a summary of the types and quantities (units and volume) of fuel that is estimated to be used during construction of the Project, along with the proposed storage and use. No waste is expected to be produced during operation.

Table 4 Estimate of Waste Production and Disposal During Project Construction

Waste Type	Associated Project Activity	Projected Amount Generated	Method of Disposal
Hazardous	Construction	100 L	Package, sealed and transported south in shipping containers for disposal in accordance with applicable regulations
Combustible wastes	Camp	2 tonnes	Municipal landfill
Non-Combustible wastes	Camp	0.5 tonnes	Municipal landfill
Greywater	Camp	800 m ³	Collected in wastewater truck and transported to municipal wastewater treatment facility
Sewage (human waste)	Camp	1500 m ³	Collected in wastewater truck and transported to municipal wastewater treatment facility
Overburden (organic soil, waste material, tailings)	Quarrying	Negligible	Stockpiled at quarry
Marine sediment	Dredging	25,000 m ³	Infilling and/or disposal at sea

4 Permits, Authorizations, and Approvals

Table 5 presents a list of approvals, permits, authorizations, and licenses that are expected to be required for construction of the Project, after the Nunavut Planning Commission completes a review of the Project proposal to determine conformity with the North Baffin Regional Land Use Plan.

Approval / Permit / License /Authorization	Regulatory Authority	Associated Component or Activity
Screening of Project Proposal	Nunavut Impact Review Board	Entire Project
<i>Fisheries Act</i> Authorization	Fisheries and Oceans Canada (DFO)	Construction below High Water Mark
Approval under <i>Canadian Navigable Waters Act</i>	Transport Canada	Installation of structures that will impact navigation
Disposal at Sea Permit	Environment and Climate Change Canada (ECCC)	At sea disposal of dredged material

Approval / Permit / License /Authorization	Regulatory Authority	Associated Component or Activity
Explosives License	Natural Resources Canada	Quarrying
Land Use Permit	Government of Nunavut	Quarrying, river crossing, work camp and/or staging areas that are outside DFO property
Type B Water License	Nunavut Water Board (NWB)	Water use for camp, river crossing, creek diversion (culvert replacement)
Explosives License	Government of Nunavut Workers Safety & Compensation Commission (WSCC)	Quarrying (acquisition and storage of explosives)
Commercial / Industrial Land Lease	Municipality of Clyde River	New river crossing (if required)
Land Use Permit	Municipality of Clyde River	Quarrying, camp site
Quarrying Permit	Municipality of Clyde River	Quarrying

5 Consultation

Community engagement activities were conducted as part of the Feasibility Study conducted by Advisian (2020). This included three trips to the community (November 2018, May 2019, and November 2019) to build a rapport with the community, to understand community needs, and to share concepts for the harbour design. Meetings were held with the Council, the Hunters and Trappers Organization (HTO) and the local Qikiqtani Inuit Association (QIA) representatives. Feedback received related to local conditions, water and ice access, existing facilities, design input, the quarry, and the safety of the haul road, among other topics.

DFO refined the harbour layout options and presented the update in February 2020. A meeting was held with the Council and HTO and an Open House was held to obtain feedback from the community. Feedback included questions on whether the sealift ramp would be accessible during construction, the river crossing options to get to and from the quarry, the effects of blasting on fish in the lake, among others.

Building on the community engagement work from the Feasibility Study, an initial engagement trip by the CBCL-Canadrill team was held in Clyde River the week of September 29, 2020 with the following objectives:

- ▶ Introduce the Canadrill-CBCL Team to the Hamlet and Nangmoutaq HTO of Clyde River
- ▶ Identify key players and establish a relationship between the Canadrill-CBCL Team and the community

- ▶ Present the proposed harbour layout and field programs to the community stakeholders and provide answers to questions
- ▶ Better understand the context of the small craft harbour in the community of Clyde River
- ▶ Collect field data and Inuit Qaujimajatuqangit (IQ)

A second engagement trip by the CBCL-Canadrill team was held in Clyde River the week of February 19, 2020 with the following objectives:

- ▶ Provide an update on the status of the design and the proposed harbour layout
- ▶ Provide an update on the results of the field studies and investigations
- ▶ Discuss the plans for upcoming field studies and investigations
- ▶ Introduce the options being considered for the river crossing
- ▶ Present the schedule for upcoming activities and future community consultations
- ▶ Review responses to previous, and record any new, community questions and concerns
- ▶ Continue to build relationship between the Canadrill-CBCL Team and stakeholders in the community and better understand the context of the SCH in the community of Clyde River
- ▶ Continue the collection of field data and IQ

The engagement tools and approaches used during the engagement trips to Clyde River included:

- ▶ Structured presentations and discussions with the Hamlet, HTO, QIA members
- ▶ Meetings with knowledge holders to gather information on IQ
- ▶ Discussions with the Mayor of Clyde River
- ▶ Drop in visits with the RCMP and Conservation Officer
- ▶ Ad hoc conversations with people from Clyde River

Additional community outreach is planned, including three more meetings with the council and HTO (currently scheduled for September and October 2021), and a community Open House, scheduled for September 2021. Meetings will include project updates, details on any upcoming field programs and presentation of design progress. Feedback will be sought with the intention of considering feedback in the design as the project progresses.

