Part 1 General

1.1 SUMMARY

.1 Section Includes

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

.2 Sustainable requirements for construction and verification.

.2 Related Sections

.1 Section 01 33 00 – Submittal Procedures

.2 Section 01 35 30 – Health and Safety Requirements

.3 Section 01 45 00 – Quality Control

.4 Section 02 82 10 – Asbestos Abatement – General Provisions

.5 Section 02 82 11 – Asbestos Abatement – Type 1 Procedures

.6 Section 02 82 14 – Asbestos Abatement Procedures – Glove Bag Method

.7 Division 31 – Earthwork

.3 Measurement Procedures.

.1 Measure removal of asphaltic concrete pavement in square metres for each thickness specified.

.2 Measure removal of Portland cement concrete pavement in square metres for each thickness specified.

.3 Measure removal of base and sub-base pavement Materials in cubic metres in place.

.4 Measure removal of concrete and masonry foundations in cubic metres.

.5 Measure removal of masonry foundations in cubic metres in place.

.6 Measure removal of culverts, pipe sewers and drains in metres, regardless of diameter, for each diameter. End points of measurements will be at centres of manholes or catch basins or open ends of pipes, as applicable.

.7 Measure removal of manholes and catch basins in units.

.8 Measure removal of cable duct banks regardless of number of ducts in each bank, in metres from end to end of duct bank for each size.

.9 Measure removal of fences curbs and guard rails in metres.

.10 Measure removal of waste Materials designated for alternate disposal from the Site in tonnes.

.11 Measure removal of interior wall plaster finishes in square meters.

.4 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.

.5 Department of Justice Canada (Jus).

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

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

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

.1 Material Safety Data Sheets (MSDS).

.7 Transport Canada (TC).

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

1.2 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.

1.3 SUBMITTALS

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

.2 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.

.2 Submit Drawings stamped and signed by qualified professional registered or licensed in Province of Manitoba Canada.

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

1.4 QUALITY ASSURANCE

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

.2 Site Meetings.

.1 Verify project requirements.

.2 Review installation and substrate conditions.

.3 Co-ordination with other building subtrades.

.4 Review manufacturer's installation instructions and warranty requirements.

.5 Arrange for Site visit with Contract Administrator to examine existing Site conditions adjacent to demolition Work, prior to start of Work.

.6 Reporting Requirements: WMC to complete

1.5 DELIVERY, STORAGE AND HANDLING

.1 Storage and Protection.

.1 Protect in accordance with Division 31 – Earthwork. 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 Contract Administrator and at no cost.

.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 Divert excess Materials from landfill to Site approved by Contract Administrator.

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

.3 Place Materials defined as hazardous or toxic in designated containers.

.4 Handle and dispose of Hazardous Materials in accordance with CEPA, TDGA, Regional and Municipal, regulations.

.5 Label location of salvaged Material's storage areas and provide barriers and security devices.

.6 Ensure emptied containers are sealed and stored safely.

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

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

1.6 SITE CONDITIONS

.1 Site Environmental Requirements.

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

.2 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.

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

.4 Control disposal or runoff of water containing suspended Materials or other harmful substances in accordance with local authorities as directed by Contract Administrator.

.5 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.

1.7 SCHEDULING

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

.1 Notify Contract Administrator in writing when unforeseen delay's occur.

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 Contract Administrator and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.

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

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

3.2 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 Contract Administrator.

.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 Provincial regulations.

.7 Remove designated trees during demolition.

.1 Obtain written approval of Contract Administrator prior to removal of trees not designated.

.8 Donate trees designated for removal and identified by Contract Administrator to be healthy.

.1 Grind, chip, or shred other vegetation for mulching and composting.

.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.

.11 Disposal of Material.

.1 Dispose of Materials not designated for salvage or reuse on Site as instructed by Contract Administrator at authorized facilities approved in Waste Reduction Workplan.

.2 Trim disposal areas to approval of Contract Administrator.

.12 Backfill.

.1 Backfill in areas as indicated and in accordance with Division 31 – Earthwork.

.13 Existing Elements to be salvaged: See Drawings for extents.

3.3 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.

3.4 REMOVAL FROM SITE

.1 Remove stockpiled Material as directed by Contract Administrator, 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 facilities listed in Waste Reduction Workplan and in accordance with applicable regulations.

