PROJECT MANUAL

EXPANSION AND REDEVELOPMENT OF THE NORTH PORTAL PORT OF ENTRY

PWGSC PROJECT R065684.001

PHASE 1 - DEMOLITION

June 28, 2016

END OF SECTION

Part 1 General

1.1 WORK COVERED BY CONTRACT DOCUMENTS

.1 Work of this Contract comprises the demolition of 3 buildings located on the North corner of the North Portal Port of Entry (Lot Numbers 106880047, 106880036 and 106880025). Refer to Demolition Plan AD-101.The scope of work includes the removal and capping of the utilities serving these buildings, without interruption of services to the existing North Portal POE and neighbors. The backfill of the areas affected by the work listed above is part of the scope of work.

.2 It is the intention of the work that all existing Port of Entry infrastructure remains in use all of the time.

1.2 CONTRACT METHOD

.1 Construct Work under stipulated price contract.

1.3 CONTRACTOR USE OF PREMISES

.1 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.

.2 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Departmental Representative.

.3 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

.1 equipment.

1.4 EXISTING SERVICES

.1 Notify, Departmental Representative and utility companies of intended interruption of services and obtain required permission.

.2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 48 hours notice for necessary interruption of mechanical or electrical service throughout course of work. Minimize duration of interruptions. Carry out work at times as directed by governing authorities with minimum disturbance to pedestrian, vehicular traffic and owner operations.

.3 Provide alternative routes for personnel, pedestrian and vehicular traffic.

.4 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.

.5 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.

.6 Provide temporary services when directed by Departmental Representative to maintain critical building and owner systems.

.7 Provide adequate bridging over trenches which cross sidewalks or roads to permit normal traffic.

.8 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.

.9 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.

.10 Record locations of maintained, re-routed and abandoned service lines.

.11 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.5 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy each document as follows:

.1 Contract Drawings.
.2 Specifications.
.3 Addenda.
.4 Change Orders.
.5 Other Modifications to Contract.
.6 Field Test Reports.
.7 Copy of Approved Work Schedule.
.8 Health and Safety Plan and Other Safety Related Documents.
.9 Other documents as specified.

Part 2 Products

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 General

1.1 ACCESS AND EGRESS

.1 Design, construct and maintain temporary "access to" and "egress from" work areas, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.

1.2 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative to facilitate work as stated.

.2 Maintain existing services to existing Port of Entry and the other of site municipal services and provide for personnel and vehicle access.

.3 Where security is reduced by work provide temporary means to maintain security.

1.3 EXISTING SERVICES

.1 Notify, Departmental Representative and utility companies of intended interruption of services and obtain required permission.

.2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.

.3 Provide for personnel, pedestrian and vehicular traffic.

.4 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.4 SPECIAL REQUIREMENTS

.1 Carry out noise generating Work Monday to Friday as per North Portal Village requirements.

.2 Submit schedule in accordance with Section 01 32 16.07 - Construction Progress Schedules - Bar (GANTT) Chart.

.3 Ensure that Contractor personnel employed on site become familiar with and obey regulations including safety, fire, traffic and security regulations.

.4 Keep within limits of work and avenues of ingress and egress.

.5 Ingress and egress of Contractor vehicles at site is limited to 2nd Street and Bowell Ave.

1.5 SECURITY CLEARANCES

.1 Personnel employed on this project will be subject to security check. Obtain clearance, as instructed, for each individual who will require to enter premises.

1.6 BUILDING SMOKING ENVIRONMENT

.1 Smoking is not allowed on site.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE

.1 Schedule and administer project meetings throughout the progress of the work at the call of Departmental Representative.

.2 Prepare agenda for meetings.

.3 Distribute written notice of each meeting 7 days in advance of meeting date to Departmental Representative.

.4 Departmental Representative will provide physical space and make arrangements for initial on site meeting further meeting will be set by Departmental Representative and may be by teleconference.

.5 Preside at meetings.

.6 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.

.7 Reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants and affected parties not in attendance including Departmental Representative.

.8 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.2 PRECONSTRUCTION MEETING

.1 Within 15 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.

.2 Departmental Representative Contractor, major Subcontractors, field inspectors and Authorities Having Jurisdiction will be in attendance.

.3 Establish time of meeting and notify parties concerned minimum 7 days before meeting. This Meetings will be held on site.

.4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.

.5 Agenda to include:

.1 Appointment of official representative of participants in the Work.

.2 Schedule of Work: in accordance with Section 01 32 16.07 - Construction Progress Schedules - Bar (GANTT) Chart.

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

.4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.

.5 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

.6 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.

.7 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.

.8 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.

.9 Monthly progress claims, administrative procedures, photographs, hold backs.

.10 Appointment of inspection and testing agencies or firms.

.11 Insurances, transcript of policies.

1.3 CLOSE OUT MEETINGS

.1 During course of Work and 1 week prior to project completion, schedule progress meetings.

.2 Contractor, major Subcontractors involved in Work Departmental Representative are to be in attendance.

.3 Notify parties minimum 7 days prior to meetings.

.4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 3 days after meeting.

.5 Agenda to include the following:

.1 Review, approval of minutes of previous meeting.

.2 Review of Work progress since previous meeting.

.3 Field observations, problems, conflicts.

.4 Problems which impede construction schedule.

.5 Corrective measures and procedures to regain projected schedule.

.6 Revision to construction schedule.

.7 Progress schedule, during succeeding work period.

.8 Review submittal schedules: expedite as required.

.9 Maintenance of quality standards.

.10 Review proposed changes for affect on construction schedule and on completion date.

.11 Other business.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE

.1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Do not proceed with Work affected by submittal until review is complete.

.3 Present shop drawings, product data, samples and mock-ups in SI Metric units.

.4 Where items or information is not produced in SI Metric units converted values are acceptable.

.5 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.

.6 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.7 Verify field measurements and affected adjacent Work are co-ordinated.

.8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.

.9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.

.10 Keep one reviewed copy of each submission on site.

1.2 SHOP DRAWINGS AND PRODUCT DATA

.1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.2 Submit shop drawings bearing stamp and signature of qualified professional engineer registered or licensed in Province of Saskatchewan, Canada.

.3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

.4 Allow 7 days for Departmental Representative's review of each submission.

.5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.

.6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.

.7 Accompany submissions with transmittal letter, in, containing:

- .1 Date.
- .2 Project title and number.
- .3 Contractor's name and address.
- .4 Identification and quantity of each shop drawing, product data and sample.
- .5 Other pertinent data.

.8 Submissions include:

- .1 Date and revision dates.
- .2 Project title and number.
- .3 Name and address of:
  - .1 Subcontractor.
  - .2 Supplier.
  - .3 Manufacturer.
- .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
- .5 Details of appropriate portions of Work as applicable:
  - .1 Fabrication.
  - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
  - .3 Setting or erection details.
  - .4 Capacities.
  - .5 Performance characteristics.
  - .6 Standards.
  - .7 Operating weight.
  - .8 Wiring diagrams.
  - .9 Single line and schematic diagrams.
  - .10 Relationship to adjacent work.

.9 After Departmental Representative's review, distribute copies.

.10 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.

.11 Submit 1electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.

.12 Submit 1 electronic copies of test reports for requirements requested in specification Sections and as requested by Departmental Representative.

.1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.

.2 Testing must have been within 7 days done prior time of constructionof the project.

.13 Submit 1 electronic copy of certificates for requirements requested in specification Sections and as requested by Departmental Representative.

.1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.

.2 Certificates must be dated after award of project contract complete with project name.

.14 Submit 1 electronic copy of manufacturers instructions for requirements requested in specification Sections and as requested by Departmental Representative.

.1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.

.15 Submit 1 electronic copy of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.

.1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

.16 Submit 1 electronic copy of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.

.17 Supplement standard information to provide details applicable to project.

.18 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

.19 The review of shop drawings by Departmental Representative is for sole purpose of ascertaining conformance with general concept.

.1 This review shall not mean that Departmental Representative approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.

.2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

1.3 PROGRESS PHOTOGRAPHS

.1 Submit progress photographs as follows: a series of site photographs showing progress at the end the work day. Photographs to be submitted to Departmental Representative, electronically.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

1.2 REFERENCES

.1 Definitions:

.1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.

.2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

.2 Reference Standards:

.1 U.S. Environmental Protection Agency (EPA)/Office of Water

.1 EPA 832/R-92-005-92, Storm Water Management for Construction Activities, Chapter 3.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Prior to commencing construction activities or delivery of materials to site, provide Environmental Protection Plan for review and approval by Departmental Representative.

.3 Ensure Environmental Protection Plan includes comprehensive overview of known or potential environmental issues to be addressed during construction.

.4 Address topics at level of detail commensurate with environmental issue and required construction task[s].

.5 Include in Environmental Protection Plan:

.1 Name[s] of person[s] responsible for ensuring adherence to Environmental Protection Plan.

.2 Name[s] and qualifications of person[s] responsible for manifesting hazardous waste to be removed from site.

.3 Name[s] and qualifications of person[s] responsible for training site personnel.

.4 Descriptions of environmental protection personnel training program.

.5 Erosion and sediment control plan identifying type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.

.6 Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.

.7 Traffic Control Plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Ensure plans include measures to minimize amount of mud transported onto paved public roads by vehicles or runoff.

.8 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Ensure plan includes measures for marking limits of use areas and methods for protection of features to be preserved within authorized work areas.

.9 Spill Control Plan including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.

.10 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.

.11 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, are contained on project site.

.12 Contaminant Prevention Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.

.13 Waste Water Management Plan identifying methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.

1.4 FIRES

.1 Fires and burning of rubbish on site not permitted..

1.5 DRAINAGE

.1 Provide Erosion and Sediment Control Plan identifying type and location of erosion and sediment controls provided. Ensure plan includes monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations[, EPA 832/R-92-005, Chapter 3 requirements.

.2 Ensure pumped water into waterways, sewer or drainage systems is free of suspended materials.

.3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.6 SITE CLEARING AND PLANT PROTECTION

.1 Protect trees and plants on site and adjacent properties as indicated.

.2 Wrap in burlap, trees and shrubs adjacent to construction work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2 m minimum.

.3 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.

.4 Minimize stripping of topsoil and vegetation.

.5 Restrict tree removal to areas indicated or designated by Departmental Representative.

1.7 POLLUTION CONTROL

.1 Maintain temporary erosion and pollution control features installed under this Contract.

.2 Control emissions from equipment and plant to local authorities' emission requirements.

.3 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.8 NOTIFICATION

.1 Departmental Representative will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.

.2 Contractor: after receipt of such notice, inform Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative.

.1 Do not take action until after receipt of written approval by Departmental Representative.

.3 Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.

.4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 CLEANING

.1 Clean in accordance with Section 01 74 11 - Cleaning.

.2 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.3 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials disposal.

END OF SECTION

Part 1 General

1.1 REFERENCES AND CODES

.1 Perform Work in accordance with National Building Code of Canada (NBC) including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.

.2 Meet or exceed requirements of:

.1 Contract documents.

.2 Specified standards, codes and referenced documents.

1.2 HAZARDOUS MATERIAL DISCOVERY

.1 Asbestos: demolition of spray or trowel-applied asbestos is hazardous to health. Stop work immediately when material resembling spray or trowel-applied asbestos is encountered during demolition work. Notify Departmental Representative.

.2 PCB: Polychlorinated Biphenyl: stop work immediately when material resembling Polychlorinated Biphenyl is encountered during demolition work. Notify Departmental Representative.

.3 Mould: stop work immediately when material resembling mould is encountered during demolition work. Notify Departmental Representative.

1.3 BUILDING SMOKING ENVIRONMENT

.1 Comply with smoking restrictions and municipal by-laws.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian Green Building Council (CaGBC)

.1 LEED Canada-NC Version 1.0-[December 2004], LEED (Leadership in Energy and Environmental Design): Green Building Rating System For New Construction and Major Renovations.

.2 U.S. Environmental Protection Agency (EPA) / Office of Water

.1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.2 SUBMITTALS

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

1.3 INSTALLATION AND REMOVAL

.1 Provide temporary utilities controls in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.4 DEWATERING

.1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

1.5 WATER SUPPLY

.1 Arrange for connection with appropriate utility company and pay costs for installation, maintenance and removal.

1.6 TEMPORARY POWER AND LIGHT

.1 Arrange for connection with appropriate utility company. Pay costs for installation, maintenance and removal.

.2 Provide and maintain temporary lighting throughout project.

1.7 TEMPORARY COMMUNICATION FACILITIES

.1 Provide and pay for temporary telephone, fax, data, hook up, line[s] necessary for own use.

1.8 FIRE PROTECTION

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

.2 Burning rubbish and construction waste materials is not permitted on site.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to [requirements of authorities having jurisdiction] [sediment and erosion control drawings] [sediment and erosion control plan, specific to site, that complies with EPA 832/R-92-005 or requirements of authorities having jurisdiction, whichever is more stringent].

.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.

.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian Construction Documents Committee (CCDC)

.1 CCDC 2-[1994], Stipulated Price Contract.

.2 Canadian Green Building Council (CaGBC)

.1 LEED Canada-NC Version 1.0-[December 2004], LEED (Leadership in Energy and Environmental Design): Green Building Rating System For New Construction and Major Renovations.

.3 Canadian General Standards Board (CGSB)

.1 CAN/CGSB 1.189-[00], Exterior Alkyd Primer for Wood.

.2 CGSB 1.59-[97], Alkyd Exterior Gloss Enamel.

.4 Canadian Standards Association (CSA International)

.1 CSA-A23.1/A23.2-[04], Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.

.2 CSA-0121-[M1978(R2003)], Douglas Fir Plywood.

.3 CAN/CSA-S269.2-[M1987(R2003)], Access Scaffolding for Construction Purposes.

.4 CAN/CSA-Z321-[96(R2001)], Signs and Symbols for the Occupational Environment.

.5 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as of: May 14, 2004.

.6 U.S. Environmental Protection Agency (EPA) / Office of Water

.1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.2 SUBMITTALS

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

1.3 INSTALLATION AND REMOVAL

.1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.

.2 Identify areas which have to be gravelled to prevent tracking of mud.

.3 Indicate use of supplemental or other staging area.

.4 Provide construction facilities in order to execute work expeditiously.

.5 Remove from site all such work after use.

1.4 SCAFFOLDING

.1 Scaffolding in accordance with CAN/CSA-S269.2.

.2 Provide and maintain scaffolding, ladders, platforms, temporary stairs.

1.5 SITE STORAGE/LOADING

.1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.

1.6 CONSTRUCTION PARKING

.1 Parking will be permitted on site provided it does not disrupt performance of Work.

.2 Provide and maintain adequate access to project site.

.3 Clean runways and taxi areas where used by Contractor's equipment.

1.7 OFFICES

.1 Provide marked and fully stocked first-aid case in a readily available location.

.1 Maintain in clean condition.

1.8 EQUIPMENT, TOOL AND MATERIALS STORAGE

.1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.

.2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.9 SANITARY FACILITIES

.1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.

.2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.10 CONSTRUCTION SIGNAGE

.1 Provide and erect project sign, within three weeks of signing Contract, in a location designated by Departmental Representative.

.2 Construction sign 1.2 x 2.4 m, of wood frame and plywood construction painted with exhibit lettering produced by a professional sign painter.

.3 Indicate on sign, name of Owner, Contractor, of design style established by Departmental Representative.

.4 No other signs or advertisements, other than warning signs, are permitted on site.

.5 Provide project identification site sign comprising foundation, framing, and one 1200 x 2400 mm signboard as detailed and as described below.

.1 Foundations: 15 MPa concrete to CSA-A23.1 minimum 200 mm x 900 mm deep.

.2 Framework and battens: SPF, pressure treated minimum 89 x 89 mm.

.3 Signboard: 19 mm Medium Density Overlaid Douglas Fir Plywood to CSA O121.

.4 Paint: alkyd enamel to CAN/CGSB-1.59 over exterior alkyd primer to CAN/CGSB 1.189.

.5 Fasteners: hot-dip galvanized steel nails and carriage bolts.

.6 Vinyl sign face: printed project identification, self adhesive, vinyl film overlay.

.6 Locate project identification sign as directed by Departmental Representative and construct as follows:

.1 Build concrete foundation, erect framework, and attach signboard to framing.

.2 Paint surfaces of signboard and framing with one coat primer and two coats enamel. Colour white on signboard face, black on other surfaces.

.3 Apply vinyl sign face overlay to painted signboard face in accordance with installation instruction supplied.

.7 Direct requests for approval to erect Consultant/Contractor signboard to Departmental Representative. For consideration general appearance of Consultant/Contractor signboard must conform to project identification site sign. Wording in both official languages.

.8 Signs and notices for safety and instruction in both official languages Graphic symbols to CAN/CSA-Z321.

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

1.11 PROTECTION AND MAINTENANCE OF TRAFFIC

.1 Provide access and temporary relocated roads as necessary to maintain traffic.

.2 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.

.3 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs

.4 Protect travelling public from damage to person and property.

.5 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.

.6 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.

.7 Construct access and haul roads necessary.

.8 Haul roads: constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided.

.9 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.

.10 Dust control: adequate to ensure safe operation at all times.

.11 Location, grade, width, and alignment of construction and hauling roads: subject to approval by Departmental Representative.

.12 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.

.13 Provide snow removal during period of Work.

.14 Remove, upon completion of work, haul roads designated by Departmental Representative.

1.12 CLEAN-UP

.1 Remove construction debris, waste materials, packaging material from work site daily.

.2 Clean dirt or mud tracked onto paved or surfaced roadways.

.3 Store materials resulting from demolition activities that are salvageable.

.4 Stack stored new or salvaged material not in construction facilities.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of sediment and erosion control plan, specific to site, that complies with EPA 832/R-92-005 or requirements of authorities having jurisdiction, whichever is more stringent.

.2 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian General Standards Board (CGSB)

.1 CGSB 1.59-[97], Alkyd Exterior Gloss Enamel.

.2 CAN/CGSB 1.189-[00], Exterior Alkyd Primer for Wood.

.2 Canadian Standards Association (CSA International)

.1 CSA-O121-[M1978(R2003)], Douglas Fir Plywood.

.3 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as Of: May 14, 2004.

1.2 INSTALLATION AND REMOVAL

.1 Provide temporary controls in order to execute Work expeditiously.

.2 Remove from site all such work after use.

1.3 HOARDING

.1 Provide one lockable truck entrance gate and at least one pedestrian door as directed and conforming to applicable traffic restrictions on adjacent streets. Equip gates with locks and keys.

.2 Erect and maintain pedestrian walkways including roof and side covers, complete with signs and electrical lighting as required by law.

.3 Erect temporary site enclosure using new 2.1 m high snow fence wired to rolled steel "T" bar fence posts spaced at 2.4 m on centre. Provide one lockable truck gate. Maintain fence in good repair.

.4 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.

1.4 GUARD RAILS AND BARRICADES

.1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs.

.2 Provide as required by governing authorities.

1.5 ACCESS TO SITE

.1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.6 PUBLIC TRAFFIC FLOW

.1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect public.

1.7 FIRE ROUTES

.1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.8 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

.1 Protect surrounding private and public property from damage during performance of Work.

.2 Be responsible for damage incurred.

1.9 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Owner's identification of existing survey control points and property limits.

1.2 SURVEY REFERENCE POINTS

.1 Backfill existing level to match existing grade..

1.3 SURVEY REQUIREMENTS

.1 Establish two permanent bench marks on site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.

.2 Establish lines and levels, locate and lay out, by instrumentation.

.3 Stake for grading, fill.

.4 Stake slopes.

1.4 EXISTING SERVICES

.1 Before commencing work, establish location and extent of service lines in area of Work and notify Departmental Representative of findings.

.2 Remove abandoned service lines within 2 m of structures. Cap or otherwise seal lines at cut-off points as directed by Departmental Representative.

1.5 LOCATION OF EQUIPMENT AND FIXTURES

.1 Location of equipment, fixtures and outlets indicated or specified are to be considered as approximate.

.2 Locate equipment, fixtures and distribution systems to provide minimum interference and maximum usable space and in accordance with manufacturer's recommendations for safety, access and maintenance.

.3 Inform Departmental Representative of impending installation and obtain approval for actual location.

.4 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

1.6 RECORDS

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

.2 Record locations of maintained, re-routed and abandoned service lines.

