

**Public Works and Government Services Canada**

**Issued for Tender Specifications for the  
Environmental Site Remediation at**

**CAM-A, Sturt Point, Nunavut  
Project No.: R.040716**

**Public Works and Government Services Canada**

**Project No.: 60277797**

**Folder: 450 / Issued for Tender Specifications**

December 20, 2012

---

	Pages
00 00 01 List of Drawings	1
<u>Division 01 - General Requirements</u>	
01 11 00 Summary of Work	9
01 29 83 Payment Procedures for Testing Laboratory Services	4
01 31 19 Project Meetings	7
01 32 18 Construction Progress Schedules - Bar (GANTT) Chart	3
01 33 00 Submittal Procedures	8
01 35 15 Special Project Procedures for Contaminated Sites	7
01 35 32 Site Specific Health and Safety for Contaminated Sites	14
01 35 43 Environmental Procedures	9
01 41 00 Regulatory Requirements	4
01 45 00 Quality Control	2
01 51 00 Temporary Utilities	3
01 52 00 Construction Facilities	4
01 53 00 Mobilization and Demobilization	2
01 54 00 Camp Facilities	14
01 71 01 Survey Requirements	3
01 77 00 Closeout Procedures	2
01 78 00 Closeout Submittals	4
<u>Division 02 - Existing Conditions</u>	
02 41 16 Structure Demolition	11
02 41 23 Debris Removal	4
02 55 13 Contaminated Soil	7
02 61 00 Hydrocarbon Soil Remediation	6
02 61 33 Hazardous Waste Material	17
02 82 00.01 Asbestos Abatement Minimum Precautions	5
02 82 00.02 Asbestos Abatement Intermediate Precautions	7
<u>Division 31 - Earthwork</u>	
31 05 17 Aggregate Materials	4
31 22 15 Grading	8
Appendix A Demolition Inventory	
Appendix B Debris Inventory	
Appendix C Site Photographs	
Appendix D Navigational Charts	
Appendix E Reporting Templates	

<u>Drawing No.</u>		<u>Title</u>
CAM-A Civil:		
R.040716	C00	Cover Sheet
R.040716	C01	Site Location and Overall Site Layout Plan
R.040716	C02	Project Layout
R.040716	C03	Airstrip Area – Site Plan
R.040716	C04	Station and Worked Area – Site Plan
R.040716	C05	Landfill Area – Site Plan
R.040716	C06	Beach Area – Site Plan
CAM-A Structural:		
R.040716	S01	Station Area – Demolition Site Plan
R.040716	S02	Beach Area – Demolition Site Plan
R.040716	S03	Warehouse, Garage and Powerhouse Module Floor Plan, Elevation and Section

## PART 1 - GENERAL

### 1.1 Precedence

- .1 Division 1 Sections take precedence over technical specification sections in other Divisions of this specification.

### 1.2 Background Information

- .1 CAM-A, Sturt Point is a former Intermediate Distant Early Warning (DEW) Line radar station constructed in 1957 by the United States Air Force (USAF) and was subsequently abandoned in 1963. Responsibility for the site was assumed by the Department of Indian Affairs and Northern Development (DIAND) now Aboriginal Affairs and Northern Development Canada (AANDC) in 1965. The site is located on the southern coast of Victoria Island, overlooking the Queen Maud Gulf, at 68°47'N, 103°20'W.
- .2 The nearest community to CAM-A is Cambridge Bay located approximately 80 km to west. CAM-A is also located approximately 25 km southeast of CAM-A3A which was constructed as a Short Range Radar facility (SRR) during the modernization of the DEW Line in the late 1980's and early 1990's.
- .3 The CAM-A Intermediate DEW Line site included station area facilities, consisting of a module train, warehouse, garage, two POL storage facilities and a radar tower. Access to the site is provided by a 1200 m long airstrip, located north of the station facilities and beach landing areas, located to the south of the station facilities. A Fresh Water Lake is located approximately 600 m northwest of the airstrip. Gravel roads were built linking the airstrip, Beach Area and Fresh Water Lake to the Station Area facilities.
- .4 Infrastructure remaining on site includes the powerhouse module of the module train, a felled Doppler communication tower, a garage foundation, a warehouse foundation and two Petroleum, Oil, and Lubricants (POL) storage and distribution facilities foundations.
- .5 The results of previous assessments have identified that the site roads are generally in good condition. There is a 20 m section within road section 1 that is in poor condition due to the presence of water along both sides of the embankment. Road section 1 is shown on drawing C02. Videos of the roads are available upon request to the Contracting Authority.
- .6 The results of previous assessments have identified two major dump areas, Landfill A and Landfill B, which are located to the southwest of the station facilities.
- .7 Barges have historically landed at the Beach Area. A nautical chart for the Queen Maud Gulf Eastern Portion, published by the Canadian Hydrographic Service has been included for information in Appendix D. The nautical chart indicates the presence of an anchorage area approximately 1 km off shore from the Beach Area and ocean depth information for access corridors to Sturt Point.

- .8 Supporting documents pertaining to the site include, but are not limited to, the following:
  - .1 Remedial Action Plan - CAM-A, Sturt Point Intermediate DEW Line Site. AECOM, March 2011.
  - .2 Phase III Environmental Site Assessment – CAM-A, Sturt Point Intermediate DEW Line Site. AECOM, 2010.¶
  - .3 Environmental Study of Abandoned DEW Line Sites: One Auxiliary and Eight Intermediate Sites in the Canadian Arctic. ESG, 1995.
  - .4 Archaeological Impact Assessment (AIA) of the CAM-A Intermediate DEW Line Site, Sturt Point, Nunavut. Golder Associates Ltd., December 2010.

### 1.3 Site Hazards

- .1 Site hazards that the Contractor must be aware of include, but are not limited to, the following:
  - .1 Physical hazards of dilapidated structures.
  - .2 Fuels and lubrication fluids.
  - .3 Wildlife
  - .4 Extreme cold and remote site conditions.
  - .5 Hydrocarbon contaminated soil.
  - .6 Metal contaminated soil.
  - .7 Poorly lit buildings and work areas.
  - .8 Hazardous waste (PCBs, leachable lead paint, batteries, asbestos)

### 1.4 Description of Work

- .1 Work of this Contract comprises the site remediation activities at the CAM-A Site including, but not limited to, the following:
  - .1 Preparation of planning documents and submittals including, but not limited to, Site Specific Health and Safety Plan (SSHASP). The SSHASP includes but is not limited to On-Site Contingency and Emergency Response Plan, Spill Contingency Plan and Fire Safety Plan.
  - .2 Mobilization and demobilization of all personnel, equipment, support facilities and materials required to complete the Work.
  - .3 Upgrading and maintenance of site roads to facilitate construction activities.
  - .4 Demolition, waste stream segregation, containerization and on-site transport of buildings and infrastructure.
  - .5 Surface debris collection, waste stream segregation, containerization, and on-site transport.
  - .6 Excavation and containerization of Type A Petroleum Hydrocarbon (PHC) Contaminated Soils, Tier II Contaminated Soils and Hazardous Soils as required.
  - .7 Excavation and disposal or regrading of Tier I Contaminated Soils, as required.
  - .8 Excavation and treatment of Petroleum Hydrocarbon (PHC) Contaminated Soils, as required.
  - .9 Development, operation and closure of Petroleum Hydrocarbon (PHC) treatment facilities.
  - .10 On-site incineration of non-hazardous, unpainted, untreated combustible waste.
  - .11 Collection, cleaning and disposal of barrels and contents.
  - .12 On-site incineration of barrel contents that meet incineration criteria.
  - .13 Off-site transport and disposal of non-hazardous, non-combustible waste and contaminated soil at the Contractor's Designated off-site Non-Hazardous Waste Disposal Facility.
  - .14 Off-site transport and disposal of Hazardous Waste at the Contractor's Designated Hazardous Waste Disposal Facility.

- .15 Documentation and record keeping of non-hazardous waste and hazardous waste final disposal or destruction.
- .16 Development and reclamation of local borrow sources.
- .17 Regrading of site works.
- .18 Regrading of buried debris areas.
- .19 Backfilling and grading of all excavated areas.
- .20 Provision of the following site support services:
  - .1 Construction Camp as specified in Section 01 54 00 - Camp Facilities, including operation, maintenance, catering and janitorial service.
  - .2 Provision and maintenance of Departmental Representative's Vehicles.
  - .3 Safety, fire protection, office and medical services, as specified in Section 01 35 32 - Site Specific Health and Safety for Contaminated Sites.
  - .4 Transportation services for Departmental Representative and Departmental Representative's support staff from Cambridge Bay to CAM-A, as specified in Section 01 54 00 - Camp Facilities.
  - .5 Communication services for the Contractor, Departmental Representative, and Departmental Representative's support staff.
  - .6 Provision of Wildlife Monitors, as specified in Section 01 35 32 - Site Specific Health and Safety for Contaminated Sites.

#### 1.5 Potential Additional Work

- .1 The Potential Additional Work Schedule in the Basis of Pricing forms indicates potential additional quantities of unknown work that may or may not be required on-site during the remediation process. None of the quantities and items listed are guaranteed; however, if additional work is required, the rates listed shall be used by the Contractor. Potential Additional Work may include but is not limited to:
  - .1 Collection and processing of unknown debris scattered over the site area.
  - .2 Collection and/or treatment of free product encountered during contaminated soil excavation.
  - .3 Processing, containerization, transport and disposal of Unknown Hazardous Materials, including transformers.
  - .4 Excavation, containerization or treatment, transport and disposal of unknown hazardous or contaminated soil.
  - .5 Collection and treatment or incineration of unknown barrel contents.
  - .6 Regrading or reshaping of additional site areas.
  - .7 Additional concrete break-up or removal.
  - .8 Supply of emergency aircraft flights.
  - .9 Supply of additional materials as directed by Departmental Representative.
  - .10 Pre-Mobilization and Post-Demobilization site visits with Departmental Representatives.
- .2 As part of the Potential Additional Work, Unknown Hazardous Materials do not include:
  - .1 Asbestos containing materials from facilities to be demolished.
  - .2 Fuel and fuel residual product from fuel tanks and pipelines to be demolished.
  - .3 Any hazardous material identified in the Inventory at the end of this section or elsewhere in these Specifications.

## 1.6 Definitions

- .1 Departmental Representative: Within the context of these Specifications, the term Departmental Representative refers to persons exercising the roles and attributes of Canada under the contract including but not limited to Public Works and Government Services (PWGSC) personnel and the Resident Engineer.
- .2 Departmental Representative's Authorized Personnel: Within the context of these Specifications, the term Departmental Representative's Authorized Personnel refers to personnel appointed by Departmental Representative or authorized on-site by Departmental Representative. Departmental Representative's Authorized Personnel provide recommendations/technical guidance to Departmental Representative, as required, for the enforcement of these specifications.
- .3 Contractor: The Contractor procured to undertake the site management and operation services, decontamination/demolition, remediation and restoration work is defined, within the context of these specifications, as the Contractor.
- .4 Contractor's Site Superintendent: Contractor's resident site representative, who is authorized to make decisions on behalf of Contractor.
- .5 Provide: supply and install.
- .6 Authorities Having Jurisdiction (AHJ): Governmental agency or sub-agency that regulates the codes and standards that are to be met during the remediation processes.
- .7 CAM-A Project Area: The limits of the CAM-A site as shown on Drawings C01 and C02.

## 1.7 Submittals

- .1 All submittals in accordance with Section 01 33 00 - Submittal Procedures.

## 1.8 On-Site Documents

- .1 Maintain at each Project Area, one copy each of the following:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Request for clarification and responses.
  - .4 Addenda.
  - .5 Tasks Authorizations.
  - .6 Change orders.
  - .7 Reviewed shop drawings.
  - .8 Other modifications to Contract.
  - .9 Field test reports.
  - .10 Copy of accepted Work schedule.
  - .11 Copies of any test results.
  - .12 Manufacturers' installation and application instructions.
  - .13 Material and Safety Data Sheets Specifications.
  - .14 Site Specific Health and Safety Plan (SSHSP) including:
    - i) Spill Contingency Plan.
    - ii) Fire Safety Plan.
    - iii) Emergency Response Plan.

- .15 Copies of permits/approvals and/or authorizations including:
  - i) Water Licence.
  - ii) Land Use Permit.
  - iii) Quarry Permit.
  - iv) IOL Exemption Certificate
- .16 Labour conditions and wage schedules.
- .17 Site Medic credentials.
- .18 Up-to-date record drawings.
- .19 License for Radio Communication.
- .20 All applicable Territorial permits and licenses.
- .21 All applicable Federal permits and licenses.
- .22 Copies of manifests and bills of lading.
- .23 Workers' Safety and Compensation Commission (WSCC) Notification of Project.
- .24 Letter of Good Standing with WSCC.

1.9 Work Schedule

- .1 Provide and maintain Work Schedule in accordance with instructions of Section 01 32 18 Construction Progress Schedules - Bar (GANTT) Chart.
- .2 Keep the Departmental Representative advised of planned Work activities in accordance with the instructions of Section 01 33 00 - Submittal Procedures.

1.10 Contractor's Use of Site

- .1 Contractor's use of site is restricted to the terms and conditions of the issued permits, and all applicable guidelines and regulations.
- .2 Coordinate use of premises under the direction of the Departmental Representative.
- .3 Do not disturb archaeological features as indicated in the contract drawings or as identified during site work.
- .4 Use of site shall comply with the environmental requirements of Section 01 35 43 - Environmental Procedures.

1.11 Examination of Site

- .1 Prior to mobilization, the Contractor must complete a Pre-Mobilization Site Visit to check field conditions and obtain actual conditions. The Pre-Mobilization Site Visit will include attendance by the Departmental Representative and AANDC. Following a site visit, the Contractor must notify the Departmental Representative, in writing, of all matters which could prejudice proper execution of the Work.
- .2 Commencement of mobilization constitutes acceptance of existing conditions, and verification of dimensions.

1.12 Permits and Licenses

- .1 Departmental Representative has applied for a Land Use Permit, Water Use License, Quarry Permit and IOL Exemption Certificate. All restrictions and requirements of these apply to Contractor.

- .2 Contractor shall obtain and pay for applicable Inuit Owned Lands (IOL) permitting as required.
- .3 Be responsible for obtaining and paying for all permits, licenses and approvals associated with the development and operation of a construction camp.
- .4 Register, obtain and pay for all required licenses and permits for individual tradesmen employed for Work as referenced in the various Sections of the Contract Specifications.
- .5 Obtain and pay for any other licenses or permits required to complete the activities required on site, i.e. burn permit, etc.
- .6 Provide supplemental information to the regulators for any necessary license amendments or reporting requirements.
- .7 Pay all costs associated with complying with the requirements for the permits and licenses noted in the above clauses.

1.13 Site Supervision

- .1 Designate Contractor's Site Superintendent to be on-site at all times during construction, to have full authority to make decisions on behalf of the Contractor, to be knowledgeable of the requirements of the contract, and to act upon Departmental Representative's instructions.
- .2 Notify Departmental Representative two (2) weeks in advance of changing the Site Superintendent and provide an updated chain-of-command.

1.14 Additional Drawings

- .1 Departmental Representative may furnish additional drawings to assist with proper execution of the work. These drawings will be issued for clarification only. Such drawings are to have the same meaning and intent as if they were included with plans referred to in Contract documents.

1.15 Worker Orientation Seminar

- .1 Develop, prior to the start of Work, course material for a Worker Orientation Seminar. The outline of this seminar is to be reviewed and accepted by Departmental Representative and is intended to describe the remediation activities at the site, and provide instruction for the applicable health, safety, and environmental policies and regulations as related to the site Work activities. Course material will be prepared and presented in English and the local language and dialect.
- .2 Submit two (2) hard copies and one (1) electronic copy of the Worker Orientation Seminar course material to Departmental Representative for review at least 30 days prior to the seminar. Include information describing the facility to be used for conducting the seminars.

- 
- .3 The Orientation Course is to address, but is not necessarily limited to, the following topics:
- .1 Project Communication:
    - .1 Roles of Departmental Representative and Departmental Representative's authorized representatives.
    - .2 Roles of Contractor and Contractor's authorized representatives
    - .3 Lines of Project communication.
  - .2 Remediation Activities (Scope of Work):
    - .1 Demolition and packaging of non-hazardous demolition waste materials.
    - .2 Excavation and containerization of contaminated soils.
    - .3 Asbestos abatement.
    - .4 Collection and packaging of non-hazardous site debris.
    - .5 Collection, containerization and transportation of hazardous waste material.
  - .3 Regional Overview of the sites:
    - .1 Land use of area (hunting, fishing activities, etc.).
    - .2 Location of sites relative to communities.
    - .3 Heritage resources including location of gravesites.
    - .4 Climate.
    - .5 Geology and hydrology.
    - .6 Flora and fauna.
  - .4 Project Organization/Schedule/Administration:
    - .1 Personnel policies.
    - .2 Supervisory reporting relationships.
    - .3 Communication.
    - .4 Payroll and banking procedures.
    - .5 Work Schedules and hours.
    - .6 Camp rules.
  - .5 Environmental Issues and Protection Procedures:
    - .1 Climate.
    - .2 Land use.
    - .3 Water resources/fisheries.
    - .4 Terrestrial resources.
    - .5 Heritage resources.
    - .6 Spill contingency plans/procedures.
    - .7 Training activities.
  - .6 General Site Specific Health and Safety:
    - .1 Responsibility for safety
    - .2 Team Work.
    - .3 Work attitudes/productivity.
    - .4 Anti-Harassment Policy.
    - .5 First aid procedures.
    - .6 Protective equipment and clothing.
    - .7 Safe operation of equipment and tools.
    - .8 WHMIS requirements.
    - .9 Wildlife awareness and safety.
    - .10 Marine Safety.
    - .11 Helicopter Safety.
    - .12 Weather Safety.
    - .13 Unexploded Ordnance Awareness

- .7 Work Specific Task Requirements:
  - .1 Asbestos abatement.
  - .2 Contaminated soil cleanup.
  - .3 Demolition and material disposal.
  - .4 Transportation of Dangerous Goods (TDG).
  - .5 Permafrost protection.
  - .6 Environmental mitigation procedures.
  - .7 Emergency spill response training.
  - .8 Barrel collection and disposal/containerization.
- .4 Prior to the start of Work, conduct Worker Orientation Seminars for all supervisors, foremen, Contractor's general workforce, Departmental Representative and Departmental Representative's Authorized Personnel staff based on the course material accepted by Departmental Representative. Require each attendee to sign a record of attendance upon completion of the seminar. Retain, for Departmental Representative's review at any time, this record of attendance.
- .5 All workers must attend the Worker Orientation Seminar prior to commencing Work on the Site.

#### 1.16 Measurement for Payment

- .1 Work under this Contract will be paid for as follows:
  - .1 Lump sum pay items will be paid at the lump sum price tendered for each lump sum item listed in the Basis of Payment Schedule.
  - .2 Unit price items will be paid at the unit price tendered for each unit price item listed in the Basis of Payment Schedule.
  - .3 Indirect project costs will be paid at the lump sum price tendered for "Balance of Project Costs" (BOPC-1) on the Basis of Payment Schedule.
  - .4 Provisional Cost Sum Items will be paid according to the actual costs expended, as certified by the Departmental Representative for each provisional cost item listed in the Basis of Payment Schedule. Retain receipts for all Provisional Cost Sum Items.
  - .5 Level of effort for authorized Potential Additional Work will be negotiated and paid for at firm all-inclusive prices tendered for additional Work on the Basis of Payment Schedule.
- .2 Unit price items, lump sum items and provisional cost sum items will be paid under the Basis of Pricing of the proposed contract. All other items, whether specifically defined in the specific sections of the Specifications or not, will be paid under Item BOPC-1, Balance of Project Costs, in the Basis of Payment Schedule.
- .3 Direct costs include all costs directly attributable to a particular pay item including equipment, operators, materials, etc. All direct costs for lump sum and unit price items are to be included in the appropriate price item in the Basis of Payment Schedule.
- .4 Indirect costs include all costs not directly attributable to the pay items including profit, supervision, overhead, administration, CGL Insurance, Workers' Safety and Compensation Commission WSCC, Contractor's allowance for equipment repairs and depreciation, and any other relevant costs. All indirect costs associated with specific unit price or lump sum items will be included in Item BOPC-1, Balance of Project Costs, in the Basis of Payment Schedule.

- .5 Include costs for work, goods or services required in this section that are not covered by appropriate payment clauses in other sections in Item BOPC-1, Balance of Project Costs, in the Basis of Payment Schedule.
- .6 Notify Departmental Representative of planned Work activities in accordance with requirements of Section 01 33 00 - Submittal Procedures, and at least two (2) days in advance of operations to permit required measurements for payment.
- .7 All costs for the preparation of the Worker Orientation Seminar Material and for conducting the seminars, including the preparation of meeting room facilities as required, are to be included in the lump sum for Worker Orientation Seminar, Item 01 11 00-1, as indicated in the Basis of Payment Schedule. Payment for the Worker Orientation Seminar will be paid upon demonstration by the Contractor to the Departmental Representative that the Contractor's entire project workforce has attended the seminar prior to the start of Work.
- .8 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate cost of the work of this section as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

## PART 2 - PRODUCTS

2.1 Not Used

## PART 3 - EXECUTION

3.1 Not Used

**END OF SECTION**

## PART 1 – GENERAL

### 1.1 General

- .1 Particular requirements for inspection and testing, to be carried out by a testing laboratory approved by the Departmental Representative, are specified under various sections.
- .2 Provide and pay for all transportation and analysis required for all Contractor's samples to an accredited laboratory to meet the requirements specified.
- .3 Provide and pay for all transportation required for all Departmental Representative's samples to the Departmental Representative's designated commercial analytical laboratory depot in Edmonton, AB or Yellowknife, NWT.

### 1.2 Submittals

- .1 All submittals in accordance with Section 01 33 00 - Submittal Procedures
- .2 Submit to the Departmental Representative 60 days prior to the initiation of on-site remediation activities, details of Contractors proposed methodology to complete sampling and testing requirements including, but not limited to:
  - .1 The Contractors proposed analytical laboratory.
  - .2 Details of proposed sampling personnel and protocols.
  - .3 Details of the proposed sample packaging and transportation methods.
  - .4 A copy of the proposed laboratory's current ISO 17025 certification valid for all analytical tests to be completed.
- .3 Proposed methodologies are to meet or exceed requirement of specifications, certified laboratory requirements and industry best practice. Departmental Representative will review Contractors submittal.
- .4 The analytical testing laboratory designated by the Contractor to carry out off-site tests is to be acceptable to the Departmental Representative. The analytical laboratory must maintain ISO 17025 certification for all tests to be performed and in advance of analytical testing. The proposed analytical laboratory must be independent from the Contractor and acceptable to the Departmental Representative.

### 1.3 Testing Responsibilities and Payment

- .1 Departmental Representative will appoint and pay for services of a testing laboratory required for the following:
  - .1 Confirmatory testing as described in this Section.
  - .2 Testing associated with the characterization of barrel contents as required in the 2009 INAC Abandoned Military Sites Remediation Protocol.
  - .3 Material compaction and gradation testing.
  - .4 Testing associated with the identification and characterization of hazardous waste materials.
  - .5 Testing required for quality assurance.

- .2 Contractor will appoint and pay for testing and quality control of Contractor's own work including the following:
- .1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
  - .2 Inspection and testing completed exclusively for Contractor's convenience.
  - .3 Periodic testing of potable water as described in these Specifications and the Canadian Drinking Water Guideline (CDWG).
  - .4 Testing for the classification of hazardous contaminated soil for licensed disposal facility acceptance requirements.
  - .5 Testing of hazardous waste materials in accordance with all appropriate regulations for packaging, transport and off-site disposal.
  - .6 Testing of non-hazardous waste materials and soil for licensed disposal facility acceptance requirements.
  - .7 Testing of solvent rinsate used during cleaning of barrels.
  - .8 Testing to determine the disposal requirements of oil-absorbent material used as a filter for liquid wastes resulting from equipment decontamination, fuel tank/pipeline cleaning and barrel processing operations.
  - .9 Testing of Wastewater as defined in Section 01 35 15 - Special Project Procedures for Contaminated Sites.
  - .10 Testing of sewage effluent as indicated in Section 01 54 00 - Camp Facilities or as directed by Departmental Representative.
  - .11 Testing of Hydrocarbon Contaminated Soil as described in section 02 55 13 – Contaminated Soil.
  - .12 Testing of wash water resulting from all cleaning activities, including barrel washing and equipment decontamination.
  - .13 Testing of explosive vapour concentrations associated with degassing of tanks.
  - .14 Tests specified to be carried out by Contractor under the supervision of Departmental Representative.
  - .15 All tests required by Contractor to monitor conformance and quality control of Contractor's work.
  - .16 Inspection and testing required by the conditions of permits issued for the Work.
- .3 Where tests or inspections by the designated testing laboratory reveal Work not in accordance with contract requirements, pay costs for additional tests or inspections as requested by Departmental Representative to verify acceptability of corrected Work.

1.4 Contractor's Responsibilities

- .1 Provide labour and facilities to:
- .1 Provide assistance and access to Work to be inspected and tested by Departmental Representative.
  - .2 Enable Contractors testing requirements.
  - .3 Make good Work disturbed by inspection and testing.
- .2 Notify Departmental Representative sufficiently in advance of operations to allow for assignment of personnel and scheduling of test.
- .3 Instruct testing laboratory to include Departmental Representative on result distribution list via facsimile or e-mail.

- .4 Costs for uncovering and making good Work that is covered before required inspection or testing is completed and reviewed by Departmental Representative shall be borne by the Contractor.
- .5 Maintain interior temperature of coolers at approximately 4°C during transport, using ice or ice packs.
- .6 Assume all responsibility for samples compromised during transport including all costs for re-sampling, shipping, analysis and any resulting delays.

#### 1.5 Confirmatory Testing

- .1 Confirmatory sampling will be carried out on contaminated soil areas by the Departmental Representative as follows:
  - .1 The actual location, frequency and method of testing will be determined by Departmental Representative.
  - .2 Soil sampling will be carried out by Departmental Representative within the perimeter of each contaminated soil excavation and at depth within the completed excavation area, immediately upon completion of excavation.
- .2 If required, classification testing will be carried out at waste material processing areas to classify and delineate contaminated soil and other materials.
- .3 It is anticipated that test results will be available within approximately ten (10) calendar days from the date that samples are transported from the site for laboratory analysis. Deliver Departmental Representative's samples to Departmental Representative's designated testing laboratory depot in Edmonton or Yellowknife within two (2) days from site departure.
- .4 Be responsible for all costs associated with the packaging, handling and transport of Departmental Representative's samples from the site to Departmental Representative's designated testing laboratory depot in Edmonton or Yellowknife. It is critically important that Contractor expeditiously delivers samples from the site and transfers them to a commercial air service. Where cargo transfers are required from charter to commercial air service, provide personnel at transfer locations to facilitate timely transfers.
- .5 Assume all responsibility for samples damaged during transport including all costs for re-sampling, shipping, analysis and any resulting delays.

#### 1.6 Measurement for Payment

- .1 Packaging, handling and off-site transport of Departmental Representative's samples to the Analytical Laboratory Depot in Edmonton or Yellowknife will be measured for payment by kilogram shipped. Packaging, Handling and Transport of Departmental Representative's Samples to an Analytical Laboratory depot in Edmonton or Yellowknife will be paid under Item 01 29 83-1 in the Basis of Payment Schedule.
- .2 Include all direct costs in the lump sum price for Contractor's Testing Requirements, including sampling, packaging, handling, off-site transport and testing of Contractor's samples at an accredited laboratory of choice. Contractor's Testing Requirements including Sampling, Transportation and Analysis at an Accredited Laboratory will be paid under Item 01 29 83-2 in the Basis of Payment Schedule.

- .3 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate cost of the work of this section as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

## PART 2 - PRODUCTS

- 2.1 Not Used

## PART 3 - EXECUTION

- 3.1 Not Used

**END OF SECTION**

## PART 1 – GENERAL

### 1.1 Definitions

- .1 Project Start-Up Teleconference: conference call to be held within ten (10) days following Contract Award and to include the Contractor, Departmental Representative and AANDC.
- .2 Pre-Construction Meeting: meeting to be held prior to Contractor Mobilization at location of Contractor's choice and to include the Contractor, Departmental Representative and AANDC.
- .3 Pre-Mobilization Site Visit: Contractor's visit to the site with Departmental Representative and AANDC to check field conditions and obtain actual site information required to correctly execute the Work prior to site mobilization.
- .4 Inter-Season Meeting: meeting to be held between construction seasons at location of Contractor's choice and to include the Contractor, Departmental Representative and AANDC.
- .5 Construction Meetings: meeting to be held on-site at weekly intervals during the course of the work and to include the Contractor, major Sub-Contractors and Departmental Representative.
- .6 Daily Safety Meeting: meeting to be held on-site daily during the construction season and to include Contractor, all staff, on-site Departmental Representative and Departmental Representative's authorized personnel
- .7 Weekly Safety Meeting: meeting to be held on site on a weekly basis during the construction season and to include Contractor, all staff, on-site Departmental Representative and Departmental Representative's authorized personnel.
- .8 Joint Occupational Health and Safety Committee Meeting: meeting as required by AHJs.
- .9 Monthly Meeting: meeting to be held on-site at approximately monthly intervals during the construction season and to include the Contractor, Departmental Representatives and AANDC.
- .10 Community Meetings: meetings to be held prior to each construction season and upon completion of the project. The meetings are to be held in English with simultaneous translation into Inuinnaqtun. Community meetings will be led by the Contractor with Departmental Representative and AANDC typically in attendance. Additional attendees include local leaders, officials and authorities. This meeting shall be open to the public and advertised by appropriate means in advance.
- .11 Meeting proceedings are to be distributed Departmental Representative and AANDC and shall include minutes, questions asked and answers provided and a list of attendees. The list of attendees will be recorded by the Departmental Representative.

### 1.2 Administrative

- .1 Responsibilities of Departmental Representative:
  - .1 Schedule and administer project meetings throughout the progress of the Work.
  - .2 Prepare agenda for meetings unless otherwise specified.
  - .3 Distribute written notice of each meeting five (5) days in advance of meeting date.
  - .4 Preside at meetings unless otherwise specified.

- .5 Record the meeting minutes unless otherwise specified. Include significant proceedings and decisions. Identify actions by parties.
    - .6 Reproduce and distribute copies of minutes within three (3) days after meetings and transmit to meeting participants, affected parties not in attendance and Departmental Representative.
  - .2 Responsibilities of Contractor:
    - .1 Provide physical space and make arrangements for meetings.
    - .2 Representative of Contractor, Sub-Contractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.
- 1.3 Project Start-up Teleconference Meeting
  - .1 Within ten (10) days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities. The meeting will be a teleconference between all parties in attendance.
  - .2 Departmental Representative, Contractor, AANDC, major Sub-Contractors, field representatives and supervisors will be in attendance.
  - .3 Establish time and contact information for the meeting and notify parties concerned minimum five (5) days before meeting.
  - .4 Departmental Representative will chair the meeting and take minutes. Meeting will be informal and agenda to include:
    - .1 Appointment of official representative of participants in the Work.
    - .2 Preliminary Schedule of Work.
    - .3 Preliminary Schedule of submission of Work Plan and Cost Breakdown and other submissions.
    - .4 Preliminary requirements for temporary facilities, site security, camp facilities, equipment and proposed method of mobilization and demobilization to minimize disturbances to the environment.
    - .5 Set-up of Pre-Construction meeting.
- 1.4 Pre-Construction Meeting
  - .1 As per Start-up Teleconference Meeting, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
  - .2 Departmental Representative, Contractor, AANDC, major Sub-Contractors, field representatives and supervisors will be in attendance.
  - .3 Establish time and location of meeting and notify parties concerned minimum ten (10) days before meeting.
  - .4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
  - .5 Agenda to include:
    - .1 Appointment of official representative of participants in the Work.
    - .2 Schedule of Work: in accordance with Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

- .3 Schedule of submissions in accordance with Section 01 33 00 - Submittal Procedures including but not limited to:
  - .1 Site Specific Health and Safety Plan (SSHSP).
    - .1 Emergency Response Plan.
    - .2 Spill Contingency Plan.
    - .3 Wilderness Management Plan.
  - .2 Insurance and transcripts.
  - .3 Equipment to be used by Contractor.
  - .4 Proposed camp facilities in accordance with Section 01 54 00 - Camp Facilities.
  - .5 Location of equipment and proposed methods for mobilization and demobilization.
  - .6 Shop Drawings
- .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
- .5 Delivery schedule of specified equipment.
- .6 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, administrative requirements.
- .7 Departmental Representative provided products, if any.
- .8 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .9 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals.
- .10 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.
- .11 Monthly progress claims, administrative procedures, photographs, hold backs.
- .12 Appointment of inspection and testing agencies or firms.
- .13 Regulatory Issues.
- .14 Aboriginal involvement and reporting.
- .15 Project Photograph requirements.
- .16 Regulatory Review of all permits required to complete Work.

1.5 Pre-Mobilization Site Visit

- .1 Prior to mobilization, a Pre-Mobilization Site Visit may be completed to check field conditions and obtain actual conditions required for correct execution of the Work.
- .2 Provide a minimum of fourteen (14) days notice to Departmental Representative prior to examining the site.
- .3 Departmental Representative, Contractor, and AANDC will be in attendance.
- .4 Notify Departmental Representative in writing of all matters which could prejudice proper execution of the Work, by submitting a Pre-Mobilization Site Visit Report within seven (7) days of completing the visit.

1.6 Inter-Season Meeting

- .1 Request a meeting of parties in contract to discuss the previous and upcoming construction season and resolve issues arising from same.
- .2 Departmental Representative, Contractor, AANDC, major Sub-Contractors, field inspectors and supervisors will be in attendance.
- .3 Establish time and location of meeting and notify parties concerned minimum ten (10) days before meeting.

- .4 Departmental Representative will preside.
- .5 Agenda may include:
  - .1 Summary of the previous season's site activities.
  - .2 Comparison of progress achieved with the Project Schedule.
  - .3 Schedules and action Contractor plans to take to get back on Schedule, if required.
  - .4 Confirmation of quantities.
  - .5 Health, safety and security issues.
  - .6 Summary of interactions with AHJ.
  - .7 Work plan for the following season, if any.
  - .8 Camp requirements.
- .6 Departmental Representative will record minutes of meetings and circulate to attending parties and affected parties not in attendance within seven (7) days after meeting.

1.7 Post-Construction Meeting

- .1 Within ninety (90) days after completion of construction, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities. The meeting will be a meeting between all parties in Edmonton, Alberta. The Departmental Representative will provide a venue for the meeting.
- .2 Departmental Representative, Contractor, AANDC, major Sub-Contractors, field representatives and supervisors will be in attendance.
- .3 Establish time and contact information for the meeting and notify parties concerned minimum five (5) days before meeting.
- .4 Departmental Representative will chair the meeting and take minutes. Meeting will be informal and agenda to include, but is not limited to:
  - .1 Outstanding contractual issues.
  - .2 Holdback release.
  - .3 AOC Content.
  - .4 Lessons learned.
  - .5 Outstanding submittals.
  - .6 Outstanding reporting requirements.

1.8 Construction Meetings

- .1 During course of Work and weeks prior to Project completion, Departmental Representative will schedule weekly progress meetings.
- .2 Contractor, major Sub-contractors involved in Work, and Departmental Representative are to be in attendance.
- .3 Departmental Representative will record minutes of meetings and circulate to attending parties and affected parties not in attendance shortly after meeting.
- .4 Agenda to include:
  - .1 Review and approval of minutes of previous meeting.
  - .2 Regulatory Review.
  - .3 Review of Work progress since previous meeting.

- .4 Field observations, problems, or conflicts.
  - .5 Problems which impede construction schedule.
  - .6 Review of off-site fabrication delivery schedules.
  - .7 Project schedule review, identifying activities that are behind schedule and providing measures to regain slippage.
  - .8 Corrective measures and procedures to regain projected schedule.
  - .9 Revisions to construction Schedule.
  - .10 Progress schedule during succeeding Work period.
  - .11 Review submittal schedules: expedite as required.
  - .12 Maintenance of quality standards.
  - .13 Review proposed changes for effect on construction schedule and on completion date.
  - .14 Health, Safety and Security issues.
  - .15 Correspondence from Authorities Having Jurisdiction (AHJ) or expected visits from AHJ.
  - .16 Camp requirements.
  - .17 Other business.
- .5 Provide written explanations on activities which are overrunning estimated time. If any such activities are on the critical path, indicate what corrective action will be taken to bring them back on Schedule.

#### 1.9 Safety Meetings

- .1 Daily Safety Meeting: meeting to be held on-site daily during the construction season and to include Contractor, all staff, on-site Departmental Representative and Departmental Representative's authorized personnel. The Daily Safety Meeting may be split into task or crew specific meetings as required. Record attendance and discussion topic(s) for daily safety meeting(s) and make available to Departmental Representative as required.
- .2 Weekly Safety Meeting: Contractor to preside over weekly meeting for all site personnel during the construction season. Minutes are to be recorded and attendance taken. Post minutes and attendance list on-site and provide copy to Departmental Representative within three (3) days of the meeting.
- .3 Joint Occupational Health and Safety Committee Meeting: hold meeting according to attendance and frequency requirements of AHJs.

#### 1.10 Monthly Progress Meetings

- .1 Departmental Representative will schedule Monthly Progress Meetings to be held on-site.
- .2 Departmental Representative, Contractor, AANDC, major Sub-Contractors, field inspectors and supervisors will be in attendance.
- .3 Departmental Representative will notify parties five (5) days prior to meetings.
- .4 Representative will record minutes of meetings and circulate to attending parties and affected parties not in attendance shortly after meeting.
- .5 Agenda may include:
  - .1 Summary of the previous month's site activities.
  - .2 Comparison of progress achieved with the project schedule.
  - .3 Schedules and action Contractor plans to take to get back on schedule, if required.

- .4 Confirmation of quantities.
- .5 Health, safety and security issues.
- .6 Summary of interactions with AHJ.
- .7 Work plan for the following month.
- .8 Camp requirements.
- .9 Other business.

#### 1.11 Community Meetings

- .1 Prior to the commencement of each work season and following the completion of remediation, arrange meetings with Departmental Representative, local leaders, officials, authorities and public in Cambridge Bay, Nunavut. Be prepared to discuss local hiring practices and any other items of operations which may impact upon the local communities. Minutes will be taken by Departmental Representative. Provide a sign in sheet for attendees.
- .2 Conduct presentations via computer and projector using "Power Point" software or using a similar suitable presentation. Provide wording in English and simultaneous translation to the local Inuit dialect during the presentation. Submit presentations to Departmental Representative for review a minimum of 14 days prior to each community meeting.
- .3 Provide and pay for the following associated with these meetings:
  - .1 Meeting facility rental.
  - .2 Coffee, tea, pastries, cookies, etc.
  - .3 Costs associated with translation

#### 1.12 Submittals

- .1 Provide submittals to the Departmental Representative for review. Include submittals as noted in Table 01 33 00-1 in Section 01 33 00 - Submittal Procedures.

#### 1.13 Measurement for Payment

- .1 Include all direct costs for the Pre-Construction Meeting in the lump sum price for Pre-Construction Meeting at location of Contractor's choice, Item 01 31 19-1, as indicated in the Basis of Payment Schedule. Item 01 31 19-1 includes, but is not limited to, arranging for meeting facilities and travel and accommodation costs for Contractor's personnel only. The Departmental Representative will provide and pay for all costs related to the facilitator for the Partnering Session.
- .2 Include all direct costs for the Pre-Mobilization Site Visit in the lump sum price for the Pre-Mobilization Site Visit, Item 01 31 19-2, as indicated in the Basis of Payment Schedule. Item 01 31 19-2 includes, but is not limited to, transportation to site for all participants and accommodation costs for Contractor's personnel only.
- .3 Include all direct costs for the Inter-Season Meeting in the lump sum price for Inter-Season Meeting at Location of Contractor's Choice, Item 01 31 19-3, as indicated in the Basis of Payment Schedule. Item 01 31 19-3 includes, but is not limited to, arranging for meeting facilities and travel and accommodation costs for Contractor's personnel only.
- .4 Include all direct costs for the Post Construction Meeting in the lump sum price for Post Construction Meeting in Edmonton, Alberta, Item 01 31 19-4, as indicated in the Basis of Payment Schedule. Item 01 31 19-4 includes, but is not limited to, travel and accommodation costs for Contractor's personnel only.

- .5 All costs associated with return transportation for Monthly Meetings of Departmental Representative's personnel from Cambridge Bay, Nunavut to CAM-A will not be considered for payment under this section, but will be included for payment as specified in Section 01 54 00 - Camp Facilities.
- .6 Community Meetings in Cambridge Bay, Nunavut, will be measured for payment by the number of meetings held and paid under Item 01 31 19-5, Community Meetings – Cambridge Bay, Nunavut in the Basis of Payment Schedule. The scope of work for payment Item 01 31 19-5 is to include, but is not limited to, transportation of three (3) Departmental Representative(s) and/or Authorized Personnel from the Contractor's Charter Base to the Community Meeting Location.
- .7 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate cost of the work of this section as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

## PART 2 - PRODUCTS

2.1 Not Used

## PART 3 - EXECUTION

3.1 Not Used

**END OF SECTION**

## PART 1 – GENERAL

### 1.1 Definitions

- .1 Activity: element of Work completed during course of Project. Activity normally has expected duration, expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Bar (GANTT) Chart: graphic display of Schedule-related information. In a typical bar chart, activities or other Project elements are listed down the left side of the chart, dates are shown across the top, and activity durations are shown as date-placed horizontal bars. Generally Bar Charts should be derived from commercially available computerized Project management systems.
- .3 Baseline: original accepted plan (for Project, Work package, or activity), plus or minus approved scope or accepted schedule changes.
- .4 Construction Work Week: Monday to Sunday, inclusive, will provide seven (7) days Work week and define Schedule calendar working days as part of Bar (GANTT) Chart submission.
- .5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other Project element. Usually expressed as days or work weeks.
- .6 Milestone: significant event in Project, usually completion of major deliverable.
- .7 Project Schedule: planned dates for completing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout Project life cycle.

### 1.2 Requirements

- .1 Develop a practical schedule. Monitor and update the schedule so that it remains within specified Contract duration.
- .2 Plan to complete Work in accordance with prescribed milestones and time frame.
- .3 Identify tasks that lie on the critical path. Show float where possible.
- .4 Limit activity durations to maximum of approximately ten (10) working days to allow for progress reporting.

### 1.3 Submittals

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit the Bar (GANTT) Chart to Departmental Representative within seven (7) working days of the contract award date.

### 1.4 Project Schedule

- .1 Develop detailed Project Schedule.

.2 Project Schedule must include, at minimum, milestone and activity types as follows:

- .1 Award.
- .2 Planning document submittals, Shop Drawings, samples.
- .3 Permits.
- .4 Mobilization.
- .5 Setup camp facilities.
- .6 Structure demolition.
- .7 Collection and disposal of non-hazardous materials.
- .8 Collection and disposal of hazardous materials.
- .9 Excavation and containerization of contaminated soils.
- .10 Regrading.
- .11 Buried debris regrading.
- .12 Access improvements.
- .13 Restoration of borrow sources.
- .14 Camp Shutdown.
- .15 Interim Certificate of Completion.
- .16 Demobilization.
- .17 Closeout Submittals.
- .18 Final Completion of all site Works.
- .19 Final Disposal of all site waste and contaminated soil including submission of waste manifests and disposal certificates.
- .20 Final Certificate of Completion.

.3 Submit preliminary construction progress Schedule in accordance with Section 01 33 00 - Submittal Procedures to Departmental Representative coordinated with Departmental Representative's Project Schedule.

.4 After review, revise and resubmit Schedule to comply with revised Project Schedule.

.5 During progress of Work revise and resubmit Schedule as directed by Departmental Representative.

#### 1.5 Project Schedule Reporting

- .1 Update and submit Project Schedule quarterly reflecting activity changes and completions, as well as activities in progress.
- .2 Include as part of Project Schedule submittal narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

#### 1.6 Project Meetings

- .1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
- .2 Weather-related delays with their mitigative measures will be discussed and negotiated.

## 1.7 Cost and Quality Controls

- .1 Provide a Contract Work Breakdown Structure (CWBS) based on Contractor's Cost Breakdown and any modifications requested by Departmental Representative as follows:
  - .1 CWBS to be an organization of the Work to be completed, services to be provided and data to be submitted by Contractor, as well as payments to be made to Contractor under the terms of the Contract.
  - .2 The CWBS to clearly define the Work elements of each item of the CWBS.
  - .3 The CWBS to include a breakdown of pay items included under Item BOPC -1, Balance of Project Costs in the Basis of Payment Schedule. All unit price, lump sum, and provisional cost sum allowance pay items included in the Basis of Payment Schedule to also be included in the CWBS.
  - .4 Prepare the CWBS in computerized spreadsheet format compatible with the most recent release of Microsoft Excel software. Provide CWBS in hard copy format.
  - .5 Submit the CWBS within thirty (30) days following contract award date.
  - .6 Update the CWBS quarterly reflecting changes and items completed to date and submit the updated CWBS with the quarterly Project Schedule updates.
- .2 Equipment and Material Control:
  - .1 Record data on status of construction material and equipment and report upon Departmental Representative's request.
- .3 Manpower Performance Measures:
  - .1 Record and report manpower listing for each company employed under this Contract, including Sub-Contractors, detailing daily man-hours (aboriginal and non-aboriginal) during the current month and cumulative total to date. Submit to the Departmental Representative's monthly.
  - .2 Provide statistical reporting.
  - .3 Provide statistics related to lost time accidents hours upon Departmental Representative's request.
  - .4 Monthly Performance Measures Templates are provided in Appendix E.

## 1.8 Measurement for Payment

- .1 Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this Work as a separate line item in the Cost Breakdown specified in this Section.

## PART 2 - PRODUCTS

### 2.1 Not Used

## PART 3 - EXECUTION

### 3.1 Not Used

**END OF SECTION**

## PART 1 – GENERAL

### 1.1 Definition

- .1 Shop Drawings: drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

### 1.2 Administrative

- .1 Submit to Departmental Representative submittals listed for review. Submittal list is bound into specification section and is for information only. Submit with reasonable promptness and in orderly sequence so as to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract time and no claim for extension by reason of such default will be allowed.
- .2 Work affected by submittal is not to proceed until review is complete.
- .3 Present shop drawings and product data, in SI Metric units.
- .4 Where items or information is not produced in SI Metric units, converted values are acceptable.
- .5 Submit requests for payment for review and for transmittal to Departmental Representative.
- .6 Submit requests for interpretation of Contract Documents and obtain instructions through the Departmental Representative.
- .7 Submit and process substitutions through Departmental Representative.
- .8 Submit and process task authorizations and change orders through Departmental Representative.
- .9 Deliver closeout submittals for review to Departmental Representative.
- .10 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to a specific Project will be returned without being examined and will be considered rejected.
- .11 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .12 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .13 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative's review.
- .14 Keep one reviewed copy of each submission on-site.

1.3 Shop Drawings Submission

- .1 Submit, fourteen (14) days prior to mobilization, preliminary shop drawings, product data and samples for review for compliance with Contract Documents; for field dimensions and clearances, for relation to available space, and for relation to Work of other contracts. After review, revise and resubmit for transmittal to Departmental Representative.
- .2 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .3 Submit Shop Drawings bearing stamp and signature of qualified professional Engineer registered or licensed in Nunavut/NWT, Canada.
- .4 Allow fourteen (14) days for Departmental Representative's review of each submission.
- .5 Adjustments made on Shop Drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative and receive written approval from the Departmental Representative prior to proceeding with Work.
- .6 Make changes in Shop Drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of any revisions other than those requested.
- .7 Verify in shop drawings:
  - .1 Field measurements.
  - .2 Field construction criteria.
  - .3 Catalogue numbers and similar data.
- .8 Accompany submissions with transmittal letter, in duplicate, containing:
  - .1 Date.
  - .2 Project title and number.
  - .3 Contractor's name and address.
  - .4 Identification and quantity of each shop drawing, product data and sample.
  - .5 Other pertinent data.
- .9 Submissions to include:
  - .1 Date and revision dates.
  - .2 Project title and number.
  - .3 Name and address of:
    - .1 Sub-Contractor.
    - .2 Supplier.
    - .3 Manufacturer.
    - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.

