Submission Transmittal Cover

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Date:	Jul 27, 2023	**Pages: (incl. cover)**	20
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Client Project No.:	**R.112158.017**		
Submittal Title:	Lead Abatement Plan		
Submittal No.:	017	**Specification:**	02 83 10 to 12

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- ☐ Information
- ☒ As Requested
- ☐ Review
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CONTRACTOR CERTIFICATION	CONTRACTOR COMMENTS
Jonathan Markiewicz Digitally signed by: Jonathan Markiewicz DN: CN = Jonathan Markiewicz email = jonathanm@milestoneenv.ca C = CA O = Milestone Environmental Contracting Inc. OU = Eastern and Northern Canada Date: 2023.07.28 17:40:48 -04'00'	Submitted as requested
ENGINEER CERTIFICATION	**ENGINEER COMMENTS**

Lead Abatement Plan

Prepared For:

Public Works and Government Services Canada
Travaux publics et Services gouvernementaux Canada

Public Works and Government Services Canada
9700 Jasper Avenue, Suite 1000
Edmonton, Alberta T5J 4C3

Project: ***EW699-222278/001 – Coral Harbour Remediation Project***
Coral Harbour, Nunavut

Document History:

The Document Author is authorized to make the following types of changes to the document without requiring that the document be re-approved:

- Editorial, formatting, and spelling
- Clarification

To request a change to this document, contact the Document Author or Owner.

Changes to this document are summarized in the following table in reverse chronological order (latest version first).

Revision	Date	Created by	Short Description of Changes
001	July 25	Paul Bandler	Final version based on feedback from PSPC, Stantec and WSCC

Approval / Acknowledgements / Acceptance

Prepared By:

Paul Bandler, Project Manager	July 26, 2023	
Name and Title (please print)	Date	Signature

Reviewed By:

Jonathan Markiewicz

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Date: 2023.07.28 17:40:31 -04'00'

Jonathan Markiewicz, Senior Project Manager	July 2y, 2023	
Name and Title (please print)	Date	Signature

Approved By:

Dino Bruce, SDL Director	July 2y, 2023	
Name and Title (please print)	Date	Signature

Client Acceptance:

Name and Title (please print)	Date	Signature

All aspects of the work will be conducted in accordance with:

- ✓ Local / Provincial / Territorial / Federal Legislation, Permits, and Regulations, as applicable
- ✓ Site-Specific Health and Safety Plan (SSHSP)

NOTE: All site personnel must read and acknowledge review of the SSHSP, prior to start of any work. Refer to Sign-off Sheet – MEHS # 24 – 1. Example is included at the end of the SSHSP.

Table of Contents

1 PROJECT INFORMATION AND BACKGROUND

This Lead Abatement Plan (the Plan) will be retained on the site during field activities and will be reviewed, as necessary. The Plan will be amended or revised as project activities or conditions change or when supplemental information becomes available.

1.1 Project Information and Background

Project Number:	PWGSC – EW699-222278/001/NCS Milestone – 03230272 SDL -
Client(s):	Public Works and Government Services Canada (PWGSC) on behalf of Crown-Indigenous Relations and Northern Affairs (CIRNAC)
Client Reference Number(s):	PWGSC Project Reference - R.112158.017 Contract Number - EW699-222278/001/NCS
Project Site Name:	Coral Harbour Site
Site Address:	Coral Harbour, NU The project Site is located approximately 10 kilometres (km) northwest of the Hamlet of Coral Harbour, Nunavut, on Southampton Island.
Project Manager:	Dino Bruce Tyler Libby / Jonathan Markiewicz
MILESTONE Office Location:	200 – 1550 Laperriere Avenue, Ottawa, Ontario, K1Z 7T2
Project Start Date:	June, 2023
Project End Date:	March 31, 2025
Site Background:	The former military base in Coral Harbour was used by Canadian and American forces during the construction of the Distant Early Warning (DEW) Line in Northern Canada during the Second World War and for various other northern projects. The Site was active from the 1940s until the 1970s and the on-site infrastructure included an airstrip, hospital, and housing for military personnel. When the Site was decommissioned in the 1970s, most buildings were decommissioned, and remaining equipment was abandoned. Several areas of environmental concern (AECs) including physical hazards related to unconsolidated surface debris and aged structures, and environmental impacts associated with soil contamination, buried debris, petroleum liquids in tanks and drums and hazardous building materials remain on-site. These AECs and physical hazards are the target of the remediation activities under this contract.