1.7 SUBMITTALS

.1 Submit name and address of Surveyor to Departmental Representative.

.2 On request of Departmental Representative, submit documentation to verify accuracy of field engineering work.

1.8 SUBSURFACE CONDITIONS

.1 Promptly notify Consultant in writing if subsurface conditions at Place of Work differ materially from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian Construction Documents Committee (CCDC)

.2 Public Works Government Services Canada, Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions "C", In Effect as Of: May 14, 2004.

1.2 PROJECT CLEANLINESS

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by Owner or other Contractors.

.2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.

.3 Clear snow and ice from access to building, remove from site.

.4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.5 Provide on-site containers for collection of waste materials and debris.

.6 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.7 Dispose of waste materials and debris at designated dumping areas on Crown property.

.8 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

1.3 FINAL CLEANING

.1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.

.2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.

.3 Prior to final review remove surplus products, tools, construction machinery and equipment.

.4 Remove waste products and debris other than that caused by Owner or other Contractors.

.5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.

.6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.7 Sweep and wash clean paved areas.

.8 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

.9 Remove snow and ice.

1.4 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 WASTE MANAGEMENT GOALS

.1 Prior to start of Work conduct meeting with Departmental Representative to review and discuss PWGSC's Waste Management Plan and Goals.

.2 PWGSC's Waste Management Goal is to divert the maximum amount of material from the landfill sites as possible.

.3 Accomplish maximum control of solid construction waste.

.4 Preserve environment and prevent pollution and environment damage.

1.2 DEFINITIONS

.1 Class III: non-hazardous waste - construction renovation and demolition waste.

.2 Cost/Revenue Analysis Workplan (CRAW): based on information from WRW, and intended as financial tracking tool for determining economic status of waste management practices.

.3 Demolition Waste Audit (DWA): relates to actual waste generated from project.

.4 Inert Fill: inert waste - exclusively asphalt and concrete.

.5 Materials Source Separation Program (MSSP): consists of series of ongoing activities to separate reusable and recyclable waste material into material categories from other types of waste at point of generation.

.6 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.

.7 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.

.8 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

.9 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:

.1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.

.2 Returning reusable items including pallets or unused products to vendors.

.10 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.

.11 Separate Condition: refers to waste sorted into individual types.

.12 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.

.13 Waste Audit (WA): detailed inventory of materials in building. Involves quantifying by volume/weight amounts of materials and wastes generated during construction, demolition, deconstruction, or renovation project. Indicates quantities of reuse, recycling and landfill. Refer to Schedule A.

.14 Waste Management Co-ordinator (WMC) : contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.

.15 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. Refer to Schedule B. WRW is based on information acquired from WA (Schedule A).

1.3 DOCUMENTS

.1 Maintain at job site, one copy of following documents:

- .1 Waste Audit.
- .2 Waste Reduction Workplan.
- .3 Material Source Separation Plan.
- .4 Schedules [A] [B] [C] [D] [E] completed for project.

1.4 SUBMITTALS

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

.2 Prepare and submit following prior to project start-up:

- .1 Submit [3] [three] copies of completed Waste Audit (WA): Schedule A.
- .2 Submit [3] [three] copies of completed Waste Reduction Workplan (WRW): Schedule B.
- .3 Submit [3] [three] copies of completed Demolition Waste Audit (DWA): Schedule C.
- .4 Submit [3] [three] copies of Cost/Revenue Analysis Workplan (CRAW): Schedule D.
- .5 Submit [3] [three] copies of Materials Source Separation Program (MSSP) description.

.3 Submit before final payment summary of waste materials salvaged for reuse, recycling or disposal by project using deconstruction/disassembly material audit form.

- .1 Failure to submit could result in hold back of final payment.
- .2 Provide receipts, scale tickets, waybills, and show quantities and types of materials reused, recycled , co-mingled and separated off-site or disposed of.
- .3 For each material reused, sold or recycled from project, include amount in tonnes, quantities by number, type and size of items, and the destination.
- .4 For each material land filled or incinerated from project, include amount in tonnes of material and identity of landfill, incinerator or transfer station.

1.5 WASTE AUDIT (WA)

.1 Conduct WA prior to project start-up.

.2 Prepare WA: Schedule A.

.3 Record, on WA - Schedule A, extent to which materials or products used consist of recycled or reused materials or products.

1.6 WASTE REDUCTION WORKPLAN (WRW)

.1 Prepare WRW prior to project start-up.

.2 WRW should include but not limited to:

.1 Destination of materials listed.
.2 Deconstruction/disassembly techniques and sequencing.
.3 Schedule for deconstruction/disassembly.
.4 Location.
.5 Security.
.6 Protection.
.7 Clear labelling of storage areas.
.8 Details on materials handling and removal procedures.
.9 Quantities for materials to be salvaged for reuse or recycled and materials sent to landfill.

.3 Structure WRW to prioritize actions and follow 3R's hierarchy, with Reduction as first priority, followed by Reuse, then Recycle.

.4 Describe management of waste.

.5 Identify opportunities for reduction, reuse, and recycling of materials. Based on information acquired from WA.

.6 Post WRW or summary where workers at site are able to review content.

.7 Set realistic goals for waste reduction, recognize existing barriers and develop strategies to overcome these barriers.

.8 Monitor and report on waste reduction by documenting total volume and cost of actual waste removed from project.

1.7 DEMOLITION WASTE AUDIT (DWA)

.1 Prepare DWA prior to project start-up.

.2 Complete DWA: Schedule C.

.3 Provide inventory of quantities of materials to be salvaged for reuse, recycling, or disposal.

1.8 COST/REVENUE ANALYSIS WORKPLAN (CRAW)

.1 Prepare CRAW: Schedule D.

1.9 MATERIALS SOURCE SEPARATION PROGRAM (MSSP)

.1 Prepare MSSP and have ready for use prior to project start-up.

.2 Implement MSSP for waste generated on project in compliance with approved methods and as reviewed by Departmental Representative.

.3 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.

.4 Provide containers to deposit reusable and recyclable materials.

.5 Locate containers in locations, to facilitate deposit of materials without hindering daily operations.

.6 Locate separated materials in areas which minimize material damage.

.7 Collect, handle, store on-site, and transport off-site, salvaged materials in separate condition.

.1 Transport to [approved and authorized recycling facility] [to users of material for recycling].

.8 Collect, handle, store on-site, and transport off-site, salvaged materials in combined condition.

.1 Ship material[s] to site operating under Certificate of Approval.

.2 Materials must be immediately separated into required categories for reuse or recycling.

1.10 WASTE PROCESSING SITES

.1 Dispose of materials not designated for salvage or reuse, as instructed by Departmental Representative at authorized facilities approved in Waste Reduction Workplan.

1.11 STORAGE, HANDLING AND PROTECTION

.1 Store, materials to be reused, recycled and salvaged in locations as directed by Departmental Representative.

.2 Unless specified otherwise, materials for removal do not become Contractor's property.

.3 Protect, stockpile, store and catalogue salvaged items.

.4 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.

.5 Protect structural components not removed for demolition from movement or damage.

.6 Support affected structures. If safety of building is endangered, cease operations and immediately notify Departmental Representative.

.7 Protect surface drainage, mechanical and electrical from damage and blockage.

.8 Separate and store materials produced during dismantling of structures in designated areas.

.9 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.

.1 On-site source separation is recommended.

.2 Remove co-mingled materials to off-site processing facility for separation.

.3 Provide waybills for separated materials.

1.12 DISPOSAL OF WASTES

.1 Do not bury rubbish or waste materials.

.2 Do not dispose of waste, volatile materials, mineral spirits, oil, paint thinner into waterways, storm, or sanitary sewers.

.3 Keep records of construction waste including:

.1 Number and size of bins.

.2 Waste type of each bin.

.3 Total tonnage generated.

.4 Tonnage reused or recycled.

.5 Reused or recycled waste destination.

.4 Remove materials from deconstruction as deconstruction/disassembly Work progresses.

.5 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in pre-demolition material audit.

1.13 USE OF SITE AND FACILITIES

.1 Execute work with least possible interference or disturbance to normal use of premises.

.2 Maintain security measures established by existing facility provide temporary security measures approved by Departmental Representative.

1.14 SCHEDULING

.1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 APPLICATION

.1 Do Work in compliance with WRW.

.2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

3.2 CLEANING

.1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.

.2 Clean-up work area as work progresses.

.3 Source separate materials to be reused/recycled into specified sort areas.

3.3 DIVERSION OF MATERIALS – Not used

3.4 WASTE AUDIT (WA)

.1 Schedule A - Waste Audit (WA):

(1) Material Category	(2) Material Quantity Unit	(3) Estimated Waste %	(4) Total Quantity of Waste (unit)	(5) Generation Point	(6) % Recycled	(7) % Reused
Wood and Plastics Material Description Off-cuts Warped Pallet Forms Plastic Packaging Cardboard Packaging Other						
Doors and Windows Material Description Painted						

(1) Material Category	(2) Material Quantity Unit	(3) Estimated Waste %	(4) Total Quantity of Waste (unit)	(5) Generation Point	(6) % Recycled	(7) % Reused
Frames						
Glass						
Wood						
Metal						
Other						

3.5 WASTE REDUCTION WORKPLAN (WRW)

.1 Schedule B:

(1) Material Category	(2) Person(s) Respon-sible	(3) Total Quantity of Waste (unit)	(4) Reused Amount (units) Projected	Actual	(5) Recycled Amount (unit) Projected	Actual	(6) Material(s) Destina-tion
Wood and Plastics Material Descriptio n							
Chutes							
Warped Pallet Forms							
Plastic Packag ing							
Card-board Packag ing							
Other							
Doors and Windows Material Descriptio n							
Painted Frames							
Glass							
Wood							
Metal							
Other							

3.6 DEMOLITION WASTE AUDIT (DWA)

.1 Schedule C - Demolition Waste Audit (DWA):

(1) Material Description	(2) Quantity	(3) Unit	(4) Total	(5) Volume (cum)	(6) Weight (cum)	(7) Remarks and Assumptions
Wood						
Wood Stud						
Plywood						
Baseboard-Wood						
Door Trim - Wood						
Cabinet						
Doors and Windows						
Panel Regular						
Slab Regular						
Wood						
Laminate						
Byfold - Closet						
Glazing						

3.7 COST/REVENUE ANALYSIS WORKPLAN (CRAW)

.1 Schedule D - Cost/Revenue Analysis Workplan (CRAW):

(1) Material Description	(2) Total Quantity (unit)	(3) Volume (cum)	(4) Weight (cum)	(5) Disposal Cost/Credit $(+/-)	(6) Category Sub-Total $(+/-)
Wood					
Wood Stud					
Plywood					
Baseboard - Wood					
Door Trim - Wood					
Cabinet					$
Doors and Windows					
Panel Regular					
Slab Regular					
Wood					
Laminate					
Byfold - Closet					
Glazing					$
		(7) Cost (-) / Revenue (+)			$

3.8 CANADIAN GOVERNMENTAL DEPARTMENTS CHIEF RESPONSIBILITY FOR THE ENVIRONMENT

.1 Schedule E - Government Chief Responsibility for the Environment:

Saskatchewan	Saskatchewan Environment and Resource Management 3211 Albert Street Regina SK S4S 5W6	306-787-2700	306-787-3941

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 Section Includes.

.1 Methods and procedures for demolishing, salvaging, recycling and removing sitework items designated to be removed in whole or in part, and for backfilling resulting trenches and excavations.

.2 Sustainable requirements for construction and verification.

1.2 REFERENCES

.1 Canadian Council of Ministers of the Environment (CCME).

.1 PN1326, Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products.

.2 Department of Justice Canada (Jus).

.1 Canadian Environmental Assessment Act (CEAA), 1995, c. 37.

.2 Canadian Environmental Protection Act, 1999 (CEPA), c. 33.

.3 Health Canada/Workplace Hazardous Materials Information System (WHMIS).

.1 Material Safety Data Sheets (MSDS).

.4 Transport Canada (TC).

.1 Transportation of Dangerous Goods Act, 1992 (TDGA), c. 34.

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.

.3 Waste Audit (WA): detailed inventory of materials in building. Indicates quantities of reuse, recycling and landfill.

.1 Involves quantifying by volume/weight amounts of materials and wastes generated during construction, demolition, deconstruction, or renovation project.

.2 Indicates quantities of reuse, recycling and landfill.

.4 Waste Management Coordinator (WMC): contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.

.5 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. WRW is based on information acquired from WA.

1.4 SUBMITTALS

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

.2 Coordinate submittal requirements and provide submittals required by Section 01 47 15 - Sustainable Requirements: Construction.

.3 Product Data: submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 02 81 01 - Hazardous Materials and Section 01 47 15 - Sustainable Requirements: Construction.

.4 Shop drawings.

.1 Submit for approval drawings, diagrams or details showing sequence of demolition work and supporting structures and underpinning, where required by authorities having jurisdiction.

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

.6 Waste Reduction Workplan: prior to beginning of Work on site submit detailed Waste Reduction Workplan in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal and indicate:

.1 Descriptions of and anticipated quantities in percentages, of materials to be salvaged reused, recycled and landfilled.

.2 Schedule of selective demolition.

.3 Number and location of dumpsters.

.4 Anticipated frequency of tippage.

.5 Name and address of waste facilities and waste receiving organizations.

.7 Certificates: submit copies of certified weigh bills, bills of lading receipts from authorized disposal sites and reuse and recycling facilities for material removed from site on weekly basis, upon request of Departmental Representative.

.1 Written authorization from Departmental Representative is required to deviate from haulers facilities receiving organizations, listed in Waste Reduction Workplan.

1.5 QUALITY ASSURANCE

.1 Regulatory Requirements: ensure Work is performed in compliance with CEPA, CEAA, TDGA, and applicable Provincial/Territorial regulations.

.2 Site Meetings.

.1 Refer to Section 01 31 19 Project Meeting

.1 Verify project requirements.

.2 Review installation and substrate conditions.

.3 Co-ordination with other building subtrades.

.2 Arrange for site visit with Departmental Representative to examine existing site conditions adjacent to demolition work, prior to start of Work.

.3 Hold project meetings . Refer to Section 01 31 19.

.4 Ensure key personnel site supervisor and project manager, subcontractor representatives, WMC attend.

.5 Reporting Requirements: WMC to complete.

.6 WMC must provide written report on status of waste diversion activity at each meeting.

.7 Departmental Representative will provide written notification of change to meeting schedule established upon contract award 48 hours prior to scheduled meeting.

.3 Health and Safety.

.1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.6 DELIVERY, STORAGE AND HANDLING

.1 Storage and Protection.

.1 Protect existing items designated to remain and items designated for salvage. In event of damage to such items, immediately replace or make repairs to approval of Departmental Representative and at no cost to Departmental Representative.

.2 Remove and store materials to be salvaged, in manner to prevent damage.

.3 Store and protect in accordance with requirements for maximum preservation of material.

.4 Handle salvaged materials as new materials.

.2 Waste Management and Disposal.

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

.2 Divert excess materials from landfill to site approved by Departmental Representative.

.3 Separate for reuse and recycling and place in designated containers, Steel, Metal, Plastic, waste in accordance with Waste Management Plan.

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

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

.6 Label location of salvaged material's storage areas and provide barriers and security devices.

.7 Ensure emptied containers are sealed and stored safely.

.8 Source separate for recycling materials that cannot be salvaged for reuse including wood, metal, concrete and asphalt, and gypsum.

.9 Remove materials that cannot be salvaged for reuse or recycling and dispose of in accordance with applicable codes at licensed facilities.

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.

.2 Existing Conditions.

.1 Remove contaminated or hazardous materials as defined by authorities having jurisdiction 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 See 1.3.2.

1.8 SCHEDULING

.1 Employ necessary means to meet project time lines without compromising specified minimum rates of material diversion.

.1 Notify Departmental Representative in writing when unforeseen delay[s] occurs.

Part 2 Products

2.1 EQUIPMENT

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

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.

.4 Disconnect and Cap Mechanical Services.

.1 Natural Gas Supply Lines: remove in accordance with gas company requirements.

.2 Sewer and Water Lines: remove to property line in accordance with authority having jurisdiction and securely plug to form watertight seal.

.3 Other Underground Services: remove and dispose of as directed by Departmental Representative .

.4 Underground Storage Tanks: remove and dispose of in accordance with CCME PN1326 and directions of Departmental Representative and Section 02 65 00 - Underground Storage Tank Removal.

3.2 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.

3.3 REMOVAL OPERATIONS

.1 Remove items as indicated.

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

.3 Removal of Pavements, Curbs and Gutters:

.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.

.3 Protect underlying and adjacent granular materials.

.4 Prevent contamination with base course aggregates, when removing asphalt pavement for subsequent incorporation into hot mix asphalt concrete paving,

.5 Excavate at least 300 mm below pipe invert, when removing pipes under existing or future pavement area.

.6 Decommission water wells and monitoring wells in accordance with Municipal, Provincial, Territorial guidelines and regulations.

.7 Remove designated trees during demolition.

.1 Obtain written approval of Departmental Representative prior to removal of trees not designated.

.8 Donate trees designated for removal and identified by Departmental Representative to be healthy.

.1 Grind, chip, or shred other vegetation for mulching and composting, or use as mill pulp.

.9 Stockpile topsoil for final grading and landscaping.

.1 Provide erosion control and seeding if not immediately used.

.10 Salvage.

.1 Dismantle items containing materials for salvage and stockpile salvaged materials at locations as indicated by Departmental Representative.

.11 Disposal of Material.

.1 Dispose of materials not designated for salvage or reuse on site as instructed by Departmental Representative at authorized facilities approved in Waste Reduction Workplan.

.2 Trim disposal areas to approval of Departmental Representative.

.12 Backfill.

.1 Backfill in areas as indicated.

3.4 STOCKPILING

.1 Label stockpiles, indicating material type and quantity.

.2 Designate appropriate security resources/measures to prevent vandalism, damage and theft.

.3 Locate stockpiled materials convenient for use in new construction to eliminate double handling wherever possible.

.4 Stockpile materials designated for alternate disposal in location which facilitates removal from site and examination by potential end markets, and which does not impede disassembly, processing, or hauling procedures.

3.5 REMOVAL FROM SITE

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

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

.3 Transport material designated for alternate disposal using approved haulers, facilities, receiving organizations, listed in Waste Reduction Workplan and in accordance with applicable regulations.

.1 Written authorization from Departmental Representative is required to deviate from haulers, facilities, receiving organizations listed in Waste Reduction Workplan.

.4 Dispose of materials not designated for alternate disposal in accordance with applicable regulations.

.1 Disposal Facilities: approved and listed in Waste Reduction Workplan.

.2 Written authorization from Departmental Representative is required to deviate from disposal facilities listed in Waste Reduction Workplan.

3.6 RESTORATION

.1 Restore areas and existing works outside areas of demolition to conditions that existed prior to beginning of Work, 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.

3.7 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.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 Methods and procedures for demolition of structures, parts of structures, basements and foundation walls and includes abandonment and removal of septic tanks and tanks containing petroleum products.

1.2 REFERENCES

.1 Canadian Council of Ministers of the Environment (CCME).

- .1 CCME PN1055-1993, Environmental Code of Practice for Underground Storage Tank Systems Containing Petroleum Products and Allied Petroleum Products.
- .2 CCME PN1148-1994, Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products.

.2 Canadian Standards Association (CSA International).

- .1 CSA S350-M1980(R1998), Code of Practice for Safety in Demolition of Structures.

.3 Department of Justice Canada (Jus).

- .1 Canadian Environmental Assessment Act (CEAA), 1992, c. 37.
- .2 Canadian Environmental Protection Act (CEPA), 1999, c. 33.
  - .1 SOR/2003-2, On-Road Vehicle and Engine Emission Regulations.
- .3 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34.

.4 Underwriters' Laboratories of Canada (ULC).

- .1 ULC/ORD-C107.19-[1992], Secondary Containment of Underground Piping.
- .2 ULC/ORD-C58.15-[1992], Overfill Protection Devices for Underground Tanks.
- .3 ULC/ORD-C58.19-[1992], Spill Containment Devices for Underground Tanks.

.5 U.S. Environmental Protection Agency (EPA)/Code of Federal Regulations (CFR), Title 40 - Protection of Environment, Chapter 1, Subchapter C - AIR, Part 86 - CONTROL OF EMISSIONS FROM NEW AND IN-USE HIGHWAY VEHICLES AND ENGINES.