6 Environmental Impacts, Mitigation, and Management

6.1 Environmental and Socio-economic Impacts

The potential adverse environmental and socio-economic effects of the Project are anticipated to occur during construction. With the exception of potential disturbance as a result of increased lighting, the potential effects during operation are expected to be predominantly positive socio-economic effects. The potential adverse and positive environmental and socio-economic effects associated with construction and operation of the Project are outlined below:

- ▶ Atmospheric Environment
 - Changes in local air quality (emissions from operation of combustion engines, dust)
 - Changes in local acoustic environment (emissions from operation of equipment)
 - Changes in local ambient light (lighting during construction and operation)
- ▶ Terrestrial Environment
 - Changes in soil quality (impacts from accidental spill of fuel or hazardous material)
 - Disturbance to terrestrial wildlife
- ▶ Aquatic Environment
 - Changes in water quality (impacts from accidental spill of fuel or hazardous material, increase in suspended sediment during construction)
 - Disturbance to marine wildlife
 - Alteration or loss of fish habitat
- ▶ Socio-economic Environment
 - Change in land use
 - Conflict with resource users (disruption to navigation, hunting, or fishing during construction)
 - Disturbance to local community from increase in traffic, noise, light, and dust during construction
 - Increased pressure on municipal services and infrastructure during construction
 - Increase in navigation and user safety during operation
 - Increase in capacity for marine infrastructure users (fishing, shipping, docking)
 - Increase in potential for economic development during operation
 - Improved function and capacity for storage

6.2 Environmental Mitigation and Management

Potential adverse environmental effects of the Project will be mitigated and managed through the development and implementation of a Construction Environmental Management Plan (CEMP). The CEMP will detail the environmental protection requirements and mitigation measures that will be adhered to on the Project site and will provide a framework for the development and implementation of safe and environmentally responsible practices to reduce environmental effects of the Project. The CEMP will provide an overall strategy and guidance for compliance with relevant environmental legislation and policies, as well as compliance with the terms and conditions of permits and approvals obtained. Construction personnel will be trained in the requirements of the CEMP and advised of the regulatory requirements and conditions for the Project construction.

The CEMP will include the following, some of which will be developed by the contractor:

- ▶ Project overview and purpose of the plan
- ▶ Outline of relevant regulatory requirements and conditions
- ▶ Description of roles and responsibilities

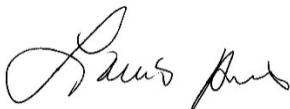
- ▶ Mitigation and management plans
- ▶ Spill prevention, contingency, and emergency response plan
- ▶ Erosion and sediment control plan
- ▶ Waste management plan
- ▶ Traffic management plan
- ▶ Blasting management plan
- ▶ Marine construction management plan
- ▶ Wildlife mitigation and monitoring plan
- ▶ Monitoring and reporting requirements

7 Closure

We trust this letter provides the information required to support the Nunavut Planning Commission's review of the proposal for the Clyde River Harbour Development to determine conformity with the North Baffin Regional Land Use Plan. If you have any questions or require further details, please do not hesitate to contact the undersigned.