- .5 Details of appropriate portions of Work as applicable:
  - .1 Fabrication.
  - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
  - .3 Setting or erection details.
  - .4 Capacities.
  - .5 Performance characteristics.
  - .6 Standards.
  - .7 Operating weight.
  - .8 Single line and schematic diagrams.
  - .9 Relationship to adjacent Work.
- .10 After Departmental Representative's review, distribute copies.
- .11 Submit three (3) prints and an electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.
- .12 Delete information not applicable to Project.
- .13 Supplement standard information to provide details applicable to Project.
- .14 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, two (2) copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be completed before fabrication and installation of Work may proceed.
- .15 The review of Shop Drawings by Departmental Representative is for sole purpose of ascertaining conformance with general concept.
  - .1 This review does not mean that Departmental Representative approves detail design inherent in Shop Drawings, responsibility for which remains with Contractor submitting same, and such review does not relieve Contractor of responsibility for errors or omissions in Shop Drawings or of responsibility for meeting all requirements of construction and Contract Documents.
  - .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of all sub-trades.

#### 1.4 Photographs

- .1 Provide digital photos in "Joint Photographic Experts Group" (.jpg) format for Progress Photographs and Final Photographs.
- .2 Digital photographs to have a minimum of 2,592 x 1,944 pixel (5 Megapixel) resolution.
- .3 Progress and Final Photographs to be submitted on a compact disc (CD). Provide one (1) copy of the Progress Photographs, and two (2) copies of the Final Photographs .

- .4 Printed (colour) copies of digital photographs to be provided for Final Photographs only
  - .1 Size: 100 mm x 125 mm.
  - .2 Two digital photographs per 215 x 280 mm page.
  - .3 Pages to be white, of photographic quality paper and to be three-hole punched, ready for insertion into a three-ring binder. Binder(s) to be vinyl, hard-covered, 3 inch D ring, sized for 215 x 280 mm paper, with spine pocket.
- .5 Identification: Typewritten or generated by computer, the name and number of the Project on cover and spine of binder and CD case. Each photograph to be labelled with the digital photo file name positioned so as to not interfere with the view of the main activity or feature presented on the photograph. Also provide a description of each photograph in photographic log format. Photographic log to be included with each computer disk, CD, and binder. Description to include:
  - .1 Digital photograph file name
  - .2 Name and description of feature
  - .3 Position and view direction
  - .4 Date of exposure.
  - .5 Before and after photograph of location
- .6 Quantity: Provide sufficient number of photographs to adequately describe the Work activities carried out during the reporting period. A minimum of two photographs taken from two viewpoints are to be provided for each clean up/construction activity. Viewpoint locations for final digital photographs to be determined by Departmental Representative.
- .7 Provide "Before" and "After" photos of site showing key areas before remediation and after remediation. Provide "After" photos from the same Photographic Viewpoint as the "Before" photos, Record the location of the Photographic Viewpoints with a handheld GPS and plot these locations on the record drawing mark-up. Consult with Departmental Representative to verify Photographic Viewpoints.
- .8 Submit progress photographs monthly with last weekly report or as directed by Departmental Representative.
- .9 Provide two sets in two binders of final digital photographs.
- .10 Submit final photographs prior to final progress payment request.

#### 1.5 Measurement for Payment

- .1 Include all direct costs for the Project Photographs in the lump sum price for Project Photographs, Item 01 33 00 - 1, as indicated in the Basis of Payment Schedule.
- .2 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate cost of the work of this section as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

PART 2 - PRODUCTS

2.1     Not Used

PART 3 - EXECUTION

3.1     Not Used

TABLE 01 33 00-1

## CONTRACTOR SUBMITTAL SCHEDULE

Specification Section	Description	Date
01 11 00	Worker Orientation Seminar Course Material	Thirty (30) days prior to the seminar
01 29 83	ISO 17025 Laboratory Certifications	Sixty (60) days prior to start of construction
01 29 83	Contractor's sampling methodology, personnel and protocols	Sixty (60) days prior to start of construction
01 31 19	Community Meeting Presentations	Fourteen (14) days prior to community meeting
01 31 19	Pre-Mobilization Site Visit Report	Within seven (7) days after pre-mobilization site visit
01 32 18	Bar (GANTT) Chart	Seven (7) days after contract award
01 32 18	Contract Work Breakdown Structure (CWBS)	Thirty (30) days following contract award date
01 32 18	Updated Schedule and CWBS	Quarterly or as directed
01 32 18	Cumulative and Daily Manpower Reports	Monthly
01 33 00	Preliminary Shop Drawings, Product Data, Samples	Fourteen (14) days prior to mobilization
01 33 00	Progress Photographs	Monthly with last weekly report or as directed
01 33 00	Final Photographs	Prior to final progress payment request
01 35 15	Wastewater Treatment Facility Design, Operation and Maintenance Details	Sixty (60) after contract award
01 35 15	Wastewater compliance testing results	As received
01 35 32	Site Specific Health and Safety Plan	Thirty (30) days after contract award
01 35 32	Site inventory of health, safety, medical and first aid equipment and supplies	Within ten (10) days of crew mobilization to site each season
01 35 32	Proof of PPE fit testing for personnel	Prior to task
01 35 32	Accidents Reports	Immediate verbal report, written report within 24 hrs
01 35 32	Spill Contingency Plan	With Site Specific Health and Safety Plan
01 35 32	Fire Safety Program	With Site Specific Health and Safety Plan
01 35 32	Wildlife Management Plan	With Site Specific Health and Safety Plan
01 35 32	Terms of Use for Firearms	With Site Specific Health and Safety Plan
01 35 32	Qualification and training plans for wildlife monitors	With Site Specific Health and Safety Plan
01 35 32	Details and procedures for the Operation and Maintenance of an AED	With Site Specific Health and Safety Plan
01 35 43	Historical, Archaeological and, Cultural and Biological Resources Plan	Sixty (60) days prior to on-site remediation activities
01 35 43	Wildlife Protection Plan	Sixty (60) days prior to on-site remediation activities
01 35 43	Copies of Environmental Agency Submittals/Approvals	As required
01 35 43	Work Methodology Plan for In Stream or Near Water Works	Forty-five (45) days prior to commencing the activity
01 35 43	Barge Landing Plan	Forty-five (45) days prior to mobilization
01 35 43	Erosion Sediment and Drainage Control Plan	Forty-five (45) days prior to on-site remediation activities
01 35 43	Inventory of Environmental Protection Supplies	Forty-five (45) days prior to mobilization
01 41 00	MSDS Data Sheets	Upon delivery of materials to site
01 45 00	Inspection and Test Reports	As received
01 52 00	Field Drawings	When required by Departmental Representative
01 52 00	Temporary Storage Area Inventory	Each month during the construction season

TABLE 01 33 00-1  
CONTRACTOR SUBMITTAL SCHEDULE

Specification Section	Description	Date
01 53 00	Mobilization Demobilization Plan	Forty-five (45) days after contract award
01 53 00	Construction Equipment List	Thirty (30) days prior to mobilization
01 54 00	Plan of Construction Camp Layout and Siting	Forty-five (45) days prior to mobilization
01 54 00	Proof of Camp Licenses, Permits, Authorizations	Within thirty (30) days of camp start-up
01 54 00	Camp Facilities Third Party Inspection Report	Thirty (30) days prior to mobilization
01 54 00	Information on bottled water, or water source and quality tests	Prior to commencing camp operation and every four (4) weeks during camp operation
01 54 00	Sketch of Proposed Sample Processing Facility / Laboratory	With Plan of Construction Camp Layout and Siting
01 54 00	Set of Camp Rules	Prior to commencing camp operation
01 71 01	Documentation Certifying Survey Equipment Calibration	Thirty (30) days prior to each construction season
01 71 01	Name and address of Surveyor	After contract award
01 71 01	Survey documentation	Upon request of Departmental Representative
01 71 01	Certificate of Completed Survey Work	Seven (7) days prior to requested final inspection
01 71 01	Drawings	Upon request of Departmental Representative
01 77 00	Completion Certificate	Seven (7) days prior to requested final inspection
01 78 00	Record Drawings	Forty-five (45) days after project completion
01 78 00	Permit Reporting	Thirty (30) days after the completion of each construction season
01 78 00	Close Out Reporting	March 31 following project completion
02 41 16	Waste Transport Manifests, Chain of Custody Documentation, Transport Documentation and Destruction and/or Disposal Certificates for Non-Hazardous Wastes	Prior to Payment
02 41 16	Waste Container Inventories and Weigh Scale Records	Prior to shipment off-site
02 41 16	LEL results of VOC testing	Upon request of Departmental Representative
02 41 23	Details of Non-Hazardous Waste Containers and/or Packaging Methods	Forty-five (45) days prior to mobilization
02 55 13	Details of Contaminated Soil Containers	Forty-five (45) days prior to mobilization
02 55 13	Inventory of Each Soil Container	Prior to shipment off-site
02 61 00	Type B PHC Contaminated Soil Treatment Plan	Ninety (90) days prior to the construction
02 61 00	Type B PHC Contaminated Soil Treatment Operation Report	Monthly
02 61 00	Interim Soil Remediation Report	Thirty (30) days after completion of each construction season
02 61 33	Hazardous Material Qualifications and Training Records	Prior to commencement of work
02 61 33	Details of Hazardous Waste Containers	Forty-five (45) days prior to mobilization
02 61 33	Details of Hazardous Material Processing Area	Prior to commencement of remediation activities
02 61 33	Photographic Record of all Hazardous Waste Containers	Upon completion of work
02 61 33	Inventory of Hazardous Materials Containers and Contents	At the end of each construction season
02 61 33	Waste Transport Manifests, Chain of Custody Documentation and Transport Documentation and Destruction Certificates for Hazardous Wastes	Prior to Payment
02 61 33	Details of Proposed Barrel Processing Methodology	Forty-five (45) days prior to mobilization

TABLE 01 33 00-1 CONTRACTOR SUBMITTAL SCHEDULE		
Specification Section	Description	Date
02 61 33	Hazardous Waste Disposal Tracking Form	Prior to shipment off-site
02 82 00	Notice of Project Form	Thirty (30) days after contract award
02 82 00	Proof of Contractor's Asbestos Liability Insurance	Thirty (30) days after contract award
02 82 00	Permits for Transportation and Disposal of ACM and proof of Disposal	Upon project completion
02 82 00	Proof of Asbestos Training for Employees	Prior to commencing asbestos abatement work
02 82 00	Proof of Approved Two Day Asbestos Training for Supervisors	Prior to commencing asbestos abatement work
02 82 00	WSCC and Transcription of Insurance	Prior to commencing asbestos abatement work
02 82 00	Documentation of Asbestos Test Results, Flammability Data, and MSDS Sheet	Prior to commencing asbestos abatement work
31 22 15	Site Access Upgrade Plan	Prior to mobilization

END OF SECTION

## PART 1 - GENERAL

### 1.1 Definitions

- .1 Camp Wastewater: wash water, rinse water, water from operation of camp facilities, and/or any other liquid effluent stream created or encountered during camp activities.
- .2 Process Wastewater: water from decontamination activities, water from dewatering work areas, potentially contaminated groundwater, contact water and/or any other liquid effluent stream created or encountered during Work activities.
- .3 Processed Wastewater: Wastewater processed through the Wastewater Treatment Facility.
- .4 Treated Wastewater: Processed wastewater which has been tested and shown to be in compliance with applicable discharge criteria and requirements of this Section and Section 01 35 43 - Environmental Procedures.
- .5 Contact Water: Water that has been in physical contact with known Contaminated Soil, either in defined soil excavations or excavated soil in treatment areas or stockpiles.

### 1.2 Regulatory Requirements

- .1 Comply with federal, provincial, territorial, and local anti-pollution laws, ordinances, codes, and regulations when disposing of waste materials, debris, and rubbish.

### 1.3 Submittals

- .1 All submittals in accordance with Section 01 33 00 - Submittal Procedures.

### 1.4 Wastewater Treatment Facilities Design Requirements

- .1 Submit design, operation and maintenance details of wastewater treatment facilities conforming to requirements of Authorities Having Jurisdiction (AHJ) 60 days after contract award date. Wastewater treatment facility designs will be stamped by a professional engineer registered or licensed to practice in Nunavut.
- .2 Contain wastewater from the following sources separately:
  - .1 Work Activities; including, but not limited to, wastewater streams from dewatering work areas, decontamination, process water, Contact Water, and wash/rinse water.
  - .2 Camp Operations; including, but not limited to, greywater, kitchen sumps and traps and blackwater.
- .3 Wastewater Treatment Facilities:
  - .1 Design wastewater treatment facilities capable of treating Contact Water generated from dewatering excavations, process water, and Work areas to meet the discharge criteria of the Water License, which are approximately the following:

Parameter	Maximum Allowable Concentration
Oil and Grease	5 mg/L, non visible
Non-Aqueous Phase Liquid / Free Product	Not Present
pH	6 to 9
Arsenic (total)	100 µg/L
Cadmium (dissolved)	10 µg/L
Chromium (total)	100 µg/L
Cobalt (dissolved)	50 µg/L
Copper (dissolved)	200 µg/L
Lead (dissolved)	50 µg/L
Mercury (total)	0.6 µg/L
Nickel (dissolved)	200 µg/L
Zinc (total)	500 µg/L
PCBs	1,000 µg/L
Phenols	20 µg/L

- .2 The Contractor shall expect that Wastewater requiring treatment will be generated during site clean-up activities. Historically, parameters most often exceeding the maximum allowable levels include, but are not limited to, oil and grease, pH, zinc, chromium, phenols and cadmium.
- .3 Design Wastewater Treatment Facilities capable of treating water generated from camp operations to meet the criteria of the Water License, which are approximately the following:

Parameter	Maximum Allowable Concentration
pH	6 to 9
Mineral Oil and Grease	5 mg/L and none visible
Total Suspended Solids	100 mg/L
BOD	80 mg/L
Faecal Coliforms	10,000 CFU/dL
Residual Chlorine	0.1 mg/L

- .4 Provide piping to transfer liquid/solid mixtures generated by dewatering operations which require transport to the wastewater treatment facility.
- .5 Wastewater treatment systems must be capable of receiving liquid/solid mixtures to not cause delay to dewatering operations.
- .6 In the event of a discrepancy between the above listed wastewater requirements and those provided in the Water License, the requirements in the Water License will govern.

#### 1.5 Wastewater Treatment Facilities Discharge Requirements

- .1 Provide adequate containment facilities for processed wastewater, prior to discharge, to complete testing and analytical requirements. Salvage of tanks designated for removal on-site is permitted, provided that the tanks are empty and clean prior to use. Wastewater storage ponds meeting all requirements of AHJ are permitted.
- .2 Water discharge on-site must be in compliance with applicable permits, authorizations and approvals. Make adjustments to Water Treatment Facilities or provide alternative equipment, at no additional cost, such that processed wastewater meets applicable permit requirements and limitations for discharge.

- .3 Wastewater discharges from site must be in compliance with applicable permit requirements.
  - .1 Camp Wastewater is to be released onto the ground at a location, reviewed and accepted by the Departmental Representative, that is a minimum of 30 m from natural drainage courses and 100 m from fish bearing waters and conform to the discharge requirements set out by the AHJ.
  - .2 If unable to meet the discharge criteria, provide additional storage and/or treatment necessary to meet criteria prior to discharge.
  - .3 No direct discharge is allowed to wetland or surface waters.
  - .4 Contractor must obtain approval from the AHJ prior to discharging treated wastewater.
- .4 Dispose of any processed wastewater not meeting the applicable permit requirements and limitations for discharge in accordance with Section 02 61 33 - Hazardous Waste Material, at the Contractor's expense including, but not limited to, transporting and disposing of processed wastewater to approved disposal facilities.

#### 1.6 Wastewater Storage Tank

- .1 Provide, operate, and maintain wastewater storage tanks to store wastewater.
- .2 Provide pumps and piping to convey collected wastewater to designated wastewater storage tanks.
- .3 Provide storage tanks with minimum total live capacity such that effluent quality can be analyzed and approved prior to discharge.
- .4 Install wastewater storage tanks in locations as directed by Departmental Representative.
- .5 Support tank(s) on (temporary) above ground foundation(s).
- .6 Connect pumps, piping, valves, miscellaneous items, and necessary utilities as required for operation of facilities; and protect tanks, valves, pumps, piping, and miscellaneous items from freezing.
- .7 Do not operate wastewater storage tanks until inspected and approved by Departmental Representative.
- .8 Notify Departmental Representative three (3) days minimum in advance of when wastewater storage tank is anticipated to be full.
  - .1 Do not discharge additional liquids to filled tank following sampling by Departmental Representative.
  - .2 Departmental Representative will determine appropriate disposition of wastewater based on sample analysis.
- .9 Treat onsite or transport and dispose of wastewater at Contractor's off-site disposal facilities.
- .10 Be responsible for transporting and disposing of wastewater to Contractor's off-site disposal facilities.
- .11 Be responsible for additional testing required by the Contractor's off-site disposal facilities.

### 1.7 Equipment Decontamination

- .1 Decontaminate equipment, including buckets and tracks, after working in potential and known contaminated work areas and prior to subsequent work or travel on clean areas.
- .2 At minimum, complete the following steps during equipment decontamination:
  - .1 Mechanically remove loose waste solids, dirt, grit, and debris by manual methods without using steam or high-pressure water to minimize water usage and potential for contaminated rinsate generated. Clean soil lumps and particles prior to mobilizing excavating and other contaminated soil processing equipment.
  - .2 Should decontamination not be achieved using above, use high-pressure, low-volume, hot water or steam supplemented by detergents or solvents as appropriate and accepted by Departmental Representative. Complete an assessment as directed by Departmental Representative, to determine effectiveness of decontamination.
  - .3 Collect and dispose of the removed material in existing contaminated soil areas.
- .3 Contain any rinsate created during the removal process as wastewater. Contain soil removed from equipment with waste material.
- .4 Complete final decontamination of equipment, and materials which may have come in contact with potentially contaminated materials prior to removal from site.
- .5 Furnish and equip personnel engaged in equipment decontamination with protective equipment including suitable disposable clothing, respiratory protection, and face shields.
- .6 Each piece of equipment may be inspected by Departmental Representative or designate after decontamination and prior to removal from site and/or travel on clean areas. Departmental Representative will have right to require additional decontamination to be completed, if deemed necessary.
- .7 Take appropriate measures necessary to minimize drift of mist and spray during decontamination, including provision of wind splash screens, as required.
- .8 Take special precautions to mitigate the tracking of contaminated soil over the site area.

### 1.8 Water Control

- .1 Maintain excavations free of water.
- .2 Protect site from ponding or running water. Grade site to drain.
- .3 Prevent surface water runoff from leaving Work areas.
- .4 Do not discharge decontaminated water, or surface water runoff, or groundwater which may have come in contact with potentially contaminated material, off the site.
- .5 Prevent precipitation from infiltrating or from directly running off stockpiled waste materials. Cover stockpiled waste materials with an impermeable liner during periods of Work stoppage and periods of heavy precipitation and as directed by the Departmental Representative.
- .6 Direct surface waters that have not contacted potentially contaminated materials to existing surface drainage systems.

- .7 Dispose of water in manner not injurious to public health or safety, to property, or to any part of Work completed or under construction.
- .8 Provide, operate, and maintain necessary equipment appropriately sized to keep excavations, staging pads, and other Work areas free from water.
- .9 Have on hand sufficient pumping equipment, machinery, and tankage in good working condition for emergencies, including power outage, and competent workers for operation of pumping equipment.

1.9 Dewatering

- .1 Dewater various parts of Work including, without limitation, excavations, structures, foundations, and Work areas, as required to complete work.
- .2 Contractor must employ construction methods, plant procedures, and precautions such that Work, including excavations, are stable, free from disturbance, and dry.
- .3 Contractor must provide sufficient and appropriate labour, plant, and equipment necessary to keep Work free of water including standby equipment necessary to provide continuous operation of dewatering system.
- .4 Take necessary precautions to prevent uplift of any structure or pipeline and to protect excavations from flooding and damage due to surface runoff.
- .5 Test and analyze water generated from dewatering activities and treat to meet required discharge or disposal criteria.

1.10 Progress Cleaning

- .1 Maintain cleanliness of Work and surrounding site to comply with federal, provincial, territorial, and local fire and safety laws, ordinances, codes, and regulations.
- .2 Coordinate cleaning operations with disposal operations to prevent accumulation of dust, dirt, debris, rubbish, and waste materials.

1.11 Final Decontamination

- .1 Complete final decontamination of construction facilities, equipment, and materials which may have come in contact with potentially contaminated materials prior to removal from site.
- .2 Complete decontamination as specified to the satisfaction of Departmental Representative. Departmental Representative will direct Contractor to complete additional decontamination if required.

1.12 Removal and Disposal

- .1 Remove surplus materials and temporary facilities from site.
- .2 Dispose of non-contaminated waste materials, litter, debris, and rubbish off site.
- .3 Do not burn rubbish and waste materials on site unless a burn exemption is provided in accordance with the land use permit and approved by the AHJ.
- .4 Do not burn and bury rubbish and waste materials on site.

- .5 Do not discharge wastes into streams or waterways.
- .6 Dispose of the following materials at appropriate off-site facilities identified by Contractor and approved by Departmental Representative: debris including excess construction material, non-contaminated litter and rubbish; disposable PPE worn during final cleaning; wastewater removed from wastewater storage tank, wastewater generated from final decontamination operations including wastewater storage tank cleaning; and lumber from decontamination pads.

#### 1.13 Testing

- .1 Carry out and pay for all testing required to confirm that Wastewater comply with Wastewater Treatment and Discharge Criteria outlined in this Section. Submit records of this testing to Department Representative.
- .2 Carry out and pay for all testing required for the classification of waste and licensed disposal facilities acceptance requirements outlined in this Section and Section 01 29 83 – Payment Procedures for Testing Laboratory Services.

#### 1.14 Measurement for Payment

- .1 Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this Work as a separate line item in the Cost Breakdown specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart

### PART 2 - PRODUCTS

#### 2.1 Piping

- .1 Suitable material type, of sufficient diameter and structural thickness for purpose intended; satisfactorily tested for leaks with potable water in presence of Departmental Representative before handling wastewater.

### PART 3 - EXECUTION

#### 3.1 Installation, Commissioning, Operation and Decommissioning of Wastewater Treatment Facilities Installation:

- .1 Provide labour, materials, and equipment and complete Work required for setup and construction of Wastewater Treatment Facilities.
- .2 Install component systems in accordance with installation procedures.
- .3 Following installation of system, implement initial operation test in accordance with procedures developed by Contractor and submitted to Departmental Representative for review.
- .4 Install piping in accordance with manufacturer's instructions and test for leakage using potable water prior to commencing treatment operations.

.5 Operation:

- .1 Obtain and analyze influent and effluent samples required to operate the system.
- .2 Make system modifications required for effluent to satisfy effluent criteria based on analytical results.
- .3 Operate Wastewater Treatment Facilities by experienced, qualified personnel in accordance with manufacturer's instructions and procedures submitted by Contractor and accepted by Departmental Representative.
- .4 Operate the Wastewater Treatment Facilities such that storage tanks and storage ponds are either empty at the end of the construction season or have allowances for expansion of water due to freezing.

.6 Decommissioning/Dismantling:

- .1 Decontaminate and remove salvageable components of Wastewater Treatment Facilities including water treatment system, pumps, piping, and electrical equipment.
- .2 Dispose of non-salvageable equipment and materials at approved off-site disposal facilities. Decontaminate salvageable equipment within facility area as required prior to removal from site.

**END OF SECTION**

## PART 1 – GENERAL

### 1.1 Definitions

- .1 Separated Work Group: a work crew of any number of personnel working at a location where immediate medical attention from site medical personnel may not be possible due to environmental, mechanical or other factors.

### 1.2 Site Specific Health and Safety Requirements

- .1 Maintain and complete all health and safety, fire safety, and environmental compliance activities in accordance with applicable sections and Authorities Having Jurisdiction (AHJ).
- .2 Schedule a compliance meeting on an as required basis, as directed by Departmental Representative. Compliance meetings may be held in conjunction with regular meetings.
- .3 The intent of the compliance meeting is to review reporting and inspection requirements to meet the intent of the Safety Act, the Water License, the Land Use Permit, regulatory, and other requirements as may be required.
- .4 Compliance meetings to be held at the Work site.
- .5 Departmental Representative will record minutes, chair the meeting and distribute minutes to parties of record prior to the next Scheduled meeting.
- .6 Attendees:
  - .1 Contractor: Manager and/or Supervisor(s), representatives of major Sub-Contractors, and others as necessary.
  - .2 Departmental Representative and representatives of Independent Inspection Agencies.
  - .3 AANDC representative(s).
- .7 Agenda to include:
  - .1 Review and approval of minutes of previous meeting.
  - .2 Review of items of significance that could affect Work.
  - .3 Review of site inspections: Inspect the site on a monthly basis, or more or less often, as determined by the Departmental Representative or as dictated by the AHJ.
  - .4 Identify and record field observations, problems, and conflicts that must be noted in reports required by the AHJ.
  - .5 Identify corrective measures and procedures to regain approval from AHJ.
  - .6 Identification of requirements for maintenance of quality standards needed for compliance with applicable Codes and Legislation.
  - .7 Review of site safety and security issues.
  - .8 Review of environmental and regulatory compliance.
  - .9 Other topics for discussion as appropriate to current status of the Work.

### 1.3 Submittals

- .1 Submit the Draft Site Specific Health and Safety Plan no later than thirty (30) days after contract award to the Departmental Representative for review. Any items, which are identified as missing, will be added and the plan revised, so as to incorporate the additional items. Submit three (3) hard copies and one (1) electronic copy of the final Site Specific Health and Safety Plan forty-five (45) days prior to crew mobilization. The revised Site Specific Health and Safety Plan will be submitted to the AHJ for review and recommendations to address all elements required by the Safety Act, OSHA Regulations, other AHJ, and Contract Specifications.
- .2 Update the Site Specific Health and Safety Plan at the beginning of each construction season, and submit to the departmental representative no later than thirty (30) before the start of each construction season.
- .3 All submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .4 The Site Specific Health and Safety Plan is to include, but is not limited to the following sections:
  - .1 A Statement of Contractor's Safety Policy.
  - .2 Environmental, Health and Safety Management Plan.
  - .3 Name and telephone number of Contractor's corporate Safety Officer and on-site Safety Representative.
  - .4 Safety Responsibilities of all on-site personnel.
  - .5 Anti-Harassment Policy.
  - .6 Safe Work Practices and/or Job Procedures.
  - .7 Requirements for safety meetings and documentation.
  - .8 Safety Inspection Plan.
  - .9 Camp Rules and their enforcement.
  - .10 Site traffic rules and speed limits
  - .11 First Aid Locations.
  - .12 Results of safety and health risk or hazard analysis for camp and construction activities.
  - .13 Procedures for, but not limited to, cold weather survival, heat stress, remote Work and general worker health and safety.
  - .14 Buddy system and procedures for working alone.
  - .15 Workplace Hazardous Materials Information System (WHMIS) and Material Safety Data Sheet (MSDS) records. Personal Protective Equipment (PPE) Program, including Contaminated Sites Working and Decontamination Procedures.
  - .16 Personnel hygiene.
  - .17 Respiratory Protection Program.
  - .18 Procedures for emergency site communications.
  - .19 On-site Contingency and Emergency Response Plan.
  - .20 Spill Contingency Plan.
  - .21 Fuel Management Plan
  - .22 Fire Safety Program.
  - .23 Wildlife Management Plan.
  - .24 Procedures for encountering suspected hazardous materials.
  - .25 Blasting Cap or unexploded ordnance (UXO) awareness and handling.
  - .26 Lockout/Tagout procedures for equipment that could become energized.
  - .27 Confined Spaces.
  - .28 Helicopter Safety.
  - .29 Marine Safety.
  - .30 Radiological Safety.

- .5 The On-site Contingency and Emergency Response Plan is to address standard operating procedures to be implemented during emergency situations. Plans including procedures are to meet Safety Requirements below.
  - .1 Prepare and coordinate a Contingency and Emergency Response Plan with contributions from appropriate authorities including the Government of Nunavut Safety Act, Hospitals, RCMP, Ministry of Transportation, and Ministry of Health. Plan will identify off-site Emergency Response Coordinator through whom all information and coordination will flow in the event of an incident.
  - .2 Departmental Representative will have Contractor's On-site Contingency and Emergency Response Plan reviewed by AHJ and may request modifications or additions as necessary for the work.
- .6 The Fuel Management Plan is to include information related to storage, on-site transport, containment, handling and decommissioning.
- .7 Complete an inventory of Contractor's health, safety, medical and first aid equipment and supplies on-site to assess compliance with AHJ requirements. Submit the inventory to Departmental Representative within ten (10) days of mobilization each season. Include a schedule for upgrading deficiencies to meet requirements of AHJ.
- .8 The PPE Program will include, but is not limited to, the following.
  - .1 Donning and doffing procedures.
  - .2 PPE Selection based upon site hazards.
  - .3 PPE use and limitations of equipment.
  - .4 Work mission duration, PPE maintenance and storage.
  - .5 PPE decontamination and disposal.
  - .6 PPE inspection procedures prior to, during, and after use.
  - .7 Evaluation of effectiveness of PPE program and limitations during temperature extremes, and other appropriate medical considerations.
  - .8 Medical surveillance requirements for personnel assigned to work at site.
  - .9 Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used, including methods of maintenance and calibration of monitoring and sampling equipment.
  - .10 Contaminated site working and decontamination procedures for both personnel and equipment.
  - .11 Written respiratory protection program for project activities.
  - .12 Proof of respirator fit testing.

#### 1.4 Construction Safety Measures

- .1 Designate a resident Health and Safety Officer to oversee Contractor's Site Specific Health and Safety Plan with the authority to enforce policies and procedures set out in the Site Specific Health and Safety Plan. Health and Safety Officer to have a minimum of five (5) years' acceptable experience in administering construction health and safety programs.
- .2 Observe and enforce construction safety measures required by the latest revisions of: Canada Labour Code, National Building Code of Canada, National Fire Code of Canada, Workers' Safety and Compensation Commission (WSCC), the applicable Occupational Health and Safety Regulations, and Territorial and local statutes and authorities.
- .3 In the event of discrepancies between any requirements of the above listed authorities, the more stringent requirements will govern.

- .4 Hold safety meetings as per Section 01 31 19 - Project Meetings.
- .5 Maintain at the site, five (5) safety hats with liners, five (5) safety hi-visibility vests, a supply of ear plugs, gloves, and safety glasses for use by Departmental Representative and visitors.
- .6 Maintain a supply of Tyvek or equivalent suits of various sizes as required for Contractor's staff, Departmental Representative and up to three (3) visitors for the duration of the Work.
- .7 Comply with all applicable health and safety policies and procedures from AHJ.
- .8 Departmental Representative or Departmental Representative's Authorized Personnel has the authority to stop Work on the contract if, in his/her opinion, the Work is being completed in an unsafe manner as required by the applicable safety legislation. Assign responsibility and obligation to the Contractor's Health and Safety Officer where required to stop or start work.
- .9 Verify that emergency procedures, including appropriate First aid facilities and First Aid personnel, are in place at the Work Site. First aid facilities and First Aid personnel must be in compliance with the Nunavut Safety Act.
- .10 Verify that procedures meet the WSCC and HRSDC requirements.
- .11 PPE Program and Contaminated Sites Working and Decontamination procedures to be consistent with requirements OSHA's 29 CFR 1910.120 HAZWOPER and territorial environmental regulations for:
  - .1 Activities, where employees are likely to be exposed to 50% of Threshold Limit Values (TLV) listed by American Conference of Governmental Hygienists (ACGIH), TLVs and BEIs based on documentation of Threshold Limit Values (TLV) for Chemical Substances and Physical Agents and Biological Exposure Indices (BEI) 2004 and amendments thereto.
- .12 Hazardous Material Discovery
  - .1 Immediately stop Work and notify Departmental Representative for further instructions with respect to abatement procedures required for asbestos conditions encountered when Work occurs in areas having materials resembling asbestos during course of Work.

#### 1.5 Filing of Notice

- .1 File Notice of Work with Territorial AHJ prior to commencement of Work.

#### 1.6 Regulatory Requirements

- .1 Comply with specified standards, regulations and orders of AHJ to operate safely at sites containing hazardous or toxic materials and other hazards (such as wildlife encounters, falls, etc.).
- .2 All equipment brought to the site must meet Nunavut Health and Safety Regulations.

#### 1.7 Responsibility

- .1 Be responsible for safety of persons and property on-site and for protection of public off-site and environment to extent that they may be affected by the site and conduct of Work.

- .2 The health and safety of personnel and the public takes precedence.
- .3 Control access to the site. Persons with business at the site and who are not Contractor's employees must be briefed on site specific health and safety issues and be provided with a copy of the Site Specific Health and Safety Plan.
- .4 Contractor may refuse access to the site to any person not complying with site specific health and safety standards.
- .5 Comply with and enforce compliance by employees with safety requirements of contract documents, applicable federal, territorial and local statutes, regulations and ordinances, Worker Orientation Seminar, and with Site Specific Health and Safety Plan:
  - .1 Conduct appropriate safety training for all personnel working on the site.
  - .2 Conduct workplace safety inspections for all Work activities regularly and in accordance with all applicable acts and regulations.
  - .3 Maintain a log of first aid and safety supplies, and notify appropriate personnel for restocking after each incident, and periodical restocking to replace out dated or consumable (headache medicines, bandages) products.

#### 1.8 Hazardous Material Communication Requirements

- .1 Comply with Work Site Hazardous Materials Information System Regulations of the AHJ.
- .2 Provide Departmental Representative with Material Safety Data Sheets (MSDS) and documentation on any "hazardous" chemical that Contractor or Contractor Representatives plan to bring onto site; bound in one place and stored in accordance with the Site Specific Health and Safety Plan.

#### 1.9 Unforeseen Hazards

- .1 Should any unforeseen or peculiar safety related factor, hazard, or condition become evident, stop Work, assess, take steps to mitigate if necessary at that time and immediately advise Departmental Representative verbally and in writing.
- .2 Monitor potential low oxygen and Lower Explosive Limits areas with oxygen/LEL monitor if workers are working in and around area. These areas include but are not limited to trenches, excavations, confined spaces and areas near machinery exhaust.

#### 1.10 Safety and Hygiene

- .1 Provide training for all persons entering the site in accordance with specified personnel training requirements, maintain log of who was trained by having the trainee sign the training log, what training was provided and by whom the training was conducted.
- .2 Personal Protective Equipment (PPE):
  - .1 Furnish site personnel with appropriate PPE as required by legislation.
  - .2 Verify that safety equipment and protective clothing is kept clean and well maintained.
  - .3 All clothing and personal protective equipment used on site shall remain on site, to be either decontaminated or disposed of. No Work clothing is to leave Work site without having been properly decontaminated.
  - .4 Outline and designate PPE for each site and Work activity in accordance with AHJ.

- .3 Develop written PPE care and use procedures to be included in the PPE Program under the Site Specific Health and Safety Plan and verify that procedures are strictly followed by site personnel including, but not limited to, the following:
  - .1 Provisions for prescription eyeglasses with side shields worn as safety glasses and do not permit contact lenses on site within Work zones.
  - .2 Provisions for steel toed safety shoes or boots covered by rubber overshoes when entering or working in potentially contaminated Work areas.
  - .3 Dispose of or decontaminate PPE worn on-site at end of each workday.
  - .4 Decontaminate reusable PPE before reissuing.
  - .5 Provisions for decontamination arising from entry or exit into contaminated areas.
- .4 Develop a written Respiratory Protection program to be included in the Site Specific Health and Safety Plan and strictly enforce compliance with the program by site personnel; include the following procedures as minimum:
  - .1 Provide site personnel with extensive training in usage and limitations of, and qualitative fit testing for, air purifying and supplied air respirators in accordance with specified regulations.
  - .2 Monitor, evaluate, and provide respiratory protection for site personnel.
  - .3 Verify that levels of protection as listed have been chosen to be consistent with site specific potential airborne hazards associated with major contaminants identified on site.
  - .4 Immediately notify Departmental Representative when level of respiratory protection required increases.
  - .5 Verify that appropriate respiratory protection during Work activities is available and readily accessible; all personnel entering potentially contaminated Work areas will be supplied with and use appropriate respiratory protection.
  - .6 Assess ability for site personnel to wear respiratory protection.
  - .7 Verify that site personnel have passed respirator fit test prior to entering potentially contaminated areas.
  - .8 Verify that facial hair does not interfere with proper respirator fit.
  - .9 Submit proof of fit testing for site personnel to Departmental Representative. Update submission when new personnel are added to Work or when new Work activities occur.
- .5 Heat Stress/Cold Stress: Implement heat stress and cold stress monitoring program as applicable and include in Site Specific Health and Safety Plan.
- .6 Personnel Hygiene and Personnel Decontamination Procedures: provide minimum as follows:
  - .1 Suitable containers for storage and disposal of used disposable PPE.
  - .2 Potable water and suitable sanitation facility.
  - .3 Access to hot water shower facilities.
  - .4 Provisions for proper disposal of contaminated PPE.

#### 1.11 Site Communication

- .1 Post emergency numbers near site telephones. Update emergency numbers as required.
- .2 Train personnel in the use of "buddy" system.

.3 Provide alarm system to notify employees of site emergency situations or to stop Work activities if necessary. Identify emergency stations and Muster Points. Test alarm system regularly and train personnel to use alarm system as required.

.4 All equipment must have operational two-way radio communication while in operation.

#### 1.12 Fuel Management

.1 All vehicle and equipment refuelling must be conducted by appropriately trained personnel using the appropriate personal protective equipment in a manner which meets or exceeds regulatory requirements and in accordance to the accepted Fuel Management Plan including using drip pans.

.2 Records of fuel usage by activity must be maintained.

.3 All fuel transports including mobile refuelling trucks and fuel transport to stationary equipment such as generators or pumps or distributed storage areas, must occur in approved (CSA) containers with the notification and consent of site safety personnel.

#### 1.13 Vehicle and Equipment Usage

.1 Seatbelts must be worn at all times when vehicle or equipment is in operation.

.2 Speed limits must be set and obeyed.

.3 If road conditions are unsafe or marginally unsafe, maintain roads to acceptable standards. Do not risk property damage or injury.

.4 Vehicles are not to be idled for longer than 10 minutes (warm up) unless explicitly used as a place of refuge during animal encounters or for personnel working outdoors during winter operations. Exceptions are to be made in consultation with Departmental Representative.

.5 Complete vehicle maintenance and lubrication of equipment in a manner that avoids spillage of fuels, oils, grease and coolants. When refuelling equipment, use leak free containers and reinforced rip and puncture proof hoses and nozzles. Remain in attendance for duration of refuelling operation, and properly seal all storage container outlets after use.

.6 Collect and dispose of used oil, grease and coolants from Contractor's vehicle maintenance activities as hazardous waste as detailed in Section 02 61 33 - Hazardous Waste Material.

.7 Place drip pans under stationary equipment with potential leaks.

.8 All equipment brought to the site must have rotating beacons and vehicles shall have beacons and buggy whips.

#### 1.14 Flammable Liquids

.1 The handling, storage and use of flammable liquids will be governed by the current National Fire Code of Canada.¶¶

.2 Flammable liquids such as gasoline, kerosene and naphtha may be kept for ready use in quantities not exceeding 45 litres provided they are stored in approved safety cans bearing the Underwriter's Laboratory of Canada or Factory Mutual seal of approval. Storage of quantities of flammable liquids exceeding 45 litres for Work purposes, requires permission of the permitting authority.

- .3 Do not transfer flammable liquids in the vicinity of open flames or any type of heat-producing devices.
- .4 Do not use flammable liquids having a flash point below 38°C such as naphtha or gasoline as solvents or cleaning agents.
- .5 Store flammable waste liquids, for disposal, in approved containers located in a safe ventilated area. Quantities are to be kept to a minimum and Departmental Representative is to be notified when disposal is required.
- .6 Dispose of all flammable liquids in accordance with all applicable environmental regulations and with the requirements of Section 02 61 33 - Hazardous Waste Material.

1.15 Storage and Handling of Fuel

- .1 Locate fuel storage areas as approved by AHJ and as specified in the Fuel Management Plan. Location to be reviewed by Departmental Representative. Provide secondary containment as required by AHJ.
- .2 Inspect fuel storage and dispensing facilities daily. Make available fire fighting and spill response equipment for immediate access at each fuel storage location.
- .3 Store all barrels containing fuel and /or hazardous materials in an elevated position, either on their side with bungs facing 9 and 3 o'clock position, or on pallets, upright, and banded.
- .4 All barrels to be individually identified. Label will be to industry standards and will provide all information necessary for health and safety and environmental purposes. Make available, to all personnel, Material Safety Data Sheets for all materials maintained at site or along right-of-ways.
- .5 All barrels/fuel containers to be stored in accordance with the Land Use Permit and labelled with AANDC's name and Contractor's name, as required by the Land Use Permit. All tanks require registration, including of assignment of a registration number, with Environment Canada (EC) FIRSTS.
- .6 Treat all waste petroleum products, including used oil filters, as hazardous materials.
- .7 Conduct regular inspections of all machinery hydraulic, fuel and cooling systems. Repair leaks immediately.
- .8 Pre-assemble and maintain emergency spill equipment, including at least two fuel pumps , empty 200 litre barrels and absorbent material sufficient to clean up a 1000 litre spill at all fuel storage sites. Maintain spill mats or pan under mobile fuelling containers and a spill kit at the refuelling area.
- .9 Remove all full and empty barrels, fuel storage facilities and associated materials and equipment from site at conclusion of Work.
- .10 All fuel drums delivered to site, regardless of ownership, will be returned to supplier by Contractor for reuse or cleaned, crushed and disposed in accordance to Section 02 61 33 - Hazardous Waste Material. Fuel drums, if transported, will comply with Section 02 61 33 - Hazardous Waste Material and applicable regulations.

1.16 Spill Contingency Plan

- .1 Submit to Departmental Representative for approval, detailed Spill Contingency Plan with the Site Specific Health and Safety Plan. Update and submit revised Plan prior to each construction season. Identify response capabilities by detailing response times, and types and volumes of spills to which Contractor can respond. Following information is required as a minimum:
  - .1 A description of pre-emergency planning.
  - .2 Personnel roles, lines of authority and communication, emergency phone numbers.
  - .3 Emergency alerting and response procedures.
  - .4 Evacuation routes and procedures, safe distances and places of refuge.
  - .5 Directions/methods of getting to nearest medical facility.
  - .6 Emergency decontamination procedures.
  - .7 Emergency medical treatment and First-Aid.
  - .8 Emergency equipment and materials: Include and provide, at minimum, booms (sorber and containment), sorbents for cleanup, fire extinguishers for A-B-C fires, overpacks for contaminated soils, pumps, hand shovels, picks and containment barriers, such as plastic sheeting.
  - .9 Emergency protective equipment: Including, at minimum, clothing, protective suits, respirators, etc. in accordance with NIOSH guidelines.
  - .10 Procedures for reporting incidents.
  - .11 Spill response and containment plans for all materials that could potentially be spilled.
  - .12 Site specific spill contingency plans for all locations where refined petroleum products will be stored and used for refuelling including, but not limited to:
    - .1 An inventory of response and clean-up equipment.
    - .2 A site map with the location of storage facilities and the location of emergency equipment with spill response and clean-up equipment.
    - .3 A cover page that clearly identifies the NT-NU 24-hour Spill Report Line and the name, job title and 24-hour telephone number for person(s) responsible for activating the Spill Contingency Plan.

1.17 Medical

- .1 Provide and maintain first aid and medical care and facilities for all workers as required by the Statutes of the Nunavut Safety Act.
- .2 Maintain first aid supplies and sick quarters separate from general living quarters.
- .3 Provide the appropriate first aid kit, based on the number of workers, in accordance with the Nunavut Safety Act.
- .4 Establish an emergency response plan, acceptable to Departmental Representative, for the removal of any injured person to medical facilities or a doctor's care in accordance with applicable legislative and regulatory requirements. In the event that the Emergency Medical Technician (EMT) departs site with the patient, replace the EMT as soon as possible.
- .5 Provide proof of First Aid credentials to Departmental Representative prior to the start of each construction season. Provide the appropriate number of First Aid attendants on-site in accordance with the Nunavut Safety Act and a minimum of one (1) person trained in Wilderness First Aid for each separated work group.

.6 Emergency and First Aid Equipment:

- .1 Locate and maintain emergency and first aid equipment in appropriate location on site including first aid kit to accommodate number of site personnel at each camp as well as Separated Work Groups during site operations; portable emergency eye wash; fire protection equipment as required by legislation.
- .2 Locate sufficient self contained breathing apparatus units; blankets and towels; stretcher; and one (1) hand held emergency siren in all confined access locations.
- .3 Locate and maintain an Automated External Defibrillator (AED) in an appropriate location at project area. Submit details and procedures related to the operation and maintenance of the Automated External Defibrillator unit following the "Best Practice Model for implementation of an External Automated Defibrillator Program" with the Site Specific Health and Safety Plan.
- .4 Provide a full time EMT - Emergency Medical Technician for each project area, c/w 1000 hours of classroom and practical training, six (6) weeks of practical experience with required number of emergency response calls. The EMT will be territorially certified by a required exam and refresher exams every two (2) years. An EMT is a highly trained medical professional who responds to medical and trauma emergencies in the pre-hospital setting ("in-field") for the purpose of stabilizing a patient's condition before and during transportation to an appropriate medical facility.

1.18 Incidents and Accident Reports

- .1 Immediately report, verbally, followed by a written report within 24 hours, to Departmental Representative, all incidents and accidents of any sort arising out of or in connection with the performance of the Work, giving full details and statements of witnesses. If death or serious injuries or damages are caused, report the accident promptly to Departmental Representative by telephone or facsimile in addition to any report required under federal and territorial laws and regulations.
- .2 If a claim is made by anyone against the Contractor or Sub-Contractor on account of any accident, promptly report the facts in writing to Departmental Representative, giving full details of the claim.

1.19 Security

- .1 Enforce the Camp Rules as provided under Section 01 54 00 - Camp Facilities.
- .2 Limit site access only to persons employed on the Project. Unauthorized persons will be permitted on site only with the approval of Departmental Representative or Contractor.

1.20 Wildlife Management

- .1 Develop a Wildlife Management Plan, as part of the Site Specific Health and Safety Plan, that includes bear and large mammal safety and as a minimum meets the following requirements:
  - .1 Firearms must be stored and used in accordance with all AHJ. Terms of Use for firearms must be submitted to Departmental Representative for review.
  - .2 All wildlife encounters and sightings must be reported to Departmental Representative as part of the weekly report.
  - .3 All persons on site must be made aware of wildlife attractants and proper procedures to be followed in the event of wildlife encounter.

- .4 A minimum of one (1) person must be designated as a Wildlife Monitor for each Separated Work Group and trained in firearms and wildlife deterrent use. Qualifications and training plans for Wildlife Monitors must be submitted to Departmental Representative as part of the Site Specific Safety Plan.
- .5 Alarmed trip wires installed around camp must be tested regularly and the results reported to the Departmental Representative as part of the weekly report.