- .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.

1.3 DEFINITIONS

.1 Hazardous Materials: dangerous substances, dangerous goods, hazardous commodities and hazardous products, may include but not limited to: 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.

.2 Waste Management Co-ordinator (WMC): contractor representative responsible for supervising waste management activities as well as co-ordinating related, required submittal and reporting requirements.

.3 Waste Audit (WA): detailed inventory of materials in building. Involves quantifying by volume/weight amounts of materials and wastes generated during construction, demolition, deconstruction, or renovation project. Indicates quantities of reuse, recycling and landfill.

.4 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. WRW is based on information acquired from WA.

1.4 SUBMITTALS

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

.2 The WMC is responsible for fulfilment of reporting requirements.

.3 Prior to beginning of Work on site submit detailed Waste Reduction Workplan in accordance with Section [01 74 21 - Construction/Demolition Waste Management And Disposal and indicate:

.1 Descriptions of and anticipated quantities in percentages of materials to be salvaged reused, recycled and landfilled.

.2 Schedule of selective demolition.

.3 Number and location of dumpsters.

.4 Anticipated frequency of tippage.

.5 Name and address of haulers, waste facilities, waste receiving organizations.

.4 Submit copies of certified weigh bills, bills of lading, receipts from authorized disposal sites and reuse and recycling facilities for material removed from site on a weekly basis upon request of Departmental Representative.

.1 Written authorization from Departmental Representative is required to deviate from facilities and / or receiving organizations listed in Waste Reduction Workplan.

.5 Where required by authorities having jurisdiction, submit for approval drawings, diagrams or details showing sequence of demolition work and supporting structures and underpinning.

1.5 QUALITY ASSURANCE

.1 Regulatory Requirements: Ensure Work is performed in compliance with CEPA, CEAA, TDGA, and applicable Provincial/Territorial and Municipal regulations.

.2 Meetings:

.1 Prior to start of Work arrange for site visit with Departmental Representative to examine existing site conditions adjacent to demolition work.

.2 Hold project meeting per Section 01 31 19.

.3 Ensure site supervisor, project manager, subcontractor representatives, WMC attend.

.4 WMC must provide written report on status of waste diversion activity at each meeting.

.5 Departmental Representative will provide written notification of change to meeting schedule established upon contract award 48 hours prior to scheduled meeting.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.

.2 Divert excess materials from landfill to site approved by Departmental Representative.

1.7 ENVIRONMENTAL PROTECTION

.1 Ensure Work is done in accordance with Section 01 35 43 - Environmental Procedures.

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

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

.4 Do not bury rubbish waste materials.

.5 Do not dispose of waste or 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 project.

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

.7 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with authorities having jurisdiction.

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

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

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

1.8 EXISTING CONDITIONS

.1 Should material resembling spray or trowel applied asbestos or other designated substance listed as hazardous be encountered in course of demolition, stop work, take preventative measures, and notify Departmental Representative immediately. Do not proceed until written instructions have been received.

1.9 SCHEDULING

.1 Employ necessary means to meet project time lines without compromising specified minimum rates of material diversion.

.1 In event of unforeseen delay notify Departmental Representative in writing.

Part 2 Products

2.1 EQUIPMENT

.1 Equipment and heavy machinery to:

.1 On-road vehicles to meet applicable emission requirements as prescribed in CEPA-SOR/2003-2, On-Road Vehicle and Engine Emission Regulations.

.2 Off-road vehicles to meet applicable emission requirements as prescribed in EPA CFR 86.098-10 and EPA CFR 86.098-11.

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

Part 3 Execution

3.1 PROTECTION

.1 Prevent movement, settlement or damage of adjacent structures, services, walks, paving, trees, landscaping, adjacent grades, parts of existing building to remain.

.1 Provide bracing, shoring and underpinning as required.

.2 Repair damage caused by demolition as directed by Departmental Representative.

.2 Support affected structures and, if safety of structure being demolished or adjacent structures or services appears to be endangered, take preventative measures, stop Work and immediately notify Departmental Representative.

.3 Prevent debris from blocking surface drainage system, elevators, mechanical and electrical systems which must remain in operation.

3.2 PREPARATION

.1 Disconnect and re-route electrical and telephone service lines entering buildings to be demolished.

.1 Post warning signs on electrical lines and equipment which must remain energized to serve other properties during period of demolition.

.2 Disconnect and cap mechanical services.

.1 Natural gas supply lines: remove in accordance with gas company requirements.

.2 Sewer and water lines: remove to property line in accordance with authority having jurisdiction, and / or directed by Departmental Representative.

.3 Other underground services: remove and dispose of as directed by Departmental Representative in accordance with Section 33 71 73.02 - Underground Electrical Service.

.3 Septic Tanks:

.1 Pump out buried septic tanks, left in place. Fill with sand.

.2 Remove tanks within area indicated.

.3 Removal in accordance with CCME, Code of Practice PN1055.

.4 Underground storage tanks and piping: Remove and dispose in accordance with Section 02 65 00 - Underground Storage Tank Removal as directed and CCME PN1055, ULC/ORD-C107.19 ULC/ORD-C58.15 and ULC/ORD-C58.19.

.5 Do not disrupt active or energized utilities traversing premises.

.6 Remove rodent and vermin as required by Departmental Representative.

3.3 SAFETY CODE

.1 Do demolition work in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

.2 Blasting operations not permitted during demolition.

3.4 REMOVAL OF HAZARDOUS WASTES

.1 Remove contaminated or dangerous materials 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 Prior to start of demolition work remove contaminated or hazardous materials listed as hazardous as defined by authorities having jurisdiction from site and dispose of at designated disposal facilities in safe manner and in accordance with TDGA and other applicable requirements and Section 02 81 01 - Hazardous Materials. Refer Existing Conditions in Part 1.

3.5 DEMOLITION

.1 Demolish structures.

.2 Crush concrete generated due to demolition of foundations to size suitable for recycling.

.1 Where possible, identify markets which will accept crushed material as aggregate.

.2 For further information regarding acceptable uses contact Provincial/Territorial aggregate producers associations.

.3 Demolish basement, foundation walls and footings, and concrete floors below or on grade within areas of new construction.

.4 Use as backfill in open excavations provided voids are filled. Remove from open excavations pieces of concrete and masonry not larger than 50 mm broken from demolition work.

.1 Keep demolition fill 900 mm below finished grade level.

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

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

.7 Demolish to minimize dusting. Keep materials wetted as directed by Departmental Representative.

.8 Demolish masonry and concrete walls in pieces suitable for reuse as specified.

.9 Remove structural framing.

.10 Contain fibrous materials (e.g. Insulation) to minimize release of airborne fibres while being transported within facility.

.11 Do not dispose materials in landfill or waste stream destined for landfill.

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

.13 Use natural lighting to do Work where possible.

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

3.6 STOCKPILING

.1 Label stockpiles, indicating material type and quantity.

.2 Designate appropriate security resources/measures to prevent vandalism, damage and theft.

.3 Locate stockpiled materials convenient for use in new construction. Eliminate double handling wherever possible.

.4 Stockpile materials designated for alternate disposal in location which facilitates removal from site and examination by potential end markets, and which does not impede disassembly, processing, or hauling procedures.

.5 Separate from general waste stream each of following materials. Stockpile materials in neat and orderly fashion in location and as directed by Departmental Representative for alternate disposal. Stockpile materials in accordance with applicable fire and safety regulations.

.1 Glass fibre ceiling tiles.

.2 Wood fibre ceiling tiles.

.3 Power source poles deemed unfit for reuse by Departmental Representative.

.4 Wiring and conduit.

.5 Outlets/switches.

.6 Floor receptacles.

.7 Metal duct work, baffles, HVAC equipment.

.8 Demountable partitions.

.9 Drapes.

.10 Tracks and blinds.

.11 Insulation batts.

.12 Miscellaneous metals.

.13 Carpet.

.6 Supply separate, clearly marked disposal bins for categories of waste material.

3.7 REMOVAL FROM SITE

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

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

.3 Transport material designated for alternate disposal using approved haulers, facilities, receiving organizations listed in Waste Reduction Workplan and in accordance with applicable regulations.

.1 Written authorization from Departmental Representative is required to deviate from haulers, facilities, receiving organizations listed in Waste Reduction Workplan.

.4 Dispose of materials not designated for alternate disposal in accordance with applicable regulations.

.1 Disposal facilities must be those approved of and listed in Waste Reduction Workplan.

.2 Written authorization from Departmental Representative is required to deviate from disposal facilities listed in Waste Reduction Workplan.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian Environmental Protection Act,1999 (CEPA 1999).

.2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.3 National Fire Code of Canada, [2005].

.4 Transportation of Dangerous Goods Act (TDGA), [1999] c. 34.

.5 Transportation of Dangerous Goods Regulations (TDGR), T-19.01-SOR/2003-400.

.6 Storage of PCB Material Regulations, SOR/92-507.

.7 PCB Waste Export Regulations, 1996, SOR/97-109.

.8 Ozone-Depleting Substances Regulations, SOR/99-07.

.9 Environmental Code of Practice on Halons, July 1996.

.10 Environmental Code of Practice for Elimination of Fluorocarbon Emissions from Refrigeration and Air Conditioning Systems, March 1996.

1.2 DEFINITIONS

.1 Toxic: substance is considered toxic if it is listed on Toxic Substances List found in Schedule 1 of CEPA.

.2 List of Toxic Substances: found in Schedule 1 of CEPA, lists substances that have been assessed as toxic. Federal Government can make regulations with respect to a substance specified on List of Toxic Substances. Column II of this list identifies type of regulation applicable to each substance.

.3 PCBs: includes chlorobiphenyls referred to in Column I of item 1 of the List of Toxic Substances in Schedule I of Canadian Environmental Protection Act.

1.3 SUBMITTALS

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

.2 Product Data:

.1 Submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 02 81 01 - Hazardous Materials.

.2 Submit photocopy of shipping documents and waste manifests to Departmental Representative when shipping toxic wastes off site.

.3 Maintain 1copy of product data in readily accessible file on site.

1.4 DELIVERY, STORAGE, AND HANDLING

.1 Store and handle toxic wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.

.2 Store and handle flammable and combustible wastes in accordance with current National Fire Code of Canada requirements.

.3 Co-ordinate storage of toxic wastes with Departmental Representative and follow internal requirements for labelling and storage of wastes.

.4 Observe smoking regulations, smoking is prohibited in area where toxic wastes are stored, used, or handled.

.5 Only certified persons who have successfully completed Environment Canada Environmental Awareness Course for Environmentally Safe Handling of Refrigerants are permitted to work on refrigeration and air conditioning systems.

.6 Report spills or accidents involving toxic wastes immediately to Departmental Representative and to appropriate regulatory authorities. Take reasonable measures to contain the release while ensuring health and safety is protected.

.7 Transport toxic wastes in accordance with federal Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.

.8 Use authorized/licensed carrier to transport toxic waste.

.9 Co-ordinate transportation and disposal of toxic wastes with Departmental Representative.

.10 Notify appropriate regulatory authorities and obtain required permits and approvals prior to exporting toxic waste.

.11 Dispose of toxic wastes generated on site in accordance with applicable federal and provincial acts, regulations, and guidelines.

.12 Ensure toxic waste is shipped to authorized/licensed treatment or disposal facility and that liability insurance requirements are met.

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

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian Council of Ministers of the Environment (CCME)

.1 CCME PN 1299, Canadian Environmental Quality Guidelines.

.1 Chapter 7, Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health.

.2 Canadian Federal Legislation

.1 Canadian Environmental Protection Act (CEPA), 1999, c. 33.

.2 Canadian Environmental Assessment Act (CEAA), 1995, c. 37.

.3 Canada Labour Code (R.S. 1985, c. L-2).

.1 Part II (September 2000) - Occupational Health and Safety.

.4 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide the following information on storage tank:

.1 Former contents.

.2 Location.

.3 Reason for removal.

.2 Provide Departmental Representative with copy of vapour removal test results.

.3 Forward affidavit of destruction of underground storage tank[s] to authority having jurisdiction.

1.3 QUALITY ASSURANCE

.1 Contractor must be licensed/certified by Provincial authorities having jurisdiction for removal of underground storage tanks.

.1 License/certificate, title and number must accompany tender document.

.2 Regulatory Requirements: ensure Work is performed in compliance with applicable Provincial/Territorial regulations.

1.4 DELIVERY, STORAGE AND HANDLING

.1 Dispose of material off site to Provincially licensed waste facility.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 PREPARATION SAFETY AND SECURITY

.1 Conform to or exceed Federal, Provincial and Territorial codes, local municipal by-laws, by-laws, and codes and regulations of utility authorities having jurisdiction.

.2 Protection:

- .1 Meet safety requirements of Occupational Safety and Health, Canada Labour Code Part II and Regulations for Construction Projects.
- .2 Disconnect or remove source of ignition from vicinity of tank.
- .3 Provide temporary protection for safe movement of personnel and vehicle traffic.
- .4 Cut, braze or weld metal only in monitored areas established to be free of ignitable vapour concentrations.
- .5 Ground and bond metal equipment, including tanks and transfer pipes, before operating equipment or transferring flammable materials.
- .6 Use non-sparking tools and intrinsically safe electrical equipment.
- .7 Smoking is not permitted.

3.2 DRAINING

.1 Drain and flush piping into tank.

.2 Pump out liquid from tank

- .1 Use explosion proof, air driven or hand pump.

.3 Remove sludge from tank bottom.

- .1 Dispose of product and sludge in accordance with local, Provincial regulations using waste disposal carrier licensed by Provincial Environmental Agency having jurisdiction.

3.3 EXCAVATION TRENCHING AND BACKFILL

.1 Do work in accordance with Section 31 00 99 – Earthwork for Minor Works.

.2 Provide protective material around excavation.

.3 Provide constant supervision during excavation and backfilling.

.4 Excavation:

- .1 Excavate until top of tank and connections and openings are exposed.
- .2 Disconnect piping:
  - .1 Remove fill tube.
  - .2 Disconnect fill gauge, product and vent lines.
  - .3 Cap or plug open ends of lines that are not to be used further.
  - .4 Remove piping from ground.
- .3 Temporarily plug tank openings.
- .4 Continue excavation until tank is completely exposed.

.5 Temporarily stockpile on site soil in vicinity of tank, until waste classification can be established prior to final disposal.

.5 Prevent movement, settlement or damage of adjacent services, trees, landscaping and adjacent grades. Provide shoring as required.

3.4 TANK REMOVAL

.1 Remove tank in accordance with CCME Code of Practice PN 1326 and/or applicable provincial standards and regulations, and place in secure location.

.2 Block tank to prevent movement.

.3 Contact Departmental Representative immediately if there is evidence of contamination in tank excavation, stop Work until further notice.

.4 Remove and replace contaminated soil and accumulated flammable or combustible liquid with backfill in accordance with Section 31 00 99 – Earthwork for Minor Works.

3.5 VAPOUR REMOVAL

.1 Air Method:

.1 Ventilate tank with air using small gas exhauster operated with compressed air.

.2 Air to enter opening at one end and to exit opening at other end to quickly remove vapour.

.3 Test interior of tank to determine when tank is free of vapour.

3.6 CAPPING

.1 Plug holes after tank has been freed of vapours and before tank is moved from site.

.1 Leave vents open.

.2 Plug corrosion leak holes using screwed (boiler) plugs.

.3 Leave 3 mm vent hole in one plug to prevent tank from being subjected to excessive pressure differential caused by extreme temperature change.

3.7 SECURING AND REMOVAL FROM SITE

.1 Check vapour levels prior to transport:

.1 Remove vapour if required.

.2 Dispose of tank in accordance with local Provincial regulations.

.3 Truck removal:

.1 Secure tank on truck for transport to disposal site.

.2 Cut suitable openings in tank sides to render tank unusable.

.3 Ensure 3 mm vent hole located at uppermost point on tank.

END OF SECTION

Part 1 General

1.1 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 to 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 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.3 National Fire Code of Canada [2005].

.4 Transportation of Dangerous Goods Act, 1992 (TDG Act) [1999], (c. 34).

.5 Transportation of Dangerous Goods Regulations (SOR/2001-286).

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit 3 copies of WHMIS MSDS in accordance with Section 02 81 01 - Hazardous Materials.

.1 Provide hazardous materials management plan to Departmental Representative that identifies hazardous materials, usage, location, personal protective equipment requirements, and disposal arrangements.

1.3 DELIVERY, STORAGE AND HANDLING

.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 out of vicinity of open flames or heat-producing devices.

.7 Solvents and cleaning agents must 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 mixed.

.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.

1.4 TRANSPORTATION

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

.2 If hazardous waste is generated on site:

.1 Co-ordinate transportation and disposal with Departmental Representative.

.2 Ensure compliance with applicable federal, provincial and municipal laws and regulations for generators of hazardous waste.

.3 Use licensed carrier authorized by provincial authorities to accept subject material.

.4 Prior to shipping material obtain written notice from intended hazardous waste treatment or disposal facility that it will accept material and that it is licensed to accept this material.

.5 Label container[s] with legible, visible safety marks as prescribed by federal and provincial regulations.

.6 Ensure that trained personnel handle, offer for transport, or transport dangerous goods.

.7 Provide photocopy of shipping documents and waste manifests to Departmental Representative.

.8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide a photocopy of completed manifest to Departmental Representative.

.9 Report discharge, emission, or escape of hazardous materials immediately to Departmental Representative and appropriate provincial authority. Take reasonable measures to control release.

Part 2 Products

2.1 MATERIALS

.1 Allow hazardous materials on site only in quantities required to perform Work.

.1 Departmental Representative 48 hours minimum prior to bringing hazardous materials onto work site.

.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 WASTE MANAGEMENT

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

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

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

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

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

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

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

.8 Identify and evaluate recycling and reclamation options as alternatives to land disposal, such as:

.1 Hazardous wastes recycled in manner constituting disposal.

.2 Hazardous waste burned for energy recovery.

.3 Lead-acid battery recycling.

.4 Hazardous wastes with economically recoverable precious metals.

END OF SECTION

Part 1 General

1.1 SUMMARY

.1 This specification covers the removal and disposal of asbestos-containing and asbestos-contaminated materials. Work will include the removal of all settled dust, over spray and debris materials.

.2 Furnish all labour, materials, services, insurance and equipment, in accordance with requirements of Occupational Health and Safety Regulations Part XXIII Asbestos, Saskatchewan Environment and Resources Management (SERM) and other regulatory agencies to complete the work of this section.

.3 Work will be subject to frequent inspection and air monitoring by the Consultant.

.4 Quantities and site conditions to be confirmed by the Contractor. Notify the Consultant of any discrepancies or suspect asbestos materials discovered during the Work.

.5 Results of tests of asbestos containing materials to be handled, removed, or otherwise disturbed and disposed of during this Project are included in the report bound into this specification at end of this Section ("Environmental Report").

1.2 SCOPE OF WORK

.1 Following Moderate Risk procedures, remove and dispose of vinyl sheet flooring with asbestos-containing paper backing from the main floor bathroom (approximately 5.4 m^2).

.2 Following High Risk procedures; remove and dispose of all asbestos-containing loose-fill vermiculite insulation and associated asbestos-contaminated materials within the main floor ceiling (approximately 26.68 m^2) and second floor attic space and walls (approximately 28.40 m^2). Include the fallen vermiculite debris as indicated in the Environmental Report.

1.3 REGULATIONS, CODES AND STANDARDS

.1 The current issue of the following regulations and guidelines shall govern. Where conflict among these requirements or with these specifications exist, the more stringent requirements shall apply.

.1 The Occupational Health and Safety Act and Regulations.

.2 Saskatchewan Environment and Resources Management (SERM).

.3 Transportation of Dangerous Goods Regulations.

.2 The current issue of the following codes and standards shall govern. Where conflict among these requirements or with these specifications exist, the more stringent requirements shall apply.

.1 ANSI/ASME N510-1980 Testing of Nuclear Air-Cleaning Systems and/or NSF Standard Number 49.

.2 CGSB 1-GP-205M Standard for: Sealer for Application to Asbestos-Fibre Releasing Materials.

