ENVIRONMENTAL PROTECTION PLAN

2019 BRIDGE REPAIRS
ASTRO HILL BRIDGE SITE
IQALUIT, NUNAVUT

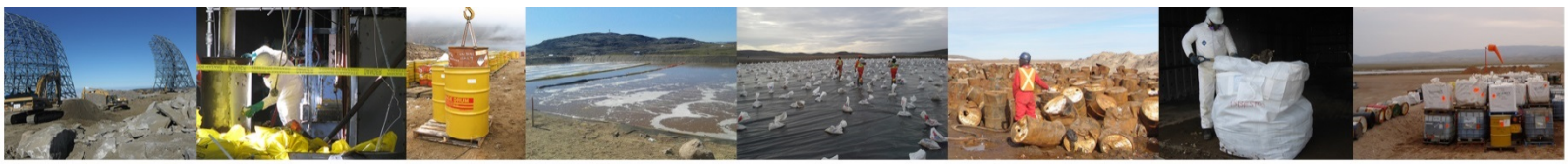
Document prepared for:
Tower Arctic Ltd.
P.O. Box 717
Iqaluit, Nunavut X0A 0H0

July 9, 2019

O/Ref.: QE19-124-2

Final Plan

Qikiqtaaluk environmental
ᖭᑭᖅᑕᓗᒃ ᐊᐅᑎᓕᓐᓂᐅᑦ



ENVIRONMENTAL PROTECTION PLAN

2019 BRIDGE REPAIRS
Astro Hill Bridge Site
Iqaluit, Nunavut

Document prepared for:
Tower Arctic Ltd.
P.O. Box 717
Iqaluit, Nunavut X0A 0H0

Prepared by:

Jennifer Godin
Director

Qikiqtaaluk environmental
ᖃᑭᖅᑕᐃᓗᒃ ᐊᓯᑎᓕᕆᔨᒃ

July 9, 2019

O/Ref.: QE19-124-2

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1. INTRODUCTION

The present Environmental Protection Plan (EPP) was developed to assist Tower Arctic Ltd. (Tower) with implementing measures to protect the environment, and minimize environmental impacts during construction at the Astro Hill Bridge in Iqaluit, Nunavut (the "Site") as the work will be taking place over a waterbody that flows into Koojesse Inlet, located approximately 700 m downstream. This EPP includes measures for Spill Contingency, as well as Erosion and Sediment Control.

The protective measures described within this document shall be implemented by Tower to avoid or minimize adverse environmental impacts. The procedures outlined in the following plan were carefully designed per QE's understanding of the existing Site conditions and environment. If certain procedures or protective measures prove to be impractical, imprudent, or ineffective in the field, the Site Supervisor will propose appropriate modifications for approval by the City of Iqaluit representative.

In addition to the Site-specific protective measures outlined in the present EPP, Tower will comply with the applicable laws, regulations, and requirements of authorities having jurisdiction (AHJ). Tower will acquire and comply with required permits, approvals and authorizations.

The EPP is drawn from a variety of applicable policies and regulations including, but not limited to:

- Nunavut's *Environmental Protection Act*[1],
- The *Fisheries Act*[2];
- The *Species at Risk Act*[3];
- The *Canadian Environmental Protection Act*[4].

1 Environmental Protection Act, R.S.N.W.T. 1988, c.E-7 (current to July 24, 2013)
2 Fisheries Act, R.S.C., 1985, c. F-14 (last amended on 2016-04-05)
3 Species at Risk Act, S.C. 2002, c. 29 (last amended on 2019-05-22)
4 Canadian Environmental Protection Act S.C. 1999, c. 33 (last amended on 2019-05-06)

2. REGULATORY REQUIREMENTS

The EPP is to be implemented to ensure that applicable laws, regulations and requirements of authorities having jurisdiction are followed. Tower will comply with permits, approvals and authorizations required for the operations. The following applicable regulations and documents constitute an integral part of the EPP:

- Federal Legislation:
  - The *Nunavut Restricted Activity Timing Windows for the Protection of Fish and Fish Habitat* restricts activities in or near waterbodies in Nunavut so as to protect fish during spawning and incubation periods when spawning fish, eggs and fry are vulnerable to disturbances or sediments. Work at the Astro Hill Bridge will be conducted outside of the Zone 1 spawning period, which is from September 1 to June 30;
  - The purposes of the *Species at Risk Act* are to prevent wildlife species in Canada from disappearing, to provide for the recovery of wildlife species that are extirpated (no longer exist in the wild in Canada), endangered, or threatened as a result of human activity, and to manage species of special concern to prevent them from becoming endangered or threatened. No endangered species have been identified in the area of Astro Hill Bridge;
  - The *Canadian Environmental Protection Act* is aimed at preventing pollution and protecting the environment by controlling hazardous substances from production and/or import, as well as their consumption, storage and/or disposal;
  - The *Nunavut Waters and Nunavut Surface Rights Tribunal Act* provides for the conservation and utilization of waters in Nunavut, in a manner that will provide the optimum benefit to the residents of Nunavut;
- Territorial Legislation:
  - The Government of Nunavut *Environmental Protection Act* governs the protection of the environment from contaminants. The act defines offences and penalties, as well as the powers of government inspectors;
- Guidelines and Policies:
  - The *Guidelines for Preparation of Hazardous Material Spill Contingency Plans* describes parameters that should be considered in the development of hazardous materials spill emergency plans. It also defines the information that should be incorporated into a comprehensive contingency plan;
  - The *Nunavut Spill Contingency Planning and Reporting Regulations* describe the requirements for spill reporting and emergency planning.

3. SURFACE WATER AND FISH HABITAT

No fish or other marine fauna is present in the stream that flows under the Astro Hill Bridge. However, since this stream connects to the sea approximately 700 m further downstream, the following procedures will be implemented and followed to prevent adverse effects to fish habitats and/or the degradation of surface water quality:

- All personnel must know the appropriate safety measures for refuelling, accidental spills, etc.;
- All personnel must also be trained in proper spill prevention and response measures to avoid any accidentally released product from flowing toward fish-bearing waters;
- All personnel on-site will be informed of the importance of wildlife and wildlife habitat protection;
- Borrow materials shall not be taken from stream beds;
- Construction activities near watercourses not identified in the Scope of Work shall be minimized wherever possible;
- Waste, excavated fill and/or debris shall not be disposed of in waterbodies;
- Waterbodies supporting fish will be protected from siltation during construction activities using silt fences, and/or other appropriate control devices.

4. EROSION AND SEDIMENT CONTROL

The following section describes the measures to be implemented during construction activities to protect nearby waterbodies. Effective erosion and sediment control techniques are essential to preventing sediments from damaging receiving water ecosystems.

4.1 Avoiding Impacts and Reducing Erosion

The most effective form of sediment control is to ensure work is designed to reduce erosion at the source. The following best practices will be applied throughout the Project:

- Wherever possible, construction work will be executed under dry conditions;
- The volume of bare soils exposed at any given time will be minimized to the extent possible; disturbed soils will be stabilized as quickly as practicable;
- Existing vegetation will be preserved, unless it must be removed for construction activities;
- Construction equipment will not be operated in waterways;
- Waterway beds will not be used for borrow materials; there will be no dumping of excavated fill, waste materials, or debris in waterbodies.

4.2 Minimizing Impacts - Erosion and Siltation Controls

Silt fences will be installed downstream of the worksite, near Astro Hill Bridge, to prevent silt from making its way towards Koojesse Inlet. The silt fences will be inspected and repaired, as required, prior to, and immediately following, large precipitation events. Silt will be cleared once it reaches one-third the height of the fence. The following figure shows the location where the silt fences will be installed.

