



Iqaluit Marine Infrastructure – Small Craft Harbour

Construction Environmental Management Plan

15 June 2017

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Burnaby BC V5C 6S7
Canada

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Project No: 307071-01148-02-EN-PLN-0003 – Iqaluit Marine Infrastructure – Small Craft Harbour: Construction Environmental Management Plan

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Appendix 1	Preliminary Spill Prevention and Response Plan for Iqaluit Marine Infrastructure
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Abbreviations

Term	Definition
AIA	Archaeological Impact Assessment
ASPPR	Arctic Shipping Pollution Prevention Regulations
ATV	All-Terrain Vehicle
AWPPA	<i>Arctic Waters Pollution Prevention Act</i>
AWPPR	Arctic Waters Pollution Prevention Regulations
BMPs	Best Management Practices
CA	Contract Administrator
CCME	Canadian Council of Ministers of the Environment
CD	Chart Datum
CEMP	Construction Environmental Management Plan
CEPA	<i>Canadian Environmental Protection Act</i>
CGS	Community and Government Services
CSA	Canadian Standards Association
CWPs	Construction Work Plans
DFO	Fisheries and Ocean Canada
DSP	Deep Sea Port
EI	Environmental Inspector
ECCC	Environment and Climate Change Canada
EDT	(Department of) Economic Development and Transportation
EM	Environmental Monitor
GN	Government of Nunavut
HTA	Amaruq Hunters and Trappers Association
INAC	Indigenous and Northern Affairs Canada
MMO	Marine Mammal Observers
MSDS	Material Safety and Data Sheet
NIRB	Nunavut Impact Review Board
OPPR	Oil Pollution Prevention Regulations
PPE	Personal Protective Equipment
PSIR	Project Specific Information Requirements
SCH	Small Craft Harbour



Term	Definition
SPRP	Spill Prevention and Response Plan
the City	The City of Iqaluit
TSS	Total Suspended Solids
WHMIS	Workplace Hazardous Materials Information System
YFB	Iqaluit Airport

1 Introduction

1.1 Background

The Government of Nunavut (GN), through the Department of Economic Development and Transportation (EDT), is developing a small craft harbour (SCH) in Iqaluit, which consists of improvements to the municipal breakwater and the existing causeway at Iqaluit, which is located at the south end of Baffin Island within Koojesse Inlet at the head of Frobisher Bay (the Project). The construction of the Project will be managed by Community and Government Services (CGS) on behalf of EDT.

The Project seeks to improve the safety, tidal access, congestion, and functionality of boating activities associated with activities such as subsistence fishing, marine outfitters, and cruise ship tenders.

The proposed SCH is located on land fronting the City. The SCH improvements will be built at the municipal breakwater and the causeway within Koojesse Inlet. The Project work at the municipal breakwater includes an extension of the existing breakwater, construction of an additional north breakwater, a boat launch ramp, vehicle staging lanes, and new floating docks. The improvements to the causeway include a new high-tide ramp, a new vehicle turning circle on the causeway itself, and improvements to the existing low-tide ramp and parking area.

1.2 Purpose of the Plan

The primary purpose of the Construction Environmental Management Plan (CEMP) is to outline measures to be implemented to avoid, manage or mitigate potential environmental and social effects associated with construction activities. Associated monitoring requirements are also outlined. This CEMP defines the requirements of the construction contractor(s) (the Contractor) for the Project and guides the development of Construction Work Plans (CWPs) for specified construction activities.

The CEMP is a live document and will be updated as required by terms and conditions defined in the Nunavut Impact Review Board (NIRB) screening decision report, other permit conditions and any additional consultation commitments. Revisions will also be made if there are changes to design or construction methods and procedures. The mitigation measures in the CEMP are based on guidelines, regulations, consultation comments and experience of constructing similar projects in Nunavut.

1.3 Project Overview

The Project includes the upgrade of the existing causeway and development of a SCH at the municipal breakwater (refer to Figure 1-1). These are further defined in Section 3 of the Project Specific Information Requirements (PSIR) application. The construction methods and activities are based on the marine facilities schematic design prepared by Advisian (refer to Document: Iqaluit - Marine Facilities Schematic Design, 307071-01148-01-MA-REP-0001). The design is subject to change during detailed design. As the Contractor has not been selected for the Project, the final means and methods of construction are not yet known. The anticipated construction methods are presented below and are based on the current level of design and known site conditions.

The Project will require the following site services/activities to be executed during the construction mobilization phase:

- Mobilization of equipment, construction materials and supplies between the SCH project areas and the site offices/laydown area.
- Use of temporary site offices and laydown – the contractor will need to use an existing industrial area and possibly other areas within Iqaluit to store and manage equipment. The contractor may continue to use these areas to support the SCH as there is no suitable location for a laydown within the SCH Project site.
- Site Services include: people management; chemical and hazardous materials management; waste management; spill prevention and response; vehicle/equipment maintenance; refuelling and fuel storage; dust control; traffic control; security.

The following services are expected to be provided through the City: potable water, sanitary waste disposal, solid waste disposal, and fuel supply. If fuel supplies in the City are insufficient, the Contractor will provide portable tanks and fuel as required.

The Project is anticipated to be constructed over three seasons. Construction equipment will be sourced within Iqaluit or brought in by sealift, as required. Construction personnel and miscellaneous consumables will arrive in the City through the Iqaluit Airport (YFB). The start of the first season may be influenced by the sealift schedule to mobilize the equipment depending on the availability of construction equipment in Iqaluit. The first sealift vessels are expected in Iqaluit around mid-July, depending on ice conditions. Freeze-up typically starts in the second or third week of October and is usually complete in November; however it is anticipated that the first season of construction may extend to December. If the main construction equipment is prepped for over-wintering (not demobilized), season two activities may be able to commence in late May with ice removal and management and could extend into November/December of the second year. It is anticipated that the marine works and the majority of the earthworks will be completed during the second year which may allow for the partial demobilization of equipment, including the marine fleet. The work to be completed in season three is expected to be minor.

1.3.1 Causeway Improvement

Table 1-1 contains a description of the improvement activities to the existing causeway and anticipated construction approach (refer to Figure 1-2).

Table 1-1 Causeway Improvement Overview

Component	Description	Construction Approach
Low-tide ramp	Resurfacing at the base of existing ramp.	
High-tide ramp	New high-tide ramp at the base of the existing causeway.	Constructed with rock produced from the creation of the additional parking area. The low-tide ramp may require some in-water placement of material.
Causeway turnaround	Widening of the existing causeway at the start of the low-tide ramp to allow for vehicle turning.	
Parking	Additional parking space at the end of Akilliq Road.	

1.3.2 Small Craft Harbour

Table 1-2 contains a description of the SCH construction activities and anticipated construction approach (refer to Figure 1-2).

Table 1-2 Small Craft Harbour Overview

Component	Description	Construction Approach
North Breakwater	Approximately 225 m long breakwater with a 3 m wide driving surface to allow small All-Terrain Vehicle (ATV) access along the initial 150 m length. The onshore portion of the breakwater will be shallow sloping on the harbour side of the breakwater with regularly spaced mooring points for storage of small vessels.	Use material from rock cut area at existing causeway with various rip rap shoreline protection arrangements depending on wave exposure. Driving surface will be finished with a crushed granular road surfacing.
Municipal Breakwater Extension	Approximately 100 m extension to existing municipal breakwater with a driving surface to allow vehicle access. Area lighting on the existing municipal breakwater will be improved and additional area and navigation lighting provided on the breakwater extension.	Use material from rock cut area at existing causeway with various rip rap shoreline protection arrangements depending on wave exposure. Driving surface will be finished with a crushed granular road surfacing.
Access Channel (optional)	30 m wide channel on west side of the municipal breakwater to access the Boat Basin.	Excavated to an elevation of 3.5 m above chart datum (CD) to maintain access. Excavated material to be used in the boat ramp and staging lane or provided to the City for use as cover material at the landfill.
Boat Basin (optional)	An option being considered is to deepen the area protected by the two breakwaters. This would allow vessels to either tie up to float strings or anchor (beach during low tides); and have access to the boat ramp.	Excavated to an elevation of 3.5 m above CD. Excavated material to be used in the boat ramp and staging lane or provided to the City for use as cover material at the landfill.
Boat Ramp Staging Lane	15 m wide staging lane adjacent to Sinaa Street, north of the municipal breakwater. The area is to be used for staging trucks and trailers waiting to use the boat ramp. The side slope of the staging lane fill will be shallow sloping with regularly spaced mooring points for storage of small vessels. Area lighting will be provided along the staging lane.	Use material from rock cut area at existing causeway to create a flat staging lane area. Driving surface will be finished with a crushed granular road surfacing.
Boat Ramp	25 m wide ramp that will start at the base of the municipal breakwater.	Use material from rock cut area at existing causeway, finished with a course granular rock.
Small Craft Floats	Two 8 m wide x 20 m long mooring floats on the north side of the municipal breakwater, extending into the boat basin. Approximately 30m long aluminium access ramp.	Supplied under a design-build performance specification. No utility services provided.

Component	Description	Construction Approach
Stairs	Concrete stairs will be located on the north slope of the municipal breakwater to provide easy pedestrian access to the base of the breakwater slope at low tide.	Use pre-cast concrete to construct the stairs.

1.4 Existing Site Conditions and Construction Effects

The PSIR contains detailed information on the environmental setting based upon the baseline assessments, and assessed the potential environmental effects from construction activities (Advisian 2017).

1.5 Authorizations, Permits and Approvals

The Contractor will be required to comply with all acts, regulations, bylaws and codes. Section 3 references key acts and regulations, but does not provide an exhaustive list. A number of authorizations, permits, and approvals are required prior to commencing construction. Refer to Section 1.2 of the PSIR for the list of applicable authorizations, permits and approvals. All schedules and activity planning are dependent on the issuance and compliance with the NIRB Screening Decision Report and all other permits and licenses.