Surrounding Areas:	The Site is located along the local road system in the vicinity of the active Coral Harbour Airstrip and northwest of the town proper. The areas around the Site are generally flat with limited ground cover. The surface soils are mostly gravel deposits with fine materials. Permafrost is at an approximate depth of 1 meter below ground surface (mbgs).

Work to be Performed:	The primary components of the Remediation Works to be carried out are highlighted in this section:
	- Abatement, packaging and proper off-site disposal of hazardous liquids and solids.
	- Incineration of acceptable liquid and solid waste on site.
	- Demolition, segregation and proper disposal of remaining buildings.
	- Sorting and proper disposal of surface debris.
	- Excavation, sorting and proper disposal of buried debris.
	- Excavation and treatment or disposal of contaminated soil:
	  - Type B soil to be treated in on-site land treatment unit (LTU).
	  - Type A soil to be disposed in non-hazardous waste landfill (NHW) on site.
	  - Tier II Soil to be properly packaged and disposed off-site.
	- Construction, filling and operation of the on-site LTU.
	- Construction, filling and closure of the on-site NHW.
	- Backfilling of excavated areas with clean fill.

Potential Contaminants:	Fuel in drums and tanks Potential Batteries PHCs F1-F4 and BTEX in soil PAHs in soil Glycol Mercury (thermostats) Metals associated with car batteries Asbestos-containing materials (ACMs) associated with buildings Lead-containing paint associated with buildings Potential for PCBs in light ballasts
HEALTH and SAFETY	
General	- All aspects of the Coral Harbour Remediation Project are governed by the Site-Specific Health and Safety Plan (HASP) including the work described in this Abatement Plan. - All workers will be oriented to the HASP prior to starting work. - A copy of the HASP will be present in the work area at all times, and all workers will be informed where it is located.
Emergency Response Contacts	Coral Harbour Health Centre: 867-925-9916 Fire Department: 867-925-4422 Police (RCMP): 867-925-0123 Nunavut DOE Spill Acton Centre: 867-920-8130 WSCC: Ph: 867-979-8500 / Fx:867-979-8501

2 ON-SITE ORGANIZATION, COORDINATION, AND CONTACTS

This Lead Abatement Plan has been prepared by Milestone Environmental Contracting Inc. (**MILESTONE**) on behalf of Sudliq Developments Ltd. (**SDL**) and *The Project Team* (see table below).

The following is a list of key project contacts.

Prime Contractor:	**Sudliq Development Ltd.** ***(SDL)*** **Dino Bruce – 902-957-0485**
Project Manager:	Name: **Tyler Libby - Milestone** Cellular 647-385-4173 Office: 519-260-0221 # 507 Email: tylerL@milestoneenv.ca
Senior Project Manager:	Name: **Jonathan Markiewicz - Milestone** Cellular: 514-94-6405 Email: jonathanm@milestoneenv.ca
Project Superintendent and On-Site Health and Safety Coordinator:	Name: **David Jones - Milestone** Cellular: 905-872-0144 Office: 613-656-4173 Email: davej@milestoneenv.ca
Emergency Response:	**Dino Bruce – 902-957-0485**
Client:	Company: **PWGSC** Name: **Claudia Simonato** Cellular: 403-613-6328 Email: Claudia.Simonato@tpsgc-pwgsc.gc.ca
Consultant:	Company: **Stantec Consulting Ltd.** Name: **Lindsay van Noortwyk** Cellular: 780-232-1114 Email: Lindsay.vanNoortwyk@stantec.com
PWGSC Construction Representative:	Company: **Stantec Consulting Ltd.** Name: **Tarek Ghadieh** Cellular: 613-793-9451 Email: Tarek.Ghadieh@stantec.com
PWGSC Construction Representative:	Company: **Stantec Consulting Ltd.** Name: **Sam Caldwell** Cellular: 902-574-7474 Email: Sam.Caldwell@stantec.com

3 PURPOSE

The purpose of this Lead Abatement Plan (hereto referred to as "Plan") is to ensure that the abatement, handling, segregation, collection, temporary storage, containerization, transportation, and disposal of the lead-containing materials (LCMs) from the Site to approved locations on- or off-site is successfully completed in accordance with the applicable Occupational Health and Safety Acts, Regulations, Codes of Practice, guidelines, standards, and industry best practices.

The on-site personnel are responsible for reviewing this Plan to understand the locations, quantities, and procedures that must be followed at all times when working with LCMs at the Site. This will be logged in the daily tool box meetings.