Yours very truly,

CBCL Limited



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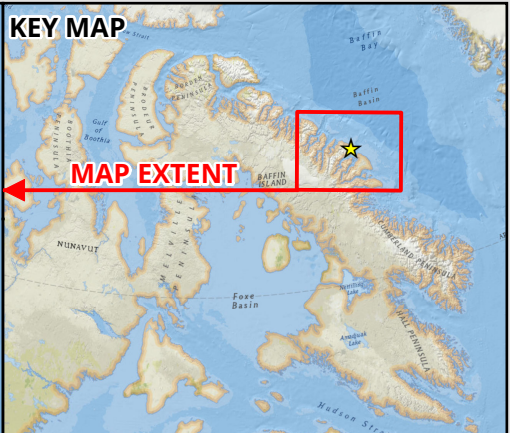
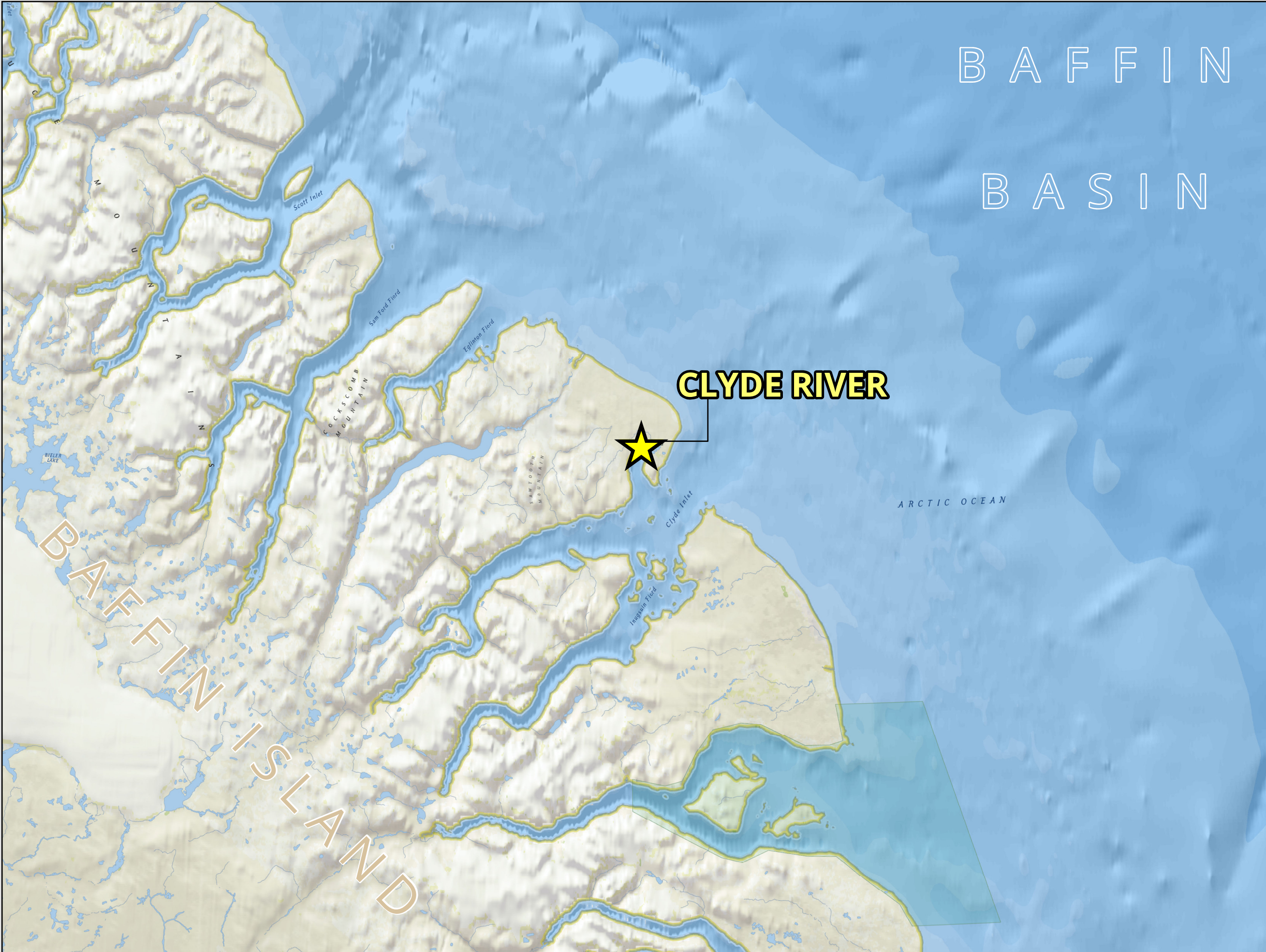


