Waste Management Plan

Cambridge Bay Soil and Water

Treatment Facility

June 2018

Summary

This Plan outlines what Nunavut Excavating will do with any waste generated on site. Wastes include contaminated soil and water that can't be treated on site, as well as those that can be; each of these are disposed of differently. Waste also includes materials that need to be disposed of if there is a spill on site that needs to be cleaned up. Soil that is successfully treated on site will be used either for fill or to cover garbage at the landfill. Water that is successfully treated on site can be used to increase moisture at the soil treatment facility or can be released to ground surface. Any soil or water that cannot be successfully treated will be hauled to and disposed of at an authorized location.

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1. Introduction

a. Company Name, Project Location & Effective Date

Nunavut Excavating 2007 INC

1825 Federal Road
P.O. Box 1984
Iqaluit, Nunavut
X0A 0H0

Project location:

69º 07' 40.56"N 105º 02' 54.08"W

Cambridge Bay, NU

Project contacts:

Glen Molloy
Manager, Nunavut Excavating Ltd.
709-728-7659

Corwin Mullett,
Operations Supervisor, Nunavut Excavating Ltd
867-975-3320

Nunavut Excavating Ltd. (NE) is proposing to develop a soil and water treatment facility (the Facility) located adjacent to the Hamlet of Cambridge Bay sewage lagoon. Coordinates for the Facility are:

69º 07' 40.56"N 105º 02' 54.08"W

The site is accessible by road, from an access road off of Natik Street.

The effective date for this *Waste Management Plan* (the Plan) is the start of construction of the facility, anticipated to be in summer of 2018. The Plan will be effective for the duration of the lease and the life of the facility, a period of five (5) years.

2. Environmental Policy

Our commitment to the protection of the environment needs to be demonstrated in how we conduct our day-to-day business operations. The highest standards of care are to be taken by all employees to minimize the environmental impact of all operations. The company management team has the responsibility to take a leadership role and develop policies and procedures that minimize environmental effects. Employees have the responsibility to bring to the attention of their immediate supervisor those procedures and incidents which may impair the environment. Our policy is to:

1) Comply with all applicable government regulations.
2) Consider the environmental effects of our operations.
3) Provide staff with all the necessary information, training and equipment.
4) Develop processes, policies and procedures that minimize the occurrence and consequences of environmental incidents.

Our corporate environmental goal is to minimize the environmental impact of our operations.

3. Purpose &Scope

The purpose of this Plan is to identify waste streams and outline management methods for wastes generated at the Facility. The scope of this Plan includes operation and maintenance of the Facility.

NE will manage the program operations responsibly and will comply with all licenses, permits and applicable territorial and federal laws and regulations related to waste management specific to Facility operation. The following table lists regulations and guidelines that will be applied and referenced for the Facility operations in Yellowknife.

Table 1. Relevant waste management regulations and guidelines

Jurisdictional Authority	Regulation or Guideline
Government of Nunavut (GN), Department of Environment (DoE)	*Environmental Guideline for the General Management of Hazardous Waste (2010)*
Government of Nunavut (GN), Department of Environment (DoE)	*Environmental Guideline for Site Remediation (2002)*
Government of Nunavut (GN), Department of Environment (DoE)	*Environmental Guideline for Contaminated Site Remediation(2003)*
Environment Canada (EC)	*Federal Guidelines for Land farming Petroleum Hydrocarbon Contaminated Soils (SAIC2006)*
Transport Canada (TC)	*Transportation of Dangerous Goods Regulations (2012)*

a. ProjectDescription

The purpose of this project is to construct and operate a permanent STF in Cambridge Bay, NU. The site of the proposed facility is located at 69^{o} 07’ 40.56”N 105^{o} 02’ 54.08”Wand is currently vacant. The proposed permanent facility will include the construction of an engineered cell to receive petroleum

hydrocarbon-contaminated snow and water. Water will be treated on site by a package treatment plant. Treated water will be stored in a tank until it is confirmed that the water meets discharge criteria, after which it will be reused on site or released to the environment. The proposed discharge location is the small watercourse located approximately 40 m east of the proposed treatment facility, south of the existing road. Discharge water will be conveyed to the small watercourse through a discharge pipe connected to the treated water storage tank. The proposed discharge location is illustrated on Figure A.1 in the Baseline Conditions Assessment, Environmental Monitoring and Post-Closure Plan.

Following bioremediation, treated soil meeting license criteria will beneficially reused off site. Soil and water not meeting discharge/reuse criteria will be transported off site for disposal at a suitable facility. The facility will also include an area of the treatment pad designated for storage of hazardous wastes awaiting transportation to authorized facilities *(the likely source of the hazardous waste is end of life vehicles, mainly used motor oil, grease, and spill cleanup materials)*.

