

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.2 REFERENCES

- .1 Definitions:
 - .1 Hazardous Materials: dangerous substances, dangerous goods, hazardous commodities and hazardous products, include but not limited to: poisons, corrosive agents, flammable substances, ammunition, explosives, radioactive substances, or materials that endanger human health or environment if handled improperly.
 - .2 Waste Management Coordinator (WMC): Contractor representative responsible for supervising waste management activities as well as coordinating 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.
- .2 Reference Standards:
 - .1 Canadian Environmental Protection Act (CEPA)
 - .1 CCME PN 1299-200, Canadian Environmental Quality Guidelines.
 - .2 Canadian Standards Association (CSA)
 - .1 CSA S350-2003, Code of Practice for Safety in Demolition of Structures.
 - .3 Department of Justice Canada (Jus)
 - .1 Canadian Environmental Assessment Act, 2012 (S.C. 2012, c. 19, s. 52)
 - .2 Canadian Environmental Protection Act (CEPA), 1999, c. 33.
 - .1 SOR/2003-2, On-Road Vehicle and Engine Emission Regulations.
 - .2 SOR/2006-268, Regulations Amending the On-Road Vehicle and Engine Emission Regulations.
 - .3 Transportation of Dangerous Goods Act (TDGA), 1992, c. 34.
 - .4 Underwriters' Laboratories of Canada (ULC)
 - .1 CAN/ULC-S660-08, Standard for Non-metallic Underground Piping for Flammable and Combustible Liquids.
 - .2 ULC/ORD-C58.15-1992, Overfill Protection Devices for Flammable Liquid Storage Tanks.

- .5 US Environmental Protection Agency (EPA)
 - .1 EPA CFR 86.098-10, Emission standards for 1998 and later model year Otto-cycle heavy-duty engines and vehicles.
 - .2 EPA CFR 86.098-11, Emission standards for 1998 and later model year diesel heavy-duty engines and vehicles.
 - .3 EPA 832/R-92-005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.3 ADMINISTRATIVE REQUIREMENTS

- .1 Pre-Installation Meetings:
 - .1 Convene pre-installation meeting 1 week prior to on-site installation, with Departmental Representative to:
 - .1 Verify project requirements.
 - .2 Verify existing site conditions adjacent to demolition work.
 - .3 Coordination with other construction subtrades.
 - .2 Hold project meetings every week.
 - .3 Ensure key personnel attend.
 - .4 Waste Management Coordinator (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 24 hours prior to scheduled meeting.
- .2 Scheduling:
 - .1 Project time lines must be met without compromising specified minimum rates of material diversion.
 - .1 In event of unforeseen delay, immediately notify Departmental Representative in writing.

1.4 SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 WMC is responsible for fulfilment of reporting requirements.
- .3 Prior to beginning of Work on site submit detailed WRW in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .4 Shop Drawings:
 - .1 Submit for review and approval demolition drawings, diagrams or details showing sequence of demolition work and supporting structures and underpinning.
 - .2 Submit demolition drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.

1.5 QUALITY ASSURANCE

- .1 Regulatory Requirements: Ensure Work is performed in compliance with applicable Provincial and Municipal regulations.

1.6 EXISTING CONDITIONS

- .1 If material resembling spray or trowel-applied asbestos or other substance listed as hazardous be encountered in course of demolition, stop work, take preventative measures, and notify Departmental Representative immediately. Proceed only after receipt of written instructions from Departmental Representative.
- .2 Structures to be demolished are based on their condition on date of Contract award.
 - .1 Remove, protect and store salvaged items 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 PREPARATION

- .1 Protection of In-Place Conditions:
 - .1 Work in accordance with Section 01 35 43 - Environmental Procedures.
 - .2 Prevent movement, settlement or damage of adjacent properties.
 - .1 Provide bracing and shoring as required.
 - .2 Repair damage caused by demolition as directed by Departmental Representative.
 - .3 Support affected structures and, if safety of structure being demolished adjacent structures or services appears to be endangered, take preventative measures, stop Work and immediately notify Departmental Representative.
 - .4 Prevent debris from blocking any system which must remain in operation.

3.2 DEMOLITION

- .1 Do demolition work in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
- .2 Do blasting operations in accordance with CSA S350 if required.
- .3 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.
- .4 Prior to start of Work, remove contaminated or hazardous materials listed as hazardous from site and dispose of in safe manner and in accordance Section 02 81 01 - Hazardous Materials. Refer to Existing Conditions in PART 1.

- .5 Crush concrete generated due to demolition to size suitable for recycling and as directed.
- .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 Remove and dispose of demolished materials except where noted otherwise and in accordance with authorities having jurisdiction.
- .9 Once the new dams are commissioned and the roadway is linked, the existing dams will be removed. This will require the use of additional dewatering.

3.3 CLEANING

- .1 Waste Management: in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Designate appropriate security resources/measures to prevent vandalism, damage and theft.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 35 43 - Environmental Procedures.
- .2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .3 Section 02 41 16 - Structure Demolition.