#### 1.21 Wildlife Monitors

- .1 Provide for the duration of the construction seasons, full-time wildlife monitors acceptable to Departmental Representative. Provide sufficient number of wildlife monitors with firearms and ammunition to protect the safety of all workers in all areas, day and night, including Departmental Representative and Departmental Representative's support staff during site operations.
- .2 Assign a wildlife monitor to accompany Departmental Representative and Departmental Representative's support staff during all inspections and soil/material sampling activities that take place away from the construction camp area.
- .3 All Wildlife Monitors are required to have a valid Firearm Certificate as per AHJ. Copies of the firearms certificates to be included with the Site Specific Health and Safety Plan.
- .4 Assume full responsibility for reporting incidents associated with wildlife encounters.
- .5 Supply one All Terrain Vehicle (ATV) per wildlife monitor to facilitate his/her duties. Wildlife monitors must be fully trained in the safe use of the ATV equipment.
- .6 Provide the wildlife monitors with mobile communication radios with charging units for on-site communication between the wildlife monitors, Contractor base radio, and Departmental Representative and Departmental Representative's Authorized Personnel. If radios do not provide sufficient range for continuous communication, Contractor must provide satellite phones or repeater stations and/or booster stations as required such that all workers are in live contact or have the ability to immediately contact base operations/monitoring at all times.
- .7 Qualifications and training plans for wildlife monitors must be submitted to Departmental Representative as part of the Site Specific Health and Safety Plan.
- .8 Where possible, use non-lethal ammunition to deter wildlife prior to the use of lethal ammunition.

#### 1.22 Fire Safety

- .1 Provide all fire prevention, fire protection and fire fighting services at the Project site.  
  
Implement a fire safety program that includes fire prevention, fire protection and fire fighting requirements. Submit details of the fire safety program in writing to Departmental Representative for review with the Site Specific Health and Safety Plan. Such review does not relieve Contractor from any obligations or responsibilities required by the Contract.
- .2 All personnel on-site including Sub-Contractors and other temporary personnel are to be briefed on fire safety requirements and are familiar with the fire prevention, fire protection and fire fighting program.

- .3 The fire safety program to meet or exceed the most recent editions of the following codes and standards:

- .1 Nunavut Safety Act.
- .2 National Fire Code of Canada.
- .3 Canada Labour Code.

- .4 Personnel designated for fire fighting services must be provided with training for any special hazards that may be present. These personnel must also be provided with protective equipment as required by the Canada Labour Code.

1.23 Reporting Fires

- .1 A person discovering a fire and all fire related incidents is to report immediately, by fastest available means, to Departmental Representative and site superintendent.
- .2 A person discovering a fire will if possible, remain in the vicinity to direct fire fighting personnel.

1.24 Fire Extinguishers

- .1 Provide and maintain fire extinguishers in sufficient quantity to protect, in an emergency, the Work in progress and the physical plant on-site.

1.25 Smoking Precautions

- .1 Abide by applicable AHJ smoking regulations or the requirements of this Section, whichever are more stringent.
- .2 Do not permit smoking in hazardous areas. Exercise care in the use of smoking materials in non-restricted areas.
- .3 Provide and place signs prohibiting smoking in areas where smoking is not permitted.
- .4 Signs prohibiting smoking are to be in English and the local dialect and are to have black lettering not less than 50 mm high, with a 12 mm wide stroke on a yellow background. In lieu of lettering, symbols of not less than 150 mm by 150 mm may be used.
- .5 Smoking is prohibited within the camp buildings.
- .6 Smoking is prohibited within 7.5 metres of fuel storage and dispensing facilities.
- .7 Provide and place signs indicating that smoking within 7.5 metres of fuel storage and dispensing facilities is not permitted, and that the vehicle ignition must be turned off while the vehicle is being refuelled. Provide at least one weather-resistant sign at each fuel dispensing location. The signs are to have a minimum dimension of 200 mm and letters not less than 25 mm high. In lieu of lettering, signs may have international "No Smoking - Ignition Off" symbols not less than 100 mm in diameter. Install signs in a location visible to all drivers approaching the dispensing location, and at the dispensing unit.

1.26 Rubbish and Waste Materials

- .1 Rubbish and waste materials are to be kept to a minimum.

.2 Storage:

- .1 Extreme care is required where it is necessary to store oily waste in Work areas to complete work with maximum possible cleanliness and safety.
- .2 Greasy or oily rags or materials subject to spontaneous combustion are to be disposed of as hazardous material in accordance with Section 02 61 33 - Hazardous Waste Material.

1.27 Hazardous Substances

- .1 If the work entails the use of any toxic or hazardous materials or chemicals, or otherwise creates a hazard to life, safety or health, work is to be in accordance with the National Fire Code of Canada, Occupational Health and Safety Legislation, and WHMIS.
- .2 Departmental Representative is to be advised, and a "Hot Work" permit issued by Contractor's designated representative in all cases involving welding, burning or the use of blow torches and salamanders, in buildings or facilities. Special precautions are necessary to safeguard life and property from damage by fire or explosives.
- .3 Wherever work is being carried out in dangerous or hazardous areas involving the use of heat, fire watchers equipped with sufficient fire extinguishers, are to be provided. The determination of dangerous or hazardous areas along with the level of precaution necessary for Fire Watch is to be at the discretion of Contractor. Notify Departmental Representative prior to that determination.
- .4 Provide proper ventilation and eliminate all sources of ignition where flammable liquids, such as lacquers or urethanes are used.
- .5 Do not store flammable substances within 30 m of the Temporary Storage Area.

1.28 Questions and/or Clarifications

- .1 Direct any questions or clarification to the Departmental Representative.

1.29 Unique Hazards

- .1 Workers must receive training specific to the PPE requirements for working with site-specific unique hazards including, but not limited to, safe handling, disposal and emergency procedures for such hazards as:
  - .1 Petroleum hydrocarbon vapours from the excavation of petroleum hydrocarbon contaminated soil or treatment of barrel contents.
  - .2 Chemical reagents used on site in Wastewater Treatment Plant(s).

1.30 Measurement for Payment

- .1 Include all direct costs for the preparation and completion of the Site Specific Health and Safety Plan in the lump sum price for Item 01 35 32-1, as indicated in Basis of Payment Schedule. The lump sum price for the Site Specific Health and Safety Plan will be paid after a satisfactory Site Specific Health and Safety Plan has been submitted to the Departmental Representative.
- .2 Wildlife Monitors, including ATVs, will be measured for payment by the number of days that the services are provided and will be paid under Item 01 35 32-2 in the Basis of Payment Schedule.

- .3 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate cost of the work of this section as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

## PART 2 - PRODUCTS

- 2.1 Not Used

## PART 3 - EXECUTION

- 3.1 Not Used

**END OF SECTION**

## PART 1 – GENERAL

### 1.1 Definitions

- .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.
- .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

### 1.2 Regulatory Overview

- .1 Comply with all applicable environmental laws, regulations and requirements of Federal, Territorial and other regional authorities, and acquire and comply with such permits, approvals and authorizations as may be required.
- .2 Comply with and be subject to all permits and approvals obtained from Departmental Representative to conduct the Work.
- .3 Pay specific attention to the Land Use Permits, Water License, Quarry Permit, Inuit Owned Lands exemption certificate, and Inuit Quarry Permits.
- .4 Pay specific attention to the Migratory Birds Convention Act, as amended in 1994.

### 1.3 Submittals

- .1 Submit all required Contractor submittals to satisfy environmental requirements to the Departmental Representative.
- .2 Submit one complete copy of all submittals and agency approvals to Departmental Representative.
- .3 All submittals in accordance with Section 01 33 00 - Submittal Procedures.

### 1.4 Historical or Archaeological Sites

- .1 Historical or archaeological sites and items of historical or scientific interest such as cairns, tent rings, commemorative plaques, inscribed tablets, and similar objects found on-site or in structures to be demolished will remain the property of the appropriate AHJ.
- .2 Prior to commencing remediation activities at the site, review the following with Departmental Representative:
  - .1 Extent of the archaeological sensitive areas including gravesites.
  - .2 Scope of work to be completed within archaeologically sensitive areas including the Station Area, the Beach Area and borrow areas BA-4C, BA-6A and BA-8.
  - .3 Methods to be used by Contractor to mark and protect the areas from construction/remediation activities.

- 
- .4 Methods to be used by the Contractor to complete work within archaeologically sensitive areas where required.
  - .3 Give immediate notice to Departmental Representative if evidence of archaeological finds are encountered during construction/remediation activities, and await Departmental Representative's written instructions before proceeding with Work in this area.
  - .4 Protect archaeological finds and similar objects found during course of Work.
- 1.5 Historical Archaeological Control
- .1 Provide Historical, Archaeological and Cultural Resources Plan that defines procedures for identifying and protecting historical, archaeological, cultural and biological resources known to be on Project site, and/or identifies procedures to be followed if resources not previously identified are discovered during construction.
  - .2 Submit the Historical, Archaeological and Cultural Resources Plan to the Departmental Representative sixty (60) days prior to initiation of on-site remediation activities.
  - .3 Plan to include methods to provide protection for known or discovered resources and identify lines of communication between Contractor personnel and Departmental Representative.
  - .4 Plan to include equipment and methods to be implemented for completion of Work as required in archaeological sensitive areas, and in particular the Station Area, the Beach Area and Borrow Areas BA-4C, BA-6A and BA-8.
- 1.6 Wildlife Protection Plan
- .1 Submit a Wildlife Protection Plan that defines procedures for the protection of wildlife known to frequent the Project and surrounding areas. Wildlife Protection Plan shall include, but not be limited to, the following:
    - .1 Avoidance of active animal dens;
    - .2 Avoidance of active nests;
    - .3 Potential access restrictions and/or disturbance minimizing of migration activities;
    - .4 Minimizing disturbances caused by aircrafts.
  - .2 Submit the Wildlife Protection Plan to the Departmental Representative sixty (60) days prior to initiation of on-site remediation activities.
- 1.7 Site Maintenance
- .1 Keep the site free from the accumulation of waste materials and debris as specified in this section.
  - .2 Upon completion of the work, clean away and dispose of all surplus material, supplies, rubbish and temporary works leaving the site neat and tidy to the requirements of Departmental Representative and the Land Use Permit.
- 1.8 Fires
- .1 Fires and burning of rubbish on site permitted only when approved by the Departmental Representative and a burning exemption is obtained for the Land Use Permit.

- .2 Obtain all required permits from AHJ.
- .3 Where fires or burning permitted, prevent staining or smoke damage to structures, materials or vegetation which is to be preserved. Restore, clean and return to new condition stained or damaged Work.
- .4 Provide supervision, attendance and fire protection measures as required by AHJ and these Specifications.

1.9 Disposal of Wastes

- .1 Do not bury rubbish and waste materials on-site.
- .2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways.

1.10 Fuel Storage

- .1 Comply with Canadian Environmental Protection Act (CEPA) Storage Tank Systems for Petroleum Products Regulations, CCME Codes of Practice and any regulations obtained from Territorial and other regional authorities, for setting up and operating temporary fuel tanks.

1.11 Site Clearing and Plant Protection

- .1 Protect vegetation, including plants on site and adjacent properties, where indicated.
- .2 Minimize stripping of topsoil and vegetation.

1.12 Erosion and Sediment Control

- .1 Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas, from stockpiles, staging areas, and other Work areas. Prevent erosion and sedimentation.
- .2 Minimize amount of bare soil exposed at one time. Stabilize disturbed soils as quickly as practical. Strip vegetation, re-grade, or otherwise develop in such a way as to minimize erosion. Remove accumulated sediment resulting from construction activity from adjoining surfaces, drainage systems, and water courses, and repair damage caused by soil erosion and sedimentation as directed by Departmental Representative.
- .3 Provide and maintain temporary measures which may include, but are not limited to, silt fences, ditches, geotextiles, drains, berms, terracing, riprap, temporary drainage piping, sedimentation basins, vegetative cover, dikes, and any other construction required to prevent erosion and migration of silt, mud, sediment, and other debris off site or to other areas of site where damage might result, or that might otherwise be required by Laws and Regulations. Make sediment control measures available during construction. Place silt fences in ditches to prevent sediments from escaping from ditch terminations.
- .4 Plan construction procedures to avoid damage to Work or equipment encroachment onto water bodies or drainage ditch banks. In the event of damage, promptly take action to mitigate effects. Restore affected bank or water body to pre-existing condition.
- .5 Do not disturb existing embankments or embankment protection.

- .6 Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.
- .7 If soil and debris from site accumulate in low areas, ditches, or other areas where, in Departmental Representative's determination, it is undesirable, remove accumulation and restore area to original condition.
  - .1 Do not pump water containing suspended materials into waterways or drainage systems.
  - .2 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.13 Erosion, Sediment and Drainage Control Plan

- .1 Submit an Erosion, Sediment and Drainage Control Plan to Departmental Representative for review forty-five (45) days prior to initiation of on-site remediation activities and specifically addressing the protection of water bodies, water courses, fisheries and the following:
  - .1 Details of grading Work to prevent surface drainage into or out of Work areas.
  - .2 Details of erosion control works and materials to be used for specific Work activities, including the deployment of silt fencing, floating silt curtains and containment booms during construction and excavation activities.
  - .3 Work Schedule including the sequence and duration of all related Work activities, with consideration of timing windows specified by Department of Fisheries and Oceans (DFO) for in-water works.
  - .4 The treatment of site runoff to prevent siltation of watercourses.
  - .5 Dewatering procedures for excavated materials including silt removal procedures prior to discharge.
  - .6 Stabilizing procedures during excavation.
  - .7 Fish salvage efforts where applicable.
  - .8 Maintenance and monitoring of erosion control works.
  - .9 Reporting as required by AHJ's.
- .2 All approved discharge from dewatering activities to be released onto the ground at a location that is a minimum of 30 m from natural drainage courses and 100 m from fish bearing waters.
- .3 Have on hand sufficient pumping equipment, machinery, and tankage in good working condition for ordinary emergencies, including power outage, and competent workers for operation of pumping equipment.

1.14 Work Adjacent to Waterways

- .1 Do not operate construction equipment in waterways during DFO restricted periods.
- .2 Do not use waterway beds for borrow material.
- .3 Do not dump excavated fill, waste material or debris in waterways.
- .4 Do not use shoreline grounds (at least 30 m from edge) as staging or storage area, equipment/vehicle maintenance or overnight parking, storage of fuel or for stockpiling of granular fill and other deleterious material storage.
- .5 Design and construct temporary crossings to minimize erosion to waterways.

- .6 Do not skid logs or construction materials across waterways.
- .7 Do not refuel equipment (except for boats) within 30 m of water bodies or on ice.
- .8 Avoid indicated spawning beds when constructing temporary crossings of waterways.
- .9 If stream or drainage course crossing is required, use methodologies in accordance with DFO requirements, and with consideration of DFO timing windows.
- .10 Install fish exclusion nets or flow diversion to prevent fish from migrating to the work site.
- .11 Fish to be captured and relocated from the work site prior to the start of construction. Nets or electro-shock methods can be used.
- .12 Effective sediment and erosion control measures to be installed prior to starting work to prevent entry of sediment into watercourses. Such measures to be inspected regularly and repaired if damaged by construction, precipitation or snowmelt.

1.15 Work Methodology for In-Stream or Near Water Works

- .1 Submit a Work Methodology Plan for work to be undertaken in or near water bodies to Departmental Representative for review forty-five (45) days prior to commencing the activity.
- .2 The Work Methodology Plan is to include the following:
  - .1 Sketch of work area, including placement of erosion control works.
  - .2 Reference to DFO Operational Statements and/or Best Management Practices as applicable.
  - .3 Timing of Work.
  - .4 Specific details of erosion control works, materials to be used, and deployment and removal methods.
  - .5 Work Schedule including the sequence and duration of all related Work activities.
  - .6 Fish salvage efforts as required.
  - .7 Maintenance, monitoring, and final removal of erosion control works.
  - .8 Reporting as required by AHJ's.

1.16 Barge Landing Plan

- .1 Submit a Barge Landing Plan to Departmental Representative for review forty-five (45) days prior to mobilization. The Plan is to address the following:
  - 1. Inspection of landing site prior to barge arrival.
  - 2. Timing windows for barge landing, loading and unloading.
  - 3. Mitigation plan for obstructions or other factors impacting barge landing, such as boulders.
  - 4. Procedures for off-loading, such as stabilization of the barge, potential fill placement or levelling of the shore and/or placement of beach plating.
  - 5. Procedures and equipment necessary for preventing disturbance to the inter-tidal zone.
  - 6. Spill response procedures and equipment.

1.17 Dust and Particulate Control

- .1 Execute Work using methods to minimize raising dust from decontamination operations. Implement and maintain dust and particulate control measures as determined necessary by applicable regulations and standards during Work and in accordance with AHJ.
- .2 Provide positive means to prevent airborne dust from dispersing into atmosphere. The use of oil for dust control is prohibited.
- .3 Prevent dust from spreading to beyond the immediate work area.
- .4 Departmental Representative or designate may stop work at any time when Contractor's control of dusts and particulates is inadequate for worker exposure relative to indoor conditions during demolition activities, or when air quality monitoring indicates that release of fugitive dusts and particulates into the work area equals or exceeds specified levels.
- .5 If Contractor's dust and particulate control is not sufficient for controlling dusts and particulates into atmosphere, stop work. Contractor must discuss procedures that Contractor proposes to resolve problem. Make all necessary changes to operations prior to resuming work that may cause release of dusts or particulates.
  - .1 Prevent sandblasting and other extraneous materials from contaminating air beyond application area, by providing temporary enclosures.
  - .2 Cover or wet down dry materials and rubbish to prevent blowing dust and debris
  - .3 Provide dust control for temporary roads.

1.18 Environmental Protection Supplies

- .1 Comply with federal and territorial fisheries and environmental protection legislation, including preventing the loss or destruction of fish habitat, and minimizing the impact of sedimentation, siltation or otherwise causing a degradation in water quality.
- .2 Provide erosion, sediment and drainage control supplies necessary to complete all requirements of the Work in compliance with federal and territorial fisheries and environmental protection legislation.
- .3 Erosion, sediment and drainage control supplies are to include, but are not limited to the following:
  - .1 Minimum of 30 m of polypropylene silt fence (typical height of 0.9 m) and the necessary stakes for installation. These materials are to be used as necessary to prevent sediment transport into water bodies. Product acceptance will be based on compliance with the minimum/maximum average values found in Part 2 of this Section.
  - .2 Minimum of 60 lineal metres, and as required, of 200 mm diameter hydrophobic, sorbent booms. These materials are to be used as necessary to prevent the migration of hydrocarbons.
  - .3 Minimum of 60 m of reusable floating silt curtain, of appropriate depth to prevent sediment transport throughout water bodies. Product acceptance is based on compliance with the minimum/maximum values found in Part 2 of this Section.
- .4 Supply, transport, install and maintain erosion, sediment and drainage controls necessary to complete all work in accordance with the requirements of Departmental Representative.

- .5 Unused Erosion, Sediment and Drainage Control supplies are to remain the property of Departmental Representative upon completion of the Contract.
- .6 At the completion of construction, dispose of used silt fence as non-Hazardous Waste. Dispose of used absorbent boom in accordance with Section 02 61 33 - Hazardous Waste Material.
- .7 Submit a detailed inventory of environmental protection supplies forty-five (45) days prior to mobilization.

#### 1.19 Notification

- .1 Departmental Representative will notify Contractor in writing of observed non-compliance with Federal, Provincial or Municipal environmental laws or regulations, permits, etc.
- .2 Contractor, after receipt of such notice, will inform Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative.
- .3 Departmental Representative will issue stop order of Work until satisfactory corrective action has been taken.
- .4 No time extensions granted, or equitable adjustments allowed, to Contractor for such suspensions.

#### 1.20 Measurement for Payment

- .1 Include all direct costs for the supply of Environmental Protection Supplies in the lump sum price for Environmental Protection Supplies, Item 01 35 43-1, as indicated in the Basis of Payment Schedule.
- .2 Except as indicated above, Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate cost of the work of this section as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

### PART 2 - PRODUCTS

#### 2.1 Polypropylene Silt Fence

- .1 Silt Fence: An assembled, ready to install unit consisting of geotextile attached to driveable posts. Geotextile to be uniform in texture and appearance, having no defects, flaws, or tears that would affect its physical properties; and contain sufficient ultraviolet ray inhibitor and stabilizers to provide minimum 2-year service life from outdoor exposure.
  - .1 Minimum Grab Tensile Strength (ASTM D4632): 520 N.
  - .2 Maximum Elongation (ASTM D4632): 15%.
  - .3 Minimum Puncture Strength (ASTM D4833): 250 N.
  - .4 Maximum Apparent Opening Size (ASTM D4751): 500 µm

- .2 Net Backing: Industrial polypropylene mesh joined to geotextile at both top and bottom with double stitching of heavy-duty cord, with minimum width of 750 mm.
- .3 Posts: Sharpened wood, approximately 50 mm square, protruding below bottom of geotextile to allow minimum 450 mm embedment; post spacing 2.4 m maximum. Securely fasten each post to geotextile and net backing using suitable staples.

## 2.2 Hydrophobic Sorbent Boom

- .1 200 mm dia. Polypropylene Material
- .2 Minimum gallons absorbed per 3 m length: 50 L.

## 2.3 Floating Silt Curtain

- .1 Provide floating silt curtains meeting the United States Army Corps of Engineers Type II designation and meeting the following values:
  - .1 Minimum Flotation Buoyancy: 250 N/m.
  - .2 Minimum Fabric Curtain Grab Tensile (ASTM D-5043) 1700 x 1650 N.
  - .3 Connectors: brass grommets nominally 300 mm o/c for lacing.
  - .4 Ballast Chain: minimum 8 mm galvanized chain, 1.4 kg/m.
  - .5 Load Cable: minimum 8 mm galvanized, vinyl coated 7 x 19 wire rope, minimum loading 40 kN.
  - .6 Constructed in Panels.
- .2 Provide mooring lines and anchors as necessary to secure the floating silt curtain in position.

## PART 3 - EXECUTION

### 3.1 Erosion and Sedimentation Control

- .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff to adjacent properties, according to requirements of AHJ.
- .2 Inspect, repair, and maintain erosion and sedimentation control measures during Work.
- .3 Implement silt curtains and other erosion control methods as directed by Departmental Representative.

### 3.2 Installation:

- .1 Construct temporary erosion control items as required. Review actual alignment and/or location of various items with Departmental Representative prior to installation.
- .2 Do not construct silt traps or fencing in flowing streams or in swales without approval from the AHJ.
- .3 Check erosion and sediment control measures daily.

- .4 Whenever sedimentation is caused by stripping vegetation, re-grading, or other development, remove it from adjoining surfaces, drainage systems, and watercourses, and repair damage as quickly as possible.
- .5 Maintain and/or repair damaged erosion control measures promptly.
- .6 Unless indicated or directed by Departmental Representative, remove temporary erosion and sediment control devices upon completion of Work. Spread accumulated sediments to form a suitable surface for seeding or dispose of, and shape area to permit natural drainage to satisfaction of Departmental Representative. Materials once removed become property of Contractor.

**END OF SECTION**

## PART 1 – GENERAL

### 1.1 References and Codes

- .1 Complete Work in accordance with National Building Code of Canada (NBC) including all amendments and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
- .2 Meet or exceed requirements of:
  - .1 Contract documents.
  - .2 Specified standards, codes and referenced documents.
- .3 Work in accordance with the Specifications and meet or exceed all codes, standards and regulations applicable to the Work and issued under the authority of the Government of Canada and the Government of Nunavut or the NWT. Advise Departmental Representative of any discrepancies in the codes, standards and regulations applicable to the Work.

### 1.2 References and Codes - Federal

- .1 Meet or exceed the most current issue of governing codes, standards and guidelines, and regulations applicable to Work and issued under the authority of the Government of Canada including, but not limited to the following:
  - .1 Canada Labour Code Part II-Occupational Health and Safety (R.S. 1985, c.L-2).
  - .2 Canada Occupational Health and Safety Regulations (SOR/86-304).
  - .3 Canadian Environmental Protection Act, PCB Regulations (SOR/2008-273).
  - .4 Controlled Products Regulations (SOR/88-66) a.SOR/2001-254.
  - .5 Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (EIHWHRMR) (SOR/2005-149)
  - .6 Inter-Provincial Movement of Hazardous Waste Regulations (SOR/2002-301).
  - .7 National Fire Code of Canada, 1995 a. 2002.
  - .8 Ozone Depleting Substances Regulations, 1998 (SOR/99-7).
  - .9 Transportation of Dangerous Goods Act, 1992 (S.C. 1992, c.34) a.1999, c.31.
  - .10 Transportation of Dangerous Goods Regulations (SOR/2001-286) a.SOR/2011-60
  - .11 Territorial Land Use Regulations (C.R.C., c.1524) a.98-430.
  - .12 Storage Tank System for Petroleum Products & Allied Petroleum Products Regulations (SOR / 2008-197).
  - .13 Migratory Birds Convention Act.
  - .14 Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (Environment Canada (EC)) 2008
  - .15 Nunavut Land Claim Agreement (Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada, 1993).
  - .16 Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (CCME, 1999).
  - .17 Canadian Water Quality Guidelines for the Protection of Aquatic Life (CCME, 1999).
  - .18 Contaminated Sites Management Policy (INAC, 2002).
  - .19 Northern Affairs Contaminated Sites Management Policy (INAC, 2002).
  - .20 A Federal Approach to Contaminated Sites (CSMWG, 2002).
  - .21 Risk Management Guidance Document (INAC, 2006).
  - .22 Contaminated Sites Cost Estimating Guide (INAC, 2006).
  - .23 Treasury Board Policy on Management of Real Property (TB, 2007)
  - .24 Risk Management Tool & Reporting Tool User Guide (INAC, 2007)
  - .25 Canada-Wide Standard for Petroleum Hydrocarbons (PHC) in Soil (CCME, 2008).
  - .26 Environment, Health & Safety Management System Manual (INAC, 2008).
  - .27 Environment, Health & Safety Standard Operating Procedures Manual (INAC, 2008).

- .28 Environment, Health & Safety Control Framework, Northern Contaminated Sites Program (INAC, 2008).
- .29 Environment, Health & Safety Audit Program Guide (INAC, 2008).
- .30 Construction Project Safety Management Guide, 5th Edition (PWGSC, 2008).
- .31 Abandoned Military Site Remediation Protocol (INAC, 2009)
- .32 Guidelines for Canadian Drinking Water Quality, April 2007.
- .33 Guidelines for Effluent Quality and Wastewater Treatment at Federal Establishments, April 1976.
- .34 Environment Canada Technical Document for Batch Waste Incineration, EC, 2010.

### 1.3 References and Codes - Nunavut

- .1 Meet or exceed the governing codes, standards and guidelines, and regulations applicable to Work and issued under the authority of the Government of Nunavut and the Northwest Territories as follows:
  - .1 Environmental Protection Act (Nunavut) (R.S.N.W.T. 1988, c. E-7) a. 1998, c.21, c.24.
  - .2 Labour Standards Act (Nunavut) (R.S.N.W.T. 1988, c.L-1) amended S.N.W.T 2003, c.15, in force January 2004.
  - .3 Public Health Act, R.S.N.W.T. 1988, c.P-12.
  - .4 Spill Contingency Planning and Reporting Regulations R-068-93.
  - .5 Fire Prevention Act, R.S.N.W.T. 1988, c.F-6.
  - .6 Transportation of Dangerous Goods Act (1990 S.N.W.T. 1990, c.36).
  - .7 Used Oil and Waste Fuel Management Regulations, November 2003.
  - .8 Work Site Hazardous Materials Information System Regulations (R.R.N.W.T. 1990, c.S-2).
  - .9 Nunavut Waters and Surface Rights Tribunal Act (2002).
  - .10 Nunavut Environmental Guideline for Waste Asbestos (2002).
  - .11 Guideline for the Management of Waste Batteries, January 2002 (Nunavut).
  - .12 Guideline for the Management of Waste Lead and Lead Paint, April 2004 (Nunavut).
  - .13 Guideline for Waste Solvents, January 2002 (Nunavut).
  - .14 Guideline for Contaminated Site Remediation, Revised March 2009 (Nunavut).
  - .15 Guideline for Ambient Air Quality, December 2002 (NWT)
  - .16 Guideline for Dust Suppression, January 2002 (Nunavut).
  - .17 Guideline for the General Management of Hazardous Waste, Revised April 2010 (Nunavut).
  - .18 Guideline for Ozone Depleting Substances, January 2002 (Nunavut).
  - .19 Spill Contingency Planning and Reporting Regulations (R-068-93), July 1993 (Nunavut).
  - .20 A Guide to the Spill Contingency Planning and Reporting Regulations, March 2011 (NWT).

### 1.4 Permits and Licenses

- .1 The following permits and licenses will be provided to the Contractor when received by AANDC:
  - .1 Water Use License, granted by Nunavut Water Board in accordance with the Nunavut Waters Act.
  - .2 Land Use Permit, granted by Aboriginal Affairs and Northern Development Canada - Land Administration Division.
  - .3 Quarry Permit, granted by Aboriginal Affairs and Northern Development Canada.

- .2 Any deviations from the current remediation plan may require permit amendments or field authorizations. Notify the Departmental Representative of any proposed deviations so AANDC can contact the appropriate agency to obtain approval for the deviation. Approval may take 45 to 90 days from the time of submission.

#### 1.5 Hazardous Material Discovery

- .1 Asbestos: Demolition of spray or trowel-applied asbestos is hazardous to health. Should material resembling spray or trowel-applied asbestos be encountered in course of demolition Work, immediately stop Work and notify Departmental Representative. Refer to Section 02 82 00.01 - Asbestos Abatement - Minimum Precautions and Section 02 82 00.02 - Asbestos Abatement - Intermediate Precautions.
- .2 Stop Work immediately and notify Departmental Representative upon discovery of following materials during course of Work:
  - .1 Designated substances such as PCBs, asbestos, and mercury.
  - .2 Unknown and/or potentially hazardous substances.
  - .3 Items that may have archaeological, cultural or scientific significance.
- .3 Work at site may involve contact with:
  - .1 Metal impacted soil.
  - .2 PHC (total petroleum hydrocarbons) impacted soils.
  - .3 Hazardous liquids and petroleum based sludges.
  - .4 Demolition debris with lead based and PCB amended paints.
  - .5 Asbestos Containing Materials (ACM's).

#### 1.6 WHMIS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of material safety data sheets acceptable to Labour Canada and Health and Welfare Canada.
- .2 Submit copies of Material Safety Data Sheet (MSDS) to Departmental Representative upon delivery of materials to site.

#### 1.7 Submittals

- .1 All submittals in accordance with Section 01 33 00 - Submittal Procedures

#### 1.8 Measurement for Payment

- .1 Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this Work as a separate line item in the Cost Breakdown specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart

PART 2 - PRODUCTS

2.1     Not Used

PART 3 - EXECUTION

3.1     Not Used

**END OF SECTION**

## PART 1 – GENERAL

### 1.1 Inspection

- .1 Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative, instructions, or law, of Place of Work.
- .3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4 Departmental Representative may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Departmental Representative is to pay cost of examination and replacement.

### 1.2 Submittals

- .1 All submittals in accordance with Section 01 33 00 - Submittal Procedures.

### 1.3 Independent Inspection Agencies

- .1 Independent Inspection/Testing Agencies will be engaged by the Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services is to be borne by Departmental Representative.
- .2 Provide equipment required for executing inspection and testing by appointed agencies.
- .3 Employment of inspection/testing agencies does not relax responsibility to complete Work in accordance with Contract Documents.
- .4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and re-inspection.

### 1.4 Access to Work

- .1 Allow inspection/testing agencies access to Work, off-site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

### 1.5 Procedures

- .1 Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.

- .3 Provide labour and facilities to obtain and handle samples and materials on-site. Provide sufficient space to store and cure test samples.

1.6 Rejected Work

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2 Make good other Contractor's Work damaged by such removals or replacements promptly.
- .3 If in the opinion of the Departmental Representative it is not expedient to correct defective Work or Work not completed in accordance with Contract Documents, Departmental Representative may deduct from Contract Price the difference in value between Work completed and that called for by Contract Documents, amount of which will be determined by the Departmental Representative.

1.7 Reports

- .1 Submit three (3) copies of inspection and test reports to Departmental Representative as received.
- .2 Provide copies to Sub-contractor of work being inspected or tested and manufacturer or fabricator of material being inspected or tested.

1.8 Tests and Mix Designs

- .1 Furnish test results and mix designs as may be requested.
- .2 The cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Departmental Representative and may be authorized as recoverable.

1.9 Measurement for Payment

- .1 Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this Work as a separate line item in the Cost Breakdown specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

PART 2 - PRODUCTS

2.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

**END OF SECTION**

---

**PART 1 – GENERAL**

**1.1 Installation and Removal**

- .1 Provide temporary utilities to facilitate all construction and camp activities.
- .2 Remove from site all such Work after use.
- .3 Provide all temporary utilities consisting of the design, supply, construction, maintenance, operation and removal of the utilities and services required to support the remediation of the site. Temporary utilities to satisfy requirements of Federal, Territorial and local Authorities Having Jurisdiction (AHJ), and comply with the requirements of Section 01 35 43 - Environmental Procedures.

**1.2 Submittals**

- .1 All submittals in accordance with Section 01 33 00 - Submittal Procedures.

**1.3 Existing Services**

- .1 The location of equipment and utility services specified or indicated on the Drawings is to be considered as approximate.
- .2 Before commencing Work, establish location and extent of services in area of Work, and notify Departmental Representative of findings.
- .3 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.

**1.4 Water Supply**

- .1 Provide continuous supply of potable water for construction use.
- .2 Provide means to conserve water on-site, as suitable water sources may be seasonal. Consider using tanks to store water during high flow events.
- .3 Abide by terms of Water Licence regarding water usage.

**1.5 Temporary Power and Light**

- .1 Provide, operate, and maintain an electrical power supply system, in accordance with governing regulations, to service Contractor's site power requirements.
- .2 Install temporary facilities as necessary for power distribution, such as power cable and pole lines, subject to Departmental Representative's approval.
- .3 Provide lighting and power at site for use during Work by Contractor, Sub-Contractors, and Departmental Representative's support personnel including outdoor lighting for night shift as applicable.

1.6 Temporary Heating and Ventilation

- .1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.
- .2 Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders are not permitted.
- .3 Provide temporary heat and ventilation in enclosed areas as required to:
  - .1 Facilitate progress of Work.
  - .2 Provide adequate ventilation to meet health regulations for safe working environment.
  - .3 Protect Work and products against dampness and cold.
  - .4 Prevent moisture condensation on surfaces.
  - .5 Provide ambient temperatures and humidity levels for storage and installation of materials.
- .4 Provide ventilation for temporary facilities as follows:
  - .1 Provide Carbon Monoxide detectors for occupied areas.
  - .2 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
  - .3 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
  - .4 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
  - .5 Ventilate storage spaces containing hazardous or volatile materials.
  - .6 Ventilate temporary sanitary facilities.
  - .7 Continue operation of ventilation and exhaust system for time after cessation of Work process to assure removal of harmful elements.
- .5 Maintain strict supervision of operation of temporary heating and ventilating equipment to:
  - .1 Conform with applicable codes and standards.
  - .2 Enforce safe practices.
  - .3 Prevent abuse of services.
  - .4 Prevent damage to finishes.
  - .5 Vent direct-fired combustion units to outside.
- .6 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.7 Temporary Communication Facilities

- .1 Provide and pay for temporary telephone, fax, and data hook up lines and equipment necessary for Contractor use and use of Departmental Representative.

1.8 Fire Protection

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.

1.9 Drainage

- .1 Refer to Section 01 35 43 - Environmental Procedures

1.10 Signs and Notices

- .1 Safety and Instruction Signs and Notices:

- .1 Signs and notices for safety and instruction to be in English, and the local Inuit dialect.

- .2 Maintenance and Disposal of Site Signs:

- .1 Maintain approved signs and notices in good condition for duration of Project, and dispose of off site on completion of Project, or earlier if directed by Departmental Representative.

1.11 Measurement for Payment

- .1 Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this Work as a separate line item in the Cost Breakdown specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

PART 2 - PRODUCTS

- 2.1 Not Used

PART 3 - EXECUTION

- 3.1 Not Used

**END OF SECTION**

## PART 1 – GENERAL

### 1.1 Definitions

- .1 Temporary Storage Area: A designated area used for the consolidation and storage of containerized Hazardous Waste Materials, containerized contaminated soils and containerized Non-Hazardous Debris.

### 1.2 Installation and Removal

- .1 Provide construction facilities in order to execute Work expeditiously.
- .2 Remove from site all such Work after use.
- .3 Provide all temporary facilities consisting of the design, supply, construction, maintenance, operation and removal of the facilities and services required to support the remediation of the site. Provide temporary facilities as specified at the work site, and any other location where temporary facilities are essential to the Work. Temporary facilities are to satisfy requirements of Federal, Territorial and local authorities having jurisdiction, and comply with the requirements of Section 01 35 43 - Environmental Procedures.

### 1.3 Location of Equipment and Fixtures

- .1 Location of equipment indicated or specified are to be considered as approximate.
- .2 Inform Departmental Representative of impending installation and obtain his/her approval for actual location if deviation from specified location is contemplated.
- .3 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

### 1.4 Access and Dust Control

- .1 Provide and maintain adequate access, including snow removal, to all working areas of the site, camp, utilities and offices during all periods of work by Contractor, subcontractors and other contractors completing work for Departmental Representative.
- .2 Remove snow, as may be required, to gain access to site, as required, to meet the project schedule.
- .3 Minimize dust creating activities, as specified in Section 01 35 43 – Environmental Procedures.

### 1.5 Vehicles

- .1 Supply one crew cab 4-wheel drive pickup truck for use by the Departmental Representative and the Departmental Representative's Authorized Personnel for the duration of the Project.
- .2 Vehicle to be in new condition, having been driven for not more than 30,000 km.
- .3 Equip vehicle with heater, defroster, right and left hand mirrors, windshield washers, permanent type anti-freeze, spare wheel, jack, wheel wrench, snow tires on drive wheels and spare, directional signals with two-way flasher, full width front seat and license in accordance with Territorial regulations.

- .4 Provide one (1), two-passenger side-by-side seating four-wheel drive all-terrain vehicles (ATVs) for use by Departmental Representative for the duration of the work activity. The ATVs must meet the following criteria, at minimum:
  - .1 675 cc gasoline or equivalent diesel engine;
  - .2 Roll-over protection system;
  - .3 Hard enclosure with glass windshield and windshield wipers;
  - .4 Pick-up style rear box suitable for carrying samples and equipment;
  - .5 Buggy whips and rotating beacon;
  - .6 Tire repair kit and air pump.
- .5 The use of these vehicles will not be shared with Contractor.
- .6 Vehicles provided for purposes of this contract are accepted at risk of supplier whether in possession of supplier or Departmental Representative.
- .7 Deliver vehicles to location of camp at Project Area.
- .8 Store vehicles in accordance with manufacturer's recommendations.
- .9 Maintain all vehicles in good running order for duration of Project. If vehicles are out of commission for any period of time, provide other replacement vehicles.
- .10 Repair and maintain vehicles expeditiously.
- .11 Provide and pay for all fuel and lubricants required to operate the vehicles for the duration of the Project.
- .12 Provide applicable insurance for damage to vehicles and ATVs under use by Departmental Representative or Departmental Representative's Authorized Personnel, or absorb costs for damage to same.

1.6 Equipment, Tool and Material Storage

- .1 Provide lockable weatherproof sheds for storage of tools, equipment and materials, and maintain, in a clean and orderly condition.
- .2 Locate materials not required to be stored in weatherproof sheds on site in a manner to cause least interference with Work activities.

1.7 Sanitary Facilities

- .1 Provide sanitary facilities for Work force in accordance with governing regulations and ordinances.
- .2 Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.8 Construction Signage

- .1 Maintain approved signs and notices in good condition for duration of Project, and dispose of off site on completion of Project or earlier if directed by Departmental Representative.

1.9 Drainage

- .1 Refer to Section 01 35 43 - Environmental Procedures and to specific sections in Division 2 of these Specifications for site drainage and pumping requirements.

1.10 Scaffolding

- .1 Provide and maintain scaffolding, ramps, ladders, swing staging, platforms, and temporary stairs as necessary for the completion of the work.
- .2 Construct and maintain scaffolding in a rigid, secure and safe manner.
- .3 Erect scaffolding independent of walls. Remove promptly when no longer required.
- .4 Design and construct scaffolding in accordance with CSA S269.2-M87. Provide details and procedures for ensuring all scaffolding equipment, materials, and construction practices meet all applicable regulations and site specific requirements.
- .5 Conform to safety requirements of Section 01 35 32, Site Specific Health and Safety Plan.

1.11 Removal or Shut-Down of Facilities

- .1 Schedule and obtain approval from Departmental Representative to remove temporary facilities from site.
- .2 When project is closed down at end of construction season, keep facilities operational until close down is approved by Departmental Representative.

1.12 Measurement for Payment

- .1 Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this Work as a separate line item in the Cost Breakdown specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

PART 2 - PRODUCTS

2.1 Not Used

PART 3 - EXECUTION

3.1 Temporary Storage Area

- .1 Develop Temporary Storage Areas for the storage of containerized Hazardous Waste Materials, containerized contaminated soil and packaged Non-Hazardous Debris.
- .2 Prepare the Temporary Storage Area to comply with the following:
  - .1 Provide easy access to the off-site transport equipment.
  - .2 Allow the containers to be level and distribute the weight of the containers evenly to the supporting surface.
  - .3 The area is to be free of standing water.
  - .4 Surface water run-on to the area must be minimized. The area must not be subject to flooding, excessive snow drifting, and/or seasonal saturation.

- .5 Sufficiently compact the area so as to prevent the containers from settling into the soil. Supply, place and compact additional granular fill as required.
- .6 Size the Temporary Storage Area sufficiently so that it will accommodate all waste.
- .3 Confirm the location of the Temporary Storage Areas with Departmental Representative at least one (1) week prior to commencing operations to allow for baseline sampling by Departmental Representative.
- .4 The Temporary Storage Areas are to be located as follows:
  - .1 More than 30 metres away from any water body or drainage course.
  - .2 On stable ground not subject to flooding or seasonal saturation.
  - .3 In an area not routinely accessed or essential to Contractor's workforce or site personnel.
  - .4 More than 30 metres away from flammable materials.
- .5 Within the Temporary Storage Areas, segregate the various types of containerized materials, as specified in Section 02 61 33 – Hazardous Materials, as follows:
  - .1 Containerized PCB Material.
  - .2 Containerized Hazardous Material
  - .3 Containerized Barrel Contents
  - .4 Non-hazardous materials.
- .6 Within the Temporary Storage Area, provide access barriers and a single access point for the PCB Storage Area. Erect signage. Signage is to be visible from all sides of the area. The English version of the sign is to read:

**CAUTION  
PCB STORAGE AREA  
TRESPASSING IS PROHIBITED**

- .7 Signage must be posted in English and the Innuinaqtun. All lettering is to conform to CAN3-Z321-77, or latest edition thereof. All lettering is to be black, not less than 100 millimetres high, with a 25 mm wide stroke, on a white background.
- .8 Keep PCB storage containers locked or equivalently secured to prevent unauthorized access to stored materials.
  - .1 Permit only authorized personnel to enter the PCB storage area.
  - .2 Make PCB storage containers accessible to authorized inspectors as required by Departmental Representative.
- .9 Place rows of storage containers at a minimum of one (1) metre offset so that Container and labels remain visible.
- .10 Store sufficient sorbent materials or an approved spill kit near the Temporary Storage Areas for an emergency clean-up.
- .11 For storage of Hazardous Waste Material, no stacking of marine containers will be allowed.
- .12 Submit to Departmental Representative a detailed inventory of the Temporary Storage Area indicating the location and contents of each container each month during the construction season.

**END OF SECTION**

## PART 1 – GENERAL

### 1.1 General

- .1 Provide all labour, equipment and materials, and performance of all Work necessary for mobilization to, and demobilization from the CAM-A site. This will include all Departmental Representative provided supplies, equipment and material.
- .2 Mobilization to include transportation to site of Contractor's labour, equipment, materials, and assembling, erecting, and preparing site in readiness to start Work, all in accordance with Contractor's Schedule.
- .3 Demobilization to include dismantling and removal from site of all Contractor's equipment, camp facilities and materials, contaminated soil and waste resulting from cleanup of site and transportation of labour from site.
- .4 Decontaminate and clean all equipment used on the Project prior to demobilization according to Section 01 35 15 – Special Procedures for Contaminated Sites.
- .5 Do not mobilize to the site without written authorization from the Departmental Representative.
- .6 All mobilization and demobilization methods to comply with the requirements of all applicable codes, standards, guidelines and AANDC permits, approvals and/or authorizations.
- .7 A Post-Demobilization site visit may be required as part of the Post-Demobilization Inspection as per Section 01 77 00 - Closeout Procedures.

### 1.2 Mobilization and Demobilization Plan and Equipment List

- .1 Provide a Mobilization and Demobilization Plan which shall include, but not be limited to, the following items:
  - .1 Proposed mode(s), route, and timing
  - .2 In-transit storage or staging areas
  - .3 Equipment, labour and other requirements
  - .4 Equipment and materials to be brought to site to complete the remediation of the project, as indicated in these specifications.
- .2 Compile a complete Construction Equipment List comprised of manufacturer name, model number, year, and hours for construction equipment that is being mobilized to site and submit to Departmental Representative.

### 1.3 Submittals

- .1 Submit Mobilization and Demobilization Plan and Construction Equipment List in accordance with Section 01 33 00 - Submittal Procedure for review by Departmental Representative.
- .2 Submit to Departmental Representative three (3) hard copies and one (1) electronic copy of the Mobilization and Demobilization Plan, forty-five (45) days after contract award.
- .3 Submit to Departmental Representative three (3) hard copies and one (1) electronic copy of the Construction Equipment List thirty (30) days prior to mobilization.

1.4 Measurement for Payment

- .1 Include all costs for Mobilization of all equipment and materials, including the submission of the Mobilization and Demobilization Plan, in the lump sum price for Item 01 53 00-1 – Mobilization, as indicated in the Basis of Payment Schedule. The lump sum price for Mobilization is to include all labour, equipment, materials, meals, accommodation, flights and any other costs necessary to undertake work required.
- .2 Include all costs for Demobilization of all equipment, waste and materials in the lump sum prices for Item 01 53 00-2 – Demobilization, as indicated in the Basis of Payment Schedule. The lump sum price for Demobilization is to include all labour equipment, materials, meals, accommodation, flights and any other costs necessary to undertake the work required. Payment for Demobilization will be made after satisfactory cleanup of the site, shutdown, takedown, packaging, and cleanup of camp facilities, removal from the site of all equipment, materials, site demolition debris materials and contaminated soils as indicated.
- .3 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate cost of the work of this section as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

PART 2 - PRODUCTS

2.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

**END OF SECTION**

**PART 1 – GENERAL**

**1.1 General**

- .1 Provide and operate complete camp facilities services, including provision, preparation and serving of food, for construction personnel, Departmental Representative and his/her authorized personnel, and other specified site visitors.
- .2 The location of the construction camp must be accepted by Departmental Representative. Submit layout of camp forty-five (45) days prior to mobilization. Submission is to include full details demonstrating compliance with all codes and standards.
- .3 Provision of camp facilities services consisting of, but not limited to:
  - .1 Design, supply, installation, and operation and maintenance of hard sided camp facilities including:
    - .1 All associated facilities.
    - .2 Utilities and services required for camp facilities such as heating, lighting, fuel, potable and domestic water systems.
    - .3 Sewage collection, treatment and disposal systems.
    - .4 Waste, refuse, and garbage collection and disposal system, including provision of dedicated camp garbage incinerator.
    - .5 Camp facilities fire prevention.
    - .6 Alarm and fire fighting system.
    - .7 Camp and site facilities safety and security service.
    - .8 Meals and catering service.
    - .9 Shower/wash facilities.
    - .10 Sleeping and washroom facilities.
    - .11 Bedding and bedding laundry services.
    - .12 Janitorial services.
    - .13 Personnel laundry facilities.
    - .14 Recreational facilities.
    - .15 First Aid facilities and service.
    - .16 Snow removal services for camp operations.
    - .17 Camp re-supply and staff rotation.
  - .4 Provide and pay for all potable and domestic water systems; sewage collection, treatment, and disposal systems; refuse and garbage collection and disposal systems; power, heating and lighting systems associated with the operation of the construction camp.
  - .5 Obtain and pay for, as part of provision of construction camp services, any and all licences, permits, and authorizations required to comply fully with all laws, ordinances and regulations of the Federal, Territorial and local authorities in connection with the performance of work of this Section.
  - .6 Provide construction camp services for own workforce, Departmental Representative, and Departmental Representative's authorized personnel as follows:
    - .1 For CAM-A: Sturt Point
      - .1 Resident Departmental Representative: 1 for duration of CAM-A work.
      - .2 Environmental Inspector: 1 for duration of the CAM-A work.
      - .3 Geotechnical Inspector: 1 for 3 weeks during the CAM-A work.
    - .2 At each site allow for an additional 4 personnel at any one time to accommodate the Departmental Representative's Authorized Personnel, DIAND personnel, PWGSC personnel, visitors, and shift change overlap.