.3 CSA Standard Z94.4-M2003, Selection, Care, and Use of Respirators

.4 CSA Standard CAN3Z180.1-M85, Compressed Breathing Air and Systems

.5 CSA Standard S269.2-M1980, Scaffolding Construction

1.4 QUALITY ASSURANCE

.1 The removal and handling of asbestos-containing or contaminated materials shall be performed by persons experienced in the methods, procedures, and industry practices of asbestos abatement.

.2 The Contractor is responsible to ensure that work proceeds to schedule, meeting all requirements of this section. The Contractor shall complete this work so that at no time shall airborne asbestos, waste or asbestos waste-water runoff contaminate areas adjacent to work areas.

.3 The Consultant is empowered by the Owner to inspect adherence to specified work procedures and materials and to inspect for final cleanliness and completion. Additional labour or materials expended by the Contractor to provide satisfactory performance to the level specified shall be at no additional cost.

.4 The Consultant is empowered by the Owner to order a shutdown of work when a leakage of asbestos-containing or contaminated materials has occurred or is likely to occur. These conditions include, but are not limited to, failure of negative pressure systems, inadequate wetting, failure of critical barriers or decontamination enclosure systems, water leaks, excessive airborne fibre levels in areas adjacent to the work area or in clean room or holding room areas and the contamination of clean room or holding room areas by asbestos-containing or asbestos-contaminated materials. Additional labour or materials to rectify these or other unsatisfactory conditions shall be at no cost to the Owner.

.5 Inspection and air monitoring services performed as a result of the Contractor's failure to conform to specified procedures or level of cleanliness, as determined by the Consultant at the time of a milestone inspection, may be charged to the Contractor at the Consultant's discretion.

.6 All work of this section involving electrical, mechanical or plumbing work shall be performed by skilled tradesmen regularly engaged in the work in question and under the direct supervision of a currently qualified journeyman.

.7 Provide on-site a project supervisor, who has authority to oversee all aspects of the work of this section including the estimation and negotiation of changes to the contract, submission requirements, scheduling, man power requirements, equipment requirements and production.

.8 Provide on-site, for each shift, a shift supervisor who is outside of the containment, who has authority to oversee all aspects of the work of this section related to manpower requirements, equipment requirements and production.

.9 Replacement of supervisory personnel cannot be undertaken without the written approval of the Consultant.

1.5 SUBMITTALS

.1 Before commencing work Contractor shall:

.1 Submit proof satisfactory to the Consultant that the site location, required permits and arrangements for transport and disposal of asbestos-containing or contaminated materials have been obtained. Ensure required manifest documentation regarding disposal is submitted in accordance with these specifications.

.2 Submit written and individually signed forms to the Consultant establishing that all personnel have received instruction on the hazards of asbestos exposure, and work procedures. Submit to the Consultant, documentation of respirator fit tests conducted for all personnel entering the removal site.

.3 Not later than 14 days before beginning the process, submit notice of the intention to begin a high risk asbestos process to Saskatchewan Labour. Submit copy to Consultant.

.4 Submit to the Consultant, manufacturer's information, including test results, material safety data sheets and product specifications, of all materials and equipment proposed for use on this project.

.5 Submit certification or other documentation, acceptable to the Consultant, certifying all air movement and vacuum equipment, intended for use on this project have had a filter integrity test. Negative air units used for High Risk work must have the filter integrity test conducted on a per project basis. Vacuums must be tested with the last 12 months.

.6 Prepare and submit work procedures and asbestos control plan.

1.6 SITE SUPERVISION

.1 During time of hazardous material handling (work at risk of dislodging asbestos-containing material) supervisory personnel shall co-ordinate work and take full responsibility for the health and safety of all personnel working within contaminated areas.

.2 The Contractor shall employ at least one supervisory person within the enclosure and one outside at all times.

.3 Contractor shall ensure supervisory personnel has attended a training course on asbestos removal (two day minimum duration) and has performed a supervisory function on at least two comparable projects in occupied buildings.

1.7 SCHEDULING OF WORK

.1 The Contractor shall prepare and submit the construction schedule for review by the Consultant one week prior to the start of work. The schedule shall include milestone inspections and all other critical events relating to the work of this section and the work of others. The construction schedule shall incorporate Substantial Performance dates, turnover dates respecting related work elsewhere and time constraints as outlined by the building Owner.

.2 The work of this section shall be conducted in the number of phases agreed upon with the client. The work of this section shall be conducted between the hours agreed upon with the client.

.3 The work of this section must comply with the General Contract and Owner's requirements with regard to working hours, phasing, access restrictions and operational requirements.

.4 The Contractor shall allow sufficient time for fibre settling and final air monitoring (minimum 8 hours) following each stage of removal.

.5 The Contractor shall ensure Consultants approval of work area preparation and clean-up is obtained as specified.

.6 The Contractor shall allow sufficient time for inspection of site by Consultant following site preparations and prior to the execution of the work of this section.

1.8 DEFINITIONS

.1 Abatement: procedures to control fibre release from asbestos-containing materials. Includes encapsulation, repair, removal.

.2 Removal: all herein specified procedures necessary to strip all asbestos-containing materials from the designated areas and to dispose of these materials at an acceptable site.

.3 Encapsulation: all herein specified procedures necessary to coat all asbestos-containing materials with an encapsulant to control the possible release of asbestos fibres into the ambient air.

.4 Enclosure: all herein specified procedures necessary to complete the enclosure of all asbestos-containing materials within airtight, impermeable barriers.

.5 Repair: all herein specified procedures necessary to complete containment of all asbestos-containing material using materials impermeable to the release of asbestos fibre.

.6 Authorised Visitor: Owner and/or his appointed representative, Consultant and persons representing regulatory agencies.

.7 Work Area: Areas where work at risk of increasing airborne fibre is to take place.

.8 Negative Pressure: Air pressure within the work area resulting from air movement equipment established in the area to maintain a minimum pressure differential of 0.50 mm (0.02 inches) of water column relative to adjacent unsealed areas.

.9 Airlock: System for permitting ingress and egress without permitting air movement between contaminated area and uncontaminated area, typically consisting of two curtain doorways at least 1800 mm (6 feet) apart.

.10 Curtain Doorway: Device to allow ingress and egress from one room to another while permitting minimal air movement between rooms, typically constructed by placing two overlapping sheets of plastic over existing or temporarily framed doorway, securing each along top of doorway, securing vertical edge of one sheet along one vertical side of doorway, and securing vertical edge of other sheet along opposite vertical side of doorway. Free edges of polyethylene shall be reinforced with duct tape and bottom edge shall be weighted to ensure automatic closing.

.11 Filter Integrity Test: leak testing using liquid dioctylphthalate (DOP) or polyalphaolefin (PAO) generated into an aerosol used for challenging HEPA filter assemblies.

.12 Critical Barrier: A barrier constructed of a 38 mm by 89 mm timber framework, covered on both sides with 6 mil plastic sheeting, taped along all free edges and interfaces to prevent the movement of airborne asbestos fibre from the contaminated work area to adjacent uncontaminated areas. Exposed surfaces in public service areas shall be sheathed with plywood. Plywood to be finished with white, eggshell latex paint.

.13 Contaminated: defines the state of materials, surfaces or areas which by virtue of physical contact with asbestos-containing materials or with airborne asbestos fibre shall require cleaning, removal and/or disposal, as specified in this section.

.14 Air Monitoring: the process of measuring the fibre content of a specific volume of air in a stated period of time.

.15 Surfactant: a chemical wetting agent added to water to improve penetration, thus reducing the quantity of water required for a given operation or area.

.16 Amended Water: a water to which a surfactant has been added.

.17 Decontamination Enclosure: a series of connected rooms, with curtained doorways between any two adjacent rooms, for the decontamination of workers or of materials and equipment. A decontamination enclosure system always contains at least one airlock.

.18 Worker Decontamination Area: a decontamination area for workers, typically consisting of a clean area, bucket of clean tepid water, soap and towels.

.19 Equipment Decontamination Area: a decontamination area for materials and equipment, typically consisting of a designated area of the work area, a wash area, a holding area, and an uncontaminated area.

.20 Clean Area: an uncontaminated area or room which is part of the worker decontaminated area, with provisions for storage of workers' street clothes and protective equipment.

.21 Equipment Room: a contaminated area or room which is part of the worker decontamination area, with provisions for storage of contaminated clothing and equipment.

.22 Wash Area: an area between the work area and the holding area in the equipment decontamination area. The wash area may comprise an airlock.

.23 Holding Area: a chamber between the wash area and an uncontaminated area in the equipment decontamination area. The holding area may comprise an airlock.

.24 Fixed Object: a unit of equipment or furniture in the work area which cannot be removed from the work area.

.25 Moveable Object: a unit of equipment or furniture in the work area which can be removed from the work area.

.26 HEPA Filter: a throwaway extended-pleated-medium dry-type filter with (1) a rigid casing enclosing the full depth of the pleats, (2) a minimum removal efficiency of 99.97% for thermally generated monodisperse DOP smoke particles with a diameter of 0.3 micrometers and (3) a maximum pressure drop of 1.0 in w.g. when clean and operating at its rated airflow capacity.

.27 Encapsulant (Sealant): a liquid material which can be applied to asbestos-containing material and which controls the possible release of asbestos fibres from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant).

.28 Wet Cleaning: the process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with water, and by afterwards disposing of these cleaning tools as asbestos-contaminated waste.

.29 Crated: solid self-supporting structure built over equipment or materials of sufficient strength to protect same from damage or contamination for the duration of the work of this section. A 38 mm x 89 mm (2"x 4") timber frame covered with plastic sheeting and hoarded with 10 mm (3/8") plywood shall be standard of acceptance.

.30 Milestone Inspection: inspection of the work area by the Consultant at a defined point in the abatement procedure.

.31 Immediate Vicinity: a four (4) foot area surrounding an asbestos application or either side of a line application or such an area as defined by the Consultant.

.32 Threshold Limit Value (TLV) as published by the American Congress of Governmental Industrial Hygienists (ACGIH). The TLV = 0.1 f/cc for all fibre types.

.33 Investigative Criteria: the airborne fibre level in fibres per cubic centimetre of air (f/cc) which corresponds with one half of the TLV. If high levels continue after corrective measures are taken, work must immediately stop until the reasons for the high levels are identified and corrected.

1.9 PERSONAL PROTECTION

.1 For high risk work, Full-face piece, Powered Air Purifying Respirators with P100 filters shall be used by all workers. For moderate risk work, Half-face piece, Air Purifying Respirators with P100 filters shall be used by all workers.

.2 Respirators shall be personally issued and approved by the National Institute of Occupational Health and Safety (NIOSH). A review of respiratory protection requirements may be necessary, as dictated by air monitoring results obtained by the Consultant.

.3 Provide workers, including other sub-trades, with full-body disposable coveralls. Once coveralls are worn in work area, they shall be treated as asbestos contaminated waste and disposed of accordingly. Provide other body protection, including CSA approved safety footwear, required under applicable safety regulations.

.4 Provide two complete sets of protective clothing and respirators must be present at all times outside the entrance to the work area for use by Owner and/or his appointed representative, Consultant and persons representing regulatory agencies who have authority over the project.

.5 Workers shall be clean-shaven to ensure an adequate respirator face piece seal. Unshaven workers shall not be allowed in the work area.

.6 Workers shall be fully protected with respirators and protective clothing at all times when the possibility of disturbance of asbestos exists, and when handling bags of asbestos waste.

1.10 BUILDING PROTECTION

.1 Provide lockable doors sufficient to ensure work area security in the Clean Room and in the Holding Area of Decontamination Enclosure Systems. Ensure building security at all other points of entry to the building including windows and doors demounted to accommodate the installation and exhaust of air movement equipment used through the work of this section.

.2 Ensure building security, prior to leaving the facilities, by reactivating alarm systems and contacting appropriate security agencies.

.3 The Contractor shall be responsible to make good all building systems and finishes damaged through the work of this section.

1.11 AIR MONITORING

.1 Air monitoring shall be performed by the Consultant in accordance with NIOSH 7400.

.2 The Contractor shall assist the Consultant in the collection of air samples including the provision of workers to wear sampling pumps for up to a full work shift period and the provision of adequate, uninterrupted power for low amperage vacuum/pressure type pumps.

.3 Allow sufficient time for fibre settling and final air monitoring (minimum 8 hours) following each phase of removal.

.4 Airborne fibre levels found, in excess of the "shut down criteria", in areas adjacent to the work area or in clean room or holding room areas, shall indicate asbestos contamination of these areas. Such areas shall be isolated and cleaned in a manner similar to the work area, at no additional cost to the Owner. Such areas shall be considered to be contaminated until acceptable airborne fibre levels are established in the area.

.5 Airborne fibre levels found, in excess of “investigative criteria”, in areas adjacent to the work area or in clean room or holding room areas, shall initiate an investigation by the Contractor and the Consultant into the source of excess airborne fibre levels.

.6 Where airborne fibre levels in the work area exceed the Action Level or Maximum Use Concentration for the respiratory protective equipment observed in use, the Consultant shall take measures outlined in Quality Assurance.

.7 Air monitoring within the work area to establish acceptable clearance and tear down conditions shall be conducted following a visual inspection, approval of work area clean-up procedures and the application of a slow drying sealer to all surfaces within the work area. Acceptable air clearance levels have been established by Saskatchewan Labour at <0.01 f/cc.

1.12 INSPECTION

.1 The Consultant has been retained by the Owner to periodically inspect site conditions and work procedures inside and outside of the work area.

.2 The Consultant has been retained by the Owner to perform the following milestone inspections:

.1 Milestone Inspection A - Pre-contamination inspection of work area preparation and set-up prior to disturbance and removal of asbestos-containing or asbestos-contaminated materials.

.2 Milestone Inspection B - Visual clearance inspection of work area following clean-up work procedures but prior to final tear-down procedures.

.3 Milestone Inspection C - Air clearance inspection and air monitoring of work area following Milestone Inspection B and the application of a slow drying sealer in the work area but prior to final tear-down procedures.

Part 2 Products and facilities

2.1 MATERIALS

.1 Deliver all materials and disposable equipment in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name. Material that becomes contaminated with asbestos shall be disposed of in accordance with the applicable regulations.

.2 Plastic sheet: of 0.25 mm (10 mil) and 0.15 mm (6 mil) thick polyethylene, unless otherwise specified, sized to minimise the frequency of joints.

.3 Reinforced polyethylene: polyethylene or polyolefin materials, coated on each side, with a unit weight equivalent to or exceeding 107 g/sq. m (4.6oz/sq. yd) and 12 mil thick.

.4 Duct Tape: Suitable for sealing polyethylene to surfaces encountered and to itself under both wet and dry conditions including use of amended water.

.5 Wetting agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether or other product approved by Consultant mixed with water in concentration to provide total penetration and wetting of asbestos fibre.

.6 Amended water: Water with non ionic water surfactant added for purpose of reducing surface tension to allow thorough wetting of asbestos fibre.

.7 Asbestos waste receptors: 0.25 mm minimum thickness labelled polyethylene. Container must be acceptable to disposal site selected and provincial Ministry of Environment.

.8 Disposable coveralls: Standard of acceptance - Full body coveralls with attached hood, manufactured by Dupont Tyvek, Kimberley Clarke or approved equal.

.9 Warning labels and signs: delineating entry and protective equipment requirements and providing warning of the potential health effects of exposure to airborne asbestos fibre.

.10 Encapsulant: an encapsulant and or lagging adhesive meeting the requirements of CAN/CGSB 1.205-94. Standard of acceptance is Childers CP240.

2.2 TOOLS AND EQUIPMENT

.1 Spray equipment for application of amended water or slow drying sealer: Standard of Acceptance-Grayco Hydraspray Airless spray unit.

.2 HEPA vacuum equipment: appropriate vacuum equipment equipped with High Efficiency Particulate Absolute air filters capable of capturing and retaining 99.97% of all fibrous material 0.3 microns or larger.

.3 Removal tools: suitable tools for asbestos removal including pliable nylon brushes for the removal of base and finish application.

.4 Air Movement Equipment: low velocity, high volume centrifugal fan units enclosed in a sealed cabinet incorporating HEPA filter assemblies in their design and manufacture and conforming to specified testing and certification requirements. No air movement equipment shall discharge asbestos fibres outside the work area.

.5 Temporary Lighting: Grounded halogen light fixtures.

.6 Temporary Power: 4#8 TECK Feeder Cable and 40 A three (3) pole breaker if needed.

.7 Ground fault electrical panel: temporary service panel NBLP type 100 amp, 120/208 volt, 3 phase wire equipped exclusively with ground fault interrupter circuit.

Part 3 Execution

3.1 PREPARATION OF WORK AREA

.1 In Moderate Risk work areas:

.1 Cover all openings (windows, doors, ducts, diffusers, etc.) with polyethylene and seal with duct tape.

.2 Provide a worker decontamination area at the entrance to the work area consisting of a bucket of clean tepid water, soap and towels.

.2 In High Risk work areas:

.1 Establish critical barriers at all points of entry to the work area.

.2 Pre-clean floors with HEPA vacuum. Do not use methods that raise dust, such as dry sweeping, or vacuuming using other than HEPA vacuum equipment. Follow Moderate Risk procedures when pre-cleaning.

.3 Cover and seal all vent opening in the roof with polyethylene and tape.

.4 Seal all openings to the Work Area with polyethylene and tape.

.5 Ensure that all holes or openings in existing wall, ceiling and floor structures are adequately sealed.

.6 Construct decontamination enclosures as specified.

.7 Using HEPA filtered negative air cabinets, establish and maintain 0.02 inches negative pressure. One air change every 15 minutes shall be required. Ensure negative pressure requirements are maintained relative to pressures maintained in existing mechanical systems.

.8 Exhaust ducting from all air movement equipment installed in the work area shall extend outside of the building to areas meeting the approval of the Consultant.

.9 Air movement equipment shall operate continuously from the time of initial asbestos disturbance until approval of clean-up procedures by the Consultant or as directed by the Consultant.

.3 General Preparation Requirements:

.1 Moderate risk personnel protection procedures shall apply during work area preparation if risk of dislodging asbestos exists.

.2 De-energize building electrical systems in the work area. Identify all existing cable and conduit feeding adjacent building areas.

.3 Provide and install temporary lighting to provide one (1) lamp for every 20 square meters of work area.

.4 Remove ceiling, floor and wall mounted objects and other moveable objects which interfere with asbestos abatement. Clean and store movable objects in areas designated by the Owner or others and protect from re-contamination.

.5 Maintain emergency and fire exits from the work areas, or establish alternative exits satisfactory to fire officials.

3.2 DECONTAMINATION ENCLOSURES

.1 Worker Decontamination Unit

.1 Worker Decontamination Enclosures shall be constructed in locations approved by the Owner or Consultant.

.2 Locate switch for temporary lighting inside the clean room.

.3 Locate work area water supply shutoff inside the clean room.

.4 Build equipment and access room between shower room and contiguous with the work area, with two curtain doorways, one to shower room and to work area.

.5 Build shower room between clean room and equipment and access room, with two curtain doorways, one to clean room and one to equipment and access room. Shower rooms shall be walk through type, ensure entry and exit through actual showers by opposing doors, such that access to clean room from shower room

must be through actual showers. Contractor shall provide hot and cold water supply in each work area and must provide a minimum of two shower heads, self-activating pump for disposal of waste water and leak proof connections to water supply.

.6 Build clean room between shower room and clean areas outside of enclosures, with one curtain doorway leading to shower room and second lockable door to outside of enclosures. Provide lockers or hangers for workers' street clothes and personal belongings. Provide storage for clean protective clothing and respiratory equipment. Install mirror to permit workers to fit respiratory equipment properly. Provide one clean towel per worker per decontamination for all workers on site.

.2 Waste Transfer Enclosure

.1 Build container cleaning room between staging area and holding room with two doorways, one to staging area and one to holding room. Room shall be built of sufficient size to allow proper washing of equipment and drums and/or double bagging of asbestos waste. Wash water shall be treated as asbestos contaminated waste.

.2 Build holding room between washroom and un-contaminated area, with two curtain doorways, one to washroom and one to un-contaminated area, and a lockable door to outside of enclosures. Holding room shall be of sufficient size to accommodate largest item of equipment used and all waste containers.

.3 General Requirements for Decontamination Enclosures

.1 Construction shall be of quality and design to assure against leakage of asbestos fibres and/or water to areas outside scope of work.

