

- Refuelling, and maintenance activities will not be located within 30 m of a watercourse or where there is potential for any spilled fuel to enter a watercourse or groundwater (see the spill contingency and waste management plans [Associated 2023b, 2023c] for further details).

3.1.1 Filter Fabric Filtration

To remove as much fine sediment as possible from water passively draining from the dredged material, an engineered filter fabric will be installed along the raised sides of the barge and on the inside of the lock blocks at the end of the barge deck. This will let water flow freely off the barge but will trap sediment on the deck.

3.1.2 Silt Fencing

Silt fencing or berms allow surface water to pond so that sediment particles can settle. At the discretion of the EM, silt fences may be installed at the barge offloading location to protect riparian habitat or contain any spills of sediment-laden water during transfer to haul trucks. Silt fencing is to be maintained throughout the project until the EM deems it no longer necessary.

4 SEDIMENT AND EROSION CONTROL MANAGEMENT ON LAND

Dredged material will be transferred from the barge to land via haul trucks to several GNWT-INF storage sites located above the high-water mark on Vale Island for further passive dewatering. Trucks will drive at or below the speed limit to avoid dry silt from becoming airborne. A containment berm will be constructed around the perimeter of the storage sites to contain the stockpiled dredged material, where it will be considered soil, and no longer sediment. The berm will prevent sediment and sediment-laden water from being transported back to Hay River or Great Slave Lake during passive dewatering, or during flood or rainfall events. Soil is expected to be fully dewatered within 1 year. At the storage sites, the water from the dewatering process will be directed to sumps, using a series of berms, where the water will infiltrate into the ground. Stockpiles will be approximately 3 m high and 30 m or more from monitoring wells and surface water to mitigate the potential for a direct hydraulic connection to groundwater or a watercourse.

4.1 General Sediment and Erosion Control Measures

The following SEC measures will minimize migration of sediment and sediment-laden water from the receiving sites and manage passive dewatering on site:

- The pre-disturbed storage sites will be a minimum of 30 m from watercourses.
- Topsoil will be removed and stored separately from subsoil during the preparation of the storage sites and during the creation of berms, drainage channels, and sumps.
- Sediment control structures, such as silt fences or berms, will be in place before stockpiles are established. These fences shall be located on the downslope side of the storage sites and located so as to not hinder construction traffic. Material used in the silt fences shall be appropriate for the sediment grading. Where possible, the lower edge of the fence fabric shall be buried on the upslope side of the fence.
- The sediment stockpiles will be managed so they are:
 - located away from natural flow paths; and
 - surrounded by SEC structures (i.e., berms, sumps).
- SEC structures will be inspected on a regular basis and after major rainfalls (>25 mm rainfall in 24 hr) to maintain continued effectiveness, to identify where replacement or maintenance are required, and to identify

where trapped sediment needs to be removed. Where SEC structures need maintenance or repair, these works must be undertaken as soon as practicable.

4.1.1 Stockpiles

Dredged sediment will be stockpiled within grided cells, and bermed. This practice should be maintained after construction is complete, as part of the facility operations procedures until such time as the stockpiles are reused.

4.1.2 Berms

Before stockpiling any sediment, earthen berms will be constructed up to 1 m high around storage sites to prevent the migration of sediment and sediment-laden water.

At the storage sites, the stockpile dewatering rate is expected to match the rate of water infiltrating onto underlying soils. In cases where dewatering is faster than the infiltration rate, excess water will be direct water into a sump.

4.1.3 Sumps

Sumps will be constructed to capture potential excess water within the bermed storage sites to settle water that passively drains from the stockpiled soil. The soil from the sump will be cleared when it has reached one-third of the pond capacity. Turbidity of water in the sump shall be monitored weekly and compared to applicable guidelines (Associated 2023a). Clean water from the sump may be pumped and discharged over vegetated land (if necessary) provided it is at a suitable distance to allow for infiltration to the ground before reaching the receiving sites or other properties.

4.1.4 Silt Fencing

Silt fencing allows surface water to pond so that sediment particles can settle. Silt fences should be used as a secondary sediment control measure downslope of bermed storage sites, where necessary. At the discretion of the EM, silt fences may also be installed along access routes between the barge offloading location and the storage sites where sedimentation is a concern, especially areas directly adjacent to streams, drainage courses, or riparian areas. Silt fencing is to be maintained throughout the project until the EM deems it no longer necessary.

4.2 Wind Erosion and Dust Control

Wind erosion occurs in areas that are not adequately protected from high-velocity winds blowing across the land. It can be minimized by forming a new less-erodible surface. Dust is commonly generated by sweeping and maintenance operations on paved surfaces or generated from vehicle traffic or wind on construction sites. The following methods are used to reduce wind erosion and control dust:

- Covering stockpiles with wind-impervious fabrics or materials;
- Covering haul trucks and driving at low speeds to minimize fugitive dust;
- Spray water as necessary on transport routes to compact and weigh down the soil particles and reduce dust generation; and
- Restrict vehicle traffic entering and leaving the site to reduce sediment transport and mobilization to roadways.

