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## **PART 1 – GENERAL**

### **1.1 NOTICE**

- .1 Portions of existing gypsum board have tested positive for presence of asbestos containing material. All gypsum board and plaster is to be removed as asbestos containing materials by Section 02 82 00.02 – Asbestos Abatement – Intermediate Precautions.

### **1.2 RELATED WORK**

- .1 Division 1
- .2 Section 02 82 00.02 – Asbestos Abatement – Intermediate Precautions

### **1.3 REFERENCES**

- .1 Carry out demolition work in accordance with Canadian Construction Safety Code (latest edition), provincial and local codes, regulations and requirements of insurance carriers providing coverage for this work..
- .2 Comply with CSA S350 Code of Practice for Safety in Demolition of Structures.

### **1.4 EXISTING CONDITIONS**

- .1 Structures to be demolished to be based on their condition on date of tender closing.
- .2 Remove, protect and store salvaged items where indicated on drawings and turn over to Owner or other trades as applicable on site.

### **1.5 PROTECTION**

- .1 Prevent movement, settlement or damage of adjacent construction. Make good damage and be liable for damage or injury caused by demolition.
- .2 Provide necessary shoring to adequately protect construction during the demolition process and as temporary supports for new work.
- .3 Take precautions to support structures and if safety of new or existing construction appears to be endangered, cease operations and notify Owner.
- .4 Provide protection from falling debris. Prevent debris from blocking services, exits, etc.
- .5 Provide protection to finishes where applicable.
- .6 Provide noise/dust and security protection. Refer also to requirements of Division 1.
- .7 Protect existing items designated to remain, to be reinstalled and as noted for salvage.

## **1.6 REGULATORY REQUIREMENTS**

- .1 Ensure work is performed in compliance with all applicable regulations, Federal, Provincial, and Municipal.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- .1 Unless otherwise specifically approved, use only new, solid lumber, utility grade or better, to construct temporary barricades.

## **PART 3 - EXECUTION**

### **3.1 PREPARATION**

- .1 Prior to demolition work, inspect the area of the work as well as objects designated to be removed and to be turned over to Owner.
- .2 Locate services which may be affected by demolition work and provide required protection. Disconnect services as required by the work using qualified tradespeople in accordance with the requirements of Mechanical and Electrical Divisions.
- .3 Comply with health regulations.
- .4 Cooperate with the Owner, comply with the requirements specified under Division 1.

### **3.2 ACCESS TO OTHER AREAS**

- .1 Where access to other areas of building is granted by the Owner for removal and disconnection of items by this contract re-install items, removed for access, to existing condition and make good. Repair items damaged by the contractor.

### **3.3 SALVAGE ITEMS**

- .1 Remove the items indicated on the drawings, c/w fasteners. Turn over to Owner on site except where required for re-installation under this or other or other Sections of the specification or where indicated on the drawings.
- .2 Clearly label, package where necessary to safeguard finish or accessories and fastenings.
- .3 Protect from damage by the removal operation.
- .4 Provide safe, clean, neat storage for items to be re-installed. Turn over to appropriate section where needed for re-installation.

### **3.4 DEMOLITION**

- .1 Demolish parts of building to permit construction of work as indicated. Perform all cutting and patching required of existing necessary to carry out the work of all trades.
- .2 Remove and protect those items identified for re-installation in the finished assembly.
- .3 Provide containers for the collection of demolished materials which will be discarded.
- .4 Remove existing equipment, services and obstacles where required for refinishing or making good of existing surfaces to remain exposed and replace as work progresses.
- .5 At end of each day's work, leave work in safe condition so that no part or material is in danger of falling or of causing other hazard. Protect interiors for exterior elements at all times.
- .6 Demolish in manner to minimize dusting.
- .7 Carefully remove and lower heavy objects.