.2 Build curtain doorways designed so when workers or drums and equipment move through doorway, one of two barriers comprising doorways always remains closed.

.3 Provide lockable doors at entrances to clean room and holding room of the decontamination enclosure systems.

.4 Enclosures shall be maintained in clean and tidy condition.

.5 Visually inspect enclosures regularly and at the beginning of each working period. Repair damaged barriers and remedy defects immediately upon discovery.

3.3 ASBESTOS DISTURBANCE AND REMOVAL

.1 Wetting and removal of asbestos materials shall not proceed until Milestone Inspection A (pre-contamination inspection) is undertaken by the Consultant.

.2 Moderate Risk – Vinyl Sheet Flooring

.1 Prepare site.

.2 Cut through vinyl sheet flooring in small grid pattern and wet with amended water to allow water to penetrate and saturate backing layer.

.3 Remove vinyl sheet flooring using hand tools only. Provide continuous wetting and misting of flooring materials.

.4 After completion of stripping work, wire brush and wet sponge surfaces from which asbestos has been removed to remove visible material. During this work keep surfaces wet.

.3 High Risk Asbestos Removal - Vermiculite Insulation

.1 Prepare site.

.2 Provide a continual mist of amended water, using approved spray equipment, to reduce airborne fibre levels.

.3 Vacuum vermiculite using HEPA filtered equipment or scoop loose fill insulation and package in asbestos disposal bags.

.4 After completion of bulk removal work, remove all visible material with HEPA vacuum and wet sponging.

3.4 CLEAN-UP

.1 Place asbestos waste and associated debris in sealed asbestos waste receptors. Inner bag shall be cleaned of gross contamination and placed in clean 0.25 mm suitably labelled plastic bag or drum in washroom area of the decontamination enclosure system.

.2 Wet clean or HEPA vacuum, as appropriate, all surfaces including but not limited to ceiling suspension systems, wooded ceiling joists, mechanical ducting and vents, domestic piping, electrical conduit and wiring and all horizontal and vertical surfaces within the work area.

.3 Prior to the Consultants visual inspection supervisory personnel must perform a visual inspection to ensure the work has been performed as specified.

.4 Where the Consultant decides removal of asbestos-containing material is impossible due to obstruction by structural members or major service elements, enclose the material with sheet metal affixed with sheet metal screws and caulk all edges or at the Consultant's discretion, encapsulate the material with a fire resistive sealer (bridging encapsulant) to exposed asbestos-containing materials to provide an even coat. Apply encapsulant using airless spray equipment.

.5 Notify Consultant at suitable stage of final clean-up of requirement for Milestone Inspection B (Visual Clearance Inspection) of work area. Following inspection and acceptance by the Consultant apply a coat of slow drying sealer to all surfaces in work site including plastic sheeting.

.6 All HEPA filtered negative air pressure systems, air filtration, and decontamination enclosure systems shall remain in service at this time.

.7 Allow a minimum of 8 hours for fibre settling with no disturbance of work site before air clearance monitoring. Notify Consultant of requirement for Milestone Inspection C (Air Clearance Inspection).

3.5 TEAR-DOWN

.1 Proceed with final tear-down operations when airborne fibre levels in the work area do not exceed acceptable air clearance levels (f/cc) as specified.

.2 Wet clean or HEPA vacuum entire work area including floor, wall and curtain doorway surfaces to a high standard of cleanliness.

.3 Tear-down critical barriers, plastic linings, curtain doorways and air-locks and dispose of as contaminated waste. Remove and dispose all asbestos-contaminated materials.

.4 Dispose of all cloths, mops, sponges, rags, nylon brushes, brooms and any bristled tools as asbestos waste.

.5 Wet clean and bag all boots, tools before removal from site.

.6 Clean and seal wood planks and ladders prior to removal from site.

.7 Final clean-up and dismantling procedures shall be undertaken by workers suitably protected with half face respirators equipped with HEPA filters and disposable coveralls.

3.6 REPLACEMENT AND RE-ESTABLISHMENT OF OBJECTS AND SYSTEMS

.1 When clean-up is complete, ensure that all objects and systems are re-established, including isolated or disconnected electrical and mechanical systems, HVAC systems, fire detection, building security and sprinkler systems. Reinstall, using qualified trades, windows removed to accommodate the work of this section.

3.7 DISPOSAL

.1 As work progresses, and to prevent exceeding available storage capacity on site, remove sealed and labelled asbestos waste and dispose of in an authorised disposal area in accordance with the requirements of the disposal authority.

.2 Comply with Federal, Provincial and Municipal authorities regarding the transport and disposal of asbestos waste materials.

.3 Dumpsters, lockable bins or covered vans only shall be used for the disposal of asbestos. Bins or dumpsters shall be firmly and securely covered with tarpaulins and provided with hazardous waste identification placards at all times and prior to transportation.

.4 Ensure each shipment of containers to landfill is accompanied by Contractor's representative who shall supervise dumping of containers, supply equipment operators with appropriate personal protective equipment and ensure guidelines and regulations are followed. Each load shall require completion and signing of waste manifest forms. Consignors copies of manifests to be retained by Consultant. Ensure compliance of manifest system requirements for disposal of hazardous waste.

.5 Ensure landfill operator is fully aware of hazardous material being disposed of and equipment operators have been fully briefed in management of asbestos containers after delivery to the landfill.

END OF SECTION

Part 1 General

1.1 GENERAL AND RELATED WORK

.1 This specification covers the removal and disposal of lead paint. Work will include the removal of all settled dust, paint residue and debris materials.

.2 This section shall be read in conjunction with all other sections so as to comply with the General Requirements of the Contract.

1.2 SITE CONDITIONS

.1 Painted surfaces were found to contain 892mg/kg total lead.

.1 White paint on plaster walls and ceilings, 2nd floor bedroom, 97.06 m^2.

.2 Protect workers from exposure to lead during demolition activities of lead painted materials.

.3 Quantities and site conditions to be confirmed by the Contractor. Notify the Consultant of any discrepancies or suspect asbestos materials discovered during the Work.

.4 Results of tests of lead painted materials to be handled, removed, or otherwise disturbed and disposed of during this Project are included in the report bound into this specification at end of this Section ("Environmental Report").

1.3 REGULATIONS AND GUIDELINES

.1 Comply with federal, provincial, and local requirements, provided that in any case of conflict among those requirements or with these Specifications the more stringent requirements shall apply. The following regulations and guidelines shall apply:

.1 Saskatchewan Occupational Health and Safety Regulations.

.2 Transportation of Dangerous Goods Act Regulations.

.3 Hazardous Waste Regulation, Waste Management Branch, BC Ministry of Environment.

.4 "Lead-Containing Paints and Coatings - Preventing Exposure in the Construction Industry", WorkSafe BC, 2011.

1.4 WORK CLASSIFICATION

.1 The work has been classified as Moderate Risk as per the "Lead-Containing Paints and Coatings – Preventing Exposure in the Construction Industry", WorkSafe BC, 2011.

.1 Manually demolish lead-painted plaster walls and ceilings with hand tools.

.2 For all other activities, perform a risk assessment to consider the type of activity, content of lead and any other process to determine the appropriate level of controls and classify the work. The risk assessment must be conducted by a qualified person.

1.5 SCHEDULE

.1 Co-ordinate scheduling of all work with the Owner's Representatives.

1.6 CONTRACTOR AND SUPERVISOR QUALIFICATIONS

.1 The Contractor shall have performed lead abatement work on previous projects of a similar size and scope.

.2 Provide onsite for each work shift, a Shift Superintendent who has authority regarding all aspects related to manpower, equipment and production. Shift Superintendent must hold a recognized certificate proving attendance at a lead abatement training course.

1.7 QUALITY ASSURANCE

.1 Ensure that the removal and handling of lead-contaminated materials is performed by persons experienced in the methods, procedures and industry practices of lead abatement.

.2 Ensure that work proceeds to schedule, meeting all requirements of this specification.

.3 Complete work so that at no time airborne lead, visible solid residue, or water runoff contaminate areas outside work area..

1.8 DEFINITIONS

.1 Lead Work Area: Area where work takes place which will, or may, disturb lead paint.

.2 Authorized Visitors: Building Owner, Consultant or designated representative, and persons representing regulatory agencies.

.3 Curtained Doorway: Doorway consisting of two flaps of rip-proof polyethylene.

.4 HEPA Filter: High Efficiency Particulate Aerosol filter that is at least 99.97 percent efficient in collecting a 0.3 micrometre aerosol.

.5 Occupied Area: Any area of the building outside the Lead Work Area(s).

.6 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 a continuous polyethylene membrane to protect underlying surfaces from water

damage or damage by lock-down agents, and to prevent escape of lead dusts through sheeting into Occupied Areas.

.7 Negative Pressure: A reduced pressure within the Lead Work Area established by extracting air directly from the Lead Work Area, and discharging this air outside the building.

.8 Filter Integrity Test: leak testing using liquid dioctylphthalate (DOP) or polyalphaolefin (PAO) generated into an aerosol used for challenging HEPA filter assemblies.

1.9 SUBMITTALS

.1 Prior to commencing work the contractor shall submit:

.1 Names of the Superintendent(s).

.2 Proof of worker training for lead abatement work.

.3 Detailed work procedures.

.4 Certificate proving that each worker on site has been fit-tested for the respirator appropriate for the work being performed.

.5 Results of negative air filter integrity testing.

.2 Submit at completion of the project:

.1 Waste manifests for the disposal of lead-contaminated waste.

1.10 WORKER PROTECTION

.1 General

.1 Do not eat, drink, smoke or chew gum or tobacco except in established locations outside the Lead Work Area.

.2 Workers shall be fully protected at all times when possibility of disturbance of lead paint exists.

.3 Provide and post outside of Lead Work Area the procedures described under Worker Protection.

.4 Provide washing facility (wash basin, disposable towels).

.2 Respiratory Protection

.1 Provide N95 disposable respirators for persons who are required to enter the Lead Work Area.

.2 Respiratory protective devices shall be certified by the National Institute of Occupational Safety and Health (NIOSH) or other testing agency acceptable to the regulatory agencies.

.3 Maintain respiratory equipment in proper functioning and clean condition or remove from site.

.3 Protective Clothing and Equipment

.1 Provide workers with full body protective disposable coveralls including attached head covering. Provide boot covers with non-slip sole. Once protective coveralls and boot covers are worn they must be treated as lead-contaminated waste and disposed.

.2 Utilize hard hats, safety shoes and other protective apparel required by the overall construction project and as required by regulatory agencies.

.3 Use latex or nitrile gloves for all handling of Lead.

1.11 VISITOR PROTECTION

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

.2 Ensure Authorized Visitors have received required training for entry into Lead Work Area.

1.12 MONITORING

.1 Air monitoring will be performed by the Consultant both inside and outside the Lead Work Area, following methods acceptable to Saskatchewan OHS.

.2 Surface sampling will be performed by the Consultant upon completion of clean up procedures.

1.13 INSPECTION

.1 From commencement of work until completion of clean-up operations, the Consultant will be present periodically on site both inside and outside the work area.

.2 The Consultant is empowered by the Owner to inspect adherence to specified procedures and materials, and to inspect for final cleanliness and completion. Additional labour or materials expended by the Contractor to provide performance to the level specified shall be at no additional cost.

.3 The Consultant is empowered by the Owner to order a shutdown of work when a leakage of lead from the controlled work area has occurred or is likely to occur. Additional labour or materials to rectify unsatisfactory conditions shall be at no cost to the Owner.

.4 Inspection and air monitoring performed as a result of the Contractor's failure to perform satisfactorily regarding quality, safety, or schedule, shall be back charged to the Contractor.

.5 The consultant has been retained by the Owner to perform the following milestone inspections:

.1 Milestone Inspection A - Pre-contamination inspection of work area preparation and set-up prior to disturbance and removal of lead or lead-contaminated materials.

.2 Milestone Inspection B - Visual clearance inspection of work area following clean-up work procedures. Surface testing for residual lead to verify completion of scope.

Part 2 PRODUCTS AND FACILITIES

2.1 MATERIALS AND EQUIPMENT

.1 All materials and equipment brought to work site must be in good condition and free of lead, lead debris, and fibrous materials. Disposable items must be of new materials only.

.2 HEPA Vacuum: Vacuum with necessary fittings, tools and attachments. Discharged air must pass through a HEPA filter. Only a vacuum fitted with HEPA filter can be used for work of this section.

.3 Lead Waste Container: An impermeable container acceptable to disposal site and Ministry of Environment. Labelled as required by the Ministry of Environment, 6 mil (0.15 mm) polyethylene bag.

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

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

.6 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.

.7 Sprayer: Garden reservoir type, low velocity, capable of producing mist or fine spray.

Part 3 EXECUTION

3.1 SITE PREPARATION

.1 Isolate the work area.

.1 Isolate the work area from adjacent building areas, using barricades, lead hazard warning signs or other means as appropriate.

.2 Provide 6 mil polyethylene drop sheet positioned below work area to catch all fallen debris and secure with tape.

.3 Provide a worker decontamination area at the entrance to the work area consisting of a bucket of clean tepid water, soap and towels.

.2 General Preparation Requirements:

.1 Disable air handling systems serving Lead Work Areas.

.2 Seal all openings within the Lead Work Areas using polyethylene, tape, caulking, etc., including but not limited to windows, doors, etc.

.3 Install temporary lighting in enclosure to a level that will provide for safe and efficient use of work area - minimum 50 LUX.

.4 Post signs at curtain doorways of the enclosure leading into the Lead Work Area. Such signs shall read:

CAUTION
Lead Hazard Area
No Unauthorized Entry
Wear assigned protective equipment
Breathing lead dust may cause serious bodily harm

.5 Perform all work during scheduled times after shutting down HVAC systems affecting the Lead Work Area.

.6 Protect electrical and mechanical systems within work area which may be affected by work of this Section.

.7 Notify Consultant of Milestone Inspection A - Pre-contamination Inspection prior to commencement of lead work.

3.2 MAINTENANCE OF CONTAMINATED WORK AREA

.1 Maintain enclosures in tidy condition.

.2 Ensure that Lead Abatement Work Area enclosures, barriers and polyethylene enclosures are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.

3.3 LEAD ABATEMENT

.1 Using hand tools, demolish plaster. Use water to suppress dust.

.2 Remove dust and waste and placed in lead waste containers.

.3 Vacuum and wash all surfaces in the Lead Work Area, i.e. ceilings, walls, floors, fixtures to remain, etc.

.4 Do not use compressed air to clean-up work area.

.5 Place polyethylene seals, tape, cleaning material, clothing, disposable tools and other contaminated waste in plastic bags for transportation.

.6 Remove and dispose of as lead-contaminated all debris and materials resulting from work of this Section.

.7 Clean any tools designated for re-use (ladders, hammers, etc.).

.8 Notify Consultant to perform Milestone Inspection B – Visual clearance inspection and surface testing for residual lead..

3.4 WASTE CLASSIFICATION AND DISPOSAL

.1 Retain and dispose of all waste generated by this section, in an Industrial Landfill as Hazardous Waste in accordance with SK Ministry of Environment.

.2 Transport lead-contaminated waste in accordance with federal, provincial, and local requirements.

.3 The Contractor is responsible to ensure completion of manifest for each load leaving the site.

.4 Submit waste manifest documentation to the Consultant.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 This Section includes requirements for identification, removal, preparation for disposal, transportation, and permanent disposal of mercury-containing fluorescent lamps and thermostats.

1.2 REMOVAL CONTRACTOR QUALIFICATIONS

.1 Use qualified electrician to isolate the power and for removal of fluorescent and lamps or other mercury-containing equipment.

1.3 DISPOSAL CONTRACTOR QUALIFICATIONS

.1 Handling, transportation and disposal of mercury lamps and equipment shall be performed by a Qualified Hazardous Waste disposal company.

.2 Carrier of hazardous wastes shall have successfully completed a Transportation of Dangerous Goods course acceptable to the authority having jurisdiction within the past three years.

1.4 REGULATORY REQUIREMENTS

.1 Comply with the following:

.1 Environmental Contaminants Act (Canada)

.2 Transportation of Dangerous Goods Act, 1992 (Canada)

.3 Hazardous Substances and Waste Dangerous Goods Regulations (SK).

.4 Other legislation and regulations which apply to the performance of the work of this section.

1.5 PERSONAL PROTECTIVE EQUIPMENT

.1 Provide all necessary skin, eye and respiratory protective equipment for the safe handling of mercury as per the Saskatchewan Labour OH&S Regulations.

1.6 INSPECTION

.1 The Consultant has been retained by the Owner to periodically inspect site conditions and work procedures inside and outside of the work area.

.2 The Consultant has been retained by the Owner to perform the following milestone inspections:

.1 Milestone Inspection A – Final clearance inspection of work area following the removal of mercury, but prior to removal from the site.

Part 2 Products (not used)

Part 3 Execution

3.1 EQUIPMENT REMOVAL

.1 Locate and remove fluorescent lamps and thermostats designated to be disposed of.

.2 Place all lamps and equipment into containers to prevent breakage.

.3 Provide an accurate inventory of the contents of each container including number of light tubes and lamps and an estimate of the total weight of the container in kilograms.

.4 Notify Consultant of Milestone Inspection A.

3.2 TRANSPORTATION AND PERMANENT DISPOSAL

.1 Transport mercury-containing materials in accordance with the Provincial and Federal legislation and regulations.

.2 Ensure that all mercury-containing materials are properly packaged and labeled prior to transportation.

.3 Transport hazardous waste materials in properly placarded vehicles.

.4 Each load shall be accompanied by a properly completed Transportation of Dangerous Goods Regulation (TDGR) Waste Manifest.

.5 Use an approved lamp recycling company to transport and permanently dispose of mercury-containing materials.

3.3 DOCUMENTATION

.1 Provide the Consultant a copy of each waste manifest and or a letter from the recycling agency acknowledging receipt of the materials.

END OF SECTION

Part 1 General

1.1 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data and include product characteristics, performance criteria, physical size, finish and limitations.

1.2 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.1 Site records:

.1 Departmental Representative will provide 1 set of reproducible mechanical drawings. Provide sets of white prints as required for each phase of work. Mark changes as work progresses and as changes occur.

.2 Transfer information weekly to reproducibles, revising reproducibles to show work as actually installed.

.3 Use different colour waterproof ink for each service.

.4 Make available for reference purposes and inspection.

.2 As-Built drawings:

.1 Identify each drawing in lower right hand corner in letters at least 12 mm high as follows: "AS BUILT DRAWINGS: THIS DRAWING HAS BEEN REVISED TO SHOW MECHANICAL SYSTEMS AS INSTALLED" (Signature of Contractor) (Date).

.2 Submit to Departmental Representative for approval and make corrections as directed.

.3 Indicate all remaining buried services locations not removed from site during demolition.

.4 Submit completed reproducible as-built drawings with Operating and Maintenance Manuals.

.3 Submit copies of as-built drawings for inclusion in final TAB report.

1.3 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements with manufacturer's written instructions.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

.1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

.4 Develop Construction Waste Management Plan Waste Reduction Workplan related to Work of this Section.

.5 Packaging Waste Management: As specified in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 Not Applicable

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Departmental Representative.

.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 FIELD QUALITY CONTROL

.1 Site Tests: conduct following tests in accordance with Section and submit report as described in PART 1 - ACTION AND INFORMATIONAL SUBMITTALS.

.2 Manufacturer's Field Services:

.1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - ACTION AND INFORMATIONAL SUBMITTALS.

.2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

3.3 DEMOLITION

.1 Plumbing Services - Utilities;

.1 Disconnect and remove all domestic water services and sanitary drains to allow for building demolition.

.2 Remove all abandoned piping from building and buried on site. Coordinate with local utility or Village or Portal Public Works department (Authority Having Jurisdiction) for permanent termination of services to building at property line.

.3 Remove any buried sanitary holding tanks and associated buried piping, pads, and related materials on building property. Tanks shall be demolished and removed from site. Reference section 02 65 00 Underground Storage Tank Removal, 02 41 13 Selective Site Demolition

.2 Natural Gas Services - Utilities;

.1 Disconnect and remove all natural gas piping connections to buildings to allow for building demolition.

.2 Remove all abandoned piping from building and buried on site. Coordinate with gas company (vendor) for permanent termination of meter set and buried natural gas service piping to property line.