- .3 Separate sleeping quarters are to be provided for cook(s), cook's helpers and for female staff.
- .7 Camp Facilities shall not be older than 20 years.
  - .1 Contractor to arrange to have the proposed camp facilities inspected by a third-party building inspector prior to mobilization.
  - .2 Submit inspection report to the Departmental Representative thirty (30) days prior to mobilization. The inspection report is to include planned corrective action for identified deficiencies.
  - .3 Contractor will address any recommendations arising from building inspector's report before camp facilities are paid.
- .8 Provide and maintain a digital communication system for the site consisting of full duplex and secure voice, real time fax and high speed internet. Provide three (3) separate phone lines for the Departmental Representative. Communication system must accommodate virtual private network (VPN) connections. The communication system is to be based on monthly charges with unlimited internet access. Provide wireless 802.11 B/G network access points such that the entire camp area has wireless network access.
- .9 Maintain one (1) handheld satellite telephone on-site for emergency purposes or when the main communication system is non-functional. Use of the handheld satellite telephone for primary site communications for extended periods is not acceptable.
- .10 Shared use areas, kitchen dining areas and sleeping quarters shall be maintained as smoke-free areas. Provide a smoking area at Contractor's discretion, in accordance with Federal, Territorial and local regulations and guidelines.
- .11 Be responsible for security and surveillance of the camp and site facilities at all times including during winter months and when camp is not occupied. Provide security, site surveillance or other means to protect the camp and site facilities from vandalism and tampering,

## 1.2 Requirements of Regulatory Agencies

- .1 Construction camp, including its facilities, utilities, services, location and operation is subject to the approval of Departmental Representative and is to be designed, established and operated in accordance with applicable Federal, Territorial and local codes, regulations and requirements governing construction camp facilities.
- .2 Camp facilities location to be established at a location which does not interfere with operations undertaken on site. Camp facilities and service area locations are subject to Departmental Representative's approval.
- .3 Obtain applicable licences, permits and authorizations associated with establishing camp. Submit proof of same to Departmental Representative within thirty (30) days of camp start-up. Pay for all costs for the inspection of camp and electrical facilities by AHJ officials.
- .4 Comply with all requirements of the Water Use License, Land Use Permit and all other licenses, permits and authorizations.
- .5 Operate the camp in accordance with Camp Rules, as specified in this Section, and the provisions of Section 01 35 32 – Site Specific Health and Safety.

1.3 Environmental Requirements

- .1 Comply with requirements of Environmental Regulatory Agencies and the provisions of Section 01 35 43 - Environmental Procedures.
- .2 Display all applicable regulatory permits at the camp site.
- .3 Sampling and laboratory testing of water samples was completed in 2010 from the potential Freshwater supply sources at CAM-A. The results of the limited analytical data are included in the table at the end of this Clause. Additional testing must be carried out to confirm potable water quality from these or any other on-site source.
- .4 Provide and pay for sampling and analyses of any construction camp water supply, as indicated in Section 01 29 83 - Payment Procedures for Testing Laboratory Services, to prove that the water quality satisfies the Health Canada Guidelines for Canadian Drinking Water Quality. The sampling and analysis is to be provided at the water supply source and at the distribution source prior to consumption.
- .5 Provide commercially sealed bottled water that meets Health Canada Guidelines for Canadian Drinking Water Quality until it is demonstrated, by a minimum of two consecutive sets of analytical test results, that the local source meets the Health Canada Guidelines for Canadian Drinking Water Quality. In the absence of analytical test results, local sources must not be used, and the supply of bottled water must be maintained. Submit information on bottled water, including the source and water quality test results to the Departmental Representative prior to opening the camp. If a local source is used, submit water quality test results every four (4) weeks during camp operation to the Departmental Representative.
- .6 Provide and pay for equipment, supplies and materials required to treat the water in accordance with the Health Canada Guidelines for Canadian Drinking Water Quality.
- .7 The Contractor will carry out quality control sampling and testing of the camp water source at minimum every four weeks, as long as the camp is operational.
- .8 Comply with sewage treatment, disposal and closure requirements as outlined in Section 01 35 15 - Special Project Procedures for Contaminated Sites.

<b>FRESHWATER - LABORATORY ANALYTICAL RESULTS<sup>1</sup></b> <b>CAM-A: Sturt Point</b>				
<b>Parameter</b>	<b>Units</b>	<b>Test Result 2010</b>	<b>Test Result Aug 2010</b>	<b>CCME Drinking Water Guidelines</b>
		<b>Freshwater Lake (W-001)</b>	<b>Freshwater Lake near former Outfall(W-003)</b>	<b>Max. Acceptable Concentration</b>
Aluminium	mg/L	0.38	0.006	0.1
Antimony	mg/L	<0.001	<0.001	0.006
Arsenic	mg/L	0.002	<0.001	0.01
Barium	mg/L	<0.05	<0.05	1
Boron	mg/L	0.02	<0.01	5
Cadmium	mg/L	<0.000016	<0.000016	0.005
Chromium	mg/L	0.002	<0.002	0.05
Copper	mg/L	0.006	<0.002	1
Iron	mg/L	0.1	<0.1	0.3
Lead	mg/L	<0.001	<0.001	0.01
Manganese	mg/L	0.005	<0.005	0.05
Selenium	mg/L	<0.001	<0.001	0.01
Sodium	mg/L	117	<0.6	200
Uranium	mg/L	<0.001	<0.001	0.02
Zinc	mg/L	0.004	<0.001	5
Chloride	mg/L	256	<1	250
Fluoride	mg/L	0.6	<0.5	1.5
Sulphate	mg/L	14	<1	500
TDS	mg/L	514	<1	500
Nitrate	mg/L	0.6	<0.5	45
Benzene	mg/L	<0.0005	<0.0002	0.005
Toluene	mg/L	<0.0005	0.0018	0.024
Ethylbenzene	mg/L	<0.0005	<0.0005	0.0024
Xylenes	mg/L	<0.0005	<0.0005	0.3
Total Coliforms	MPN/100ml	- <sup>2</sup>	- <sup>2</sup>	not detected per 100 ml
E. Coli	MPN/ 100ml	- <sup>2</sup>	- <sup>2</sup>	not detected per 100 ml

<sup>1</sup> All analytical results provided by AECOM – Phase III Environmental Site Assessment CAM-A, Sturt Point, NU Intermediate DEW Line Site (November, 2010)

<sup>2</sup> Concentrations of Total Coliforms and E.Coli were not tested for.

1.4 Camp Facilities Installation and Removal

- .1 Establish accepted temporary buildings, shops, offices and facilities as required.
- .2 Place all camp facilities so as not to interfere with any construction or other site activities.
- .3 Carry out all Work necessary to protect environment, such as constructed pads (if required), prior to actual installation of camp facilities.
- .4 Locate camp generators a minimum distance of 30 metres away from any sleeping facility, camp kitchen or an area with constant human presence.
- .5 Winterize and secure camp, equipment, and vehicles at the end the construction season.
- .6 Upon completion of Work, remove camp facilities, clean up, and leave site in condition satisfactory to Departmental Representative.

1.5 Cleaning of Sewage Tanks and Lines

- .1 Prior to demolition of wastewater lines, rinse lines with wash water. Sample, analyse, treat, and dispose, as required, wastewater in accordance with Section 01 35 15 – Special Project Procedures for Contaminated Sites and Section 01 35 43 – Environmental Procedures
- .2 Treat sludge as hazardous materials specified under Section 02 61 33 – Hazardous Waste Material and treat accordingly.

1.6 Site Location

1. Locate camp facilities at a site that provides for the safety and welfare of its residents for the duration of the Work. Contractor is responsible for the camp facilities location.
2. Locate camp facilities within Project Area, as indicated.
3. Locate incinerator or burn areas downwind of camp facilities.
4. Locate camp facilities on gravel pad. Pad must be constructed using aggregate sources from the borrow areas.
5. Locate camp facilities in an area that has been previously disturbed, but outside of any remedial work areas, if possible. If camp is located on rock, provide sufficient material to maintain a trafficable surface.
6. Locate the medic's centre in the camp facilities. Co-locate the medic's centre with an office, or other facility where other workers are present.
7. Locate the communications centre in the camp facilities.
8. Locate any temporary shelter to be used as a workshop near the Work.
9. Construct an access road to the selected location, as needed or as directed by Departmental Representative.

1.7 Construction Camp

- .1 Carry out all work necessary to protect the environment prior to actual installation of the camp facilities.
- .2 Place all camp facilities so as not to interfere with any construction or other site activities. Obtain Departmental Representative's approval for location of construction camp. A camp is to be located at each Project Area unless otherwise accepted in writing by Departmental Representative.
- .3 Provide and maintain camp in good operating condition and provide adequate and suitable furnishings.
- .4 Consider the possibility of wildlife encounters when determining the layout of the camp. Refer to bear or wildlife safety literature when selecting the camp layout, facility spacing, and location of the kitchen, food storage, washroom and sleeping facilities.
- .5 Provide an alarmed trip wire around the camp to provide warning of wildlife intrusions whenever bear monitors are not patrolling. A working wildlife deterrent is to be provided and a replacement will be made available within 24 hours should the primary system fail. Test the alarm system as specified in Section 01 35 32 – Site Specific Health and Safety for Contaminated Sites.
- .6 Incinerate all kitchen waste in order to avoid attracting wildlife.
- .7 Demobilize and remove the construction camp from the site at the completion of the Contract. Grade as necessary to match surrounding terrain and to provide positive drainage as directed by Departmental Representative.

1.8 Maintenance

- .1 Maintain camp, power generators, fuel storage facilities, water system, garbage disposal containers, heating and cooling units, appliances and furniture in neat, clean and good operating condition, and make repairs as necessary.
- .2 Heat camp facilities to maintain environmental controlled conditions between 20 and 22°C continuously.
- .3 Clean camp common areas daily. Clean and sanitize toilets, urinals, wash basins, showers, washing machine, and washing tubs daily.
- .4 Keep common areas free of insects, pests and wildlife through garbage control, proper screens, pesticides and other non-smoke producing methods.
- .5 Provide adequate bug, pest and wildlife control for all buildings and camp facilities.
- .6 In the event of temporarily vacating camp, clean up and leave camp facilities in a safe, tidy and secure condition.

1.9 Departmental Representative's Sleeping Quarters

- .1 Sleeping quarters for Departmental Representative and Departmental Representative's Authorized Personnel are to be within the camp complex, but segregated from those for Contractor's staff.

- .2 For Departmental Representative's Authorized Personnel, provide a, minimum of 4.6 m<sup>2</sup> of floor space for each occupant, with one dimension not to be less than 2 m.
- .3 It is anticipated that Departmental Representative's Authorized Personnel will include both male and female personnel. Design and operate the construction camp with due consideration of the separate and private requirements for this work force.
- .4 Provide, for use by Resident Departmental Representative, single sleeping quarters with a minimum floor area of 6 m<sup>2</sup>.
- .5 Sleeping quarters for other Departmental Representative's Authorized Personnel, as indicated in this Section, to provide for maximum double occupancy with a minimum floor area of 9.2 square metres. Design camp facilities such that specialist inspectors generally are accommodated in single occupancy rooms. Double occupancy of specialist inspectors' accommodations will be considered by Departmental Representative for short periods of time only, and at Departmental Representative's discretion.
- .6 Provide a minimum of 11 m<sup>3</sup> of air space for each occupant.
- .7 Provide storage lockers and/or shelving to store personal items. Provide at least one (1) power outlet per occupant. Provide one (1) reading light above each bed.
- .8 Provide key locks and keys for Departmental Representative and Departmental Representative's Authorized Personnel sleeping quarters upon their use of these facilities.

1.10 Departmental Representative's Site Office

- .1 Provide office accommodation and furniture on-site for Departmental Representative. The use of this facility will not be shared with Contractor. Shared office and sleeping quarters for the Departmental Representative is not acceptable.
- .2 Provide electrical lighting system, giving a minimum of 200 lux, using surface mounted, shielded commercial fixtures with 10% upward lighting component.
- .3 Departmental Representative's office is to have a minimum floor space of 20 m<sup>2</sup>, unless less space is accepted in writing by Departmental Representative, and furnished with the following:
  - .1 One double-pedestal desk with a top surface not less than 150 cm by 75 cm.
  - .2 One desk chair.
  - .3 Two chairs, stacking type.
  - .4 One four-drawer file cabinets with locking mechanisms.
  - .5 One bookcase, not less than 90 cm wide by 30 cm deep by 120 cm high, complete with adjustable shelves.
  - .6 One double-tray in/out paper distribution baskets.
  - .7 One waste paper basket.
  - .8 Four duplex receptacles, 120 V, 60 Hz equipped with surge protection.
  - .9 Two UPS (Uninterruptible Power Supply) bars.
  - .10 One plan table.
  - .11 One Ethernet port and one phone/facsimile port.

- .4 Provide and maintain at Departmental Representative's office one Multiple Function Centre (MFC) with capabilities for printing, copying, and scanning. This unit is to be for Departmental Representative's exclusive use and is to be Windows compatible with Parallel, USB and Ethernet interfaces. Provide the MFC with all required consumable supplies such that it provides continuous operation. The MFC is required to also meet the following specifications:
  - .1 Print Function: Black and White and Colour with a minimum of 32 MB of memory.
  - .2 Copy Function: Black and White and Colour with capabilities for Automatic Document Feed (ADF) and Reduction / Enlargement.
  - .3 Scan Function: Black and White and Colour scan capabilities with a minimum optical scan resolution of 600 x 2400 dots per inch (dpi) and capabilities to scan to e-mail, image, OCR and file.
- .5 Provide, for the use by Departmental Representative and Departmental Representative's Authorized Personnel, three (3) mobile communication radios, complete with charging units. The radios are to allow for on-site communication between Departmental Representative, Departmental Representative's Authorized Personnel and Contractor. The radios are to have a minimum range of 5 km.
- .6 Provide one each of telephone, fax and Ethernet to Departmental Representative's office.
- .7 It is critically important that the communication equipment provided by Contractor for Departmental Representative's use is reliable and of the highest quality. Immediately repair or replace faulty equipment. The equipment is to be operational from the day the work commences.

1.11 Field Laboratories

- .1 Supply and pay for two (2) separate field laboratories, complete with furniture, for the use by the Departmental Representative's Authorized Personnel. The two (2) labs will include an environmental analytical lab and a geotechnical lab. The two (2) laboratories may be combined in one (1) module unit.
- .2 Locate the field laboratories in the camp complex and make ready for use three (3) days prior to the first day Work commences for which testing is required, and remain available for the duration for which testing is required.
- .3 The analytical lab will have a minimum floor area of 40 square metres complete with one satellite telephone, heating system, lighting system, a minimum of three (3) 110 volt, 60 cycle electric outlets, water and sewer system, sink, work benches, two (2) garbage cans, refrigerator, freezer, shelving and clothes rack, two (2) desks, two (2) 0.75 metre x 1.50 metre tables, three (3) chairs, one (1) four-drawer filing cabinet and adequate windows. Provide a minimum of 30 square metres of shelf area.
- .4 The geotechnical lab will have a minimum floor area of 20 square metres complete with a heating system, lighting system, a minimum of four (4) 110 and one (1) 220 volt, 60 cycle electric outlets, water and sewer system, sink, work benches, garbage cans, shelving, one (1) desk, one (1) 0.75 metre x 1.50 metre table, two (2) chairs, one (1) four-drawer filing cabinet and adequate windows. Provide a minimum of 10 square metres of shelf area.
- .5 Provide and maintain one phone line and internet connection in each laboratory.

- .6 Equip the analytical lab with a standard refrigerator with a total minimum capacity of 0.48 cubic metres (17 cubic feet) and a chest freezer with a total minimum capacity of 0.28 cubic metres (10 cubic feet). The refrigerators and freezer will remain the property of the Contractor upon completion of the project.
  - .7 Equip the geotechnical lab with the following granular material testing equipment:
    - .1 One (1) forced convection bench top laboratory oven with digital controls, stainless steel interior and suitable for effective drying of soil samples.
    - .2 One (1) 1.5" sample splitter
    - .3 One (1) 6" Proctor Mould for the Standard Proctor Test: ASTM 698
    - .4 One (1) Standard Proctor Hammer
    - .5 One (1) Motorized Sieve Shaker compatible with 8" sieves
    - .6 One (1) Set of 8" Sieves to include the following opening sizes in millimetres: 100, 75, 50, 25, 20, 16, 12.5, 10, 5, 2.5, 1.25, 0.630, 0.425, 0.150, 0.08
    - .7 One (1) wash sieve (0.075 mm opening) with reinforced screen
    - .8 Two (2) soft sieve brushes
    - .9 Pans and Tares:
      - each 13" x 9" x 2" metal
      - each 26" x 18" x 3.5" metal
      - each 9.3" x 5.3" x 2.7" metal
      - each 3 qt. round metal mixing bowl
      - 100 aluminium pie plates - 200 mm min. diameter (for use in oven).
    - .10 One (1) precision grade electronic scale with accuracy and readability to 0.1 grams and a minimum capacity of 20 kilograms.
    - .11 One (1) pair of oven mitts.
  - .8 Clean both laboratories at least two times per week, and maintain all electric lights, heating, water and sewer systems in good working condition during the period the laboratory is required. Maintain facility in acceptable condition
  - .9 Provide power to each of the laboratories on a 24 hour/day basis while the cleanup activities, requiring laboratory services, are in operation. Equip all power supplies with adequate surge protection. Damage to equipment resulting from power surges will be repaired or replaced at no cost to the Departmental Representative or his/her Authorized Personnel.
  - .10 Submit to the Departmental Representative for review a sketch of the proposed laboratories with the construction camp layout and siting plan as specified in this section.
  - .11 Provide Departmental Representative with key-locks for the field laboratories prior to commencement of activities requiring laboratory services being in operation.
- 1.12 Kitchen/Dining Complex
- .1 The functional design of the kitchen is to include all equipment necessary for food storage, preparation, cooking and the serving of three meals daily to meet camp population requirements.
  - .2 Provide dishwashing and garbage handling equipment consistent with the required function of the kitchen.
  - .3 Provide seating capacity of the dining area to meet maximum camp population requirements.
  - .4 Store all non-perishable food supplies in adequate containers kept in an orderly manner and under sanitary conditions, in a vermin-proof enclosure.

- .5 Store all perishable food supplies in properly refrigerated indoor areas within the construction camp to preclude the attraction of wildlife.

1.13 Ablution and Latrine Facilities

- .1 Provide ablution and latrine facilities as per AHJ and codes requirements and as per camp occupancy requirements as follows:
  - .1 Toilets as required.
  - .2 Urinals as required.
  - .3 Wash basin of stainless steel, porcelain, with one mirror over each basin as required.
  - .4 Individual shower units with non-slip flooring together with adjacent dressing cubicles as required.
- .2 Maintain separate ablution and latrine facilities for female/male populations.
- .3 Maintain separate ablution and latrine facilities for Departmental Representative and Departmental Representative's Authorized Personnel. Maintain separate facilities for Departmental Representative's male and female staff.
- .4 Clean ablution and latrine facilities daily. Supply adequate amounts of paper towels and toilet tissue in washrooms.

1.14 Fire Protection Equipment

- .1 Install and maintain fire protection equipment as specified in Section 01 35 32 - Site Specific Health and Safety for Contaminated Sites.

1.15 Linen, Bedding and Laundry

- .1 Supply three (3) blankets, two (2) sheets, one (1) bath towel, one (1) face cloth and two (2) pillows and two (2) pillow cases for each person living in camp facilities.
- .2 Change two sheets and one pillow case once per week or whenever a change of occupant occurs.
- .3 Launder sheets and pillow covers regularly to provide weekly supply of clean linen.
- .4 Provide clean blankets to all camp occupants.
- .5 Cooking staff is to wear suitable kitchen attire. Launder kitchen attire daily.

1.16 Food Schedule

- .1 Provide food of the highest quality giving a balanced diet and served under acceptable standards of cleanliness by experienced personnel. Eggs and dairy products are to be Grade "A". Canned fruit and vegetables to be choice or fancy.
- .2 Beef to be Canada Grade "A", pork to be Grade "I", turkey, chicken or other fowl to be "utility" or better.
- .3 Provide choices of traditional food.
- .4 Provide healthy choices in food preparation.

- .5 As a minimum, provide three meals a day. Provide casual meals or fourth meals if irregular shifts are worked or irregular travel by personnel is required. Consult with Departmental Representative to set meal times for casual or fourth meals.
- .6 Main courses to be served at meals are classified as follows:
  - .1 First Line: Beef steak, roast beef, roast pork, veal cutlets, baked ham, ham steak, chicken, turkey, pork chops, roast lamb, roast veal, vegetarian lasagne, pasta with meatless sauce, quiche.
  - .2 Second Line: Fish, short ribs, spare ribs, stews, meat pies, liver, curried dishes, spaghetti and meatballs, sausages, tongue, salisbury steak, swiss steak, ground beef, corned beef, vegetarian chili, omelettes, vegetarian baked beans, vegetarian patties.
  - .3 Third Line: Hot dogs, vegetarian hot dogs, omelettes, chili con carne, baked beans, chicken and turkey turnovers, dishes using leftover meats, bagels and cream cheese, soup and sandwiches.
  - .4 Breakfast Line: Eggs, toast, bacon, sausage, ham, toast, hash browns, waffles, porridge, cereal, fruit, yogurt, milk and fruit juice.
- .7 Serve breakfast line daily. At supper, serve a hot main course, one first line and a choice between a second and third line. At lunch, serve a hot main course, one second line and one third line. Do not repeat the same selection more than twice weekly. Beef steak is to be served at least once per week. Provide a vegetarian option upon request.
- .8 Provide box lunches for all camp occupants who will not be in camp for noon meal.
- .9 Contractor will be given twelve hours notice to serve fourth and/or casual meals to work forces of other contractors and Departmental Representative.
- .10 Provide "Mug Up" nightly at 2100 hours consisting of tea, coffee, hot chocolate, fruit juice and any leftover pastries at cook's discretion. Make coffee available at coffee breaks.
- .11 Make available daily apples and oranges; serve other types of fresh fruit at least once per week.
- .12 Provide beverages and snacks at all times. A variety of snacks shall be available, including snacks that are appropriate for diabetics or persons with blood sugar concerns. Snacks may consist of fresh fruit or vegetables, granola bars, cheese and crackers, bannock, or other suitable items.
- .13 Fresh salads are to be provided daily.
- .14 Provide whole milk each day; powdered milk is not acceptable for drinking but may be used in cooking.
- .15 Provide pure juice each day.
- .16 Schedule food re-supply flights, as necessary, to maintain variety in the menu and that fresh produce, milk and juice is continually available.

1.17 Service Facilities

- .1 Install, hook-up, test and make necessary repairs to sewage, water supply, heating, and electrical services.
- .2 Situate power plant in camp area to minimize noise, and prevent exhaust fumes from blowing through camp during prevailing winds.
- .3 Ground all buildings and electrical equipment with an approved grounding system.

1.18 Recreation

- .1 Provide an area for recreation for all camp occupants.
- .2 ¶Area to be of a size suitable for accommodating at least 50% of camp occupants, and to be suitably furnished with loungers, and stacking chairs.
- .3 Provide a TV and DVD player for use by camp occupants. Alternatively, provide a satellite system.
- .4 Provide a minimum of 20 DVD movies and rotate these movies every two weeks or provide a TV with satellite link.
- .5 Provide an assortment of books (soft cover) and magazines for reading.

1.19 Camp Rules

- .1 Prepare a set of Camp Rules and submit to the Departmental Representative, prior to commencing operations, for review.
- .2 In order to protect all camp occupants, the following activities are strictly prohibited and could result in dismissal and removal from the site:
  - .1 Tampering with smoke or fire detectors/alarms, any other safety equipment or electrical outlets/fixtures.
  - .2 Possession and consumption or use of alcohol or illegal drugs.
  - .3 Possession or use of unauthorized firearms, ammunition or other lethal weapons.
  - .4 Fighting, physical violence, stealing, vandalism or destruction of property.
  - .5 Harassment in any form.
- .3 The employee or visitors departure from the site for any of the above reasons will be on the first available scheduled transportation. Should this person wish to leave immediately, the costs will be the responsibility of the employee.
- .4 Make all camp residents familiar with all emergency procedures, exits, signals and alarms. Keep accesses to fire equipment clear at all times, and immediately report any damaged fire or safety apparatus to your supervisor.
- .5 Keep living areas as clean as possible.
- .6 Have warm emergency clothing available at all times during the winter.
- .7 Keep clothing or other flammable goods away from baseboard heaters.

- .8 Employees must store/remove all personal effects and belongings when going off rotation or permanently off site.
- .9 No loose clothing, dangling neckwear, bracelets, rings or similar articles are to be worn where there is a risk of coming into contact with moving machinery or electrical energized equipment.
- .10 Provide a copy of Camp Rules to all camp occupants prior to or upon arrival in camp.
- .11 Enforce the Camp Rules.

1.20 Security

- .1 Restrict access to camp. Only persons employed on project are to be allowed normal access. Unauthorized persons will be permitted on site only with approval of Departmental Representative and/or Contractor.

1.21 Access to the Work

- .1 Be responsible for the transport of personnel and equipment to the various work areas on the site.

1.22 Transportation

- .1 Provide return air transportation services for Departmental Representative and Departmental Representative's Authorized Personnel from Cambridge Bay, Nunavut to the CAM-A site.
- .2 It is anticipated that air transport of Departmental Representative's Authorized Personnel will be scheduled to coincide with the transport of Contractor's workforce to and from the site. Provide air transportation for Departmental Representative's personnel at a minimum frequency of one return trip per week and two additional trips per month scheduled according to Departmental Representative's request.
- .3 Departmental Representative will advise Contractor of Departmental Representative's and Departmental Representative's personnel air transportation requirements 7 days in advance of trip departure.

1.23 Measurement for Payment

- .1 Include all costs for the supply, erection, connection, inspection of camp and electrical facilities by AHJ officials in the lump sum payment for Camp Supply and Start-Up, Item 01 54 00-1, as indicated in the Basis of Payment Schedule.
- .2 The operation and maintenance of all camp facilities and equipment will be measured for payment by the operating week. Operation and Maintenance of Camp Services will be paid under Item 01 54 00-2 as indicated in the Basis of Payment Schedule. Operation and Maintenance of Camp includes, but is not limited to, water treatment and sewage treatment, on-site mobile communication equipment, charter flights, as well as the provision of catering, rooms, and laundry and janitorial services for the camp.
- .3 Room and board and associated services for Departmental Representative and Authorized Personnel will be measured for payment by the person-day for each day that personnel resides overnight at the camp. Departmental Representative and Authorized Personnel Room and Board will be paid under Item 01 54 00-3 in the Basis of Payment Schedule.

- .4 Casual meals to visiting Departmental Representative's Authorized Personnel will be measured for payment by the number of meals served. Casual meals will be paid under Item 01 54 00-4 in the Basis of Payment Schedule.
- .5 Air transportation from Cambridge Bay to CAM-A, Sturt Point for Departmental Representative's Authorized Personnel will be measured for payment by the number of person return trips and will be paid under Item 01 54 00-5 in the Basis of Payment Schedule.
- .6 Include all direct costs for the supply and installation of satellite and/or long distance communication links for the Departmental Representative and Departmental Representative Authorized Personnel in the lump sum price for Departmental Representative's Communication Links, Item 01 54 00-6, as indicated in the Basis of Payment Schedule.
- .7 Supply of Departmental Representative's consumable office supplies will be considered incidental to the work and will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate cost of the work as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.
- .8 The provision of security or surveillance for the camp and site facilities, including times when camp is not occupied, will be considered incidental to the work and will not be measured for payment. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate cost of the work as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.
- .9 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate cost of the work of this section as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

## PART 2 - PRODUCTS

2.1 Not Used

## PART 3 - EXECUTION

3.1 Not Used

**END OF SECTION**

---

**PART 1 – GENERAL**

**1.1 Qualifications of Surveyor**

- .1 Qualified surveyor with a minimum of five (5) years of surveying experience, acceptable to Departmental Representative.
- .2 Surveyor cannot be an Employee of Contractor.

**1.2 References**

- .1 Departmental Representative's identification of existing survey control points and property limits.

**1.3 Survey Reference Points**

- .1 Existing base horizontal and vertical control points are designated on drawings.
- .2 Locate, confirm and protect control points prior to starting site Work. Preserve permanent reference points during construction. Condition and accuracy of control points is unknown, Contractor to re-establish local control points where required.
- .3 Make no changes or relocations without prior written notice and approval from the Departmental Representative.
- .4 Report to Departmental Representative when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
- .5 Replace control points in accordance with original survey control.

**1.4 Survey Requirements**

- .1 Establish stable temporary survey control points for use in laying out work. Re-establish local control points at the start of each construction season.
- .2 Establish lines and levels, locate and lay out, by instrumentation.
- .3 Prepare a topographic map of work sites prior to demolition or excavation work to provide a baseline survey for quantity measurements.
- .4 Maintain surveys for quantity calculations.
- .5 Prepare drawings showing areas where repairs were undertaken.

**1.5 Survey Equipment**

- .1 Maintain at site, for duration of the construction period, a complete set of survey equipment for occasional use by the Departmental Representative. Shared use of Contractor's survey equipment is acceptable.
- .2 Equipment to include:
  - .1 Surveying Total Station with data recording capability, tripod, spare battery, battery charger, downloading hardware and software and all associated ancillary items (cables, hardlock, etc.).

- .2 Automatic level with tripod.
- .3 Single prism with 5 m collapsible range pole.
- .4 Triple prism with tripod.
- .5 50 m cloth tape (steel reinforced)
- .6 5 m collapsible level rod.
- .7 Magnetic pin finder (high frequency).
- .8 One 1.2 m carpenter's level.

.3 The use of either a Total Station unit or a GPS Real Time Kinetic unit is acceptable.

.4 Calibrate all equipment prior to the construction season. Submit to the Departmental Representative documentation certifying the calibration of the equipment.

#### 1.6 Survey Markers

.1 Provide all survey markers and other items required to complete Work as specified, including, but not limited to:

- .1 Pointed stakes (minimum 1.2 m in length, 12 mm thick, 38 mm wide)
- .2 Pointed hubs (minimum 0.5 m in length, 20 mm thick, 38 mm wide)
- .3 Nails (100 mm long), spikes (250 mm long), pins (1 m long), etc.
- .4 Fluorescent paint, flagging, etc.
- .5 Felt markers, chalk, wax pens, etc.

.2 Maintain supply of survey markers for Departmental Representative's use.

#### 1.7 Records

.1 Maintain a complete, accurate log of control and survey Work as it progresses.

#### 1.8 Submittals

.1 Submit name and address of Surveyor to Departmental Representative after contract award.

.2 Upon request of Departmental Representative, submit documentation to verify accuracy of field Work. Maintain accuracy to 0.01 m vertically and 0.1 m horizontally. Submit data in UTM NAD83 Datum.

.3 Submit survey data backup for quantities claimed on Progress Claims.

.4 Submit raw survey data in electronic form containing (at minimum):

- .1 Date of survey.
- .2 Name of survey (e.g. Landfill Berms – Finished grade, or Beach Area – Original Ground, etc.)
- .3 Point numbers, Northing, Easting, elevation, description.

.5 Submit the record survey data file as the latest as-constructed information. Submission of more than one data file as record information for each facility is not acceptable.

.6 At completion of all Work, submit certificate signed by surveyor certifying and noting those elevations and locations of completed Work that conform and do not conform with Contract Documents.

- .7 Submit all drawings electronically in accordance with PWGSC protocols for AutoCAD drawings, and by hard copy.
- .8 Submit to the Departmental Representative documentation certifying the calibration of the equipment thirty (30) days prior to construction commencement each season.

1.9 Measurement for Payment

- .1 Include all direct costs for survey information, including surveyor, equipment and other items specified herein in the lump sum price for Item 01 71 01-1, Survey in the Basis of Payment Schedule. The scope of work for the Survey at CAM-A includes, but is not limited to, labour, equipment, materials, meals, accommodation, and flights.
- .2 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate cost of the work of this section as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

PART 2 - PRODUCTS

2.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

**END OF SECTION**

## PART 1 – GENERAL

### 1.1 Closeout Procedures

- .1 Notify Departmental Representative when Work is considered ready for substantial performance.
- .2 Accompany Departmental Representative on preliminary inspection to determine items listed for completion or correction.
- .3 Comply with Departmental Representative's instructions for correction of items of Work listed in executed Certificate of Substantial Completion.
- .4 Notify Departmental Representative of instructions for completion of items of Work determined in Departmental Representative's final inspection.

### 1.2 Inspection and Declaration

- .1 Contractor's Inspection: Contractor and all Sub-Contractors to conduct an inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
  - .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
  - .2 Request Departmental Representative's Inspection.
- .2 Departmental Representative's Inspection: Departmental Representative and Contractor will complete inspection of Work to identify obvious defects or deficiencies. Contractor to correct Work accordingly.
- .3 Completion: submit written certificate that following have been completed:
  - .1 Work has been completed and inspected for compliance with Contract Documents.
  - .2 Defects have been corrected and deficiencies have been completed.
  - .3 Work is complete and ready for Final Inspection.
- .4 Submit written completion certificate to Departmental Representative seven (7) days prior to the requested final inspection.
- .5 Final Inspection: when items noted above are completed, request final inspection of Work by Departmental Representative and Contractor. If Work is deemed incomplete by Departmental Representative, complete outstanding items and request re-inspection.
- .6 Post-Demobilization Inspection: once demobilization is completed, Departmental representative may request a Post-Demobilization inspection of Work by Departmental Representative and Contractor. If Work is deemed incomplete by Departmental Representative, complete outstanding items and request re-inspection.

1.3 Measurement for Payment

- .1 All direct costs for the Post-Demobilization Site Visit will not be considered for payment under this section, but will be negotiated with the Departmental Representative using the Labour and Materials rates provided in the Potential Additional Work section of the Basis of Payment schedule.
- .2 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate cost of the work of this section as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

PART 2 - PRODUCTS

2.1 Not Used

PART 3 - EXECUTION

3.1 Not Used

**END OF SECTION**

## PART 1 – GENERAL

### 1.1 Format

- .1 Organize all closeout data in the form of an instructional manual, called Project Record Documents.
- .2 Binders: vinyl, hard covered, 3" D: ring, loose leaf 219 mm x 279 mm with spine and face pockets.
- .3 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.
- .4 Cover: Identify each binder with type or printed title 'Project Record Documents'; list title of Project and identify subject matter of contents.
- .5 Arrange content by systems, under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7 Text: Manufacturer's printed data, or typewritten data.
- .8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- .9 Provide 1:1 scaled CAD files in dxf or dwg format on CD.

### 1.2 Contents - Each Volume

- .1 Table of Contents: provide title of project;
  - .1 Date of submission; names,
  - .2 Addresses, and telephone numbers of Contractor with name of responsible parties,
  - .3 Schedule of products and systems, indexed to content of volume,
  - .4 Summary of Health and Safety issues, Environmental issues and performance indicators.
- .2 For each product or system:
  - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Include As-Built Drawings as specified in this section.
- .5 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified.

1.3 Final Survey

- .1 Submit final site survey certificate in accordance with Section 01 71 00 - Survey Requirements, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.4 As-Builts

- .1 In addition to requirements in General Conditions, maintain at the site for Departmental Representative one record copy of:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Task Authorizations
  - .5 Change Orders and other modifications to the Contract.
  - .6 Reviewed shop drawings and product data.
  - .7 Field test records.
  - .8 Inspection certificates.
  - .9 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.

1.5 Recording Actual Site Conditions

- .1 Record information on set of drawings provided by Departmental Representative.
- .2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information, as required.
- .3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: legibly mark each item to record actual construction, including:
  - .1 Field changes of dimension and detail.
  - .2 Changes made by change orders.
  - .3 Details not on original Contract Drawings.

- .5 References to related shop drawings and modifications, including:
  - .1 Field changes of dimension and detail.
  - .2 Changes made by Task Authorization, Change Order or Field Order.
- .6 Specifications: legibly mark each item to record actual construction, including:
  - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
  - .2 Changes made by Task Authorization, Addenda and change orders.
- .7 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

#### 1.6 Record Drawings

- .1 Departmental Representative will provide to Contractor two sets of white prints and CAD electronic drawing file (.dwg or compatible) for record drawing purposes.
- .2 Maintain Project record drawings and record accurately deviations from Contract documents on one set of prints or in electronic format (.dwg or compatible).
- .3 Record changes in red on prints, or on separate layer electronically.
- .4 Submit forty-five days after project completion, neatly transfer record notations to second set of drawings or final CAD electronic drawing (.dwg or compatible) and submit both sets to Departmental Representative. Forward information on completed areas at the end of the construction season.

#### 1.7 Permit Reporting

- .1 Thirty (30) days after the completion of each construction season submit the following to the Departmental Representative:
  - .1 Copies of all documents and permits obtained by the Contractor.
  - .2 Results of all testing carried out by the Contractor.
  - .3 Any other pertinent information.
  - .4 Copies of all shipping documents identifying the shipper, the receiver and all carriers involved in the transport of materials.
  - .5 Information as required by the Land Use Permit.
  - .6 Information as required by the Water License.
  - .7 Information as required by the Quarry Permit.
  - .8 Information as required by all other applicable regulatory bodies and AHJ.
  - .9 Copies of all Transportation of Dangerous Goods documentation.
  - .10 Copies of all Certificates of Destruction.
  - .11 Copies of all waste manifests.
  - .12 Copies of all weigh scale tickets.
- .2 Consolidate the above information in one document and submit two (2) hard copies and one (1) digital copy in Portable Document Format (PDF) to the Departmental Representative.

#### 1.8 Measurement for Payment

- .1 Include all direct costs for the Project Record Documents in the lump sum price for Project Record Documents, Item 01 78 00-1, as indicated in the Basis of Payment Schedule.

- .2      Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate cost of the work of this section as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

## PART 2 - PRODUCTS

- 2.1      Not Used

## PART 3 - EXECUTION

- 3.1      Not Used

**END OF SECTION**

## PART 1 - GENERAL

### 1.1 Definitions

- .1 PCB - Amended Painted (PAP) Material: Material that is coated with PCB - amended paint, has been analyzed and the materials (including the paint) determined to contain PCB concentrations in excess of 50 ppm, and is classified as Hazardous under the Canadian Environmental Protection Act.
- .2 Contractor's Designated Hazardous Waste Disposal Facilities: The Licensed Hazardous Waste Disposal Facilities, designated by Contractor and pre-approved by Departmental Representative, for the disposal of all hazardous waste specified under the provisions of this contract. Contractor must be able to provide documentation from the Designated Hazardous Waste Disposal Facilities indicating full responsibility for all hazardous waste accepted from the CAM-A site.
- .3 Contractor's Designated Non-Hazardous Waste Disposal Facilities: The Licensed Non-Hazardous Waste Disposal Facilities designated by the Contractor and pre-approved by the Departmental Representative, for the disposal of all non-hazardous waste specified under the provisions of this contract. Contractor must provide documentation from the Designated Non-Hazardous Waste Disposal Facilities indicating full responsibility for all non-hazardous waste accepted from the CAM-A site.
- .4 Untreated Wooden Debris: Wooden debris that is not painted or treated in any way and is suitable for on-site incineration.
- .5 Leachable-Lead Painted Material: Material that is coated with lead based paint that has been analyzed and determined to contain leachable lead concentrations in excess of 5 mg/L, and is considered hazardous according to the CEPA Regulations Export and Import of Hazardous Waste and Hazardous Recyclables Materials Regulation (EIHWHRMR),
- .6 Non-Hazardous Waste: Material which does not meet the definition of Hazardous Waste Materials as defined in Section 02 61 33 - Hazardous Waste Material. Asbestos that has been packaged in accordance with Federal regulations, TDG legislation and CEPA regulations (EIHWHRMR) is to be considered as Non-Hazardous Waste Material.
- .7 Rigid Intermediate Bulk Container: Rigid Intermediate Bulk Containers, approved by Transport Canada, used for transportation of Hazardous Waste Materials including PCB Amended Painted Materials and Leachable Lead Painted Materials.
- .8 Temporary Storage Area: A designated area used for the consolidation and storage of containerized Hazardous Waste Materials, containerized contaminated soil and containerized Non-Hazardous Debris as specified in Section 01 52 00 – Construction Facilities.

### 1.2 Reference Standards

- .1 National Building Code of Canada, 2010.
- .2 CSA-S350-M1980, Code of Practice of Safety in Demolition of Structures.
- .3 SOR/2008-273, PCB Regulations.
- .4 Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities: NIOSH Publication No. 85-115

- .5 Hazardous Waste Worker Training Manual: Canadian LIUNA Contractors Training Council, 1992
- .6 Conduct all work in accordance with all appropriate Federal and Territorial legislation, and international conventions including:
  - .1 Canadian Federal Legislation
    - .1 Canadian Environmental Protection Act.
    - .2 Transportation of Dangerous Goods Act.
    - .3 Motor Vehicle Safety Act.
    - .4 Labour Code of Canada – Part II.
  - .2 Territorial Legislation
    - .1 Nunavut Safety Act
  - .3 Guidelines for the packing of cargo, other than bulk cargo into or onto cargo transport units (CTU's) applicable to transport operations by all surface and water modes of transport.

### 1.3 Work Description

- .1 Demolish, remove, and dispose of all structures and utilities (and related ancillary facilities) as indicated on the Drawings and/or as indicated in the Demolition Tables in Appendix A (and related ancillary facilities) including the following:
  - .1 Demolition, packaging/containerization and transportation to the on-site Temporary Storage Area all Non-Hazardous Waste building components, building contents, storage tanks and utility lines identified for demolition.
  - .2 Removal, segregation, containerization and transportation to the on-site Temporary Storage Area all Hazardous Waste Material building facility components, including PCB-Amended Painted (PAP) Material and Leachable Lead in accordance with Section 02 61 33 – Hazardous Waste Materials.
  - .3 Removal, segregation and containerization of asbestos material in accordance with Specification Sections 02 82 00.01 and 02 82 00.02.
  - .4 Removal, segregation and containerization of concrete contaminated with PCB's at concentrations in excess of 50 ppm.
  - .5 Removal of Hazardous Waste Material in accordance with Section 02 61 33 - Hazardous Waste Material.
  - .6 Removal and disposal of culverts and reshaping of culvert excavations as per Section 31 22 15 – Grading.
  - .7 Application of appropriate labelling and placards to the containers in the Temporary Storage Area.
  - .8 Reshaping or regrading of all areas affected by demolition work in accordance with Section 31 22 15 - Grading.
  - .9 Preparation and maintenance an inventory of hazardous and non-hazardous waste containers and their contents.
  - .10 Provision of a photographic record of the internal contents of all completed hazardous containers prior to closure.

### 1.4 Existing Conditions

- .1 The information presented on the Drawings and in the Specifications that describe the structures and utilities to be demolished is based upon site conditions described in the *Phase III Environmental Site Assessment, CAM-A, Sturt Point, NU Intermediate DEW Line Site*, prepared by AECOM and dated November 2010.

- .2 Take over structures and utilities to be demolished based on their condition on the date that Contractor mobilizes to the site.
- .3 The information presented in the Appendices, including photographs and inventory tables, provide brief descriptions for structures and facilities to be demolished. These tables and drawings indicate only the major construction details and building systems, and are not to be construed as exact for final demolition requirements. Be responsible for all work described in this Section, which includes the complete demolition, removal and containerization of all facilities and structures designated for demolition.
- .4 The information presented in the Appendices indicates types and estimated quantities of Hazardous Waste Materials that have been previously identified, and must be removed and disposed of in accordance with these Specifications. Should other potentially Hazardous Waste Material, other than that already identified, be encountered in the course of demolition work, stop work immediately, and notify Departmental Representative. Do not proceed until written instructions have been received from Departmental Representative.
- .5 Contractor is advised that site buildings to be demolished have been in a cold-soaked condition, and as a result, paint flaking/chipping and mould may be extensive. Paint flakes/chips are to be removed as described in this Section.
- .6 A listing of the major building components of each facility is presented in Appendix A. All painted surfaces of facilities and structures to be demolished have not been sampled and tested for PCBs, Leachable Lead, or asbestos. Further testing by Departmental Representative at the beginning of the first construction season may identify additional PCB-Amended Painted (PAP) Material, leachable lead paint material, or asbestos.

#### 1.5 Qualifications

- .1 Be thoroughly familiar with, and knowledgeable about, existing site conditions, scope of work and requirements of the Specification.
- .2 Only Contractor's personnel capable of demonstrating a history of satisfactory experience in the area of hazardous waste management, and who can satisfy Federal and Territorial requirements, will be permitted to carry out the work of this Section.
- .3 Follow at all times guidelines such as those established in Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities: NIOSH Publication No. 85-115, or Hazardous Waste Worker Training Manual: Canadian LIUNA - Contractors Training Council, 1992.
- .4 All activities involving the handling of hazardous materials are to be directly supervised by Contractor's personnel who have successfully completed a 40 hour training course for Hazardous Waste Activities in compliance with OSHA 29 CFR 1910.120 or other accepted equivalent training courses such as the Canadian Hazardous Waste Workers Program.
- .5 Contractor's personnel trained as described above are to instruct and direct all workers with respect to the waste management procedures and labour and safety practices to be followed in carrying out the work.
- .6 Provide workers with protection appropriate to the potential type and level of exposure. Establish specific safety protocols prior to commencing clean up activities.
- .7 Provide suitable safety clothing and equipment as required during the course of the work.

- .8 Trained and certified personnel are required to complete all Transportation of Dangerous Goods Act (TDGA) documentation and recording requirements.

1.6 Reporting Requirements

- .1 Submit waste transport manifests, chain of custody documentation, transport documentation and destruction and/or disposal certificates for non-hazardous waste to the Departmental Representative and other regulatory agencies, as required.
- .2 Submit waste container inventories and weigh scale records for non-hazardous waste to the Departmental Representative.

1.7 Protection

- .1 Prevent movement, settlement or damage of adjacent structures, services, roadways, and parking areas to remain. Provide bracing and shoring as required. Make good damage and be liable for injury caused by demolition.
- .2 Take precautions to support structures and, if safety of building being demolished or adjacent structures or services appear to be endangered, cease operations and notify Departmental Representative.
- .3 All personnel engaged in demolition activities are to wear and use protective clothing and equipment. Protect the environment from fugitive waste materials resulting from demolition activities.
- .4 Prevent damage and minimize stripping of natural terrain, features and vegetation. Make good all damage.
- .5 Provide safe passage of persons around area of demolition.
- .6 Do not proceed with demolition work when weather conditions constitute a hazard to the workers and site. Prevailing weather conditions and weather forecast are to be considered.
- .7 Cover and wet down dry materials, ash and rubbish to prevent blowing dust and debris. Provide dust control for existing and temporary roads.

1.8 Fires

- .1 Comply with all regulatory requirements and obtain Burn Permit, if required.
- .2 Burning of any painted materials is strictly prohibited.
- .3 Where fires or burning are permitted, prevent staining or smoke damage to structures, materials or vegetation which are to be preserved. Restore, clean and return to new condition stained or damaged work.
- .4 Provide supervision, attendance and fire protection measures in accordance with Section 01 35 32 - Site Specific Health and Safety Plan.