.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 Contract Administrator is required to deviate from disposal facilities listed in Waste Reduction workplan.

3.5 RESTORATION

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

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

3.6 FIELD QUALITY CONTROL

.1 Verification requirements include:

.1 Materials and resources.

.2 Storage and collection of recyclables.

.3 Construction waste management.

.4 Resource reuse.

.5 Recycled content.

.6 Local/regional Materials.

.7 Wood.

.8 Low-emitting Materials.

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 GENERAL AND RELATED WORK

.1 Read this Section in conjunction with all Drawings and all other Sections so as to comply with the requirements of Division 1 and the General Conditions of the Contract.

.2 Related Work specified elsewhere:

.1 Section 02 82 11 – Asbestos Abatement – Type 1

.2 Section 02 82 14 – Asbestos Abatement – Glove Bag Method

.3 Site Conditions identifies the location and asbestos content of all known asbestos-containing Materials (ACMs) to be disturbed by Work of this Contract. The information provided is for general reference only. Each Contractor must confirm existing conditions on Site prior to tender close.

.4 This Section shall govern over all Work of the Contract which will, or may, disturb ACMs or surfaces or Materials which may have been or become contaminated by ACM either during or prior to Work of this Contract.

.5 It is the intent that Work performed as per this Section will result in the removal of all ACM and the decontamination of all surfaces or Materials which may have been or become contaminated by ACM either during or prior to Work of this Contract.

1.2 OUTLINE OF WORK

.1 Refer to Section(s) 02 82 11 and 02 82 14 of the Specification for a specific outline of Work and specified personal protective measures for the safe handling, removal, clean-up, or repair of asbestos specific to each phase or Work area.

.2 Protect surfaces, building fabrics and items remaining within the Asbestos Work Area.

.3 Isolate the Asbestos Work Area from adjoining Occupied and Non-Occupied Areas whether present at an interior or exterior location.

.4 Remove and dispose of as asbestos-containing waste, building components, Materials and items contaminated by asbestos that cannot be effectively cleaned.

.5 Encapsulate remaining ACMs at locations where removal is deemed impractical by the Asbestos Abatement Contract Administrator.

.6 Final clean Work area to remove visible signs of asbestos, other debris or settled dust.

.7 Apply lock-down agent to exposed surfaces from which any asbestos had been removed.

.8 Unless otherwise specified, the handling, removal, clean-up or repair of ACMs or surfaces contaminated with asbestos is to be performed following wet removal techniques.

1.3 SITE CONDITIONS

.1 Pipewrap insulation present on straight runs and fittings of mechanical services located throughout the Work area is known to contain Chrysotile asbestos.

1.4 DEFINITIONS

.1 Amended Water: Water with wetting agent added for the purpose of reducing surface tension to allow thorough wetting of ACM.

.2 Asbestos-Containing Material (ACM): Material identified under Site Conditions including any debris, overspray, fallen Material and settled dust.

.3 Asbestos Work Area: Area where Work takes place which will, or may, disturb ACM.

.4 Authorized Visitors: The City, Contract Administrator, or designated representative, and persons representing regulatory agencies.

.5 Contaminated Waste: Material identified under Site Conditions, including fallen Material, settled dust, other debris and Materials or equipment deemed to be contaminated.

.6 Fitting: Individual segments or pieces of a mechanical service line which may include but is not limited to the hangers, tees, elbows, joints, valves, unions, etc.

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

.8 Glove Bag: Prefabricated bag which provides a completely sealed envelope surrounding a given section of piping to permit the removal of asbestos-containing insulation from within the bag while maintaining the integrity of the bag and preventing the spread of airborne asbestos fibres.

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

.10 Milestone Inspection: Inspection of the Asbestos Work Area at a defined point in the abatement operation.

.11 Non-Friable Material: Material that when dry cannot be crumbled, pulverized or powdered by hand pressure. Including but not limited to the following ACM: vinyl tiles, asbestos cement tiles, gaskets, seals, select packings, friction products, drywall joint compound and asbestos cement products. Exclude from the above categorization, any Material that is or may become crumbled, pulverized or powdered by handling as described herein.

.12 Occupied Area: Any area of the building or adjoining space outside the Asbestos Work Area.

.13 Pipewrap: Any thermal or vapour covering present on straight runs and/or fittings of mechanical services. Include with the above, metal or other rigid jacketing associated straps, ties, fastenings, etc.