3.1 Scope of the Plan

The detailed specifications applicable to this project are provided in **Sections 02 83 10 to 12 Lead-Based Paint Abatement (Minimum, Intermediate, Maximum Precautions)** of the document titled, "*Issued for Tender Specifications for the Environmental Site Remediation at Coral Harbour, Nunavut (Project No. R.112158, September 13, 2022)*" prepared for Public Services and Procurement Canada by Stantec Consulting Ltd. (File: 123513974).

This Plan was developed based on the classification of lead abatement work as per the specification document, specifically as a **Minimum Risk** abatement activity as indicated in the 2017 Workers' Safety and Compensation Commission (WSCC) document titled, "*Northwest Territories & Nunavut Codes of Practice – Working with Lead Guideline*".

The locations and volumes of LCMs requiring removal and disposal using Minimum Risk methods are provided in the Waste Inventory, Appendix A of the specification document, and summarized in this Plan.

Where there is a discrepancy between the information in the specifications as compared to the information in supporting reports and documentation as it pertains to identities, locations and/or quantities of identified LCMs, the information in the specification document will prevail. If discrepancies are present pertaining to identities, locations and/or quantities of identified LCMs, the discrepancies should be brought to the attention of the Departmental Representative for resolution.

3.2 Related Sections

The following specification sections apply to this Lead Abatement Work Plan.

Section	Detail
01 31 16	Construction Progress Schedules – Bar (GANTT) Chart
01 33 00	Submittal Procedures
01 35 15	Special Project Procedures for Contaminated Sites
01 35 29.13	Health, Safety, and Emergency Response Procedures for Contaminated Sites
01 35 43	Environmental Procedures
02 41 16	Structure Demolition
02 41 23	Debris and Miscellaneous Removal
02 81 01	Hazardous Materials

3.3 Submittals

Submittals will be provided in accordance with Section 01 33 00 - Submittal Procedures. These documents will be submitted to the appropriate Representative, once available.

3.4 Applicable Occupational Health and Safety Legislation and Guidelines

The occupational health and safety legislation and guidelines applicable to this Plan include:

- *Canada Labour Code* (R.S.C., 1985, c. L-2)
- *Canada Occupational Health and Safety Regulations* (SOR/86-304)
- *Nunavut Safety Act*, RSNWT (Nu) 1988, c S-1
- *Nunavut Occupational Health and Safety Regulations*, Nu Reg 003-2016
- *Nunavut Environmental Protection Act*, RSNWT (Nu) 1988, c E-7
- *Transportation of Dangerous Goods Act*, 1992 (S.C. 1992, c. 34)
- *Transportation of Dangerous Goods Regulations* (SOR/2001-286)
- Government of Nunavut Department of Environment *Environmental Guideline for Waste Lead and Lead Paint* (2014)
- Workers' Safety and Compensation Commission (WSCC) of the Northwest Territories and Nunavut
    - Working with Lead Guideline (revised 2017)

Note: In accordance with Section 1.6.1 (Quality Assurance) of the specification document, the project will,

"*…comply with Federal, Territorial, and local requirements pertaining to lead-amended paint, 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 performed.*"

As a federal project, the governing occupational health and safety requirements are stipulated in Part II – Occupational Health and Safety of the *Canada Labour Code* (R.S.C., 1985, c. L-2) and the *Canada Occupational Health and Safety Regulations* (SOR/86-304).

In the absence of prescriptive federal requirements pertaining to the lead abatement work plan applicable to this project, the specification document references the WSCC Codes of Practice for guidance. The WSCC Codes of Practice provide practical guidance to achieve the health and safety requirements of the Northwest Territories and Nunavut Safety Acts and Occupational Health and Safety Regulations.

WSCC Chief Inspector and Chief Safety Officer were consulted and were provided this Plan for review. WSCC indicated that since this is a federal project on a federally managed property it is not under their jurisdiction to regulate the work. WSCC provided informal feedback on the abatement plans, which has been incorporated in this plan.

3.4.1 General Duty Clause

All occupational health and safety legislation in Canada (federal, provincial, and territorial) includes employer duties or responsibilities to ensure that they take all reasonable precautions to protect the health and safety of their employees. This is often referred to as the "General Duty Clause."

This Plan should be read in close conjunction with the overall SSHSP (Submittal 005) that was developed to help demonstrate due diligence and compliance with the employer duties as specified in the *Canada Labour Code* and *Nunavut Safety Act.*

Other specific duties of the employer (Section 125 of the *Canada Labour Code*) and employees (Section 126 of the *Canada Labour Code)* will be referenced in the SSHSP applicable to this Site.