1.9 Measurement for Payment

- .1 Include all direct costs for the following work items in the lump sum prices for Demolition and Containerization Items 02 41 16-1 to 02 41 16-9 in Basis of Payment Schedule for each facility to be demolished as indicated. Work indicated under each lump sum item includes, but is not limited to:

- .1 Removal, segregation, and packaging of asbestos materials.
- .2 Demolition, removal, segregation, and containerization of PCB-Amended Painted Materials, including provisions for containment of paint chips. Containerization of Hazardous Waste is to meet all the requirements of the TDG Act and Regulation, CEPA regulations including Interprovincial Movement of Hazardous Waste Regulations (IMHWR) and EIHWHRRM and all other applicable regulations.
- .3 Demolition, removal, segregation, and containerization of Leachable-Lead Painted Materials, including provisions for containment of paint chips. Containerization of Hazardous Waste is to meet all the requirements of the TDG Act, CEPA regulations (IMHWR and EIHWHRRM) and all other applicable regulations.
- .4 Demolition, removal, segregation, and packaging of concrete with PCB concentrations in excess of 50 ppm.
- .5 Removal and containerization of all other hazardous waste items, including, but not limited to, fluorescent lamp ballasts, mercury thermostats, switches and batteries.
- .6 The demolition, removal and containerization, as required, including supply of containers, of sewage and sewage sludge from sewage tanks and sewage lines to be demolished, including line supports, marker posts and barrels.
- .7 Demolition, removal, segregation, and packaging of non-hazardous demolition debris.
- .8 On-site transport of all demolition materials to the Temporary Storage Area.
- .9 Supply and placement of on-site borrow material, as required by Departmental Representative, to backfill areas excavated to facilitate demolition requirements.
- .10 General site grading of areas disturbed by demolition operations, including culvert removal.
- .11 The above work items will not be measured for payment.
- .12 The lump sum price Items 02 41 16-1 to 02 41 16-9 are itemized in Basis of Payment Schedule as follows:
  - .1 Item 02 41 16-1, Demolition and Packaging/Containerization:  
Communication Tower
  - .2 Item 02 41 16-2, Demolition and Packaging/Containerization:  
Power Module
  - .3 Item 02 41 16-3, Demolition and Packaging/Containerization:  
Module Train Foundation
  - .4 Item 02 41 16-4, Demolition and Packaging/Containerization:  
Garage Foundation
  - .5 Item 02 41 16-5, Demolition and Packaging/Containerization:  
Warehouse Foundation
  - .6 Item 02 41 16-6, Demolition and Packaging/Containerization:  
Station POL Foundations
  - .7 Item 02 41 16-7, Demolition and Packaging/Containerization:  
Beach POL Foundations
  - .8 Item 02 41 16-8, Demolition and Packaging/Containerization:  
Culverts
  - .9 Item 02 41 16-9, Demolition and Packaging/Containerization:  
POL Line, Sewage Outfall Pipe, Utility Lines, Pipes

- .2 Include all direct costs for the Supply of Packaging Materials/Containers for the securing of non-hazardous waste for transport over land and water in the lump sum price for Supply of Non-Hazardous Waste Packaging Materials/Containers, Item 02 41 16-10 in the Basis of Payment Schedule. The packaging materials/containers supplied are to be suitable for non-hazardous waste derived from Structure Demolition (as described in this Section) and Debris Removal (as described in Section 02 41 23) .
- .3 The off-site transport and disposal of all non-hazardous waste from the site, including, but not limited to items related to structure demolition, debris removal and Tier I, Type A, and Tier II Contaminated Soil at the Contractor's Designated Non-Hazardous Waste Disposal Facilities will be paid under Provisional Cost Sum Item 02 41 16-11 in the Basis of Payment Schedule.
- .4 Payment for Item 02 41 16-11 will be made upon receipt of the waste materials at the Contractor's Designated Non-Hazardous Waste Disposal Facilities and submission to the Departmental Representative of the transportation documents and other information as described in this Section.
- .5 The supply of Hazardous Waste Containers for containerization of hazardous waste derived from Structure Demolition (as described in this Section) and Debris Removal (as described in Section 02 41 23) will not be included for payment under this section, but is to be provided as indicated in Section 02 61 33 - Hazardous Waste Material.
- .6 The off-site disposal of all containerized Hazardous Waste Material to the Contractor's Designated Hazardous Waste Disposal Facilities will not be included for payment under this section, but is to be provided as indicated in Section 02 61 33 - Hazardous Waste Material.
- .7 Construction of Temporary Storage Areas will not be included for payment under this section, but is to be provided as indicated in Section 01 52 00 – Construction Facilities.
- .8 Regrading of concrete foundation pads will not be included for payment under this section, but will be paid for as indicated in Section 31 22 15 – Grading.
- .9 Handling and containerization of transformers will not be considered for payment under Section 02 41 16 - Structure Demolition, but will be negotiated with Departmental Representative using the Labour and Materials rates provided in the Potential Additional Work section of the Basis of Payment Schedule.
- .10 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

## PART 2 - PRODUCTS

### 2.1 Materials

- .1 Polyethylene sheeting:
  - .1 6 mil (0.15 mm) minimum thickness for containing PAP material, paint particles, and wrapping of creosote treated timbers.
- .2 Hazardous Waste Material Containers: Containers for storage and transport of hazardous demolition waste to be as described in Section 02 61 33 – Hazardous Waste Material.

- .3 Non-Hazardous Waste Material Containers: Containers for storage and transport of non-hazardous demolition waste to be as described in Section 02 41 23 – Debris Removal.

### PART 3 - EXECUTION

#### 3.1 Work

- .1 Before commencing demolition, remove all Hazardous Waste Materials and asbestos-containing products as detailed in Section 02 61 33, Section 02 82 00.01 and, Section 02 82 00.02. Hazardous Waste Material and asbestos removal work must be completed, inspected, and accepted in writing by the Departmental Representative prior to the start of general demolition.
- .2 Before commencing demolition of fuel storage tanks, remove and dispose of remaining contents and tank sludge, and clean tanks, in accordance with Section 02 61 33 - Hazardous Waste Material.
- .3 Pump out existing water tanks and sewage tanks prior to demolition. Clean water tanks, sewage tanks and lines in accordance with Section 02 61 33 - Hazardous Waste Material.
- .4 Remove and dispose of demolition debris as specified in this Section.

#### 3.2 Environmental Protection

- .1 Complete work in an environmentally acceptable manner. Comply with requirements of Section 01 35 43 - Environmental Procedures, and all other applicable standards and licenses.

#### 3.3 Safety and Personnel Protection

- .1 Unless otherwise specified, carry out demolition work in accordance with Section 01 11 00 - Summary of Work and Section 01 35 32 - Site Specific Health and Safety for Contaminated Sites.
- .2 Some areas designated for demolition under this contract involve materials which contain PCBs and leachable lead-based paints, as well as other contaminants which are considered hazardous to human health. PCB containing material with PCBs at concentrations in excess of 50 ppm are considered to be hazardous substances. Storage, handling, and disposal of PCBs are regulated under the Canadian Environmental Protection Act and the Federal Transportation of Dangerous Goods Act. Comply with all applicable regulations.
- .3 During the removal of PCB-amended painted materials, follow the Personnel Protection Requirements specified for the removal of asbestos materials as indicated in Section 02 82 00.02 - Asbestos Abatement - Intermediate Precautions.
- .4 When working with PCB-containing materials, leachable lead-based paints, asbestos, and other contaminants, workers are to wear protective clothing and equipment acceptable to Labour Canada or Territorial Labour Department as suitable for exposure in the work area. Follow National Institute for Occupational Safety and Health (NIOSH) guidelines in providing protection for on-site personnel including contract employees, subcontractors, Departmental Representative, Departmental Representative's staff, and other authorized personnel.

- .5 Fluorescent lamp ballasts are to be handled, and general safety precautions followed, as stated below:
  - .1 Some ballasts in the buildings to be demolished may contain PCB-filled capacitors.
  - .2 Appropriate health and safety precautions must be taken as per Contractor's SSHSP while handling ballasts.
  - .3 Refer to Environment Canada Publication, "Identification of Fluorescent Lamp Ballasts Containing PCBs".
- .6 Transformers are to be handled, and general safety precautions followed, as stated below:
  - .1 Some transformers in the buildings to be demolished may contain PCBs or PCB residues.
  - .2 Appropriate health and safety precautions must be taken as per Contractor's SSHSP while handling.

### 3.4 Preparation

- .1 Inspect site and verify with Departmental Representative items designated for demolition.

### 3.5 Removal of Hazardous PCB-Amended Painted (PAP) Materials and Leachable-Lead Painted Materials

- .1 Minimize the amount of PAP Materials and Leachable-Lead Painted Material containerized from the structures to be demolished by disassembling the structures and containerizing only Hazardous PAP Material and Leachable-Lead Painted Material.
- .2 Prior to dismantling structures and facilities, remove all loose paint and place in a polyethylene bag. The use of heat to remove loose paint is not permitted. Place bags of loose paint materials in the Hazardous Waste Containers specified in Section 02 61 33 - Hazardous Waste Material.
- .3 During facility dismantling operations, contain paint particles and dust by the use of polyethylene sheets or other measures to seal facilities. Use drop sheets, as required, to collect paint particles that become removed from surfaces during dismantling operations. Establish a control area around these activities to provide protection to personnel from airborne paint particles. Construct control area to prevent the escape of paint chips.
- .4 The use of heat (e.g. cutting torches) to cut or dismantle facilities containing paint materials is not permitted unless the paint has been removed from the areas to be cut such that excessive heating of the remaining paint does not occur. Notify Departmental Representative prior to torching activities.
- .5 Make note of PAP asbestos locations and containerize PAP Asbestos separately from general PAP material.

### 3.6 Containerization of Hazardous PCB-Amended Painted Materials

- .1 Complete work required for the containerization of PCB-Amended Painted Materials in accordance with Section 02 61 33 - Hazardous Waste Material.

3.7 Demolition

- .1 Collect all paint chips and loose paint from structures prior to demolition. Containerize all paint in accordance with Section 02 61 33 - Hazardous Waste Material.
- .2 Where cutting is required, collect all cuttings and sawdust associated with demolition of structures in accordance with Section 02 61 33 - Hazardous Waste Material. Conduct cutting operations such that toxins from paint or other building materials are not released to the atmosphere.
- .3 Segregate Hazardous PCB-Amended Painted (PAP) and Leachable Lead Materials and containerize in accordance with this Section and Section 02 61 33 - Hazardous Waste Material. Segregate PAP Asbestos from non-asbestos PAP.
- .4 Remove existing equipment, services, finishes and furnishings from buildings.
- .5 Disconnect piping before tank removal and empty tanks as specified.
- .6 Remove and dispose of all piping above ground as indicated and described in Section 02 61 33 - Hazardous Waste Material.
- .7 Purge harmful and flammable vapours from fuel storage tanks in accordance with referenced standards prior to cutting tanks. Upon request, submit the Lower Explosive Limit (LEL) results of Volatile Organic Compound (VOC) testing to Departmental Representative.
- .8 Cut structural steel and bulk fuel tanks in accordance with referenced standards.
- .9 Collect and dispose of fibreglass insulation material and place in polyethylene bags for disposal as non-hazardous waste.
- .10 Cut Non-Hazardous Waste in such shapes and sizes as to minimize voids when material is containerized.
- .11 Vent non-ventilated gas cylinders in a remote and safe area acceptable to Departmental Representative. Stockpile empty and ventilated gas cylinders as Non-Hazardous Waste. Do not explode or vent cylinders known or suspected to contain any ozone depleting substance including chlorodifluoromethane (freon) or halon. Containerize these materials in accordance with TDGA packaging standards.
- .12 Structure foundations are to be included in the demolition of all structures. Remove completely or cut off all creosote-treated timber foundations at 300 millimetres below ground level. Cut off all other timber foundations at ground level.
- .13 Completely wrap the removed creosote-treated timbers in polyethylene sheeting as specified in this Section. Bind the polyethylene sheeting with tape or other materials as required. It is not necessary to wrap each timber individually.
- .14 At end of each day's work, leave Work in safe condition so that no part is in danger of toppling or falling. Protect interiors of parts not to be demolished from exterior elements at all times.
- .15 Demolish to minimize dusting. Keep dusty materials wetted with water only.

- .16 Demolish masonry and concrete in small sections. Remove and lower structural framing and other heavy or large objects in a safe manner.
- .17 Except where otherwise indicated on drawings, regrade all on-grade concrete foundation pads as specified on drawings and in Section 31 22 15 – Grading.

### 3.8 Removal of PCB Contaminated Concrete

- .1 In addition to concrete surfaces coated with PCB-Amended Paint, slabs of concrete within some of the facilities to be demolished are contaminated with PCBs.
- .2 Remove PCB contaminated concrete to the depth and areal dimensions indicated on the Drawings or as directed by the Engineer. Maximum expected depth of contamination is 25 mm.
- .3 For concrete contaminated with PCBs at concentrations in excess of 50 ppm, break the concrete into pieces not larger than 100 mm measured in any direction. Cut any rebar from the concrete into lengths to facilitate placement in the Hazardous Waste Material Containers described in Clause 2.2 of this section. Place the concrete and rebar in the Hazardous Waste Material Containers. Transport containers to the Temporary Storage Area.
- .4 The Engineer will confirm, based on the results of confirmatory testing, that no further removal of contaminated concrete is required.
- .6 Remove gross contamination from clothing before leaving work areas containing PCB contaminated materials. Remove outer clothing before leaving work area, and place in polyethylene bags. Place bags of materials in the Hazardous Material Containers described in Clause 2.2 of this Section.
- .7 Decontaminate all equipment that comes into direct contact with PCB contaminated concrete. Place all rags or cloths used during equipment decontamination in polyethylene bags. Place bags in Hazardous Material Containers.
- .8 Clearly mark on all containers, the contents in accordance with the requirements of the Canadian Environmental Protection Act for the Storage of PCB Materials (SOR/92-507). Submit to the Engineer, a copy of the inventory of the contents of each container.

### 3.9 Salvage of Demolition Material

- .1 The facilities and structures to be demolished may have salvage value. Contractor will continue to be responsible for the disposal of materials for reuse/recycling.
- .2 Fuel storage tanks designated for disposal cannot be reused or salvaged, except if accepted by the Departmental Representative for on-site temporary storage of wastewater or effluent.
- .3 Sign a Waiver Form provided by the Departmental Representative for any salvaged materials.

### 3.10 Disposal of Demolition Materials

- .1 Dispose of Non-Hazardous, Leachable Lead-painted, asbestos and Hazardous Waste Materials in accordance with this Section, Sections 02 82 00.01 and 02 82 00.02 (Asbestos Abatement) and Section 02 61 33 - Hazardous Waste Material.

3.11 Temporary Storage Area

- .1 Establish a Temporary Storage Area for the storage of containerized Hazardous and Non-Hazardous Waste Materials generated during demolition operations on site as described in Section 01 52 00 – Construction Facilities.

3.12 Site Grading and Restoration

- .1 Upon completion of demolition work, remove debris and leave work sites clean to a condition satisfactory to Departmental Representative.
- .2 Grade building sites and restore all areas affected by demolition work in accordance with Section 31 22 15 - Grading.
- .3 Reshape or backfill with Type 3 Granular Fill, in accordance with Section 31 22 15 – Grading, areas excavated to facilitate demolition requirements. Place Type 3 Granular Fill in holes from which timber piles were removed.

3.13 On-Site Burning of Untreated Wooden Debris

- .1 Burn all Untreated Wooden Debris.
- .2 Provide an ash collection system capable of containing ash until it is sampled. A water-tight metal tray with sides of at least 300 millimetres high is acceptable. A tray from materials on-site is acceptable. Provide means to protect the ash from wind and water until it is sampled.
- .3 A leachate extraction test is to be carried out by Departmental Representative on the solid residual material resulting from the burning process. The leachate toxicity of the material will be determined in accordance with CEPA regulations (IMHWR and EIHWHRM). Residual materials found to be non-hazardous must be packaged and transported to the Contractor's designated off-site Non-Hazardous Waste Disposal Facilities. Dispose of materials found not to be leachate toxic, but exceeding Tier II contaminated soil criteria as described in Section 02 55 13 - Contaminated Soil. Package leachate toxic material in accordance with CEPA regulations (IMHWR and EIHWHRM), as required, and dispose of as described in this Section and Section 02 61 33 – Hazardous Waste.
- .4 Comply with all requirements of the Land Use Permit burning exemption.

**END OF SECTION**

## PART 1 - GENERAL

### 1.1 Description

- .1 This Section specifies the requirements for the collection, sorting, handling, dismantling, incineration, packaging or containerization, and off-site transport and disposal of surface and partially buried debris.
- .2 An inventory of the known debris areas, including estimated crushed volumes is provided in Appendix B.

### 1.2 Definitions

- .1 Known Debris: Visible accumulated, stockpiled or scattered debris on the existing ground surface, including open storage areas, or visible, partially buried debris within 0.5 m of the existing ground surface, or debris located within the upper two (2) metres of water and consisting of hazardous and non-hazardous material, and that:
  - .1 Has been identified in Appendices and/or Drawings as to be removed; or
  - .2 Is located approximately within 50 m of the undisturbed edge of any former or existing access road or water course on the site.
  - .3 Is located within a water body, within 10 m of shore.
- .2 Unknown Debris: Scattered debris on the existing ground surface and/or partially buried debris consisting of hazardous and non-hazardous material other than the Known Debris described above.
- .3 Untreated Wooden Debris: Wood that is designated by Departmental Representative as suitable for on-site burning.
- .4 Hazardous Waste Materials: Waste materials that are designated as hazardous under Territorial or Federal Legislation or as dangerous goods under the Transportation of Dangerous Goods (TDG) Act or the Canadian Environmental Protection Act (CEPA).
- .5 Non-Hazardous Waste Materials: Waste materials that are not designated as hazardous under Territorial or Federal Legislation, including double-bagged asbestos.
- .6 Non-Hazardous Waste Container: Containers suitable for shipping non-hazardous contaminated soil or debris by ground or water.
- .7 Non-Hazardous Waste Packaging Materials: Packaging materials including, but not limited to pallets, swamp mats, bracing, strapping, netting, etc. for securing non-hazardous waste to be suitable for shipping by ground or water.

### 1.3 Submittals

- .1 Submit details and approvals for non-hazardous waste containers and/or packaging materials and methods including all required approvals, as well as a description of the type, volume and number of containers to the Departmental Representative forty-five (45) days prior to mobilization.

### 1.3 Measurement for Payment

- .1 Include all direct costs for the collection, sorting, stockpiling, dismantling or size reduction, and packaging/containerizing of known debris in the lump sum price for Debris Collection and Packaging/Containerization, Item 02 41 23-1 in Basis of Payment Schedule.
- .2 The scope of work for payment Items 02 41 23-1 in the Basis of Payment Schedule, is to include, but is not limited to:
  - .1 Collection sorting, dismantling or size reduction, stockpiling and packaging/containerizing of identified debris areas as shown on the Drawings.
  - .2 Segregation of hazardous and non-hazardous waste prior to containerization.
  - .3 On-site transport of containerized debris to the Temporary Storage Area.
  - .4 On-site transport of barrels or Unknown Hazardous Waste items to the Material Materials Processing Area as described in Section 02 61 33 - Hazardous Waste Materials.
  - .5 Burning of untreated wooden surface debris including, but not limited to:
    - .1 Provision of an ash collection system;
    - .2 Collection, sorting and on-site transportation of all untreated wood to the burning location.
- .6 The supply of packaging materials/containers, appropriate for transport over land and water, for non-hazardous waste derived from Structure Demolition (as described in Section 02 41 16) and Debris Removal (as described in this Section) will not be included for payment under this section, but is to be provided as indicated in Section 02 41 16 - Structure Demolition.
- .7 The transport and off-site disposal of all non-hazardous waste from the CAM-A site from Structure Demolition, Debris Removal and Tier I, Type A, and Tier II Contaminated Soil at approved Non-Hazardous Waste Facilities will not be included for payment under this section, but is to be provided as indicated in Section 02 41 16 – Structure Demolition.
- .8 The supply of Hazardous Waste Containers for containerization of hazardous waste derived from Structure Demolition (as described in Section 02 41 16) and Debris Removal (as described in this Section) will not be included for payment under this section, but is to be provided as indicated in Section 02 61 33 - Hazardous Waste Materials.
- .9 The disposal of all hazardous waste from Structure Demolition and Debris Removal, at approved Hazardous Waste Facilities will not be included for payment under this section, but is to be provided as indicated in Section 02 61 33 – Hazardous Waste Materials.
- .10 All costs for the disposal of unknown non-hazardous or hazardous surface debris will not be included for payment under this section, but will be negotiated with Departmental Representative using the Labour and Materials rates provided in the Potential Additional Work section of the Basis of Payment Schedule.
- .11 All costs for the removal and disposal of liquids from within waste vessels to be disposed of will not be included for payment under this section, but will be negotiated with the Departmental Representative using the Labour and Materials rates provided in the Potential Additional Work section of the Basis of Payment Schedule.
- .12 The following work items will be incidental to the work described in this Section, and will not be measured separately:
  - .1 Reshaping associated with the removal of debris.
  - .2 Removal and disposal of all soil sample tags and survey stakes on site.

- .13 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

## PART 2 - PRODUCTS

### 2.1 Materials

- .1 Hazardous Waste Containers for hazardous waste materials to be in accordance with Section 02 61 33 - Hazardous Waste Material.
- .2 Non-Hazardous waste containers and/or packaging materials and methods are to be suitable to secure materials for transport by land or sea.

## PART 3 - EXECUTION

### 3.1 Protection Procedures

- .1 When excavating or removing debris within, or in the vicinity of, a drainage course or a body of water, erect silt fences and/or floating silt curtains to prevent the release of sediment or deleterious materials into the water.
- .2 Environmental protection measures are to be in accordance with the requirements specified in Section 01 35 43 - Environmental Procedures.
- .3 Remove oil, fuel, antifreeze and brake fluid from vehicles and equipment to be disposed of.
- .4 Protect historic and archaeological features as specified in Section 01 35 43 – Environmental Procedures.

### 3.2 Removal and Sorting

- .1 Examine the area(s) to assess the material type and nature of the debris.
- .2 Proceed with the collection and removal of debris if, based on the visual assessment, the debris is determined to be non-hazardous.
- .3 Contractor's Hazardous Materials Specialist to continuously monitor the operation to identify potentially hazardous material.
- .4 Immediately suspend the operation if suspected Hazardous Waste Material or debris is encountered and allow visual confirmation of the nature of the material or debris to be established.
- .5 Collect and sort by hand debris requiring removal located in close proximity to historic or archaeological features. Confirm debris removal requirements with Departmental Representative prior to commencing debris removal work in close proximity to archaeological features.
- .6 Store suspicious material in a secured area in secured containers and, if the nature of the material or debris can't be confirmed, notify Departmental Representative about the findings. Testing for classification of hazardous products will be carried out and paid for by Departmental Representative

- .7 Completely remove partially buried debris unless otherwise directed by Departmental Representative.
- .8 Advise Departmental Representative of any stained soils encountered during debris removal operations. If authorized by Departmental Representative, excavate stained and contaminated soil areas, identified during debris removal operations, in accordance with the requirements of Section 02 55 13 - Contaminated Soil. Testing for classification and confirmatory testing will be carried out and paid for by Departmental Representative.
- .9 Clean empty barrels in accordance with the requirements of Section 02 61 33 - Hazardous Waste Material. Crush the clean empty barrels in a manner to reduce the total original barrel volume by a minimum of 75 percent.

**END OF SECTION**

**PART 1 - GENERAL****1.1 Description**

- .1 This Section specifies the requirements for the excavation and disposal or treatment of contaminated soils, including the following:
  - .1 Tier I, Tier II, Type A Petroleum Hydrocarbon (PHC) and Hazardous Contaminated Soils:
    - .1 Excavation and containerization of the contaminated soil.
    - .2 On-site transport of containerized contaminated soil to the Temporary Storage Area.
  - .2 Type B PHC Contaminated Soil:
    - .1 Excavation and on-site transport of Type B PHC Contaminated Soils to the on-site treatment area.

**1.2 Definitions**

- .1 Contaminated Soil: includes the following contaminated soil which are defined further in this section:
  - .1 Tier I Contaminated Soil
  - .2 Tier II Contaminated Soil
  - .3 Type A PHC Contaminated Soil
  - .4 Type B PHC Contaminated Soil
  - .5 Hazardous Contaminated Soil
- .2 Tier I Contaminated Soil: Soils containing concentrations of any or all of the contaminants listed as follows:

Lead	- >200 ppm; <500 ppm
PCBs	- >1 ppm; <5 ppm
- .3 Tier II Contaminated Soil: Soils containing concentrations of any or all of the contaminants listed as follows:

Arsenic	- > 30 ppm
Cadmium	- > 5 ppm
Chromium	- > 250 ppm
Cobalt	- > 50 ppm
Copper	- > 100 ppm
Lead	- > 500 ppm
Mercury	- > 2 ppm
Nickel	- > 100 ppm
Zinc	- > 500 ppm
PCBs	- > 5 ppm; < 50 ppm
- .4 Type A PHC Contaminated Soil: Soil exceeding the concentration within PHC fractions F3 and F4 as defined in the INAC 2009 Abandoned Military Site Remediation Protocol for PHC in Soil.
- .5 Type B PHC Contaminated Soil: Soil exceeding the concentration within PHC fractions F1, F2 and F3 as defined in the INAC 2009 Abandoned Military Site Remediation Protocol for PHC in Soil.

Near Shore Criteria (<30 metres from a water body)

F1 Fraction - 1,290 ppm

F2 Fraction - 330 ppm

Far Shore Criteria (>30 metres from a water body)

TPH (F1+F2+F3 Fractions) - 2,500 ppm

- .6 Hazardous Contaminated Soil: Contaminated soil classified as hazardous in accordance with the Canadian Environmental Protection Act (CEPA), including CEPA PCB Contaminated Soil, and Leachable Soil.
- .7 CEPA PCB Contaminated Soil: Soil containing concentrations of PCBs equal to or in excess of 50 parts per million. Materials contaminated with PCBs at concentration levels equal to or in excess of 50 parts per million (mg/kg) are legislated as hazardous materials. Storage, handling, and disposal of PCBs are regulated under the Canadian Environmental Protection Act and the Federal Transportation of Dangerous Goods Act. Comply with all applicable regulations.
- .8 Leachable Soil: Soil containing contaminants that when subject to the Toxicity Characteristic Leaching Procedure (TCLP) analysis, leach contaminants at concentrations in excess of those specified in CEPA regulations E1HWHRMR and IMHWR.
- .9 Petroleum Hydrocarbons (PHC): Hydrocarbon products described by laboratory analyses as lubricating oil and grease, fuel oil, diesel and/or gasoline.
- .10 Free Product: The presence of a layer of separated phase liquid PHC product.
- .11 Clean Soil: Soil that has been sampled, analyzed, and determined to have contaminant concentrations below the INAC 2009 Abandoned Military Site Remediation Protocol levels.
- .12 Contaminated Soil Containers: Lined, leak proof, collapsible containers suitable for shipping non-hazardous contaminated soil and debris by ground or sea.

1.3 Qualifications

- .1 Be thoroughly familiar with and knowledgeable about existing site conditions, scope of work and requirements of the Specification.
- .2 Only Contractor's personnel capable of demonstrating a history of satisfactory experience in the area of hazardous waste management and who can satisfy Federal and Territorial requirements will be permitted to carry out the work of this Section.
- .3 Follow at all times, guidelines such as those established in Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities: NIOSH Publication No. 85-115, or Hazardous Waste Worker Training Manual: Canadian LIUNA - Contractors Training Council, 1992.

- .4 All activities involving the handling of hazardous materials, are to be directly supervised by Contractor's personnel who have successfully completed a 40 hour training course for Hazardous Waste Activities in compliance with OSHA 29 CFR 1910.120 or other accepted equivalent training courses such as the Canadian Hazardous Waste Workers Program.
- .5 Contractor's personnel trained as described in this Section are to instruct and direct all workers with respect to the waste management procedures and labour and safety practices to be followed in carrying out the work.
- .6 Provide workers, Department Representative and Department Representative's staff when required with protection appropriate to the potential type and level of exposure. Establish specific safety protocols in the Site Specific Health and Safety Plan.
- .7 Provide suitable safety clothing and equipment as required during the course of the work.
- .8 Trained and certified personnel are required to complete all Transportation of Dangerous Goods Act (TDGA) and Interprovincial Movement of Hazardous Waste Regulation (IMHWR) documentation and recording requirements.

#### 1.4 Site Conditions

- .1 Suspend operations whenever climatic conditions are unsatisfactory for excavating or backfilling to conform with this Specification.
- .2 After occurrence of heavy rains, do not operate equipment in designated areas until the material has dried sufficiently to prevent excessive rutting.
- .3 Contractor is advised that the ground in low-lying areas is often saturated. Dewater saturated ground and ponded areas as required, complying with this Section.
- .4 Prior to the commencing excavation work, remove debris, snow, ice and standing water from areas to be excavated and backfilled.
- .5 During excavation of contaminated soil, maintain a stable excavation and dewater as required or as directed by the Department Representative.

#### 1.5 Protection

- .1 Environmental protection measures are to be in accordance with the requirements specified in Section 01 35 43 - Environmental Procedures.
- .2 The release of all water resulting from the dewatering of ponded contaminated soil areas and the decontamination of equipment is to conform to the Wastewater Discharge Criteria outlined in Section 01 35 43 - Environmental Procedures and Section 01 35 15 - Special Project Procedures for Contaminated Sites.

#### ¶1.6 Personnel Protection

- .1 Some areas designated for cleanup under this contract involve soils and hazardous materials which contain inorganic elements, PHCs, and other contaminants which are considered hazardous to human health.
- .2 Materials containing polychlorinated biphenyls (PCBs) at concentrations equal to or in excess of 50 ppm are considered to be hazardous substances. Storage, handling and disposal of PCBs are regulated under the Canadian Environmental Protection Act and the Federal Transportation of Dangerous Goods Act. Comply with all applicable regulations.

- .3 When working with inorganic elements, PCB containing materials, PHCs, and other contaminants, workers are to wear protective clothing and equipment acceptable to Labour Canada or Territorial Labour Department as suitable for exposure in the work area. Follow National Institute for Occupational Safety and Health (NIOSH) guidelines in providing protection for on-site personnel including contract employees and subcontractor, Department Representative and other authorized site personnel. Provide details of protective clothing and equipment required for each work area in the Site Specific Health and Safety Plan as required by Section 01 35 32 - Health and Safety Plan.
- .4 Supply sufficient quantities of designated protection equipment to fit all site personnel including Department Representative and authorized visitors. Educate workers as to risks, and train in safe work practices.

#### 1.7 Measurement for Payment

- .1 The supply of Contaminated Soil Containers, including leak proof liners, for the transport of all Contaminated Soils for off-site disposal will be measured for payment by the functional interior storage volume, in cubic metres, of Contaminated Soil Containers supplied. Supply of Contaminated Soil Containers will be paid under Item 02 55 13-1 in the Basis of Payment Schedule.
- .2 The excavation of Tier I and Type A PHC Contaminated Soil from site areas will be measured for payment by the cubic metre of contaminated soil as determined from survey method identified in Section 31 22 15 - Grading. Tier I and Type A PHC Contaminated Soil Excavation will be paid under Item 02 55 13-2 in the Basis of Payment Schedule.
- .3 The scope of work for Item 02 55 13-2, Tier I and Type A PHC Contaminated Soil Excavation includes:
  - .1 Excavation of Tier I and Type A Contaminated Soil as indicated on the Drawings.
  - .2 Removal, sorting and containerization of all debris from excavated soils.
  - .3 Containerization, and on-site transport to the Temporary Storage Area.
  - .4 The supply, placement and compaction of granular fill to replace the excavated contaminated soil to original grade, and reshaping of the area.
- .4 The excavation of Type B PHC Contaminated Soil from site areas will be measured for payment by the cubic metre of excavated contaminated soil as determined from survey method identified in Section 31 22 15 - Grading. Type B PHC Contaminated Soil Excavation will be paid under Item 02 55 13-3 in the Basis of Payment Schedule.
- .5 The scope of work for Item 02 55 13-3, Type B PHC Contaminated Soil Excavation includes:
  - .1 Excavation of Type B PHC Contaminated Soil from all site areas as indicated on the drawings.
  - .2 Removal, sorting and containerization of all debris from excavated soils.
  - .3 Handling and on-site transport to the soil treatment facility.
  - .4 The supply, placement and compaction of granular fill to replace the excavated contaminated soil to original grade and reshaping of the area.
- .6 The excavation of Tier II Contaminated Soil from site areas will be measured for payment by the cubic metre of contaminated soil as determined from survey method identified in Section 31 22 15 - Grading. Tier II Contaminated Soil Excavation will be paid under Item 02 55 13-4 in the Basis of Payment Schedule.

- 
- .7 The scope of work for Items 02 55 13-4, Tier II Contaminated Soil Excavation includes:
- .1 Excavation of Tier II Contaminated Soil as indicated on the Drawings.
  - .2 Removal, sorting and containerization of all debris from excavated soils.
  - .3 Containerization and on-site transport to the Temporary Storage Area.
  - .4 The supply, placement and compaction of granular fill to replace the excavated contaminated soil to original grade and reshaping of the area.
- .8 The transport and off-site disposal of Tier I, Tier II and Type A PHC Contaminated Soil will not be included for payment under this section, but will be provided as indicated in Section 02 41 16 - Structure Demolition.
- .9 The on-site treatment and disposal of Type B PHC Contaminated soil will not be included for payment under this section, but will be provided as indicated in Section 02 61 00 – Hydrocarbon Soil Remediation.
- .10 No extra payment will be made for soil removed from beyond the specified limits of excavation, unless such removal has been specifically directed by the Departmental Representative. The volume of contaminated soil excavation beyond the specified limits that have been approved by Departmental Representative will be determined by survey.
- .11 All costs associated with the cleanup or treatment of contamination of areas within or surrounding the contaminated soil handling areas due to the migration of contaminants from those areas as a result of Contractor's actions or inactions are the responsibility of Contractor. These costs are to include all costs of investigation to determine the extent of contamination migration, as well as soil excavation and treatment costs.
- .12 The following activities are considered incidental to the work identified by Items 02 55 13-1 through 02 55 13-4 in the Basis of Payment Schedule and will not be measured separately:
- .1 Preparation of container inventory summarizing the contents of the Contaminated Soil Containers.
  - .2 Installation of monitoring equipment as required to confirm and/or calibrate process requirements, as applicable
  - .3 Testing for the disposal and disposal of wastewater or other process effluents, as applicable
  - .4 Any necessary excavation to facilitate testing of contaminated soils.
  - .5 Equipment decontamination including preparation and operation of the equipment decontamination area.
  - .6 Provision of all necessary safety equipment and clothing, as specified in Section 01 35 32-Site Specific Health and Safety Plan.
  - .7 Any requirements of permits.
  - .8 Grading of backfilled excavations to prevent ponding and blending in with the surrounding terrain, as directed by Departmental Representative.
  - .9 Excavation of contaminated soils within permafrost-affected zones.
- .13 Costs for the dewatering of excavations will not be measured for payment. Include all costs for collection of wastewater from contaminated soil areas and associated storage, treatment and discharge in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule.
- .14 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

## PART 2 - PRODUCTS

### 2.1 Environmental Protection Supplies

- .1 Environmental Protection Supplies: as per Section 01 35 43 - Environmental Procedures.

### 2.2 Contaminated Soil Containers

- .1 Contaminated Soil Containers: Shall be in accordance with all requirements of the TDG Acts and Regulations and the Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations and shall include all necessary leak proof liners to satisfy these regulations. Submit details of the Contaminated Soil Containers to the Departmental Representative forty-five (45) days prior to mobilization.
- .2 Typical functional interior volume of Contaminated Soil Containers will be determined by Departmental Representative by averaging a minimum of three (3) measurements of the interior length, height and width for each type of Contaminated Soil Container.

## PART 3 - EXECUTION

### 3.1 Excavation of Contaminated Soil and Backfilling

- .1 Layout and excavate areas of contaminated soil to the limits as indicated. All layouts are to be field verified by Department Representative prior to excavation.
- .2 Remove all surface debris prior to excavation. Remove all debris from excavated soil, sort, and containerize appropriately.
- .3 Suppress dust generated during excavation operations with a water spray. Prevent surface water from entering the excavated area.
- .4 Dewater ponded contaminated soil areas, as required. Maintain soil excavations free of standing water during soil removal, and confirmatory sampling activities. Comply with the requirements of the Waste Water Discharge Criteria indicated in Section 01 35 15 - Special Project Procedures for Contaminated Sites and Section 01 35 43 - Environmental Procedures.
- .5 When excavating in the vicinity of a drainage course or a body of water, erect silt fences, floating silt curtains and/or containment berms to prevent the release of sediment and deleterious materials into the water.
- .6 Decontaminate the equipment used for the excavation of Contaminated Soil in accordance with Section 01 35 15 - Special Project Procedures for Contaminated Site before commencing contaminated soil excavation at another location.
- .7 The Department Representative will collect confirmatory soil samples after reaching the contaminated soil excavation limits indicated on Drawings. No further excavation of the soil will proceed until the results of confirmatory samples are assessed by the Departmental Representative.
- .8 Do not operate equipment in contaminated soil areas that have been excavated until Department Representative has confirmed, based on the results of confirmatory testing, that no further excavation of contaminated soil in the area is required.

- .9 Once directed by the Department Representative, supply Type 3 Granular Fill to backfill excavation areas to original ground, as specified in Section 31 22 15 - Grading.

### 3.2 Erosion, Sediment and Drainage Controls

- .1 Prior to commencement of the work, install temporary erosion, sediment and drainage controls to prevent siltation and disruption of water bodies in accordance with this Section and Section 01 35 15 - Special Project Procedures for Contaminated Sites and Section 01 35 43 - Environmental Procedures.
- .2 Erosion, sediment and drainage controls are to be maintained during all stages of work.
- .3 At the completion of contaminated soil excavation, remove the erosion, sediment and drainage controls, as directed by Departmental Representative. Dispose of all non-granular erosion, sediment and drainage control materials off-site.

### 3.3 Containerization and Off-Site Disposal of Contaminated Soil

- .1 Assemble, load and secure Contaminated Soil Containers according to manufacturers recommendations. Do not exceed containers specified load limit.
- .2 Do not transport off-site loaded containers that have suffered structural damage during handling or on-site transport. Repair or replace damaged containers prior to off-site shipment.
- .3 Provide a numbering system and maintain an inventory of all contaminated soil containers with contaminated soil to be transported and disposed of off-site.
- .4 Label all containers, using spray paint or other means, with the container number and contents (e.g. Tier I Soil, Type A Soil, Tier II Soil, Haz Soil, etc.)
- .5 Submit to Departmental Representative a copy of the inventory of the contents of each container prior to transportation off-site.
- .6 Supply the Departmental Representative with acceptance and disposal manifests for all Contaminated Soil delivered to Contractor's Designated Waste Disposal Facilities.

**END OF SECTION**

## PART 1 - GENERAL

### 1.1 Description

- .1 This Section specifies the requirements for the treatment of Type B PHC Contaminated Soil at CAM-A, including the following:
  - .1 Submission of a Type B PHC Contaminated Soil Treatment Plan.
  - .2 Provision of proprietary equipment, materials, labour, and supplies as required, to support the soil treatment program.
  - .3 Handling and storage of material, equipment, and supplies required for the soil treatment process.
  - .4 Construction of a Soil Treatment Facility at an approved area.
  - .5 Treatment of Type B PHC Contaminated Soil Type B PHC Contaminated Soil to specified treatment criteria by a method chosen by the Contractor and reviewed by the Departmental Representative.
  - .6 Design and implementation of a contaminated soil sampling and laboratory testing program to monitor, calibrate, and verify the contaminated soil treatment process.
  - .7 Decommissioning and deconstruction of the Soil Treatment Facility following completion of soil treatment operations.
- .2 Contractor is to immediately notify Department Representative if Contractor believes that the proposed treatment system will not yield suitable results within the time frame specified due to the nature of the contaminant, soil conditions, or site conditions.

### 1.2 Definitions

- .1 Treated Soil: Soil, previously classified as Type B PHC Contaminated Soil, that has been treated, sampled, analyzed, and determined to contain concentrations of PHCs lower than the applicable criteria identified below:

PHC FRACTION	Soil Treatment Criteria (mg/kg)
TPH = F1 (C <sub>6</sub> to C <sub>10</sub> ) + F2 (>C <sub>10</sub> to C <sub>16</sub> ) + F3 (>C <sub>16</sub> to C <sub>34</sub> )	2500

- .2 Soil Treatment Facility: The site area where Type B PHC Contaminated Soil is to be treated to reduce PHC concentrations.

### 1.3 Qualifications

- .1 Contractor is to be thoroughly familiar with and knowledgeable about existing site conditions, scope of work and requirements of the Specification.
- .2 Only Contractor's Soil Remediation Specialist, capable of demonstrating a history of satisfactory experience in the area of hazardous waste management and remediation of PHC-contaminated soil, will be permitted to carry out the work of this Section.
- .3 Follow at all times, guidelines such as those established in Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities: NIOSH Publication No. 85-115, or Hazardous Waste Worker Training Manual: Canadian LIUNA - Contractors Training Council, 1992.

- .4 All activities involving the handling of hazardous materials, are to be directly supervised by Contractor's Soil Remediation Specialist, who has successfully completed a 40 hour training course for Hazardous Waste Activities in compliance with OSHA 29 CFR 1910.120 or other accepted equivalent training courses such as the Canadian Hazardous Waste Workers Program.
- .5 Personnel trained as described above are to instruct and direct all workers with respect to the waste management procedures and labour and safety practices to be followed in carrying out the work.
- .6 Provide suitable safety clothing and equipment as required during the course of the work.
- .7 Trained and certified personnel are required to complete all Transportation of Dangerous Goods Act (TDGA) and Interprovincial Movement of Hazardous Waste Regulation (IMHWR) documentation and recording requirements.

1.4 Site Conditions

- .1 During or after occurrence of heavy rains, do not operate equipment in designated areas until the material has dried sufficiently to prevent excessive rutting.
- .2 Remove debris, snow, ice and standing water from areas prior to construction of the Soil Treatment Facility or placement of soil within the Facility.

1.5 Protection

- .1 Environmental protection measures are to be in accordance with the requirements of Section 01 35 43 - Environmental Procedures.
- .2 Decontaminate equipment in accordance with Section 01 35 15 – Special Procedures.
- .3 The release of all Wastewater shall conform to the Wastewater Discharge Criteria indicated in Section 01 35 15 – Special Procedures for Contaminated Sites.

1.6 Personal Protection

- .1 When working with PHCs and other contaminants, workers are to wear protective clothing and equipment acceptable to Labour Canada or Territorial Labour Department as suitable for exposure in the work area. Follow National Institute for Occupational Safety and Health (NIOSH) guidelines in providing protection for on-site personnel including contract employees and subcontractor, Department Representative and other authorized site personnel.
- .2 Include requirements for protective clothing for the work outlined in this section in the Site Specific Health and Safety Plan specified in Section 01 35 32, Site Specific Health and Safety Plan.
- .3 Supply sufficient quantities of designated protection equipment to fit all site personnel including Department Representative and authorized visitors. Supply at least five sets of protection equipment for Department Representative and authorized visitors.
- .4 No separate pay item is to apply to the work practice requirements, including personal protection, of this Section. Costs are to be included in the applicable payment items to which this Section applies

1.7 Type B PHC Contaminated Soil Treatment Plan

- .1 Submittals to be in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Submit a Type B PHC Contaminated Soil Treatment Plan outlining the treatment methodology and equipment proposed by the Contractor to complete the Type B PHC Contaminated Soil treatment. Type B PHC Contaminated Soil Treatment Plan must be acceptable to AHJs. Submit the Plan ninety (90) days prior to construction.
- .3 At minimum, the Type B PHC Contaminated Soil Treatment Plan is to detail the following:
  - .1 The chosen soil treatment method.
  - .2 Description of why the chosen treatment methodology is appropriate for site locations and conditions including past experience and relevant technical documentation.
  - .3 The equipment, materials and supplies required to conduct the treatment, including provisions to deal with equipment breakdown.
  - .4 Labour and temporary facilities required for the implementation of the treatment program.
  - .5 The size, shape, and location of the proposed treatment operation, and control measures to prevent contaminant migration outside of the treatment area.
  - .6 Details of the Contractors contaminated soil sampling and laboratory testing methodology, personnel, and protocols to calibrate, monitor, and verify the effectiveness of the contaminated soil treatment process. Sampling methodology is to meet or exceed requirements of industry best practice and INAC Abandoned Military Site Remediation Protocol, 2009.
  - .7 Schedule of predicted treatment durations.
  - .8 Details of the handling and storage of material, equipment, and supplies required for the soil treatment process.
  - .9 Details on final placement of treated soils.
  - .10 Details for the final decommissioning of the treatment area and associated facilities.

1.8 Signs

- .1 Signage: Provide and erect signage at access points to the Soil Treatment Facility. Signage is to be visible from all sides of these areas. The English version of the sign is to read:

**CAUTION, CONTAMINATED SOIL TREATMENT AREA  
RESTRICTED ACCESS.**

Post a similar sign in the language of the local dialect, Inuinnaqtun.

- .2 Graphic Symbols: All lettering is to conform to CAN3-Z321-77, or latest edition thereof. All lettering is to be black, not less than 100 mm high, with a 25 mm wide stroke, on a white background.

1.9 Measurement for Payment

- .1 Treatment of Type B PHC Contaminated Soil will be measured for payment by cubic metre of Type B PHC Contaminated Soil excavated, based on survey methods outlined in Section 31 22 15 – Grading – and will be paid under the unit price Item 02 61 00-1, Treatment of Type B PHC Contaminated Soil in the Basis of Payment Schedule. Item 02 61 00-1 will have the same cubic metre volume as payment item 02 55 13-4 – Type B PHC contaminated soil excavation.

- .2 The scope of work for Payment Item 02 61 00-1 is to include all direct work associated with the construction and operation of the Soil Treatment Facility, according to the accepted Type B PHC Contaminated Soil Treatment Plan, including the following:
  - .1 Provision of all materials, equipment, labour and supplies to construct the Soil Treatment Facility.
  - .2 Provision of all materials, equipment, labour and supplies necessary to operate the Soil Treatment Facility.
  - .3 Removal, treatment and discharge of Contact Water, as required to facilitate treatment operations.
  - .4 Installation of monitoring equipment, as required.
  - .5 Provision and erection of signage as described.
  - .6 Reporting and record keeping.
  - .7 Equipment decontamination including preparation and operation of an equipment decontamination area, as applicable.
  - .8 Provision of all necessary safety equipment and clothing.
  - .9 Any requirements of permits.
  - .10 Final disposal of treated soil.
  - .11 Decommissioning of Soil Treatment Facility.
- .3 All costs associated with the cleanup or treatment of contamination of areas within or surrounding the Soil Treatment Facility or due to the migration of contaminants from the soil being treated as a result of Contractor's actions or inactions are the responsibility of Contractor. These costs are to include all costs of investigation to determine the extent of contamination migration, as well as soil excavation and treatment costs.
- .4 Submission of a Type B PHC Contaminated Soil Treatment Plan will not be measured for payment under this Section. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 18 -Construction Progress Schedules – Bar (GANTT) Chart.
- .5 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 18 -Construction Progress Schedules – Bar (GANTT) Chart.

## PART 2 - PRODUCTS

- 2.1 Not used.

## PART 3 - EXECUTION

- 3.1 General

- .1 Handling and storage of material, equipment, and supplies required for the soil treatment process upon their arrival at site.
- .2 Operate the treatment system in the most efficient manner necessary to complete treatment in the minimum time frame possible.

