PART 1 - GENERAL

1.1 SECTION INCLUDES

.1 Removal of asphaltic concrete pavement at various locations and having variable thickness.

.2 Removal of base and sub-base pavement materials as required.

.3 Removal of a concrete pad, located under the asphalt at the back of Building No. 6, to 600mm below grade.

.4 Removal of all waste demolition materials from the work site.

.5 Removal and disposal or salvage of all ongoing cover materials including topsoil and sod, trees with their roots, planting beds, shrubs located within the limits of construction.

.6 Removal and disposal of foundations of demolished structure 600mm below grade.

.7 Removal of boiler located in the basement.

1.2 RELATED SECTIONS

.1 Section 01 35 43 - Environmental Protection.

.2 Section 02 41 13 - Demolition of Structures.

.3 Section 31 23 33.01 - Excavating, Trenching and Backfilling.

.4 Section 33 56 13 - Boiler.

1.3 REFERENCES

.1 Canadian Federal Legislation:

.1 Canadian Environmental Protection Act (CEPA), 1988.

.2 Canadian Environmental Assessment Act (CEAA), 1995.

.3 Transportation of Dangerous Goods Act

(TDGA), 1992.
.4 Motor Vehicle Safety Act (MVSA), 1995.

.2 United States Environmental Protect Agency:
.1 CFR 86.098-10, Emission Standards for 1998 and Later Model Year Otto-Cycle Heavy Duty Engines and Vehicles.
.2 CFR 86.098-11, Emission Standards for 1998 and Later Model Year Diesel Heavy Duty Engines and Vehicles.

1.4 STORAGE AND PROTECTION

.1 Perform all work in accordance with Section 01 35 43 - Environmental Procedures.

.2 Protect in accordance with Section 31 23 33.01 - Excavating, Trenching and Backfilling.

.3 In all circumstances ensure that demolition work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.

.4 Do not dispose of waste of volatile materials such as, mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers. Ensure proper disposal procedures are maintained throughout the project.

.5 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers or onto adjacent properties.

.6 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authorities.

.7 Protect trees, plants and foliage on site and adjacent properties where indicated.

1.5 EXISTING CONDITIONS

.1 Prior to the start of any demolition work, remove contaminated or hazardous materials as defined in Appendix B: LVM Maritime Testing Report, dated January 2013, Hazardous Building Materials

Survey, Agriculture and Agri-Food Canada, Building 6 - Potato Research Centre, 850 Lincoln Road, Fredericton, N. B. and at designated disposal facilities in safe manner in accordance with TDGA and all other applicable regulatory requirements.

1.6 REGULATORY REQUIREMENTS

.1 Ensure all work is performed in compliance with all applicable provincial regulations.

1.7 SUBMITTALS

.1 Prior to commencement of work on site, submit name and address of all haulers and waste receiving organizations.

.2 Written authorization from Departmental Representative is required to deviate from the haulers and waste receiving organizations.

PART 2 - PRODUCTS

.1 Not used

PART 3 - EXECUTION

3.1 PREPARATION

.1 Inspect site with Departmental Representative and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage, and items to remain.

.2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.

.3 Notify and obtain approval of utility companies before starting demolition.

3.2 SEQUENCES OF OPERATION

.1 Removal:

.1 Remove items as indicated.

.2 In removal of pavements, concrete pads:

.1 Square up adjacent surfaces to remain in place by saw cutting or other

method approved by Departmental Representative.

.2 Protect adjacent joints and load transfer devices where applicable.

.3 Protect underlying and adjacent granular materials where applicable.

.4 Remove only designated trees during demolition. Obtain written approval from Departmental Representative.

.5 Stockpile approved topsoil for final grading and landscaping. Provide erosion control and seeding if not immediately used.

.2 Removal from Site:

.1 Interim removal of stockpiled material will be required by Departmental Representative, if it is deemed to interfere with operations of other contractors.

.3 Sealing:

.1 Seal pipe ends and walls of manholes or catch basins encountered. Securely plug to form watertight seal.

.4 Disposal of Material:

.1 Dispose of materials not designated for salvage or reuse on site at authorized facilities.

.5 Backfill:

.1 Backfill in areas as indicated and in accordance with Section 31 23 33.01 - Excavating, Trenching and Backfilling.

3.3 RESTORATION

.1 Restore areas and existing works outside areas of demolition to conditions that existed prior to commencement of work.

.2 Use only soil treatments and procedures which are not harmful to health.

3.4 CLEANUP

.1 Upon completion of work, remove debris, trim surfaces and leave work site clean.

.2 Use only cleaning solutions and procedures which are not harmful to health, are not injurious to plants, and do not endanger wildlife, adjacent water courses or ground water.

3.5 COORDINATION

.1 Coordinate disposal activities with Departmental Representative's on site representative.

PART 1 - GENERAL

1.1 SUMMARY

.1 Section includes:
.1 Materials and equipment for the demolition of Building No. 6 as indicated and specified herein.

.2 Related Sections:
.1 Section 01 10 10 - General Instructions.
.2 Section 01 33 00 - Submittal Procedures.
.3 Section 01 35 28 - Health and Safety Requirements.
.4 Section 01 35 43 - Environmental Procedures.
.5 Section 02 22 50 - Sitework Demolition and Removal.
.6 Section 02 81 01 - Hazardous Materials.
.7 Section 31 23 33.01 - Excavating, Trenching and Backfilling.

.3 Measurement & Payment Procedures: refer to Section 01 22 00 - Measurement and Payment.

.4 Summary of work:
.1 Include all labour, materials, and equipment for complete supply and installation of work.
.2 Include demolition of one (1) building.
.3 Include break down of concrete foundations of main building to 600 mm below existing grade. Do not use broken down concrete for backfill, remove and dispose of offsite at an approved Construction and Demolition waste facility.
.4 Include removal and disposal of all hazardous materials (with some asbestos-containing and lead containing), and non-hazardous, from site demolition.
.5 Include disconnection and removal of power supply lines at both ends. If lines are underground, disconnected lines are to be left

in place after disconnection.
.6 Include removal and disposal of boiler located in the basement, purge product in tanks and associated lines in a manner acceptable to authority having jurisdiction.
.7 Include pumping out of waste water lines encountered, and capped.
.8 Include disconnection and removal of water lines and capping of lines in accordance with authority having jurisdiction.
.9 Include excavating, backfilling and site restoration.
.10 Include mobilization/demobilization including all equipment, temporary facilities, security, maintenance, snow clearing, and cleaning of site and public access roads (as required), securing all necessary regulatory permits, insurance and bonding, establishing health and safety protocol, and the construction, maintenance and decommissioning of all necessary temporary access roads.
.11 Include site excavation, repairs and improvements and site restoration and landscaping, as contained in the specifications.

1.2 REFERENCES

.1 Canadian Council of Ministers of the Environment:
.1 CCME EPC LST-71E-August 1994, Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products and Allied Petroleum Products.
.2 CCME Canada-Wide Standards for Mercury Emissions, dated June 6, 2000.
.3 CCME Canada-Wide Standards for Mercury Containing Lamps, dated May 1, 2001.