.3 Reference section 02 41 13 Selective Site Demolition

3.4 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning

.3 Waste Management: separate waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.5 PROTECTION

.1 Protect equipment and systems openings from dirt, dust, and other foreign materials with materials appropriate to system.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 02 41 13.

1.2 REFERENCES

.1 Definitions:

.1 Electrical and electronic terms: unless otherwise specified or indicated, terms used in these specifications, and on drawings, are those defined by IEEE SP1122.

Part 2 Products

2.1 Not Applicable

Part 3 Execution

3.1 EXAMINATION

.1 Verification of Conditions: verify that conditions of installation are capable of disconnecting each house without affecting the service to other existing remaining buildings. Report any discrepancies to Consultant for review.

.2 Demotion:

.1 Contact and coordinate with utility for disconnection of service drop at utility pole.

.2 Inform demolition contractor when power is disconnected.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 American Society for Testing and Materials International (ASTM)

.1 ASTM D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort

1.2 REGULATIONS

.1 Shore and brace excavations, protect slopes and banks and perform all work in accordance with Provincial and Municipal regulations whichever is more stringent.

1.3 TESTS AND INSPECTIONS

.1 Testing of materials and compaction of backfill will be carried out by testing laboratory designated by Departmental Representative.

.2 No later than one week before backfilling, provide to designated testing agency, 23 kg sample of backfill material proposed for use.

.3 Do not begin backfilling or filling operations until material has been approved for use by Departmental Representative.

.4 Not later than 48 hours before backfilling, notify Departmental Representative so that compaction tests can be carried out by designated testing agency.

.5 Before commencing work, conduct, with Departmental Representative, condition survey of existing structures, trees and other plants, lawns, fencing, service poles, wires, rail tracks and paving, survey bench marks and monuments which may be affected by work.

1.4 BURIED SERVICES

.1 Before commencing work establish the location of all buried services on and adjacent to the site.

.2 Arrange with appropriate authority for relocation of buried services that interfere with execution of work. Pay costs of relocating services.

.3 Remove obsolete buried services within 2 m of foundations. Cap cut-offs.

1.5 PROTECTION

.1 Protect excavations from freezing.

.2 Keep excavations clean, free of standing water, and loose soil.

.3 Where soil is subject to significant volume change due to change in moisture content, cover and protect to Departmental Representative’s approval.

.4 Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated or located in an area to be occupied by new construction, protect identified existing trees from damage.

.5 Protect buried services that are required to remain undisturbed.

Part 2 Products

2.1 MATERIALS

.1 All material used for backfill shall be obtained from a suitable borrow area accepted by the Departmental Representative.

.2 Backfill shall be free from large or frozen lumps, roots and rocks greater than 75 mm in diameter, sod, brush and metallic trash.

Part 3 Execution

3.1 SITE PREPARATION

.1 Remove obstructions, ice and snow, from surfaces to be excavated within limits indicated.

.2 Cut pavement or sidewalk neatly along limits of proposed excavation in order that surface may break evenly and cleanly.

3.2 CLEARING AND GRUBBING

.1 Remove trees, stumps, logs, brush, shrubs, bushes, vines, undergrowth, rotten wood, dead plant material, exposed boulders and debris within areas designated on drawings.

.2 Remove stumps and tree roots below footings, slabs, and paving, and to 600 mm below finished grade elsewhere.

.3 Dispose of cleared and grubbed material off site daily to disposal areas acceptable to authority having jurisdiction.

3.3 EXCAVATION

.1 Topsoil stripping:

.1 Dispose of topsoil off site.

.2 Excavate as required to carry out work, in all materials met. Do not disturb soil or rock below bearing surfaces. Notify Departmental Representative when excavations are complete. If bearings are unsatisfactory, additional excavation will be authorized in writing and paid for as additional work.

.3 The width and length of excavation and angle of excavated side slopes shall take into consideration the stability of the material. No extra payment or scheduling will be considered for work which result in material sliding back into the excavation.

3.4 BACKFILLING

.1 Inspection: do not commence backfilling until fill material and spaces to be filled have been inspected and approved by Departmental Representative.

.2 Remove snow, ice, construction debris, organic soil and standing water from spaces to be filled.

.3 Lateral support: maintain even levels of backfill as work progresses, to equalize earth pressures.

.4 Placing: Place backfill in 150 mm lifts.

.5 Compaction: Compact each layer of material to 95% of maximum Standard Proctor dry density (ASTM D698) at moisture content between 0.9 and 1.2% of optimum.

3.5 GRADING

.1 Grade so that water will drain away from backfilled excavation.

3.6 SHORTAGE AND SURPLUS

.1 Supply all necessary material to meet backfilling and grading requirements and with minimum and maximum rough grade variance.

.2 Dispose of surplus material off site to disposal areas acceptable to authority having jurisdiction.

END OF SECTION

Appendix A

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

Canada

Respect • Integrity • Excellence • Leadership

Serving GOVERNMENT, Serving CANADIANS.

Hazardous Building Materials Assessment

Prepared For:

Canadian Border Services Agency

Prepared By:

Public Works Government Services Canada

Environmental Services - Winnipeg

for

North Portal Residential Housing Unit

PWGSC Project No.: [R.065684.003]
Version No.: [01]
Date: [2015-June-09]

TABLE OF CONTENTS

1.0 Introduction/Executive Summary

Public Works Government Services Canada (PWGSC) was retained by the Canadian Border Services Agency (CBSA) to manage the demolition of a former CBSA residential housing unit that is located on CBSA property, adjacent to the North Portal, SK. border crossing. Prior to demolishing the building, it was recommended a hazardous building assessment be completed. The PWGSC Environmental Services group in Winnipeg, MB. was retained to complete this assessment.

The objective of the assessment was to determine the presence (or absence) and location of hazardous building materials within the site building. The assessment was conducted in general accordance with the requirements of the current version of the Canada Labour Code Part II – Occupations Health and Safety Regulations (further referred to as “the Canada Labour Code”) and the current version of the Occupational Health and Safety Regulations for Saskatchewan, as enforced by the Workers’ Safety and Compensation Commission (further referred to as “the WSCC Reg.”), to assist in the demolition planning process. PWGSC requested this hazardous building materials assessment in accordance with the requirements of the Canada Labour Code and the WSCC Reg., as a measure of diligence in identifying hazardous building materials that may require special handling and/or removal; during demolition activities.

The hazardous building materials considered during this assessment (but not limited to) included asbestos-containing materials (ACM); lead, including lead-containing paints (LCPs); polychlorinated biphenyls (PCBs); mould and/or moisture impacted building materials; components containing mercury; and equipment containing ozone depleting substances (ODSs). If evidence of hazardous materials other than those listed above was observed, documentation and reporting of such items was to be included.

The assessment was conducted on April 29th, 2015, by Dan Sonmor and Laura Barz of PWGSC Environmental Services, Winnipeg.

Based on the assessors’ visual assessment and on the laboratory analyses performed on samples collected, hazardous building materials were identified within the site building. These are summarized in the table below.

Table 1 – Summary of Hazardous Materials in Building

Product	Hazardous Material	Location	Estimated Quantity
Thermostat	Mercury	Living room wall	<1 teaspoon
Fluorescent Light Bulb	Mercury Gas	Throughout main floor of building	14 bulbs
Flooring	Non-Friable Asbestos	Grey backing of the beige vinyl flooring in main floor bathroom	<5.4m^2
Vermiculite Insulation	Friable Asbestos	Second floor attic and side walls	31.24m^3
Vermiculite Insulation	Friable Asbestos	Main floor ceiling/attic	29.34m^3
Paint on Walls	Lead	Second floor walls and ceiling	97.06m^2

2.0 Scope of Work

The interior and exterior of the main residential building and its associated property was assessed for hazardous building materials. In addition to the main residential building, there was a small, 4m^2 wooden shed located on the site property which is also scheduled for demolition. Upon observing the shed, it appeared to be in good condition and did not contain any hazardous materials inside. As a result, it has not been detailed in this report.

Furthermore, there is a second house, garage and shed located on private property adjacent to the CBSA building site. It was identified to the assessors that this site is currently for sale. CBSA is currently interested in acquiring this property and proposes to demolish this residential house and the associated structures located on this property. As these buildings are privately owned, access was restricted and an adequate hazardous materials assessment could not be completed to the full extent. However, some information was observed and noted during the site visit. This information is listed in Section 5 of this report.

3.0 Background

The site building is a one and one-half storey residence with a full basement. The building was heated by electric forced air central heating unit. The building was originally constructed in the 1930s. The site building was formerly used by CBSA members posted in the community, and has been vacant since April, 2015. It is reportedly no longer needed and is being considered for demolition. Based on the construction date of the structure, various hazardous building materials may be present in the site. No previous hazardous building materials reports were available for review. Photos of the site and building interior are located in Appendix A. A site sketch is located in Appendix B.

4.0 Results

The following general observations were made upon visual assessment:

- The site building was formerly provided with heating via an electric forced air central heating unit.
- No fuel storage tank or associated piping was noted, and no evidence of a fuel spill was observed within the site.

4.1 Asbestos

PWGSC identified and sampled the following suspected ACMs:

- Ceiling tiles
- Floor tiles/Vinyl sheeting
- Vermiculite insulation

Seven (7) bulk samples of the above-noted suspected ACMs were collected from the site building and submitted for analysis of asbestos content and nature. A summary of the sample types, locations and analytical results is presented in Table 2. Analytical results are located in Appendix C.

Table 2: Summary of Suspected ACM Bulk Samples – CBSA North Portal Residence

Material Description	Sample Location	Results	Amount of Area Covered (Approx)
White vinyl sheet flooring	Living room floor	No asbestos detected	N/A
Grey flooring material	Bottom layer of bathroom floor	No asbestos detected	N/A
Beige vinyl sheet flooring & grey backing	Top layer of bathroom floor	Asbestos found in the grey backing of the floor	<5.4m^2
Brown flooring material	Bathroom closet wall	No asbestos detected	N/A
Vermiculite	In second floor attic	Contains asbestos	31.24m^3
Vermiculite	In roof overhang above bedroom and living room	Contains asbestos	29.34m^3
White ceiling tile	Ceiling of kitchen	No asbestos detected	N/A

Based on PWGSC's observations and interpretation of the ACM sample analytical results, the following ACM was identified:

- The grey backing of the beige vinyl flooring in the bathroom (located as the top layer of the bathroom floor) contains chrysotile asbestos. This material is considered to be non-friable and was noted to be in good condition (no damage or deterioration) at the time of the assessment. The total footprint of the area covered with this material is approximately <5.4m^2
- Vermiculite insulation located within the attic of the second floor of the building, and the overhang attic area above the northeast section of the building contains actinolite asbestos. This material is considered to be friable. The material is mostly contained within the roof cavity, however, due to water damage in the ceiling of the second floor; some vermiculite material has fallen through into the second floor bedroom. The vermiculite covers an approximate footprint area of 28.40m^2 in the second floor of the attic and is assumed to be 10cm high. As a result, the total estimated amount of vermiculite within the attic is 31.24m^3. In the ceiling attic of the main floor, the vermiculite covers an approximate footprint area of 26.68m^2. The vermiculite is assumed to be 10cm high in this area. As a result, the total estimated amount of vermiculite within the main floor attic is 29.34m^3. In total, there is approximately 60.58m^3 of vermiculite in the building.

4.2 Lead

Based on visual observations and the use of lead test strips throughout the building, lead was only expected to be within the paint of the second floor walls and ceiling. As a result, only one (1) paint chip sample was tested, as well as one (1) leachate analysis sample was completed for the painted plaster wall. No lead solder or lead pipes were observed within the building. A summary of the sample types, locations and analytical results is presented in Table 3. Analytical results are located in Appendix C.

Table 3: Summary of Suspected LCP Bulk Samples – CBSA North Portal Residence

Paint/Material Description	Sample Location	Results	Amount of Area Covered
White paint chip	Second floor bedroom	892 mg/kg total lead detected	97.06m^2
Plaster wall covered with white paint	Second floor bedroom	0.11mg/L leachable lead	97.06m^2

Based on PWGSC's observations and interpretation of LCP sample analytical results, the following LCP was identified:

- The white paint covering the walls and ceiling of the second floor of the building contain lead that exceeds the *Hazardous Products Act* criteria of 600mg/kg. The paint is adhered to the plaster walls, and is in good condition, with the exception of the bedroom where it is peeling off the ceiling. The total footprint of the wall/ceiling area covered in the paint is approximately 97.06m^2.

<u>Leachable lead levels</u>

- Since the paint covering the walls and ceiling of the second floor contain lead that exceeds the 600mg/kg guidelines and is proposed to be disposed of in a landfill, the leachable lead content was also analyzed. The results of the leachate analysis identified a leachate concentration of 0.11mg/L. There are currently no regulations associated with this form of waste disposal in Saskatchewan or Manitoba. However, according to the *Alberta User Guide for Waste Managers* (December 2005), Section 1(g)(ii), lead waste may be considered a toxic leachate (and require special disposal) if lead is in a dispersible form and its leachate contains greater than 5.0mg/L lead. Similar provisions are made in the *British Columbia Hazardous Waste Regulation* (BC Reg. 63/88). Due to this information, waste materials containing this lead paint, are permitted to be disposed of in an approved landfill. However, upon confirming with the Saskatchewan Ministry of Environment, they requested that since this material does contain lead paint over 600ppm, it should be considered hazardous waste, and as a result, must be disposed of at an industrial landfill.

4.3 Polyclorinated Biphenyls

A total of seven (7) fluorescent lamp fixtures were observed within the site building. The ballasts within these fixtures were all labeled “non-PCB”.

4.4 Mould

The basement of the building had approximately 1cm of water on the concrete, basement floor. The basement had cement walls and a working sump-pump which allowed the accumulated water to continue draining. No significant amounts of mould were observed in the basement. There were also minor water stains in the ceiling tile of the kitchen tiles, and under the stairs in the back entrance to the kitchen however, no mould was observed in the kitchen and therefore no samples were taken.

4.5 Mercury

Mercury vapor is known to be present in small amount in fluorescent light builds. There were seven (7) light fixtures, each containing two (2) bulbs each. Each bulb was approximately 1m in length, and 4cm in diameter.

In addition, one (1) wall mounted mercury containing thermostat was observed within the living room of the building. The total quantity of the mercury was not recorded as the thermostat was left in place, but was visually observed to be less than 1 teaspoon of liquid.

4.6 Ozone Depleting Substances

No equipment suspected to contain ozone depleting substances was observed within the site building during the assessment.

4.7 Other Hazardous Building Materials

Two smoke detectors were identified within the building. Aside from this, no other hazardous building materials were observed within the site building during the assessment. It should be noted, a sewer holding tank was located underground at the far west end of the lot. The tank’s access point is a visible concrete block.

5.0 Summary of Information on Adjacent Building Site

There is a second residential house, garage and shed located to the north on private property, adjacent to the subject building site. It was identified to PWGSC that this site is currently for sale, and CBSA is interested in acquiring this property and also demolishing the house and structures. CBSA had requested that these structures be included within this hazardous building materials assessment report, however, as these buildings are privately owned, access was restricted and an adequate hazardous materials assessment with sample collection could not be fully completed. During the site visit, the assessors were able to visually observe the interior of the house, garage and shed. While samples could not be taken, the following observations were made. Photographs of the property and buildings are located in Appendix A.

5.1 Residential Building

The residential building is a one and one-half storey residence with a basement. Aside from a single storey addition on the north side of the building, it was observed to be very similar in size, floor plan and style to the CBSA residential building that was initially assessed in this report. The building is privately owned but is no longer occupied. It is situated in a low lying area which is reportedly prone to extensive flooding.

Upon entering the building, the assessors were unable to access the basement as it was flooded with water up to the main floor level, and therefore could not confirm the basement's size or condition. Since the building was observed to be almost identical to the CBSA residential building, it is suspected that similar building materials were used for both structures. Uncontained vermiculite was visible in the second floor bedroom through a gap in the ceiling. Due to these reasons, while it cannot be confirmed without sampling, there is a high possibility that this building may also contain various hazardous building materials like the CBSA residence, including ACM and lead containing paint.

It was also observed within this house that there was one (1) wall mounted mercury containing thermometer, as well as one (1) smoke detector. The building appears to be heated by an electric forced air central heating unit. There was a residential sized air conditioning unit attached to the residence. The unit's serial tag identified that the unit contained 1.6 kg of R-22 refrigerant. The unit appeared to be in good condition. No fuel storage tanks, fuel stains or fuel pipes were observed on site. A small fire pit was located on the south side of the residence.

5.2 Garage & Shed

The wooden shed is located northwest of the residence and did not contain any hazardous materials inside. The shed is in poor condition.

A single car garage is located southeast of the residence. The wooden garage is in poor condition as a large tree had previously fallen on the roof of the structure. As a result, the garage has partially collapsed and is unusable and unsafe to enter. The tree has not been removed from the structure. Hazardous items were observed within the garage including; paint, petroleum products, and cleaning solvents. Exact quantities and specifics of these items were not recorded as it was unsafe for the assessors to enter inside the garage.

6.0 Conclusions/Recommendations

Upon reviewing the observed areas and analytical samples, PWGSC Environmental Services recommends that all parties are made aware of the ACM and LCP within the CBSA residential building, and all requirements are followed when handling, transporting and disposing of these hazardous materials.

Table 4 – Summary of Hazardous Materials in Building

Product	Hazardous Material	Location	Estimated Quantity
Thermostat	Mercury	Living room wall	<1 teaspoon
Fluorescent Light Bulb	Mercury Gas	Throughout main floor of building	14 bulbs
Flooring	Non-Friable Asbestos	Grey backing of the beige vinyl flooring in main floor bathroom	<5.4m^2
Vermiculite Insulation	Friable Asbestos	Second floor attic and side walls	31.24m^3
Vermiculite Insulation	Friable Asbestos	Main floor ceiling/attic	29.34m^3
Paint on Walls	Lead	Second floor walls and ceiling	97.06m^2