The Facility includes: one engineered cell consisting of three sub-cells: one cell 50 m x 40 m, for receipt, storage and treatment of petroleum hydrocarbon-contaminated soil; one cell designed for storage of up to 170 m^3 of petroleum hydrocarbon-contaminated snow and water; one cell 19m x 14m designed for storage of hazardous waste awaiting shipment *(the likely source of the hazardous waste is end of life vehicles, mainly used motor oil, grease, and spill cleanup materials)*; one small package treatment plant to treat petroleum hydrocarbon-contaminated water; one or two above ground storage tank(s) (AST) for treated water storage; one small shed for storage of supplies, documentation and health and safety equipment.

The SWTF is intended to be constructed commencing in summer of 2018. The facility is anticipated to be operated for a term of five (5) years at which time its use to the community will be re-evaluated.

b. Rationale

Operation of the proposed Facility will provide industry with a continued, local treatment option for petroleum hydrocarbon-impacted waste. In addition, having a local service provision may provide a reduced cost structure to generators which in turn may promote liability management as opposed to alternative management techniques such as long term monitoring or natural attenuation. Further, on-site treatment of soil and water allows for a significant reduction in the amount of site-specific infrastructure that may otherwise be required to manage these waste streams at source (i.e. at exploration and mine sites). In addition production of soil suitable for beneficial reuse is desirable in an area where soil is naturally scarce.

4. Environmental Setting

Cambridge Bay, including the Facility, is situated within the Northern Arctic ecozone (NAE 2008). In this ecoregion, the landscape predominantly consists of low rolling plains covered with soil and rock debris left by glaciers. Many coastlines are characterized by wide flat plains with perennially frozen ground (permafrost). Mean annual temperatures range from -30 to -35°C in winter and from 5°C to 10°C in

summer. Mean annual precipitation is 100 - 200mm, with snow potentially falling during any month. Much of the region is devoid of plants, with the exception of some coastal lowlands and nutrient rich sheltered valleys. Muskox, Caribou, Arctic Fox and Polar Bear are the three dominant large mammals in the area, with the Collared Lemming being the only small mammal. Birds including Snowy Owl, Snow Geese, Canada Geese, and Horned Larks are also common to the region (NAE2008).

5. Waste Types

Materials received at the site for treatment will include petroleum hydrocarbon – contaminated soil, water and snow. All materials are profiled prior to receipt to ensure that they meet acceptance criteria (Appendix A). Contaminated soil undergoes treatment via bioremediation. To support effective and efficient treatment, the soil will be mechanically mixed and amendments such as water and surfactants may be added to modify pH, moisture content and enhance bioavailability of contaminants. Once the bioremediation process has been given adequate time, soil is sampled to confirm it meets discharge/beneficial reuse criteria (as presented in Table 2). Soil meeting reuse criteria is hauled off site for local beneficial reuse, such as backfill or alternative daily cover at the Cambridge Bay Landfill. Soil not meeting beneficial reuse criteria is hauled off site for disposal at an appropriate facility such as a Class II landfill. Similarly, water, snow melts and biotreatment pad leachate are all collected and treated through a package water treatment plant on site. The treatment plant is designed to remove particulate matter and petroleum hydrocarbons. Treated water is stored in an AST onsite where it is sampled to confirm it meets discharge criteria. Water meeting discharge criteria is then used as a soil amendment on the biotreatment pad, for dust suppression or released to the environment at a designated location. Water not meeting discharge criteria is hauled off site for disposal at an approved receiving facility.

Additional waste streams include spent filter media arising from WTP operation, and contaminated soil, snow and water as well as spent spill response material that may arise from an accidental spill.

Wastes generated on site are presented in Table 3. Potential environmental effects arising from waste management on site are considered negligible: only treated water meeting discharge criteria will be released to the environment.

Activities on site are limited to those associated with operation and maintenance of the biotreatment pad and water treatment facility. No vehicles or additional equipment are stored or maintained on site, nor is there an office or full time personnel on site. As such, no wastes associated with these activities are expected to be generated.

A portion of the bermed and lined soil treatment pad will be used for the storage of hazardous waste containers (drums, bags etc.) that are awaiting transportation to authorized facilities *(the likely source of the hazardous waste is end of life vehicles, mainly used motor oil, grease, and spill cleanup materials)*. These types of waste could include fuels, oils, solvents and glycols which require consolidation, containerization and temporary storage onsite while awaiting shipment to authorized facilities.