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Attachment: Figure 1
Figure 2
Figure 3

c.c. Eleanor McEwan, DFO Small Craft Harbours
Kenton Thiessen, PSPC

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LEGEND

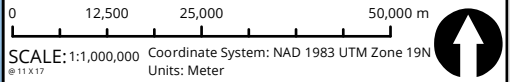


CLYDE RIVER SMALL
CRAFT HARBOUR DEVELOPMENT

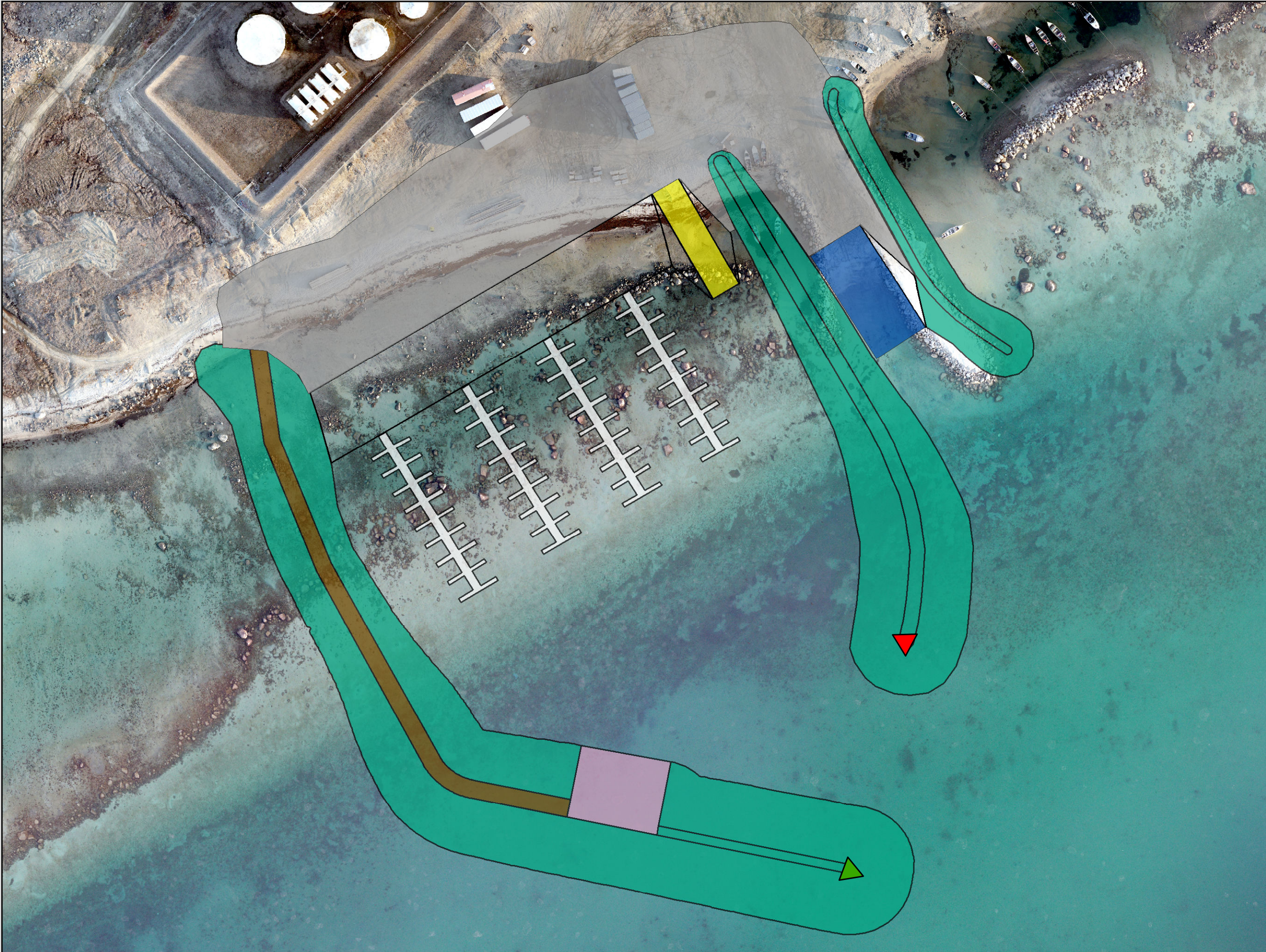
Project Location

DATE: 2021-01-27	PROJ N°: 200235	FIGURE: 1
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- LEGEND**
- Project Layout**
- Access Road
 - Breakwater
 - Community Boat Launch
 - Fixed Wharf
 - Floating Docks
 - Sea Lift
 - Service Area

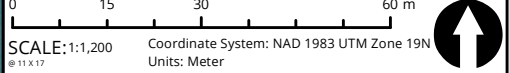


Clyde River Small Craft Harbour Development

Harbour Location

DATE: 2021-01-27	PROJ N°: 200235	FIGURE: 2
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- LEGEND
- Project Layout
 - Disposal At Sea Location
 - Quarry Location
 - Extent Limits of River Crossing Options
 - Haul Route



CLYDE RIVER SMALL
CRAFT HARBOUR DEVELOPMENT

Project Components

DATE: 2021-06-09	PROJ N°: 200235	FIGURE: 3
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