.14 Polyethylene: Polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide protection to underlying surfaces and to prevent the escape of airborne fibres.

1.5 REGULATIONS

.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. Work shall be performed under regulations in effect at the time Work is performed.

1.6 QUALITY ASSURANCE

.1 Removal and handling of asbestos-containing or asbestos-contaminated Materials is to be performed by persons trained in the methods, procedures and industry practices for Asbestos Abatement.

.2 Ensure Work proceeds to schedule, meeting all requirements of this Specification.

.3 Complete Work so that at no time airborne dust, visible debris, or water runoff contaminate areas outside the Asbestos Work Area.

.4 Any contamination of surrounding area (indicated by visual inspection or air monitoring) shall necessitate the clean-up of affected area, and in the same manner applicable to an Asbestos Work Area at no cost to the City.

1.7 INSPECTION

.1 From commencement of Work until completion of clean-up operations, the City is empowered to inspect for compliance with the requirements of governing authorities, adherence to specified procedures and Materials, and to inspect for final cleanliness and completion.

.2 The City is empowered to order a shutdown of Work when leakage of asbestos from the controlled Work area has occurred or is likely to occur.

.3 Any deviation from the requirements of the Specifications or governing authorities that is not approved in writing may result in a stoppage of Work, at no cost to the City.

.4 Additional labour or Materials expended by the Contractor to rectify unsatisfactory conditions and to provide performance to the level specified shall be at no additional cost to the City.

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

.6 Facilitate inspection and provide access as necessary. Make good Work disturbed by inspection and testing at no cost to the City.

.7 Refer to Section(s) 02 82 11 and 02 82 14 of the Specification for specified milestone inspections which are to take place at defined points throughout the abatement operation specific to each phase or Work area.

.8 Provide 24 hours written notice to the Asbestos Abatement Contract Administrator of any request for scheduling of milestone inspections or transportation of waste through Occupied Areas.

.9 Do not proceed with next phase of Work until written approval of each milestone is received.

1.8 AIR MONITORING

.1 Air monitoring will be performed using Phase Contrast Microscopy (PCM) following the National Institute for Occupational Safety and Health Method 7400

.2 Co-operate in the collection of air samples, including providing Workers to wear sample pumps for up to full-shift periods. Contractor will be responsible for the cost of testing equipment repairs or resampling resulting from the actions of the Contractor's forces.

.3 Results of PCM samples of 0.05 fibres per millilitre of air (fibre/mL) or greater, outside an Asbestos Work Area, or from within the Asbestos Work Area during or following Glove Bag Work will indicate asbestos contamination of these areas. Respond as follows:

.1 Suspend Work within the adjoining Asbestos Work Area until written authorization to resume Work has been received.

.2 Isolate and clean area in the same manner applicable to the Asbestos Work Area.

.3 Maintain Work area isolation, and repeat clean-up operations until visual inspection and air monitoring results are at a level equal to that specified.

.4 At the discretion of the City provide additional negative air units at locations specified in response to elevated fibre levels being detected in the Clean Change Room or Occupied Areas.

1.9 SUPERVISION

.1 Provide on Site for each Work shift, a Shift Superintendent, who has authority regarding all aspects related to manpower, equipment and production.

.2 Supervisory personnel must hold a recognized certificate proving attendance at an asbestos removal training course (2 day minimum duration) and have performed supervisory functions on at least five (5) other asbestos abatement projects of similar size and complexity.

.3 At all times during Work at risk of disturbing asbestos, the Shift Superintendent must be on Site. Failure to comply with this requirement will result in a stoppage of all Work, at no cost to the City.

.4 Replace supervisory personnel, with approved replacements, within three (3) Working days of a written request from the City. The City reserves the right to request replacement of supervisory personnel without explanation.

.5 Do not replace supervisory personnel without written approval from the City.

1.10 NOTIFICATION

.1 Not later than ten (10) days before commencing Work on this project, notify in writing the local office of Manitoba Labour and Immigration, Workplace Safety and Health Division. Provide telephone notification again immediately prior to start of Work.

.2 Notify sanitary landfill Site as per local requirements.

.3 Inform all trades on Site of the presence and location of ACMs identified in the Contract documents.