### 3.2 Soil Treatment Process Requirements

- .1 Locate the Soil Treatment Facility within the Proposed Soil Treatment Areas identified on the Drawings or other approved area, in consultation with the Departmental Representative to satisfy AHJ requirements.
- .2 Treat Type B PHC Contaminated Soil as described in the accepted Type B PHC Contaminated Soil Treatment Plan.
- .3 Remove, handle and transport Treated Soil to the disposal location(s) approved by the Departmental Representative. Disposal may be within a section of the Soil Treatment Facility clearly segregated from non-Treated Soil.
- .4 Dilution of the contaminated soil with clean or treated soil to reduce the overall contaminant concentration will not be accepted as a remediation approach.

### 3.3 Testing

- .1 Carry out and pay for all testing required to confirm and/or calibrate treatment process requirements and to confirm that contaminated soils have been treated to specified contaminant levels. This testing is to include a baseline sampling and analysis program in the area of the stockpile and treatment areas to verify existing conditions, as well as a confirmatory testing program.
- .2 Duplicates of a minimum of 10 percent of the samples extracted will be collected for Contractor's confirmatory testing program by the Departmental Representative. Costs for this testing will be the responsibility of the Departmental Representative.
- .3 Contaminated soil will be designated as treated soil if the results of the laboratory analytical testing of a composite sample obtained from five discrete soil samples representative of a 100 cubic metre soil volume indicate concentration levels of PHCs to be less than the applicable remediation criteria.

### 3.4 Contact Water and Free Product

- .1 Handle, and treat Contact Water encountered during the soil treatment operation as described in Section 02 35 15 – Special Procedures for Contaminated Sites.

### 3.5 Soil Disposal

- .1 Dispose of all Treated Soil in locations greater than 30 m from water bodies and in accordance with AHJ.
- .2 Dispose of soil by placing and trackpacking in low piles less than 1.5 m high with sides that have a maximum slope of 1 vertical to 5 horizontal.

### 3.6 Reporting

- .1 Submit to the Department Representative on a monthly basis during contaminated soil treatment activities, a Contaminated Soil Treatment Operation Report which is to include the following information, as applicable to the treatment process:
  - .1 volume of contaminated soil excavated;
  - .2 schedule of treatment process activities;
  - .3 date and application rates of amendments added to the soil;

- .4 results of the visual inspection program;
  - .5 effluent and contaminated soil test results, including the results of the baseline sampling and analytical program;
  - .6 climate data including average daily temperature, dates of precipitation events, and amount of precipitation.
- .2 Within 30 days of the completion of each season/year of work, submit to Department Representative an Interim Soil Remediation Report. This report is to include, but not necessarily be limited to, the following information as applicable to the treatment process:
- .1 nature and volume of treated soil;
  - .2 equipment usage;
  - .3 fuel and/or power usage;
  - .4 environmental monitoring and inspection records;
  - .5 temperature and precipitation records for the duration of the work season;
  - .6 results of all testing including sampling procedures, analytical procedures, analytical results, and QA/QC procedures for baseline and confirmatory testing programs;
  - .7 proposed modifications to the treatment process, as required;
  - .8 any other information required to meet the water licence and land use permit annual report requirements.

**END OF SECTION**

## PART 1 - GENERAL

### 1.1 Description

- .1 This section specifies the requirements for the collection, containerization, on-site and off-site transport, and disposal of hazardous waste.
- .2 An inventory of known Hazardous Waste Materials is provided in the Demolition and Debris inventories in Appendix A and B.

### 1.2 Definitions

- .1 Hazardous Waste Materials: Wastes materials that are designated as “hazardous” or “dangerous goods” under Territorial or Federal legislation or guidelines including: the Transportation of Dangerous Goods Act (TDGA) and Regulation (TDGR), and the Export and Import of Hazardous Waste and Hazardous Recyclable Materials Regulations (EIHWHRMR) under the Canadian Environmental Protection Act (CEPA). The following items, typical of remote Arctic sites, are designated as “hazardous” in accordance with the aforementioned legislation:
  - .1 Asbestos (unbagged).
  - .2 Batteries.
  - .3 Solvents.
  - .4 Mercury switches and thermostats
  - .5 Petroleum, Oil, or Lubricating (POL) materials not meeting incineration criteria, as defined in clause 3.6.6 of this Section.
  - .6 Tank Sludge.
  - .7 Hazardous PCB-Amended Painted Material, as defined in Section 02 41 16 - Structure Demolition.
  - .8 Leachable Lead painted material.
  - .9 Soil, concrete and paint chips containing PCBs at concentrations in excess of 50 ppm (mg/kg) and/or leachable lead in excess of 5 mg/L.
  - .10 Material, including wastewater, groundwater and surface water, identified to be hazardous as the result of testing.
  - .11 Electrical equipment including, but not necessary limited to, capacitors, transformers, and regulators which contain or are suspected to contain PCBs at concentrations in excess of 50 mg/kg.
  - .12 Miscellaneous Hazardous Materials defined as those materials not classified as 1 to 11 above but suspected to fall under the definition of Hazardous Wastes and Materials as stated in this Section.
- .2 Known and Unknown Debris: as defined in Section 02 41 23 - Debris Removal.
- .3 Processing: The sampling, testing, packaging, and containerization of suspected Hazardous Waste Materials.
- .4 Hazardous Waste Container: A container, of the appropriate type and size necessary to contain the Hazardous Waste Material placed in it, as required by the TDGA.
- .5 Hazardous Material Processing Area: A designated area, accepted by the Departmental Representative, for the consolidation, processing and containerization of hazardous waste materials, including barrel contents.

- .6 Temporary Storage Area: The designated area, approved by Departmental Representative, for the storage of containerized contaminated soil and waste prior to transport off-site. Requirements for the Temporary Storage Area are outlined in Section 01 52 00 of these Specifications.
- .7 Contaminated Groundwater: The groundwater encountered during contaminated soil, debris or landfill excavation that contains free product or does not conform to the Wastewater Discharge Criteria of the Water License.
- .8 Contractor's Designated Hazardous Waste Disposal Facilities: The Licensed Hazardous Waste Disposal Facilities designated by the Contractor and pre-approved by the Departmental Representative, for the disposal of all hazardous waste specified under the provisions of this contract. Contractor must provide documentation from the Designated Hazardous Waste Disposal Facilities indicating written acceptance for all hazardous waste accepted from the CAM-A site.
- .9 Contractor's Designated Non-Hazardous Waste Disposal Facilities: Licensed Non-Hazardous Waste Disposal Facilities designated by the Contractor and pre-approved by the Departmental Representative, for the disposal of all non-hazardous waste specified under the provisions of this contract. Contractor must provide documentation from the Designated Non-Hazardous Waste Disposal Facilities indicating written acceptance for all non-hazardous waste accepted from the CAM-A site.
- .10 Leachable-Lead Painted Material: Material that is coated with lead based paint that has been analyzed and determined to contain leachable lead concentrations in excess of 5 mg/L.
- .11 Known Hazardous Material: Material designated as hazardous in accordance with the definition of hazardous waste in this Section, and which is identified for collection and disposal in the specifications and Drawings.
- .12 Unknown Hazardous Material: Material designated as hazardous in accordance with the definition of Hazardous Waste Material in this Section, and which has not been specifically identified for collection and disposal in specifications and Drawings.

### 1.3 Reporting Requirements

- .1 Submit details and approvals for Rigid Intermediate Bulk Containers including all required approvals, as well as a description of the type, volume and number of containers to the Departmental Representative forty-five (45) days prior to mobilization.
- .2 Submit qualifications and training records for hazardous materials personnel.
- .3 Submit the hazardous waste disposal tracking information including final inventories of hazardous waste containers and disposal details to Departmental Representative prior to transportation off-site.
- .4 Hazardous Waste Disposal Tracking Form is provided in Appendix E.
- .5 Submit waste transport manifests, chain of custody documentation and transport documentation for hazardous wastes to the Departmental Representative and to other AHJ prior to shipment off-site and in accordance with applicable regulations.
- .6 Submit destruction certificates to the Departmental Representative.

- .7 In the event of an environmental incident or damage to waste containers, notify the Departmental Representative and applicable AHJ.

#### 1.4 Qualifications and Personnel Protection

- .1 Be thoroughly familiar with and knowledgeable about existing site conditions, scope of work and requirements of the Specification.
- .2 Submit qualification and training records prior to commencing Work under this Section, for all Contractor's personnel completing Work as described under this Section.
- .3 Follow at all times guidelines such as those established in Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities: NIOSH Publication No. 85-115, or Hazardous Waste Worker Training Manual: Canadian LIUNA – Contractors Training Council, 1992.
- .4 Only Contractor's personnel capable of demonstrating a history of satisfactory experience in the area of hazardous waste management and can satisfy Federal and Territorial requirements will be permitted to supervise and direct the work of this Section.
- .5 All activities involving the handling of hazardous materials are to be directly supervised by Contractor's personnel who have successfully completed a 40 hour training course for Hazardous Waste Activities in compliance with OSHA 29 CFR 1910.120 or other accepted equivalent training courses such as the Canadian Hazardous Waste Workers Program. Contractor's key personnel responsible for the removal of leachable lead coatings are to demonstrate appropriate level of experience in the lead control, removal and abatement industry.
- .6 Contractor's personnel trained as described in this Section are to instruct and direct all workers with respect to the waste management procedures and labour and safety practices to be followed in carrying out the work.
- .7 Provide workers with protection appropriate to the potential type and level of exposure. Establish specific safety protocols prior to commencing cleanup activities.
- .8 Provide suitable safety clothing and equipment as required during the course of the work. Supply sufficient quantities of protection equipment to fit all site personnel including Departmental Representative, Departmental Representative's staff, and site visitors.
- .9 Trained and certified personnel are required to complete all Transportation of Dangerous Goods Act (TDGA) documentation and recording requirements.

#### 1.5 Measurement for Payment

- .1 The supply of Hazardous Waste Containers, including liners, for the containerization of Hazardous Waste will be measured for payment by the functional interior storage volume, in cubic metres, of the container. Supply of Hazardous Waste Containers will be paid under Item 02 61 33-1 as indicated in the Basis of Payment Schedule.
- .2 The collection, containerization and on-site transport to the Temporary Storage Area of all Hazardous Waste derived from Structure Demolition will not be included for payment under this section, but will be included as specified in Section 02 41 16 – Structure Demolition.

- 
- .3 The collection, containerization and on-site transport to the Temporary Storage Area of all Hazardous Waste derived from Debris Removal will not be included for payment under this section, but will be included as specified in Section 02 41 23 – Debris and Miscellaneous Removals.
- .4 The collection, containerization and on-site transport to the Temporary Storage Area of all Hazardous Waste derived from Contaminated Soil Excavation will not be included for payment under this section, but will be included as specified in Section 02 55 13 – Contaminated Soil.
- .5 Include all direct costs for the off-site transport of Hazardous Waste Materials derived from CAM-A to Contractor's Designated Hazardous Disposal Facilities in the lump sum price for Off-site Transport of Hazardous Waste to Contractor's Designated Hazardous Waste Disposal Facilities, Item 02 61 33-2 in the Basis of Payment Schedule.
- .6 The scope of work for Item 02 61 33-2 - Off-Site Transport of Hazardous Waste Materials to Contractor's Designated Hazardous Waste Disposal Facilities is to include, but not be limited to, the following:
- .1 Packaging and containerizing Hazardous Waste, including all placards and labels, to meet all the requirements of the TDG Act, Interprovincial Movement of Hazardous Waste Regulation (IMHWR) and all other applicable Regulations.
  - .2 Any analytical testing of waste required by the Contractor's Designated Hazardous Waste Disposal Facilities.
  - .3 Preparation and submission to the Departmental Representative of waste transport manifests to meet all requirements of the TDG Act and Regulations and Interprovincial Movement of Hazardous Waste Regulation (IMHWR).
  - .4 Preparation and management of an in-transit hazardous materials storage location as required during demobilization activities.
  - .5 Provision of transport for the containerized Hazardous Waste Materials from the in-transit hazardous materials storage location to Contractor's Designated Hazardous Waste Disposal Facilities.
- .7 The off-site disposal of Hazardous Waste Materials derived from CAM-A will be paid as provisional cost sum under Item 02 61 33-3 in the Basis of Payment Schedule.
- .8 The scope of work for Item 02 61 33-3 - Off-Site Disposal of Hazardous Waste Materials at Contractor's Designated Hazardous Waste Disposal Facilities is to include, but not be limited to, the following:
- .1 Off-loading and disposal costs of the containerized Hazardous Waste Material at Contractor's Designated Hazardous Waste Disposal Facilities.
  - .2 Documentation of acceptance from Contractor's Disposal Facilities and record keeping of hazardous waste via the Hazardous Waste Disposal Tracking form.
  - .3 Acquisition and submission of Certificates of Destruction for all regulated hazardous items.
- .9 Payment for Item 02 61 33-3 will be made upon receipt of the hazardous waste materials at the Contractor's Designated Hazardous Waste Disposal Facilities and submission to the Departmental Representative of the destruction certificates, transportation documents and other information as described in this Section.
- .10 Be responsible for all costs associated with any repackaging of container contents resulting from the failure by the Contractor to properly pack, handle and secure the container and/or contents.

- 
- .11 The development, operation, and closure of the Temporary Storage Area, including provisions of signs and barricades, will be paid for as specified in Section 01 52 00 – Construction Facilities.
- .12 The development, operation, and closure of the Hazardous Material Processing Areas, including provision of signs and barricades, will not be measured for payment. Include all costs for the Hazardous Material Processing Areas, including signs and barricades in Item BOPC-1, Balance of Project Costs.
- .13 Costs for the processing and containerization of Unknown Hazardous Waste Material will be negotiated with the Departmental Representative using the Contractor's Labour and Equipment Rates provided in the Potential Additional Work Schedule. The scope of work for the processing and containerization of Unknown Hazardous Waste Material includes, but is not limited to the following:
- .1 Supply and transport of additional containers to the site for Unknown Hazardous Waste Materials.
  - .2 Equipment and labour for the containerization.
  - .3 Supply and transport to the site of additional detergents and solvent, required for barrel processing.
  - .4 Processing of liquid barrel contents as directed by the Departmental Representative, including on-site incineration of contents meeting incineration criteria, or treatment of water to meet discharge criteria.
  - .5 Disposal of empty barrels resulting from the collection and consolidation of Unknown Hazardous Waste Materials.
  - .6 Off-site Transport and Disposal of Unknown Hazardous Waste Material, as directed by the Departmental Representative, to the Contractor's Designated Hazardous Waste Disposal Facilities.
- .14 Unknown hazardous material is that material designated as hazardous in accordance with the definition of hazardous waste material in Clause 1.2.1 of this section and which has not been specifically identified for collection or disposal as part of other work components.
- .15 As part of Potential Additional Work (PAW), Unknown Hazardous Waste Material is to include:
- 1. Hazardous debris outside of Known Debris Areas identified in Appendices and/or Drawings, or located beyond 50 m of the undisturbed edge of any former or existing access road or water course on the site; Hazardous debris in excess of the volume identified in Appendices in the Known Debris Areas to be removed.
  - .2 Unknown barrel contents and absorbent management materials resulting from barrel processing activities.
  - .3 Free product collected during contaminated soil excavation or soil treatment operations
  - .4 Hazardous material encountered during demolition operations that is not identified in the demolition inventory in the Appendix.

- .16 As part of Potential Additional Work (PAW), Unknown Hazardous Waste Material is not to include:
- .1 Materials from facilities to be demolished that are contaminated with PCB-amended paint at PCB concentrations in excess of 50 parts per million.
  - .2 Asbestos containing materials from facilities to be demolished.
  - .3 Fuel and fuel residual product from fuel tanks and pipelines to be demolished.
  - .4 Sewage and sewage sludge from sewage tanks and lines to be demolished.
  - .5 Hazardous Contaminated Soil as defined in Section 02066 - Contaminated Soils.
  - .6 Any hazardous material identified in the Demolition Inventory in the Appendix, or elsewhere in these Specifications.
- .17 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

## PART 2 - PRODUCTS

### 2.1 Hazardous Waste Material Containers:

- .1 Hazardous Waste Containers:
- .1 Containers are to satisfy the requirements of the latest edition of the TDGA, and TDGR, and CEPA EIWHRMR, and CEPA Interprovincial Movement of Hazardous Waste Regulation
  - .2 Submit details of the containers to Departmental Representative for review 45 days prior to mobilization. These details are to include written confirmation from Transport Canada that Contractor's proposed containers satisfy TDGA regulatory requirements for marine and land transport.
  - .3 Containers are to include all necessary liners to satisfy the TDGA requirements for marine and land transport.
- .2 Rigid Intermediate Bulk Containers:
- 1. Containers approved for the storage and transport of PCB containing waste, under the latest edition of the CEPA PCB Regulations, TDGA, and TDGR.
- .3 Provide dunnage, locks, and bracing material for securing PAP material placed in steel containers.
- .4 For transport by cargo vehicle or vessel, package liquids containing PCBs at concentrations greater than 50 ppm in accordance with TDG Act and Regulations and CEPA regulations (IMHWR and EIWHRMR) in a combination packaging where the inner package is made of earthenware, plastic or metal, and is leak-proof, and the outer packaging is a drum or box made of steel, aluminium, plywood, fibre or plastic. Provide sufficient absorbent material between the inner and outer packaging to prevent any liquid from escaping the outer packaging. There is no quantity limit per package for cargo vehicle or vessel transport.
- .5 For packaging and containerization requirements of Hazardous Waste Materials, all requirements of the TDG Act and Regulations, and CEPA Interprovincial Movement of Hazardous Waste must be met.
- .6 Provide access for Departmental Representative to inspect all Hazardous Waste Material Packaging as directed by Departmental Representative.

## 2.2 Solvent (Barrel Rinse)

- .1 Minimum flash point: 60°C. Prior to shipment to the site, submit to Departmental Representative Material Safety Data Sheets (MSDS) as specified in Section 01 35 32 – Site Specific Health and Safety for Contaminated Sites. The solvent shipped to the site is to remain the property of Contractor.

## PART 3 - EXECUTION

### 3.1 General Requirements

- .1 Conduct all work in accordance with all appropriate Federal, Territorial and Provincial legislation, and international conventions.
- .2 Individuals shipping and receiving hazardous waste materials are to be licensed under the TDGA and Regulations, and appropriate territorial environmental Acts and regulations.
- .3 Only trained individuals or individuals working under the direct supervision of trained persons are to handle or transport dangerous goods.
- .4 Establish Hazardous Material Processing Areas for the packaging of hazardous waste materials, as well as for the consolidation, incineration, and packaging of barrel liquids and sediments, and for the cleaning of barrels. Provide measures to mitigate release of contaminants to the environment including, but not limited to liners, silt fences, sorbent materials, ditching and grading, etc.
- .5 Establish Temporary Storage Areas as specified in Section 01 52 00 – Construction Facilities, to provide a secure area for Hazardous Waste Material prior to shipment for disposal as described in this Section.

### 3.2 Protection

- .1 Complete work in an environmentally acceptable manner. Comply with requirements of Section 01 35 43 - Environmental Procedures.
- .2 Avoid releasing any Hazardous Waste Materials into the environment during handling.
- .3 In the event of a spill, invoke the emergency response plan and take appropriate action.
- .4 Provide a full range of cleanup and protective equipment at the site to contain and cleanup spills, and protect personnel, as detailed in the Spill Contingency Plan and specified in Section 01 35 32 – Site Specific Health and Safety Plan.
- .5 When working with PCB-containing materials, leachable lead materials, asbestos, and other contaminants, workers are to wear protective clothing and equipment acceptable to Labour Canada or Territorial Labour Department as suitable for exposure in the work area. Follow National Institute for Occupational Safety and Health (NIOSH) guidelines in providing protection for on-site personnel including contract employees, subcontractors, Departmental Representative, Departmental Representative's staff, and other authorized personnel.
- .6 Handle materials containing asbestos in accordance with Section 02 82 00.01- Asbestos Abatement-Minimum Precautions and Section 02 82 00.02 - Asbestos Abatement - Intermediate Precautions.

- .7 The release of all water resulting from the cleaning of fuel tanks, pipelines and barrels is to conform to the Wastewater Discharge Criteria of the Water License. Treat washwater to conform to the Discharge Criteria of the Water License, or dispose of any liquid effluent not conforming to the Water License off-site at Contractor's own cost, in accordance with the requirements of this Section.
- .8 Departmental Representative is to carry out baseline soil sampling and analyses of the Hazardous Material Processing Area and Temporary Storage Area prior to commencing placement of materials at these areas, and confirmatory sampling following the decommission of the areas. The Contractor is responsible for any soil contamination resulting from the improper storage and handling of contaminated or hazardous materials over the duration of site remediation activities. In the event of such contamination, the Contractor is to submit to Departmental Representative a plan for site remediation in accordance with all Federal and Territorial Regulations to be enacted upon immediately following approval by Departmental Representative. All cleanup costs, including but not limited to excavation and disposal, will be the responsibility of the Contractor.
- .9 Personnel protective equipment, as per Section 01 35 32, Site Specific Health and Safety for Contaminated Sites, is to include clothing, protective suits, respirators, etc. in accordance with NIOSH Guidelines and to comply with anticipated and potential emergency conditions.
- .10 Site personnel in the vicinity of the debris removal operations or handling Hazardous Waste Material are required to wear environmental protection equipment in accordance with NIOSH guidelines.

### 3.3 Hazardous Material Processing Area

- .1 Establish Material Processing Areas for the purpose of:
  - .1 Containerization of Hazardous Waste Materials; and
  - .2 Processing of barrels and barrel contents, including consolidation of compatible liquids and sediments, incineration of hydrocarbon liquids meeting incineration criteria, packaging for off-site shipment, and cleaning of barrels.
- .2 Establish the Hazardous Material Processing Areas to:
  - .1 Be of sufficient size and capacity to accommodate the volume of material and number of barrels to be processed at any one time;
  - .2 Provide for the packaging of Hazardous Waste Materials, barrel contents and wash water;
  - .3 Minimize the handling of Hazardous Waste Materials;
  - .4 Isolate Hazardous Waste Materials, barrel contents and wash water from other work operations;
  - .5 Provide access for consolidation, packaging, cleaning of barrels, and transporting containers to the Temporary Storage Area;
  - .6 Be leak-proof and contain all runoff water, spills, and leaks so as not to contaminate the environment;
  - .7 Provide safe working conditions for personnel working in and around these areas.
  - .8 Meet requirements of AHJ's.

- .3 The Hazardous Material Processing Area is to be located as follows:
  - .1 More than 30 metres away from any water body or drainage course.
  - .2 On stable ground not subject to flooding or seasonal saturation.
  - .3 In a previously disturbed area if possible.
  - .4 In a location that will not impede other work required.
- .4 Do not use the Hazardous Material Processing Areas until baseline sampling has been completed by the Departmental Representative.
- .5 Immediately clean up any spills, leaks, or other releases of liquid or sediment from this area using appropriate techniques.
- .6 Submit details of the Hazardous Material Processing Area to Departmental Representative for review and approval prior to commencing remediation activities.

### 3.4 Removal and Sorting of Suspected Hazardous Waste Materials

- .1 Continually monitor the remediation operation to identify potentially hazardous material.
- .2 Immediately suspend work if suspected hazardous material is identified and allow visual confirmation of the nature of the material or debris to be established.
- .3 Store suspicious material in a secured area or secured containers, if the nature of the material or debris cannot be visually confirmed. Advise Departmental Representative about the findings. Material needs to be secured until the nature of the material is confirmed by Departmental Representative. Testing for classification will be carried out and paid for by Departmental Representative.

### 3.5 Containerization of Hazardous PCB Amended Painted and Leachable-Lead Materials

- .1 Sort dismantled Hazardous PCB-Amended Painted material and Leachable Lead Painted Materials and place in the appropriate Hazardous Waste Containers, as described in this section, as follows:
  - .1 Do not mix waste material types. Provide separate Hazardous Waste Containers for PCB-Amended Painted material and Leachable Lead Painted Materials.
  - .2 Place the materials in the container in a manner to minimize voids within the container and such that no movement of the material will occur during normal conditions of transport.
  - .3 Use a container that is constructed and sized appropriately for the type of waste to be placed within it. Use intermediate containers as required.
  - .4 Distribute the weight of the material evenly over the floor of the container. Where cargo items of a varying weight are to be packaged into a container or where a container will not be full, arrange the material so that the centre of gravity of the cargo is close to the mid-length of the container. Do not concentrate heavy loads on small areas of the container floor.
  - .5 Position materials within the container so that the centre of gravity is below the half-height of the container.

- .2 Provide a photographic record of the interior of all completed Hazardous Waste Containers prior to closing. Submit the photographic record to Departmental Representative together with the corresponding inventory of each container upon completion of work. Trained and certified Contractor personnel are required to complete all Transportation of Dangerous Goods Act (TDGA) and Regulations documentation and recording requirements. Departmental Representative will represent the generator of the waste and will sign all documentation as required.
- .3 Clearly mark on all containers the contents in accordance with the requirements of the Canadian Environmental Protection Act for the Storage of PCB Materials (SOR/2008-273), and with the Transportation of Dangerous Goods Regulations.
- .4 Securely affix to all Hazardous Waste Containers containing PCB Amended Painted Materials, a black and white weatherproof label measuring 150 mm by 150 mm in the form illustrated in Figure 1 at the end of this section and translated into the local dialect.
- .5 Securely affix to a visible side of the Hazardous Waste Container with PCB Amended Painted Materials, a black and white weatherproof label measuring 76 mm by 76 mm bearing a Registration number. Labels to be provided by Departmental Representative and will be in the form illustrated in Figure 2 at the end of this specification section.
- .6 Remove contamination from clothing before leaving work areas containing PCB or leachable lead materials before leaving work area, and place in polyethylene bags. Remove outer clothing before leaving work area and place in doubled polyethylene bags. Place bags in Hazardous Waste Material Containers specified in this Section.
- .7 Decontaminate all equipment that comes into direct contact with hazardous materials. Place all rags or cloths used during the equipment decontamination in polyethylene bags. Place bags in the Hazardous Waste Containers specified in this Section.
- .8 Prior to their removal from the facility, spray or dampen with water all drop cloths placed to collect paint particles that become removed during dismantling operations. Place the drop cloths in polyethylene bags, and place the bags in the Hazardous Waste Material Containers specified in this Section.

### 3.6 Barrel Processing

- .1 Flow diagrams for the methodology for the processing, cleanup and disposal of barrels are shown on Figures 3 and 4 at the end of this Section.
- .2 Submit for review forty-five (45) days prior to mobilization, a detailed description of the proposed barrel processing methodology, including oil/water separation, water treatment, incineration, and containers to be used for the disposal of hydrocarbon absorbent materials and hydrocarbon barrel contents. The description must include product/manufacturer information and specifications for each of the products to be used.
- .3 Inspection:
  - .1 All barrels are to be inspected by Departmental Representative and Contractor. The purpose of the inspection is to identify the process for opening, sampling, testing and handling of the barrels. The inspection is to address the following items as a minimum:

- .1 Symbols, words, or other marks on the barrel that identify its contents, and/or that its contents are hazardous; e.g. radioactive, explosive, corrosive, toxic, flammable.
  - .2 Symbols, words, or other marks on the barrel that indicate that it contains discarded laboratory chemicals, reagents, or other potentially dangerous materials in small-volume containers.
  - .3 Signs of deterioration such as corrosion, rust, or leaks at seams, rims, and V grooves.
  - .4 Evidence of spills or other contamination on the top and sides of the barrel.
  - .5 Signs that the barrel is under pressure such as bulging and swelling.
- .4 Test areas around barrels that show evidence of holes, rust points, or openings using a Volatile Organic Compound (VOC) instrument prior to movement. If levels exceed 20 percent Lower Explosive Limit (LEL) as measured by the VOC, conduct all handling, storage, and transportation operations in accordance with the appropriate sections of the National Institute for Occupational Safety and Health (NIOSH) guidelines, National Fire Code of Canada, and the TDGA for flammable and combustible materials.
- .5 Barrel opening:
  - .1 Pressurized barrels are extremely hazardous. Open with extreme caution. Use only non-sparking equipment to open barrels. Provide all personnel responsible for opening barrels with appropriate safety equipment and clothing. Open barrels in accordance with the procedures outlined in the Occupational Safety and Health Administration (OSHA) Code of Federal Regulations Title 29, Part 1910, Section 120 (29 CFR 1910.120) Hazardous Waste Operations and Emergency Response (HAZWOPER).
  - .2 If the bungs of a barrel can be readily moved, then open the barrel slowly, allowing time for any pressure in the barrel to be released before the bungs are fully removed.
  - .3 If the bungs of a barrel cannot be readily moved, or if barrel inspection suggests that opening of the barrel may present a special hazard, vent the barrels remotely to relieve any internal pressure that may be present prior to opening. Conduct remote barrel venting using a suitable device such as a sharp weighted spear dropped from an appropriate height or released from a tube housing a spring to penetrate the barrel. Drive the spear into the barrel such that the barrel pressure is vented.
  - .4 Conduct the remote venting operation at a safe distance from other site operations, and from behind suitable walls or barricades.
  - .5 All barrels are to be clearly numbered and cross-referenced to sample numbers.
  - .6 Do not transport barrels until it has been determined that they are not pressurized, do not leak, and are sufficiently sound for transport.
- .6 Sampling and testing of barrel contents:
  - .1 Samples of the contents of barrels are to be extracted by Departmental Representative.
  - .2 Combine barrel contents as directed by Departmental Representative.
  - .3 Do not consolidate barrel contents consisting of black oil.
  - .4 Collect barrels and store at the Material Processing Area.
  - .5 Based on the results of the analysis by Departmental Representative, treat barrel contents in accordance with the requirements detailed in Figure 4 at the end of this Section.

.7 Disposal of barrel contents:

- .1 Dispose of barrels containing rust and sediment as empty barrels as described below.
- .2 For small volumes, agitation with oil-absorbent material to remove any organic material, is acceptable.
- .3 Collect aqueous contents and treat to conform to the Discharge Criteria of the Water License, or dispose of any liquid effluent not conforming to the Water License off-site at Contractor's own cost.
- .4 Provide a dual chamber, forced air, fuel fired POL incinerator to site to incinerate all waste POL product that meets the following incineration criteria:
  - .1 PCBs < 2 ppm
  - .2 Chlorine < 1000 ppm
  - .3 Cadmium < 2 ppm
  - .4 Chromium < 10 ppm
  - .5 Lead < 100 ppm
  - .6 Glycol/Alcohol < 2%
- .5 Test used oil and oil-absorbent material to determine treatment and disposal requirements. Incinerate oil and oil-absorbent material meeting the above incineration criteria on-site or package oil and oil absorbent material with contaminants in excess of the above incineration criteria for disposal off-site at Contractor's licensed disposal facilities, in accordance with TDGA Regulations as required.
- .6 A leachate extraction test is to be carried out by Departmental Representative on the solid residual material resulting from the incineration process. The leachate toxicity of the material will be determined in accordance with CEPA EIHWHMR. Dispose of materials found not to be leachate toxic as Tier II contaminated soil as described in Section 02 55 13 - Contaminated Soil. Package leachate toxic material in accordance with EIHWHMR, as required.

.8 Cleaning and disposal of barrels:

- .1 Steam clean empty barrels resulting from the consolidation of barrel contents. Clean to remove oil, sludge, wax, tar and other fuel residue adhering to the surface.
- .2 If residue remains, apply a manual cleaning method. For heavily oil-soaked surfaces, a second application may be required. Steam clean barrels after detergent application.
- .3 Only in the event that two-time detergent application proves ineffective, utilize an appropriate solvent rinse for residue removal. Solvent rinsate material is to be tested by Departmental Representative to determine disposal requirements. If the solvent rinsate meets the criteria indicated above, incinerate the material on site. If the solvent rinsate is in excess of the criteria, package the material in accordance with TDGA regulations, as required, for disposal off-site at Contractor's licensed disposal facilities.
- .4 Recycling of steam cleaning rinsate is permitted. Direct steam cleaning rinsate to an oil-water separator. Removal of oily waste residue by agitation with oil-absorbent material to remove any organic material is permitted.
- .5 The resulting steam cleaning rinsate is to be tested by Departmental Representative for the Wastewater Discharge Criteria of the Water License. Treat steam cleaning rinsate to conform to the Waste Water Discharge Criteria of the Water License, or dispose of any liquid effluent not conforming to the Water License off-site at Contractor's own cost at Contractor's licensed disposal facilities.

- .6 Dispose of the used oil-absorbent material and/or oily liquid waste in excess of the concentrations indicated in this section.
- .7 Crush all empty barrels prior to containerization. Crush the barrels in a manner to reduce the total original barrel volume by a minimum of 75%. Containerize empty barrels as non-hazardous waste in accordance with Section 02 41 23 – Debris and Miscellaneous Removals.

### 3.7 Cleaning of Fuel Tanks and Pipelines

- .1 The Contractor is advised that debris to be containerized at these sites may consist of fuel tanks and pipelines which may contain fuel.
- .2 Prior to the demolition and removal of fuel tanks and pipelines:
  - .1 Drain and flush all products in connected piping in a manner as to prevent spillage.
  - .2 After initial draining, remove all residual fuel by passing a "Teflon Ring Pig" through the line.
  - .3 Isolate the line to prevent the passage of vapours using a standard plumber's plug on the end of a tee handle.
  - .4 Cut the pipe for eventual disposal in a container.
  - .5 Incinerate all liquids contained in the tank. Incinerate in a container to prevent ground or water contamination, in an oxygen-rich environment to promote complete combustion, and in accordance with Section 01 35 32 - Specific Health and Safety Plan.
  - .6 Rinse tanks with water to remove any residual product. Filter the wash water through an oil-absorbent material.
  - .7 Test the used oil-absorbent material to determine disposal requirements. Incinerate on-site oil-absorbent material meeting the above incineration criteria or package for disposal off-site at Contractor's licensed disposal facilities.
  - .8 Treat and Discharge remaining waste wash water in accordance with the Wastewater Discharge Criteria of the Water License.
  - .9 Degas all tanks in accordance with the requirements of Report 88-5 (December 1988) of the Petroleum Association for Conservation of the Canadian Environment (PACE). Use nitrogen for degassing, as required, if ventilation and purging methods fail. Monitor area surrounding tanks and pipelines for vapour build up during degassing.
  - .10 Following degassing, interior explosive vapour concentrations are to be less than 20 percent LEL prior to demolition.

### 3.8 Cleaning of Sewage Tanks and Lines

- .1 Prior to demolition of sewage lines, rinse lines with wash water. Sample and analyse the liquids, including wash water, in accordance with the Sewage Discharge Criteria and Wastewater discharge criteria of the Water License. Treat water as required to meet Discharge Criteria.
- .2 Analyse sewage sludge in accordance with the contaminated soil criteria described in Section 02 55 13 - Contaminated Soil. Dispose of this material in accordance with the requirements of Section 02 55 13.

### 3.9 Temporary Storage Area

- .1 Develop Temporary Storage Areas for the storage of containerized Hazardous Waste Materials.

- .2 Temporary Storage Area to comply with the requirements identified in Section 01 52 00 of these Specifications.

3.10 Packaging, Labelling and Inventory

- .1 Provide a numbering system and maintain an inventory of all containers with Hazardous Waste Materials to be transported and disposed of off-site.
- .2 Package and label each "hazardous material" in accordance with the "Class" and "Packaging Group" as per the TDGA.
- .3 Submit to Departmental Representative, a copy of the inventory of the contents of each container at the end of each construction season.

Figure 1:

<b>ATTENTION</b>	
<b>CONTAMINATED WITH PCBs (CHLOROBIPHENYLS)</b>	<b>CONTAMINÉ PAR BPC (BIPHÉNYLES CHLORÉS)</b>
THE CONTENTS OF THIS EQUIPMENT ARE CONTAMINATED WITH PCBs. A TOXIC SUBSTANCE LISTED IN SCHEDULE I OF THE CANADIAN ENVIRONMENTAL PROTECTION ACT. IN CASE OF AN ACCIDENT OR A SPILL OR FOR DISPOSAL INFORMATION, CONTACT THE NEAREST OFFICE OF ENVIRONMENTAL PROTECTION, ENVIRONMENT CANADA.	LE CONTENU DE CET EQUIPEMENT EST CONTAMINE PAR DES BPC, SUBSTANCE TOXIQUE INSCRITE Á L'ANNEXE I DE LA LOI CANADIENNE SUR LA PROTECTION DE L'ENVIRONNEMENT EN CAS D'ACCIDENT OU DE DEVERSEMENT, OU POUR SAVOIR COMMENT L'ELIMINER, CONTACTER LE BUREAU DE LA PROTECTION DE L'ENVIRONNEMENT, ENVIRONNEMENT CANADA, LE PLUS PROCHE.
PCB CONCENTRATION (parts per million) CONCENTRATION DE BPC (parties par million) _____	
DATE ANALYSED DATE D'ANALYSE _____	
COMPANY NAME NOM DE LA COMPAGNIE _____	
AUTHORIZED COMPANY OFFICIAL AGENT OFFICIEL AUTORISE _____	

Figure 2



Figure 3

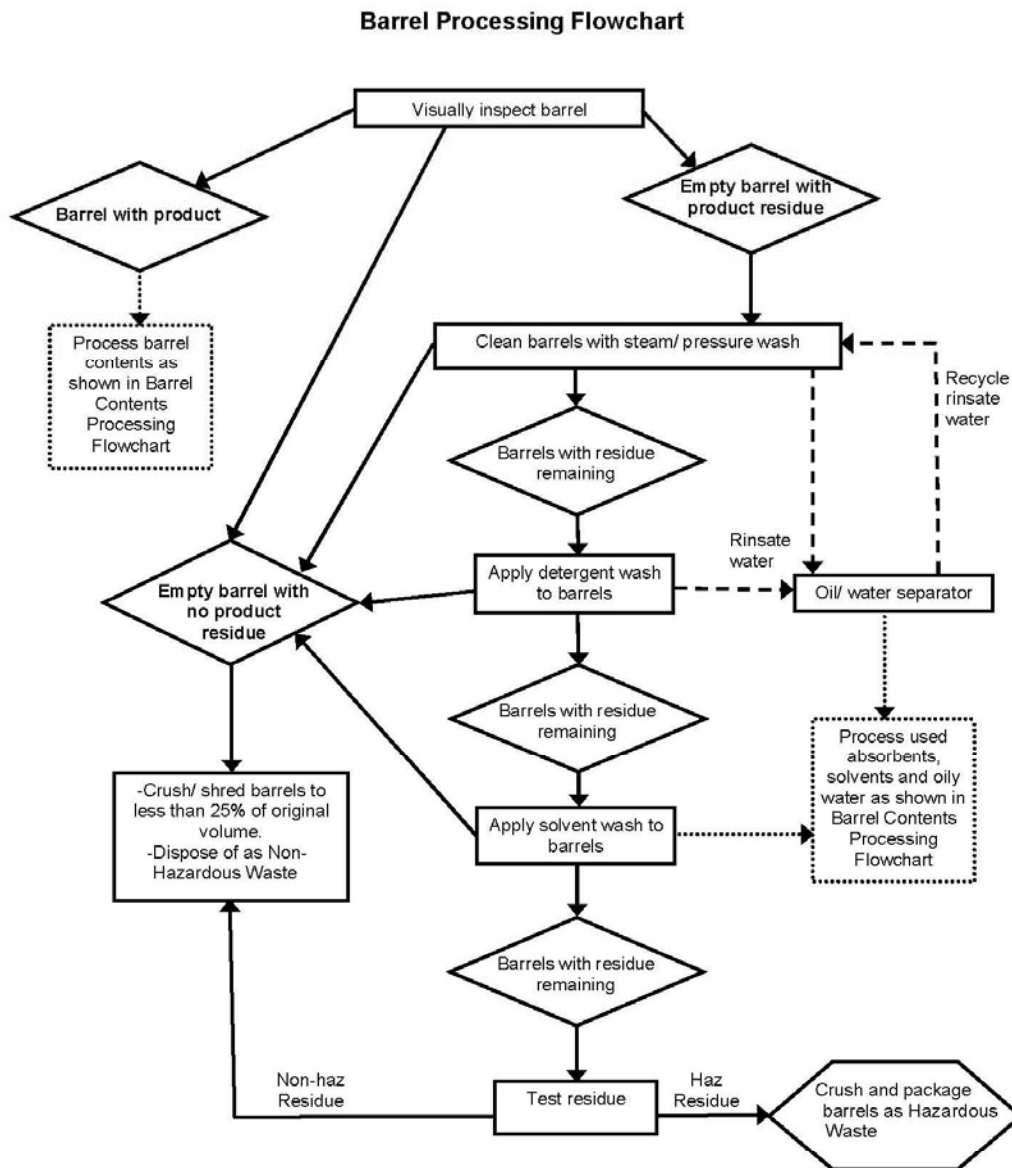
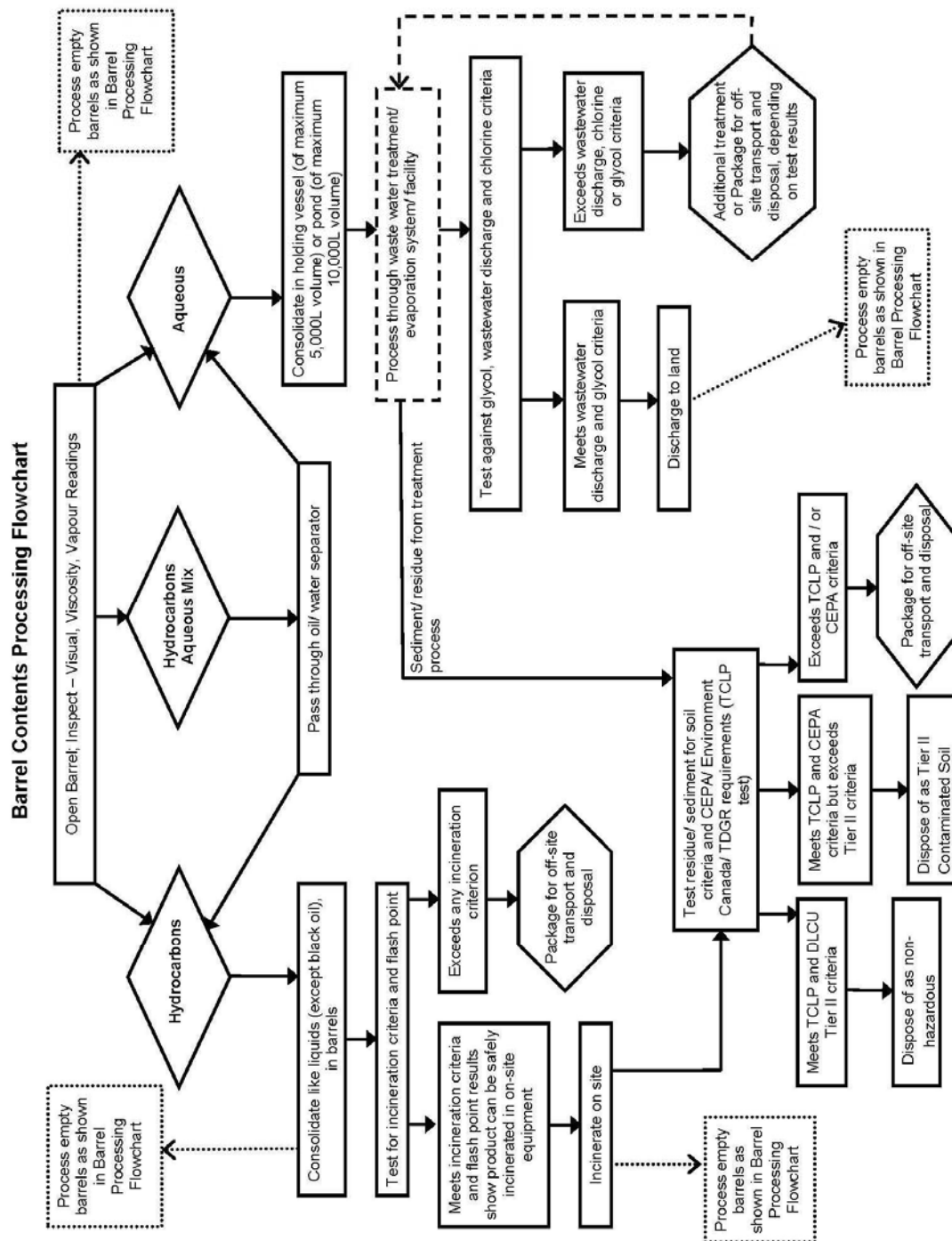


Figure 4



END OF SECTION

## PART 1 - GENERAL

### 1.1 Description

- .1 Comply with requirements of this Section when completing the following work:
  - .1 Removing wall panels, duct cloth, flue stack covering and vinyl floor tiles containing asbestos as listed in Appendices A and B.
  - .2 Cut, shape, grind, drill, scrape or abrade materials mentioned above using hand powered tools, or using power tools equipped with a HEPA filter.

### 1.2 References

- .1 Department of Justice Canada (Jus).
  - .1 Canadian Environmental Protection Act, 1999 (CEPA).
- .2 Transport Canada (TC).
  - .1 Transportation of Dangerous Goods Act, 1992 (TDGA).

### 1.3 Definitions

- .1 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with filter system capable of collecting and retaining fibres greater than 0.3 microns in any direction at 99.97% efficiency.
- .2 Amended Water: water with non-ionic surfactant wetting agent added to reduce water tension to allow thorough wetting of fibres.
- .3 Asbestos-Containing Materials (ACMs): materials identified under Existing Conditions including fallen materials and settled dust.
- .4 Asbestos Work Area: area where work takes place which will, or may, disturb ACMs.
- .5 Authorized Visitors: Department Representative or designated representatives, and representatives of regulatory agencies.
- .6 Friable Material: material that when dry can be crumbled, pulverized or powdered by hand pressure.
- .7 Non-Friable Material: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.
- .8 Occupied Area: any area of the building or work site that is outside Asbestos Work Area.
- .9 Polyethylene: polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide protection and isolation.
- .10 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must have appropriate capacity for work.

#### 1.4 Submittals

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit written proof satisfactory to Department Representative that suitable arrangements have been made to dispose of asbestos-containing waste in accordance with requirements of authority having jurisdiction.
- .3 Submit Provincial/Territorial and/or local requirements for Notice of Project Form.
- .4 Submit proof of Contractor's Asbestos Liability Insurance.
- .5 Submit to Department Representative necessary permits for transportation and disposal of asbestos-containing waste and proof that asbestos-containing waste has been received and properly disposed.

#### 1.5 Quality Assurance

- .1 Regulatory Requirements: comply with Federal, Provincial/Territorial, and local requirements pertaining to asbestos, provided that in case of conflict among these requirements or with these specifications, more stringent requirement applies. Comply with regulations in effect at time Work is completed.
- .2 Health and Safety:
  - .1 Do construction occupational health and safety in accordance with Section 01 35 32 – Site Specific Health and Safety for Contaminated Sites.
  - .2 Safety Requirements: worker protection:
    - .1 Protective equipment and clothing to be worn by workers while in Asbestos Work Area include:
      - .1 Non-powered reusable or replaceable filter-type respirator equipped with HEPA filter cartridges, personally issued to worker and marked as to efficiency and purpose, suitable for protection against asbestos and acceptable to Territorial/Provincial Authority having jurisdiction.
      - .2 Disposable-type protective clothing that does not readily retain or permit penetration of asbestos fibres, consisting of full-body covering including head covering with snug-fitting cuffs at wrists, ankles, and neck.
    - .2 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.
    - .3 Before leaving Asbestos Work Area, dispose of protective clothing as contaminated waste as specified.
    - .4 Workers must wash hands and face when leaving Asbestos Work Area. Facilities for washing are to be located adjacent to the work areas.
    - .5 No person required to enter an Asbestos Work Area may have facial hair that affects seal between respirator and face.

#### 1.6 ACM Disposal

- .1 Disposal of asbestos waste generated by removal activities must comply with Federal, Provincial, Territorial and Municipal regulations. Dispose of asbestos waste in sealed double thickness 0.15 mm thick bags or leak proof drums. Label containers with appropriate warning labels.