Table 2. Discharge and reuse criteria, Cambridge Bay STF

Waste Stream	Discharge or Reuse Criteria Parameter	Concentration
Treated soil	Total petroleum hydrocarbons Fractions (mg/kg) F1, F2, F3 andF4	As per *Environmental Guideline for Management of Contaminated Sites* (GN 2003) for industrial land use, fine-grained soil
	BTEX (mg/kg) Benzene Toluene Ethylbenzene Xylene	
	CCME Metals (mg/kg)	
	Total Chromium (mg/kg)	
	Total Cadmium (mg/kg)	
	Phenols (mg/kg)	
	PCBs[1](mg/kg)	
Treated water	Total Extractable Hydrocarbons (TEH)*	15, with no visible sheen
	Total Lead (mg/L)	0.05
	Benzene (mg/L)	0.37
	Toluene (mg/L)	0.002
	Ethylbenzene (mg/L)	0.09

* Note: The analytical method to be used in the determination of total extractable hydrocarbons is described in "Test Methods for Evaluating Solid Waste", Third Edition, 1986, SW-846, Methods 3510/8000A, published by the U.S. Environmental Protection Agency; and using extraction with methylene chloride, volume reduction, and analysis by capillary gas chromatography with flame ionization detection.

Table 3. Waste streams, source of generation and characteristics, Cambridge Bay STF

Waste Stream	Source of Generation	Characteristics	Management Option	Volume
Treated soil	Bio treatment	Bio remediated soil	Beneficial reuse off-site as fill or alternative daily cover at the Cambridge Bay landfill	Up to 3,000 m^3/year
Petroleum hydrocarbon-contaminated soil	Bio treatment	Soil not successfully bio remediated	Transported off site for final disposal at an approved Class II Landfill	Negligible
Treated water	WTP effluent	Water, snow melt and/or bio treatment pad effluent treated at WTP, meets discharge criteria	Beneficial reuse as a dust suppressant, application to bio treatment pad as a soil amendment, or discharge to the environment (as outlined in Section 3).	Up to 10 m^3/day between June 1 and Sept 30
Petroleum hydrocarbon-contaminated water	WTP effluent	Water not successfully treated at WTP	Transported off site for final disposal at an approved Class II Landfill	Negligible
Spent filter media from WTP	WTP operation	Spent bag filters, spent granular activated carbon	Transported off site for final disposal at an approved Class II Landfill	Negligible
Spent spill response materials	Spill or accidental release from facility or vehicles	Petroleum hydrocarbon-contaminated adsorptive materials	Transported off site for final disposal at an approved Class II Landfill	Unknown
Petroleum hydrocarbon-contaminated soil, water and snow	Spill or accidental release from facility or vehicles	Petroleum hydrocarbon-contaminated soil, water orsnow	Treatment through on-site process (bio treatment/WTP) or transported off site for final disposal at an approved Class II Landfill	Unknown
Hazardous Wastes	Commercial or industrial	Fuels, Oils, Glycols	Temporary Storage in cell while awaiting shipment	Unknown

6. Waste Management

NE incorporates the basic principles of waste management into daily operations, which includes source reduction, reuse, recycling, treatment, release and disposal. Accordingly, waste will be managed on site by:

- Soil bio treatment;
- Water treatment;
- Off-site reuse;
- Effluent discharge; and
- Off-site disposal.

Environmental impacts associated with soil bio treatment, water treatment and effluent discharge, as described below, are anticipated to be negligible based on facility design, implementation of mitigation measures, and adherence to monitoring plans. Baseline studies, mitigation measures and monitoring plans are presented in the *Cambridge Bay Soil and Water Treatment Facility Environmental Protection Plan* (NE 2018).

a. Soil Treatment

An engineered bio treatment pad will be utilized to receive petroleum hydrocarbon-contaminated soil from off-site sources including residential, commercial and industrial properties where a hydrocarbon spill or leak has occurred. Prior to receipt on site, contaminated soil will be profiled which may include sampling and analysis and/or review of contaminant Materials Safety Data Sheets (MSDS) information and suitable movement documents to determine suitability for treatment. Soil meeting acceptance criteria (Appendix A1) will be deposited into the soil treatment pad. The bio treatment pad will be constructed as per engineered drawings shown in Appendix (C).

The facility has been designed to receive up to 3,000 m^3 (a drawing of the Facility Plan and Section is provided in Appendix B). The cell is 50 m by 40 m, surrounded by a soil berm approximately 1.5 m tall with 2:1 side slopes measured from existing grade. The base of the cell is graded to a 1.0% slope on the long axis, away from the entrance ramps to control and direct interior drainage towards the water storage cell.