1.6 Contractor Construction Work Plans

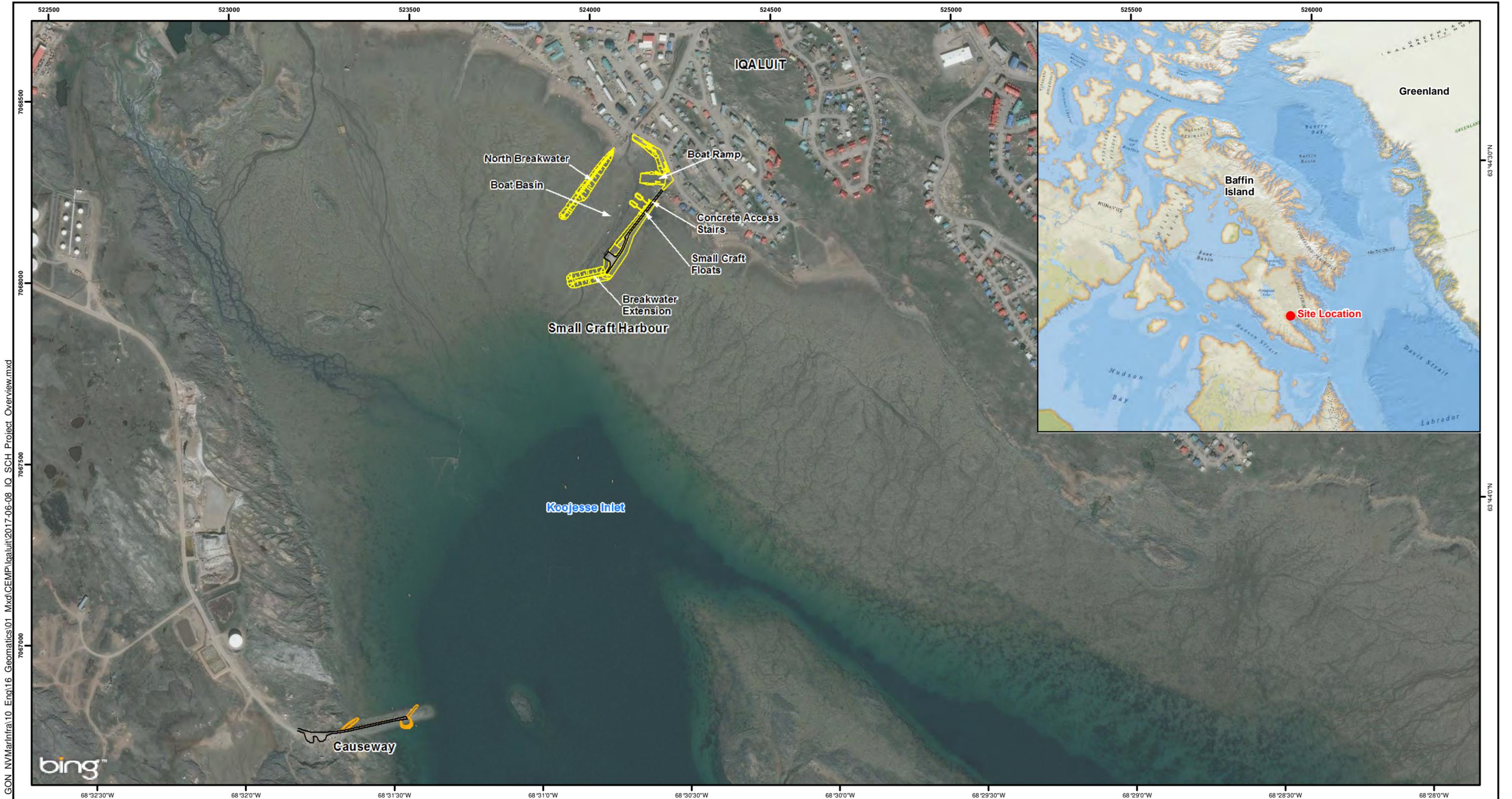
The Contractor will be required to prepare task and site specific CWP's where more detail is required beyond the mitigations and monitoring defined within this CEMP. In addition to construction methodologies, CWP's will include environmental management, mitigation and monitoring measures that comply with the requirements of this CEMP, approval and permit obligations and legal requirements.

The Contractor will also be required, at a minimum, to prepare plans covering the following:

- Construction Health and Safety.
- Blasting Management.
- Traffic Management.
- Spill Prevention and Response (preliminary plan provided in Appendix 1).

The Construction Health and Safety Plan will be prepared in accordance with the *Safety Act*: Occupational Health and Safety Regulations as well as guidelines and Codes of Practice of the Workers' Safety and Compensation Commission. The Blasting Management Plan will be prepared in accordance with the Northern Land Use Guidelines for Pits and Quarries, Indigenous and Northern Affairs Canada (INAC), 2010, and the *Explosive Use Act* and Regulations. The Spill Prevention and Response Plan is being prepared in accordance with the Northern Land Use Guidelines, Access: Roads and Trails (INAC 2010).

Additional plans may be required, which will be identified during design development, contracting and from regulatory permits and approvals. All plans developed by the Contractor will be submitted to CGS for approval prior to commencement of construction.



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- Legend**
- Existing Infrastructure
 - Proposed Small Craft Harbour Layout
 - Proposed Causeway Layout

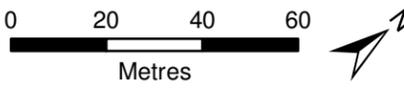
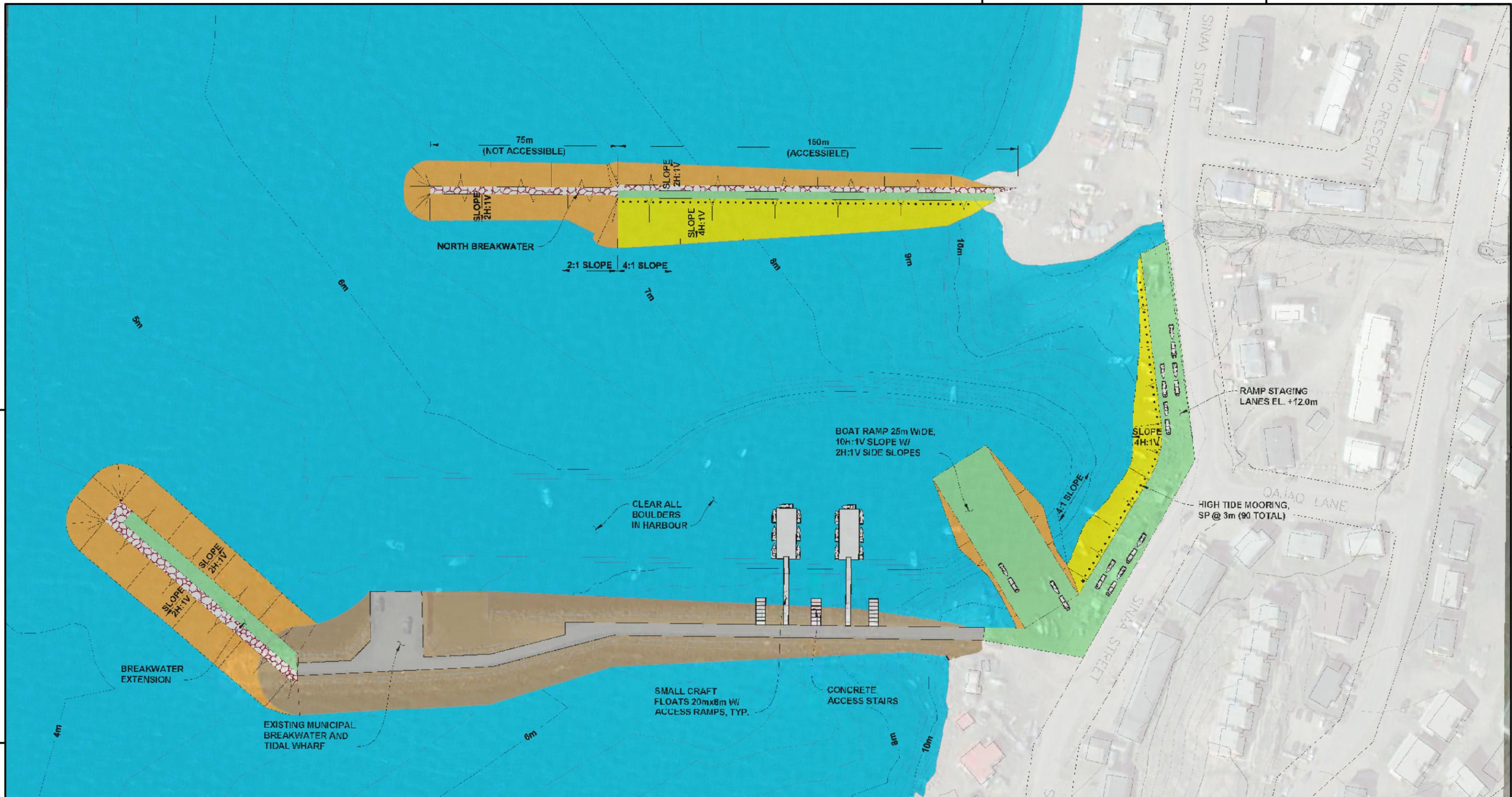


Note:
 Coordinate System: NAD 1983 UTM Zone 19N
 Aerial Photo from Bing Map, 2016

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 Advisian <small>WorleyParsons Group</small>	<p>IQALUIT MARINE INFRASTRUCTURE CEMP PROJECT OVERVIEW</p>
WORLEYPARSONS PROJECT No: 307071-01148	FIG No: 1-1
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IQUALUIT MARINE INFRASTRUCTURE CEMP SMALL CRAFT HARBOUR GENERAL ARRANGEMENT	
WORLEYPARSONS PROJECT No: 307071-01148	FIG No: 1-2
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2 Roles and Responsibilities

Three parties hold responsibilities for the delivery of environmental management in construction: the GN, a Construction Administration Team, and the Contractor Team. The roles and responsibilities for each team with respect to management of environmental performance on the Project are set out below. The responsibility for the application of this CEMP encompasses all Project personnel from management to workers.

2.1 Government of Nunavut

As the owner of the Project, the GN has the obligation to ensure that their commitments to protect the environment are met, and that these relevant obligations are known to the Construction Administration Team. There are two departments in the GN that have a role in Project execution as described in the following sections.

2.1.1 Economic Development and Transport

EDT is the owner of the Project and will be responsible for the facilities once construction and commissioning have been completed.

2.1.2 Community and Government Services

CGS is managing the development of the Project through to the end of construction and commissioning on behalf of EDT.

CGS will have the following responsibilities under this CEMP during construction and commissioning:

- Advising the Contractor and clarifying information with respect to CGS environmental principles, standards and expectations.
- Ongoing consultation.
- Communicating with regulators on matters related to permitting and regulatory compliance.
- Maintaining communication and information with the community and City administration.
- Reviewing and approving the CEMP, and any changes that may be required.
- Reviewing and approving Contractor CWPs in conjunction with Construction Administration Team.
- Reviewing monitoring reports and providing comments as required.
- Transmitting monitoring reports and incident notices.

2.2 Construction Administration Team

The Construction Administration Team will act on behalf of, and report to CGS.

2.2.1 Contract Administrator

The Contract Administrator (CA) acts as the CGS Representative and is responsible for verifying that the Contractor's activities are in compliance with contractual requirements and the approved design, including

environmental requirements, regulations and relevant permits and approvals. All reporting by the Contractor shall be provided to the CA, or their designate, who will communicate information on environmental compliance activities with GN. With regard to environmental matters, responsibilities of the CA include:

- Participating in hazard identification associated with planned critical work activities.
- Liaising with the Contractors and the Environmental Inspector (EI) to resolve non-compliance issues.
- Maintaining effective and timely communication with CGS in the event of any non-compliance.