4.3 Transport Management

4.3.1 Access Roads

Choose a dedicated transport route between the barge offloading site and the storage sites. At the discretion of the EM, silt fences may also be installed along access routes between the barge offloading location and the storage sites where sedimentation is a concern, especially in areas directly adjacent to streams, drainage courses, or riparian areas (Section 4.1.4). This measure may not be necessary if using sealed haul trucks that will not leak sediment-laden water during transport.

Before transporting sediment, trucks and equipment should be inspected for mud and debris and cleaned in designated areas only. The entrance to the storage sites should be constructed with 75 mm diameter clean granular gravel to reduce tire exposure to mud and dirt. Trucks should be instructed to always remain on designated transport routes.

4.3.2 Truck and Equipment Washing

To prevent contamination of soil, haul trucks and equipment should be washed and maintained at designated areas with no direct contact to natural or constructed stormwater conveyance infrastructure. Designated wash areas should be equipped with a containment pad before discharging to any drainage course.

5 SITE RESTORATION

On project completion, areas available for restoration on the site will be restored to their original condition. Areas disturbed by the dredging activities will be revegetated with native trees and shrubs, and/or reseeded with a local certified weed-free seed mix.

Storage sites from which dried sediment (soil) is removed and reused elsewhere will be recontoured to match the pre-disturbance topography and will be revegetated and/or seeded with grass. Otherwise, the dried soil stockpiles may be planted with a local native seed mix or similar stabilizing material to prevent silt and sand from being mobilized during storm or strong wind events.

CLOSURE

This report was prepared for the Government of Northwest Territories – Department of Infrastructure to guide sediment and erosion control during the emergency works to dredge the Hay River at Great Slave Lake and the Hay River Harbour.

The services provided by Associated Environmental Consultants Inc. in the preparation of this report were conducted in a manner consistent with the level of skill ordinarily exercised by members of the profession currently practising under similar conditions. No other warranty expressed or implied is made.

Respectfully submitted,

Associated Environmental Consultants Inc.

Prepared by:

Reviewed by:

Stephanie Murphy, R.P.Bio.
Environmental Scientist

Jennifer Brown, P.Eng., MEERL
Project Manager

DH

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- Northwest Territories Waters Act*, SC 1992, c. 39.

APPENDIX A – SAMPLE INSPECTION REPORT



Project Number: _____
 Client Name: _____
 DATE (dd/mm/yyyy): _____

EROSION AND SEDIMENT CONTROL CHECKLIST

Contractor Title: _____ Location: _____

Contractor Name: _____ SITE STAFF: _____

TIME ON SITE: _____ INSPECTED BY: _____

CURRENT WEATHER CONDITIONS: _____ FORECAST: _____

PREVIOUS 24hr WEATHER CONDITIONS: _____

TOTAL RAINFALL (mm) - PREVIOUS 24hr: _____ LAST 7 DAYS: _____ STATION: _____

REPORT OF ONSITE CONSTRUCTION ACTIVITIES: _____

SITE SUPERVISOR(S) MET WITH DURING SITE VISIT: _____

SITE ACCESS/OFFSITE SEDIMENT TRANSPORT	YES	NO	N/A	COMMENT
--	-----	----	-----	---------

Are the designated construction site access points in use and stable?				
---	--	--	--	--

Are the designated parking areas established, in use, and stable?				
---	--	--	--	--

Are the measures in place to reduce offsite transport of sediment?				
--	--	--	--	--

Are the access roads free of sediment and being maintained?				
---	--	--	--	--

Are additional ESC measures required to contain the offsite transport of sediment to public roads?				
--	--	--	--	--

Have the previously recommended SEC measures been implement?				
--	--	--	--	--

Has the contractor modified the existing SEC measures since last inspection?				
--	--	--	--	--

Are the SEC modifications installed and functioning as intended?				
--	--	--	--	--

Additional SEC measures required at site access points (street sweeping, wheel wash etc.): _____

EROSION CONTROL	YES	NO	N/A	COMMENT
-----------------	-----	----	-----	---------

Are inactive soil stockpiles covered or otherwise protection?				
---	--	--	--	--

Are erosion control measures functioning as intended?				
---	--	--	--	--

Are additional erosion control measures required for the soil stockpile?				
--	--	--	--	--

Are swales or other water conveyance measures in place to direct stormwater runoff?				
---	--	--	--	--

Are swales or other water conveyance measures construction as per SECP specifications?				
--	--	--	--	--

Are swales or other water conveyance measures functioning as intended?				
--	--	--	--	--