.2 Canadian Federal Legislation:
.1 Canadian Environmental Protection Act (CEPA), 1988.
.2 Canadian Environmental Assessment Act (CEAA), 1995.
.3 Canadian Federal Environmental Code of Practice for Elimination of Fluorocarbon Emissions from Refrigeration and Air Conditioning Systems.
.4 Canadian Federal Halocarbon Regulations

Compliance Guide - Refrigeration & Air-Conditioning Systems.
.5 Canadian Federal Halocarbon Regulations Guide - Fire Extinguishing Systems.
.6 Canadian Federal Storage of PCB Regulation.
.7 Canadian Federal Guidelines for Handling Hazardous and Toxic Wastes at Federal Facilities.
.8 Canadian Federal Hazardous Products (Crocidolite Asbestos) Regulations, H-3, SOR-89-440.
.9 Canadian Federal Hazardous Products Act (HPA), H-3 64202.
.10 Health Canada lead in Paint and Dust Guidelines, Revision 4, March 2001.
.11 Canadian Federal Transportation of Dangerous Goods Act (TDGA), 1992.
.12 Motor Vehicle Safety Act (MVSA), 1995.

.3 Canadian Standards Association (CSA):
.1 CSA S350-M1980(R2003) - Code of Practice for Safety in Demolition of Structures.

.4 Environmental Protection Agency (EPA):
.1 EPA CFR 86.098.10 - Emission Standards for 1998 and Later Model Year Otto Cycle Heavy-Duty Engines and Vehicles.
.2 EPA CFR 86.098.11 - Emission Standards for 1998 and Later Model Year Diesel Heavy-Duty Engines and Vehicles.

.5 Province of New Brunswick Legislation (NB):
.1 NB C-6, New Brunswick Clean Environment Act.
.2 NB 92-106, Code of Practice for Working with Materials Containing Asbestos in New Brunswick, made under the Occupational Health and Safety Act, dated March 19, 1992.
.3 NB 97-132, New Brunswick Ozone Depleting Substances Regulation.
.4 NBDELG Lead Based Paint Policy, New Brunswick Department of Environment and Local Government Policy for Disposal of Building Materials Containing Lead-Based Paint.

.6 Hazardous Building Materials Survey, Agriculture and Agri-Food Canada, Building 6, Potato Research Centre, 850 Lincoln Road, Fredericton, N. B.

(Appendix B), Dated January 2013, prepared by LVM Maritime Testing.

.7 Agriculture and Agri-Food Canada, Fredericton Potato Research Centre, Asbestos Management Plan, dated March 2007, and prepared by Jacques Whit ford.

.8 Should material resembling spray or trowel applied asbestos or any other designated substance not listed in Hazardous Materials Disposal Plan Report be encountered in the course of demolition, stop work, take preventative measures, and notify Departmental Representative immediately. Do not proceed until written instructions have been received.

.9 Existing conditions survey and documentation:
.1 Visit and examine the site and note all characteristics and irregularities affecting the work of this Section.

1.3 DEFINITIONS

.1 Demolition: rapid destruction of building following removal of hazardous materials.

.2 Hazardous Materials: dangerous substances, dangerous goods, hazardous commodities and hazardous products, may include but not limited to: asbestos, PCB's, CFC's, HCFC's, poisons, corrosive agents, flammable substances, ammunition, explosives, radioactive substances, or other material that can endanger human health or well being or environment if handled improperly.

1.4 SUBMITTALS

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

.2 Product Data: submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 02 81 01 - Hazardous Materials.

.3 Hazardous Materials: provide description of Hazardous Materials and Notification of Filing with proper authorities prior to beginning of work as required.

.4 Certificates: submit copies of certified weigh bills and/or receipts from authorized disposal sites and reuse and recycling facilities for material removed from site to Departmental Representative.
.1 Written authorization from Departmental Representative is required to deviate from approved haulers, facilities and/or receiving organizations.

1.5 QUALITY ASSURANCE

.1 Regulatory Requirements: ensure work is performed in compliance with CEPA, CEAA, TDGA, and applicable Provincial/Territorial regulations and Section 01 35 50 - Waste Management and Disposal.

.2 Qualifications:
.1 Hazardous materials and product removal and disposal work of this Section shall be performed by a company who has a minimum of five (5) years experience in successful removal and disposal of hazardous materials and products on projects of comparable scope and whose workers are currently certified for removing and disposing of hazardous materials and products as specified herein. If requested by the Departmental Representative, submit evidence of experience in this type of work.

.3 Project Meetings:
.1 Hold project meetings in accordance with requirements of the Contract.
.2 Ensure all key personnel, including but not limited to: site supervisor, project manager, subcontractor representatives and Departmental Representative attend.
.3 Departmental Representative will provide written notification of change to meeting schedule established upon contract award minimum

of 24 hours prior to scheduled meeting.

.4 Inspection and testing of removal and disposal of hazardous materials and products:
.1 Inspection and testing of removal and disposal of hazardous materials and products for compliance with the specification requirements in accordance with Section 01 45 00 - Quality Control.
.2 Frequency of inspection and testing of removal and disposal of hazardous materials and products:
.1 To be determined by Departmental Representative.
.3 Inspection and testing of removal and disposal of hazardous materials and products will include but not limited to:
.1 Verify that hazardous materials and products removed from the site and disposed of are complying with the specification requirements.
.2 Verify use of removal and disposal procedures agreed upon at the project meeting prior to removal and disposal of the hazardous materials and product types.
.3 Overall inspection of the completed hazardous materials and products removal and disposal work.
.4 Air Quality monitoring.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Perform work in accordance with Section 01 35 43 - Environmental Procedures.

.2 Store and manage hazardous materials in accordance with Section 02 81 01 - Hazardous Materials.

.3 Storage and Protection:
.1 Protect in accordance with Section 31 23 33.01 - Excavating, Trenching and Backfilling.

.4 Waste Management and Disposal in accordance with Section 01 74 21.
.1 Place materials defined as hazardous or toxic in designated containers.

.2 Handle and dispose of hazardous materials in accordance with CEPA, TDGA, Regional and Municipal regulations.
.3 Ensure emptied containers are sealed and stored safely.

1.7 SITE CONDITIONS

.1 Site Environmental Requirements:
.1 Perform work in accordance with Section 01 35 43 - Environmental Procedures.
.2 Ensure that selective demolition work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.
.3 Do not dispose of waste of volatile materials including but not limited to, mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers.
.1 Ensure proper disposal procedures are maintained throughout the project.
.4 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers or onto adjacent properties.
.5 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authorities as directed by Departmental Representative.
.6 Protect trees, plants and foliage on site and adjacent properties where indicated.
.7 Fires and burning of waste or materials is not permitted on site.
.8 Do not bury rubbish waste materials.

.2 Existing Conditions:
.1 Remove contaminated or hazardous materials listed as hazardous as defined by authorities having jurisdiction and as directed by Departmental Representative from site, prior to start of demolition work, and dispose of at designated disposal facilities in safe manner in accordance with TDGA and other applicable regulatory requirements and Section 02 81 01 - Hazardous Materials.
.2 List of Hazardous Materials:

.1 List of existing potentially hazardous materials is provided in Section 01 35 28 - Health and Safety Requirements.

1.8 SCHEDULING

.1 Employ necessary means to meet project time lines.
.1 Notify Departmental Representative in writing when unforeseen delays occur.
.2 Notify Departmental Representative 48 hours before hazardous materials are to be removed.

1.9 SUBMITTALS

.1 Pre-demolition inspection reports:
.1 Submit pre-demolition inspection report in accordance with Section 01 33 00 - Shop Drawings and Other Submittal Procedures.
.2 The report shall include drawings showing the phased demolition of Building No. 6.
.3 The report drawings shall show the trees to be demolished.
.4 The report shall include a schedule with dates for each demolition phase.
.5 The report shall include the names and addresses of haulers and waste receiving facilities.
.6 The report shall include the name(s) of the companies certified to remove hazardous materials with information.