2.2.2 Environmental Inspector

Reporting to the CA, the EI will be on site as required to verify that monitoring activities associated with the CEMP and CWPs are implemented appropriately, assess environmental performance and verify the effectiveness of mitigation methods. The EI's responsibilities will include:

- Reviewing Contractor CWPs and providing recommendations for improvements as needed.
- Approving Contractor CWPs in conjunction with CGS.
- Conducting periodic site inspections and environment compliance evaluations and audits.
- Acting as a primary point of contact as directed by the CA, for the Contractors regarding environment queries or complaints.
- Coordinating with the Contractors and the CA to resolve non-compliance issues.
- Liaise with Contractors and regulators, as directed by CGS and/or CA, for environmental compliance issues.

Note that individual responsibilities for environmental monitoring are yet to be determined and may be allocated between the EI and/or Contractor depending on contractual arrangements.

2.3 Contractor and Environmental Monitor

The Contractor is responsible for the safe management of construction activities and the preparation of task specific CWPs (refer to Section 1.6) for approval by GN/Construction Administration Team.

The Contractor will retain an Environmental Monitor (EM), to provide the following services:

- Preparation of CWPs and the environmental monitoring of construction, as required.
- Conducting field inspections, taking necessary environmental samples to confirm compliance with the CWPs and this CEMP.
- Recording monitoring results, environmental compliance and corrective actions.
- Routine and incident reporting to Construction Administration Team.
- Consulting on and resolving environmental issues including, leading incident investigations, etc.
- Suspending construction activities that do not accord with standards included in this CEMP or associated Contractor CWPs or following an Environmental Incident.
- Communicating with all Contractor personnel and providing training on environmental compliance requirements.



- Coordinating with the Contractor’s staff, including all sub-contractors, to drive compliance with the CEMP and CWPs; all government regulatory, approval and permit conditions; procedures; and field instructions from the Construction Administration Team.
- Training and awareness: promotion of environmental protection by Contractor’s staff, including the implementation of best management practices and procedures.
- Assist with and participate in inspections conducted by the Construction Administration Team.

3 Management, Mitigation and Monitoring Measures

This section outlines the management, mitigations and monitoring measures to be implemented before and/or during construction. Categories have been adopted based on either a construction activity that needs to be managed to mitigate a direct effect on the environment (e.g. traffic management) or an environmental component that will need to be managed (e.g. wildlife). Further categories may be required based on regulatory permits and approvals. Each measure has been allocated a specific reference number, to facilitate commitment tracking through the Project. Mitigation measures may apply to various environment categories; however it will only have one reference number assigned to avoid duplication.

3.1 Waste Management Plan

The following section contains management, mitigation, monitoring and reporting requirements associated with hazardous materials, solid and liquid waste (hazardous and non-hazardous) generated by the Project.

All use, handling, storage and transportation of hazardous and non-hazardous wastes are to be undertaken in compliance with all statutes, regulations, standards, guidelines and local by-laws, which includes (but not limited to):

- International:
 - International Maritime Dangerous Goods Code, International Maritime Organization, 2016
- Federal:
 - *Arctic Waters Pollution Prevention Act (AWPPA)*; Part 4(1) states that: *"Except as authorized by regulations made under this section, no person or ship shall deposit or permit the deposit of waste of any type in the arctic waters or in any place on the mainland or islands of the Canadian arctic under any conditions where the waste or any other waste that results from the deposit of the waste may enter the arctic waters"*
 - Arctic Shipping Pollution Prevention Regulations (ASPPR), under AWPPA: to be referenced in relation to fuelling in the marine environment
 - Arctic Waters Pollution Prevention Regulations (AWPPR), under AWPPA. This covers the ship-owner's liability provisions regarding spillage of waste.
 - *Canadian Environmental Protection Act (CEPA)*: Interprovincial Movement of Hazardous Waste Regulations; Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations
 - *Explosives Act*
 - *Fisheries Act*: Section 36 states that: *"Subject to subsection (4), no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water"*
 - *Transportation of Dangerous Goods Act*
 - Oil Pollution Prevention Regulations (OPPR), under the *Canada Shipping Act*

- Territorial:
 - *Environmental Protection Act*: Part 5 states that: “Subject to subsection (3), no person shall discharge or permit the discharge of a contaminant into the environment...Unless the discharge is authorized by this Act or the regulations or by an order issued under this Act or the regulations”
 - *Explosives Use Act*
 - *Fire Prevention Act*
 - Nunavut Lands Claim Agreement: Article 13 Part 7 states that: “With the exception of domestic or emergency use of waters as set out in Section 5 of the Northern Inland Waters Act RSC 1985, c. N-25, no person may use water or dispose of waste into water without the approval of the Nunavut Water Board”
 - *Public Health Act*
 - *Safety Act*
 - *Transportation of Dangerous Goods Act*
 - *Wildlife Act*

Relevant Best Management Practice (BMPs) for waste management includes the following:

- A Best Practices Guide to Solid Waste Reduction, Canadian Construction Association, 2001.
- Environmental Guideline for the General Management of Hazardous Waste, Government of Nunavut, Department of Environment, 2010.
- Environmental Guideline for Industrial Waste Discharges into Municipal Solid Waste and Sewage Treatment Facilities, Department of Environment, Government of Nunavut, 2011.

3.1.1 Hazardous Materials Handling, Storage and Disposal

Hazardous materials may be used and/or generated in construction activities such as general fill production, maintenance of mobile equipment, welding and cutting of steel, painting wharf hardware and other miscellaneous components.

The mitigation and monitoring measures associated with transport, storage, use and disposal of hazardous materials are provided in Table 3-1.

Table 3-1 Hazardous Materials: Mitigation and Monitoring Measures Summary

Reference #	Requirement
Hazardous Materials Measures	
HM01.	Ensure staff are trained and qualified to safely handle the hazardous waste and materials.
HM02.	Hazardous waste and materials shall be stored a minimum 30 m distance from a waterbody or identified sensitive environmental area (as identified through permitting, during pre-construction surveys [if required] or by the EI or EM).



Reference #	Requirement
HM03.	A suitable container, based on the properties of the waste or materials to be stored, shall be selected: hazardous materials shall be stored in their original containers, where possible, or in containers specially manufactured for the purpose of storing a specific hazardous waste or materials.
HM04.	Containers used for hazardous waste and materials shall not be used for non-hazardous waste types.
HM05.	All hazardous waste and materials shall be stored on a firm working surface that is impervious to leaks.
HM06.	All hazardous waste and materials shall be stored within a container which has at least 10% more capacity than the total volume of substances to be stored.
HM07.	Drainage into and from the storage area shall be controlled, and/or suitable secondary containment implemented, to prevent spills or leaks from leaving the site and to prevent run-off from entering the site.
HM08.	Containers shall be sound, sealable and not damaged or leaking.
HM09.	Containers shall be closed and sealed at all times, except while materials are being added or removed.
HM10.	All hazardous waste and materials shall be classified and labelled – containers must be clearly labelled to identify their contents according to requirements of the Workplace Hazardous Materials Information System (WHMIS) and the relevant Transport Authority.
HM11.	All hazardous waste and material containers shall be accompanied by the Material Safety Data Sheet (MSDS) or have the MSDS on file available.
HM12.	Incompatible waste and materials shall be stored in a manner that contact, in the event of a spill or accidental release, is not possible (i.e. corrosive materials must be kept away from flammable materials).
HM13.	Containers shall be placed so that each can readily and easily be inspected for signs of leakage, corrosion or deterioration. Leaking, corroded or deteriorated containers shall immediately be removed and their contents transferred to a sound container.
HM14.	Inspections of the hazardous waste and materials management shall be performed and recorded at least weekly.
HM15.	A registered hazardous waste carrier shall be used to transport the waste to a registered receiver or hazardous waste management facility if disposal is required.
HM16.	Records are to be maintained indicating the type and quantity of waste being stored along with the date, type and quantity of hazardous waste brought into or removed from the facility.
HM17.	Any open source of ignition, open flame, hot works and smoking is prohibited in the hazardous waste and materials storage area. All designated smoking areas shall have appropriate fire proof containers for waste.
HM18.	Engines will be shut off and smoking shall be prohibited during fueling.
HM19.	During transfer of petroleum products, a qualified person must be in attendance for the entire duration of the operation. Reasonable precautions shall be taken to avoid the discharge of petroleum products onto land or into water (i.e. Fuel transfers must be stopped prior to overflowing to leave room for expansion).
Other Environmental Measures Applicable	
WW01.	Staff shall be trained on sorting and storage requirements of specific wastes or materials that will be reused; or are prohibited from disposal in the non-hazardous waste system.

Reference #	Requirement
SP02.	Spill kits shall be readily available, and will be appropriate to the type and amount of hazardous and waste materials anticipated for the Project. Standard spill kits typically contain absorbent booms, socks, pads, waste bags and ties, and personal protective equipment (PPE) such as gloves and goggles. Further details on the contents of the spill kits will be provided by the successful Contractor.

3.1.2 Non Hazardous Waste and Wastewater

Non-hazardous solid waste generated may include food waste, wood packaging, cardboard, paper, plastics, scrap steel, glass etc. The majority of non-hazardous waste is to be disposed of in the City's landfill and overburden from cut and fill activities will be stockpiled at the laydown area.

Anticipated wastewater production for the Project will include both sewage (human waste) from on-site sanitary facilities and grey water. Wastewater will be transported by the City's sewage truck and disposed of in the existing sewage lagoon.

The mitigation and monitoring measures associated with transport, storage, and disposal of non-hazardous waste material are provided in Table 3-2.

Table 3-2 Non-Hazardous Waste and Wastewater: Mitigation and Monitoring Measures Summary

Reference #	Requirement
Non-Hazardous Waste and Wastewater Measures	
WW01.	Staff shall be trained on sorting and storage requirements of specific wastes or materials that are to be reused; or are prohibited from disposal in the non-hazardous waste system.
WW02.	Where possible, materials shall be re-used, reduced and/or recycled to minimize waste generated.
WW03.	Install barriers to prevent vehicle interaction at waste storage areas.
WW04.	Waste shall be segregated in clearly marked waste containers applicable to the end use (e.g. landfill waste categories used by the City; i.e. wood waste).
WW05.	Domestic waste containers shall be kept closed (e.g. equipped with lids, covers / tarps over skips) at all times except when bins are being emptied or filled, to prevent scavenging by wildlife and domestic animals, as well as to control odour.
WW06.	Containers and tanks are to be in good condition (no rusting or apparent structural defects).
WW07.	Tanks or vessels must be able to withstand the pressure expected by the stored waste, taking into account factors such as temperature fluctuations.
WW08.	All waste shall be stored in plastic bags while conducting marine work to prevent waste being released into the water.
WW09.	Daily site cleaning (housekeeping practices) and routine inspections shall be completed to ensure materials are correctly sorted and placed in the proper bins.