At least 0.2 m of soil fill <8mm in diameter, debris, and organics (protective fill) covers the base of the cell and the sides of the berm to protect the overlaying geomembrane against punctures. A Solmax 460ST 60 mm single textured high density polyethylene (HDPE) liner (or equivalent) covers the cell floor, overlaps the crest of each berm, and is anchored into the side of the perimeter berms. A 16 oz non-woven geotextile overlays the geomembrane as a precaution against punctures, and is anchored into the perimeter berms. Approximately 500 mm of fill free from debris and organics overlays the geotextile on the base of the cell, for torsion protection from turning vehicles. At least 300 mm of fill overlays the interior side slopes of the berms.

While it is not expected to be frequent, there may be times throughout operation wherein it may be necessary to add amendments to the soil to promote effective and efficient breakdown of hydrocarbon constituents. Typical amendments include fertilizer to stimulate natural microflora activity, water to adjust moisture content and lime to modify pH. In more extreme circumstances, other soil conditioners such as surfactants (Ivey-sol or equivalent), can be added to liberate hydrocarbon from soil particle adsorption to promote bioavailability. Similarly, an oxidant (RegenOx or equivalent) may be used to promote oxidation. In the event that any of these are required, MSDS will be located in a small storage shed on site and be accessible to all workers, and the *Cambridge Bay Soil and Water Treatment Facility Spill Contingency Plan*(NE 2018) will be updated to include an appropriate spill response plan for the soil amendment. Any amendments will be procured for immediate use; no long term storage on site is expected. Over the short term, amendments will be stored with appropriate containment in the locked shed onsite.

Further details pertaining to bio treatment facility operation can be found in the *Cambridge Bay Soil and Water Treatment Facility Operations and Maintenance Plan* (NE 2018).

b. WaterTreatment

An engineered pond will be utilized to accept STF leachate and petroleum hydrocarbon-contaminated water and snow from off-site sources including residential, commercial and industrial properties where a petroleum hydrocarbon spill or leak has occurred. Prior to receipt on site, snow and water will be profiled which may include sampling and analysis and/or review of contaminant MSDS information and suitable movement documents to determine suitability for treatment. Water and snow will be deposited into an engineered cell and will remain in the cell until snow has melted, at which time the meltwater will be directed to an adjacent on-site WTP. Effluent generated at the bio treatment pad will also be directed to the engineered pond via portable trash pump.

Engineered Pond

The pond has been designed to contain up to 170 m^3 of water at any one time maintaining a free board of at least 0.3 m. The cell can accommodate snow piled to the height of the top of the berm (0.9 m) to limit the risk of overtopping during spring melt. The cell is designed to be 14 m by 19 m, surrounded by a soil berm approximately 0.8 m tall with 3:1 side slopes measured from existing grade with 0.3 m of freeboard.

At least 0.2m of soil fill free from material greater than 8mm in diameter, debris, and organics (protective fill) covers the base of the pond and the sides of the berm to protect the overlaying geomembrane against punctures. The base of the pond area will be graded and proof rolled with a smooth drum roller. A GSE NW8 non-woven geomembrane, or approved equivalent, will cover the pond floor overlapping the crest of each berm and will be anchored into the side of the perimeter berms. A Layfield Enviro Liner 6140, or approved equivalent, overlays the geomembrane as a precaution against punctures and is anchored into the perimeter berms.

While in operation during the winter months, the pond will be covered to prevent increased treatable water volume due to precipitation. The cover consists of a water-resistant tarpaulin.

Once seasonal conditions are suitable (snowmelt is occurring), water is pumped, using an inline pump or portable trash pump, from the collection point in the pond through the water treatment plant. Treated water is held in an adequately sized single wall AST prior to discharge.

Water Treatment Plant

The water treatment plant proposed for installation at the Facility is a package treatment plant consisting of a bag filter train and a granular activated carbon (GAC) bed designed for removal of particulate matter and organic constituents such as petroleum hydrocarbons.

Under thaw conditions, contaminated water is pumped from the collection point in the engineered pond via an inline pump or a portable trash pump, through a series of inline bag filters (25 µm and 5 µm, respectively) to remove particulate matter. Filter bags have internal support to prevent bursting under high differential pressures that can build up during operation. Filtration occurs from the inside out, through the filter bag media.

Following the filter bag train, effluent enters the bottom of the carbon vessel, containing approximately 227 kg (500 lbs) of GAC, or approved equivalent. Treatment occurs in an up-flow manner to promote contact between the effluent and the media as this method tends to fluidize the bed, enhancing treatment success. Treated effluent leaves the system through an inline totalizing flow meter and is collected in the AST.