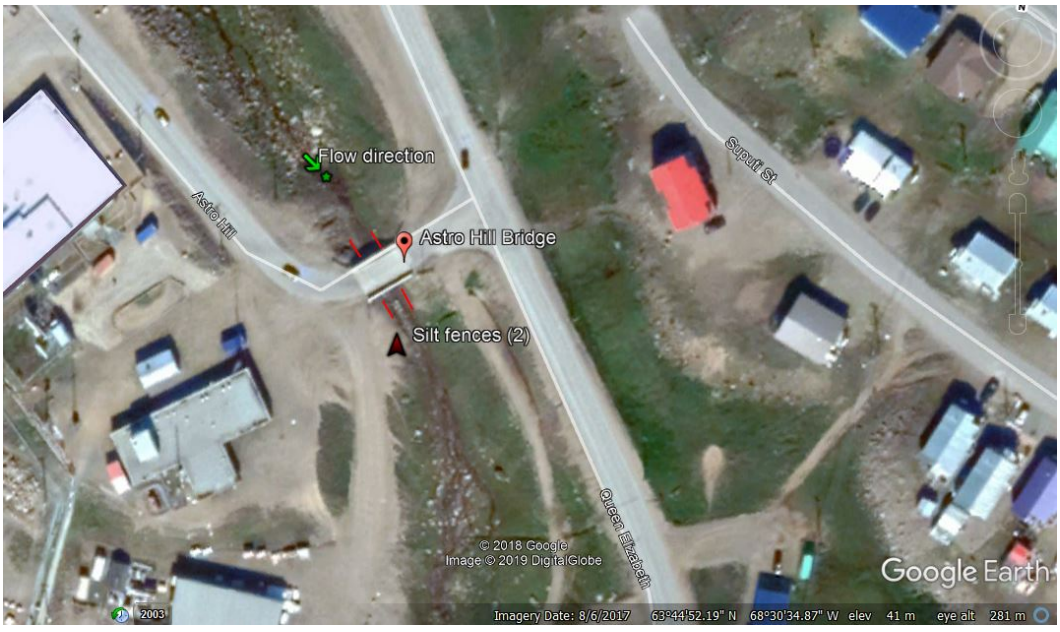


FIGURE 1 Location of Silt Fences

4.3 Dust, Particulate, and Pollution Controls

Tower will ensure that emissions from equipment meet the emissions requirements of the AHJ.

Work will be carried out using methods to minimize dust dispersion:

- Wherever possible, vegetation will be preserved to prevent erosion and dust dispersion;
- Lower speed limits will be enforced on unsealed roads to minimize dust dispersion. For example, reducing speeds from 60 to 30 km/hr can reduce dust emissions by 65%;
- The supervisor will be responsible for monitoring and performing visual inspections during dry periods to determine whether the presence of dust and particulates requires mitigation measures;
- Work will be halted if dust and particulate controls are inadequate for worker exposure.

5. SPILL RESPONSE PROCEDURES

A spill is defined as the discharge of a hazardous product from its containment into the environment. Potentially hazardous to humans, vegetation, and wildlife, they vary in severity, depending on several factors, including: the nature of the material, the volume spilled, the location, and season. Oil and fuel are the main products that may be spilled during the course of this work; therefore, spill response procedures will focus on this type of hazardous material.

Site personnel will be briefed on the procedures to be followed to report a spill and initiate spill response. The first person to notice a spill will take the following steps:

1. Immediately warn other personnel working near the spill area;
2. As long as it is safe to approach the spill, take any safe and reasonable measures to stop, contain and identify the nature of the spill.

All spill response interventions carried out by the Spill Response Team will follow these general procedures:

- **Source Control:** Reduce or stop the flow of product without endangering anyone. This may involve very simple actions, such as sealing a puncture hole with whatever is at hand (e.g., a rag, a piece of wood, tape, etc.), re-positioning a leaking container such that the puncture hole is facing up, or transferring fluid from leaking containers;
- **Control of Free Product:** Prevent or limit the spread of the spilled material. Accumulate/concentrate the spilled product in an area to facilitate recovery. Barriers positioned downgradient of the spill will slow or stop the progression of the spill. Barriers can consist of absorbent booms, dykes, berms, or trenches dug in the ground;
- **Protection:** Evaluate the potential dangers of the spill to protect sensitive ecosystems and natural resources. Contain or divert the spilled material away from sensitive receptors. This can also be achieved by using varying types of barriers;
- **Clean Up the Spill:** Recover and containerize as much free product as possible. Recover and containerize/treat contaminated soils or water;
- **Report the Spill:** Provide basic information, such as the date and time of the spill, the type and volume of product discharged, the location and approximate size of the spill, the actions already taken to stop and contain the spill, the meteorological conditions, and any perceived threat to human health or the environment. Reporting requirements are presented in Section 8 of the present document.