1.2 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 Canada Occupational Health and Safety Regulations (SOR/86-304).
 - .3 Department of Justice Canada (Jus)
 - .1 Transportation of Dangerous Goods Act, 1992 (TDG Act), (c. 34).
 - .2 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286).
 - .4 Green Seal Environmental Standards (GS)
 - .1 GS-11-2008, 2nd Edition, Paints and Coatings.
 - .2 GS-36-2000, Commercial Adhesives.
 - .5 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
 - .6 National Research Council Canada Institute for Research in Construction (NRC-IRC)
 - .1 National Fire Code of Canada-2005.

1.3 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 sheets for hazardous materials and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit two copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements and Section 01 35 43 - Environmental Procedures to Departmental Representative for each hazardous material required prior to bringing hazardous material on site.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance 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 Transport hazardous materials and wastes in accordance with Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.
- .4 Storage and Handling Requirements:
 - .1 Coordinate 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 flammable and combustible liquids away from open flames or heat-producing devices.
 - .6 Solvents or cleaning agents must be nonflammable or have flash point above 38°C.
 - .7 Store flammable and combustible waste liquids for disposal in approved containers located in safe, ventilated area. Keep quantities to minimum.
 - .8 Observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled.
 - .9 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 stored in separate containers.
- .6 Store hazardous materials and wastes in secure storage area with controlled access.
- .7 Maintain clear egress from storage area.
- .8 Store hazardous materials and wastes in location that will prevent them from spilling into environment.
- .9 Have appropriate emergency spill response equipment available near storage area, including personal protective equipment.
- .10 Maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.
- .11 Ensure personnel have been trained in accordance with WHMIS requirements.
- .12 Report spills or accidents immediately to Departmental Representative. Submit a written spill report to Departmental Representative within 24 hours of incident.

Part 2 Products

2.1 MATERIALS

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

2.2 DESIGNATED SUBSTANCES

- .1 Under the R.S.O. 1990, c.O.1, the following substances are defined as “Designated Substances” or substances that are considered hazardous and require appropriate control measures to be in place to limit the exposure of workers and the general public to these substances if they are present:
 - .1 Acrylonitrile (R.R.O. 1990, Reg. 835).
 - .2 Arsenic (R.R.O. 1990, Reg. 836).
 - .3 Asbestos (R.R.O. 1990, Reg. 837 and R.R.O. 1990, Reg. 838).
 - .4 Benzene (R.R.O. 1990, Reg. 839).
 - .5 Coke oven emissions (R.R.O. 1990, Reg. 840).
 - .6 Ethylene oxide (R.R.O. 1990, Reg. 841).
 - .7 Isocyanates (R.R.O. 1990, Reg. 842).
 - .8 Lead (R.R.O. 1990, Reg. 843).

- .9 Mercury (R.R.O. 1990, Reg. 844).
- .10 Silica (R.R.O. 1990, Reg. 845).
- .2 Asbestos: no asbestos-containing materials (ACMs) are necessarily expected, in either the North or South dams or the wooden storage shed. It is possible the electrical cabling may contain asbestos, but cannot be confirmed until the electrical equipment is taken out of service. It is recommended prior to demolition:
 - .1 Samples of the concrete from the dams to be tested for asbestos to confirm its presence or absence.
 - .2 Samples of the felt and roofing shingles to be analyzed using the Transmission Electron Microscopy method to confirm its absence.
 - .3 Samples of the electrical cabling to be tested for asbestos to confirm its presence or absence.
- .3 Lead: the paint coating the metal structures (hoisting structures, dam lifts and railings) on the North and South dams and the exterior paint on the shed contain lead in excess of 5000 ppm. It is recommended that the Ontario Ministry of Labour "Guideline, Lead on Construction Projects" (September 2004) be followed when handling lead-containing materials during demolition and construction.
- .4 Mercury: may be present in low concentrations in the paint. It is recommended that following the above-noted guideline during removal of lead in paint will address potential exposure of mercury to workers during construction activities.
- .5 Silica: the concrete structures of the North and South dams, and concrete walkways and surfaces are all considered to contain silica.
- .6 Arsenic: may be present in low concentrations in the paint. It is recommended that following the previously noted guideline during removal of lead in paint will address potential exposure of arsenic to workers during construction activities.
- .7 Polychlorinated Biphenyls (PCBs): several high-intensity discharge (HID) fixtures occur on the hoisting structures of the North and South dams may contain PCBs depending on the year of manufacture. It is recommended as part of the demolition work, and for proper disposal, that the date code stamped on the bottom, or back, of the ballasts removed by the electrician be compared to information published by the particular lighting manufacturer and the Federal Government in terms of ballasts that contain PCB fluids (i.e., manufactured prior to January 1980).
- .8 Ozone-Depleting Substances: are not observed at the site.
- .9 Mould: is not observed at the site.
- .10 Urea Formaldehyde Foam Insulation: is not observed at the site.
- .11 Radioactive Materials: are not observed at the site.
- .12 Fuel, Oil, Waste Oil and Chemicals: are not observed at the site, except to note that lubricating grease covers the lift chains on the hoisting structures used to open and close the lift gates.

Part 3 Execution

3.1 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: in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .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