.2 Demolition drawings:
.1 Submit demolition drawings in accordance with Section 01 33 00 - Shop Drawings and Other Submittal Procedures. Show demolition phasing.
.2 Where required by authorities having jurisdiction, submit for approval demolition drawings, diagrams or details showing sequence of demolition work and supporting structures and underpinning.
.3 Submit demolition drawings stamped and signed by qualified professional Engineer licensed in Province of New Brunswick, Canada.

.3 Certified weigh bills and receipts:
.1 Submit copies of certified weigh bills and receipts in accordance with Section 01 33 00 -

Shop Drawings and Other Submittal Procedures.

1.10 PROTECTION

.1 Prevent movement, settlement or damage of adjacent structures, services, walks, paving, trees, landscaping, adjacent grades. Provide bracing, shoring and underpinning as required. Repair damage caused by demolition as directed by Departmental Representative.

.2 Continuously wet down Building No. 6 during its demolition.

.3 Support affected structures and, if safety of structure being demolished or adjacent structures or services appears to be endangered, take preventative measures and then cease operations and notify Departmental Representative.

.4 Prevent debris from blocking surface drainage system.

.5 Ensure that demolition work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.

.6 Fires and burning of waste or materials is not permitted on site.

.7 Do not bury waste or materials on site unless approved in writing by Departmental Representative.

.8 Do not dispose of waste or volatile materials such as: mineral spirits, oil, petroleum based fuels and lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers. Ensure proper disposal procedures are maintained throughout project.

.9 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers, or onto adjacent properties.

.10 Control disposal or runoff of water containing

suspended materials or other harmful substances in accordance with local authorities.

.11 Protect trees, plants and foliage on site and adjacent properties.

.12 Prevent extraneous materials from contaminating air beyond application area, by providing temporary enclosures during demolition work.

.13 Cover or wet down dry materials and waste to prevent blowing dust and debris. Control dust on all temporary roads.

PART 2 - PRODUCTS

2.1 SUSTAINABLE REQUIREMENTS

.1 Not Used.

2.2 EQUIPMENT

.1 Leave machinery running only while in use, except where extreme temperatures prohibit shutting machinery down.

.1 Ensure all petroleum storage devices brought on and/or used on site are in accordance/comply with all applicable Storage Tank Regulations and Codes.

PART 3 - EXECUTION

3.1 GENERAL

.1 Dispose of hazardous materials in accordance with Federal and Provincial legislation and as per the Appendix B & C and Sections 02 81 01 - Hazardous Materials, 02 82 00.2 - Asbestos Abatement - Intermediate Precautions, 02 85 13 - Lead Containing Materials Abatement, Section 33 56 13

- Boiler Tank.

.2 The volumes and quantities of demolition materials shown in the reports are not to be construed as final measurements. No additional payments will be made where actual quantities or volumes exceed those noted in the reports.

.3 Demolish Building No. 6 in Phases:
.1 Phase 1: Hazardous Materials.
.2 Phase 2: Building No. 6 as per 1.9.2 of this Section.
.3 Phase 3: The remaining or balance of work.

.4 Remove bird droppings and rodent nests and other pests as required by Departmental Representative. Provide additional pest control measures as required and directed by Departmental Representative.

.5 Remove and dispose of approximately 3 cubic metres of coal located in the basement at a regional landfill as per Section 01 35 28.

3.2 PREPARATION

.1 Locate and protect utilities. Preserve active utilities traversing site in operating condition.

.2 Notify and obtain approval of utility companies before starting demolition.

.3 Disconnect and Cap Designated Mechanical Services:
.1 Domestic Water Lines: locate existing service lines and remove lateral back to the main line or the nearest manhole, whichever is the closest, cap with watertight seal and backfill. Record and photograph the location of well in accordance with Section 01 78 00 - Closeout Submittals.
.2 Sewer Lines: locate existing sewer lines and septic holding tank, purge existing content, remove lines in accordance with authority having

jurisdiction and backfill.
.3 Other Services: Disconnect electrical supply lines at both ends. If underground, the disconnected lines are to be left in place after disconnection.

3.3 REMOVAL OF HAZARDOUS WASTES

.1 Remove contaminated or dangerous materials defined by authorities having jurisdiction, relating to environmental protection, from site and dispose of in safe manner to minimize danger at site or during disposal.

3.4 REMOVAL OPERATIONS

.1 Remove items as indicated.

.2 Do not disturb items designated to remain in place.

.3 Disposal of Material:
.1 Dispose of materials at authorized facilities.

.4 Backfill:
.1 Backfill in areas as indicated and in accordance with Section 31 23 33.01 - Excavating, Trenching and Backfilling.

3.5 SAFETY CODE

.1 Perform demolition work in accordance with CSA S350.

.2 Blasting operations are NOT permitted during demolition.

3.6 DEMOLITION

.1 Demolish complete building structure, including but not limited to the following:
.1 Demolish complete existing Building No. 6 as submitted in Section 01 33 00.
.2 Demolish complete related concrete underground vaults, retaining walls, exterior stairs and concrete housekeeping pads.
.3 Demolish parking area asphalt and concrete pad (below asphalt), sub-grade below asphalt to depth of 600 mm below finished grade, and site

vegetation. Remove asphalt, concrete and sub-grade to facility accepting contaminated soil.

.4 Cut down trees and pull out their roots, only identified trees to be removed. Trees will be identified at the Pre-tender on-site meeting.

.2 Demolish foundation walls and footings, to a depth of 600 mm below new finished grade.

.3 Use natural lighting to do work where possible.

.1 Shut off lighting except those required for security purposes at end of each day.

.4 At end of each day's work, leave work in safe and stable condition.

.5 Hazardous waste materials shall be demolished in accordance with Sections 01 35 50, 02 82 00.02, 02 85 13 and section 33 56 13 of the specification.

.6 Provide separate, clearly marked disposal bins for all categories of waste material. Do not remove bins from site until inspected and approved by Departmental Representative. Promptly notify Departmental Representative prior to removal of bins from site.

.7 Remove existing equipment, services, and obstacles where required for refinishing or making good of existing surfaces, and replace as work progresses.

.8 At end of each day's work, leave work in safe and stable condition.

.9 Removal from site:

.1 Remove stockpiled material as directed by Departmental Representative or when it interferes with operations of project construction.

.2 Remove stockpiles of like materials by an alternate disposal option once collection of materials is complete.

.3 Contain all fibrous materials (e.g.

Insulation) to minimize release of airborne fiber while being transported within facility.

.10 Remove and dispose of demolished materials, except where noted otherwise and in accordance with authorities having jurisdiction.

.11 Continuously wet down Building No. 6 structure during demolition process.

.12 Environmental:

.1 Ensure that contaminated or dangerous materials are removed and disposed of as defined by authorities having jurisdiction, relating to environmental protection, from site and dispose of in safe manner to minimize danger at site or during disposal.

.2 All hazardous materials must be removed by the Contractor under this Contract. Refer to reports in Appendix B and C.

.3 The waste measurements noted in the reports are approximate quantities of waste etc be removed. The Contractor shall verify the exact amounts on site. No claim for additional money shall be made based on quantities of waste noted in the reports.

.4 Prior to start of any demolition work; ensure that contaminated or hazardous materials or substances as listed in the Hazardous Materials Disposal Survey are removed. Reports and any additional contaminated or hazardous materials or substances as defined by authorities having jurisdiction are removed from site and disposed of at designated disposal facilities in safe manner and in accordance with the Transportation of Dangerous Goods Act (TDGA) and as follows:

.5 Asbestos: to NB 92-106 Code of Practice for Working with Materials Containing Asbestos in New Brunswick, Canadian Federal Hazardous Products (Crocidolite Asbestos) Regulations and Canadian Federal Hazardous Products Act.