Appendix A
Site Photographs

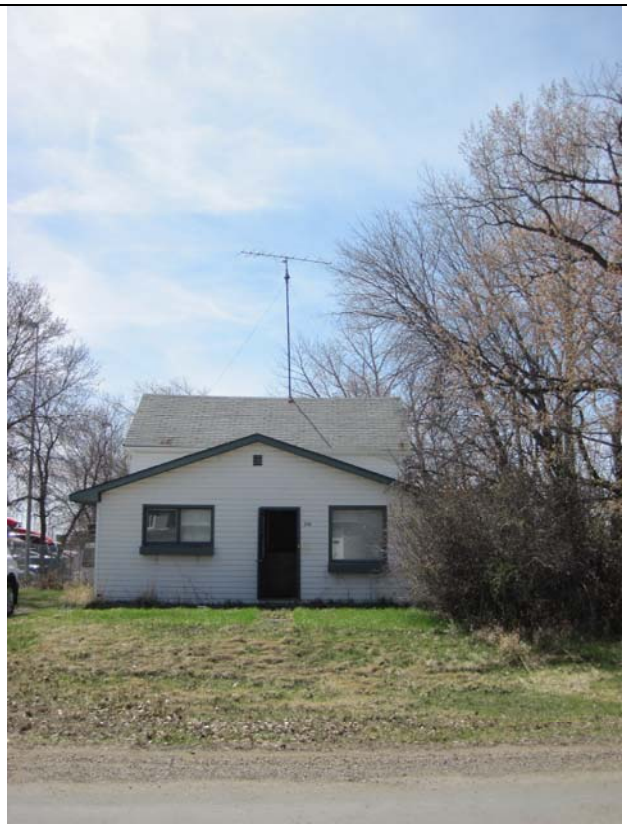

Photo 1: Facing West – Front Profile of Residential House

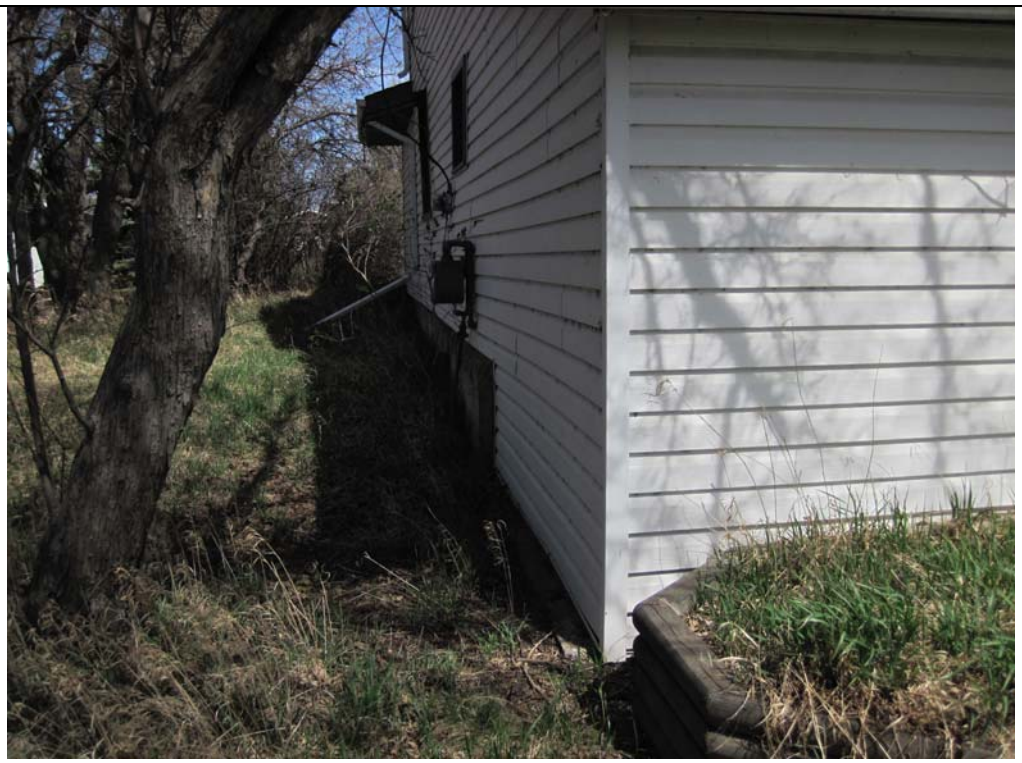

Photo 2: Facing East – North Profile of Residential House

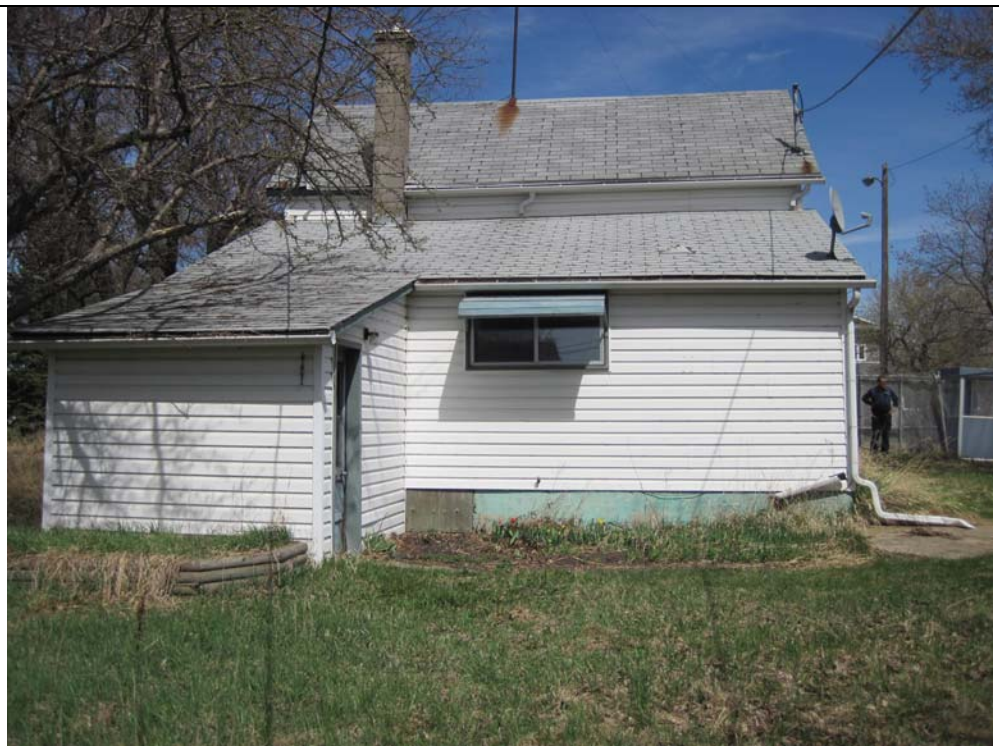

Photo 3: Facing East – Back Profile of Residential House

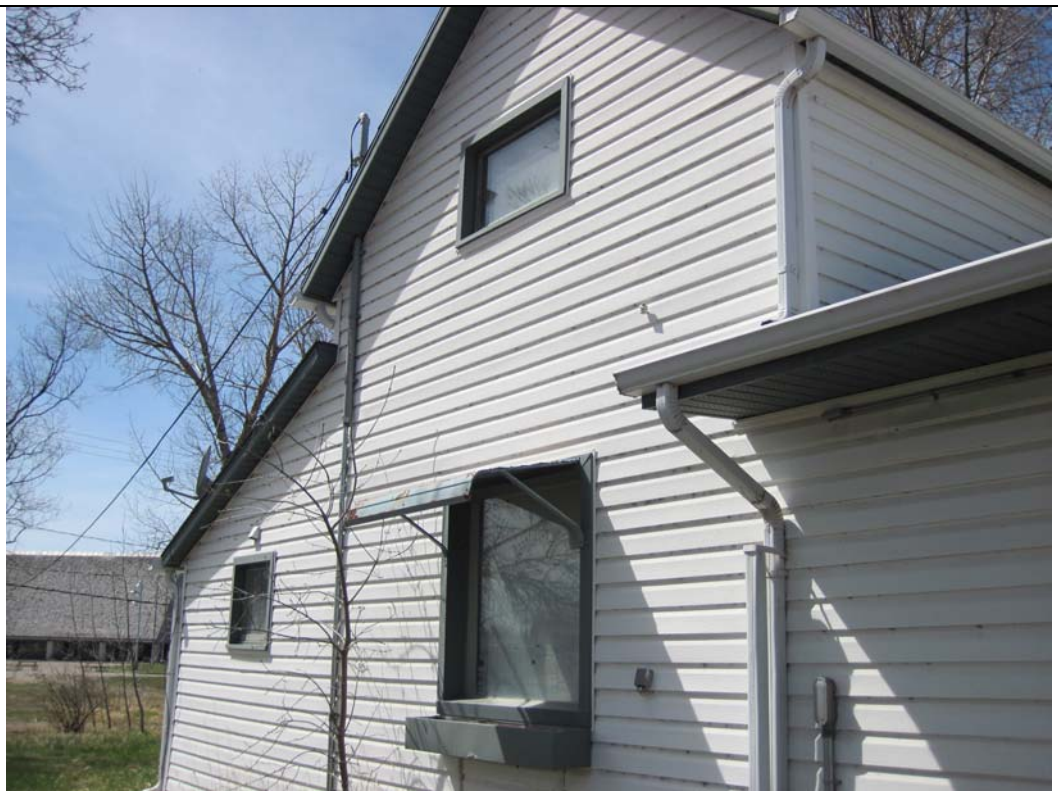

Photo 4: Facing West – South Profile of Residential House

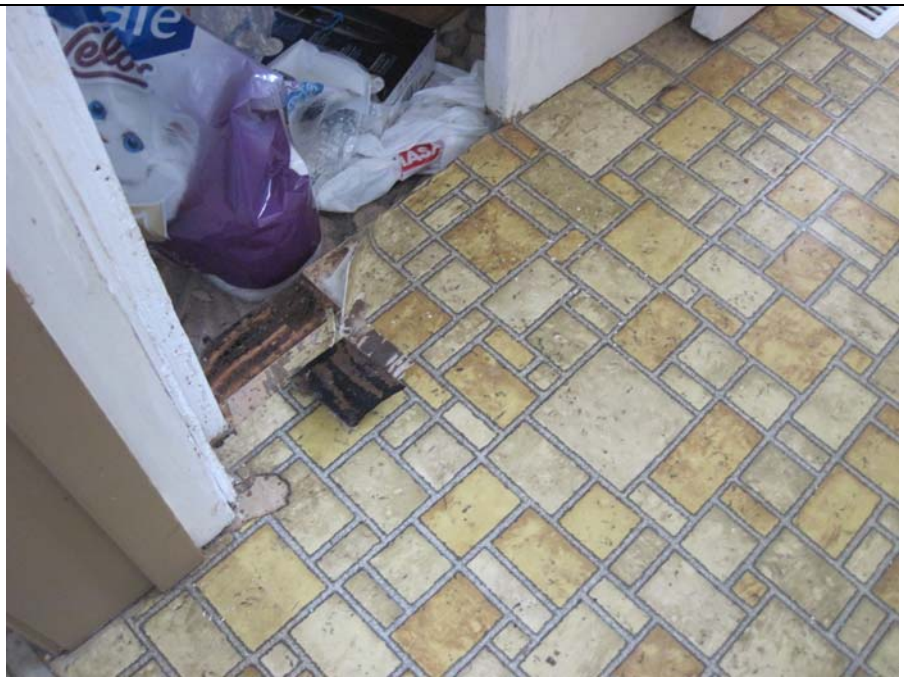

Photo 5: Vinyl Sheet Flooring in Bathroom – Grey Backing has ACM

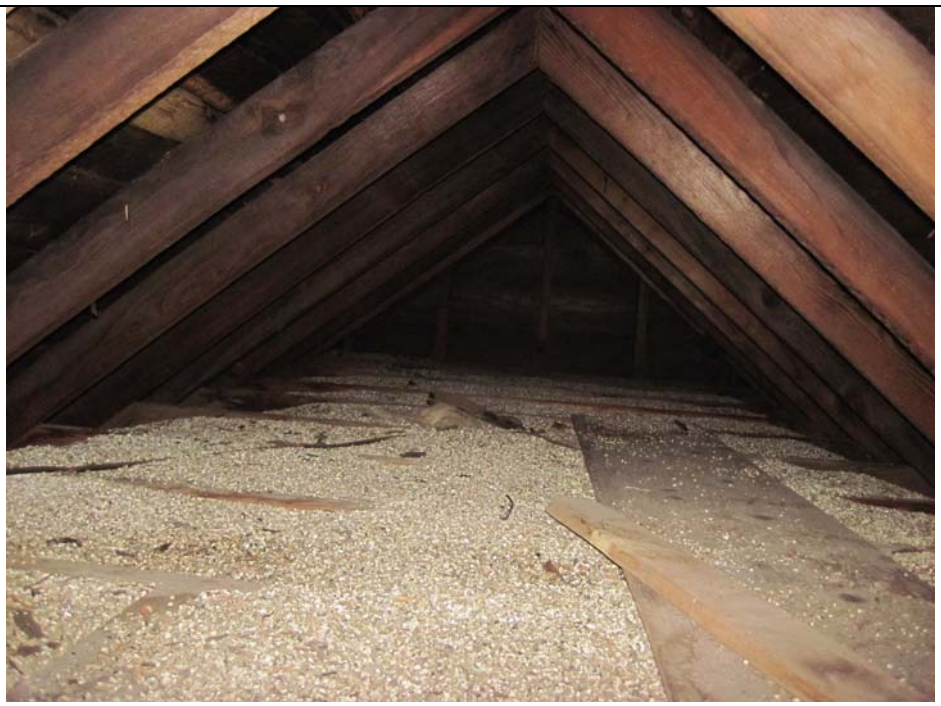

Photo 6: Vermiculite with ACM in Attic

Photo 7: Vermiculite with ACM Falling through Exposed Ceiling in Second Floor Bedroom

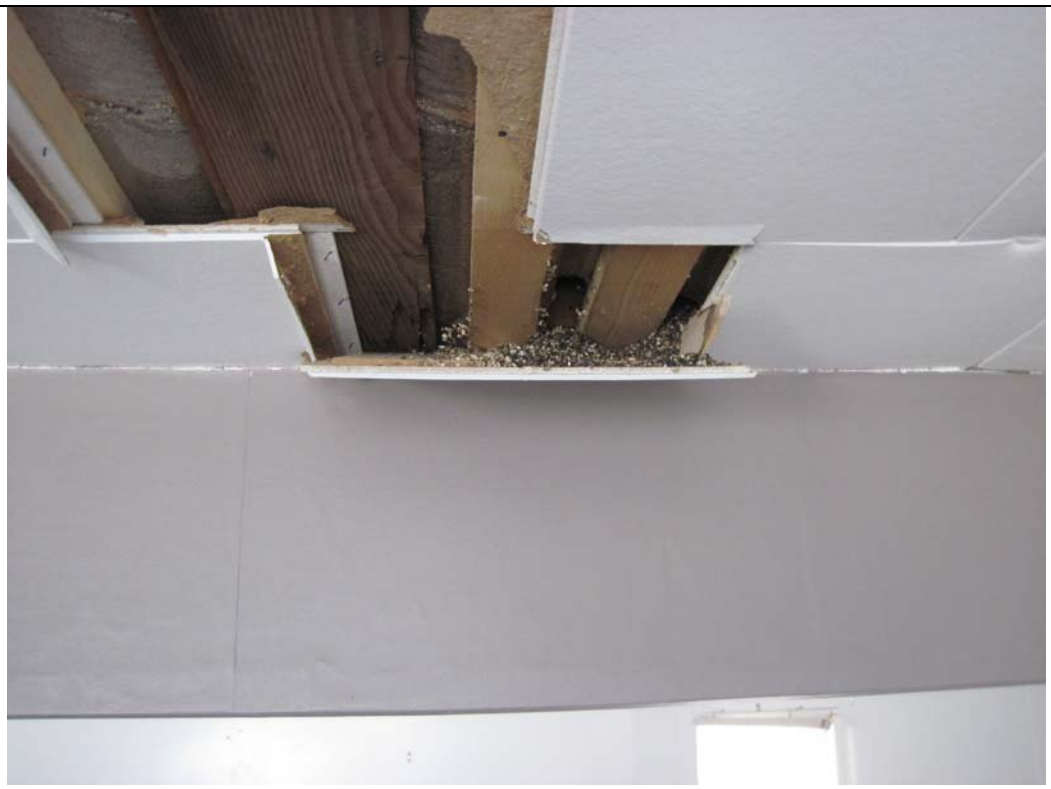

Photo 8: Vermiculite with ACM Above Ceiling Tile in Living Room and Front Bedroom

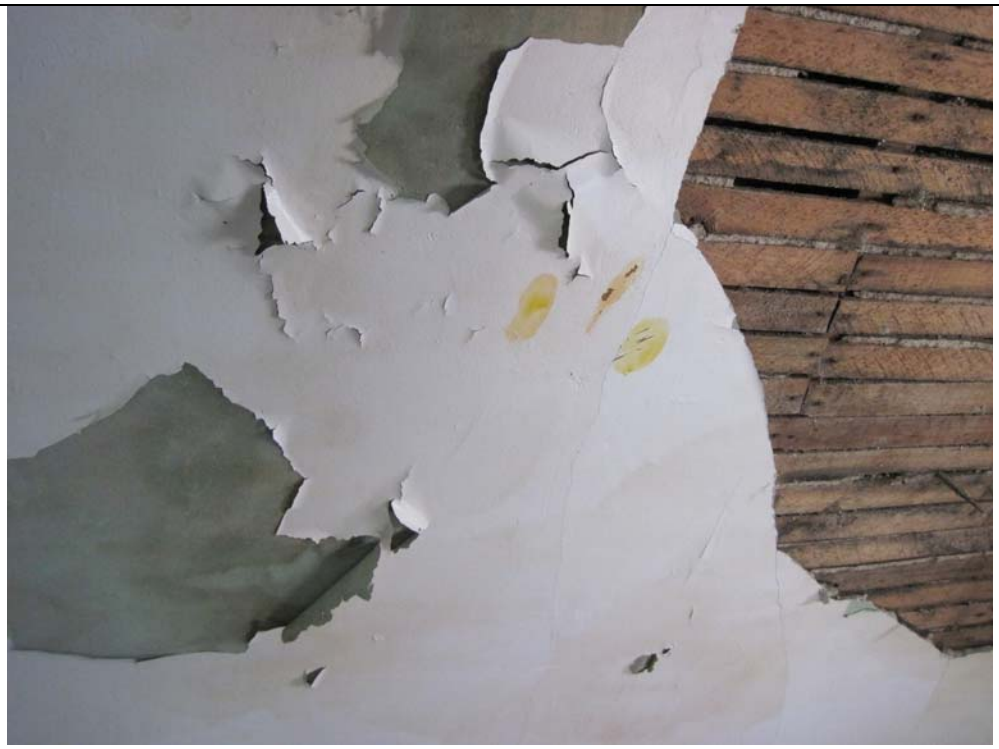

Photo 9: Positive Lead Check – Lead Paint Ceiling and Walls of Second Floor Bedroom