Specific response procedures for spills on land and water are presented in the following sections. Because the quantity of liquids contained in the heavy equipment is relatively small, and because the equipment will be working from the stream bank, which is approximately 4 m from the stream, the spill of liquids will likely not reach the watercourse.

5.1 Hazardous Liquids Found On-site and Storage Capacity

Fuels and oils will be used during this Project. The greatest volumes involved consist of diesel fuel contained in heavy equipment. Other substances, such as lubricating oils, hydraulic fluids, antifreeze, fuel additives, gasoline, and engine coolants are used, but their volumes are much less than the volume of diesel fuel on-site. These products are all to be considered as potential environmental and safety hazards.

As a preventive measure, heavy equipment operators shall complete a daily inspection checklist to identify hydraulic line problems and/or other issues.

Refuelling activities will be conducted a minimum of 30 m from the watercourse on-site.

5.2 Spill Response Equipment

Emergency spill response equipment (i.e. spill kits) will remain on-site during the course of the work. The minimum contents of the spill kits will be as follows:

- 10 x 8" diameter hydrophobic booms;
- Bales of 100 sorbent sheets;
- Safety glasses;
- Nitrile gloves;
- 1 bag of granular absorbent;
- 1 roll of polyethylene sheeting;
- 1 hand shovel.

Spill kits will be inspected and maintained on a regular basis.

Appropriate fire extinguishers will also be placed in each vehicle.

5.3 Disposal of Spilled Materials

Steel drums and waste wrangler will be used to contain used sorbent materials for transport by sealift to an authorized disposal facility in the south.

6. TRAINING AND DRILLS

Site personnel shall be informed that any spill of hazardous liquids or solids, whatever the extent, must be immediately reported to the Site Supervisor.

Crew members will be trained in emergency spill response and environmental protection procedures. Training will include knowledge of the following:

- Properties of the hazardous materials stored on-site;
- Common causes of spills;
- Environmental effects of spills;
- Worker health and safety during emergency interventions;
- PPE[1] and clothing;
- Spill response equipment and materials.

1 Personal protective equipment

7. DUTIES AND RESPONSIBILITIES

As part of the emergency spill response plan, Tower is responsible for implementing, through its management team, the following procedures:

- Train Site personnel in spill response procedures and the proper use of response equipment and materials;
- In the event of a spill, mobilize all available Site personnel, equipment and tools, as required;
- Implement required health and safety procedures at the spill location;
- Eliminate all fire hazards and potential ignition sources near the spill area;
- Control the source of the spill (i.e. reduce or stop product discharge);
- Contain the spilled product using the most appropriate methods and equipment (i.e. dykes, ditches, sorbent materials, containment booms, and other barriers);
- Evaluate the possibility of recovering the spilled materials;
- Obtain, if required, assistance from government agencies such as the Government of Nunavut Department of Environment (GN DoE) and/or Environment and Climate Change Canada;
- Comply with applicable guidelines and regulations;
- Conduct a preliminary assessment of the environmental impacts;
- Within 24 hours of the event, report the spill to the Government of Nunavut Spill Report Line and submit a written spill report using the appropriate form.

8. REPORTING REQUIREMENTS

Volumes of spilled hazardous substances requiring reporting are listed in Schedule B of the *Nunavut Spill Contingency and Reporting Regulation*. For example, for all flammable liquids (Class 3), spills of volumes equal to or greater than 100 L must be reported.

In addition, all releases of harmful substances, regardless of volume, are to be reported to the Spill Report Line if the release is near or into a waterbody.

After the initial field emergency response to the spill event, the spill will be reported to the 24-hour Spill Report Line:

24-Hour Spill Report Line

Tel. 867 920-8130

or

Fax: 867 920-8127

Failure to report a spill can lead to fines. It is the responsibility of the Site Supervisor to prepare the proper reports and transmit them to the regulatory authorities. Table 1 presents an additional contact list for spill reporting.