Reference #	Requirement
WW010.	Vehicle washing areas for haul trucks, if required, shall be contained separately and shall be provided with an oil water separator sized to expected flows and conditions.
WW011.	Waste shall not be deposited in, or placed on land or ice, under any conditions where the waste may enter Arctic waters.
Other Environmental Measures Applicable	
HM04.	Containers used for hazardous waste shall not be used for non-hazardous waste types.
WL07.	Food, food waste, and other attractants shall be handled, stored and disposed of safely to avoid attracting and habituating wildlife and birds.

3.2 Spill Prevention and Emergency Response

Spill Prevention and Emergency Response is addressed in two sub-sections:

- Spill Prevention and Response
- Emergency Response

The Acts, Regulations and BMPs noted in Section 3.1 also apply to spills and emergency response. Additional references include:

- *Environmental Protection Act*, Spill Contingency Planning and Reporting Regulations (R-068-93).
- Northern Land Use Guidelines, INAC, 2003.
- National Fire Code of Canada, National Research Council Canada, 2015.
- WHMIS, Health Canada, 2015.
- Guidelines for Spill Contingency Planning, INAC, 2007.
- Guidelines for the Preparation of Hazardous Material Spill Contingency Plans, Environment Canada, 1990.
- Emergency and continuity management program, Canadian Standards Association (CSA) Z1600-14, 2014.
- National Oil Spill Preparedness and Response Regime, Transport Canada, 2012.

3.2.1 Spill Prevention and Response Plan

A site specific Spill Prevention and Response Plan (SPRP) will be developed prior to construction (refer to Section 1.6).

A preliminary SPRP is provided in Appendix 1. The preliminary SPRP includes the mitigation and monitoring measures for spill prevention and response that have been defined to date. This Plan will be further developed and updated once a Contractor has been selected. The SPRP will follow INAC's Guidelines for Spill Contingency Planning (2007).

3.2.2 Emergency Response Plan

An Emergency Response Plan will be prepared for the Project by the Contractor that outlines the protection of the environment, personnel and the public in the event of an emergency scenario during construction.

In conformance with the “Environmental Guideline for the General Management of Hazardous Waste”, Government of Nunavut, 2010, the emergency response plan will be developed in cooperation with local emergency response personnel and emergency response equipment will be available in the event of a spill, fire or other emergency situation.

At a minimum the emergency response plan will:

- Define the roles and responsibilities in the event of an environmental emergency.
- Include a pre-work hazard analysis which requires Contractors to identify spill hazards, pathways of exposure to environmental receptors, access for emergency/clean-up vehicles, and storage facilities for spill response gear.
- Include emergency classification procedures (as necessary).
- Define communication protocols including a key contact list for emergency response.
- Define incident reporting guidelines and necessary information such as: date and time of call; estimated time of spill or release; type of hazardous material spilled or released; evacuation requirements; estimated quantity of hazardous material spoiled or released; spill response completed prior to reporting; assistance required for successfully containing and cleaning the spill or release.
- Include post-incident reporting requirements.
- Be developed in conjunction with Hazardous waste management and spill prevention / response plan.

3.3 Road/Marine Traffic Management

The key concern is to ensure safety of residents, to maintain normal road traffic flow and marine access and navigation in the community. Traffic management is addressed in three sub-sections:

- Road Traffic and Transportation: Includes road construction and operations (i.e. dust management and maintenance).
- Vehicle and Equipment Operators and Use: Includes driver requirements, and vehicle and equipment specifications, fuelling and maintenance requirements.

3.3.1 Road Traffic and Transportation

The Contractor will be required to prepare a Traffic Management Plan to minimize the risk of road traffic accidents, maintain normal road traffic flow in the community, maintain normal service delivery to residents in Iqaluit (refer Section 1.6) and manage dust.

The mitigation and monitoring measures for road traffic and transportation management are provided in Table 3-3.

Table 3-3 Road Traffic and Transport: Mitigation and Monitoring Measures Summary

Reference #	Requirement
Traffic Measures	
TF01.	Consult and coordinate with existing road service providers in the City. Road use shall not disrupt the delivery of community services (including emergency services) and will be done in consultation with the City of Iqaluit administration.
TF02.	Traffic awareness concerning road safety, particularly for children and teens shall be implemented
TF03.	Project specific speed limits shall be set, not greater than limits specified in the City (<i>to be agreed</i>). Speed limits will be set such that community safety is maintained and for the control of dust mobilization.
TF04.	Road use timing restrictions shall be adhered to (<i>to be agreed with City administration</i>).
TF05.	Traffic control measures (e.g. fencing, lights, etc.) at the existing causeway and/or busy intersections along Akilliq Road and to the SCH, as required. This may include the use of a traffic monitor.
TF06.	Suitable dust suppressants to reduce dust generation to acceptable levels shall be used. Dust suppressants will be in accordance with the Government of Nunavut, Department of Sustainable Development, Environmental Protection Service, and Environmental Guideline for Dust Suppression.
TF07.	Regular inspection and maintenance of water control features shall be undertaken during construction.
TF08.	Vehicle loads shall be covered when required to reduce dust generation.
TF09.	Consultation with the City and community shall be undertaken to minimize obstruction of access to the municipal dump, and to businesses along Akilliq Road.
TF10.	A parking area and access from Akilliq Road to the existing causeway shall be maintained during construction, other than during blasting in the vicinity of the causeway or for other reasons related to safety.
Other Environmental Measures Applicable	
WL09.	Appropriate mitigation measures will be implemented in the event large congregations of wildlife and birds occur during construction.

3.3.2 Vehicle and Equipment Operators and Use

The mitigation and monitoring measures for vehicle and equipment operators and use are provided in Table 3-4.

Table 3-4 Vehicle and Equipment Operators and Use: Mitigation and Monitoring Measures Summary

Reference #	Requirement
Vehicle and Equipment Use Measures	
VE01.	Drivers will be properly trained and licensed. Personnel shall be encouraged to drive defensively and courteously.
VE02.	All vehicles shall have adequate lighting so they can be easily seen.
VE03.	Construction equipment shall be sized correctly for the task and suitable to drive on City roads, where required.
VE04.	A regular maintenance and inspection program for Project vehicles and equipment shall be implemented to ensure construction equipment is in good working order.
VE05.	When existing local facilities are not available for refuelling, onshore equipment and vehicles must be serviced and refuelled at least 15 m away from sensitive habitats unless secondary containment is used; preferably over an impermeable surface (e.g. drip trays). Drip pans and / or other protective devices shall also be used to prevent spills of petroleum products and other potentially hazardous liquids (e.g. antifreeze) during servicing.
VE06.	Revvng of engines on mobile or stationary machines shall be limited and equipment not in use shall be shut down (restrict idling).
VE07.	Gas or diesel engine exhausts shall be fitted with noise mufflers, where available.
VE08.	The use of horns, bells, hooters, or other audible signals on mobile equipment shall be limited, while maintaining safe operation.
VE09.	Ongoing visual assessments of the potential for dust generation and combustion emissions shall be conducted (during work and/or when machinery is operating) to determine requirement for the implementation of dust suppression measures.
VE10.	Equipment (including material stockpiles and vehicle parking areas) shall be located as far as practical from residences or sensitive wildlife features (or habitats). If the noise source is directional, equipment will be orientated to minimize propagation in critical directions.
Other Environmental Measures Applicable	
HM18.	Engines shall be shut off and smoking shall be prohibited during fueling.
SP02.	Spill kits shall be readily available, and will be appropriate to the type and amount of hazardous and waste materials anticipated for the Project. Standard spill kits typically contain absorbent booms, socks, pads, waste bags and ties, and PPE such as gloves and goggles. Further details on the contents of the spill kits will be provided in the SPRP by the successful Contractor.
SP06.	Routine inspections of equipment for leaks, cracked hoses and other conditions that may result in spills shall be undertaken. Contractors will ensure external equipment surfaces are free of oil, diesel and other potential contaminants prior to use.

3.4 Blasting Management

The Contractor will prepare a Blasting Management Plan (refer to Section 1.6) in relation to the rock cut at the existing causeway. This plan will be prepared taking into consideration the Northern Land Use Guidelines for Pits and Quarries, INAC, 2010 and the *Explosives Use Act* and Regulations. The Contractor will be responsible for obtaining all permits required for the transport, storage and use of explosives. The Contractor will ensure that personnel responsible for managing explosives meet, as a minimum, the experience requirements under section 5 (2) of the *Explosives Use Act*.

The Blasting Management Plan must include:

- Strategies for dealing with excess explosives, mechanisms for collecting, treating and discharging seepage water that may be contaminated through blasting.
- Procedures to avoid debris from entering into the watercourse, if/when blasting near watercourses.
- Vibration and noise control where relevant to sensitive nearby sensitive receptors (i.e. workers, denning wildlife).
- Timing restrictions for when blasting will be prohibited (i.e. allowed 12 hours a day only).
- Traffic management procedures to safeguard the public and vehicles

Mitigation and monitoring requirements associated with blasting are provided in Table 3-5.

Table 3-5 Blasting: Mitigation and Monitoring Measures Summary

Reference #	Requirement
Blasting Measures	
BL01.	Construction should be initiated prior to the arrival of migratory birds (breeding season mid-May to mid-August) such that the surrounding area becomes unattractive for nesting. A pre-construction survey shall be conducted by the EM to identify all sensitive wildlife features, e.g. active bird nests, wildlife dens and wildlife foraging or traveling nests, if blasting commences within this window.
BL02.	Blasting shall be restricted to hours in accordance to the City's noise by-law (#599) or as agreed with the City.
BL03.	A notification protocol with input from the local community and other stakeholders for advance notification of planned substantial noise-causing activities (such as blasting) shall be implemented.
BL04.	Buffers or exclusion zones shall be implemented, in the event a sensitive species or feature (e.g. nest) is identified, to ensure wildlife are not disturbed. Entry buffers shall be based upon government or biologist recommended setback distances. Any nest that is disturbed will result in immediate notification to Environment and Climate Change Canada (ECCC) and the GN.
BL05.	Prior to blasting occurring, warning must be issued in affected area using loud signaling devices.
BL06.	Blast mats shall be used to prevent physical damage from fly rock and suppress dust where appropriate and as per Fisheries and Ocean Canada (DFO) Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters.