### **3.5 DISPOSAL**

- .1 Selling or burning of materials on site not permitted.
- .2 Dispose of materials not designated for salvage or re-use in the work, off of property. Comply with authorities having jurisdiction.
- .3 Dispose of materials not designated for salvage or re-use in the work, off of property. Comply with authorities having jurisdiction.
- .4 Stockpile and store materials to be re-installed at location(s) approved by the Owner.
- .5 Turn items over to the Owner where indicated, at site.
- .6 Remove items from building in designated area only or as directed by Owner. Provide disposal chutes and dumpsters with suitable tarp coverings only where indicated and/or where approved by Owner.

### **3.6 MISCELLANEOUS REMOVALS AND RE-INSTALLATION**

- .1 Remove all miscellaneous items as noted, and as required to carry out the work of this and other sections. Take precautions to prevent damage to items being re-installed. Remove fastenings. Patch fastener holes prior to the installation of new finishes.
- .2 Co-ordinate with painting trade for re-painting prior to re-installation where necessary.
- .3 Provide required fastenings. Re-install unless noted otherwise. Use existing fastener holes where practical. Drill new holes where required, do not use impact type tools. Re-install items square, plumb and aligned true to building lines.
- .4 Where noted or specified, turn items over to other trades for re-installation.

- .5 On surfaces to receive new work, remove all existing non-essential fasteners.
- .6 On floor slabs where floor finishes are to be removed, provide mechanical grinding to remove all traces of existing adhesives and grouts.

**END OF SECTION**

## **PART 1 – GENERAL**

### **1.1 SUMMARY**

- .1 Comply with requirements of this Section when performing following Work:
  - .1 Removing all or part of a false ceiling to obtain access to a work area, if asbestos containing material is likely lying on the surface of the false ceiling.
  - .2 Removing more than 7.5 square metres of asbestos containing suspended ceiling tiles.
  - .3 Removal of asbestos containing material as indicated on drawings.
  - .4 Removal or disturbance of one square metre or less of friable asbestos containing material during the repair, alteration, maintenance or demolition of all or part of machinery or equipment, or of a building.
  - .5 Enclosure of friable asbestos containing material.
  - .6 Application of tape or sealant or other covering to pipe and boiler insulation containing asbestos.
  - .7 Removal all or part of a false ceiling to obtain access to a work area, if asbestos containing is likely to be lying on the surface of the false ceiling.
  - .8 Removing non-friable asbestos containing materials by breaking, cutting, drilling, abrading, grounding, sanding or vibrating if:
    - .1 The material is not wetted to control the spread of dust or fibres, and
    - .2 The work is done only by means of non-powered hand-held tools.
  - .9 Removing non-friable asbestos containing materials by breaking, cutting, drilling, abrading, grounding, sanding or vibrating if the work is done by means of power tools that are attached to dust-collecting devices equipped with HEPA filters.
  - .10 Removing more than one square metre of drywall in which joint-filling compounds that are asbestos containing materials have been used.
  - .11 Removing of asbestos containing material from a pipe, duct or similar structure using a glove bag.

### **1.2 RELATED REQUIREMENTS**

- .1 Division 1.
- .2 Section 02 41 00 – Selective Demolition

### **1.3 REFERENCE STANDARDS**

- .1 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-1.205-[94], Sealer for Application of Asbestos Fibre Releasing Materials.
- .2 Department of Justice Canada (Jus)
  - .1 Canadian Environmental Protection Act, 1999 (CEPA).
- .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 WHMIS Safety Data Sheets (SDS).
- .4 Transport Canada (TC)
  - .1 Transportation of Dangerous Goods Act, 1992 (TDGA).
- .5 Underwriters' Laboratories of Canada (ULC)
- .6 A Code of Practice for working with materials containing asbestos in New Brunswick, WorkSafeNB.