1.11 SUBMITTALS

.1 Submit prior to starting Work:

.1 Proof of required licensing for transportation of asbestos waste.

.2 Names and credentials of the Shift Superintendent.

.3 Proof in the form of a certificate that supervisory personnel have attended training courses on asbestos removal (2 day minimum duration) and have performed supervisory function on at least five (5) other asbestos projects of similar size and complexity.

.4 Proposed schedule (prepared in chart format) detailing the following:

.1 Duration of Site preparation, contaminated preparation, removal, clean-up and Site dismantlement for each phase area.

.5 Documentation including test results, fire and flammability data, samples, and Material Safety Data Sheets for chemicals or Materials used in the course of the Asbestos Abatement project including or not limited to:

.1 Encapsulants.

.2 Wetting agents.

.3 Lock-down agent.

.4 Rip-proof polyethylene.

.5 Polyurethane foam.

.6 Chemicals or Materials used in the course of asbestos abatement.

.6 Proof that all employees have been fit-tested for the respirator appropriate for the Work being performed.

.7 Proof that all employees have had instruction on hazards of asbestos exposure, use of respirator and all aspects of Work procedures and protective measures.

.8 Proof that all employees are listed on an asbestos Work report and have been given required medical examinations.

.9 Pre-removal survey of damage in all areas where asbestos abatement Work will take place or waste will be transported.

.10 Copy of notification to governing authorities of commencement of Work.

1.12 WORKER PROTECTION

.1 General

.1 Instruct Workers before allowing entry to the Asbestos Work Area. Instruction shall include training in use of respirators, dress, showering, entry and exiting from an Asbestos Work Area, and all other aspects of Work procedures and protective measures.

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

.3 Workers shall be fully protected at all times when possibility of disturbance of asbestos exists.

.4 Provide and post at access points to the Asbestos Work Area, the procedures described under Worker Protection.

.2 Respiratory Protection

.1 Refer to Section(s) 02 82 11 and 02 82 14 of the Specification for specified type of respiratory equipment specific to each phase or Work area.

.2 Provide and ensure the use of respiratory equipment appropriate for the Work being performed for persons who are required to enter the Asbestos Work Area.

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

.4 Maintain respiratory equipment in proper functioning and clean condition or remove from Site.

.5 Respiratory equipment shall be identified with permanent markings with current list of persons utilizing such equipment displayed in a clean area on Site.

.6 Filters used shall be tested following each use in accordance with manufacturer's specifications or replaced at the following minimum frequency:

.1 Replace cartridge filters for negative pressure respirator every 16 hours of wear unless tested on Site.

.2 Mark filters for rotation and regular replacement. Once worn in an Asbestos Work Area filters may not be removed from the project Site except for disposal.

.7 Ensure that no person required to enter an Asbestos Work Area has facial hair which affects the seal between respirator and face.

.8 Store respirators, and tested filters that will be reused, in an established clean area on Site.

.3 Protective Clothing and Equipment

.1 All personnel required to enter the Asbestos Work Area must use disposable full body coveralls with attached head covering. Once coveralls are worn, treat and dispose of as asbestos-contaminated waste.

.2 Use hard hats, safety shoes and other protective apparel required by applicable construction safety regulations.

.4 Asbestos Abatement Work Area Entry and Exit Procedures

.1 Refer to Section(s) 02 82 11 and 02 82 14 of the Specification for specified Work area entry and exit procedures specific to each phase or Work area.

1.13 VISITOR PROTECTION

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

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

1.14 SIGNAGE

.1 Work Area Signs: Post signs in both official languages at access points to the Asbestos Work Area. Where possible, provide signage immediately prior to entering Asbestos Work Area but out of public view. Letters on signs shall be in upper case "HELVETICA MEDIUM" and read as follows:

.1 CAUTION (25 mm high).

.2 Asbestos Hazard Area (19 mm high).

.3 Unauthorized Entry Prohibited (19 mm high).

.4 Wear Assigned Protective Equipment (19 mm high).

.5 Breathing Asbestos Dust May Cause Serious Bodily Harm (19 mm high).

.2 Container Signs: Label containers for the disposal of asbestos as follows:

.1 CAUTION CONTAINS ASBESTOS FIBRES (25 mm high).

.2 Do Not Mishandle (19 mm high).