4 WORK DETAIL

4.1 Health, Safety, and Emergency Response

A detailed health, safety, and emergency response project work plan has been provided in the SSHSP (Submittal 005). All personnel are oriented to the SSHSP prior to their starting any work, and task specific requirements and PPE are discussed with work teams.

Key contacts are provided in Section 1 and 2 of this Abatement Plan.

4.2 Emergency Response Plan

In the event that first responders (fire department, paramedics, spill response etc.) must attend the site the following steps will be taken consistent with WSCC Code of Practice with relevant site-specific modifications as detailed herein.

The work area and abatement procedures are detailed below. The following summary is given here for context in emergency response:

- Work is at a remote site. Coral Harbour is 14km from the site. Coral Harbour fire and paramedic responders are available. There will be a first aid station established in the camp on site, with a fulltime trained paramedic.
- Abatement work will occur under low risk work procedure.
- The building that is subject to abatement is a one-room open garage that is derelict and vacant. Over-head doors and windows have been removed previously. The building is largely open to the environment and access/egress is easy by several routes.
- Other removals involve collecting (hand picking) of loose debris that is scattered on the ground in open areas of the site. And from tanks and heavy equipment located outdoors through the site.
- Work will be conducted by manual removal using paint gel stripper, HEPA-vac, brushing and wipe down) with wetting and lockdown agent application.

Steps for emergency response will be as follows:

- All work will stop and workers will leave the work area and gather at the must point which will be designated on-site and communicated to workers daily during the pre-work tool box meetings.
- Emergency project personnel and first responders will be contacted immediately by site radio and by the phone numbers provided above.
- First aid trained personnel on staff will attend the victim to secure and stabilize them.
- Once stable, victim decontamination will occur using HEPA-Vac and wetting with mild detergent prior to extraction from the work area and removal of PPE.
- The paramedic on staff will be fit tested and equipped with air purifying respirator in the event they must enter the work zone.
- In cases of severe injury and first aid personnel are not capable of stabilizing a victim or require support, the fire department will be contacted for assistance, because they will have adequate PPE to enter the work zone.
- Once removed from the work area care will be transferred to first responders.

- In case of fire or explosion personal safety will require expedited removal of all personnel and decontamination will occur at the muster point for work zone staff. Contaminated equipment and work ware will be contained for property cleaning or disposal once safe to do so.
- Fire fighters will also have the necessary PPE to enter the work area to deal with a fire. Their equipment will be fully decontaminated as above prior to them entering vehicles to leave the site.
- Spill response will be dealt with by in-house staff who are suited up in PPE and under the direction of the site supervisor. Necessary spill containment materials will be on hand in the event of a spill as detailed in the SSHSP and Spill Response Plan (Submittal 005). However, the building subject to asbestos abatement is derelict, vacant and empty and there are no contents that may be subject to a spill.

4.3 Pre-Job Planning

The following has been / will be completed as part of the pre-job planning process:

- The SSHSP (Submittal 005) has been finalized;
- The project-specific Lead Abatement Plan (i.e., this document) has been developed and will be submitted for review and approval;
- All necessary lead abatement supplies, materials, and equipment have been procured and shipped to the project Site;
- All necessary personal protective equipment (PPE) has been procured and shipped to the project Site;
- WSCC has been consulted with regards to this Plan, a formal notification (and response from them) is not required for this project. WSCC feedback has been incorporated through this Plan;
- The lead abatement workers have successfully completed a 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training course with customized modules to include project-specific hazards that will be encountered on this Site;
- The lead abatement supervisor has successfully completed the Supervisor Familiarization Course; and
- The lead abatement workers and supervisor will receive personally-issued respirators that are qualitatively fit tested. See “Personal Protective Equipment (PPE)” section below for additional details.

4.4 Personal Protective Equipment (PPE)

On federal Sites, the legislative requirements for personal protective equipment are stipulated in Part XII – Protection Equipment and Other Preventive Measures of the *Canada Occupational Health and Safety Regulations* (SOR/86-304).

Project-specific requirements for personal protective equipment are provided in the specification Section 01 35 29.13 – Health, Safety, and Emergency Response Procedures for Contaminated Sites and Section 02 83 10 – Lead-Based Paint Abatement.

All PPE provided to the lead abatement workers and supervisor must be properly stored and maintained in accordance with the manufacturer’s instructions to ensure that they are in good operating conditions at all times.