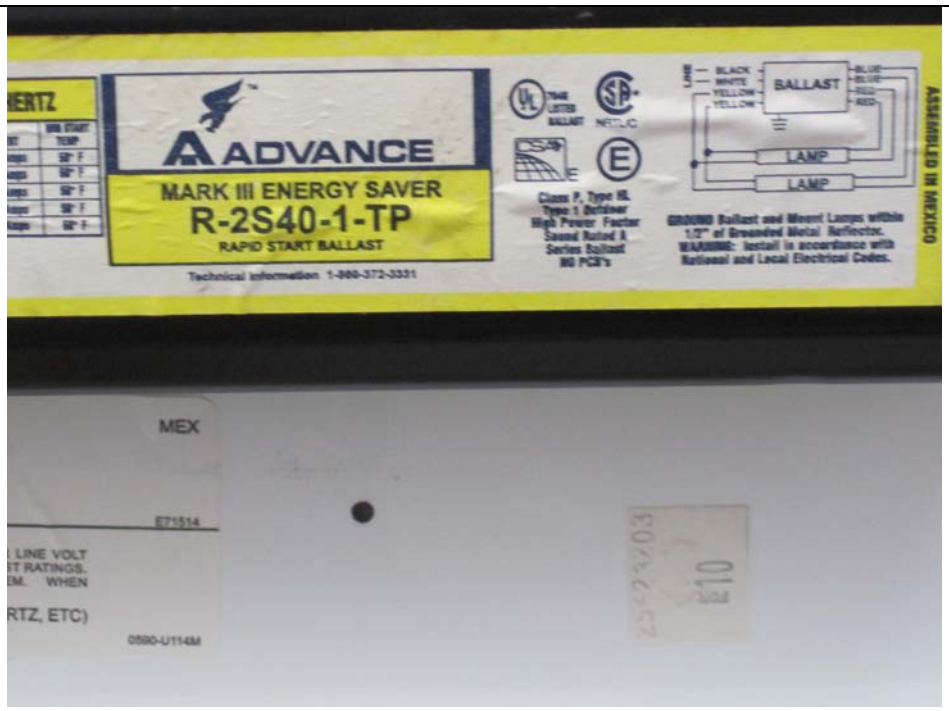

Photo 10: Light Ballasts in Lighting – Do Not Contain PCBs

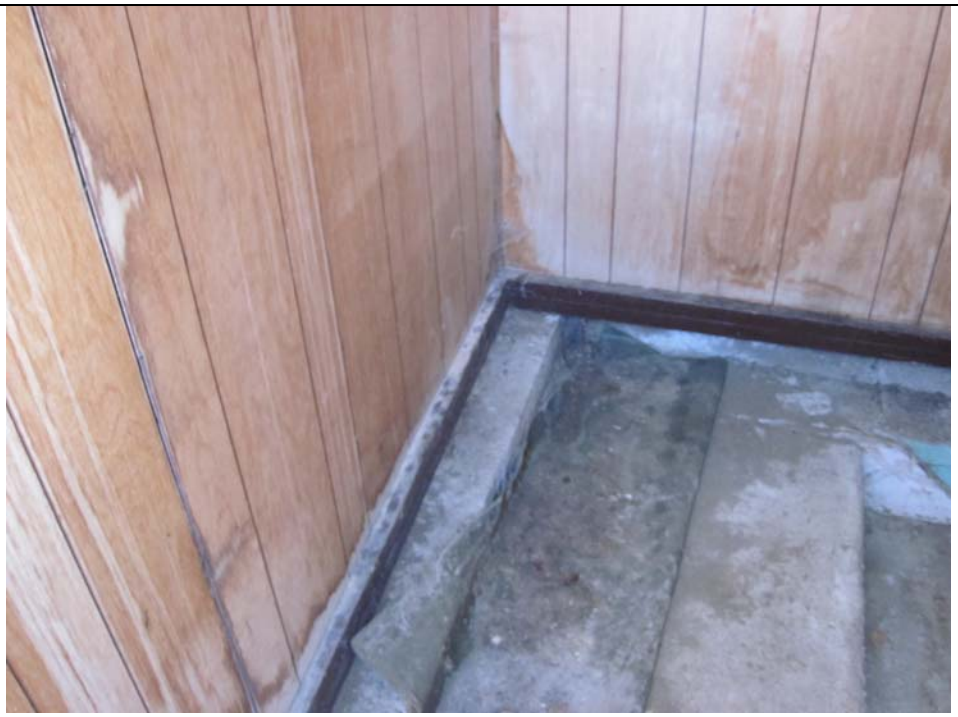

Photo 11: Water Damaged Walls and Floor at Back Entrance

Photo 12: Water on Floor and Resulting Damage in Basement

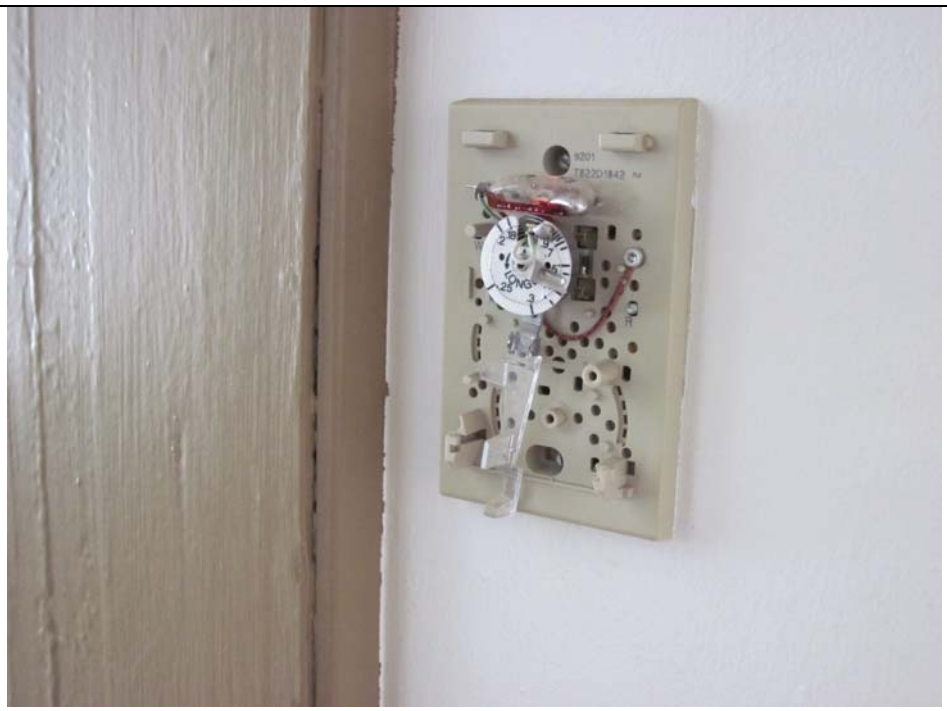

Photo 13: Mercury Containing Thermostat in Living Room

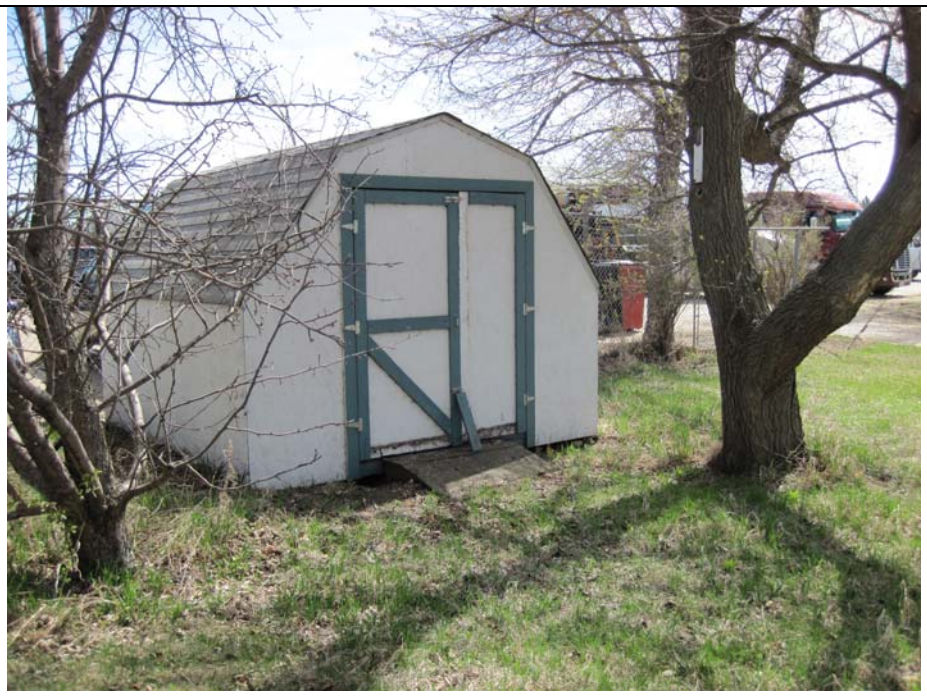

Photo 14: Facing South – Empty Wooden Shed on Property

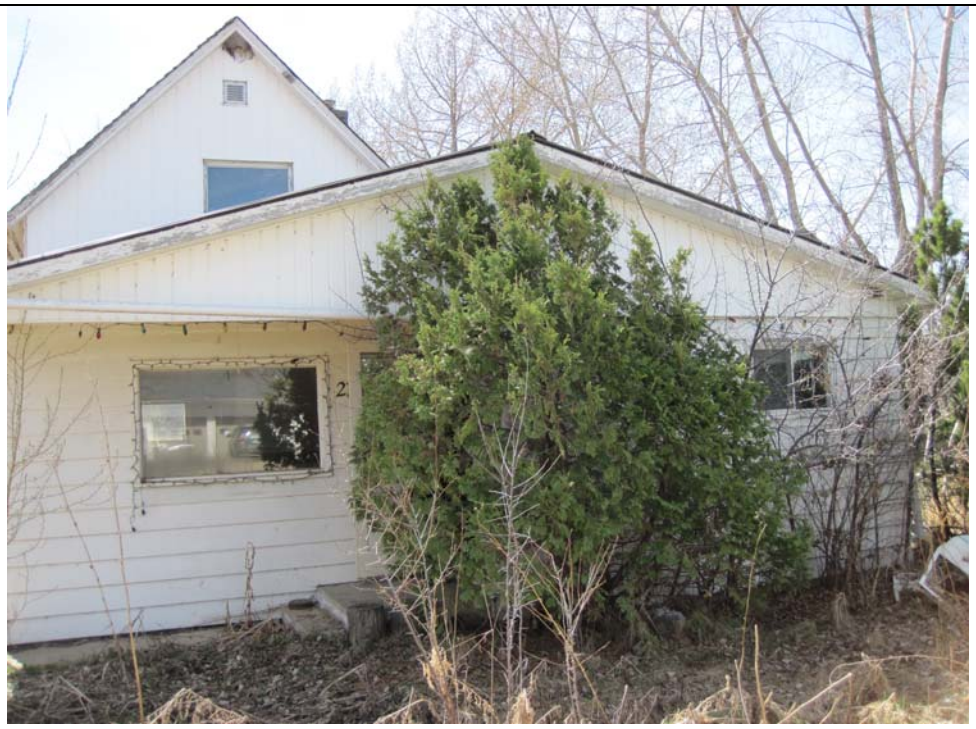

Photo 15: **Un-assessed Property** – Front View of Residential House

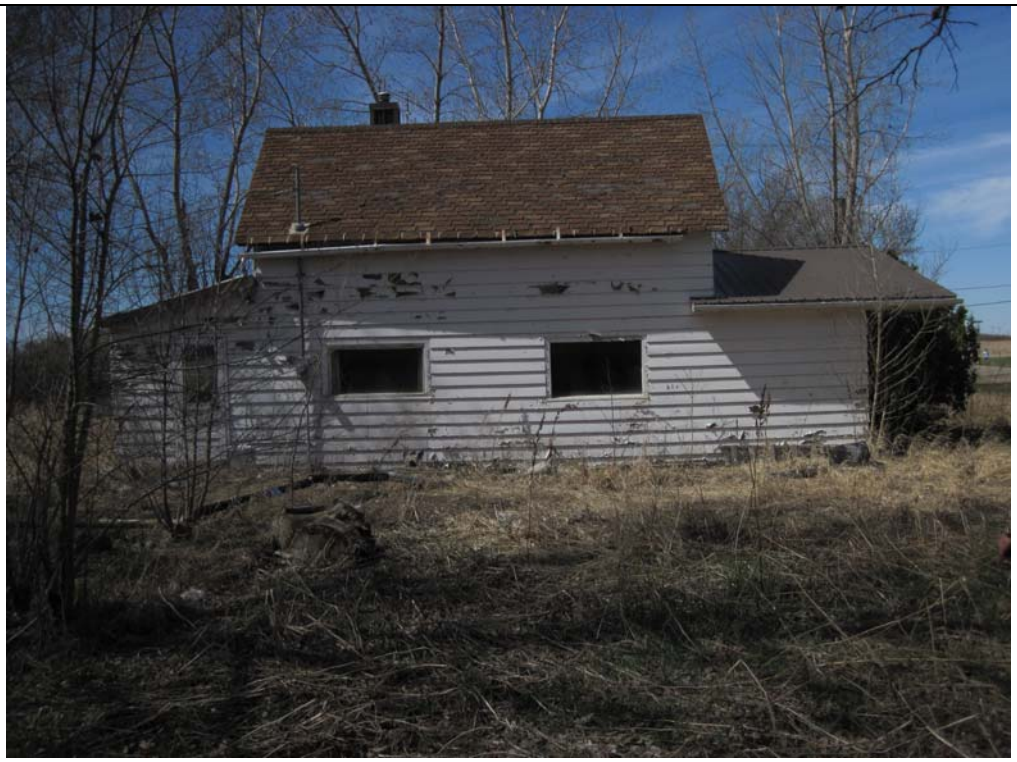

Photo 16: **Un-assessed Property** – North View of Residential House

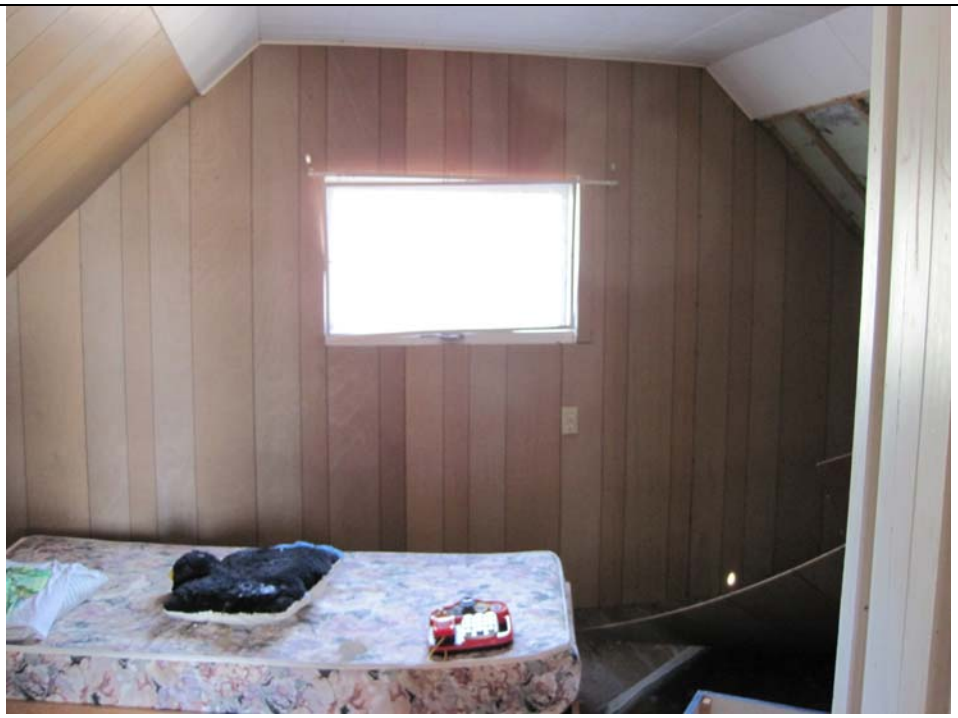

Photo 17: **Un-assessed Property** – Upstairs Bedroom Does Not Contain Painted Ceiling/Walls

Photo 18: **Un-assessed Property** – Upstairs Bedroom Ceiling Displaying Exposed Vermiculite

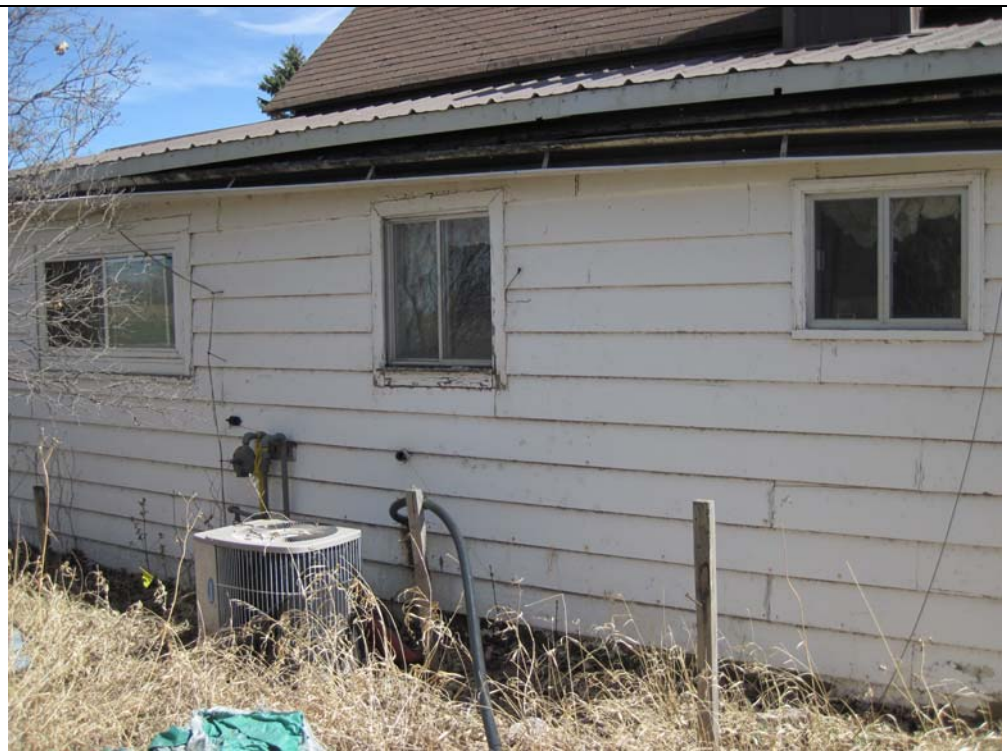

Photo 19: **Un-assessed Property** – Air Conditioning Unit on North Side of Building

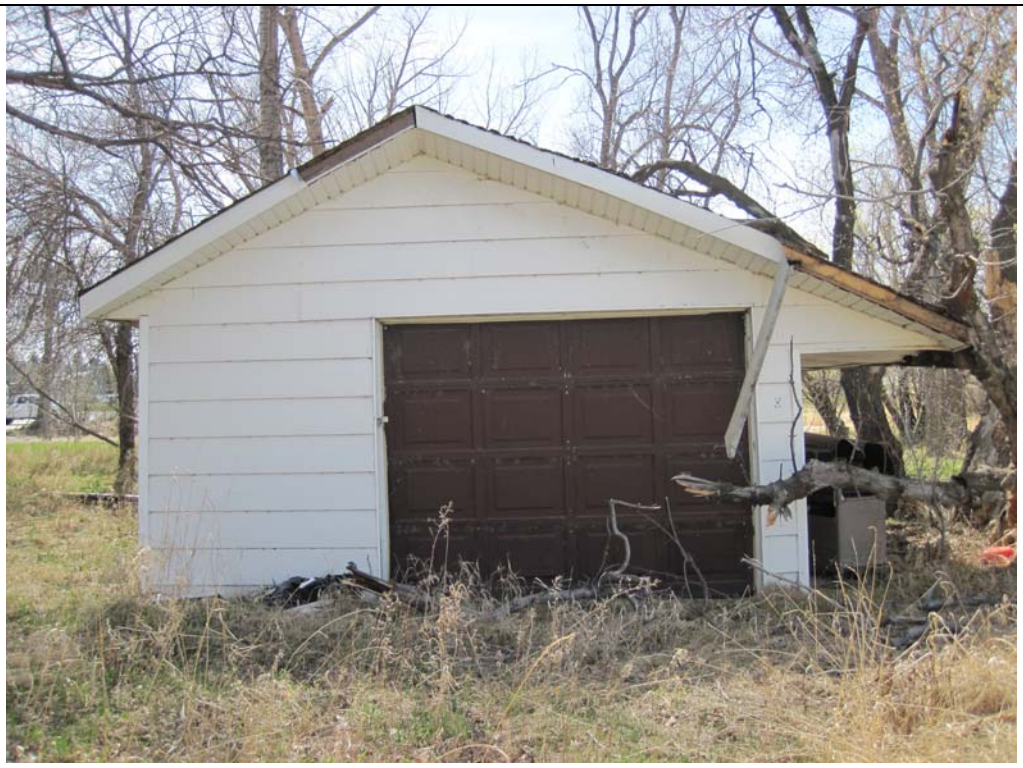

Photo 20: **Un-assessed Property** – Exterior of Garage

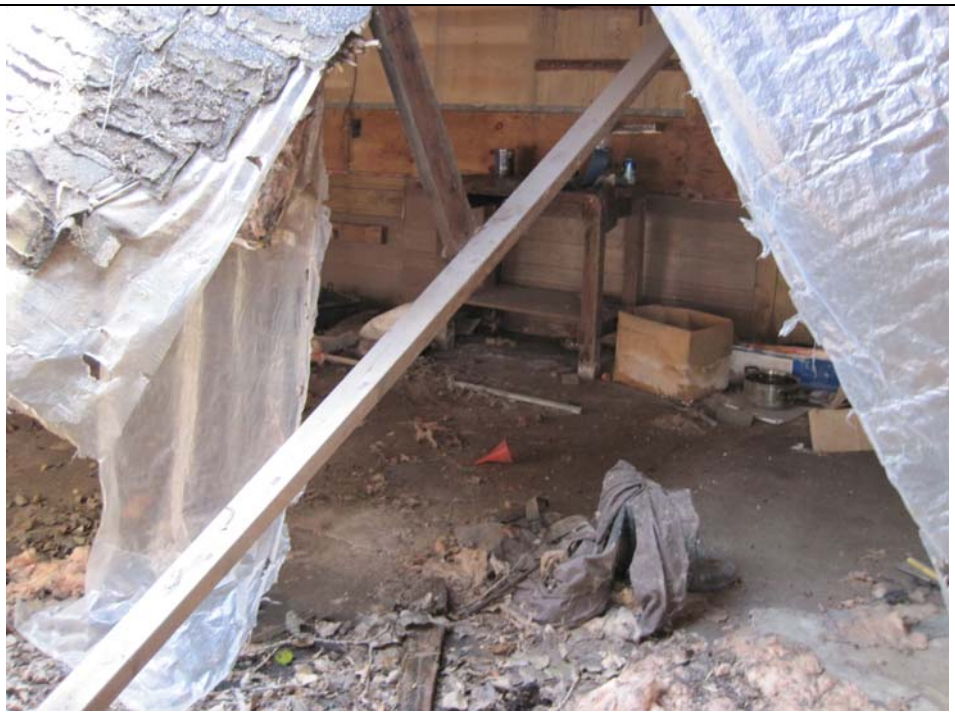

Photo 21: **Un-assessed Property** – Interior of Garage with Hazardous Materials Inside

Appendix B
Site Sketch(s)

Appendix C
Lab Analysis Results