1.15 WASTE AND MATERIAL HANDLING

.1 Refer to Section(s) 02 82 11 and 02 82 14 of the Specification for specified waste and Material handling procedures specific to each phase or Work area.

.2 Asbestos-containing or asbestos-contaminated Materials removed during the Work shall be treated, packaged, transported and disposed of as asbestos-contaminated waste.

.3 Materials that could tear or puncture a 6 mil (0.15mm) polyethylene bag shall be packaged and disposed of in sealed rigid waste containers specified.

.4 Redundant non-ACMs, rubble and debris removed during contaminated Work shall be treated, packaged and disposed of as asbestos-contaminated waste. With written approval, non-porous Materials may be cleaned, sprayed with a sealer and disposed of as clean waste.

.5 Waste must be transported by a hauler licensed for the transportation of waste containing asbestos by Manitoba Conservation.

.6 Transportation of all waste and Materials through Occupied Areas of the building is limited to quiet hours along predetermined routes and must be covered or placed within unmarked carts. Clean-up waste routes and loading area after each load. Use asbestos abatement precautions if appropriate or requested by the City.

.7 Garbage bins shall be dropped at designated locations and shall remain covered and enclosed (locked) while at the building Site.

.8 Pick-up and drop off of garbage bin(s) shall be at pre-approved times, and must not interfere with building operations.

1.16 RE-ESTABLISHMENT OF OBJECTS AND SYSTEMS

.1 Re-establish objects and items relocated by the Contractor's Workforce to facilitate Work.

.2 Re-establish electrical, communication, HVAC and other services previously disconnected or otherwise isolated to accommodate Work by this Section.

1.17 DUMP MONITORING

.1 Co-operate with Manitoba Conservation inspectors and immediately carry out instructions for remedial Work at dump, at no additional cost to City.

.2 Ensure each shipment of containers is accompanied by a representative who will supervise dumping of containers and ensure all guidelines and regulations are followed.

.3 Equip each shipment of containers with full personal protective equipment and tools required to properly clean-up spilled asbestos in the case of a failure in an Asbestos Waste Container.

Part 2 Products

2.1 MATERIALS AND EQUIPMENT

.1 Refer to Section(s) 02 82 11 and 02 82 14 of the Specification for specified Materials, equipment or facilities specific to each phase or Work area.

.2 Materials and equipment must be in good condition and free of asbestos, asbestos debris and fibrous Materials. Disposable items must be of new Materials only.

.3 Asbestos Waste Container: Impermeable container acceptable to Manitoba Conservation and disposal Site. Labelled as required, comprised of the following:

.1 A sealed 6 mil (0.15 mm) polyethylene bag or glove bag, inside a second 6 mil (0.15 mm) sealed polyethylene bag.

.2 A sealed 6 mil (0.15 mm) polyethylene bag or glove bag, positioned inside or outside a rigid sealed container of sufficient strength to prevent perforation of the container during filling, transportation and disposal.

.4 Bridging Encapsulant: Bridging encapsulant for purpose of encapsulating remaining ACM at locations deemed to be inaccessible. Product shall be colour coded bright red and be capable of withstanding surface temperature of substrate. Product must have flame spread and smoke development ratings both less than 50. Apply product uniformly to minimum thickness of 10 mil. Acceptable product: Serpiflex Shield or approved equal in accordance with B7.

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

.6 Lock-down Agent: Sealant for purpose of trapping residual dust and shall be capable of withstanding surface temperature of substrate. Product must be compatible with replacement Materials and must have flame spread and smoke development ratings of less than 50 and shall leave no stain when dry. Acceptable product: Serpiflex Shield or approved equal in accordance with B7.

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

.8 Protective Coveralls: Disposable full body coveralls complete with hoods. Acceptable Material: Tyvek coveralls or approved equal in accordance with B7.

.9 Rip-Proof Polyethylene Sheeting: 8 mil (0.20 mm) fabric made up from 5 mil (0.13 mm) weave and two (2) layers of 1.5 mil (0.05 mm) poly laminate or approved equal in accordance with B7. In sheet size to minimize on-Site seams and overlaps.

.10 Wetting Agent: Non-sudzing surface active agent. Acceptable product: Aqua-Gro or approved equal in accordance with B7.