Are additional water conveyance measures required?				
--	--	--	--	--

Has the contractor modified the existing erosion control measures since the previous inspection?				
Are the erosion control modifications installed and functioning as intended?				
Have previously recommended erosion control or water conveyance modifications been implemented since the previous inspection?				
Recommendations for additional erosion control measures:				
Sediment Control				
	YES	NO	N/A	COMMENT
a). Sediment Stockpiles				
Are the sediment control measures in place to contain sediment mobilization from soil stockpiles?				
Are sediment control measures installed according to the SECP and functioning as intended?				
Are additional sediment control measures required around inactive sediment stockpiles?				
b). Water Conveyance				
Do swales or other water conveyance measures include sediment control features as per the SECP?				
Are the sediment control features constructed as per SECP specifications and functioning as intended?				
Are additional sediment control features required and/or are modifications required to existing features?				
c). Perimeter Controls				
Are the required perimeter sediment control measures in place?				
Are the perimeter sediment controls installed as per the ESCP and functioning as intended?				
Are additional perimeter controls required and/or are modifications required to existing features?				
d). Sediment Basins and or Settling Ponds				
Are the required sediment basins or infiltration trenches installed according to the SECP specifications?				
Are the required sediment basins or infiltration trenches functioning as intended?				
Are additional sediment basins required or are modifications required to existing features?				
e). Catch Basin Inlet Protection				
Are the catch basin inlet barriers in place to protect on or offsite storm drains?				

Are the catch basin inlet barriers installed as per SECP and/or manufacturers specifications?				
Are the catch basin inlet barriers functioning as intended?				
Are additional or alternative catch basin inlet protection measures required?				
Have the recommended sediment control modifications been implemented since the last inspection?				
Has the contractor modified the existing sediment control measures since last inspection?				
Are the sediment control modifications installed and functioning as intended?				
Describe any recommendations for additional sediment control measures				
GENERAL SITE CONDITIONS	YES	NO	N/A	COMMENTS
Are litter barrels available onsite and is construction waste being sorted for recycling?				
Are designated areas for concrete wash out, available, and being used?				
Is there evidence of oil or other fluid leaks from vehicle and or heavy equipment?				
Are designated fuelling areas available for heavy equipment and are they being used?				
Are emergency spill kits available in designated areas?				
Leaks or spills?				

REPORT

Government of Northwest Territories Department of Infrastructure

Hay River Harbour Restoration – Spill Contingency Plan 2023-8356



MARCH 2023

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LIST OF ABBREVIATIONS

Abbreviation	Definition
GNWT	Government of Northwest Territories
INF	Department of Infrastructure
MTS	Marine Transportation Services
OSC	on-scene commander
PPE	personal protective equipment
SCP	spill contingency plan
SDS	safety data sheet
TDG	Transportation of Dangerous Goods
WHMIS	Workplace Hazardous Materials Information System

1 INTRODUCTION

The Government of Northwest Territories (GNWT) – Department of Infrastructure (INF) retained Associated Environmental Consultants Inc. (Associated) to prepare a spill contingency plan (SCP) for dredging works taking place in the Hay River, near its outlet into Great Slave Lake (Dredge Area A, Figure 1-1), and within the three fingers in the East Channel of the river (Dredge Area B, Figure 1-1). The dredging is proposed to begin July 16, 2023, and continue until September 14, 2023. The SCP follows the Indian and Northern Affairs Canada’s Guidelines for Spill Contingency Planning (2007). The SCP will guide the response to spills related to the dredging activities and will be implemented for the duration of the dredging project.

1.1 Corporate Contact Information

The GNWT-INF is the primary contact for this project and will be working closely with GNWT – Marine Transportation Services (MTS).

Applicant’s Name:	Mark Cronk		
Position:	Director of Design and Technical Services		
Company Name:	Government of Northwest Territories – Department of Infrastructure		
Mailing Address:	4th floor, Tatsaotjine Building PO Box 1320 5015 – 49th Street		
Community:	Yellowknife	Telephone:	867-767-9048 ext. 32060
Prov/Terr:	NT	Email:	Mark.Cronk@gov.nt.ca
Postal Code:	X1A 2L9	Other:	

1.2 Effective Date of Plan

The SCP will be in effect when equipment is mobilized for the dredging activities. The specific effective date will be updated by the contractor after project award.

1.3 Distribution List

Manager, Environmental Affairs, Design and Technical Services, INF
Director, Design and Technical Services, INF
Contractor Project Manager
Contractor Site Supervisor/Foreman
Mackenzie Valley Land and Water Board Regulatory Specialist

1.4 Purpose and Scope of Plan

The purpose of the SCP is to have contingency planning in place for any potential spills caused during the dredging of the Hay River and the transportation and storage of sediment. The plan addresses the aspects of machinery working on water and on land, and the contingency if a spill occurs while fuelling, dredging, or transferring of sediment on land.

1.5 Health Safety and Environmental Policy

The health safety and environmental policy is the responsibility of the contractor.



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SERVICE LAYER CREDITS: WORLD IMAGERY, MAXAR



- LEGEND**
- Dredging Areas
 - Temporary Soil Storage (GNWT)
 - Temporary Soil Storage (Town of Hay River)

AE PROJECT NO. 2023-8356
 SCALE 1:36,000
 COORD. SYSTEM NAD 1983 UTM ZONE 11N
 DATE 2023-03-28
 REV 03
 DRAWN BY SC
 CHECKED BY JB

**FIGURE 1-1
 DREDGING AND PROJECT AREA**
 GOVERNMENT OF
 NORTHWEST TERRITORIES-
 DEPARTMENT OF INFRASTRUCTURE
 HAY RIVER HARBOUR
 RESTORATION