.6 lead paint: to New Brunswick Department of the Environment and Local Government Policy for Disposal of Building Materials Containing Lead-Based Paint, Canadian Federal Hazardous Products Act.

.7 PCB containing equipment: to New Brunswick Clean Environment Act, Canadian Federal Storage of PCB Regulations and Environment Canada Report EPS 2/CC/2 Identification of Lamp Ballasts Containing PCB's.
.8 Ozone depleting substances: to NB 97-132 New Brunswick Ozone Depleting Substances Regulation, Canadian Federal Halocarbon Regulations Compliance Guide - Refrigeration & Air-Conditioning Systems, Canadian Federal Environmental Code of Practice for Elimination of Fluorocarbon Emissions from Refrigeration and Air Conditioning Systems and Canadian Federal Halocarbon Regulations Compliance Guide - Fire Extinguishing Systems.
.9 Other hazardous materials and chemicals: to New Brunswick Clean Environment Act, Canadian Environmental Protection Act, Canadian Federal Hazardous Products Act and Canadian Federal Guidelines for Handling Hazardous and Toxic Wastes at Federal Facilities.

3.7 STOCKPILING

.1 Not Used.

3.8 REMOVAL FROM SITE

.1 Remove stockpiled material as directed by Departmental Representative, when it interferes with operations of project.

.2 Dispose of materials in accordance with applicable regulations.
.1 Disposal Facilities: approved by federal and provincial authority having jurisdiction.

3.9 RESTORATION

.1 Restore areas and existing works outside areas of demolition to conditions that existed prior to beginning of work and to match condition of adjacent, undisturbed areas.

.2 Use soil treatments and procedures which are not harmful to health, are not injurious to plants,

and do not endanger wildlife, adjacent water courses or ground water.

3.10 FIELD QUALITY CONTROL

.1 Inspection and testing of hazardous materials and products removal and disposal shall be carried out by an accredited testing agency hired and paid for by the Departmental Representative (PWGSC).

.1 NOTE: No compensation will be made to the Contractor for delays resulting from waiting for test results from Environmental Testing Agency.

3.11 CLEANING

.1 Remove debris, trim surfaces and leave work site clean, upon completion of work.

.2 Use cleaning solutions and procedures which are not harmful to health, are not injurious to plants, and do not endanger wildlife, adjacent water courses or ground water.

PART 1 - GENERAL

1.1 SUMMARY

.1 Section Includes:
.1 Storage and management of hazardous materials on site.

.2 Work is to be performed in accordance with Section 01 35 43 - Environmental Procedures.

1.2 RELATED REQUIREMENTS

.1 Not Used.

1.3 REFERENCES

.1 Definitions:
.1 Dangerous Goods: product, substance, or organism specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.
.2 Hazardous Material: product, substance, or organism used for its original purpose; and is either dangerous goods or material that will cause adverse impact ot environment or adversely affect health of persons, animals, or plant life when released into the environment.
.3 Hazardous Waste: hazardous material no longer used for its original purpose and that is intended for recycling, treatment or disposal.

.2 Reference Standards:
.1 Canadian Environmental Protection Act, 1999 (CEPA 1999):
.1 Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2005-149).
.2 Department of Justice Canada (Jus)
.1 Transportation of Dangerous Goods Act, 1992 (TDG Act) 1992, (c.34).
.3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
.1 Material Safety Data Sheets (MSDS).
.4 National Research Council Canada Institute

for Research in Construction (NRC-IRC)
.1 National Fire Code of Canada-2010.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:
.1 Submit hazardous materials management plan to Departmental Representative that identifies hazardous materials, location, personal protective equipment requirements, and disposal arrangements.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Transport hazardous materials and wastes in accordance with Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.

.2 Storage and Handling Requirements:
.1 Co-ordinate storage of hazardous materials with Departmental Representative and abide by internal requirements for labelling and storage of materials and wastes.
.2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
.3 Store and handle flammable and combustible materials in accordance with National Fire Code of Canada requirements.
.4 Keep no more than 45 litres of flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use.
.1 Store flammable and combustible liquids in approved safety cans bearing the Underwriters' Laboratory of Canada or Factory Mutual seal of approval.
.2 Storage of quantities of flammable and combustible liquids exceeding 45 litres for work purposes requires the written approval of the Departmental Representative.
.5 Transfer of flammable and combustible

liquids is prohibited within buildings.

.6 Transfer flammable and combustible liquids away from open flames or heat-producing devices.

.7 Solvents or cleaning agents must be non-flammable or have flash point above 38 degrees C.

.8 Store flammable and combustible waste liquids for disposal in approved containers located in safe, ventilated area. Keep quantities to minimum.

.9 Observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled.

.10 Storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:

.1 Store hazardous materials and wastes in closed and sealed containers.

.2 Label containers of hazardous materials and wastes in accordance with WHMIS.

.3 Store hazardous materials and wastes in containers compatible with that material or waste.

.4 Segregate incompatible materials and wastes.

.5 Ensure that different hazardous materials or hazardous wastes are not stored in separate containers.

.6 Store hazardous materials and wastes in secure storage area with controlled access.

.7 Maintain clear egress from storage area.

.8 Store hazardous materials and wastes in location that will prevent them from spilling into environment.

.9 Have appropriate emergency spill response equipment available near storage area, including personal protective equipment.

.10 Maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.

.11 Ensure personnel have been trained in accordance with Workplace Hazardous

Materials Information System (WHMIS) requirements.
.12 Report spills or accidents immediately to Departmental Representative. Submit a written spill report to Departmental Representative within 24 hours of incident.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 Description:
.1 Bring on site only quantities hazardous material required to perform work.
.2 Maintain MSDS in proximity to where materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

PART 3 - EXECUTION

3.1 DISPOSAL

.1 Leave work area clean at the end of each day.

.2 Final Cleaning: upon completion, remove surplus materials, rubbish, tools and equipment.

.3 Dispose of hazardous waste in accordance with applicable federal and provincial acts, regulations, and guidelines.

.4 Recycle hazardous wastes for which there is approved, cost effective recycling process available.

.5 Send hazardous wastes to authorized hazardous waste disposal or treatment facilities.

.6 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.

.7 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.

.8 Dispose of hazardous wastes in timely fashion in accordance with applicable provincial regulations.

.9 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.

PART 1 - GENERAL

1.1 SUMMARY

.1 Remove and dispose of small amounts of friable asbestos-containing material in Building #6 located at the Potato Research Centre, 850 Lincoln Road, P. O. Box 20280, Fredericton, New Brunswick, as identified in Appendix B, Hazardous Building Materials Survey.

1.2 SECTION INCLUDES

.1 Requirements and procedures for abatement of friable asbestos containing materials (also known as Type II abatement). Visually similar materials as those identified in the Hazardous Materials Building Survey Report should also be considered asbestos-containing unless testing proves otherwise. The Hazardous Materials Building Survey Report presents the percent of asbestos in each sample taken and describes the products identified as asbestos-containing. All products containing greater than 1% asbestos are deemed asbestos- containing and are to be handled and disposed as such. Soil may be contaminated with asbestos debris and if encountered must be treated as a friable asbestos-containing material. Estimated quantities of asbestos-containing materials are presented in the Hazardous Materials Building Survey Report.