PART 3 EXECUTION

.1 Refer to Section(s) 02 82 11 and 02 82 14 of the Specification for specified procedures for Work area preparation, maintenance, Site dismantlement, waste handling, application of lock-down agent and all other procedures for the safe handling, removal and clean-up of asbestos specific to each phase or Work area.

END OF SECTION

Part 1 General

1.1 GENERAL AND RELATED WORK

.1 Read this Section in conjunction with all Drawings and all other Sections so as to comply with the requirements of Division 1 and the General Conditions of the Contract. This section has been prepared by Pinchin Environmental on behalf of the City. Refer to Report provided with this Document.

.2 The intent of this Section is to provide safe Work practices and procedures to govern the handling, removal and disposal of non-friable asbestos-containing Materials (ACMs) to be disturbed by Work of this Contract.

1.2 OUTLINE OF WORK

.1 Supply all labour, Material, Plant and equipment necessary to safely execute and complete all Work of this Section while in conjunction with Work specified, required or implied.

.2 Isolate the Asbestos Work Area from adjoining spaces through the placement of specified barriers and partitions at the perimeter of each phase or Work area.

.3 Remove and dispose of non-friable ACMs scheduled for removal at locations specified or as otherwise required to complete Work of this Contract.

.4 Perform all cutting, shaping and drilling of non-friable ACMs as specified and at locations required to complete Work of this Contract.

.5 Protect surfaces throughout the Work area and prevent the spread of dust, by use of polyethylene drop sheets or other suitable Materials.

1.3 INSPECTION

.1 The following Milestone Inspections are to take place during Work of this Section:

.1 Milestone Inspection A - Clean Site Preparation
Inspection of preparations and set-up prior to contaminated Work.

.2 Milestone Inspection B - Site Dismantlement
Inspection and air sampling within the Asbestos Work Area following completion of Work but prior to Site dismantlement.

1.4 WORKER PROTECTION

.1 Provide, if requested by worker(s), protective coveralls and non-powered half-face respirators with high efficiency (HEPA) cartridge filters. Respirators and protective coveralls are not mandatory for Work with non-friable ACMs.

.2 Provide facilities for washing of hands and face to the worker(s) which shall be used by every worker when leaving the asbestos Work area.

Part 2 Products

2.1 MATERIALS AND EQUIPMENT

.1 Sprayer: Garden-type portable manual sprayer or water hose with spray attachment.

.2 Prohibit the use of power tools that are not equipped with HEPA filtered dust collection device. Immediately cease the use of such power tools if any visible dust escapes from HEPA filtered dust collection device.

Part 3 Execution

3.1 SITE PREPARATION

.1 Moving of equipment, tools, supplies, and stored Materials which can be performed without disturbing asbestos will be performed by others.

.2 Segregate Asbestos Work Area and parts of building required to remain in use by closing doors, placing of barricades or tape barrier, etc.

.3 Provide tools, equipment, vacuum, Materials and waste receptors within the Asbestos Work Area.

.4 Post signs in all areas where access to the Asbestos Work Area is possible.

.5 HEPA vacuum or wet wipe dust from surfaces within the Asbestos Work Area.

.6 Cover floor and furnishings in the vicinity of the Work with polyethylene before disturbing non-friable asbestos Materials other than floor tiles.

.7 Schedule and obtain written approval of Milestone Inspection A (Clean Site Preparation) before proceeding.

3.2 REMOVAL OF VINYL ASBESTOS FLOOR TILES

.1 Wedge a heavy duty scraper in seam of two (2) adjoining tiles and gradually force edge of one (1) tile up and away from floor. Avoid breakage of tile, but continue to force balance of tile up.

.2 Place tile (without breaking) and smaller pieces, into asbestos waste container.

.3 Force scraper through tightly adhered areas by striking scraper handle with a hammer.

.4 Heat tile thoroughly with a hot air gun until heat penetrates through tile and softens adhesive in areas where scraper will not remove tile.

.5 Scrape up adhesive remaining on floor with a hand scraper until only a thin smooth film remains.

.6 A hot air gun may be used where deposits are heavy or difficult to scrape.

.7 Deposit scrapings into asbestos waste container.

.8 On completion of area, HEPA vacuum floor.

.9 Schedule and obtain written approval of Milestone Inspection B (Site Dismantlement) before proceeding.