All PPE will be regularly inspected, and any damage will immediately be reported to the supervisor for repair or replacement.

PPE to be worn by the lead abatement workers and supervisor while in the Lead Work Areas include:

- Protective headwear (i.e., hard hat) that meets the requirements set out in CSA Group Standard Z94.1, *Industrial protective headwear — Performance, selection, care, and use*;

- Hearing protectors (i.e., plugs and/or muffs) in accordance with CSA Standard Z94.2-M1984, *Hearing Protectors*;
- Protective footwear (i.e., steel-toed boots) that meet the requirements of CSA Group Standard Z195, *Protective footwear*;
- Protective clothing (i.e., disposable protective outerwear) that does not readily retain or permit penetration of LCMs, and will consist of a head and full body covering that fits snugly at the ankles, wrists, and neck, to prevent LCMs from reaching the garments and skin under the protective clothing;
- High-visibility safety apparel (i.e., high-vis vest) that meets the requirements set out in CSA Group Standard *Z96, High-visibility safety apparel*; and
- Respiratory protection (i.e., air-purifying respirator) that meets the requirement of CSA Standard Z94.4, *Selection, use, and care of respirators* and in compliance with the **Respiratory Protection Plan** as prescribed in 1.11.4 of the specification Section 01 35 29.13 - Health, Safety, and Emergency Response Procedures for Contaminated Sites.

The lead abatement workers and supervisor will be equipped with **tight-fitted air-purifying half-face or full-face respirators with P100 filters** during lead abatement operations. The respirators procured for this project are North half-face and full-face 5400 series, and have been **qualitatively fit tested** (3M FT-30 fit test kits) to provide an **assigned protection factor (APF) of 10**.

Respirators will be cleaned, disinfected, and inspected after use on each shift, or more often, if necessary. When not in use, respirators will be stored in a convenient, clean, and sanitary location.

Sufficient supplies of PPE will be maintained at the Site to accommodate the Departmental Representative, PWGSC's Construction Representative, and site visitors in accordance with the specification Section 02 81 01 – Hazardous Materials and Section 01 35 29.13 – Health, Safety, and Emergency Response Procedures for Contaminated Sites.

4.5 Hazardous Material Discovery

Not all materials in facilities and structures to be demolished have been sampled and tested for PCB-amended paint, lead-amended paint, mercury, asbestos, or other chemical hazards. Further testing by PWGSC's Construction Representative at the beginning of the first construction season may be required. Other potential hazards that may be uncovered at the Site include items of archaeological, cultural, or scientific significance, or unexploded ordnance (e.g., blasting caps).

In all cases, if an employee discovers previously-unidentified hazardous materials at the Site, they will immediately **stop work, take preventative measures to secure the area, and notify their supervisor, who will notify PWGSC's Construction Representative immediately.** Work will proceed **only after receipt of written instructions from Departmental Representative.**

4.6 Summary of Known Lead-Containing Materials (LCMs) at the Site

A summary of the known lead-containing materials (LCMs) at the Site was provided in **Appendix A – Waste Inventory** of the specification document, which was updated in Addendum 05 of the RFP. LCMs have been identified in the Areas of Environmental Concern (AEC) **AEC 3 and 6.**

Known LCMs on the Site have been identified in the Waste Inventory by AEC, colour, and substrate/equipment.

The following table summarizes the information provided in bid documents:

Table 1. Summary of Known Lead-Containing Materials (LCMs) at the Site (detail as provided in Specifications)