TABLE 1
Contact List for Spill Reporting

Department	Telephone
GN DoE	867 975-7726
Fire Department (General)	867 979-5655
Fire Department (Emergency)	867 979-4422
RCMP - Iqaluit	867 979-0123
Ambulance	867 979-4422

Afterwards, the spill event will be reported in writing using the standard Spill Report Form presented in Appendix A.

The written report will include the following information:

- Date and time of the incident;
- Location or map coordinates and direction of spill movement, if not at steady state;
- Party responsible for the spill;
- Type and estimated quantities of spilled contaminant(s);
- The specific cause of the incident, if known;

- Status of the spill, indicating if spilled materials are still moving or have reached steady state;
- Approximate surface area of the contaminated zone;
- Factors affecting spill or recovery, such as temperature, wind, etc.;
- Status on containment actions, indicating whether:
  - Naturally,
  - Booms, dykes or other,
  - No containment has been implemented;
- Corrective action taken, or proposed, to clean, contain or dispose of the spilled material;
- Whether assistance is required, and in what form;
- Whether the spill poses a hazard to humans or property (i.e. fire, drinking water);
- Comments and recommendations;
- The name, position and employer of the person reporting the spill; and,
- The name, position and department of the person to whom the spill is reported.

APPENDIX A

Standard Nunavut Spill Report Form

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE
TEL: (867) 920-8130
FAX: (867) 873-6924
EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR	REPORT TIME	☐ ORIGINAL SPILL REPORT, OR ☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT	REPORT NUMBER ____-_____
B	OCCURRENCE DATE: MONTH – DAY – YEAR	OCCURRENCE TIME		

C	LAND USE PERMIT NUMBER (IF APPLICABLE)	WATER LICENCE NUMBER (IF APPLICABLE)
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION	REGION ☐ NWT ☐ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN
E	LATITUDE DEGREES MINUTES SECONDS	LONGITUDE DEGREES MINUTES SECONDS

F	RESPONSIBLE PARTY OR VESSEL NAME	RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION	
G	ANY CONTRACTOR INVOLVED	CONTRACTOR ADDRESS OR OFFICE LOCATION	
H	PRODUCT SPILLED	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER
	SECOND PRODUCT SPILLED (IF APPLICABLE)	QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES	U.N. NUMBER
I	SPILL SOURCE	SPILL CAUSE	AREA OF CONTAMINATION IN SQUARE METRES
J	FACTORS AFFECTING SPILL OR RECOVERY	DESCRIBE ANY ASSISTANCE REQUIRED	HAZARDS TO PERSONS, PROPERTY OR ENVIRONMENT
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS		

L	REPORTED TO SPILL LINE BY	POSITION	EMPLOYER	LOCATION CALLING FROM	TELEPHONE
M	ANY ALTERNATE CONTACT	POSITION	EMPLOYER	ALTERNATE CONTACT LOCATION	ALTERNATE TELEPHONE

REPORT LINE USE ONLY

N	RECEIVED AT SPILL LINE BY	POSITION STATION OPERATOR	EMPLOYER	LOCATION CALLED YELLOWKNIFE, NT	REPORT LINE NUMBER (867) 920-8130

LEAD AGENCY ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC

SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN

FILE STATUS ☐ OPEN ☐ CLOSED

AGENCY	CONTACT NAME	CONTACT TIME	REMARKS
LEAD AGENCY			
FIRST SUPPORT AGENCY			
SECOND SUPPORT AGENCY			
THIRD SUPPORT AGENCY			

IQALUIT OFFICE

2027 Iqaluit Lane
P.O. Box 2110
Iqaluit, Nunavut X0A 0H0

T.: 866 634.6367
info@qenv.ca

MONTREAL OFFICE

9935 de Châteauneuf Street
Entrance 1 – Suite 200
Brossard, Quebec J4Z 3V4

T.: 866 634.6367
info@qenv.ca

www.qenv.ca