.2 Asbestos-containing materials or materials contaminated by asbestos-containing materials may be found in other parts of the structure than those identified in the Hazardous Materials Building Survey Report. The Contractor will be responsible for accurately verifying and calculating the amount of each asbestos product/material identified in the Hazardous Materials Building Survey Report and ensuring the removal and disposal of all those identified

materials or products are included in the bid price. If there are discrepancies found, notify Departmental Representative immediately.

1.3 RELATED REQUIREMENTS

.1 Not Used.

1.4 REFERENCES

.1 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-1.205-94, Sealer for Application of Asbestos Fiber Releasing Materials.

.2 New Brunswick Summary of Regulations and Guidelines for Hazardous Materials.

.3 New Brunswick Clean Environment Act.

.4 Department of Justice Canada (Jus)
.1 Canadian Environmental Protection Act, 1999 (CEPA).

.5 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
.1 Material Safety Data Sheets (MSDS).

.6 Transport Canada (TC)
.1 Transportation of Dangerous Goods Act, 1992 (TDGA).

.7 Underwriters' Laboratories of Canada (ULC).

.8 Work Safe New Brunswick Regulations.

1.5 DEFINITIONS

.1 Amended Water: water with non-ionic surfactant wetting agent added to reduce water tension to allow wetting of fibers.

.2 Asbestos Containing Materials (ACMs): materials

that contain 0.5 0.1 provincial regulated amount per cent or more asbestos by dry weight and are identified under Existing Conditions including fallen materials and settled dust.

.3 Asbestos Work Area: area where work takes place which will, or may disturb ACMs.

.4 Authorized Visitors: Departmental Representatives, or designated representatives, and representatives of regulatory agencies.

.5 Competent worker person: in relation to specific work, means a worker who:
.1 Is qualified because of knowledge, training and experience to perform the work.
.2 Is familiar with the provincial federal laws and with the provisions of the regulations that apply to the work.
.3 Has knowledge of all potential or actual danger to health or safety in the work.

.6 Friable Materials: material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.

.7 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.

.8 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with filter system capable of collecting and retaining fibers greater than 0.3 microns in any dimension at 99.97% efficiency.

.9 Non-Friable Material: material that when dry cannot be crumbled, pulverized or powdered by hand

pressure.

.10 Occupied Area: any area of building or work site that is outside Asbestos Work Area.

.11 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.

.12 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must have appropriate capacity for scope of work.

.13 Type I Asbestos Work: Also know as Low Risk Work or Minimum Precautions non-friable asbestos related activities or abatements. Work conducted in the proximity to Friable ACM, where that ACM is not disturbed, removal of non-friable ACM's or using hand tools equipped with a HEPA filter to affect non-friable ACM's.

.14 Type II Asbestos Work: Also know as Medium Risk Work or Moderate Precautions asbestos related activities or abatements. Work involving the handling of small amounts of friable ACM (less than 1.5 sq.m.), or working in proximity of Friable ACM, where a disturbance may occur.

.15 Type III Asbestos Work: Also known as High Risk Work or Maximum Precautions asbestos related or abatement projects. Work involving the handling of friable ACM or work in proximity of friable ACM, where there is a high level of control necessary to prevent exposure of excessive concentrations of airborne asbestos fibers. Also included in this are: use of hand tools not equipped with a HEPA filter to affect Non-friable ACM's.

1.6 SUBMITTALS

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

.2 Submit proof satisfactory to Departmental Representative that suitable arrangements have been made to dispose of asbestos containing waste in accordance with requirements of authority having jurisdiction.

.3 Submit Provincial and/or local requirements for Notice of Project Form.

.4 Submit proof of Contractor's Asbestos Liability Insurance.

.5 Submit to Departmental 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 that all asbestos workers have received appropriate training and education by a competent person in the hazards of asbestos exposure, good personal hygiene, entry and exit from Asbestos Work Area, aspects of work procedures and protective measures while working in Asbestos Work Areas, and the use, cleaning and disposal of respirators and protective clothing.

.7 Submit proof that supervisory personnel have attended asbestos abatement course, of not less than two days duration, approved by Departmental Representative. Minimum of one supervisor for every ten workers.

.8 Submit Worker's Compensation Board status and transcription of insurance.

.9 Submit documentation including test results, fire and flammability data, and Material Safety Data Sheets (MSDS) for chemicals or materials including:

.1 Encapsulates;

.2 Amended water;

.3 Slow drying sealer.

.10 Submit proof satisfactory to Departmental Representative that employees have respirator fitting and testing. Workers must be fit tested (irritant smoke test) with respirator that is personally issued.

1.7 QUALITY ASSURANCE

.1 Regulatory Requirements: comply with Federal, Provincial 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 performed.

.2 Health and Safety:

.1 Do construction occupational health and safety in accordance with Section 01 35 28- Health and Safety Requirements.

.2 Safety Requirements: worker protection.

.1 Protective equipment and clothing to be worn by workers while in Asbestos Work Area include:

.1 Air purifying half-mask respirator with N-100, R-100 or P-100 particulate filter, personally issued to worker and marked as to efficiency and purpose, suitable for protection against asbestos and acceptable to Provincial Authority having jurisdiction. The respirator to be fitted so that there is an effective seal between the respirator and the worker's face, unless the respirator is equipped with a hood or helmet. The respirator to be cleaned, disinfected and inspected after use on each shift, or more often if necessary, when issued for the exclusive use of one worker, or after each use when used by more than one worker. The

respirator to have damaged or deteriorated parts replaced prior to being used by a worker; and, when not in use, to be stored in a convenient, clean and sanitary location. The employer to establish written procedures regarding the selection, use and care of respirators, and a copy of the procedures to be provided to and reviewed with each worker who is required to wear a respirator. A worker not to be assigned to an operation requiring the use of a respirator unless he or she is physically able to perform the operation while using the respirator.

.2 Disposable type protective clothing that does not readily retain or permit penetration of asbestos fibers. Protective clothing to be provided by the employer and worn by every worker who enters the work area, and the protective clothing to consist of a head covering and full body covering that fits snugly at the ankles, wrists and neck, in order to prevent asbestos fibers from reaching the garments and skin under the protective clothing. It includes suitable footwear, and it to be repaired or replaced if torn.

.3 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.

.4 Before leaving Asbestos Work Area, the worker can decontaminate his or her protective clothing by using a vacuum equipped with a HEPA filter, or by damp wiping, before removing the protective clothing, or, if the protective clothing will not be reused, place it in a container for dust and waste. The container to be dust tight, suitable for asbestos waste, impervious to asbestos, identified as asbestos waste, cleaned with a damp cloth or a vacuum equipped with a HEPA filter immediately before removal from the work area, and removed from the

work area frequently and at regular intervals.
.5 Ensure workers wash hands and face when leaving Asbestos Work Area. Facilities for washing are located as indicated on drawings
.6 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects seal between respirator and face.

1.8 WASTE MANAGEMENT AND DISPOSAL

.1 Remove from site and dispose of packaging materials at appropriate recycling facilities.

.2 Place materials defined as hazardous or toxic in designated containers.

.3 Handle and dispose of hazardous materials in accordance with the CEPA, TDGA, Regional and Municipal regulations.

.4 Fold up metal banding, flatten and place in designated area for recycling.

.5 Disposal of asbestos waste generated by removal activities must comply with Federal, Provincial and Municipal regulations. Dispose of asbestos waste in sealed double thickness 6 ml bags or leak proof drums. Label containers with appropriate warning labels.

.6 Provide manifests describing and listing waste created that was ultimately removed from site, and properly disposed. Transport containers by approved means to licensed facility for treatment.