## 1.4 DEFINITIONS

- .1 Amended Water: water with non-ionic surfactant wetting agent added to reduce water tension to allow wetting of fibres.
- .2 Asbestos Containing Materials (ACMs): materials that contain provincial regulated amount or more asbestos by dry weight and are identified under Existing Conditions including fallen materials and settled dust.
- .3 Asbestos Work Area: area where work takes place which will, or may disturb ACMs.
- .4 Authorized Visitors: Engineers, or designated representatives, and representatives of regulatory agencies.
- .5 Competent worker: in relation to specific work, means a worker who:
  - .1 Is qualified because of knowledge, training and experience to perform the work.
  - .2 Is familiar with the provincial and federal laws and with the provisions of the regulations that apply to the work.
  - .3 Has knowledge of all potential or actual danger to health or safety in the work.
- .6 Friable Materials: material that when dry can be crumbled, pulverized or powdered by hand pressure and includes such material that is crumbled, pulverized or powdered.
- .7 Glove Bag: prefabricated glove bag as follows:
  - .1 Minimum thickness 0.25 mm (10 mil) polyvinyl-chloride bag.
  - .2 Integral 0.25 mm (10 mil) thick polyvinyl-chloride gloves and elastic ports.
  - .3 Equipped with reversible double pull double throw zipper on top and at approximately mid-section of the bag.
  - .4 Straps for sealing ends around pipe.
- .8 HEPA vacuum: High Efficiency Particulate Air filtered vacuum equipment with filter system capable of collecting and retaining fibres greater than 0.3 microns in any dimension at 99.97% efficiency.
- .9 Non-Friable Material: material that when dry cannot be crumbled, pulverized or powdered by hand pressure.
- .10 Occupied Area: any area of building or work site that is outside Asbestos Work Area.
- .11 Polyethylene: polyethylene sheeting or rip-proof polyethylene sheeting with tape along edges, around penetrating objects, over cuts and tears, and elsewhere as required to provide protection and isolation.
- .12 Sprayer: garden reservoir type sprayer or airless spray equipment capable of producing mist or fine spray. Must have appropriate capacity for scope of work.

## 1.5 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submittals in accordance with Division 1.
- .2 Submit proof satisfactory to Departmental Representative that suitable arrangements have been made to dispose of asbestos containing waste in accordance with requirements of authority having jurisdiction.
- .3 Submit Provincial/Territorial and/or local requirements for Notice of Project Form.
- .4 Submit proof of Contractor's Asbestos Liability Insurance.
- .5 Submit to Departmental Representative necessary permits for transportation and disposal of asbestos containing waste and proof that asbestos containing waste has been received and properly disposed.
- .6 Submit proof satisfactory to Departmental Representative that all asbestos workers have received appropriate training and education by a competent person in the hazards of asbestos exposure, good personal hygiene, entry and exit from Asbestos Work Area, aspects of work procedures and protective measures while working in Asbestos Work Areas, and the use, cleaning and disposal of respirators and protective clothing.

- .7 Submit proof that supervisory personnel have attended asbestos abatement course, of not less than two days duration, approved by Departmental Representative. Minimum of one supervisor for every ten workers.
- .8 Submit Worker's Compensation Board status and transcription of insurance.
- .9 Submit documentation including test results, fire and flammability data, and WHMIS Safety Data Sheets (SDS) for chemicals or materials including:
  - .1 Encapsulants;
  - .2 Amended water;
  - .3 Slow drying sealer.
- .10 Submit proof satisfactory to Departmental Representative that employees have respirator fitting and testing. Workers must be fit tested (irritant smoke test) with respirator that is personally issued.