AEC ID	Drawing ID	Component	Colour	Material	Estimated Compacted Volume (m^3)
AEC 3	REM-A03-001	Unknown colour of painted walls within the four sheds (West of the Access Road) and exterior building surfaces of the Kitchen Building and Small Dining Building (detail in Spec Table A-1; A-5)	Unknown interior colour(s), dark brown (exterior of Kitchen Building) and orange (exterior of Dining Building)	Wood	Unknown (81 m^3 for entire building)
AEC 6	REM-A06-001	Fourteen empty tanks	Green	Metal	9.3
	REM-A06-002	One AST	Orange	Metal	1.8
	REM-A06-001	Four ASTs	Rust / Orange	Metal	Unknown (132 m^3 for entire Tank Farm and Associated Infrastructure)
	REM-A06-001	One Horizontal AST	Green	Metal	Unknown (132 m^3 for entire Tank Farm and Associated Infrastructure)
	REM-A06-001	Piping	Rust / Orange	Metal	Unknown (132 m^3 for entire Tank Farm and Associated Infrastructure)
	REM-A06-001	Surfaces: Painted surfaces in Former Maintenance Building Interior (Yellow + light green paint on interior walls; red paint on interior supports, walls, and window frames; light green paint on interior walls; grey/red paint on walls; black paint on interior door frames, stairs, interior window frames, mandoor, mezzanine trim, and interior ducts; and light blue paint on floor.	Yellow, light green, red, grey, black, and light blue	Various	Unknown (269 m^3 for entire Former Maintenance Building)
	REM-A06-001	Interior AST	Grey	Metal	Unknown
	REM-A06-001	Exterior AST	Green	Metal	Unknown
	REM-A06-001	Old concrete mixer	Orange	Metal	1.2
	REM-A06-001	Truck	Yellow	Metal	3.0
	REM-A06-001	Truck (Canada Department of Transportation Logo)	Orange	Metal	12.4

	REM-A06-001	Orange Ford Refuelling Truck	Orange	Metal	13.3
	REM-A06-002	Equipment	Yellow overlying green	Metal	8.2
	REM-A06-002	Truck	Orange	Metal	2.3
	REM-A06-002	Equipment	Green	Metal	6.3
	REM-A06-002	Truck	Orange and Yellow	Metal	6.1
	REM-A06-002	Truck	Orange and Yellow	Metal	10.7
	REM-A06-002	Truck	Blue	Metal	4.6
	REM-A06-002	Truck	Orange	Metal	2.1
	REM-A06-002	Truck	Orange	Metal	6.6
	REM-A06-002	Tank (large)	Orange	Metal	6
	REM-A06-001	Truck	Green	Metal	1.7
	REM-A06-002	Truck	Orange	Metal	5.4
	REM-A06-001	Truck	Yellow	Metal	16.8

Locations of LCMs to be abated are provided in the specification drawing packaging, and included the northings and eastings of each identified material.

4.7 Lead Abatement Work Procedure

For clarity, the following subsections have been included in the Lead Abatement Plan to supplement and enhance the procedures listed in Section 02 83 10 – Lead-Based Paint Abatement.

4.7.1 Lead Abatement – Minimum Precautions

Once the required lead abatement training and respirator fit testing has been completed (as indicated above), execution of the lead abatement will follow the requirements as stipulated in 3.1 of Section 02 83 10 Lead Abatement – Minimum Precautions:

- The Lead Work Area will be delineated and cordoned off using temporary measures such as pylons or snow/sand fences.
- If necessary due to excessive wind etc, temporary enclosures (e.g., outdoor all-season tent/shelter) will be set up to prevent accidental release of lead-containing paint into the surrounding area during material processing.
- If necessary, the temporary work shelter will be enclosed and negatively pressured relative to the outdoor environment to prevent external migration of airborne lead-containing paint chips when

entering/leaving the area. Relative negative pressure will be achieved via a portable air handling unit (AHU) equipped with a HEPA-filter exhausted to the outside.

- The Lead Work Area will be identified using the following signage:

At point of access to Work Areas, install warning signs in both official languages (English and French) along with the local dialect in upper case "Helvetica Medium" letters reading as follows were number in parentheses indicates font size to be used: .1 CAUTION LEAD HAZARD AREA (25 mm) .2 NO UNAUTHORIZED ENTRY (19 mm) .3 WEAR ASSIGNED PROTECTIVE EQUIPMENT AND RESPIRATOR (19 mm) .4 BREATHING IN LEAD CONTAMINATED DUST CAUSES SERIOUS BODILY HARM (7 mm)

- Eating, drinking, chewing, and smoking are not permitted in Lead Work Area.
- No person is permitted to enter the Lead Work Area if they have facial hair that may affect the seal between their respirator and face (unless loose-fitted respirators are provided).
- Facilities for hand and face washing will be provided where the main point of ingress and egress has been identified for the Lead Work Area.
- **LCMs in <u>GOOD</u> condition:** materials with well-adhered paint will be removed with paint on for disposal in the on-site non-hazardous waste (NHW) Facility, unless specified otherwise in the contract. Other LCMs in good condition will be removed and packaged or treated intact prior to disposal on-site.
    - Whenever possible, LCMs will be removed in small sections and placed directly in the appropriate waste containers.
    - Large objects (e.g., vehicles) will be sealed to prevent the dispersal of lead-containing paint using one of the following methods:
        - 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 lead-amended paint residue; or
        - Double-layered polyethylene wrap (minimum 0.15 mm thickness).
- **LCMs in POOR condition**: Substrates with sections of poorly adhered paint will be processed to remove loose LCM prior to disposal of painted substrate in the on-site NHW Facility, unless otherwise specified in the contract.
    - Removal of loose lead-containing paint from substrate will be achieved by means of the following options:
        - Treatment of areas of loose paint with chemical gel or paste stripping agent per product instructions.
        - Removal tools equipped with HEPA filters.