END OF SECTION

PART 1 GENERAL

1.1 GENERAL AND RELATED WORK

.1 Read this Section in conjunction with all Drawings and all other Sections so as to comply with the requirements of Division 1 and the General Conditions of the Contract. This section has been prepared by Pinchin Environmental on behalf of the City. Refer to Report provided with this Document.

.2 Requirements specified elsewhere:

.1 Section 02 82 10 – Asbestos Abatement – General Provisions

.3 The intent of this Section is to provide safe Work practices and procedures to govern the handling, removal, clean-up and disposal of asbestos-containing pipewrap insulation performed by Glove Bag Method at locations outside a prepared Type 3 enclosure.

1.2 OUTLINE OF WORK

.1 Supply all labour, Material, plant and equipment necessary to safely execute and complete all Work of this Section while in conjunction with Work specified, required or implied under Section 02 82 10 – Asbestos Abatement - General Provisions.

.2 Isolate the Asbestos Work Area from adjoining spaces through the placement of specified barriers and partitions at the perimeter of each phase or Work area.

.3 Remove and dispose of pipewrap insulation from the straight runs and fittings of mechanical services (ie. piping) present throughout the building at locations scheduled for demolition, alterations or tie-ins, etc.

.4 Notwithstanding the above, exclude the removal of pipewrap insulation visibly determined to be fibreglass insulation, which is free of asbestos contamination.

1.3 INSPECTION

.1 The following Milestone Inspections are to take place during Work of this Section:

.1 Milestone Inspection A - Clean Site Preparation
Inspection of Site preparations and set-up prior to any contaminated Work.

.2 Milestone Inspection B - Site Dismantlement
Inspection of Work area at completion of Work, but prior to Site dismantlement.

1.4 WORKER PROTECTION

.1 Respiratory Protection

.1 During installation, use, or removal of a glove bag, or while within a glove bag Work area, use negative pressure non-powered half-face respirators equipped with high efficiency (HEPA) cartridge filters.

.2 Asbestos Abatement Work Area Entry & Exit Procedures

.1 Before entering the Asbestos Work Area, don respirator with new or tested filters, coveralls and hood. Protective clothing shall cover hair and re-usable clothing.

.2 Before leaving Asbestos Work Area remove gross contamination from protective clothing using HEPA vacuum, then remove all contaminated clothing and equipment except respirator.

.3 Clean contaminated footwear, hard hats, etc., or place in sealed polyethylene bag ready for reuse.

.4 Exit Work area before removing respirator then proceed directly to wash area and complete the following:

.1 Wash exposed skin and respirator with soap and water.

.2 Seal inlet side of respirator filters with tape then remove filters for testing or dispose of as asbestos-contaminated waste.

1.5 VISITOR PROTECTION

.1 Protective equipment shall be required by authorized visitors only where glove bag is ripped, cut or otherwise opened.

PART 2 PRODUCTS AND FACILITIES

2.1 MATERIALS AND EQUIPMENT

.1 Glove Bag: Single use prefabricated, 0.25 mm (10 mil) minimum thickness polyvinylchloride bag with integral 0.25 mm (10 mil) thick polyvinylchloride gloves and elasticized ports. Bag must be equipped with reversible double-pull double throw zipper to facilitate progressive movement along pipe and also be equipped with interior zip and straps for sealing ends of bag around pipe. Acceptable product: Safe-T-Strip manufactured by Asbesguard Equipment Inc., in configurations suitable for Work.

.2 Knife: Knife with fully retractable blade for use inside glove bag.

.3 Securing Straps: For glove bag, reusable nylon straps at least 1" wide with metal tightening buckle for sealing ends of bags around pipe and insulation.

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

PART 3 EXECUTION

3.1 PREPARATION

.1 Relocate from the immediate area of the Work, existing equipment, tools, supplies, and stored Materials which can be performed without disturbing asbestos.

.2 Segregate Asbestos Work Area use by closing doors, placing of barricades or tape barriers, etc. at the perimeter of each phase or Work area.

.3 At locations where the Asbestos Work Area will remain visible to other trades or building occupants, provide a second line of barricades, tape barriers, etc., a minimum of 20 feet (6 m) apart to form a buffer zone adjacent to each Asbestos Work Area.

.4 Isolate or otherwise shut down HVAC system, vents and diffusers located within the Asbestos Work Area.

.5 Provide required tools, equipment, vacuum, Materials and waste receptors within the established Asbestos Work Area.