1.9 EXISTING CONDITIONS

.1 Reports and information pertaining to ACMS to be handled, removed, or otherwise disturbed and disposed of during this Project are bound into this specification as Appendix C and Appendix D.

.2 Notify Departmental Representative of friable

material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Departmental Representative.

1.10 SCHEDULING

.1 Hours of Work: perform work during normal working hours.

1.11 OWNER'S INSTRUCTIONS

.1 Before beginning Work, provide Departmental Representative satisfactory proof that every worker has had instruction and training in hazards of asbestos exposure, in personal hygiene and work practices, in use of glove bag procedures, 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.

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 fiber 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 fiber type where there are sharp objects included in waste material; otherwise outer container may be sealable metal or fiber type or second 0.15 mm thick sealable polyethylene bag.

.3 Labeling 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, or Alternative material approved by addendum during tendering period in accordance with Instructions to Tenderers.

.2 The glove bag to be equipped with:

.1 Sleeves and gloves that are permanently sealed to the body of the bag to allow the worker to access and deal with the insulation and maintain a sealed enclosure throughout the work period.

.2 Valves or openings to allow insertion of a vacuum hose and the nozzle of a water sprayer while maintaining the seal to the pipe, duct or similar structure.

.3 A tool pouch with a drain.

.4 A seamless bottom and a means of sealing off the lower portion of the bag.

.5 A high strength double throw zipper and removable straps, if the bag is to be moved during the removal operation.

.5 Tape: fiberglass - reinforced duct tape suitable for sealing polyethylene 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 fibers.

.7 Encapsulant: surface film forming type conforming to CAN/CGSB-1.205 ULC listed.

PART 3 - EXECUTION

3.1 SUPERVISION

.1 Minimum of one Supervisor for every ten workers is required.

.2 Approved Supervisor must remain within Asbestos Work Area during disturbance, removal, or other handling of asbestos-containing materials.

3.2 PROCEDURES

.1 Do construction occupational health and safety in accordance with Section 01 35 28 - Health and Safety Requirements.

.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 mm) / NO UNAUTHORIZED ENTRY (19 mm) / WEAR ASSIGNED PROTECTIVE EQUIPMENT (19 mm) / BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM (7 mm)'.

.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 suspended ceilings and walls themselves do not enclose work area and 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 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 Perform Work in a manner 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.

.6 Pipe Insulation Removal Using Glove Bag:
.1 A glove bag not to be used to remove insulation from a pipe, duct or similar structure if:
.1 It may not be possible to maintain a proper seal for any reason including,

without limitation:

.1 The condition of the insulation.

.2 The temperature of the pipe, duct or similar structure.

.2 The bag could become damaged for any reason including, without limitation.

.1 The type of jacketing.

.2 The temperature of the pipe, duct or similar structure.

.2 Upon installation of the glove bag, inspect bag for any damage or defects. If any damage or defects are found, the glove bag is to be repaired or replaced. The glove bag to be inspected at regular intervals for damage and defects, and repair or replaced, as appropriately. The asbestos containing contents of the damaged or defective glove bag found during removal are to be wetted and the glove bag and its contents are to be removed and disposed of in an appropriate waste disposal container. Any damaged or defective glove bags are not be reused.

.3 Place tools necessary to remove insulation in tool pouch. Wrap bag around pipe and close zippers. Seal bag to pipe with cloth straps.

.4 Place hands in gloves and use necessary tools to remove insulation. Arrange insulation in bag to obtain full capacity of bag.

.5 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.

.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 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 ensure that pipe is free of residue. Remove residue using HEPA vacuum or wet cloths. Ensure that surfaces are free of contaminants 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 fibers.
.8 Upon completion of Work shift, cover exposed ends of remaining pipe insulation with polyethylene taped in place.

.7 Work is subject to visual inspection and air monitoring by a Consultant. Contamination of surrounding areas indicated by visual inspection or air monitoring will require complete enclosure and clean-up of affected areas.

.8 Cleanup:
.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 ensure that dump operator is fully aware of hazardous nature of material to be dumped and those guidelines and regulations for asbestos disposal are followed.
.5 Perform final thorough clean-up of Asbestos Work Areas and adjacent areas affected by Work using HEPA vacuum.

3.3 AIR MONITORING

.1 Contractor is to cooperate with the hired agency that will do the air monitoring in accordance with applicable Provincial/Territorial Occupational Health and Safety Regulations and PWGSC requirements.

.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 Ensure that respiratory safety factors are not exceeded.

.4 During the course of Work, Contractor will assist and cooperate with the environmental agency to measure fiber content of air outside Work areas by means of air samples analyzed by Phase Contrast Microscopy (PCM).

.1 Stop Work when PCM measurements exceed 0.05 f/cc and correct procedures.

.2 Minimum sampling schedule:

.1 2 samples to be taken before abatement is started (as background):

.1 One sample on first floor and

.2 One sample on second floor.

.2 Two samples to be taken each day while abatement work is underway:

.1 One sample outside the building in front yard and,

.2 One sample outside the building in back yard.

.3 Two samples to be taken after work is completed, both on the first floor.

.3 Sampling report(s) to be submitted to the Departmental Representative.

.5 Contractor to include cost delays, resulting in air monitoring results, in the lump sum bid price for the work.

PART 1 - GENERAL

1.1 SUMMARY

.1 Remove and dispose of all materials containing lead present in Building No. 6 located at Agriculture and Agri-Food Canada, 850 Lincoln Road, Fredericton, York County, New Brunswick, identified in the LVM Maritime Testing report titled Hazardous Building Materials Survey, Agriculture and Agri-Food Canada, Building 6, Potato Research Centre, 850 Lincoln Road, Fredericton, N. B., dated January 1, 2013 (attached in Appendix B). The Hazardous Materials Sampling report identifies the types of load products present in the building. Quantities of materials containing lead in the Hazardous Materials Sampling report are approximate estimates only. Materials containing lead may be found in other parts of the structure than those described in the Hazardous Materials Sampling Survey. Visually similar material to those identified in the Hazardous Materials Sampling report should also be considered lead containing unless testing proves otherwise. Contractors are responsible for accurately verifying/calculating the amount of each lead containing product/material identified in the Hazardous Materials Sampling report and ensuring the removal and disposal of all those identified materials or products are included in the bid price. If there are any discrepancies found, notify Departmental Representative immediately.

.2 Unless otherwise shown or specified it is the intent that work performed by the Contractor will result in the removal and disposal of all materials containing lead identified in the LVM report titled: Hazardous Building Materials Survey, Agriculture and Agri-Food Canada, Building 6, Potato Research Centre, 850 Lincoln Road, Fredericton, N. B.

.3 Comply with requirements of this Section when

performing the following work:

.1 Remove and dispose of lead materials including, but not limited to, surfaces finished with lead based paints, lead containing paints, lead in fittings on cast iron pipes, lead acid batteries, etc.

.2 Remove and dispose of leachable lead paint products/materials, identified in the report and the attached sketches in Appendix B. Where leachate extraction analysis has indicated that the material is NOT suitable for disposal at a New Brunswick Landfill (per 1994 Guidelines for the Disposal of Contaminated Solids in Landfills) these materials (identified as grey paint in the basement) require disposal at a licensed hazardous waste disposal facility.

1.2 SECTION INCLUDES

.1 This Section specifies minimum requirements and procedures for handling and disposing of lead materials.

1.3 REFERENCES

.1 N.B. Department of Environment and Local Government Disposal of Lead Paint and Lead Painted Materials Guideline.