Reference #	Requirement
BL07.	Dust suppressants and/or watering shall be used to reduce dust generation from blasting to acceptable levels.
BL08.	No blasting shall occur in-water.
BL09.	The existing fuel line will be drained ahead of blasting activity.
Other Environmental Measures Applicable	
WL10.	A pre-construction wildlife sweep shall be conducted by the EM to identify all sensitive wildlife features, e.g. active bird nests, wildlife dens and wildlife foraging or traveling. In the event a sensitive species or feature is identified, buffers or exclusion zones shall be implemented to ensure wildlife are not disturbed. Entry buffers shall be based upon government or biologist recommended setback distances.

3.5 Sediment and Erosion Control

Sediment and erosion control is required for all surface disturbance activities, such as preparation of the laydown area and Contractor laydown yard; construction of the Akilliq Access Road. The Contractor will be required to apply applicable sediment and erosion control BMPs to meet water quality criteria. Proposed mitigations are provided in Table 3-6.

Table 3-6 Sediment and Erosion Control: Mitigation and Monitoring Measures Summary

Reference #	Requirement
Sediment and Erosion Control Measures	
SE01.	Perimeter controls shall be applied to act as a barrier, preventing sediment from reaching surrounding water courses (i.e. sediment/silt fence).
SE02.	Temporary sediment control measures shall be applied at the base of any soil or rock stockpiles.
SE03.	Water quality in the marine environment shall be monitored for sediment run-off. If visual monitoring identifies sediment run-off, turbidity will be measured and compared to the Canadian Council of Ministers of the Environment (CCME) guidelines for the protection of aquatic life.
SE04.	Material shall be stockpiled in such a way that debris/sediments will not enter the marine environment. Material will not be stockpiled on the ice.
Other Environmental Measures Applicable	
TF06.	Suitable dust suppressants to reduce dust generation to acceptable levels shall be used. Dust suppressants will be in accordance with the Government of Nunavut, Department of Sustainable Development, Environmental Protection Service, and Environmental Guideline for Dust Suppression.
WL11.	Work site boundaries shall be flagged to prevent inadvertent loss or alteration of habitat outside of the designated Project footprint.

3.6 Marine Construction

Marine construction activities in the intertidal and subtidal areas comprise:

- Placement of rock
- Excavation (intertidal)
- Re-use and placement of excavated material

All marine activities are to be undertaken in compliance with all statutes, regulations, standards, guidelines and local by-laws, which include (but are not limited to):

- *Fisheries Act* (refer to Section 3.7).
- *Navigation Protection Act*: Part 3 states that: “It is prohibited to construct, place, alter, repair, rebuild, remove or decommission a work in, on, over, under, through or across any navigable water that is listed in the schedule except in accordance with this Act or any other federal Act.”
- *Canadian Environmental Protection Act*: the beneficial re-use of dredged material in the construction of the breakwater will be undertaken such that the objectives of the Act are met.

During construction activities, fish and marine mammals are at risk of injury or behavioural effects from underwater noise or reduced water quality generated by in-water construction activities.

Mitigation and monitoring requirements associated with marine construction are provided in Table 3-7.

Table 3-7 Marine Construction: Mitigation and Monitoring Measures Summary

Reference #	Requirement
Marine Construction Management Measures	
MC01.	Monitoring Plan(s) for the Project shall be developed that includes requirements during excavation and in-water placement of fill material. This will include allowable levels of Turbidity/Total Suspended Solids (TSS) and marine mammal monitoring requirements.
MC02.	Measures to reduce sediment mobilization during in-water activities shall be used by the Contractor when TSS/turbidity exceeds CCME water quality criteria.
MC03.	Contractor will request from Amaruq Hunters and Trappers Association (HTA) information on recent marine mammal sightings before the onset of construction activities that could result in disturbance or injury.
MC04.	Marine Mammal Observers (MMOs) will be employed to monitor the presence of marine mammals in the vicinity of construction activities that have the potential to exceed the underwater noise auditory threshold for marine mammals of 160 dB re 1µPa. If required, an exclusion zone will be adopted and the construction activity will be suspended if a marine mammal enters the exclusion zone and will not restart until 30 minutes after it is was last observed or it is seen leaving the exclusion zone.

Reference #	Requirement
MC05.	If construction is to occur during the iced-season, in-air sound levels will be measured when pinnipeds are observed on the ice during construction activities that have the potential to exceed the in-air acoustic threshold. In the absence of Canadian guidelines, the United States in-air acoustic threshold for non-harbour seal pinnipeds of 100 dB re20µPa rms will be adopted. The construction activity will be suspended if the seals are exposed to noise levels above the threshold.
MC06.	Prior to construction, stop-work conditions shall be specified. Such conditions would include exceedance of sound thresholds, or sighting of a marine mammal within an area defined by the MMO. Work must not re-start until the marine mammal has moved out of this area.
MC07.	The area of sea that is artificially illuminated shall be minimized.
MC08.	Rock material used for in-water construction, will be free of fines that could affect water quality.
MC09.	An EM will be present during all in-water construction activities to monitor for stress related behaviours or for fish kills. If observed, adaptive management will be implemented or, if necessary, stop work will be implemented until effective mitigation measures are in place.
MC10.	All lubricants and hydraulic fluids used on equipment that will be working below the high water level will be biodegradable and non-toxic.
MC11.	All Project marine construction equipment shall be clean and free of marine fouling to avoid the introduction of invasive species.
Other Environmental Measures Applicable	
BL03.	A notification protocol with input from the local community and other stakeholders for advance notification of planned substantial noise-causing activities (such as blasting) shall be implemented.
BL06.	Blast mats shall be used to prevent physical damage from fly rock and suppress dust where appropriate and as per DFO Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters.
SP01.	All workers shall be trained in the spill prevention and response requirements during site induction and subsequent toolbox talk sessions.
WW08.	All waste shall be stored in plastic bags while conducting marine work to prevent waste being released into the water.

3.7 Wildlife and Vegetation

The Project will potentially affect wildlife (birds, fish and mammals) and vegetation during construction. Activities are to be undertaken in compliance with all statutes, regulations, standards, guidelines and local by-laws, which include (but are not limited to):

- Federal
 - *Fisheries Act*
 - *Species at Risk Act*
 - *Migratory Birds Convention Act*

- Territorial
 - *Wildlife Act*

Subsections are provided below for wildlife, birds and vegetation that provide the management and mitigation measures to minimize potential adverse effects.

Fish and Fish Habitat management measures will be determined through the *Fisheries Act* process which covers:

- Section 35: No person shall carry on any work, undertaking or activity that results in serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery, unless authorized under Section 35(2).
- Section 36: Subject to subsection (4), no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water.

The CEMP will be updated if additional mitigation and monitoring requirements are defined by DFO.

3.7.1 Wildlife

There are several prohibited activities related to wildlife stated in Acts and Regulations that include (but are not limited to):

- *Wildlife Act:*
 - Section 90(1): No person shall intentionally feed a wild animal
 - Section 90(2): No person shall deposit or place in, on or about a place an attractant, if there is a reasonable likelihood that it would endanger a person, a wild animal or a domestic animal
- *Species At Risk Act:*
 - Section 32(1): No person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species
 - Section 36(1): If a wildlife species that is not listed has been classified as an endangered species or a threatened species by a provincial or territorial minister, no person shall: (a) kill, harm, harass, capture or take an individual of that species that is on federal lands in the province or territory; (b) possess, collect, buy, sell or trade an individual of that species that is on federal lands in the province or territory, or any part or derivative of such an individual; or (c) damage or destroy the residence of one or more individuals of that species that is on federal lands in the province or territory

The mitigation and monitoring measures to minimize the potential adverse effects on wildlife are provided in Table 3-8.

Table 3-8 Wildlife: Mitigation and Monitoring Measures Summary

Reference #	Requirement
Wildlife Measures	
WL01.	A zero-tolerance policy regarding the harassment, disturbance and feeding of wildlife, whilst working on the Project, shall be implemented and communicated through the induction process.
WL02.	The EM shall be on site as required to assess the presence of wildlife (including Species at Risk) and determine potential impacts to construction activities.
WL03.	All workers shall be trained in relation to the wildlife and birds (particularly species at risk) expected to occur in the area, including traditional knowledge, through site induction and tool box sessions.
WL04.	Polar bear sightings shall be reported immediately to the EM and CA/EI so that appropriate actions are taken.
WL05.	Sightings of wildlife species, with particular attention to species at risk, shall be recorded on a wildlife sighting form (including recording the time, date, location, activity, and proximity to workers).
WL06.	Wildlife sightings shall be tracked in order to respond appropriately to emerging trends.
WL07.	Food, food waste, and other attractants shall be handled, stored and disposed of safely to avoid attracting and habituating wildlife and birds.
WL08.	Speed limits will be implemented and enforced on all roadways and wildlife will be given the right-of-way so as not to chase, weary, harass or injure animals on the road.
WL09.	Appropriate mitigation measures will be implemented in the event large congregations of wildlife and birds occur during construction.
WL10.	A pre-construction wildlife sweep shall be conducted by the EM to identify all sensitive wildlife features, e.g. active bird nests, wildlife dens and wildlife foraging or traveling. In the event a sensitive species or feature is identified, buffers or exclusion zones shall be implemented to ensure wildlife are not disturbed. Entry buffers shall be based upon government or biologist recommended setback distances.
WL11.	Work site boundaries shall be flagged to prevent inadvertent loss or alteration of habitat outside of the designated Project footprint.
WL12.	Lighting shall be limited to the extent required to provide a safe work site and shielded and directed to reduce diffusion outside of the work area.
Other Environmental Measures Applicable	
BL04.	Buffers or exclusion zones shall be implemented, in the event a sensitive species or feature (e.g. nest) is identified, to ensure wildlife are not disturbed. Entry buffers shall be based upon government or biologist recommended setback distances. Any nest that is disturbed will result in immediate notification to Environment and Climate Change Canada (ECCC) and the GN.
WW05.	Domestic waste containers shall be kept closed (e.g. equipped with lids, covers / tarps over skips) at all times except when bins are being emptied or filled, to prevent scavenging by wildlife and domestic animals, as well as to control odour.

3.7.2 Birds

There are several prohibited activities related to birds stated in Acts and Regulations that include (but are not limited to):

- Migratory Bird Regulation:
 - Section 6: Subject to subsection 5(9), no person shall (a) disturb, destroy or take a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird, or (b) have in his possession a live migratory bird, or a carcass, skin, nest or egg of a migratory bird except under authority of a permit therefor

Relevant BMPs for birds include the following:

- General Nesting Periods of Migratory Birds in Canada, Canada, ECCC (<https://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=4F39A78F-1>).
- Safeguarding Migratory Birds – Technical Information, ECCC (https://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=8D910CAC-1#_03_1).
- Migratory Birds Environmental Assessment Guideline, Government of Canada, 1998.
- Guidelines to Avoid Disturbance to Seabird and Waterbird Colonies in Canada, ECCC, 2016.
- Avoidance of Detrimental Effects to Migratory Birds (Incidental Take), ECCC, 2017 (<https://www.ec.gc.ca/paom-itmb/default.asp?lang=En&n=755BFB9E-1>)

The mitigation and monitoring measures to minimize the potential adverse effects on avian are provided in Table 3-9.