        Note: The use of heat to remove paint is not permitted.

- Lead-containing paint waste (e.g. gel, vacuum bags) will be wiped off the substrate surface and placed directly into the appropriate waste containers for off-site disposal. Wipes, other cleaning supplies and PPE will be similarly packaged for off-site disposal.
- After completion of the stripping work, wire brush and wet sponge surface from which the lead-containing paint has been removed to remove any residual poorly-adhered visible material. The surfaces will remain wet during this process.
- Residual painted material in good condition (i.e., well-adhered) will be sealed or wrapped (see details above) prior to disposal at the NHW Facility.
- When necessary, LCMs will be removed in small sections and brought to the Hazardous Materials Processing Area;
- Asbestos Containing Materials (ACM) located on the walls of the maintenance garage in AEC-6 have been identified as LCM painted surfaces. In accordance with CCN2 dated July 7, 2023 the cement board will be carefully removed , packaged in accordance with the abatement plans and disposed off site at a licenced facility.

- In some cases (and based on the Site conditions) it may be deemed appropriate to use heavy machinery to crush/compact equipment that contains well-adhered lead-containing paint (e.g., good condition painted vehicle). To avoid accidental dispersal of lead-containing material during the compaction process, the equipment will be placed on drop sheets and wetted prior to compaction. Any paint chips caused by the compaction process will be collected and containerized for off-site disposal. This approach will not be applied for asbestos containing materials.
- Site cleanliness is essential to prevent the spread of lead-containing paint chips. If visible lead-containing debris is observed in the Lead Work Area (prior to, during, and after the abatement processes), the surfaces will be cleaned using a HEPA-filtered vacuum **or** damp cloths. All cleaning materials will be disposed off site as lead waste.
- Workers will use **drop sheets** to help capture/contain lead-containing debris during the manual removal of the lead-containing building materials (e.g., walls), provided that they do not constitute a further hazard to the work area (e.g., slip/trip hazard). Drop sheets are to be wetted and placed in a waste container as soon as practicable.
- **Waste containers** for non-hazardous lead waste (e.g., well-adhered painted materials) include metal- or fibre- types with tightly fitting covers and 0.15 mm thick sealable polyethylene liners that are deemed acceptable for disposal at the on-site NHW Facility.
    - The waste containers will be labelled with pre-printed cautionary labels clearly visible when ready for removal to the on-site disposal location.
    - **Note**: Clean the exterior of each waste-filled bag using a damp cloth or HEPA-filtered vacuum and place in second clean waste bag immediately prior to removal from the Lead Work Area. Seal the double-bagged lead waste material and dispose at the on-site NHW facility.
- **Waste containers** for hazardous lead waste (e.g., containers of lead-containing paint chips) will comply with federal, territorial, and municipal requirements. The classification and packaging of lead wastes while being transported will conform to the federal and territorial Transportation of Dangerous Goods Act and Regulations and the International Marine Dangerous Goods (IMDG) Code when transporting lead wastes by water (e.g., sea container). Detailed requirements for the containerization of hazardous waste are provided in the specification **Section 02 81 01 Hazardous Materials.** In summary:
    - The waste will be containerized in sealed double-thickness 0.15 mm bags or leak proof barrels, labelled, and manifested.

- The waste containers will be lined to satisfy the TDGA requirements for marine transport.
- The hazardous waste package will be segregated into separate packaging containers designed for the specific type of hazardous waste.
- Prior to loading the hazardous waste into the shipping container, the shipping container will be prepared in accordance with the requirements of the hazardous materials specification section, including but not limited to placement of drip trays, construction of wooden frame materials, anchoring and bracing requirements, weight distribution, etc.
- The hazardous waste will be placed into the waste containers in such a manner to minimize voids.
- The materials will be placed in such a manner to minimize movement during transport.
- The interior of the shipping container(s) will be photographed prior to closing.
- The exterior of the shipping container(s) will be marked in accordance with the TDGR and IMDG requirements.
- The containers will be transported off-site to a designated hazardous waste disposal facility.