At times throughout operation, it will be necessary to flush and change the filter media. MSDS for the filter media constituents will be located in a small storage shed on site and be accessible to all workers.

c. Reuse and Disposal

Once bio remediated soil has been analyzed, it is classified as either meeting reuse criteria, or requiring off-site disposal at a designated facility. It is planned that the majority of the soil material meeting reuse criteria will be used either as fill or as alternative daily cover at the Cambridge Bay Landfill.

Treated effluent meeting discharge criteria will be either beneficially reused or discharged to the environment. Depending on conditions on the bio treatment pad, treated effluent can be applied to the soil lifts to aid in bioremediation and promote dust suppression. Remaining treated effluent will be released to the environment adjacent to the Facility. The proposed discharge location is the small watercourse located approximately 40 m east of the proposed treatment facility, south of the existing road. Discharge water will be conveyed to the small watercourse through a discharge pipe connected to the treated water storage tank. The proposed discharge location is illustrated on Figure A.1 in the Baseline Conditions Assessment, Environmental Monitoring and Post-Closure Plan.

It is expected that discharge from the WTP will occur between July 1 and Sept 30. Discharge volumes will not exceed 10 m^3/day; given reuse options, typical discharge volumes are expected to be much less.

Material requiring disposal, including untreated water, un-remediated soil, spent filter media, and spent spill response materials will be disposed of at approved waste facility locations.

7. Documentation and Reporting

Waste management reporting will be in accordance with record keeping and reporting requirements of the Government of Nunavut and NE's internal Policies and Procedures. The focus of waste management reporting is to ensure that the generation, handling and final disposition of materials is accounted for. The following information for each waste stream collected, stored and reported is as follows:

- Movement documents (Federal Manifests or Bill of Ladings);
- Volume and/or weight;
- Disposal summaries; and
- Applicable analytical and/or profile information.

8. Training

Personnel managing waste are certified in Workplace Hazardous Material Information System (WHMIS) and Transportation of Dangerous Goods (TDG). Any waste shipment requiring a Federal Movement Document (FMD) will need to have the FMD filled out by an individual holding a valid certificate in TDG. Personnel responsible for operation and maintenance of the WTP will receive training from manufacturer prior to operation.

Appendices

Appendix A

Table A1 Material Acceptance Criteria

Parameter	Facility Acceptance Criteria
BTEX F1-F4	mg/kg
Benzene	NA
Toluene	NA
Ethylbenzene	NA
Xylene	NA
F1	12500
F2	10000
F3	5000
F4	7500
Total Metals	mg/kg
Antimony	20
Arsenic	12
Barium	2000
Beryllium	8
Boron	NA
Cadmium	22
Chromium (total)	87
Cobalt	30
Copper	91
Lead	600

Parameter	Facility Acceptance Criteria
Mercury	50
Molybdenum	40
Nickel	89
Selenium	2.9
Silver	40
Thallium	1
Tin	300
Uranium	300
Vanadium	130
Zinc	360

Table A2 Re-Use criteria for CCME Metals (Industrial)

Parameter	Units	CCME Industrial Guidelines for Metals in Soil (mg/kg)
Antimony	mg/kg	40
Arsenic	mg/kg	12
Barium	mg/kg	2000
Beryllium	mg/kg	8
Boron	mg/kg	N/A
Cadmium	mg/kg	22
Chromium (total)	mg/kg	87
Chromium, hexavalent (Cr(VI))	mg/kg	1.4
Cobalt	mg/kg	300
Copper	mg/kg	91
Lead	mg/kg	600
Mercury	mg/kg	50
Molybdenum	mg/kg	40
Nickel	mg/kg	89
Selenium	mg/kg	2.9
Silver	mg/kg	40
Thallium	mg/kg	1
Tin	mg/kg	300
Uranium	mg/kg	300
Vanadium	mg/kg	130
Zinc	mg/kg	360

Table A2 Continued Re-Use criteria for Petroleum Hydrocarbon CCME (Industrial)

PHC Reuse Criteria	ADC Fine-Grained Soil (mg/kg)	ADC Coarse-Grained Soil (mg/kg)
Benzene	0.0068	0.030
Toluene	0.08	0.37
Ethylbenzene	0.018	0.82
Xylenes	2.4	11
PHC (F1)	320	320
PHC (F2)	260	260
PHC (F3)	2500	1700
PHC (F4)	6600	3300

Source: 2014 Environmental Guideline for the Management of Contaminated Sites, Department of Environment, GN

