

PART 1 - GENERAL

1.1 SECTION INCLUDES

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

1.2 RELATED REQUIREMENTS

- .1 Section 03 30 00 - Cast-In-Place Concrete.
- .2 Section 31 23 33.01 Excavating, Trenching and Backfilling.

1.3 REFERENCES

- .1 Definitions:
    - .1 Demolition: rapid destruction of structure 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. 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.
  - .2 Reference Standards:
    - .1 Canadian Council of Ministers of the Environment (CCME)
    - .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
      - .1 Material Safety Data Sheets (MSDS).
    - .3 Transport Canada (TC)
      - .1 Transportation of Dangerous Goods Act, 1992 (TDGA), c. 34.
-

1.4 ADMINISTRATIVE REQUIREMENTS

- .1 Site Meetings.
  - .1 Convene pre-demolition meeting one week prior to beginning work of this Section in accordance with Section 01 32 16.07 - Construction Progress Schedules - Bar (GANTT) Chart to:
    - .1 Verify project requirements.
    - .2 Review installation and substrate conditions.
    - .3 Co-ordination with other subtrades.
    - .4 Review manufacturer's installation instructions and warranty requirements.
  - .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 every week.
  - .4 Ensure key personnel 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 of meeting schedule established upon contract award 24 hours prior to scheduled meeting.
- .2 Scheduling: meet project time lines without compromising specified minimum rates of material diversion.
  - .1 Notify Departmental Representative in writing when unforeseen delays occur.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
  - .1 For grout/flowable fill, provide submittals in accordance with Section 03 30 00 - Cast-In-Place Concrete.
- .2 Shop Drawings:
  - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Nova Scotia, Canada.
  - .2 Submit for approval drawings, diagrams or details showing sequence of demolition work and supporting structures and underpinning, where required by authorities having jurisdiction.

- .3 Hazardous Materials:
  - .1 Provide description of Hazardous Materials and Notification of Filing with proper authorities prior to beginning of Work as required.
- .4 Waste Reduction Workplan:
  - .1 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 tipping.
    - .5 Name and address of haulers and waste facilities.
- .5 Certificates:
  - .1 Submit copies of certified weigh bills or bills of lading or receipts from authorized disposal sites and reuse and recycling facilities for material removed from site on weekly basis upon request of Departmental Representative.
  - .2 Written authorization from Departmental Representative is required to deviate from haulers and facilities listed in Waste Reduction Workplan.
- .6 Sustainable Design Submittals:
  - .1 Erosion and Sedimentation Control: submit copy of erosion and sedimentation control plan in accordance with authorities having jurisdiction.

1.6 QUALITY ASSURANCE

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

1.7 DELIVERY, STORAGE AND HANDLING

- .1 Store and manage hazardous materials in accordance with Section 01 35 43 - Environmental Procedures..
- .2 Storage and Protection.
  - .1 Protect in accordance with Section 31 23 33.01 - Excavating, Trenching and Backfilling.
  - .2 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.

- .3 Remove and store materials to be salvaged, in manner to prevent damage.
  - .4 Store and protect in accordance with requirements for maximum preservation of material.
  - .5 Handle salvaged materials as new materials.
- .3 Develop Construction Waste Management Plan Waste and Reduction Workplan. related to Work of this Section.
  - .4 Packaging Waste Management: remove for reuse and return by manufacturer of pallets, crates, padding, and packaging materials as specified in Construction Waste Management Plan and Waste Reduction Workplan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

#### 1.8 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 or 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 or as directed by Departmental Representative from site, prior to start of demolition Work, and dispose of at designated disposal facilities in safe manner in accordance with TDGA and other applicable regulatory requirements.

PART 2 - PRODUCTS

2.1 EQUIPMENT

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

2.2 MATERIALS

- .1 Grout/Flowable Fill
  - .1 Cement-based grout/flowable fill with self-leveling and non-shrink characteristics.
    - .1 Minimum compressive strength: 0.5 MPa at 28 days.
    - .2 Minimum wet density: 1440 kg/m<sup>3</sup>.
    - .3 Concrete aggregates: to CSA A23.1/A23.2.
    - .4 Cement: Type GU.

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 Designated Mechanical Services.
    - .1 Natural Gas Supply Lines: remove in accordance with gas company requirements contact utility company to arrange for removal as directed by Departmental Representative.
    - .2 Sewer and Water Lines: remove to limit indicated as directed by Departmental Representative and securely plug to form watertight seal.
    - .3 Other Underground Services: remove and dispose of as indicated as directed by Departmental Representative.
    - .4 Underground Storage Tanks: remove and dispose of in accordance with CCME PN1326 and directions of Departmental Representative.
-

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 or Provincial regulations.
  - .7 Remove designated trees during demolition.
    - .1 Obtain written approval of Departmental Representative prior to removal of trees not designated.
  - .8 Sell trees designated for removal and identified by Departmental Representative to be healthy marketable.
    - .1 Grind, chip, or shred other vegetation for mulching and composting, or use as mill pulp or process fuel.
  - .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 approved 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 and in accordance with Section 31 23 33.01 - Excavating, Trenching and Backfilling.

#### 3.4 EXISTING PIPE ABANDONMENT

- .1 Remove any free standing water prior to starting grout/flowable fill placement.
- .2 Place grout/flowable fill using concrete or grout pumps capable of continuous delivery at planned placement rate to fill volume between placement points not to exceed 150 m at a time.
- .3 Pump flowable fill through bulkheads constructed for placement of two 50 mm PVC pipes or use other suitable construction methods to contain the flowable fill in the lines to be abandoned. These pipes will act as injection points or vents for placement of flowable fill.
- .4 Place flowable fill under pressure flow conditions into a properly vented open system until flowable fill emerges from the vent pipes. Pump flowable fill with sufficient pressure to overcome friction and to fill the pipe from the downstream end, to discharge at the upstream end.
- .5 Force main abandonment:
  - .1 Clean the inside surface of force mains minimum 300 mm from the ends, as necessary, to achieve a firm bond and seal the grout plug or manufactured plug to the pipe surface. Similarly, clean and prepare the exterior pipe surface if a manufactured cap is to be used.
- .6 Field quality control: in accordance with Section 03 30 00 - Cast-In-Place Concrete.

#### 3.5 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 and facilities 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 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.

### 3.7 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.

- .2 Remove debris, trim surfaces and leave work site clean, upon completion of Work
  - .3 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.
- 
- .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 for reuse and recycling 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.

### 3.8 PROTECTION

- .1 Repair damage to adjacent materials or property caused by selective site demolition.

END OF SECTION

---