- **Notes on supplies, materials, and equipment used for lead abatement:**
  - Prior to doffing lead-contaminated PPE, the outer surfaces will be cleaned (e.g., HEPA-filtered vacuum and/or wet-wiping) based on the type of material and reusability;
  - **Reusable** supplies, materials, and equipment (e.g., hard hat, respirator, hand-held tools, etc.) will be thoroughly decontaminated and placed in a clean bag to be transported and stored outside of the Lead Work Area;
  - **Disposable** supplies, materials, and equipment (e.g., disposable coveralls, gloves, boot covers, drop sheets, etc.) will be classified as lead waste, and placed in the appropriate waste containers for disposal as described above.
- **Air Monitoring:** Since the planned lead abatement work will primarily be an outdoor exercise and use of enclosures will not be practical, the guidance provided in the *Canada Occupational Health and Safety Regulations* and the WSCC Code of Practice do not readily apply. However, air monitoring is useful for monitoring worker exposure and ambient/environmental exposure during abatement work. As such an amended air monitoring program will be undertaken for the following reasons:
  - The lead abatement activities are classified as **minimum risk;**
  - Removals and packaging will be conducted **manually**;
  - **Chemical gel or paste** will be used to remove poorly-adhered paint (no generation of airborne lead-containing material);
  - Prior to crushing/compaction or final surface cleaning activities, the material will be sprayed with amended water (i.e., **wetting agent**);
  - Well-adhered materials will be **manually handled and loaded** directly into the appropriate waste containers;
  - The lead work area is **outdoors**;
  - All lead abatement workers (and supervisors) will be equipped with **tight-fitted air-purifying full-face respirators with P100 filters;**
  - All lead abatement workers (and supervisors) will be **qualitatively fit tested** (described above) to provide an **assigned protection factor (APF) of 10**;

- Due to the **remote location of work**, it will not be possible to obtain analytical results to post at the work site within 24-hours of sampling;
- All preventative measures as described in this Lead Abatement Plan will be taken to prevent **any** release of airborne lead-containing material during the lead abatement work activities.

4.7.2 Air Monitoring

To ensure that the abatement plan is adequately protective of workers and the environment, air monitoring will be conducted for personal air space and for ambient conditions, respectively. Ambient and personal air sampling will be conducted in accordance with NIOSH 7400 using 25mm diameter mixed cellulose ester (MCE) 0.8 micron sampling cassettes affixed to air sampling pumps. Sampling equipment and procedures will be the same as detailed in Appendix A of the Asbestos Abatement Plan (Submittal 013) with the following modification.

Ambient Air sampling will include a round of baseline samples to be collected in the work area and outside the work area (down wind) prior to the start of any removals. An additional round of samples from the same locations will be collected during peak work. Target air volume for ambient air sampling is approximately 2,400 L.

Personal Air Sampling will include collecting air samples from worker breathing space. Samples will be collected each day from a representative number of workers. Target air sample volume for personal air sampling is approximately 960 L.

4.7.3 Hazardous Materials Processing Area

In the event that the lead-containing waste material cannot be immediately containerized within the lead work area, the **hazardous materials processing area** will be used to **sort and containerize** the material. Detailed requirements for the hazardous materials processing area are provided in the specification Section 02 81 01 – Hazardous Materials.

4.7.4 Temporary Storage Area

Once packaged in the appropriate waste containers, the well-adhered lead-containing waste material will be **temporarily stored** in the **temporary storage area** until disposal at the Non-Hazardous Waste (NHW) facility. Detailed requirements for the temporary storage area are provided in the specification Section 02 81 01 – Hazardous Materials.

4.7.5 Disposal of Well-Adhered Lead-Containing Waste Materials

The containerized well-adhered lead-containing waste materials will be transported from the material processing area to the NHW facility for disposal. The approved disposal procedure is as follows:

- Well-adhered and sealed (sealer or double-layered polyethylene) painted material is not a hazardous waste and does not need to be accompanied by a manifest;
- Non-hazardous lead waste will be buried where it will not be disturbed (i.e., **designated location**);
- Non-hazardous lead waste will be **covered with a minimum of 0.5 metres of cover material**. Cover materials can be locally available soils, refuse, or other materials provided the lead containment is not ruptured; and
- The **location of the non-hazardous lead waste will be maintained on a map or diagram** of the on-site NHW facility, including GPS coordinates of the waste as obtained through a survey.