Table 3-9 Birds: Mitigation and Monitoring Measures Summary

Reference #	Requirement
Bird Measures	
BR01.	Activities and infrastructure will be sited away from nests and roosts that will be protected by prohibited entry buffers based upon government or biologist recommended setback distances. Any nest that is disturbed will result in immediate notification to ECCC and the GN.
BR02.	Construction activities will not begin until the area has been surveyed for migratory birds and nests (in a non-intrusive manner).
BR03.	Nest monitoring may be periodically required to determine efficacy of setbacks and buffers.
Other Environmental Measures Applicable	
BL01.	Construction should be initiated prior to the arrival of migratory birds (breeding season mid-May to mid-August) such that the surrounding area becomes unattractive for nesting. A pre-construction survey shall be conducted by the EM to identify all sensitive wildlife features, e.g. active bird nests, wildlife dens and wildlife foraging or traveling nests, if blasting commences within this window.

Reference #	Requirement
BL04.	Buffers or exclusion zones shall be implemented, in the event a sensitive species or feature (e.g. nest) is identified, to ensure wildlife are not disturbed. Entry buffers shall be based upon government or biologist recommended setback distances. Any nest that is disturbed will result in immediate notification to Environment and Climate Change Canada (ECCC) and the GN.
WL01	A zero-tolerance policy regarding the harassment, disturbance and feeding of wildlife, whilst working on the Project, shall be implemented and communicated through the induction process.
WL09	Appropriate mitigation measures will be implemented in the event large congregations of wildlife and birds during construction.
WL10.	A pre-construction wildlife sweep shall be conducted by the EM to identify all sensitive wildlife features, e.g. active bird nests, wildlife dens and wildlife foraging or traveling. In the event a sensitive species or feature is identified, buffers or exclusion zones shall be implemented to ensure wildlife are not disturbed. Entry buffers shall be based upon government or biologist recommended setback distances.
WL11.	Work site boundaries shall be flagged to prevent inadvertent loss or alteration of habitat outside of the designated Project footprint.
WL12.	Lighting shall be limited to the extent required to provide a safe work site and shielded and directed to reduce diffusion outside of the work area.

3.7.3 Vegetation

The mitigation and monitoring measures to minimize the potential adverse effects on vegetation are provided in Table 3-10.

Table 3-10 Vegetation: Mitigation and Monitoring Measures Summary

Reference #	Requirement
Vegetation Measures	
VG01.	Vehicle and equipment mobilized to site shall be inspected to ensure they are clean and free of soil, invasive plants and/or their seeds.
VG02.	All personnel shall be trained through the induction and subsequent toolbox talk session on the risk of damaging or disturbing vegetation and sensitive communities.
VG03.	Monitoring of disturbed areas for potential weed infestations shall occur on a regular basis.
Other Environmental Measures Applicable	
TF06.	Suitable dust suppressants to reduce dust generation to acceptable levels shall be used. Dust suppressants will be in accordance with the Government of Nunavut, Department of Sustainable Development, Environmental Protection Service, and Environmental Guideline for Dust Suppression.
TF08.	Vehicle loads shall be covered, when required, to reduce dust generation.
VE04.	A regular maintenance program for Project vehicles and equipment shall be implemented to ensure construction equipment is in good working order.

Reference #	Requirement
VE05.	When existing local facilities are not available for refuelling, onshore equipment and vehicles must be serviced and refuelled at least 15 m away from sensitive habitats unless secondary containment is used; preferably over an impermeable surface (e.g. drip trays). Drip pans and / or other protective devices shall also be used to prevent spills of petroleum products and other potentially hazardous liquids (e.g. antifreeze) during servicing.
SP04.	Hydraulic, fuel, and lubrication systems of equipment near watercourses and sensitive habitats shall be inspected periodically to ensure that the systems are in good condition and free of leaks.
WL11.	Work site boundaries shall be flagged to prevent inadvertent loss or alteration of habitat outside of the designated Project footprint.

3.8 Archaeological Resource Discovery Plan

There is potential to unearth cultural, heritage or archaeological resources during surface disturbance activities, such as preparation of the laydown area; and construction of the Akilliq Access Road. Refer to the PSIR 4.3.1 for the status of Archaeological Impact Assessments (AIA).

There are several prohibited activities related to cultural, heritage or archaeological resources stated in Acts and Regulations that include (but not limited to):

- Nunavut Archaeological and Palaeontological Sites Regulations; Part 5(1) states that: *"No person shall excavate, alter or otherwise disturb an archaeological site, or remove an archaeological artifact from an archaeological site, without a Class 2 permit."*
- Nunavut Agreement: Section 33 in part states that: *"A permit holder shall not survey, investigate, excavate or alter an archaeological site without the consent of the title holder to the land."*
- Territorial Land Use Regulations: Part 16 states that: *"If, in the course of a land use operation, a suspected historic or archaeological site or burial site is unearthed or otherwise discovered, the permittee shall immediately:

 - (a) suspend the land use operation on the site
 - (b) notify the engineer or an inspector of the location of the site and the nature of any unearthed materials, structures or artifacts"*

The mitigation and monitoring measures to minimize the potential adverse effects on cultural, heritage and Archaeological are provided in Table 3-11. An Archaeological Resource Discovery Protocol is provided in Appendix 2.

Table 3-11 Cultural, Heritage and Archaeological: Mitigation and Monitoring Measures Summary

Reference #	Requirement
Cultural, Heritage and Archaeological Measures	
CH01.	If historical or palaeontological features (e.g. stone features, stone tools, modified bone, fossils) not previously recorded are identified within the construction footprint during construction, the measures outlined in the Archaeological Resource Discovery Protocol shall be implemented.

Reference #	Requirement
CH02.	All workers shall be briefed regarding the potential negative effects of construction activities to archaeological and palaeontological resources and shall be familiar with the Archaeological Resource Discovery Protocol.
CH03.	If potential human remains are found within the footprint during construction, the measures outlined in the Archaeological Resource Discovery Protocol shall be implemented.
CH04.	Project personnel shall be prohibited from collecting any archaeological or palaeontological materials.
CH05.	All stone features identified will be photographed and mapped in detail and then excavated through staged dismantling. If vegetation cover or soil is present, 1 by 1 m test units will be placed inside the features and shovel testing will be undertaken outside of the features. Depending on the results of the subsurface excavations additional excavations units will be undertaken.
CH06.	Artifact scatters will be mapped, all of the artifacts will be collected and a sample of the site will be subject to controlled excavation. A surface inspection for artifacts will occur at all sites and all artifacts that are threatened by the Project will be collected, cleaned and catalogued. Any collected artifacts that are assessed as being unstable will be discussed with our conservator prior to being transported for conservation.

3.9 Community Health, Infrastructure and Tourism

There is potential during construction for the Project to increase pressure on community health services and infrastructure such as fuel supply, health care and fire response. In addition, tourism is an important part of the local economy and access via water may be impacted during construction. Improvements to the existing causeway will be completed prior to work starting at the SCH. This will allow those with trailers access to the water at the causeway while work is being conducted at the SCH.

Mitigation measures to minimize the potential adverse effects on community health, infrastructure and tourism are provided in Table 3-12.

Table 3-12 Community Health, Infrastructure and Tourism: Mitigation Measures Summary

Reference #	Requirement
Cultural, Heritage and Archaeological Measures	
CI01.	A dedicated emergency responder shall be provided for the Project and an emergency medi-vac plan will be in place for the construction workforce.
CI02.	Contractor employees shall be required to sign a Code of Conduct governing behaviour on the work site and during recreational hours to reduce the likelihood of negative social effects on the community.
CI03.	Contractor shall implement a cultural awareness program for all staff to promote understanding and respect for local residents.
CI04.	A zero tolerance policy for illicit drug possession or use shall be imposed.



Reference #	Requirement
CI05.	A fire response plan to reduce impacts to local fire services will be prepared. Project staff shall be trained in the use of fire suppression aids.
CI06.	A dedicated fuel truck shall be used to meet Project fuel requirements, if fuel supplies in the City are insufficient.
CI07.	Ongoing communication and consultation will inform hunters, fishers, cruise ship operators and outfitters during construction to minimize access restrictions and maintain safety.
CI08.	If scheduled flights have insufficient capacity to transport work crews and equipment private charter flights, shall be used as necessary, to ensure seats are not taken that the community depends on.

4 Monitoring and Reporting

The effectiveness of environmental protection measures will be assessed regularly by the Contractor and Construction Administration Team. Contractor monitoring will occur throughout construction with the frequency of monitoring dependent on the construction activities taking place. In addition, the Construction Administration Team will conduct inspections.

- Contractor shall be responsible for inspecting their tools and equipment before use; and to ensure all environmental protection measures put in place are in good working condition and appropriate for the work/activities being undertaken on a daily basis.
- Contractor EM will review the implementation of mitigation measures and monitoring results. Environmental monitoring reports will be prepared on a daily or weekly basis (depending on construction activities and as agreed with the Construction Administration Team) for submission to the Construction Administration Team. Any Environmental Incidents, including reportable spills and spills to water, non-compliance with permit conditions and the implementation of stop-work will also be recorded. Environmental Incidents will be reported to the Construction Administration Team/EI within 24 hours and then notified to regulators, as required.

Environmental Incidents will be investigated. Mitigation measures will then be updated to further minimize / prevent additional environmental effects.

In the event that the mitigations outlined in the CEMP are found to be ineffective, Contractor will work with the Construction Administration Team/EI and CGS to revise the specific mitigations appropriately and ensure that they are deployed in the field. Further engagement with relevant regulatory authorities will be undertaken as required by CGS.

All records, checklists, inspection reports, including any non-compliances or non-conformances and corrective action plans are to be maintained. Records shall be and remain legible, identifiable, and traceable.

The Environmental Monitoring Reports issued by the Contractor should include the following environmental details:

- Description of environmental incidents.
- Number of environmental inspections and report on findings and corrective actions and status.
- Brief review of environmental issues identified at meetings or reported to the Contractor's site team and the respective corrective actions.
- Brief overview of environmental activities.
- Brief overview of the upcoming environmental activities.
- Environmental concerns, environmental milestones and environmental initiatives implemented.

Changes to work processes/methods or design must be evaluated through a management of change process to ensure risks are managed. The Contractor shall establish a management of change procedure and all workers must receive training on how to identify a change, how to initiate the management of change process, and how to evaluate risks associated with change.

5 Training and Competency

5.1 Induction

All employees working on the Project will be given an induction covering the key environmental risks and controls required for work on site. The induction program will be designed by the Contractor's EM and will be reviewed by the Construction Administration Team and CGS, as required. Training will be delivered to the Contractor workforce.