Table A3 Discharge Criteria for Water as per Government of Nunavut (Department of Environment)

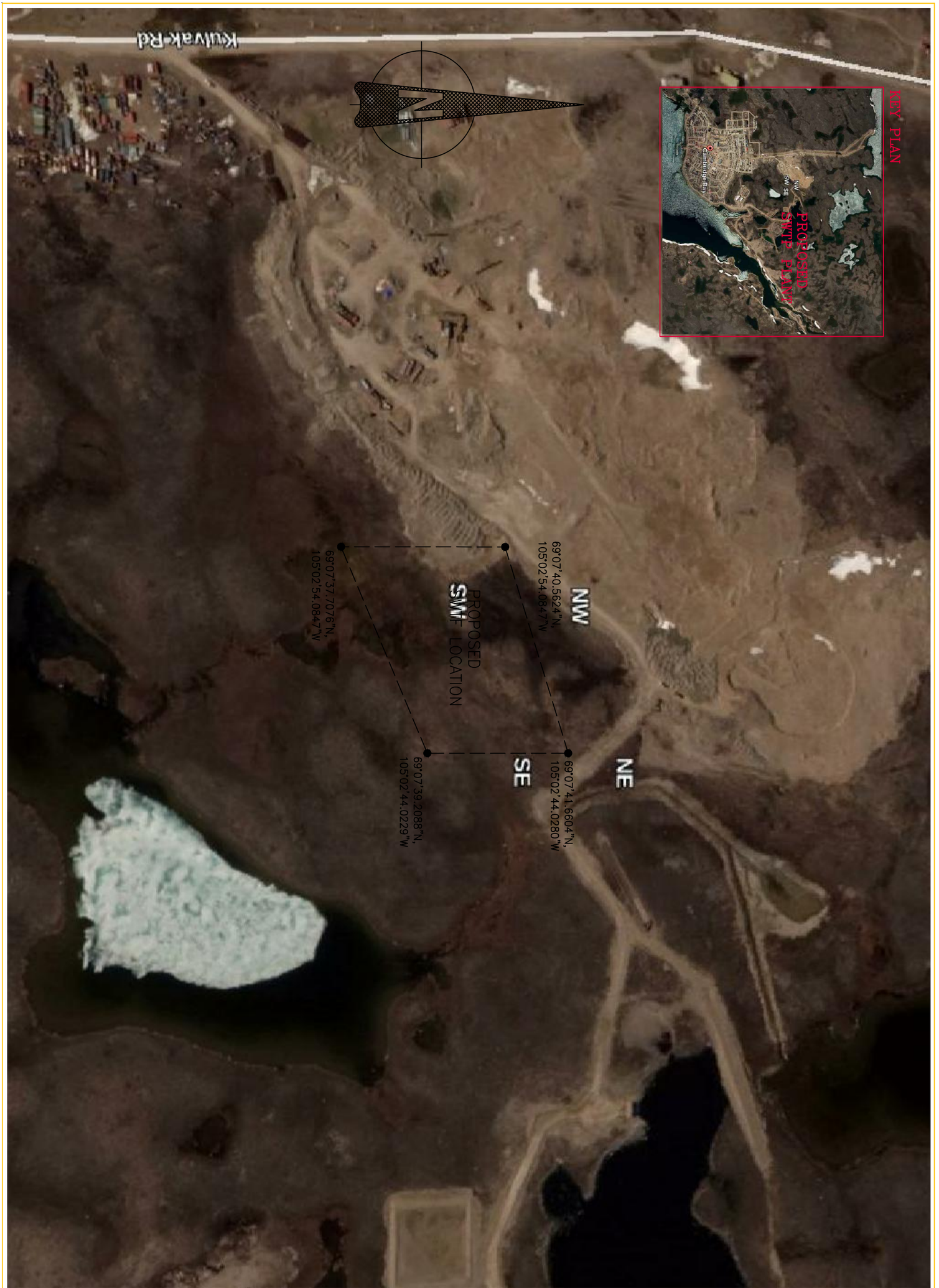
Parameter	Maximum Concentration of any grab sample (mg/L)
Total Extractable Hydrocarbons (TEH)*	15 and no visible sheen
Total Lead	0.05[1]
Benzene	0.37[2]
Toluene	0.002[3]
Ethylbenzene	0.09[3]

Sources:
1: B.C. Reg. 168/94: Petroleum Storage and Distribution Facilities Storm Water Regulation
2: GN Department of Environment Environmental Guideline for Industrial Waste Discharges
3: CCME Water Quality Guidelines for the Protection of Aquatic Life