1.7 Existing Conditions

- .1 Reports and information pertaining to ACMs to be handled, removed, or otherwise disturbed and disposed of during this project are available upon request as indicated in Section 01 11 00 – Summary of Work.
- .2 Notify Department Representative of friable material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material pending instructions from Department Representative.

1.8 Instructions

- .1 Before beginning Work , provide Department Representative satisfactory written proof that every worker has had instruction and training in hazards of asbestos exposure, in personal hygiene and work practices, and in use, cleaning, and disposal of respirators and protective clothing.
- .2 Instruction and training related to respirators includes, following minimum requirements:
  - .1 Fitting of equipment.
  - .2 Inspection and maintenance of equipment.
  - .3 Disinfecting of equipment.
  - .4 Limitations of equipment.
- .3 Instruction and training must be provided by a competent, qualified person.

1.9 Signs

- .1 Signage: Display signs in all work areas where access to a contaminated area is possible. The English version of the signs is to read:

CAUTION, ASBESTOS HAZARD AREA.  
UNAUTHORIZED ENTRY PROHIBITED.  
WEAR PROTECTIVE EQUIPMENT.

Post a similar sign in the language of the local dialect.

- .2 Sign letters: all lettering is to be HELVETICA Medium font. The letter size is to be:

English:

Caution, Asbestos Hazard Area.	25 mm
Unauthorized entry prohibited:	19 mm
Wear Protective Equipment	19 mm

1.10 Measurement for Payment

- .1 The removal, separation, packaging and containerization of known asbestos debris will not be measured for payment and shall be included in the applicable bid price for items outlined in Section 02 41 16, Structure Demolition, and Section 02 41 23, Debris Removal in Basis of Payment Schedule, including, but not limited to the following:
  - .1 Supply of all materials, labour, and equipment necessary to complete the work in accordance with these specifications, including the supply and transport to the site of asbestos waste containers.

- .2 Construction of temporary enclosures.
- .3 Handling, separation and disposal of asbestos materials coated with PCB-amended paint.
- .4 Preparation of asbestos inventory.
- .2 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

## PART 2 - PRODUCTS

### 2.1 Materials

- .1 Drop Sheets:
  - .1 Polyethylene: 0.15 mm thick.
  - .2 Flame Retardant (FR) polyethylene: 0.15 mm thick woven fibre reinforced fabric bonded both sides with polyethylene.
- .2 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in a concentration to provide thorough wetting of asbestos-containing material.
- .3 Waste Containers: contain waste in two separate containers.
  - .1 Inner container: 0.15 mm thick sealable polyethylene waste bag.
  - .2 Outer container: sealable metal or fibre type where there are sharp objects included in waste material; otherwise outer container may be sealable metal or fibre type or second 0.15 mm thick sealable polyethylene bag.
  - .3 Labelling requirements: affix preprinted cautionary asbestos warning in both official languages that is visible when ready for removal to disposal site.

## PART 3 - EXECUTION

### 3.1 Procedures

- .1 Do construction occupational health and safety in accordance with Section 01 35 32 – Site Specific Health and Safety Plan.
- .2 Before beginning Work, isolate and prepare the Asbestos Work Area as follows:
  - .1 Remove visible dust from surfaces in the work area where dust is likely to be disturbed during course of work.
  - .2 Use HEPA vacuum or damp cloths where damp cleaning does not create a hazard and is otherwise appropriate.
  - .3 Do not use compressed air to clean up or remove dust from any surface.
- .3 Prevent spread of dust from Asbestos Work Area using measures appropriate to work to be done.
  - .1 Use FR polyethylene drop sheets over flooring such as carpeting that absorbs dust and over flooring in Asbestos Work Area where dust and contamination cannot otherwise be safely contained.

- .4 Wet materials containing asbestos to be cut, ground, abraded, scraped, drilled, or otherwise disturbed unless wetting creates hazard or causes damage.
  - .1 Use garden reservoir type low - velocity fine - mist sprayer.
  - .2 Complete Work to reduce dust creation to lowest levels practicable.
  - .3 Work will be subject to visual inspection and air monitoring.
  - .4 Contamination of surrounding areas indicated by visual inspection or air monitoring will require complete enclosure and clean-up of affected areas.
- .5 Clean-Up:
  - .1 Frequently during Work and immediately after completion of Work, clean up dust and asbestos-containing waste using HEPA vacuum or by damp mopping.
  - .2 Place dust and asbestos-containing waste in sealed dust-tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste; wet and fold these items to contain dust, and then place in plastic bags.
  - .3 Clean exterior of each waste-filled bag using damp cloths or HEPA vacuum and place in second clean waste bag immediately prior to removal from Asbestos Work Area.
  - .4 Seal waste bags and remove from site. Dispose of in accordance with requirements of Provincial/Territorial and Federal Authority having jurisdiction.
  - .5 Complete final thorough clean-up of Work areas and adjacent areas affected by Work using HEPA vacuum.

**END OF SECTION**

---

## PART 1 - GENERAL

### 1.1 Section Includes

- .1 Requirements and procedures for asbestos abatement of minor amounts of chrysotile asbestos-containing materials of the type describe within.

### 1.2 References

- .1 Canadian General Standards Board (CGSB).
  - .1 CAN/CGSB-1.205-94, Sealer for Application of Asbestos-Fibre Releasing Materials.
- .2 Department of Justice Canada (Jus)
  - .1 Canadian Environmental Protection Act, 1999 (CEPA).
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .4 Transport Canada (TC)
  - .1 Transportation of Dangerous Goods Act, 1992 (TDGA).
- .5 Underwriters' Laboratories of Canada (ULC).

### 1.3 Definitions

- .1 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with filter system capable of collecting and retaining fibres greater than 0.3 microns in any dimension at 99.97% efficiency.
- .2 Amended Water: water with non-ionic surfactant wetting agent added to reduce water tension to allow wetting of fibres.
- .3 Asbestos-Containing Materials (ACMs): materials identified under Existing Conditions Article, including fallen materials and settled dust.
- .4 Minor Amounts of ACMs: less than or equal to 0.1 square metres of friable material containing chrysotile asbestos.
- .5 Asbestos Work Area: area where work takes place which will, or may disturb ACMs.
- .6 Authorized Visitors: Department Representative, or designated representatives, and representatives of regulatory agencies.
- .7 Friable Material: material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.
- .8 Occupied Area: any area of building or work site that is outside Asbestos Work Area.

- .9 Polyethylene: polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide protection and isolation.
- .10 Glove Bag: prefabricated glove bag as follows:
  - .1 Minimum thickness 0.25 mm (10 mil) polyvinyl-chloride bag.
  - .2 Integral 0.25 mm (10 mil) thick polyvinyl-chloride gloves and elastic ports.
  - .3 Equipped with reversible double-pull double throw zipper on top and at approximately mid-section of the bag.
  - .4 Straps for sealing ends around pipe.
  - .5 Must incorporate internal closure strip if it is to be moved or used in more than one specific location.
- .11 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must have appropriate capacity for scope of work.

#### 1.4 Submittals

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit written proof satisfactory to Department Representative that suitable arrangements have been made to dispose of asbestos-containing waste in accordance with requirements of authority having jurisdiction.
- .3 Submit Provincial/Territorial and/or local requirements for Notice of Project Form.
- .4 Submit proof of Contractor's Asbestos Liability Insurance.
- .5 Submit to Department Representative necessary permits for transportation and disposal of asbestos-containing waste and proof that asbestos-containing waste has been received and properly disposed.
- .6 Submit proof satisfactory to Department Representative that employees have had instruction on hazards of asbestos exposure, respirator use, dress, entry and exit from Asbestos Work Area, and aspects of work procedures and protective measures.
- .7 Submit proof that supervisory personnel have attended asbestos abatement course, of not less than two days duration, accepted by Department Representative. Minimum of one supervisor for every ten workers.
- .8 Submit Worker's Safety Compensation Commission (WSCC) status and transcription of insurance prior to commencing asbestos abatement work.
- .9 Submit documentation including test results, fire and flammability data, and Material Safety Data Sheets (MSDS) for chemicals or materials including:
  - .1 encapsulants;
  - .2 amended water;
  - .3 slow-drying sealer.

1.5 Quality Assurance

- .1 Regulatory Requirements: comply with Federal, Provincial/Territorial and local requirements pertaining to asbestos, provided that in case of conflict among these requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at the time work is completed.
- .2 Health and Safety:
  - .1 Do construction occupational health and safety in accordance with Section 01 35 32 – Site Specific Health and Safety for Contaminated Sites.
  - .2 Safety Requirements: worker and visitor protection.
    - .1 Protective equipment and clothing to be worn by workers while in Asbestos Work Area include:
      - .1 Non-powered reusable or replaceable filter-type respirator equipped with HEPA filter cartridges, personally issued to worker and marked as to efficiency and purpose, suitable for protection against asbestos and acceptable to Provincial Authority having jurisdiction.
      - .2 Disposable-type protective clothing that does not readily retain or permit penetration of asbestos fibres, consisting of full-body covering including head covering with snug-fitting cuffs at wrists, ankles, and neck.
    - .2 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.
    - .3 Before leaving Asbestos Work Area, dispose of protective clothing as contaminated waste as specified.
    - .4 Workers must wash hands and face when leaving Asbestos Work Area. Facilities for washing to be located adjacent to work areas.
    - .5 No person required to enter an Asbestos Work Area may have facial hair that affects seal between respirator and face.
  - .3 Visitor Protection:
    - .1 Provide protective clothing and accepted respirators to Authorized Visitors to work areas.
    - .2 Instruct Authorized Visitors in the use of protective clothing, respirators and procedures.
    - .3 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from Asbestos Work Area.

1.6 ACM Waste Management

- .1 Disposal of asbestos waste generated by removal activities must comply with Federal, Provincial/Territorial and local regulations. Dispose of asbestos waste in sealed double thickness 0.6 mm thick bags or leak proof drums. Label containers with appropriate warning labels.

1.7 Existing Conditions

- .1 Reports and information pertaining to ACMs to be handled, removed, or otherwise disturbed and disposed of during this project are available for review as indicated in Section 01 11 00 – Summary of Work.
- .2 Notify Department Representative of friable material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material pending instructions from Department Representative.

1.8 Instructions

- .1 Before beginning Work , provide Department Representative satisfactory written proof that every worker has had instruction and training in hazards of asbestos exposure, in personal hygiene and work practices, and in use, cleaning, and disposal of respirators and protective clothing.
- .2 Instruction and training related to respirators includes, at minimum:
  - .1 Fitting of equipment.
  - .2 Inspection and maintenance of equipment.
  - .3 Disinfecting of equipment.
  - .4 Limitations of equipment.
- .3 Instruction and training must be provided by competent, qualified person.

1.9 Measurement for Payment

- .1 The removal, separation, packaging and containerization of known asbestos debris will not be measured for payment and shall be included in the applicable bid price for demolition items outlined in Section 02 41 16, Structure Demolition and debris items outlined in Section 02 41 23, Debris Removal in Basis of Payment Schedule, including, but not limited to the following:
  - .1 Supply of all materials, labour, and equipment necessary to complete the work in accordance with these specifications, including the supply and transport to the site of asbestos waste containers.
  - .2 Construction of temporary enclosures.
  - .3 Handling, separation and disposal of asbestos materials coated with PCB-amended paint.
  - .4 Preparation of asbestos inventory.
- .2 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

PART 2 - PRODUCTS

2.1 Materials

- .1 Drop and Enclosure Sheets.
  - .1 Polyethylene: 0.15 mm thick.
  - .2 FR polyethylene: 0.15 mm thick woven fibre reinforced fabric bonded both sides with polyethylene.
- .2 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in concentration to provide thorough wetting of asbestos-containing material.

- .3 Waste Containers: contain waste in two separate containers.
  - .1 Inner container: 0.15 mm thick sealable polyethylene bag or where glove bag method is used, glove bag itself.
  - .2 Outer container: sealable metal or fibre type where there are sharp objects included in waste material; otherwise outer container may be sealable metal or fibre type or second 0.15 mm thick sealable polyethylene bag.
  - .3 Labelling requirements: affix preprinted cautionary asbestos warning, in both official languages, that is visible when ready for removal to disposal site.
- .4 Glove bag:
  - .1 Acceptable materials: safe-T-Strip products in configuration suitable for Work.
  - .2 Glove bags intended for use in more than one location must be equipped with reversible, double-pull, double-throw zipper on top and at approximately mid-section of bag.
- .5 Tape: tape suitable for sealing polyethylene to surfaces under both dry and wet conditions using amended water.
- .6 Slow - drying sealer: non-staining, clear, water - dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.
  - .1 Sealer: flame spread and smoke developed rating less than 50.

### PART 3 - EXECUTION

#### 3.1 Supervision

- .1 Minimum of one (1) Supervisor for every 10 workers is required.
- .2 Accepted Supervisor must remain within Asbestos Work Area during disturbance, removal, or other handling of asbestos-containing materials.

#### 3.2 Disposal

- .1 Do construction occupational health and safety in accordance with Section 01 35 32 - Site Specific Health and Safety for Contaminated Sites.
- .2 Before beginning Work, at each access to Asbestos Work Area, install warning signs in both official languages in upper case 'Helvetica Medium' letters reading as follows, where number in parentheses indicates font size to be used: 'CAUTION ASBESTOS HAZARD AREA (25 millimetres) / NO UNAUTHORIZED ENTRY (19 millimetres) / WEAR ASSIGNED PROTECTIVE EQUIPMENT (19 millimetres) / BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM (7 millimetres)'.
- .3 Before beginning Work remove visible dust from surfaces in work area where dust is likely to be disturbed during course of work.
  - .1 Use HEPA vacuum or damp cloths where damp cleaning does not create hazard and is otherwise appropriate.
  - .2 Do not use compressed air to clean up or remove dust from any surface.

- 
- .4 Prevent spread of dust from Asbestos Work Area using measures appropriate to work to be done.
- .1 Use FR polyethylene drop sheets over flooring such as carpeting that absorbs dust and over flooring in work areas where dust or contamination cannot otherwise be safely contained.
- .2 When removing asbestos containing material from piping or equipment and "glove-bag" method is not used erect enclosure of polyethylene sheeting around work area, shut off mechanical ventilation system serving work area and seal ventilation ducts to and from work area.
- .5 Before removing suspended ceilings, remove friable material on upper surfaces using HEPA vacuum equipment.
- .1 Remove and clean surfaces of ceiling panels using HEPA vacuum, wrap clean panels in 0.10 mm thick polyethylene, and store in building as directed by Department Representative.
- .2 Clean "T" grid suspension system, disconnect, wrap in 0.10 mm thick polyethylene, and store in building as directed by Department Representative.
- .6 Remove loose material by HEPA vacuum; thoroughly wet friable material containing asbestos to be removed or disturbed before and during Work unless wetting creates hazard or causes damage.
- .1 Use garden reservoir type low - velocity sprayer or airless spray equipment capable of producing mist or fine spray.
- .2 Complete Work in a manner to reduce dust creation to lowest levels practicable.
- .7 Pipe Insulation Removal Using Glove Bag:
- .1 Place tools necessary to remove insulation in tool pouch. Wrap bag around pipe and close zippers. Seal bag to pipe with cloth straps.
- .2 Place hands in gloves and use necessary tools to remove insulation. Arrange insulation in bag to obtain full capacity of bag.
- .3 Insert nozzle of garden reservoir type sprayer into bag through valve and wash down pipe and interior of bag thoroughly. Wet surface of insulation in lower section of bag.
- .4 When glove bags are intended for use at more than one location: after wash-down and application of sealer, seal off waste in lower section of bag using zipper at mid-section of bag. Remove air from top section of bag through elasticized valve using HEPA vacuum. Remove bag from pipe, reinstall in new location, and reseal to pipe prior to opening lower section of bag. Repeat stripping operation.
- .5 If bag is to be moved along pipe, first remove air from top section through elasticized valve using HEPA vacuum. Next loosen straps, move bag, re-seal to pipe using double-pull zipper to pass hangers. Repeat stripping operation.
- .6 To remove bag after completion of stripping, wash top section and tools thoroughly. Remove air from top section through elasticized valve using a HEPA vacuum. Pull polyethylene waste container over glove bag before removing from pipe. Release one (1) strap and remove freshly washed tools. Place tools in water. Remove second strap and zipper. Fold over into waste container and seal.
- .7 After removal of bag the pipe must be made free of residue. Remove residue using HEPA vacuum or wet cloths. Surfaces must be free of sludge which after drying could release asbestos dust into atmosphere. Seal exposed surfaces of pipe and ends of insulation with slow-drying sealer to seal in any residual fibres.
- .8 Upon completion of Work shift, cover exposed ends of remaining pipe insulation with polyethylene taped in place.

- .8 Work is subject to visual inspection and air monitoring. Contamination of surrounding areas indicated by visual inspection or air monitoring will require complete enclosure and clean-up of affected areas.
- .9 Clean-up:
  - .1 Frequently during Work and immediately after completion of work, clean up dust and asbestos-containing waste using HEPA vacuum or by damp mopping.
  - .2 Place dust and asbestos-containing waste in sealed dust-tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste and wet and fold to contain dust and then place in waste bags.
  - .3 Immediately before their removal from Asbestos Work Area and disposal, clean each filled waste bag using damp cloths or HEPA vacuum and place in second clean waste bag.
  - .4 Seal and remove double-bagged waste from site. Dispose of in accordance with requirements of Provincial/Territorial and Federal authority having jurisdiction. Supervise dumping and make the dump operator fully aware of hazardous nature of material to be dumped and that guidelines and regulations for asbestos disposal are followed.
  - .5 Complete final thorough clean-up of Asbestos Work Areas and adjacent areas affected by Work using HEPA vacuum.

### 3.3 Final Cleanup and Demobilization

- .1 From beginning of Work until completion of cleaning operations, Department Representative to take air samples on daily basis outside of Asbestos Work Area enclosures in accordance with Health Canada recommendations.
  - .1 Contractor will be responsible for monitoring inside enclosure in accordance with applicable Provincial/Territorial Occupational Health and Safety Regulations.
- .2 If air monitoring shows that areas outside Asbestos Work Area enclosures are contaminated, enclose, maintain and clean these areas in same manner as that applicable to Asbestos Work Area.
- .3 Respiratory safety factors are not to be exceeded.

**END OF SECTION**

## PART 1 - GENERAL

### 1.1 Description

- .1 This Section specifies general requirements for the processing of aggregates to be incorporated into the work as granular fill.
- .2 It is anticipated that there will be no requirement for crushing of granular materials to satisfy gradation specifications. There may be requirements to select, blend, and/or screen granular materials to satisfy gradation specifications as indicated in this Section. Moisture conditioning of material from borrow sources may be required.

### 1.2 Source Approval

- .1 Abide by conditions of the Land Use Permit, Water Licence, Quarry Permit and/or other requirements of Authorities Having Jurisdiction (AHJ).
- .2 Source of materials to be incorporated into work requires approval by Departmental Representative.
- .3 Defined borrow areas and stockpiles are to be used as indicated on the Drawings. Approval to excavate borrow material from new areas will be granted by Departmental Representative based on areas that do not require new access roads, areas that have minimal ice-rich permafrost and areas located away from water bodies.
- .4 Inform Departmental Representative of proposed source of aggregates and provide access for sampling at least seven days prior to commencing production. Departmental Representative will conduct confirmatory testing of borrow material, if required, to determine if any contamination is present.
- .5 If, in the opinion of Departmental Representative, materials from the proposed source do not meet, or cannot reasonably be processed to meet specified requirements, locate an alternative source or demonstrate that material from source in question can be processed to meet specified requirements.
- .6 Should a change of material source be proposed during work, advise Departmental Representative one (1) week in advance of proposed change to allow sampling and testing.
- .7 Acceptance of a material at source does not preclude future rejection if it is subsequently found to lack uniformity, or if it fails to conform to requirements specified, or if its field performance is found to be unsatisfactory.
- .8 Geotechnical information, including a borrow assessment and the results of laboratory analyses of soil samples obtained from the site, are included in the *Phase III Environmental Site Assessment, CAM-A Sturt Point Intermediate DEW Line Site, AECOM, November 2010*.

### 1.3 Production Sampling

- .1 Aggregate will be subject to continual sampling by Departmental Representative during production either at the stockpile or at the place of work. The aggregate is to meet the required specifications regardless of the place of sampling.

.2 Provide Departmental Representative with ready access to source and processed material for purpose of sampling and testing.

.3 Samples are to be obtained according to industry acceptable practices.

#### 1.4 Measurement for Payment

.1 Development of aggregate sources including stripping, processing, handling, stockpiling, replacement of organics, and any necessary restoration will be considered incidental to the work of this Section and will not be measured for payment.

.2 Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 18 -Construction Progress Schedules - Bar (GANTT) Chart.

### PART 2 - PRODUCTS

#### 2.1 Materials

.1 Aggregate quality: sound, hard, durable material free from soft, thin, elongated or laminated particles, organic material or other deleterious substances.

.2 Flat and elongated particles are those whose greatest dimension exceeds five times their least dimension.

.3 Fine aggregates satisfying requirements of applicable section are to be one (1), or a blend of the following:

.1 Natural sand.

.2 Screened sand.

.4 Coarse aggregates satisfying requirements of applicable section are to be composed of naturally formed particles of stone.

.5 Type 2 Granular Fill:

.1 Type 2 Granular Fill is select material obtained from excavations or other sources accepted by Departmental Representative, generally consisting of pit-run, screened stone, gravel or sand in an unfrozen state and free from rocks larger than 150 mm, waste or other deleterious material.

.2 Type 2 Granular Fill is used for cover and regrading requirements.

.3 Gradations to be within the following limits when tested to ASTM C136 and ASTM C117, sieve sizes to CAN/CGSB-8.2:

Sieve Designation (millimetres)	% Passing by Weight
150	100
50	60 to 100
5	25 to 60
0.425	8 to 37
0.08	2 to 25

- .6 Type 3 Granular Fill:
  - .1 Type 3 Granular Fill consists of granular pit-run material, with a maximum particle size of 200 mm, from identified borrow sources and is generally used for:
    - .1 regrading low areas as indicated;
    - .2 backfill for contaminated soil excavations;
    - .3 general site grading requirements.
  - .2 Type 3 Granular Fill may be designated by Departmental Representative as a suitable alternative for other material types.
  - .3 Type 2 Granular Fill may be designated by Departmental Representative as a suitable alternative for Type 3 Granular Fill.
- .7 Materials classified as unsuitable will include:
  - .1 Non-uniform material of widely varying moisture density characteristics.
  - .2 Soils with moisture content exceeding optimum moisture by 5% or more.
  - .3 Soils containing organic material, snow, ice or other deleterious material.

### PART 3 - EXECUTION

#### 3.1 Development of Aggregate Source

- .1 Remove any debris (known or unknown) from the area, as described in Section 02 41 23 - Debris and Miscellaneous Removals, prior to excavating borrow materials.
- .2 Any significant deposits of organic material, as determined by Departmental Representative, are to be avoided and left undisturbed during development of an aggregate source, or stripped and stockpiled for replacement to restore borrow area.
- .3 Strip an area ahead of excavating operation sufficient to prevent contamination of aggregate by deleterious materials.

#### 3.2 Processing

- .1 Process aggregate uniformly using methods that prevent contamination, segregation and degradation.
- .2 Blend aggregates if required to obtain gradation requirements specified. Use methods and equipment that are accepted by the Departmental Representative.
- .3 Blending to decrease percentage of flat and elongated particles is permitted.
- .4 When operating in stratified deposits use excavation equipment and methods that will produce uniform, homogeneous aggregate.
- .5 Moisture condition aggregate as required to achieve the specified density and/or degree of saturation.
- .6 Dry aggregate as required to provide ease of handling during freezing temperatures or to place and compact according to this Specification.

### 3.3 Handling

- .1 Handle and transport aggregates to avoid segregation, contamination and degradation.

### 3.4 Stockpiling

- .1 If required, stockpile aggregates on site in locations indicated or designated by Departmental Representative. Stockpiles are to not be located on undisturbed tundra.
- .2 Stockpiling sites are to be level, well drained, and of adequate bearing capacity and stability to support stockpiled materials and handling equipment.
- .3 Except where stockpiled on acceptably stabilized areas, provide compacted sand base not less than 300 mm in depth to prevent contamination of the aggregate, or stockpile aggregates on ground but do not incorporate bottom 300 mm of pile into work.
- .4 Separate aggregate stockpiles of different types sufficiently far apart to prevent intermixing.
- .5 Reject intermixed or contaminated materials. Remove and dispose of rejected materials as directed by Departmental Representative within 48 hours of rejection.
- .6 Stockpile materials in uniform layers of one (1) metre maximum thickness.
- .7 Complete each layer over the entire stockpile area before beginning next layer.
- .8 Uniformly spot-dump aggregates delivered to stockpile in trucks and build up stockpile as specified.
- .9 Coning of piles or spilling of material over edges of pile will not be permitted.
- .10 During snowy conditions, prevent ice and snow from becoming mixed into stockpile.

### 3.5 Reclamation of Aggregate Source and Stockpile Cleanup

- .1 When aggregate source excavation is completed, dress sides of excavation to achieve gentle slopes, maximum of 5H:1V, which fit local topography, and provide swales or ditches as required to prevent surface standing water.
- .2 Trim off and dress slopes of waste material piles and leave site in neat condition.
- .3 Trim, backblade and restore borrow areas to a condition acceptable to Departmental Representative.
- .4 Flatten remaining stockpiles to low piles with sides that have a maximum slope of 5H:1V, or as directed by Departmental Representative.
- .5 Leave stockpile site in a tidy, well drained condition, free of standing surface water to satisfaction of Departmental Representative.

**END OF SECTION**

## PART 1 - GENERAL

### 1.1 Description

- .1 This Section specifies requirements for:
  - .1 The grading of designated areas including site debris areas, depressions created by the removal of debris and contaminated soil, and general site areas requiring regrading and reshaping.
  - .2 The supply and placement of granular fill materials.
  - .3 Maintenance and upgrading of site roads.
- .2 Designated areas are indicated for design grades, contours, design elevations, and cover soil thicknesses.

### 1.2 Definitions

- .1 Reshaping: The levelling and grading, to a maximum depth of 600 mm, including the movement of boulders, of designated areas to blend in with the natural terrain and provide positive drainage. Reshaping does not require the supply and placement of additional granular fill material. Excavation of the terrain to a depth greater than 600 mm during reshaping operations is to be considered as unclassified excavation.
- .2 Scarifying: The disturbance or loosening of a soil to a minimum depth of 300 mm to allow for compaction or aeration.
- .3 Regrading: The supply and placement of granular fill in designated areas to blend in with the natural terrain and provide positive drainage.
- .4 Unclassified Excavations: Excavation of materials of whatever nature encountered in the work to a depth greater than 600 mm.
- .5 Granular Fill: Type 2, and Type 3 material as specified in Section 31 05 17 - Aggregate Materials.
- .6 Berm: Granular fill of type indicated on the Drawings, placed above the original ground and built-up to a design elevation.
- .7 Surficial Boulders: visible rocks with a nominal diameter of 300 mm or greater.
- .8 General Fill: Type 3 Granular fill used for regrading low areas and to backfill contaminated soil excavations.
- .9 Waste Material: Excavated material unsuitable for use in work or surplus to requirements.
- .10 Borrow Material: Material obtained from accepted areas and required for grading work.
- .11 Specific classifications of granular fill materials are described in Section 31 05 17 - Aggregate Materials.
- .12 Maximum Dry Density is determined by the Standard Proctor Method in accordance with ASTM D698. It is applicable if less than 30% of the material is retained on the ASTM 19 millimetre sieve.

- .13 Corrected maximum dry density is applicable if more than 30% of the material is retained on the ASTM 19 millimetre sieve. It is defined as:

.1 
$$D = \frac{D1 \times D2}{(F1)(D2) + (F2)(D1)}$$

- .2 Where:

D = corrected maximum dry density kg/m<sup>3</sup>  
F1 = fraction (decimal) of total field sample passing ASTM 19.0 millimetre sieve  
F2 = fraction (decimal) of total field sample retained on ASTM 19.0 millimetre sieve (equal to 1.00 - F1)  
D1 = maximum dry density, kg/m<sup>3</sup> of material passing ASTM 19.0 millimetre sieve determined in accordance with Method C of ASTM D698 or latest edition thereof.  
D2 = bulk density, kg/m<sup>3</sup> of material retained on ASTM 19.0 millimetre sieve, equal to 1,000 G where G is bulk specific gravity (dry basis) of material when tested to ASTM C127-84, or latest edition thereof.

### 1.3 Site Conditions

- .1 Suspend grading operations whenever climatic conditions are unsatisfactory for grading Work to conform with this Specification.
- .2 Do not operate equipment in work areas until the material has dried sufficiently to prevent excessive rutting.
- .3 Areas to be graded are to be free from debris and excessive snow, ice or standing water prior to grading work beginning.
- .4 Contractor is advised that soft ground conditions may be prevalent at the site during periods of maximum thaw of the permafrost. Schedule and carry out work to minimize disturbance to permafrost soils.
- .5 Contractor is advised that existing access roads to be used during construction activities will require repair and upgrading.

### 1.4 Protection

- .1 Prevent damage to benchmarks, existing buildings, surface or underground service or utility lines which are to remain. Immediately repair any damage to the above or replace the above in the event of damage, at no cost to Departmental Representative.
- .2 Protect archaeological features from damage by construction activities.
- .3 Protect unanticipated archaeological resources encountered during construction. Suspend all activities in that area and notify Departmental Representative immediately.
- .4 Protect survey monuments. Repair or replace, at no cost to the Departmental Representative, any survey monuments damaged by the Contractor's operations.
- .5 Protect and do not disturb spawning beds and breeding grounds during construction.

- .6 Environmental protection measures are to be in accordance with the requirements specified in Section 01 35 43 - Environmental Procedures. Follow the accepted Erosion, Sediment and Drainage Control Plan submitted in accordance with Section 01 35 43 - Environmental Procedures.

1.5 Samples

- .1 Inform Departmental Representative of proposed source of granular fill materials and provide access for sampling. Give a reasonable amount of notice to allow for lab analysis of samples.

1.6 Site Access Upgrade Plan

- .1 Submit the Site Access Upgrade plan for CAM-A to Departmental Representative prior to mobilization, in accordance with Section 01 33 00 - Submittal Procedures.
- .2 The Site Access Upgrade plan are to include, but not be limited to, the following:
  - .1 Blasting or scaling requirements
  - .2 Bridge installation/upgrade requirements
  - .3 Drainage improvements
  - .4 Road sections to be built up
  - .5 Estimated quantity of granular material required and borrow sources
  - .6 Passing, pull-out or turn around locations
  - .7 Safety measures to be put in place in narrow and steep road sections

1.7 Measurement for Payment

- .1 For items to be measured for payment by survey, survey the area to receive granular fill either by cross section or by grid, following removal/stripping (if required) of surface material. Survey significant breaks in the original ground surface grade, incorporating at minimum the cross section locations indicated on the Drawings. The maximum distance between cross sections or grid points is to not exceed 20 metres unless otherwise indicated by Departmental Representative. Survey measurements are to be to the nearest 0.01 metre. Following placement of granular fill material, Contractor is to resurvey the cross sections or grid points. The volume measurement of granular material for payment will be determined by digital terrain model or average end area method, as Departmental Representative deems appropriate for the survey information provided. Preference is to be for quantity determination by digital terrain model.
- .2 The unit of measurement for reshaping within designated areas indicated and to limits authorized by Departmental Representative will be by the square metre as measured by survey. Reshaping associated with earthworks, including, but not limited to, placement of granular materials, regrading or levelling of areas prior to construction, is not to be measured as part of reshaping, but is to be considered incidental to the unit price bid for such earthworks. Areas on the drawings requiring levelling prior to construction will not be considered for payment under reshaping, unless explicitly noted on the Drawings, or authorized by the Departmental Representative. Reshaping will be paid under Item 31 22 15-1 in Basis of Payment Schedule.
- .3 The supply, placement and compaction of Type 2 Granular Fill as shown on the drawings, will be measured for payment by the cubic metre as determined by survey methods. Type 2 Granular Fill will be paid under Item 31 22 15-2 in Basis of Payment Schedule.

- .4 Include all direct costs for the upgrading, construction and maintenance of site access roads, including placement of granular material, and installation of culverts, in the lump sum price for Access Road Upgrading and Maintenance, Item 31 22 15-3 in Basis of Payment Schedule.
- .5 The following work items will be incidental to the work described in this Section, and will not be measured separately:
  - .1 Stripping, stockpiling and replacement or placement to a new location of organic material from the borrow areas as directed by Departmental Representative, and where required from construction areas upon where granular material is to be placed.
  - .2 Disposal of waste material from the borrow areas.
  - .3 Removal of surficial boulders over 300 mm in diameter from construction areas.
  - .4 Excavating, separating, processing, screening, and stockpiling of borrow materials.
  - .5 Reshaping of areas with ponded water (standing water covering over five (5) square metres and more than 0.2 metres deep) and rutting (ruts more than 0.1 metres deep) caused by contractor's construction activities.
  - .6 Grading of borrow areas to approximate the before-construction condition upon completion.
  - .7 Loading, hauling and haul road construction, maintenance and rehabilitation.
  - .8 Water for moisture conditioning, compaction and dust control.
  - .9 All construction surveying, including layout of facilities, slope staking, and supply and installation of witness grade stakes to monitor the depth of granular material placement.
  - .10 Surveying and calculation of granular material quantities for progress payment purposes.
  - .11 Reshaping and regrading of Contractor's laydown areas including the supply, placement and compaction of granular material.
  - .12 Draining of wet areas prior to regrading operations.
  - .13 Work undertaken to drain borrow areas prior to excavation.
- .6 No measurement for payment will be made for:
  - .1 Rejected material.
  - .2 Surplus material.
  - .3 Excavation, and stripping and replacement of organic material beyond specified limits.
  - .4 Excavation to investigate borrow sources.
  - .5 Placement of granular fill beyond the limits and depths specified, unless specifically authorized by Departmental Representative.
- .7 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

## PART 2 - PRODUCTS

### 2.1 Materials

- .1 Granular fill materials in accordance with Section 31 05 17 - Aggregate Materials
- .2 There is a requirement to selectively acquire, blend and/or screen granular materials to satisfy gradation specifications as indicated in Section 31 05 17 - Aggregate Materials.

### PART 3 - EXECUTION

#### 3.1 Site Preparation

- .1 Unless specifically indicated, do not remove existing topsoil or organic materials from embankment construction areas. Remove exposed surface boulders over 300 mm in diameter that are located in areas to receive granular fill. Dispose of boulders by placing on embankment side slopes.
- .2 Borrow Excavation:
  - .1 Obtain from potential borrow areas as indicated, or provide from own sources, all required granular fill material.
  - .2 The existing operational pads and roadways at the site are not to be used as granular material borrow sources unless specifically authorized by Departmental Representative.
  - .3 Advise Departmental Representative of selected borrow areas seven days in advance of excavation operations for appropriate testing to be completed.
  - .4 Notify Departmental Representative whenever unsuitable materials are encountered in borrow areas.
  - .5 Borrow material cannot be obtained from existing granular pads beneath facilities to be demolished, unless authorized in writing by Departmental Representative.
  - .6 Remove and dispose of any abandoned utility lines in these areas in accordance with Section 02 41 16 - Structure Demolition.
  - .7 Stripping, stockpiling and replacement or placement to a new location of organic material and stripping and disposal of waste material found when excavating existing granular material to be as directed by Departmental Representative.
  - .8 Final grading of borrow area upon completion to be as indicated in Section 31 05 17 – Aggregate Materials.
  - .9 Transport aggregate from borrow areas to the work areas via existing access routes where available. Maintain and provide for dust control on the access route between the borrow area and the work areas.

#### 3.2 Placement, Moisture Conditioning, and Compaction of Granular Fill Material

- .1 Set grades and lay out work in detail from control points in areas of granular fill placement. Verify the original ground topography by survey.
- .2 Haul granular fill material from borrow sites to designated areas.
- .3 Place granular fill material to the lines, grades, elevations and dimensions indicated, or agreed to with Departmental Representative.
- .4 Do not place granular fill on snow or surface ice.
- .5 Maintain natural drainage patterns, unless otherwise directed, and fill depressions to avoid any ponding of water adjacent to embankments.
- .6 All granular fill material are to be placed in an unfrozen state. Granular fill material to be free from debris, snow and ice. Do not place granular fill if the outside air temperature is below zero degrees Celsius, unless otherwise directed by Departmental Representative.
- .7 Maintain a crowned surface during construction to provide ready runoff of surface water. Do not place material in free standing water. Drain low areas, before placing material.
- .8 Do not dump granular fill material over the side slopes of berms.

- .9 Place and compact granular fill material in horizontal lifts.
- .10 Cease construction at any sign of movement or bulging in the embankments to allow assessment by Departmental Representative.
- .11 For fill depths greater than 500 mm, place granular material in lifts not exceeding 250 mm in loose thickness. For fill depths greater than 200 mm and less than 500 mm, place material in two lifts of equal depth. For fill depths less than 200 mm, place material in one lift.
- .12 Moisture condition granular fill as required to meet compaction requirements. Provide a water truck capable of efficiently placing water on granular fill. If material is excessively moist, aerate by scarifying with suitable equipment until moisture content is corrected.
- .13 Compact Type 2 and Type 3 Granular Fill material to a minimum of 95% of Maximum Dry Density determined in accordance with ASTM D698 or as determined from a Control Strip Density. The method for determining the maximum dry density will be established by the Departmental Representative.
- .14 Control Strip Density:
  - .1 A Control Strip is a lift of granular material placed over a minimum 300 square metres area that requires regrading.
  - .2 To determine the Control Density, moisture and density readings are to be taken by Departmental Representative during the compaction process until a maximum dry density is attained.
  - .3 The density and moisture content of the Control Strip are to be measured by Departmental Representative after each pass of the compaction equipment to determine the type of equipment and number of passes required to obtain the specified density.
  - .4 A new Control Strip will be required if, as established by Departmental Representative, the material type, moisture content, or subgrade of the area to be regraded is significantly different than that of the Control Strip.
  - .5 Proofroll areas compacted in accordance with the Control Strip Density upon completion of grading and compaction or as requested by Departmental Representative.
  - .6 Use a fully loaded haul truck for the proofrolling operation. The speed of the vehicle is not to exceed 4 km per hour during proof rolling. Departmental Representative may authorize the use of alternative proofrolling equipment.
  - .7 Make sufficient passes with the proofrolling equipment to subject every point on the surface to three separate passes of a loaded tire.
  - .8 Where proofrolling reveals areas of defective granular fill, remove and recompact the granular fill, and modify the compaction process, as required.
  - .9 The Control Strip Density method for compaction is not intended to relax the specified compaction requirements, but to reduce compaction testing requirements.
- .15 Compaction equipment must be capable of obtaining required densities uniformly in materials on project. Hand equipment must be available for compaction in areas where large equipment cannot access. Tracked or tired equipment may be substituted for dedicated compaction equipment, provided it can demonstrate satisfactory compactive effort.
- .16 Following compaction of granular fill material placed on slopes, travel in a direction parallel to the slope direction with a cat-track to create small ridges in the slope. In soft ground, travel in a direction parallel to the toe of the slope with a cat track.

- .17 Shape finished surface to required cross-section and grade, or as directed by Departmental Representative.

### 3.3 Regrading

- .1 Supply, place, blade and trim Type 2 Granular Fill material to elevation, grades, and cross-section dimensions indicated on Drawings or as directed by Departmental Representative.
- .2 Supply and install witness grade stakes in areas to be regraded to monitor the depth of granular material. The grade stakes are to be placed on a grid spacing accepted by Departmental Representative for each specific regrade area. Immediately replace all grade stakes that are damaged or displaced by Contractor operations.
- .3 Compact and moisture condition Granular Fill material as necessary to obtain specified density in accordance to Clause 3.2 of this Section.

### 3.4 Reshaping

- .1 Obtain authorization from Departmental Representative prior to beginning reshaping operations.
- .2 Blade and trim material to elevation, grades, and cross-section dimensions indicated or directed by Departmental Representative. Obtain Department Representative's approval before reshaping any area.
- .3 Make use of material within the area designated for reshaping to provide a surface that is smooth and compact with firm slopes.
- .4 Remove or cover debris exposed during reshaping with a minimum depth of Type 2 Granular Fill as directed by Departmental Representative.
- .5 Grade excavation side-slopes from culvert removal at 10H:1V, or as directed by Departmental Representative, to provide a stable channel for drainage and to allow for vehicle passage.
- .6 Blend the final reshaped surface with the natural terrain and provide positive drainage.

### 3.5 Excavating

- .1 Lay out work in detail from control points in areas of excavation. Verify the original ground topography by survey. If survey verification is not completed, original ground is to be as shown on the Drawings.
- .2 Excavate to lines, grades, elevations and dimensions as indicated on the Drawings or designated by Departmental Representative.
- .3 Keep excavations sufficiently free of water to complete work. Protect open excavations against flooding and damage due to surface run-on. Dispose of water in a manner not detrimental to work completed or under construction. The release of all water resulting from the dewatering of open excavations is to conform to the Water License Discharge Criteria outlined in Section 01 35 15 - Special Project Procedures for Contaminated Sites, and may require temporary storage or treatment prior to discharge.
- .4 Where required due to unauthorized over-excavation, fill areas with Type 3 Granular Fill, as directed by Departmental Representative, and compact to a minimum 95% of Maximum Dry Density in accordance with ASTM D698.

3.6 Backfilling

- .1 For backfilling operations, use compaction equipment capable of obtaining required densities.
- .2 Do not proceed with backfilling operations until Departmental Representative has inspected and accepted excavation.
- .3 Areas to be backfilled are to be free from debris, snow, and ice, and sufficiently free of water so as to allow backfilling to proceed without displacement of water outside of excavation, and to allow for compaction of backfill material.
- .4 Commence backfilling of excavated soil areas within 1 day of receipt of confirmatory sampling results indicating no further excavation in the area is required. Costs for any extra work caused as a result of leaving excavations open longer will be the responsibility of Contractor.
- .5 Place specified backfill material in uniform horizontal layers in depths to grades indicated. Compact each layer before placing succeeding layer.
- .6 No trenches or excavations are to be left open during the winter.

3.7 Testing

- .1 Testing of materials and compaction testing will be carried out and paid for by Departmental Representative.
- .2 Frequency of testing will be determined by Departmental Representative.

3.8 Finishing and Tolerances

- .1 All areas to be covered with granular material are to be uniform without projections or depressions exceeding 100 mm in three (3) metres.
- .2 Granular fill surfaces to be within 100 mm of design elevations but not uniformly high or low.
- .3 Finished surfaces are to be graded to promote positive drainage and minimize standing water.

3.9 Maintenance

- .1 Maintain finished surfaces in a condition in accordance with this Section until succeeding material is applied or until acceptance.

**END OF SECTION**

**APPENDIX A**  
**DEMOLITION INVENTORY**

Demolition Inventory

Structure	Description of Major Components	Hazardous Material	Estimated Volume (m <sup>3</sup> ) (crushed/cut)		Comments
			Non-Haz	Haz	
<b>Communication Tower</b> Total tower dimensions: 66m L x 5 m B x 5m H Concrete slab dimensions: 3m L x 3m W	Painted steel pipe and triangular cross beam construction antenna	-	83	-	Paint samples were non-detect for PCBs and below criteria for leachable lead.
	Four associated concrete slabs				Crushed volume is approximately 5% of original, based on other sites. Concrete slabs to be left in place and regraded.
<b>Module Train</b> (Powerhouse Module) One module - powerhouse.  Total dimensions 12m L x 8m W x 4.6 m H.  Constructed timber crib foundation. Wood frame construction.	Foundation and cribbing: four 9x9 timber beams 2m in length, fourteen 2x4 timber beams 2m in length	-	11.0		Eighteen 9x9 timber beams 11m in length - creosote not a concern.
	Painted concrete floor	PCB	7.2	2.4	The top 0.025 m of the concrete floor slab must be removed as contaminated material.
	Walls: Plywood walls (interior and exterior) approx. 0.15m thick, insulated. Metal cladding on exterior	PCB Paint	40	7.1	Insulation is not hazardous. Exterior plywood exceeds CEPA Steel cladding is under CEPA after substrate calculation.
	Walls: Misc. ducting, cables, structural steel, wiring, light fixtures (no bulbs), wood doors	-	3.3		
	Fuel Tanks: 2 diesel tanks	PCB Paint		1.0	PCB paint exceeds CEPA after substrate calculation
	Misc. Equipment: 3 CO2 tanks, 2 generators, 2 furnace fans, water tank and insulation, pipe wrap, electrical cabinets, wiring	PCB Paint (Under CEPA) Asbestos	2.9	0.2	Furnace fans are under CEPA after substrate calculation. Water tank is over CEPA after substrate calculation. Pipe wrap and tank insulation is ACM (1.8 m <sup>3</sup> ). Generators are under CEPA after substrate calculation.

Demolition Inventory

Structure	Description of Major Components	Hazardous Material	Estimated Volume (m <sup>3</sup> ) (crushed/cut)		Comments
			Non-Haz	Haz	
<b>Warehouse</b> 12.5m x 9m x 0.4m concrete floor on concrete footings. Eight footings: 0.75m x 0.75m x 0.25m. Eight footings: 0.45m x 0.45m x 1.0m. Entrance next to foundation - painted plywood 3.6m x 2.5m with 2x4 frame. 3 support beams (9" x 9" x 3m).	Painted plywood entrance - 4m x 1.5m hollow wooden entrance with 2x4 wood frame (10 cm thick). Three support beams (9x9 timbers) of 3m length.	PCB Paint (Under CEPA)	3.7		Paint is under CEPA after substrate calculation.
	Associated Debris - Four 9x9 timber beams 9m in length and metal basin 0.65m x 0.7m x 0.3m	-	2.0		
	Concrete floor	-	47.0		Concrete floor samples are under CEPA
	Painted AST tanks	-	0.3		ASTs are non-hazardous based on results of AST in module train.
	Concrete pad for AST tanks (1.6m x 2m x 0.1m)	-	0.4		
	Vinyl mat	-	0.5		
	Cement board	Asbestos	0.5		Cement board is ACM (0.5 m <sup>3</sup> ).
	Press board	-	1.0		
<b>Garage</b> 12.5m x 10.2m x 0.1m (12.75 m <sup>3</sup> ) concrete floor with two grates on pad.	Entrance vestibule and wooden staircase	PCB Paint (Under CEPA)	3.7		Paint on wooden staircase does not exceed CEPA.
	Concrete foundation	PCB	12.0	0.7	The top 0.01 m must be removed as contaminated material on the portion of the pad not containing the honeycomb reinforcement. Following contaminated concrete removal, concrete foundation to be left in place and regraded with 0.3 m granular fill
	Associated Debris: Boiler paper insulation, plaster (trowel) insulation and boiler.	Asbestos	2.1		Boiler paper insulation and plaster (trowel) insulation is ACM, approximately 1.1 m <sup>3</sup> .

Demolition Inventory

Structure	Description of Major Components	Hazardous Material	Estimated Volume (m <sup>3</sup> ) (crushed/cut)		Comments
			Non-Haz	Haz	
<b>POL Line, Sewage Outfall Pipe, Pipes, Utility Lines</b>	POL Line: 740 m in length Sewage outfall line : 40 m in length, 0.08 m diameter steel pipe Utility Lines: 485 m in length Three Misc. Pipes: 25 m, 20 m, 15 m in length		0.5 5.0 16.0 0.5		POL line, sewage outfall pipe and utility lines all buried or partially buried
<b>Culverts</b>  Four culverts on site	Airstrip: 600mm barrel culvert, 28m in length Road Sec. 2: 600mm barrel culvert, 6m long Road Sec. 3: 600mm CSP culvert, 6m long Road Sec. 4: 600mm barrel culvert, 6m long		4.0		
<b>POL Foundations</b> Located at the beach and at the station.	Beach POL Foundations: Two concrete ring footings 0.6 m wide with outside diameter of 2.5 m. Five associated square concrete slabs each 1m x 1m Station POL Foundations: Two concrete ring footings 0.6m wide with outside diameter of 2.5m. Three associated square concrete slabs, two 1m x 1m, one 3 m x 3 m.	-	-	-	Foundations and slabs to be left in place and regraded.
<b>Inuit Houses</b>	Northern Inuit house - 2x4 wooden frame with plywood walls, 28 m <sup>2</sup> floorspace.	-	7.5	-	
	Southern Inuit house - 2x4 wooden frame with plywood walls, 38 m <sup>2</sup> floorspace.	-	10.5	-	

\*\* All painted items that have not been sampled and analysed for lead and/or PCB content should be sampled and analysed prior to demolition. Both paint and substrate will be sampled, at the discretion of the Department Representative.