The Contractor will be responsible for ensuring workers are informed and implementing the environmental requirements, including associated monitoring and reporting.

5.2 Training and Awareness

The Contractors' workers on site will be provided with environmental training to achieve a level of awareness and competence appropriate to their assigned activities. Targeted environmental awareness training will be provided to individuals or groups of workers with a specific authority or responsibility for environmental management or those undertaking an activity with an elevated risk of environmental impact. Such training may be delivered in the form of site orientation and toolbox meetings or through formal training programs (as applicable). All records of personnel training will be maintained by the EM.



6 Communications

6.1.1 Communications and Consultation with Regulators

Communications with regulators will be carried out through the “holder” of individual permits/approvals etc. In most cases this will be CGS as the proponent on behalf of EDT. In the event that Contractors hold permits, they shall communicate directly with regulators regarding those permits and keep CGS informed. CGS will have copies of all permits, licenses, key communication, inspection reports and compliance reports.

6.1.2 Communications with the Community

CGS will work with the City and the Contractor to establish communications protocol to allow community members to be consulted, informed and advised of construction activities and to gather feedback.

6.1.3 Complaints Procedure

As part of the communications protocol, a complaints process will be implemented whereby complaints are received, recorded and answered. A complaints telephone number and email address will be provided.



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Iqaluit Marine Infrastructure – Small Craft Harbour
Construction Environmental Management Plan



Appendix 1 Preliminary Spill Prevention and Response Plan for Iqaluit Marine Infrastructure





Iqaluit Marine Infrastructure

Preliminary Spill Prevention and Response Plan for Small Craft Harbour Construction

15 June 2017

4321 Still Creek Drive
Burnaby BC V5C 6S7
Canada

Document No.: 307071-01148-02-EN-PLN-0004

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1 Introduction and Project Details

This document is a preliminary Spill Prevention and Response Plan (SPRP) for the construction phase of the Small Craft Harbour Marine Infrastructure Project in Iqaluit. It has been developed in accordance with Indigenous and Northern Affairs Canada's (INAC) Guidelines for Spill Contingency Planning. As the Project is still in the planning phase the details required for a complete plan are not available at this time. Once a contractor is selected (the Contractor) and construction methodologies and equipment are finalised, this preliminary SPRP will be updated with the specific details for the sections outlined in this preliminary plan.

This plan is effective as of 15 June 2017.

Table 1-1 Revision history of Spill Prevention and Response Plan

Revision Number	Date	Revisions Made
0	June 15, 2017	Preliminary Plan for submission with NIRB Application

1.1 Company Contact Details

Company Name: Government of Nunavut, Community and Government Services
 Address: P.O. Box 1000 Station 200, Iqaluit, Nunavut X0A 0H0
 Contact Person: Paul Mulak, Director, Capital Projects
 Phone: (867) 975-6000
 Email: pmulak@gov.nu.ca

1.2 SPRP Distribution List

The completed SPRP will be distributed to the personnel and organisations detailed in Table 1-2.

Table 1-2 Distribution List for the Spill Prevention and Response Plan

Name	Role	Organization
<i>tbc</i>	<i>tbc</i>	Government of Nunavut: Economic Development and Transport
<i>tbc</i>	<i>tbc</i>	Government of Nunavut: Community and Government Services
<i>tbc</i>	<i>tbc</i>	Contractor



1.3 Purpose and Scope

The purpose of this plan is to outline measures to be implemented to prevent, manage or mitigate potential spill scenarios and to outline the response actions in the event of a spill of any size, including a worst case scenario. The objective is to initiate an immediate response with trained personnel and equipment to clean up any accidental spill and minimize impact to the terrestrial or marine environment in the immediate and surrounding area of the SCH and Causeway construction sites.

The plan identifies key response personnel and their roles and responsibilities, as well as the equipment and other resources required to respond to a spill. It details spill response procedures that will minimize potential health and safety hazards, environmental damage, and clean-up efforts.

1.4 Project Description

The Project includes the upgrade of the existing Causeway and development of a SCH at the municipal breakwater (refer to Section 1.5).

These are further defined in the Construction Environment Management Plan (CEMP) prepared for the SCH, Causeway Improvements. The CEMP includes the construction approach, based on the marine facilities schematic design prepared by Advisian (refer to Document: Iqaluit – Marine Facilities Schematic Design, 307071-01148-01-MA-REP-0001). The design is subject to change during detailed design.

The Project will require the following site services/activities to be executed during the construction mobilization phase:

- Mobilization of equipment, construction materials and supplies between the DSP, Causeway Improvement and SCH project areas and the site offices/laydown area.
- Use of temporary site offices and laydown – the contractor will need to use an existing industrial area or other areas within Iqaluit to store and manage equipment. The contractor may continue to use these areas to support the SCH as there is no suitable location for a laydown within the SCH Project site.
- Site Services: people management; chemical and hazardous materials management; waste management; spill prevention and response; vehicle/equipment maintenance; refuelling and fuel storage; dust control; traffic control; security.

The following services are expected to be provided through the City: potable water, sanitary waste disposal, solid waste disposal, and diesel supply. If fuel supplies in the City are insufficient, the Contractor will provide portable tanks and fuel as required.

The Project is anticipated to be constructed over three seasons. Construction personnel and miscellaneous consumables will arrive in the City through the Iqaluit Airport (YFB). The start of the first season will be based on the sealift schedule to mobilize the equipment. The first sealift vessels are expected in Iqaluit around mid-July to mid-August, depending on ice conditions. Freeze-up typically starts in the second or third week of October and is usually complete in November; however it is anticipated that the first season of construction may extend to December. If the main construction equipment is prepped for over-wintering (not demobilized), season two activities may be able to commence in late May with ice removal and management and could extend into November/December of the second year. It is anticipated that the marine works and

the majority of the earthworks will be completed during the second year which may allow for the partial demobilization of equipment, including the marine fleet. The balance of work to be completed in season three is largely ancillary services such as electrical, fuel line piping, and topside accessories.

1.5 Site Description

The proposed SCH is located on approximately 13 ha of land fronting the City. The upgrades to existing infrastructure include deepening of the boat basin, and addition of a boat launching ramp, float strings, and one (1) ha of storage and/or parking. There will be limited access to the Municipal Breakwater during construction activities, therefore upgrades to the Causeway will be required to ensure vessels have continuous access to Frobisher Bay during the open water season. The upgrades to the Causeway include a new high-tide boat ramp, re-surfacing at the base of the existing low-tide ramp, widening selected portions and additional parking space at the end of Akilliq Road.

1.6 List of Hazardous Materials On-site

The Contractor will provide the details of the hazardous materials to be used and stored on-site. These will be detailed in Table 1-3. A preliminary list of materials is included.

Table 1-3 List of Hazardous Materials Stored on-site, Type of Storage Container, the Normal and Maximum storage Quantities, and Storage Locations

Material	Storage Container	Normally On-Site	Maximum On-Site	Storage Location and Uses
Diesel	Fuel will be dispensed on a daily basis from existing facilities in Iqaluit			
Gasoline	Fuel will be dispensed on a daily basis from existing facilities in Iqaluit			
Propane	Forklift-able metal cylinder rack			
Lubricants and oils	Drums on pallets, in lined storage area			
Oxy/ Acetylene	Forklift-able metal cylinder rack			
Paint	Inside fire proof cabinets, stored inside heated enclosure in laydown area			
Explosives	Certified explosives magazine			

2 Existing Preventative Measures

The implementation of best management practices (BMPs) and operating procedures will be key to the prevention of spills during construction. Table 2-1 provides the minimum requirements.

Table 2-1 Spill Prevention and Response: Mitigation and Monitoring Measures Summary

Reference #	Requirement
Spill Prevention and Response Measures	
SP01.	All workers shall be trained in the spill prevention and response requirements during site induction and subsequent toolbox talk sessions.
SP02.	Spill kits shall be readily available, and will be appropriate to the type and amount of hazardous and waste materials anticipated for the Project. Standard spill kits typically contain absorbent booms, socks, pads, waste bags and ties, and PPE such as gloves and goggles. Further details on the contents of the spill kits will be provided by the successful Contractor.
SP03.	Spills shall be reported according to the Spill Contingency Planning and Reporting Regulations (R-068-93) and magnitudes of the events. (24-Hour Spill Report Line by calling 1-867-920-8130). Reporting requirements for spill magnitudes of individual contaminants are provided in Schedule B of the Regulations (R-068-93).
SP04.	Hydraulic, fuel, and lubrication systems of equipment near watercourses and sensitive habitats shall be inspected periodically to ensure that the systems are in good condition and free of leaks.
SP05.	Appropriately sized drip trays for stationary equipment shall be used. Use secondary containments and drip trays in a manner which does not lead to the collection of rainwater and/or snow.
SP06.	Routine inspections of equipment for leaks, cracked hoses and other conditions that may result in spills shall be undertaken. The Contractor shall ensure external equipment surfaces are free of oil, diesel and other potential contaminants prior to use.
SP07.	Hoses and nozzles used for dispensing fuel shall be maintained in good repair, free of leaks, and equipped with automatic shut-offs.
SP08.	Any delivery hose that has the potential to cause a spill, if it were pulled away from the delivery pump, shall be fitted with a breakaway valve.
SP09.	Operators shall always stay with the nozzle while refuelling.
SP10.	Maintenance and operating procedures shall be established and posted to prevent spills.
SP11.	Construction vessels must comply with the requirements for shipboard oil pollution emergency plan and arrangements with a certified response organization defined under the <i>Canada Shipping Act, 2001</i> . The requirements are dependent on the size of the vessel.



Reference #	Requirement
Other Environmental Measures Applicable (Refer to CEMP)	
VE05.	When existing local facilities are not available for refuelling, onshore equipment and vehicles must be serviced and refuelled at least 15 m away from sensitive habitats unless secondary containment is used; preferably over an impermeable surface (e.g. drip trays). Drip pans and / or other protective devices shall also be used to prevent spills of petroleum products and other potentially hazardous liquids (e.g. antifreeze) during servicing.
VE11.	When offshore equipment and marine vessels are refueled through a floating hose, Contractor will ensure that all hoses and equipment are in good working order, appropriate spill containment and clean-up equipment is available, and personnel are trained in refueling and spill response procedures.
HM07.	Drainage into and from the storage area shall be controlled, and/or suitable secondary containment implemented, to prevent spills or leaks from leaving the site and to prevent run-off from entering the site.
HM08.	Containers must be sound, sealable and not damaged or leaking.
WW08.	All waste shall be stored in plastic bags while conducting marine work to prevent waste being released into the water.
WW11.	Waste shall not be deposited in, or placed on land or ice, under any conditions where the waste may enter Arctic waters.



3 Response Organization

The Contractor will provide the details of their response organization, in accordance with the requirements on INACs Guidelines for Spill Contingency Planning (2007).