*Note: The analytical method to be used in the determination of total extractable hydrocarbons is described in "Test Methods for Evaluating Solid Waste", Third Edition, 1986, SW-846, Methods 3510/8000A, published by the U.S. Environmental Protection Agency; and using extraction with methylene chloride, volume reduction, and analysis by capillary gas chromatography with flame ionization detection

Table A4 Material Acceptance and Re-use Sampling Requirements

Soil Volume (m^3)	Sample Quantity
1 – 50	1
51 – 500	2
501 – 1,000	3
1,001 – 2,000	4
2,001 – 4,000	5
Water Volume (m^3)	**Sample Quantity**
1 – 50	1
51 – 275	2



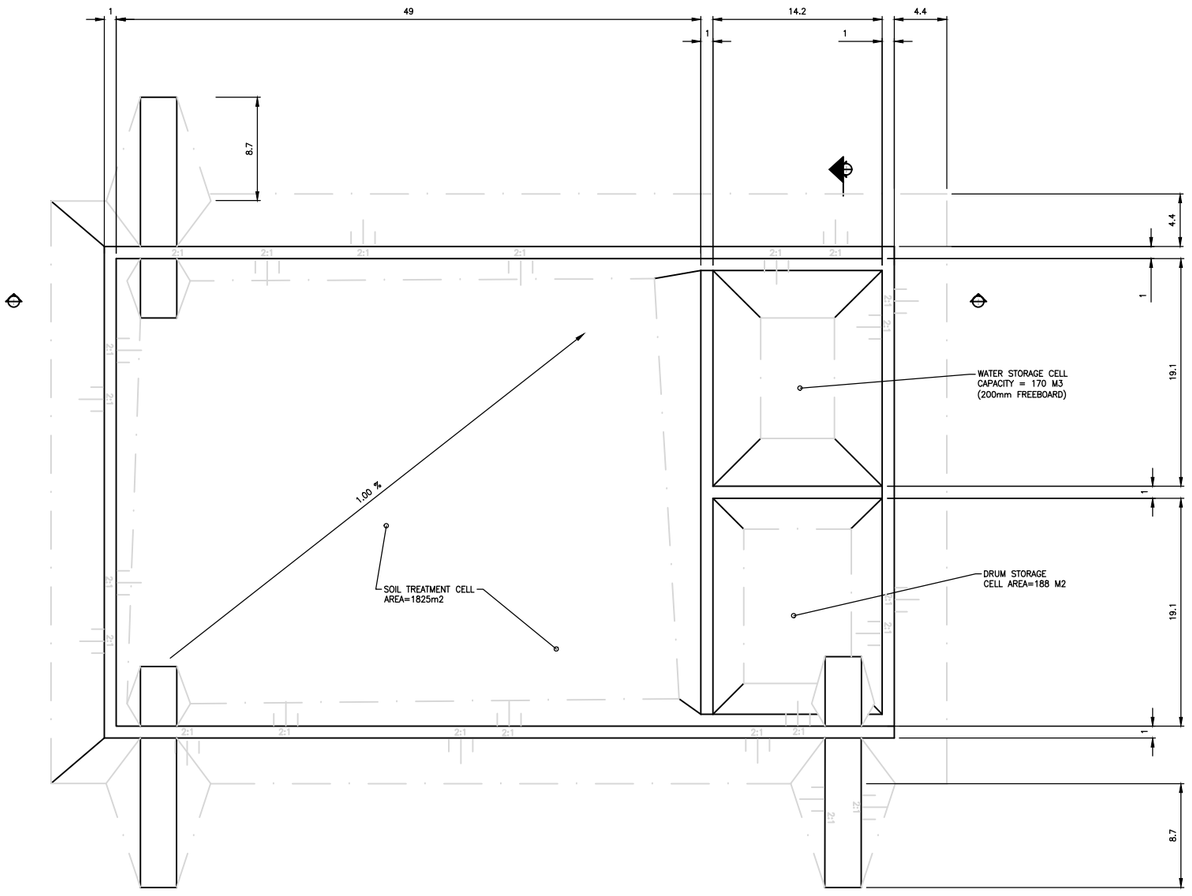
SITE PLAN

SOIL TREATMENT FACILITY
SITE PLAN
CAMBRIDGE BAY, NUNAVUT

NUNAVUT EXCAVATING

CAMBRIDGE BAY, NUNAVUT

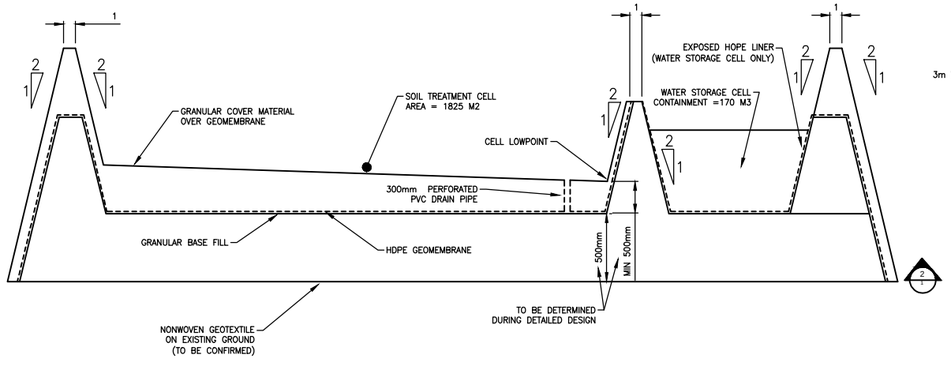
DRW'N BY:	D.B.
DATE:	JUNE 2018
SCALE: N.T.S	DWG NO.



PLAN

NOTES:

1. FIGURE IS IN SUPPORT OF NUNAVUT EXCAVATION'S APPLICATION FOR A DEVELOPMENT PLAN FOR A SOIL TREATMENT FACILITY IN CAMBRIDGE BAY, NU.
2. FIGURES PRESENT GENERAL LAYOUTS AND CONCEPTUAL DESIGNS. FINAL DESIGNS AND CONSTRUCTION WILL DEPEND ON FIELD CONDITIONS AND LOCALLY AVAILABLE CONSTRUCTION MATERIALS.