## 1.6 QUALITY ASSURANCE

- .1 Regulatory Requirements: comply with Federal, Provincial/Territorial and local requirements pertaining to asbestos, provided that in case of conflict among these requirements or with these specifications more stringent requirement applies. Comply with regulations in effect at the time work is performed.
- .2 Health and Safety:
  - .1 Do construction occupational health and safety in accordance with Division 1.
  - .2 Safety Requirements: worker and visitor protection.
    - .1 Protective equipment and clothing to be worn by workers while in Asbestos Work Area include:
      - .1 Air purifying half-mask respirator with N-100, R-100 or P-100 particulate filter, personally issued to worker and marked as to efficiency and purpose, suitable for protection against asbestos and acceptable to Provincial Authority having jurisdiction. The respirator to be fitted so that there is an effective seal between the respirator and the worker's face, unless the respirator is equipped with a hood or helmet. The respirator to be cleaned, disinfected and inspected after use on each shift, or more often if necessary, when issued for the exclusive use of one worker, or after each use when used by more than one worker. The respirator to have damaged or deteriorated parts replaced prior to being used by a worker; and, when not in use, to be stored in a convenient, clean and sanitary location. The employer to establish written procedures regarding the selection, use and care of respirators, and a copy of the procedures to be provided to and reviewed with each worker who is required to wear a respirator. A worker not to be assigned to an operation requiring the use of a respirator unless he or she is physically able to perform the operation while using the respirator.
      - .2 Disposable type protective clothing that does not readily retain or permit penetration of asbestos fibres. Protective clothing to be provided by the employer and worn by every worker who enters the work area, and the protective clothing to consist of a head covering and full body covering that fits snugly at the ankles, wrists and neck, in order to prevent asbestos fibres from reaching the garments and skin under the protective clothing. It includes suitable footwear, and it to be repaired or replaced if torn.

- .3 Eating, drinking, chewing, and smoking are not permitted in Asbestos Work Area.
- .4 Before leaving Asbestos Work Area, the worker can decontaminate his or her protective clothing by using a vacuum equipped with a HEPA filter, or by damp wiping, before removing the protective clothing, or, if the protective clothing will not be reused, place it in a container for dust and waste. The container to be dust tight, suitable for asbestos waste, impervious to asbestos, identified as asbestos waste, cleaned with a damp cloth or a vacuum equipped with a HEPA filter immediately before removal from the work area, and removed from the work area frequently and at regular intervals.
- .5 Ensure workers wash hands and face when leaving Asbestos Work Area. Facilities for washing are located [as indicated on drawings] .
- .6 Ensure that no person required to enter an Asbestos Work Area has facial hair that affects seal between respirator and face.
- .7 Visitor Protection:
  - .1 Provide protective clothing and approved respirators to Authorized Visitors to work areas.
  - .2 Instruct Authorized Visitors in the use of protective clothing, respirators and procedures.
  - .3 Instruct Authorized Visitors in proper procedures to be followed in entering into and exiting from Asbestos Work Area.

## **1.7 WASTE MANAGEMENT AND DISPOSAL**

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .2 Collect and separate for disposal paper, plastic, corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.
- .3 Separate for reuse and recycling and place in designated containers 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 the CEPA, TDGA, Regional and Municipal regulations.
- .6 Fold up metal banding, flatten and place in designated area for recycling.
- .7 Disposal of asbestos waste generated by removal activities must comply with Federal, Provincial/Territorial and Municipal regulations. Dispose of asbestos waste in sealed double thickness 6 mils bags or leak proof drums. Label containers with appropriate warning labels.
- .8 Provide manifests describing and listing waste created. Transport containers by approved means to licenced landfill for burial.

## **1.8 EXISTING CONDITIONS**

- .1 Reports and information pertaining to ACMS to be handled, removed, or otherwise disturbed and disposed of during this Project are available from Departmental Representative. Report Title: **“Hazardous Materials Assessment Report, Fish Culture Centre, Mactaquac, NB”** by ALL-TECH Environmental Services Limited, dated August 28, 2015.
- .2 Notify Departmental Representative of friable material discovered during Work and not apparent from drawings, specifications, or report pertaining to Work. Do not disturb such material until instructed by Departmental Representative.

## **1.9 SCHEDULING**

- .1 Hours of Work: Perform Work during normal working hours.