.6 Post required signs in all areas where access to the Asbestos Work Area is possible.

.7 Schedule and obtain written approval of Milestone Inspection A (Clean Site Preparation) before proceeding.

3.2 MAINTENANCE OF CONTAMINATED WORK AREA

.1 Maintain Work area in a clean and tidy state.

.2 Ensure barriers and polyethylene linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.

3.3 PIPE INSULATION REMOVAL

.1 Prior to start of Work, ensure Work area has been isolated with tape barriers, saw-horses, or other barriers, posted with notices marking the area as asbestos removal area Site and that authorization to proceed has been received.

.2 Provide polyethylene drop sheet under piping where damaged or unjacketed insulation is present.

.3 Spray surface of damaged jacketing with mist of amended water then tape over area of damage to provide temporary repair.

.4 Mist areas of insulation with no jacketing and wrap with polyethylene.

.5 Clean surface of pipe or minor amounts of fallen or damaged insulation by HEPA vacuuming or by damp wiping.

.6 Place tools necessary to remove insulation in tool pouch then zip bag onto pipe and seal ends of bag with cloth securing straps. For valve glove bags, seal valve cover with wire tie or equivalent.

.7 Place hands into gloves and use necessary tools to remove insulation from pipe.

.8 Arrange insulation in bag to obtain full capacity of bag.

.9 Roll jacketing carefully to minimize the possibility of ripping or puncturing bags.

.10 Insert nozzle of spray pump into bag through valve and wash down pipe and interior of bag thoroughly. Alternate use of each hand to aid washing process.

.11 Wet surface of insulation in lower section of bag and any exposed end of asbestos insulation remaining on pipe.

.12 If bag is to be removed from pipe for use at a new location, seal closure strip from inside of bag then insert nozzle of HEPA. Vacuum into valve opening and evacuate air from balance of bag. Re-install and seal in new location before re-opening closure strip. Repeat insulation removal operation.

.13 If bag is to be moved along the same pipe, insert nozzle of HEPA vacuum into valve opening and evacuate air from bag prior to loosen holding straps then carefully move bag along length of pipe and re-seal to pipe. Using double-pull zipper to pass hangers. Repeat insulation removal operation.

.14 Should the glove bag become ripped, cut or opened in any way, cease Work and repair opening before continuing Work. If the rip, cut or opening cannot be easily repaired, dispose of as contaminated waste and replace with new.

.15 Spilled Material must be cleaned up using a HEPA vacuum immediately upon discovery.

.16 To remove bag after completion of insulation removal or as each bag is filled:

.1 Wash top section of glove bag and tools thoroughly.

.2 Place tools in one hand (glove), then pull out inverted, twist to create a separate pouch, tape inverted hand at two (2) separate locations 1" apart to seal pouch.

.3 Remove inverted glove and tools by cutting between the two (2) tape seals.

.4 Place inverted glove and tools into the next clean glove bag to be used or into a water bucket, open pouch underwater and clean tools and then allow to dry.

.5 Insert nozzle of HEPA vacuum into valve opening and evacuate air from bag. Remove nozzle from valve opening and seal over end of valve with tape.

.6 Pull a 6 mil polyethylene bag over glove bag before removing from pipe.

.7 Remove securing straps, unfasten zipper and place sealed glove bag into a sealed 6 mil polyethylene bag so as to create an asbestos waste container.

.17 Ensure newly exposed section of pipe is free of residue before resuming removal Work or leaving the area. If necessary, after removal of each section of asbestos, vacuum all surfaces of pipe, using HEPA filtered vacuum equipment or wet wipe with damp cloth.

.18 Before completion of shift, seal surfaces of exposed pipe with lock-down agent to seal any residual fibres.

.19 Cover exposed ends of remaining asbestos insulation with heavy coat of bridging encapsulant.

.20 Remove drop sheet and dispose of as contaminated waste.

3.4 SITE DISMANTLEMENT AND CLEAN-UP

.1 Following completion of Work within each separate Asbestos Work Area, and again at the completion of each Work shift, inspect the Work area to ensure required removal and clean-up have been completed and the area is free of any visible signs of asbestos or other debris. Inspection must be completed by shift supervisor.

.2 Schedule and obtain written approval of Milestone Inspection B (Site Dismantlement) before proceeding.

END OF SECTION