3. SCALES AND DIMENSIONS ARE APPROXIMATE.
4. EXISTING GRADE IS ASSUMED TO BE FLAT AND LEVEL. ACTUAL CONFIGURATION WILL MAKE USE OF ADVANTAGEOUS NATURAL SLOPE ORIENTATIONS.
5. BERM HEIGHT MAY BE INCREASED TO ACCOMMODATE FIELD CONDITIONS.
6. GEOMEMBRANE INSTALLATION QUALITY CONTROL AND QUALITY ASSURANCE SHALL BE CONDUCTED THROUGHOUT INSTALLATION ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
7. BERMS AND BASE SHALL BE COMPACTED TO 98% STANDARD PROCTOR DENSITY IN LIFTS UP TO 300 MILLIMETERS.
8. PERMAFROST INSULATION LAYER AND GRADING FILL IS TO BE GRADED AND PROOF ROLLED WITH SMOOTH DRUM ROLLER OR SMOOTH PLATE PRIOR TO PLACEMENT OF GEOTEXTILE AND GEOMEMBRANE.
9. BERM SLOPES TO BE CONFIRMED DURING DETAILED DESIGN.
10. MINIMUM DEPTH OF BASE FILL ABOVE EXITING GROUND TO BE CONFIRMED DURING DETAILED DESIGN.



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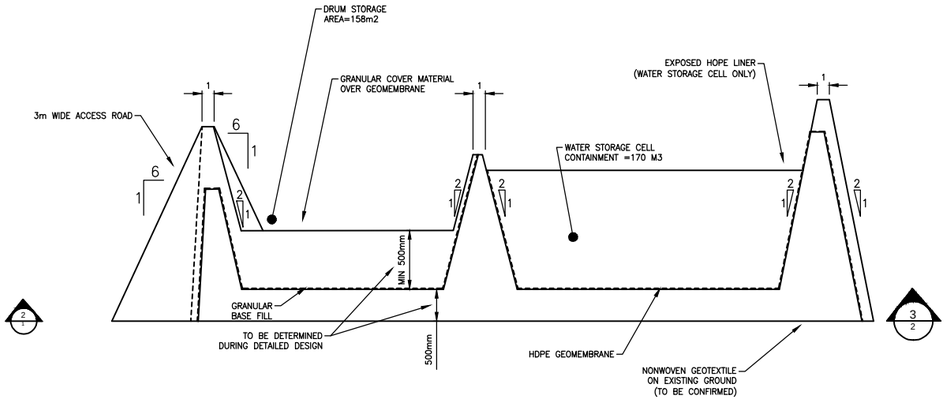

SECTION

SITE PLAN AND SECTION

DRW'N BY: D.B.

DATE: JUNE 2018

SCALE: N.T.S

DWG NO.

NUNAVUT EXCAVATING

CAMBRIDGE BAY, NUNAVUT

SOIL TREATMENT FACILITY
CONCEPTUAL DESIGN
CAMBRIDGE BAY, NUNAVUT