Table 3-1 Response Contact List

Name	Role	Organization	Contact Number
<i>tbc</i>	Site Supervisor	Contractor	24-hour contact number
<i>tbc</i>	Environmental Inspector	Construction Administration Team	TBD
<i>tbc</i>	Contract Administrator	Construction Administration Team	TBD
NWT 24-Hour Spill report			867-920-8130

4 Action Plan

The contractor will develop and provide details of the action plan in accordance with the requirements on INACs Guidelines for Spill Contingency Planning (2007).

4.1 Potential Spill Sizes and Sources

The Contractor will assess the potential for discharge events based on the construction methodology and equipment and machinery to be used on site. The details of the hazardous materials, potential discharge event, discharge volume and extent of impact will be provided in Table 4-1. The potential environmental impacts associated with each spill scenario will be summarized in Table 4-2.

Table 4-1 List of Hazardous Material, Potential Discharge Events, Potential Discharge Volumes (worst case scenario in brackets) and Direction of Potential Discharge

Material (sources)	Potential Discharge Event	Discharge Volume (worst case)	Direction of Potential Discharge
Diesel			
Gasoline			
Propane			
Lubricants and Oils			
Oxy/Acetylene			
Paint			
Explosives			

Table 4-2 Potential Environmental Impacts of Spill (including worst case scenario)

Material	Potential Environmental Impact	Worst Case Scenario
Diesel		
Gasoline		
Propane		
Lubricants and Oils		
Oxy/Acetylene		
Paint		
Explosives		

4.2 Procedures

The procedures to be implemented following a spill are provided in the following sections. These are broken down into:

- Response
- Initial Notification
- Reporting a Spill
- Containing and Controlling Spill

The Contractor(s) will further detail spill response procedures specific to the construction activities being undertaken by that contractor.

4.2.1 Response

The Contractor will take the following actions in response to a spill:

- The first person on the scene will follow the Spill Scene Checklist (*to be developed*) documentation within the Contractor spill response procedures.
- Assess and immediately address any safety concerns, including removal of potential for ignition or other emergencies.
- Identify the spilled product, identify and stop the source, and mobilize necessary equipment and implement measures to control and contain the spill. Refer to Material Safety Data Sheets (MSDS) for the product.
- Contain and control the spill as described in Section 4.2.4.
- Avoid use of water or fire extinguishing chemicals on nonpetroleum product spills unless it is necessary to control a fire or prevent an explosion.
- If a major spill (i.e. a spill where the available equipment and materials on-site would be insufficient to respond) was to occur, specialized equipment and contractors would be immediately dispatched to the site.
- Assist in on-going response and clean up actions as required.
- Where required (depending on the volume, location and substance spilled) formulate plans with the regulatory authority(ies) to conduct water quality monitoring of the marine water and include notification of marine users. These plans would include method of water quality sampling, and mitigation measures.
- Initiate plans for remediation and waste management matters.

4.2.2 Initial Notification

- The Contractor (the first person on the scene of a hazardous material spill or release) will refer to Spill Scene Checklist and conduct these initial response activities to secure the area and protect human life.
- The Contractor will immediately notify the Construction Administration Team and Environmental Inspector(s) in the event of any spill or release, regardless of the location, quantity or substance released.



- The Contractor will fill out the Northwest Territories/Nunavut Spill Report Form (Appendix B-2 of INAC's Guidelines for Spill Contingency Planning) and submit to the following:
 - NWT 24-Hour Spill Line, Phone: (867) 920-8130
 - NWT 24-Hour Spill Line, Fax: (867) 873-6924
 - NWT 24-Hour Spill Line, Email: spills@gov.nt.ca
 - Construction Administration Team (*relevant contact to be provided*)
- There are applicable territorial and federal requirements for reporting spills. Depending upon the substance and quantity of the release, the incident may be reportable, as per Appendix B-3 of INAC's Guidelines for Spill Contingency Planning. The Environmental Inspector(s) will determine in accordance with applicable regulations, if an incident is reportable to regulatory agencies.

4.2.3 Reporting a Spill

- Report spill immediately to Environmental Inspector(s) who will determine if the spill is to be reported to the NWT 24-Hour Spill Line at 867-920-8130.
- The Environmental Inspector will immediately notify the appropriate regulatory agency when a reportable event occurs, or will delegate the responsibility.
- When reporting a spill the Environmental Inspector will provide the authorities with the following information:
 - Name and Phone Number of person reporting spill
 - Name and Phone Number of Person, Party, or Contractor responsible for spill
 - Location (Datum and UTM) and time of spill
 - Type and quantity of the substance spilled
 - Cause and effect of the spill
 - Details of action taken or proposed
 - Description of the spill location and the surrounding area
- The Environmental Inspector will notify the Construction Administration Team, and provide the information reported to regulatory authorities.
- The Environmental Inspector will complete all other internal notifications as soon as practical.
- The Environmental Inspector will conduct all follow-up reporting requirements with the Northwest Territories and Nunavut regulatory authorities, and others as required.

4.2.4 Containing and Controlling Spill

At a minimum, the following general guidelines for containment and clean-up will be implemented for spill of most hazardous materials adjacent to, or into, marine waters or to ice.

- Initiate spill containment by first determining what will be affected by the spill.
- Assess speed and direction of spill and cause of movement (water, wind and slope).
- Contain any spill to water bodies by installing berms or aquatic containment (e.g., floating oil booms) appropriate for the type and size of spill.



- Contain the spill on land with sandbags, spill pads, berms, etc.
- Contain any spill on snow or ice and prevent spilled liquids from moving towards waterways using absorbent materials or a snow dike.
- Determine best location for containing spill, avoiding any water bodies.
- Have a contingency plan ready in case spill worsens beyond control or if the weather or topography impedes containment.
- Recover spilled product using absorbent material appropriate to the product spilled.
- Clean-up will be under the direction of the Environmental Inspector and/or appropriate Qualified Professional(s).
- Further assessment and clean-up of contaminated areas will be undertaken and is dependent on the type, volume, extent and effect of the spill. Consultation will be conducted, as appropriate.
- Disposal of product and spill containment and clean-up waste will be undertaken as per the Waste Management procedures identified in the CEMP.



5 Resource Inventory

The Contractor will provide the details of on and off-site resources that will be available for spill response, in accordance with the requirements on INACs Guidelines for Spill Contingency Planning (2007).



6 Training Program

Spill prevention and response will be included within the worker induction and training requirements described within the CEMP. The Contractor will develop and provide details of a spill prevention and response training program in accordance with the requirements on INAC's Guidelines for Spill Contingency Planning (2007).



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Appendix 2 Archaeological Resource Discovery Protocol





1.0 Archaeological Resource Discovery Plan

1.1 Archaeological and Palaeontological Resource Discovery during Construction

In the event that archaeological, historical or palaeontological resources are discovered during construction of the Project, the sites will be assessed and appropriate mitigative measures will be determined. Each site will be assessed based on the following criteria:

- The significance of the site.
- The location of the site with respect to the Project.
- The feasibility of Project alternations to avoid the site.
- The decision of the responsible regulatory agency (Department of Culture and Heritage).

In the event that archaeological or palaeontological resources are discovered during construction, the measures outlined below should be followed:

1. Suspend work immediately in the vicinity of any newly discovered archaeological, palaeontological, historical or traditional land use site. Work may not resume until all measures are undertaken.
2. Notify the Contractor Environmental Monitor (EM) who will notify the Construction Manager (CM).
3. The EM will provide an initial assessment of possible archaeological, palaeontological, and historical remains and either allow construction to resume or, in the event of a confirmed or potential discovery, proceed by notifying:
 - a. The Project Archaeologist
 - b. The Department of Culture and Heritage, as required
4. The Project Archaeologist may deem it necessary to visit the site and will, regardless of whether a site visit is required, develop an appropriate mitigation plan in consultation with the Construction Management Team's Environmental Coordinator (EC) and, if necessary, the Department of Culture and Heritage.

1.2 Human Remains Discovery during Construction

In the event that suspected human remains are discovered during construction, the Project will adhere to the Department of Culture and Heritage's Human Remains Policy and will follow the measures outlined below:

1. Suspend work immediately within 10 m of the suspected human remains, which must be left in the condition they were found.
2. Immediately notify the EM who will notify the CM, or designate. The CM, or designate, will promptly notify the CMT of the situation. The EC will be informed.

3. The EC, or designate, will ensure that appropriate flagging, fencing and protection is promptly installed around the area to ensure privacy and dignity for the remains and to prevent disturbance to the site. All personnel must stay outside of this identified area unless approved by CMT. Work within 10 m of the location of concern may not resume until the measures below are undertaken. The site will be monitored to ensure compliance with the suspension of activities in the area.
4. CMT will undertake an initial non-invasive assessment of possible human remains. If there are clear visible indications that the remains are human CMT will contact the RCMP.
5. Access will be restricted, or prohibited, as necessary to ensure no disturbance to the location of concern occurs. The CM, or designate, will be responsible for determining what travel is essential and ensuring restrictions are met.
6. If it is unclear if the remains are human, the CM, or designate, will immediately contact the Project Archaeologist or other qualified resources to determine whether the remains are human. If it is determined that the remains are human, CMT will then contact the RCMP. If the remains are confirmed to be human but appear to be of some antiquity (e.g. buried, aged), the Project Archaeologist will provide initial notification to the Department of Culture and Heritage.
7. Project personnel will allow RCMP to conduct their investigation without interference. The CM, or designate, will serve as point of contact for RCMP personnel and any other officials (e.g. coroner, forensic specialists) associated with any investigation, until such a time that a Company communication or management representative assumes a liaison role, if necessary.
8. If the RCMP determines that the site is a crime scene, subsequent procedures will follow applicable territorial regulations for found human remains, and the responsible regulatory agency (e.g. RCMP) will manage the site. The CM, or designate, will support the investigation and work will not resume until the investigation is complete and authorization to resume construction is received from the RCMP.
9. If the RCMP determines that the site is not a crime scene, RCMP will engage the Department of Culture and Heritage, or will advise the CM, or designate, or Project Archaeologist to engage the agency directly. The Department of Culture and Heritage has the authority and responsibility to determine the appropriate course of action in relation to found human remains of an archaeological nature. The Project Archaeologist will either support or complete an investigation as required by applicable territorial laws, regulations, permits and guidelines pertaining to found burial sites.
10. At the same time that the Department of Culture and Heritage is contacted, CGS will provide notification to the community.
11. The CM, or designate, will ensure that other interested parties are engaged as appropriate (e.g. local land authority).
12. The human remains will be handled in accordance with all applicable territorial requirements and permits, and in keeping with the local community's input. The investigation and mitigation plan will be developed by the Department of Culture and Heritage and/or the Project Archaeologist in consultation with the EC and the local community.