.2 Transport Canada (TC) - Transportation of Dangerous Goods Act, 1992 (TDGA).

.3 Department of Justice Canada - Canadian Environmental Protection Act, 1999 (CEPA) - Interprovincial Movement of Hazardous Waste Regulations.

.4 Department of Justice Canada - Canada Consumer Safety Products Act, 2010 - Surface Coating Materials Regulations, SOR/2005-109.

.5 New Brunswick Occupational Health and Safety Act - New Brunswick Occupational Health and Safety Regulation 92-106.

.6 LVM Maritime Testing Hazardous Building Materials Survey, Agriculture and Agri-Food Canada, Building 6, Potato Research Centre 850 Lincoln

Road, Fredericton, N. B.

.7 LVM Maritime Testing, Appendix 1, Figure 1, Basement Floor Plan, Potato Research Centre, AAFC, Fredericton, N. B. (Attached in Appendix B).

.8 LVM Maritime Testing, Appendix 1, Figure 2, Main Floor Plan, Agriculture and Agri-Food Canada, Building 6, Potato Research Centre, 850 Lincoln Road, Fredericton, N. B. (Attached in Appendix B).

.9 LVM Maritime Testing, Appendix 1, Figure 3, Second Floor Plan, Potato Research Centre AAFC, Fredericton, N. B. (Attached in Appendix B).

.10 LVM Maritime Testing, Appendix 1, Figure 4, Attic Floor Plan, Potato Research Centre AAFC, Fredericton, N. B. (Attached in Appendix B).

1.4 DEFINITIONS

.1 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with a filter system capable of collecting and retaining fibers greater than 0.3 microns in any direction at 99.97% efficiency.

.2 Amended Water: water with a non-ionic surfactant wetting agent added to reduce water tension to allow wetting of fibers.

.3 Lead-Containing Materials: materials identified in the LVM and CRA Jacques Whithford reports, including fallen materials and settled dust.

.4 Lead Work Area: Area where actual removal of lead-containing materials take place.

.5 Authorized Visitors: Departmental Representative, Engineer, Consultant or designated representatives, and representatives of regulatory agencies.

.6 Occupied Area: any area of building or work site that is outside Lead Work Area.

.7 Polyethylene sheeting sealed with tape: Polyethylene sheeting of type and thickness specified sealed with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide continuous polyethylene membrane to protect underlying surfaces from water damage or damage by sealants, and to prevent escape of lead through sheeting into clean area.

.8 DOP Test: testing method used to determine integrity of HEPA filtered Negative Pressure unit using dioctyl phthalate (DOP) HEPA-filter leak test.

.9 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must be appropriate capacity for scope of work.

.10 Negative pressure: system that extracts air directly from work area, filters such extracted air through High Efficiency Particulate Air filtering system, and discharges this air directly outside work area to exterior of building.

.1 System to maintain minimum pressure differential of 5 Pa relative to adjacent areas outside of work areas, be equipped with alarm to warn of system breakdown, and be equipped with instrument to continuously monitor and automatically record pressure differences.

.11 Airlock: system for permitting ingress or egress without permitting air movement between contaminated area and uncontaminated area, typically consisting of two curtained doorways at least 2 m apart.

.12 Curtained doorway: arrangement of closures to allow ingress and egress from one room to another while permitting minimal air movement between rooms, typically constructed as follows:

.1 Place two overlapping sheets of polyethylene over existing or temporarily framed doorway, secure each along top of doorway, secure vertical edge of one sheet along one vertical side of doorway, and secure vertical edge of other sheet along opposite vertical side of doorway.
.2 Reinforce free edges of polyethylene with duct tape and weight bottom edges to ensure proper closing.
.3 Overlap each polyethylene sheet at openings not less than 1.5 m on each side.

1.5 REGULATORY REQUIREMENTS

.1 Comply with Federal, Provincial, and local requirements pertaining to lead, provided that in case of conflict among these requirements or with these specifications the more stringent requirement applies. Comply with regulations in effect at the time the work is performed.

.2 In addition to various Federal and Provincial regulations regarding hazardous materials, the Contractor shall comply with any and all directions and requirements issued by regulatory Authority having jurisdiction, regarding the removal, transport and placement of hazardous materials from various locations, including:
.1 The disposal of hazardous materials in appropriate waste containers.
.2 The transport of hazardous materials to an approved site. All waste materials to be provided, as back-up.
.3 Any and all requirements which may exist regarding notifications of the presence of hazardous materials.
.4 The requirements for training of personnel conducting the hazardous material work.

.3 Other legislation which applies to the performance of the work in this section.

1.6 WORKER PROTECTION

.1 The Contractor shall ensure that Workers and persons entering the worksite, during the removal and handling of materials containing lead, shall wear appropriate personal protective equipment

(PPE) meeting the requirements of authorities having jurisdiction.

.2 All workers wearing respiratory protection shall be trained in its use and care, and shall have been fit tested prior, in accordance with the Occupational Health and Safety Act. All respiratory protective devices shall be certified by the National Institute of Occupational Safety and Health (NIOSH) or other testing agency acceptable to regulatory authority having jurisdiction.

.3 Maintain respiratory equipment in proper functioning and clean condition or remove from site. Respiratory equipment shall be identified with permanent markings and current list of persons utilizing such equipment shall be displayed in clean area.

.4 Filters used shall be replaced or tested according to the manufacturer's specifications and replaced as necessary.

.5 No person required to enter the defined Lead Work Area shall wear facial hair which affects the seal between respirator and face.

.6 Provide workers and visitors in defined Lead Work Area with disposable protective coveralls and disposable gloves. Once the coveralls and gloves are worn, treat as lead dust contaminated and disposed of when leaving Lead Work Area.

.7 Provide instruction to personnel before allowing entry to Lead Work Area. Instruction shall include training in respirators, dress, entry and exit from Lead Work Area, work procedures and protective measures.

.8 Specify and establish a wash station where workers can wash themselves after leaving the designated Lead Work Area.

.9 Before leaving a contaminated Lead Work Area, remove gross contamination from protective

clothing using HEPA vacuum and/or damp sponge, remove soiled coveralls and gloves and dispose of in the Lead Work Area, then proceed to a specified location where respirator and exposed skin e.g. hands and face can be washed with soap and water.

.10 Workers shall not eat, drink, smoke or chew gum or tobacco except in established locations outside the Lead Work Area.

.11 Workers shall be fully protected at all times when possibility of disturbance of lead dust or fume exists.

1.7 AUTHORIZED VISITOR PROTECTION

.1 Provide clean protective clothing and equipment and approved respirators to Authorized Visitors.

.2 Instruct Authorized Visitors in the use of protective clothing, respirators, and Work Area entry and exit procedures.

1.8 SUBMITTALS

.1 Obtain all necessary permits and approvals for the removal, transportation and disposal of lead based and lead containing materials prior to commencing abatement and demolition work. Submit copies of all permits and approvals to the Departmental Representative at least 5 days prior to commencing of work.

.2 Provide copies of all waste manifests, for the transportation and disposal of wastes, to the Departmental Representative.

PART 2 - PRODUCTS

2.1 MATERIALS

.1 All materials and equipment brought to work site must be in good condition and free of lead, and

lead debris. Disposable items must be of new materials only.

.2 Lead Waste Container: An impermeable container acceptable to disposal site and New Brunswick Environment. New materials only. Labeled as required. Comprised of the following:
.1 A 6 mil (0.15 mm) sealed polyethylene bag, positioned inside a rigid sealed container of sufficient strength to prevent perforation of the container during filling, transportation and disposal.