## **1.10 PERSONNEL TRAINING**

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

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- .1 Drop and Enclosure Sheets:
  - .1 Polyethylene: 0.15 mm thick.
  - .2 FR polyethylene: 0.15 mm thick woven fibre reinforced fabric bonded both sides with polyethylene.
- .2 Wetting Agent: 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with water in concentration to provide thorough wetting of asbestos containing material.
- .3 Waste Containers: contain waste in two separate containers.
  - .1 Inner container: 0.15 mm thick sealable polyethylene bag or where glove bag method is used, glove bag itself.
  - .2 Outer container: sealable metal or fibre type where there are sharp objects included in waste material; otherwise outer container may be sealable metal or fibre type or second 0.15 mm thick sealable polyethylene bag.
  - .3 Labelling requirements: affix preprinted cautionary asbestos warning, in both official languages, that is visible when ready for removal to disposal site.
- .4 Glove Bag:
  - .1 Acceptable materials: safe-T-Strip products in configuration suitable for Work, or Alternative material approved by addendum during tendering period in accordance with Instructions to Tenderers.
  - .2 The glove bag to be equipped with:
    - .1 Sleeves and gloves that are permanently sealed to the body of the bag to allow the worker to access and deal with the insulation and maintain a sealed enclosure throughout the work period.
    - .2 Valves or openings to allow insertion of a vacuum hose and the nozzle of a water sprayer while maintaining the seal to the pipe, duct or similar structure.
    - .3 A tool pouch with a drain.
    - .4 A seamless bottom and a means of sealing off the lower portion of the bag.

- .5 A high strength double throw zipper and removable straps, if the bag is to be moved during the removal operation.
- .5 Tape: tape suitable for sealing polyethylene to surfaces under both dry and wet conditions using amended water.
- .6 Slow – drying dealer: non-staining, clear, water-dispersible type that remains tacky on surface for at least 8 hours and designed for purpose of trapping residual asbestos fibres.
  - .1 Sealer: flame spread and smoke developed rating less than 50 and be compatible with new fireproofing.
- .7 Encapsulant: surface film forming or penetrating type conforming to CAN/CGSB-1.205.

## **PART 3 – EXECUTION**

### **3.1 SUPERVISION**

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

### **3.2 PROCEDURES**

- .1 Do construction occupational health and safety in accordance with Division 1.
- .2 Before beginning Work, at each access to Asbestos Work Area, install warning signs in both official languages in upper case 'Helvetica Medium' letters reading as follows, where number in parentheses indicates font size to be used: 'CAUTION ASBESTOS HAZARD AREA (25 mm) / NO UNAUTHORIZED ENTRY (19 mm) / WEAR ASSIGNED PROTECTIVE EQUIPMENT (19 mm) / BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM (7 mm)'.
  - .3 Before beginning Work remove visible dust from surfaces in work area where dust is likely to be disturbed during course of work.
    - .1 Use HEPA vacuum or damp cloths where damp cleaning does not create hazard and is otherwise appropriate.
    - .2 Do not use compressed air to clean up or remove dust from any surface.
  - .4 Prevent spread of dust from Asbestos Work Area using measures appropriate to work to be done.
    - .1 Use FR polyethylene drop sheets over flooring such as carpeting that absorbs dust and over flooring in work areas where dust or contamination cannot otherwise be safely contained.
    - .2 Erect enclosure of polyethylene sheeting around work area, shut off mechanical ventilation system serving work area and seal ventilation ducts to and from work area.
  - .5 Before removing suspended ceilings, remove friable material on upper surfaces using HEPA vacuum equipment.
    - .1 Remove and clean surfaces of ceiling panels using HEPA vacuum, wrap clean panels in 0.10 mm thick polyethylene, and store in building as directed by Departmental Representative.
    - .2 Clean "T" grid suspension system, disconnect, wrap in 0.10 mm thick polyethylene, and store in building as directed by Engineer.
  - .6 Remove loose material by HEPA vacuum; thoroughly wet friable material containing asbestos to be removed or disturbed before and during Work unless wetting creates hazard or causes damage.