\*\* All dimensions are approximate.

**ASBESTOS INVENTORY FOR CAM-A STURT POINT**

<b>Structure</b>	<b>Asbestos – Containing Materials Identified On Site</b>
Powerhouse Module	- Approximately 1.8 m <sup>3</sup> : Asbestos containing pipe wrap and tank insulation
Warehouse	- Approximately 0.5 m <sup>3</sup> : Asbestos containing wallboard
Garage	- Approximately 1.1 m <sup>3</sup> : Asbestos Containing boiler paper insulation and plaster (trowel) insulation
<b>Total Approximate Quantity:</b>	<b>3.4 m<sup>3</sup></b>

Note: Asbestos material that has been double bagged is classified as Non-Hazardous material, unless coated with PAP.

**APPENDIX B**  
**DEBRIS INVENTORY**

Surface Debris Inventory

**CAM-A STURT POINT KNOWN DEBRIS AREAS**

<b>Debris Area</b>	<b>Description</b>	<b>Location</b>	<b>Aerial Extent (m<sup>2</sup>)</b>	<b>Approx. Number of Barrels</b>	<b>Estimated Crushed Volume (Includes Barrels) m<sup>3</sup></b>	<b>Estimated Hazardous Volume (crushed) (m<sup>3</sup>)</b>	<b>Comments</b>
<b>Debris Area 1</b>	<u>Debris:</u> scrap metal, metal strapping, sheet metal, rebar, crushed 5-gallon metal pail, wood (timbers, planking, pallets, stakes), large wooden cable spool, piece of an electric fan, barrels	Beach	87,000	329	74	N/A	Some of the barrels are partially buried.
<b>Debris Area 2</b>	<u>Debris:</u> scrap metal, metal pipe, metal garbage can, 5-gallon metal pail, tin cans, sheet of tin, wood (scrap), glass jars, vehicle debris, barrels	Landfill A/Barrel A	32,600	7	9	N/A	Vehicle debris consists of a truck bed with hitch that contains wood, angle iron and tin materials
<b>Debris Area 3</b>	<u>Debris:</u> 5-gallon metal pails, wood (timbers, scrap), tin cans, rebar, cat track, barrels	Landfill B	18,100	6	6	N/A	Debris includes approximately 30 partially buried/crushed 5-gallon metal pails.
<b>Debris Area 4</b>	<u>Debris:</u> scrap metal, metal strapping, metal pipe and fittings, metal post, metal basin, channel iron, angle iron, tin sheet metal, tin cladding, 5-gallon metal pails, rebar, tin cans, wood (timbers, planking, plywood, pallets, scrap), , cable, concrete pads, tires, light stand for airstrip, wire, battery cells, paint cans,	Beach, Station, Worked Area, Landfill B, Airstrip, POL Markers	290,000	245	87	1.2	Debris may extend into shallow water body adjacent to POL Line.
<b>Debris Area 5</b>	<u>Debris:</u> barrels	Beach	620	1	0.5	N/A	



Surface Debris Inventory

**CAM-A STURT POINT KNOWN DEBRIS AREAS**

<b>Debris Area</b>	<b>Description</b>	<b>Location</b>	<b>Aerial Extent (m<sup>2</sup>)</b>	<b>Approx. Number of Barrels</b>	<b>Estimated Crushed Volume (Includes Barrels) m<sup>3</sup></b>	<b>Estimated Hazardous Volume (crushed) (m<sup>3</sup>)</b>	<b>Comments</b>
<b>Debris Area 6</b>	<u>Debris</u> : metal (angle iron) stand	Beach	620	N/A	0.3	N/A	
<b>Debris Area 7</b>	<u>Debris</u> : wooden airstrip marker, barrels	Airstrip	6,300	2	1.5	N/A	
<b>Debris Area 8</b>	<u>Debris</u> : barrels	Inuit House Area	45,800	102	21	N/A	
<b>Debris Area 9</b>	<u>Debris</u> : barrels	North of Station Area	620	7	3.5	N/A	

**APPENDIX C**  
**SITE PHOTOGRAPHS**

# PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point		<b>Site Location:</b> Site Overview	<b>Project No.</b> 60156118
<b>Photo No.</b> E-1	<b>Date:</b> 9-Aug-10		
<b>Direction Photo Taken:</b>  View north-northeast			
<b>Description:</b>  Site overview (taken from airplane)			
<b>Photo No.</b> E-2	<b>Date:</b> 9-Aug-10		
<b>Direction Photo Taken:</b>  View north-northeast			
<b>Description:</b>  Site overview (taken from airplane)			

# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 4: Sewage Outfall

**Project No.**  
60156118

**Photo No.**  
E-3

**Date:**  
6-Aug-10

**Direction Photo Taken:**

View northwest

**Description:**

Sewage pipeline from main station pad towards outfall.

Fallen antenna noted to the south of the outfall.



**Photo No.**  
E-4

**Date:**  
6-Aug-10

**Direction Photo Taken:**

View southeast

**Description:**

Sewage pipeline from main station.

Mod Train foundation noted in background.



# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 4: Sewage Outfall

**Project No.**  
60156118

**Photo No.**  
E-5

**Date:**  
6-Aug-10

**Direction Photo Taken:**

View southeast

**Description:**

Sewage pipeline towards main station.



**Photo No.**  
E-6

**Date:**  
6-Aug-10

**Direction Photo Taken:**

View northwest

**Description:**

Former sewage pipeline from main station to outfall.



# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 4: Sewage Outfall

**Project No.**  
60156118

**Photo No.**  
E-7

**Date:**  
6-Aug-10

**Direction Photo Taken:**

View northeast

**Description:**

End of former sewage pipeline (south end of outfall channel).

Warehouse foundation is noted to the northeast.



**Photo No.**  
E-8

**Date:**  
6-Aug-10

**Direction Photo Taken:**

View north

**Description:**

South end of sewage outfall channel.



# PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point	<b>Site Location:</b> Sewage Outfall	<b>Project No.</b> 60156118
---	---	--------------------------------

<b>Photo No.</b> E-9	<b>Date:</b> 6-Aug-10	
<b>Direction Photo Taken:</b>  View south		
<b>Description:</b>  North end of sewage outfall channel.  Fallen antenna noted south of the channel.		

<b>Photo No.</b> E-10	<b>Date:</b> 6-Aug-10	
<b>Direction Photo Taken:</b>  View north		
<b>Description:</b>  North end of sewage outfall channel.		

# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 4: Station Area

**Project No.**  
60156118

**Photo No.**  
E-11

**Date:**  
9-Aug-10

**Direction Photo Taken:**

View southeast

**Description:**

Mod train foundation.



**Photo No.**  
E-12

**Date:**  
9-Aug-10

**Direction Photo Taken:**

View west

**Description:**

Mod train foundation.



# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 4: Station Area

**Project No.**  
60156118

**Photo No.**  
E-13

**Date:**  
9-Aug-10

**Direction Photo Taken:**

View north

**Description:**

Garage foundation,



**Photo No.**  
E-14

**Date:**  
9-Aug-10

**Direction Photo Taken:**

View north

**Description:**

Garage foundation.

Two sumps noted on concrete pad.

Airstrip to the north.



# PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point		<b>Site Location:</b> Debris Area 4: Station Area	<b>Project No.</b> 60156118
<b>Photo No.</b> E-15	<b>Date:</b> 9-Aug-10		
<b>Direction Photo Taken:</b>  View southeast			
<b>Description:</b>  Garage foundation.  Former boiler remaining on pad.			
<b>Photo No.</b> E-16	<b>Date:</b> 9-Aug-10		
<b>Direction Photo Taken:</b>  View southwest			
<b>Description:</b>  Warehouse foundation.  Wooden debris.			

# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 4: Station Area

**Project No.**  
60156118

**Photo No.**  
E-17

**Date:**  
9-Aug-10

**Direction Photo Taken:**

View east

**Description:**

Warehouse foundation.

Empty ASTs.



**Photo No.**  
E-18

**Date:**  
9-Aug-10

**Direction Photo Taken:**

View southeast.

**Description:**

Warehouse foundation.



# PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point		<b>Site Location:</b> Debris Area 4: Station Area	<b>Project No.</b> 60156118
<b>Photo No.</b> E-19	<b>Date:</b> 9-Aug-10		
<b>Direction Photo Taken:</b>  View southwest			
<b>Description:</b>  Wood & metal debris on station pad.  Warehouse foundation and fallen antenna noted in background.			
<b>Photo No.</b> E-20	<b>Date:</b> 9-Aug-10		
<b>Direction Photo Taken:</b>  View west			
<b>Description:</b>  Metal debris on station pad.			

# PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point		<b>Site Location:</b> Debris Area 4: Station Area	<b>Project No.</b> 60156118
<b>Photo No.</b> E-21	<b>Date:</b> 9-Aug-10		
<b>Direction Photo Taken:</b>  View northeast			
<b>Description:</b>  Metal debris on station pad.  Section of mod train noted in background.			
<b>Photo No.</b> E-22	<b>Date:</b> 9-Aug-10		
<b>Direction Photo Taken:</b>  View northeast			
<b>Description:</b>  Section of former mod train.			

# PHOTOGRAPHIC LOG



<b>Site Name:</b> CAM-A, Sturt Point		<b>Site Location:</b> Debris Area 4: Station Area – Module Train Section	<b>Project No.</b> 60156118
<b>Photo No.</b> E-23	<b>Date:</b> 9-Aug-10		
<b>Direction Photo Taken:</b>  View northwest			
<b>Description:</b>  Section of former mod train.			
<b>Photo No.</b> E-24	<b>Date:</b> 9-Aug-10		
<b>Direction Photo Taken:</b>  View southwest			
<b>Description:</b>  Section of former mod train.			

# PHOTOGRAPHIC LOG

**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Station Area – Module Train Section

**Project No.**  
60156118

**Photo No.**  
E-25

**Date:**  
9-Aug-10

**Direction Photo Taken:**

Inside module train section

**Description:**

North side of building



**Photo No.**  
E-26

**Date:**  
9-Aug-10

**Direction Photo Taken:**

Inside module train section

**Description:**

North side of building



**PHOTOGRAPHIC LOG****Site Name:**  
CAM-A, Sturt Point**Site Location:**  
Station Area – Module Train Section**Project No.**  
60156118**Photo No.**  
E-27**Date:**  
9-Aug-10**Direction Photo Taken:**

Inside module train section

**Description:**

Southwest corner of building

**Photo No.**  
E-28**Date:**  
9-Aug-10**Direction Photo Taken:**



Inside module train section

**Description:**

Two (2) former diesel fuel ASTs





## PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point		<b>Site Location:</b> Station Area – Module Train Section	<b>Project No.</b> 60156118
<b>Photo No.</b> E-29	<b>Date:</b> 9-Aug-10		
<b>Direction Photo Taken:</b>  Inside module train section			
<b>Description:</b>  Piping along ceiling.			
<b>Photo No.</b> E-30	<b>Date:</b> 7-Aug-10		
<b>Direction Photo Taken:</b>  Inside module train section			
<b>Description:</b>  Location of material sample MAT-30			

# PHOTOGRAPHIC LOG



<b>Site Name:</b> CAM-A, Sturt Point		<b>Site Location:</b> Station Area – Module Train Section	<b>Project No.</b> 60156118
<b>Photo No.</b> E-31	<b>Date:</b> 7-Aug-10		
<b>Direction Photo Taken:</b>  Inside module train section			
<b>Description:</b>  Location of material sample MAT-30.			
<b>Photo No.</b> E-32	<b>Date:</b> 7-Aug-10		
<b>Direction Photo Taken:</b>  Inside module train section			
<b>Description:</b>  Location of material sample MAT-29.			

# PHOTOGRAPHIC LOG

**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Station Area – Module Train Section

**Project No.**  
60156118

**Photo No.**  
E-33

**Date:**  
7-Aug-10

**Direction Photo Taken:**

Inside module train section

**Description:**

Location of material sample MAT-29.



**Photo No.**  
E-34

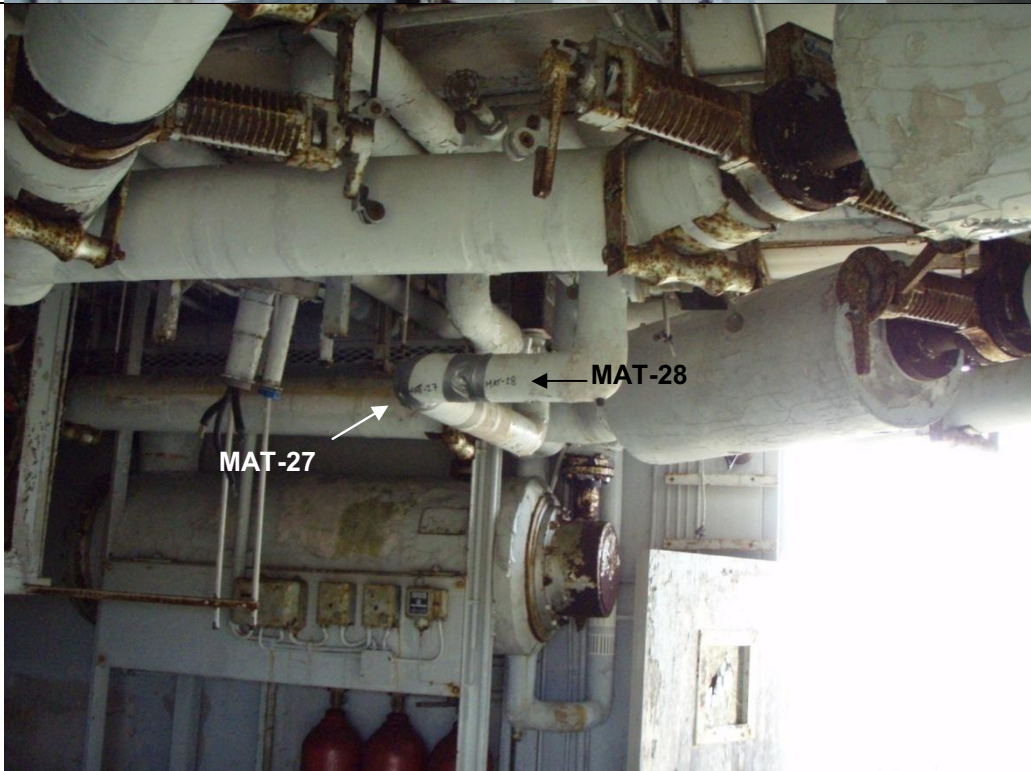
**Date:**  
7-Aug-10

**Direction Photo Taken:**



Inside module train section

**Description:**

Location of material sample MAT-27 & MAT-28.



# PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point		<b>Site Location:</b> Station Area – Module Train Section	<b>Project No.</b> 60156118
<b>Photo No.</b> E-35	<b>Date:</b> 7-Aug-10		
<b>Direction Photo Taken:</b>  Inside module train section			
<b>Description:</b>  Location of material sample MAT-26.			
<b>Photo No.</b> E-36	<b>Date:</b> 7-Aug-10		
<b>Direction Photo Taken:</b>  Inside module train section			
<b>Description:</b>  Location of material sample MAT-25.			

# PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point	<b>Site Location:</b> Station Area – Module Train Section	<b>Project No.</b> 60156118
---	--	--------------------------------

<b>Photo No.</b> E-37	<b>Date:</b> 7-Aug-10
--------------------------	--------------------------

<b>Direction Photo Taken:</b>  Inside module train section
--

<b>Description:</b>  Location of material sample MAT-24.
--



<b>Photo No.</b> E-38	<b>Date:</b> 7-Aug-10
--------------------------	--------------------------

<b>Direction Photo Taken:</b>  View south
---

<b>Description:</b>  Location of material sample MAT-23.
--



# PHOTOGRAPHIC LOG

**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Station Area – Module Train Section

**Project No.**  
60156118

**Photo No.**  
E-39

**Date:**  
7-Aug-10

**Direction Photo Taken:**

Inside module train section

**Description:**

Location of material sample MAT-21 and MAT-22.



**Photo No.**  
E-40

**Date:**  
7-Aug-10

**Direction Photo Taken:**

Inside module train section

**Description:**

Location of material sample MAT-20.



# PHOTOGRAPHIC LOG

**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Station Area – Module Train Section

**Project No.**  
60156118

**Photo No.**  
E-41

**Date:**  
7-Aug-10

**Direction Photo Taken:**

Inside module train section

**Description:**

Location of material sample MAT-19.



**Photo No.**  
E-42

**Date:**  
7-Aug-10

**Direction Photo Taken:**

Inside module train section

**Description:**

Location of material sample MAT-18.



# PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point		<b>Site Location:</b> Station Area	<b>Project No.</b> 60156118
<b>Photo No.</b> E-43	<b>Date:</b> 7-Aug-10		
<b>Direction Photo Taken:</b>  Inside module train section			
<b>Description:</b>  Location of material sample MAT-17.			
<b>Photo No.</b> E-44	<b>Date:</b> 7-Aug-10		
<b>Direction Photo Taken:</b>  View northeast			
<b>Description:</b>  Garage foundation. Location of material sample MAT-15 and MAT-16.			

# PHOTOGRAPHIC LOG

**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Station Area

**Project No.**  
60156118

**Photo No.**  
E-45

**Date:**  
7-Aug-10

**Direction Photo Taken:**

View north

**Description:**

Garage foundation.  
Location of material sample MAT-14.



**Photo No.**  
E-46

**Date:**  
7-Aug-10

**Direction Photo Taken:**

View north

**Description:**

Garage foundation.  
Location of material sample MAT-13.



# PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point	<b>Site Location:</b> Station Area	<b>Project No.</b> 60156118
---	---------------------------------------	--------------------------------

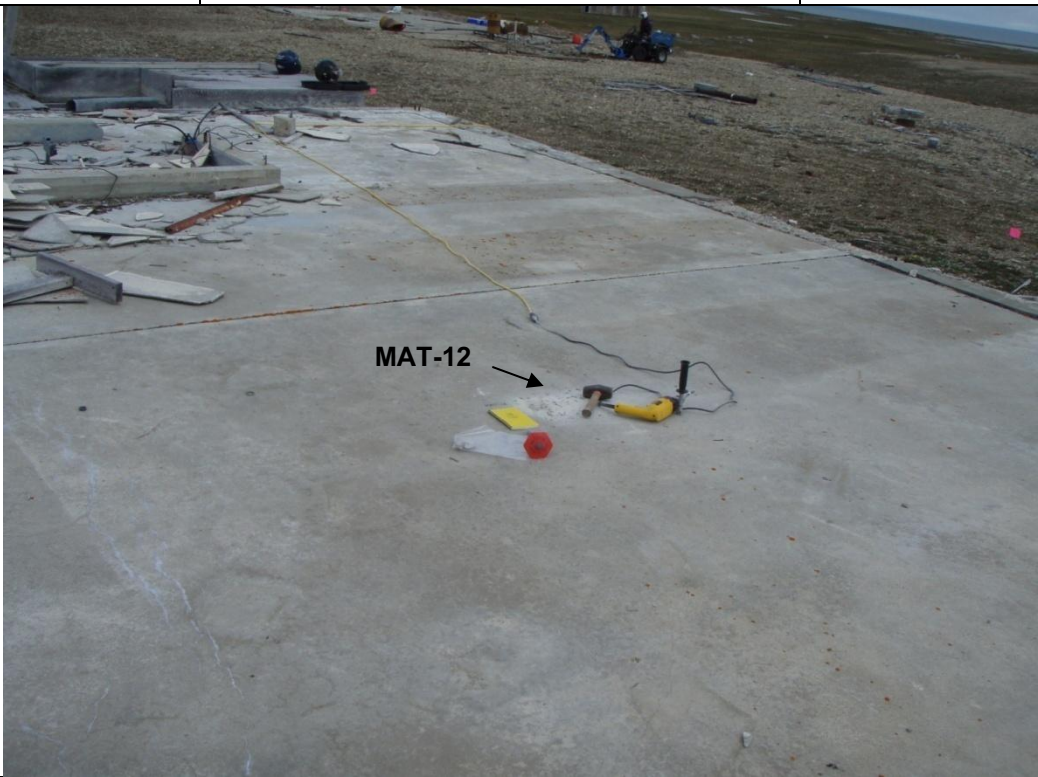
<b>Photo No.</b> E-47	<b>Date:</b> 7-Aug-10
--------------------------	--------------------------

**Direction Photo Taken:**

View northeast

**Description:**

Warehouse foundation.  
Location of material sample MAT-12.



<b>Photo No.</b> E-48	<b>Date:</b> 7-Aug-10
--------------------------	--------------------------

**Direction Photo Taken:**

View north

**Description:**

Warehouse foundation.  
Location of material sample MAT-11.



# PHOTOGRAPHIC LOG

**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Station Area

**Project No.**  
60156118

**Photo No.**  
E-49

**Date:**  
6-Aug-10

**Direction Photo Taken:**

View southwest

**Description:**

Warehouse foundation.  
Location of material sample MAT-10.



**Photo No.**  
E-50

**Date:**  
6-Aug-10

**Direction Photo Taken:**

View south

**Description:**

Warehouse foundation.  
Location of material sample MAT-9.



# PHOTOGRAPHIC LOG

**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Station Area

**Project No.**  
60156118

**Photo No.**  
E-51

**Date:**  
6-Aug-10

**Direction Photo Taken:**

View west

**Description:**

Warehouse foundation.  
Location of material sample MAT-8.



**Photo No.**  
E-52

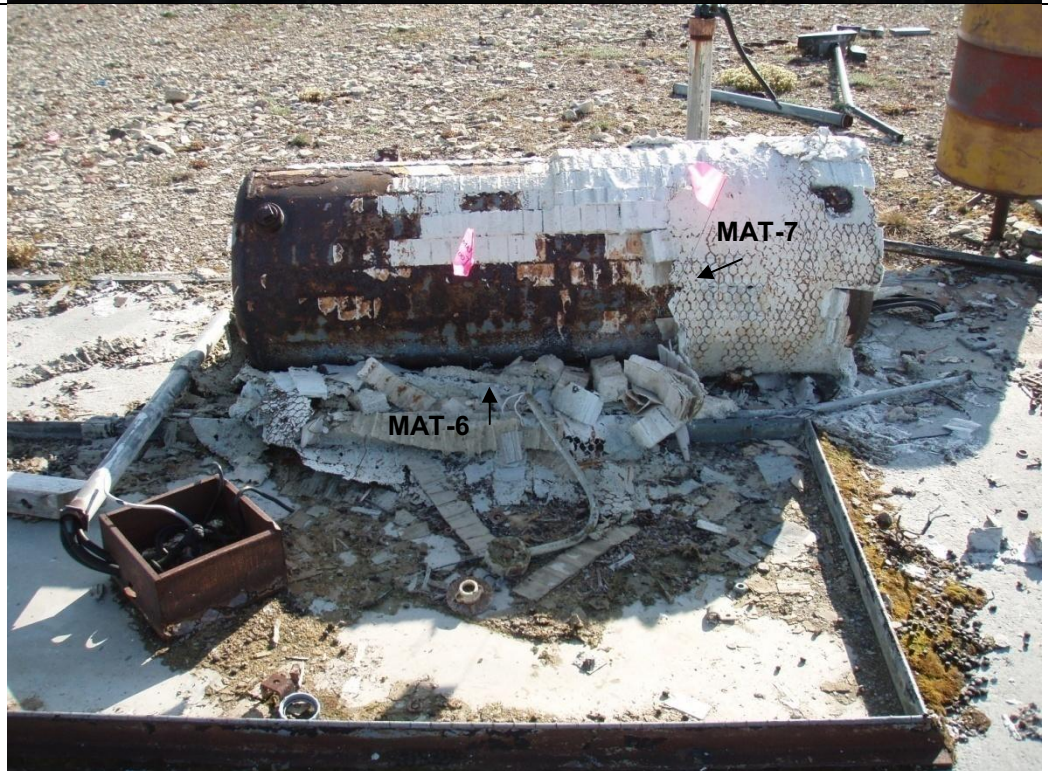
**Date:**  
6-Aug-10

**Direction Photo Taken:**

View north

**Description:**

Boiler on garage foundation. Location of material samples MAT-6 and MAT-7.



# PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point	<b>Site Location:</b> Debris Area 4: Station Area	<b>Project No.</b> 60156118
---	--	--------------------------------

<b>Photo No.</b> E-53	<b>Date:</b> 6-Aug-10
--------------------------	--------------------------

**Direction Photo Taken:**

View south

**Description:**

Debris adjacent to warehouse foundation. Location of material sample MAT-5.



<b>Photo No.</b> E-54	<b>Date:</b> 6-Aug-10
--------------------------	--------------------------

**Direction Photo Taken:**

View southeast

**Description:**

Debris adjacent to warehouse foundation. Location of material sample MAT-4.



# PHOTOGRAPHIC LOG

**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 4: Station Area

**Project No.**  
60156118

**Photo No.**  
E-55

**Date:**  
6-Aug-10

**Direction Photo Taken:**

View southeast

**Description:**

Debris adjacent to warehouse foundation.  
Location of material sample MAT-3.



**Photo No.**  
E-56

**Date:**  
6-Aug-10

**Direction Photo Taken:**

View north

**Description:**

Fallen antenna.  
Location of material sample MAT-2.



# PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point	<b>Site Location:</b> Debris Area 4: Station Area	<b>Project No.</b> 60156118
---	--	--------------------------------

<b>Photo No.</b> E-57	<b>Date:</b> 6-Aug-10
--------------------------	--------------------------

**Direction Photo Taken:**

View northeast

**Description:**

Fallen antenna.  
Location of material sample MAT-1.



<b>Photo No.</b> E-58	<b>Date:</b> 9-Aug-10
--------------------------	--------------------------

**Direction Photo Taken:**



View north

**Description:**

Debris southeast of module train foundation.  
Waypoint W-195



# PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point		<b>Site Location:</b> Debris Area 4: Station Area	<b>Project No.</b> 60156118
<b>Photo No.</b> E-59	<b>Date:</b> 9-Aug-10		
<b>Direction Photo Taken:</b>  View north			
<b>Description:</b>  Debris adjacent to module train foundation.  Waypoint W-197			
<b>Photo No.</b> E-60	<b>Date:</b> 9-Aug-10		
<b>Direction Photo Taken:</b>  View west			
<b>Description:</b>  Hollow entrance section of former module train. The section is open on one side. It appears as though it has been used as a cache or den for possibly a fox.  Waypoint W-197			

# PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point		<b>Site Location:</b> Debris Area 4: Station Area	<b>Project No.</b> 60156118
<b>Photo No.</b> E-61	<b>Date:</b> 9-Aug-10		
<b>Direction Photo Taken:</b>  View north			
<b>Description:</b>  Debris adjacent to module train foundation.			
<b>Photo No.</b> E-62	<b>Date:</b> 9-Aug-10		
<b>Direction Photo Taken:</b>  View west			
<b>Description:</b>  Debris adjacent to module train foundation.  Waypoint W-198			

# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 4: Station Area

**Project No.**  
60156118

**Photo No.**  
E-63

**Date:**  
9-Aug-10

**Direction Photo Taken:**

View south

**Description:**

Three wooden pallets.

Waypoint W-253



**Photo No.**  
E-64

**Date:**  
9-Aug-10

**Direction Photo Taken:**

View northwest.

**Description:**

Wood & scrap iron debris.

Waypoint W-255



# PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point		<b>Site Location:</b> Debris Area 4: Station Area to Airstrip Area	<b>Project No.</b> 60156118
<b>Photo No.</b> E-65	<b>Date:</b> 9-Aug-10		
<b>Direction Photo Taken:</b>  View south			
<b>Description:</b>  Concrete & metal cable debris.  Waypoint W-257			
<b>Photo No.</b> E-66	<b>Date:</b> 9-Aug-10		
<b>Direction Photo Taken:</b>  View southwest			
<b>Description:</b>  Light stand for airstrip, concrete & metal debris.  Waypoint W-234			

# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 4: Station Area

**Project No.**  
60156118

**Photo No.**  
E-67

**Date:**  
9-Aug-10

**Direction Photo Taken:**

View north

## Description:

Marker barrels from station to airstrip; electrical lines (4 1/2" diameter) from station to airstrip.



**Photo No.**  
E-68

**Date:**  
8-Aug-10

**Direction Photo Taken:**

View north

## Description:

Heritage point.  
Waypoint W-193



## PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point		<b>Site Location:</b> Debris Area 4: Worked area	<b>Project No.</b> 60156118
<b>Photo No.</b> E-69	<b>Date:</b> 8-Aug-10		
<b>Direction Photo Taken:</b>  View north			
<b>Description:</b>  Heritage point.  Waypoint W-192			
<b>Photo No.</b> E-70	<b>Date:</b> 8-Aug-10		
<b>Direction Photo Taken:</b>  View north			
<b>Description:</b>  Heritage point.			

# PHOTOGRAPHIC LOG

**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 4: Worked area

**Project No.**  
60156118

**Photo No.**  
E-71

**Date:**  
8-Aug-10

**Direction Photo Taken:**

View south

**Description:**

Lobe I with four (4) battery cells.

Waypoint W-189



**Photo No.**  
E-72

**Date:**  
6-Aug-10

**Direction Photo Taken:**

View south

**Description:**

Lobe I with four (4) battery cells.

Waypoint W-189



**PHOTOGRAPHIC LOG****Site Name:**  
CAM-A, Sturt Point**Site Location:**  
Debris Area 4: Worked area**Project No.**  
60156118**Photo No.**  
E-73**Date:**  
6-Aug-10**Direction Photo Taken:**

View east

**Description:**

Lobe I with four (4) battery cells.

Waypoint W-189

**Photo No.**  
E-74**Date:**  
6-Aug-10**Direction Photo Taken:**

View east

**Description:**

Lobe I with four (4) battery cells.

Waypoint W-189



# PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point		<b>Site Location:</b> Debris Area 4: Worked area	<b>Project No.</b> 60156118
<b>Photo No.</b> E-75	<b>Date:</b> 8-Aug-10		
<b>Direction Photo Taken:</b>  View southeast			
<b>Description:</b>  Lobe K. Metal piping debris.  Waypoint W-188			
<b>Photo No.</b> E-76	<b>Date:</b>		
<b>Direction Photo Taken:</b>  View southeast			
<b>Description:</b>  Lobe K. Metal piping debris.  Waypoint W-187			

# PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point	<b>Site Location:</b> Debris Area 4: Worked area	<b>Project No.</b> 60156118
---	---	--------------------------------

<b>Photo No.</b> E-77	<b>Date:</b> 8-Aug-10
--------------------------	--------------------------

**Direction Photo Taken:**

View east

**Description:**

Lobe J (Figure 7)



<b>Photo No.</b> E-78	<b>Date:</b> 8-Aug-10
--------------------------	--------------------------

**Direction Photo Taken:**

View northeast

**Description:**

Concrete antenna anchor pad and marker empty barrels.

Waypoint W-179



# PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point		<b>Site Location:</b> Debris Area 6: Beach area	<b>Project No.</b> 60156118
<b>Photo No.</b> E-79	<b>Date:</b> 6-Aug-10		
<b>Direction Photo Taken:</b>  View east			
<b>Description:</b>  Metal debris.			
<b>Photo No.</b> E-80	<b>Date:</b> 6-Aug-10		
<b>Direction Photo Taken:</b>  View north			
<b>Description:</b>  Extend of debris on west beach, wooden stakes in ground.			

## PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point		<b>Site Location:</b> Debris Area 1: Beach area	<b>Project No.</b> 60156118
<b>Photo No.</b> E-81	<b>Date:</b> 6-Aug-10		
<b>Direction Photo Taken:</b>  View south			
<b>Description:</b>  Barrel & wood debris.			
<b>Photo No.</b> E-82	<b>Date:</b> 6-Aug-10		
<b>Direction Photo Taken:</b>  View south			
<b>Description:</b>  Barrel Area B			

# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 1: Beach Area (Barrel Area A)

**Project No.**  
60156118

**Photo No.**  
E-83

**Date:**  
6-Aug-10

**Direction Photo Taken:**

View south

**Description:**

Barrel Area B



**Photo No.**  
E-84

**Date:**  
6-Aug-10

**Direction Photo Taken:**

View northeast



**Description:**

Barrel Area B

Waypoint W-006



## PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point		<b>Site Location:</b> Debris Area 1: Beach Area (Barrel Area B)	<b>Project No.</b> 60156118
<b>Photo No.</b> E-85	<b>Date:</b> 6-Aug-10		
<b>Direction Photo Taken:</b>  View south			
<b>Description:</b>  Small burn area south of Barrel Area B.			
<b>Photo No.</b> E-86	<b>Date:</b> 6-Aug-10		
<b>Direction Photo Taken:</b>  View east			
<b>Description:</b>  Northwestern extent of debris at beach area.  Barrel Area B is noted in the background.			

# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 4: Station Area

**Project No.**  
60156118

**Photo No.**  
E-87

**Date:**  
6-Aug-10

**Direction Photo Taken:**

View west

**Description:**

Submerged barrel (debris) adjacent to POL marker line.

Waypoint W-087



**Photo No.**  
E-88

**Date:**  
6-Aug-10

**Direction Photo Taken:**

View southeast

**Description:**

Metal debris.

Waypoint W-089



# PHOTOGRAPHIC LOG

**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 4: Station Area

**Project No.**  
60156118

**Photo No.**  
E-89

**Date:**  
6-Aug-10

**Direction Photo Taken:**

View northwest

**Description:**

Steel pipe debris.

Waypoint W-090



**Photo No.**  
E-90

**Date:**  
6-Aug-10

**Direction Photo Taken:**

View east



**Description:**

Steel pipe debris.

Waypoint W-098



## PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point		<b>Site Location:</b> Debris Area 4: Station Area to Freshwater Lake	<b>Project No.</b> 60156118
<b>Photo No.</b> E-91	<b>Date:</b> 8-Aug-10		
<b>Direction Photo Taken:</b>  View northeast			
<b>Description:</b>  Wood & concrete board debris.  Waypoint W-158			
<b>Photo No.</b> E-92	<b>Date:</b> 8-Aug-10		
<b>Direction Photo Taken:</b>  View southeast			
<b>Description:</b>  Access road to freshwater lake			

# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Freshwater Lake

**Project No.**  
60156118

**Photo No.**  
E-93

**Date:**  
8-Aug-10

**Direction Photo Taken:**

Northwest

**Description:**

Freshwater Lake, near access road



**Photo No.**  
E-94

**Date:**  
8-Aug-10

**Direction Photo Taken:**

Northeast

**Description:**

Freshwater Lake, near access road



# PHOTOGRAPHIC LOG

**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 3: Landfill B

**Project No.**  
60156118

**Photo No.**  
E-95

**Date:**  
7-Aug-10

**Direction Photo Taken:**

View southeast

**Description:**

Lobe F, debris

Waypoint W-166



**Photo No.**  
E-96

**Date:**  
7-Aug-10

**Direction Photo Taken:**

View north

**Description:**

Three lobes are noted  
(down gradient noted in  
foreground)



# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 3: Landfill B

**Project No.**  
60156118

**Photo No.**  
E-97

**Date:**  
7-Aug-10

**Direction Photo Taken:**

View northeast

**Description:**

Debris down gradient of Lobe G.



**Photo No.**  
E-98

**Date:**  
7-Aug-10

**Direction Photo Taken:**

View south

**Description:**

Lobe H



# PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point		<b>Site Location:</b> Debris Area 3: Landfill B	<b>Project No.</b> 60156118
<b>Photo No.</b> E-99	<b>Date:</b> 7-Aug-10		
<b>Direction Photo Taken:</b>  View south			
<b>Description:</b>  Lobe H			
<b>Photo No.</b> E-100	<b>Date:</b> 7-Aug-10		
<b>Direction Photo Taken:</b>  View west			
<b>Description:</b>  Lobe H			

# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 2: Barrel Area A

**Project No.**  
60156118

**Photo No.**  
E-101

**Date:**  
6-Aug-10

**Direction Photo Taken:**

View east

**Description:**

Barrel Area A



**Photo No.**  
E-102

**Date:**  
8-Aug-10

**Direction Photo Taken:**

View southwest

**Description:**

Barrel Area A



# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 2: Barrel Area A

**Project No.**  
60156118

**Photo No.**  
E-103

**Date:**  
8-Aug-10

**Direction Photo Taken:**

View north

**Description:**

Barrel Area A



**Photo No.**  
E-104

**Date:**  
8-Aug-10

**Direction Photo Taken:**


View south

**Description:**

Barrel Area A



# PHOTOGRAPHIC LOG

<b>Site Name:</b> CAM-A, Sturt Point		<b>Site Location:</b> Debris Area 2: Barrel Area A	<b>Project No.</b> 60156118
<b>Photo No.</b> E-105	<b>Date:</b> 8-Aug-10		
<b>Direction Photo Taken:</b>  View southeast			
<b>Description:</b>  Barrel Area A (vehicle debris)			
<b>Photo No.</b> E-106	<b>Date:</b>		
<b>Direction Photo Taken:</b>  View north			
<b>Description:</b>  Barrel Area A			

# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 2: Landfill A

**Project No.**  
60156118

**Photo No.**  
E-107

**Date:**  
8-Aug-10

**Direction Photo Taken:**

View east

**Description:**

Landfill A



**Photo No.**  
E-108

**Date:**  
8-Aug-10

**Direction Photo Taken:**

View north east

**Description:**

Landfill A

Waypoint W-108



# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 2: Landfill A and Debris Area 4:  
Beach POL

**Project No.**  
60156118

**Photo No.**  
E-109

**Date:**

**Direction Photo Taken:**

View northwest

**Description:**

Landfill A



**Photo No.**  
E-110

**Date:**  
9-Aug-10

**Direction Photo Taken:**

View west



**Description:**

Beach POL



# PHOTOGRAPHIC LOG



<b>Site Name:</b> CAM-A, Sturt Point		<b>Site Location:</b> Debris Area 4: Beach POL and Debris Area 8: Inuit House Area	<b>Project No.</b> 60156118
<b>Photo No.</b> E-111	<b>Date:</b> 9-Aug-10		
<b>Direction Photo Taken:</b>  View southwest			
<b>Description:</b>  Beach POL			
<b>Photo No.</b> E-112	<b>Date:</b> 7-Aug-10		
<b>Direction Photo Taken:</b>  View east			
<b>Description:</b>  Two houses along beach (northeast of the CAM-A site)			

# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 8: Inuit Houses

**Project No.**  
60156118

**Photo No.**  
E-113

**Date:**  
7-Aug-10

**Direction Photo Taken:**

View east

**Description:**

House 1 (northern house)



**Photo No.**  
E-114

**Date:**  
7-Aug-10

**Direction Photo Taken:**

View north east

**Description:**

Debris/barrels adjacent to House 1.



# PHOTOGRAPHIC LOG

**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 8: Inuit Houses

**Project No.**  
60156118

**Photo No.**  
E-115

**Date:**  
7-Aug-10

**Direction Photo Taken:**

View north

**Description:**

House 1



**Photo No.**  
E-116

**Date:**  
7-Aug-10

**Direction Photo Taken:**

View east

**Description:**

House 2



# PHOTOGRAPHIC LOG



**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 8: Inuit Houses

**Project No.**  
60156118

**Photo No.**  
E-117

**Date:**  
7-Aug-10

**Direction Photo Taken:**

View north

**Description:**

House 2



**Photo No.**  
E-118

**Date:**  
7-Aug-10

**Direction Photo Taken:**

View west

**Description:**

House 2



## PHOTOGRAPHIC LOG



**Site Name:**  
CAM-A, Sturt Point

**Site Location:**  
Debris Area 8: Inuit Houses

**Project No.**  
60156118

**Photo No.**  
E-119

**Date:**  
7-Aug-10

**Direction Photo  
Taken:**

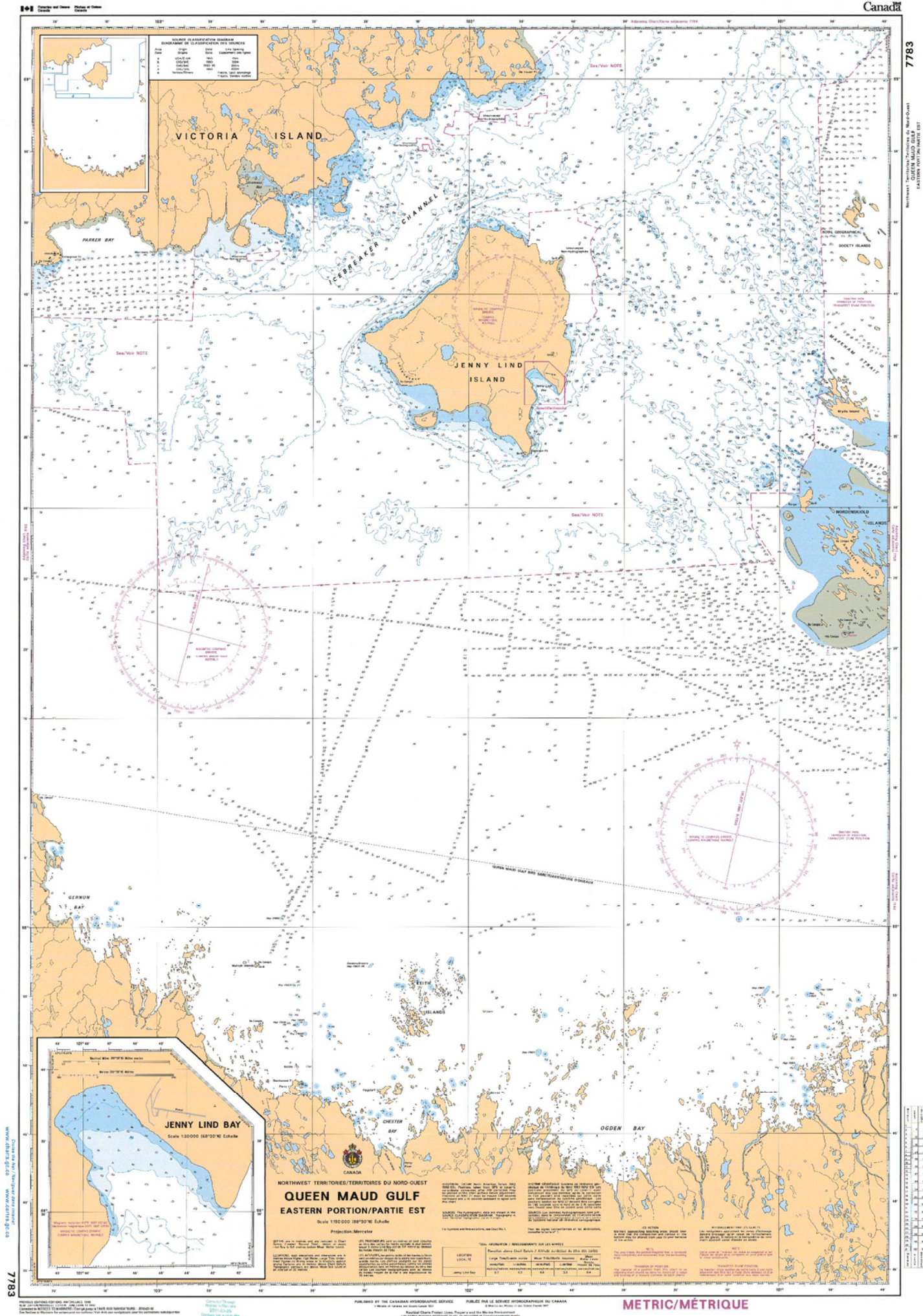
View north

**Description:**

Debris area adjacent to  
Inuit houses.



**APPENDIX D**  
**NAVIGATIONAL CHARTS**



**APPENDIX E**  
**REPORTING TEMPLATES**

Table 1: PWGSC AOC Monthly Labour Summary

Project: \_\_\_\_\_  
Reporting Period: \_\_\_\_\_

Staff Member <sup>1</sup>	Inuit <sup>2</sup> (Y/N)	Land Claim Beneficiary (specify)	Hours Worked in (Month)																															Total
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0
																																		0

**Project:** \_\_\_\_\_  
**Reporting Period:** \_\_\_\_\_  
**Total Billed to Date:** \_\_\_\_\_  
**Total Project Cost<sup>1</sup>:** \_\_\_\_\_

**Project Inuit Sub-Contractor/Business Content to Date:**

**Overall Project Inuit Sub-Contractor/Business Content:**

<sup>1</sup> Project Total Costs includes all Known Work (Section 1 of the Basis of Payment) and All Approved Task Authorizations

<sup>3</sup> Audit Services Canada may require proof of Company's Inuit status. It is recommended that the Contractor obtain a copy of the Inuit Business or Corporation's corporate and/business registration (showing shareholders and/or owners) and maintain on file.

---

Title

**Table 3: Project Statistics**

**EHS PERFORMANCE**

Safety		Q1	Q2	Q3	Q4	TOTAL TO DATE	EVIDENCE/EXPLANATION
Major Incident	#						
Moderate Incident	#						
Minor Incident	#						
Near misses	#						
Incidents, Inspections and Audits		Q1	Q2	Q3	Q4	TOTAL TO DATE	EVIDENCE/EXPLANATION
Environment Incidents	#						
	Volume (L) spilled						
Inspections/Audits (external)	# performed						
	# non-compliances						
Inspections/Audits (internal)	# performed						
	# non-compliances						
EHS Training (p-hrs)		Q1	Q2	Q3	Q4	TOTAL TO DATE	EVIDENCE/EXPLANATION
Awareness training	EHS policy & procedures						
H&S training	HAZWOPER						
	WHMIS						
	First Aid						
	Wildlife safety						
	Water safety						
	Fire response						
Environmental training	Other						
	Spills response						
Other corrective actions	New procedures						
	Other initiatives						

**SOCIO-ECONOMIC PERFORMANCE**

Employment		Q1	Q2	Q3	Q4	TOTAL TO DATE	EVIDENCE/EXPLANATION
Total Employment	# persons						
	p-hrs						
Employment - Northern	# persons						
	p-hrs						
Employment - Aboriginal	# persons						
	p-hrs						
Employment - AOC	# persons						
	p-hrs						
Employment - Women	# persons						
	p-hrs						
Workforce Training		Q1	Q2	Q3	Q4	TOTAL TO DATE	EVIDENCE/EXPLANATION
Total Training	# persons						
	p-hrs						
Training - Northern	# persons						
	p-hrs						
Training - Aboriginal	# persons						
	p-hrs						
Training - AOC	# persons						
	p-hrs						
Training - Women	# persons						
	p-hrs						
Purchase of Goods and Services		Q1	Q2	Q3	Q4	TOTAL TO DATE	EVIDENCE/EXPLANATION
Total Suppliers	# suppliers						
	Value (\$)						
Suppliers - Northern	# suppliers						
	Value (\$)						
Suppliers - Aboriginal	# suppliers						
	Value (\$)						
Suppliers - AOC	# suppliers						
	Value (\$)						

**STAKEHOLDER ENGAGEMENT**

Communication Activities						TOTAL TO DATE	EVIDENCE/EXPLANATION
Community Consultation Events	#						
	# persons						
Media Events	#						

**Table 4: Hazardous Waste Disposal Tracking**

**Project:**

**Date Submitted:**

NO.	Reception Date	Manifest #	Container #	Description	Owner/Operator of Final Disposal/ Treatment Facility	Name of Final Disposal/ Treatment Facility	Address of Final Disposal/ Treatment Facility