.3 Flexible Ducting: Tubing with metal reinforcement or approved equal. Diameter to equal negative air discharge.

.4 HEPA Vacuum: Vacuum with necessary fittings, tools and attachments. Discharged air must pass through a HEPA filter.

.5 Negative Air Unit: Portable air handling system which extracts air directly from the Lead Work Area and discharges the air to the exterior of the building. Equipped as follows:
.1 Prefilter and HEPA filter. Air must pass HEPA filter before discharge.
.2 Pressure differential gauge to monitor filter loading.
.3 Auto shut off and warning system for HEPA filter failure.
.4 Separate hold down clamps to retain HEPA filter in place during change of prefilter.

.6 Polyethylene Sheeting: 6 mil (0.15 mm) minimum thickness unless otherwise specified, in sheet size to minimize joints. New Materials Only.

.7 Protective Coveralls: Disposable full body coveralls complete with hoods manufactured of a material which does not permit penetration of lead dust.

.8 Rip-Proof Polyethylene Sheeting: 8 mil (0.20 mm) fabric made up from 5 mil (0.13 mm) weave and 2 layers of 1.5 mil (0.05 mm) poly laminate or

approved equal. In sheet size to minimize on-site seams and overlaps. New Materials Only.

.9 Tape: fiberglass reinforced duct tape for sealing polyethylene and fiberglass reinforced tarpaulins.

.10 Amended Water: Water with a non-ionic surfactant added to reduce water tension such as to allow thorough wetting.

2.2 HOARDING WALLS

.1 For interior removal of surface coatings, construct hoarding walls between Lead Work Area perimeter and occupied areas.
.1 2" x 4" (38 mm x 89 mm) wood or metal studs at 16: (400 mm) o.c. with continuous sill and top plate, covered with one layer of rip-proof polyethylene sheeting on each side of wall.

2.3 CURTAINED DOORWAY

.1 Construct as follows:
.1 Install two flap doors, full width and height of door opening at all doors between chambers, facilities and Lead Work Area.
.2 Construct each flap door of two layers of rip-proof polyethylene sheeting with all edges tape reinforced. Use wood strapping to securely fasten flap doors to head and alternate jambs.
.3 Provide weights attached to bottom edge of each door flap.
.4 Provide direction arrows on flaps to indicate opening.

PART 3 - EXECUTION

3.1 PREPARATION

.1 Erect hoarding walls between the Lead Work Area and Occupied Area(s).

.2 Seal all openings to Lead Work Area using rip-proof polyethylene, tape, caulking,

polyurethane foam, etc. including but not limited to windows, doors, vents, diffusers, etc.

.3 Maintain emergency and fire exits from Lead Work Area, or establish alternative exits satisfactory to Provincial Fire Marshall and local authorities having jurisdiction. Maintain extra routes from occupied areas. Place emergency exit signs at locations to clearly mark exit route. Seal emergency exit door so as not to impede use of door during emergency evacuation.

.4 At each access to work areas 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 LEAD HAZARD AREA (25 mm) NO UNAUTHORIZED ENTRY (19 mm) WEAR ASSIGNED PROTECTIVE EQUIPMENT (19 mm) BREATHING LEAD DUST MAY CAUSE SERIOUS BODILY HARM (7 mm)".

.5 Establish negative pressure in Lead Work Area.

.1 Distribute negative air units evenly throughout site.

.2 Arrange negative air units to maximize the distance between units and decontamination facilities.

.3 Provide weighted flaps in perimeter seal as necessary to provide make-up air. Operate negative pressure units continuously from completion of preparation until completion of dismantling.

.4 Replace prefilters frequently to maintain specified flow rate.

.5 Replace HEPA filter as required to maintain flow rate and integrity of unit.

.6 Provide additional negative pressure units as required to provide required negative pressure.

.7 Install and make airtight all negative air discharge ducting.

.8 Discharge into Occupied Areas only with written approval of authorities having jurisdiction.

3.2 WORK PROCEDURES

.1 Remove all grey on wooden substrate, black peeling paint, dark brown on plaster and light grey identified on Figures 2.3 and 4 of the LVM Report and Pages 8 and 9, Appendix 1 of LVM Report from the basement. Paint in other areas of the building is not lead leachate toxic and is suitable for disposal in a local Construction and Demolition facility.

.2 Place all removed scrapings, materials containing lead and leachable lead materials into separate waste containers, for proper disposal.

3.3 CLEAN-UP

.1 When active lead abatement work is taking place, there shall be continuous, ongoing clean-up to reduce the accumulation of debris, and the work site shall be cleaned at the end of each day's activities.

.2 All equipment shall be cleaned by HEPA vacuuming and detergent washing. No equipment shall be removed from the work area until it has been cleaned.

.3 All clean-up procedures, as described herein, will be completed before the removal of the poly coverings.

.4 Areas in which lead abatement operations have been completed shall be cleaned, starting at the ceilings and working down to the floors, by vacuum cleaning using a high efficiency particulate air (HEPA) filtered vacuum. After 24 hour period to allow for dust settling a wet cleaning shall be conducted with a general all purpose cleaner or a cleaner made specifically for lead. During the settling period, no entry, activity or ventilation will be permitted.

.5 Poly sheeting covering the walls, openings and floor/ground shall be sprayed and hand cleaned and HEPA-vacuumed prior to removal.

.6 The plastic sheeting shall be carefully folded from the corners and ends toward the middle and

placed into waste containers.

.7 Containers shall be stored in the designated area and disposed of by the Contractor.

.8 No dry sweeping is allowed.

.9 All supplies used during clean-up, such as mop heads, sponges, etc. shall be disposed of according to the specifications.

.10 Upon completion of removal of lead products and lead based materials, the Contractor will notify the Departmental Representative of the completion.

.11 A final check shall be carried out to ensure that no dust or debris remains on surfaces as a result of removal activities.

.12 Removal of enclosures and demolition of the structure will only commence upon approval from the authorities having jurisdiction providing accurate removal of all lead products and lead based material has been verified by the Departmental Representative.

3.4 COMPLIANCE INSPECTIONS AND AIR MONITORING

.1 The Contractor is responsible for following all applicable, legislation and the specifications to ensure the health and safety of his/her personnel.

.2 For the duration of the work, the Departmental Representative may conduct inspections and air testing for lead dust both inside and outside the work area to verify compliance to applicable regulations, guidelines and/or the specifications. The Contractor shall take measures to accommodate this work.

3.5 WASTE HANDLING AND DISPOSAL OF LEACHABLE LEAD CONCENTRATIONS

.1 The Contractor will provide the containers that are to be used for the transportation and disposal of lead materials that have leachable lead concentrations requiring disposal at a licensed hazardous waste disposal facility.

.2 The Contractor is responsible for the pickup and delivery of the containers from and to the Hazardous Materials Handling Facility.

.3 The Contractor will be responsible for the final disposal of lead waste materials that contain leachable lead concentrations requiring disposal at a licensed hazardous waste disposal facility. All waste manifests to be provided, as back-up.

.4 All other containers and the disposal of all other hazardous and non-hazardous materials is the responsibility of the Contractor except where indicated otherwise. Appropriately segregate and contain (i.e. steel drums) all lead-contaminated waste generated during the work, including protective clothing worn by workers, respirator filters, etc.

.5 All drums containing lead waste should be clearly labeled as such.

.6 Haulers and waste handlers shall be approved for the handling of hazardous waste, in accordance with the Transportation of Dangerous Goods Act, and associated regulations and requirements of regulatory Authorities having jurisdiction.