- .1 Use garden reservoir type low - velocity sprayer or airless spray equipment capable of producing mist or fine spray.
- .2 Perform Work in a manner to reduce dust creation to lowest levels practicable.
- .7 Pipe Insulation Removal Using Glove Bag
  - .1 A glove bag not to be used to remove insulation from a pipe, duct or similar structure if:
    - .1 It may not be possible to maintain a proper seal for any reason including, without limitation:
      - .1 The condition of the insulation.
      - .2 The temperature of the pipe, duct or similar structure.
    - .2 The bag could become damaged for any reason including, without limitation.
      - .1 The type of jacketing.
      - .2 The temperature of the pipe, duct or similar structure.
  - .2 Upon installation of the glove bag, inspect bag for any damage or defects. If any damage or defects are found, the glove bag is to be repaired or replaced. The glove bag to be inspected at regular intervals for damage and defects, and repair or replaced, as appropriately. The asbestos containing contents of the damaged or defective glove bag found during removal are to be wetted and the glove bag and its contents are to be removed and disposed of in an appropriate waste disposal container. Any damaged or defective glove bags are not be reused.
  - .3 Place tools necessary to remove insulation in tool pouch. Wrap bag around pipe and close zippers. Seal bag to pipe with cloth straps.
  - .4 Place hands in gloves and use necessary tools to remove insulation. Arrange insulation in bag to obtain full capacity of bag.
  - .5 Insert nozzle of garden reservoir type sprayer into bag through valve and wash down pipe and interior of bag thoroughly. Wet surface of insulation in lower section of bag.
  - .6 To remove bag after completion of stripping, wash top section and tools thoroughly. Remove air from top section through elasticized valve using a HEPA vacuum. Pull polyethylene waste container over glove bag before removing from pipe. Release one strap and remove freshly washed tools. Place tools in water. Remove second strap and zipper. Fold over into waste container and seal.
  - .7 After removal of bag ensure that pipe is free of residue. Remove residue using HEPA vacuum or wet cloths. Ensure that surfaces are free of sludge which after drying could release asbestos dust into atmosphere. Seal exposed surfaces of pipe and ends of insulation with slow drying sealer to seal in any residual fibres.
  - .8 Upon completion of Work shift, cover exposed ends of remaining pipe insulation with polyethylene taped in place.
  - .9 Work is subject to visual inspection and air monitoring. Contamination of surrounding areas indicated by visual inspection or air monitoring will require complete enclosure and clean-up of affected areas.
  - .10 Cleanup:
    - .1 Frequently during Work and immediately after completion of work, clean up dust and asbestos containing waste using HEPA vacuum or by damp mopping.
    - .2 Place dust and asbestos containing waste in sealed dust tight waste bags. Treat drop sheets and disposable protective clothing as asbestos waste and wet and fold to contain dust and then place in waste bags.
    - .3 Immediately before their removal from Asbestos Work Area and disposal, clean each filled waste bag using damp cloths or HEPA vacuum and place in second clean waste bag.

- .4 Seal and remove double bagged waste from site. Dispose of in accordance with requirements of Provincial/Territorial and Federal authority having jurisdiction. Supervise dumping and ensure that dump operator is fully aware of hazardous nature of material to be dumped and that guidelines and regulations for asbestos disposal are followed.
- .5 Perform final thorough clean-up of Asbestos Work Areas and adjacent areas affected by Work using HEPA vacuum.

### **3.3 AIR MONITORING**

- .1 From beginning of Work until completion of cleaning operations, Departmental Representative to take air samples on daily basis outside of Asbestos Work Area enclosures in accordance with Provincial/Territorial Occupational Health and Safety Regulations and PWGSC requirements.
  - .1 Contractor will be responsible for monitoring inside enclosure in accordance with applicable Provincial/Territorial Occupational Health and Safety Regulations.
- .2 If air monitoring shows that areas outside Asbestos Work Area enclosures are contaminated, enclose, maintain and clean these areas in same manner as that is applicable to Asbestos Work Area.
- .3 Ensure that respiratory safety factors are not exceeded.
- .4 During the course of Work, Departmental Representative to measure fibre content of air outside Work areas by means of air samples analyzed by Phase Contrast Microscopy (PCM).
  - .1 Stop Work when PCM measurements exceed 0.05 f/cc and correct procedures.

**END OF SECTION**