Part 1 General

1.1 DEFINITIONS

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

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

1.2 ACTION AND INFORMATIONAL SUBMITTALS

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

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit two (2) copies of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements.

.3 Comply with all applicable Federal, Provincial, and Municipal environmental protection laws and regulations. Make the appropriate submissions and obtain all environmental approvals that may be necessary to complete the work in the Contract.

.4 Address all topics at level of detail commensurate with environmental issue and required construction tasks.

.5 Prior to commencing construction activities or delivery of materials to site provide an **Environmental Protection Plan** which must provide a comprehensive overview of known or potential environmental issues to be addressed during the project. This plan is subject to review and approval by the Departmental Representative.

.6 Provide **Erosion and Sediment Control (ESC) Plan** identifying type and location of erosion and sediment controls including monitoring and reporting requirements to assure that control measures are in compliance with Federal, Provincial, and Municipal laws and regulations and best management practices. The ESC Plan will consist of a written description and detailed drawings indicating the on-site activities and measures to be used to control erosion and sediment movement for each step of the Work, such as proposed material and equipment storage areas, structures, and sanitary facilities. Erosion and Sediment Control Plan is subject to review and approval by the Departmental Representative.

.7 Provide **Spill Response and Action Plan** subject to review and approval by the Departmental Representative. Include site-specific prevention and response procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance within the Plan. It shall be kept on hand at all times during the completion of the project,

so that any leaks or spills that occur can be promptly contained and cleaned up. An emergency spill kit must be maintained on site in case of fluid leaks or spills from machinery. If a spill occurs, the contractor is responsible for contacting the Ontario Ministry of the Environment (MOE) Spills Action Centre at 1-800-268-6060, and the Departmental Representative.

.8 Provide **Dust Management Strategy and Air Pollution Control Plan** subject to review and approval by the Departmental Representative. Strategy is to be designed to document how dust, debris, and trash generated from construction activities will be mitigated and address such issues as weather events. Design, purchase and operate equipment in accordance with applicable regulatory requirements, land use permits, and industry best management practice for air quality management.

.9 Provide **Waste Water Management Plan** subject to review and approval by the Departmental Representative. Identify methods of management and environmental protection measures and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, steel waterjetting water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.

.10 **Waste Management Plan** to be prepared in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal, subject to review and acceptance by Departmental Representative.

.11 Provide **Contaminant Prevention Plan** to identify potentially hazardous substances to be used on the job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with federal, provincial and municipal laws for the storage and handling of these material. Plan subject to review and acceptance by Departmental Representative.

1.3 ENVIRONMENTAL PROTECTION

.1 Provide **Environmental Protection Plan** that will take such measures and provide such protection system or systems to ensure that no construction material, dust, or debris is to be allowed to fall into or otherwise enter the waterway and environment.

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

.3 Address all topics at level of detail commensurate with environmental issue and required construction tasks.

.4 Include in Environmental Protection Plan:

.1 Names of persons responsible for ensuring adherence to Environmental Protection Plan.

.2 Names and qualifications of persons responsible for manifesting hazardous waste to be removed from site.

.3 Names and qualifications of persons responsible for training site personnel.

.4 Descriptions of environmental protection personnel training program.

.5 Traffic Control Plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather.

.1 Plans to include measures to minimize amount of material transported onto paved public roads by vehicles or runoff.

.6 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use.

.1 Plan to include measures for marking limits of use areas and methods for protection of features to be preserved within authorized work areas.

.7 Fire protection plan including emergency response procedures, instructions, and reports to be used in event of fire.

.5 Immediately remove any material which accidentally enters the Ottawa River.

.6 Protect shores, beds of waterbodies, and floodplains to minimize the impact on natural water flow and to prevent degradation and erosion.

.7 The discharge of chemicals and cleaning agents into aquatic habitats is prohibited.

.8 All above grade bulk fuel storage tanks are to be adequately bermed and/or have double walled tanks, and be lined with an impermeable liner to contain spillage. Containment berm to be capable of holding a minimum of 110% of the largest storage tank.

1.4 EROSION AND SEDIMENT CONTROL

.1 The Contractor acknowledges that surface erosion and sediment runoff resulting from his construction operations will have a detrimental impact to any downstream watercourse or sewer, and that all construction operations that may impact upon water quality is to be carried out in a manner that strictly meets the requirements of all applicable legislation and regulations. As such, the Contractor is responsible for carrying out operations, and supplying and installing any appropriate control measures, so as to prevent sediment laden runoff or discharge from entering any sewer or watercourse within or downstream of the working area.

.2 Prior to commencing construction activities or delivery of materials to the site, provide an Erosion and Sediment Control Plan for review and approval by the Departmental Representative and appropriate Regulatory Agencies.

.3 The Erosion and Sediment Control (ESC) Plan is to identify the type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control objectives, and all Federal, Provincial, and Municipal laws and regulations. The ESC Plan is to include but not be limited to:

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

.2 Written description and detailed drawings indicating the on-site activities and measures to be used to control erosion and sediment movement for each step of the work.

.4 Where, in the opinion of the Departmental Representative or Regulatory Agency, the installed control measures fail to perform adequately, supply and install alternative measures as directed by the Departmental Representative or authority having jurisdiction.

.5 Have additional control measures on site at all times which are easily accessible and may be implemented by the Contractor at a moment's notice.

.6 All workers, including sub-contractors, in the Working Area are to be made aware of the importance of the erosion and sediment control measures and to be informed of the consequences of the failure to comply with the requirements of all Regulatory Agencies and the specifications detailed herein.

.7 Periodically and when requested by the Departmental Representative, clean out accumulated sediment deposits as required at the sediment control divides, including those deposits that may originate from outside the construction area. Remove accumulated sediment in such a manner that prevents the deposition of this material into any sewer or watercourse and avoids damage to the control measure.

.8 Sediment is to be removed from the site at the Contractor's expense and managed in accordance with the requirements for excess earth material, as specified elsewhere in the Contract.

.9 Immediately report any accidental discharges of sediment material into either the watercourse or the storm sewer system to the environmental authorities and Departmental Representative. Failure to report constitutes a breach of this specification and the Contractor may also be subject to the penalties imposed by any applicable Regulatory Agency. Appropriate response measures, including any repairs to existing control measures or the implementation of additional control measures, are to be carried out by the Contractor without delay.

.10 The sediment control measures are only to be removed when, in the opinion of the Departmental Representative, the measure or measures is no longer required. No control measure may be permanently removed without prior authorization form the Departmental Representative. All sediment and erosion control measures are to be removed in a manner that avoids entry of any equipment, other than hand-held equipment, into any watercourse, and prevents the release of any sediment or debris into any sewer or watercourse within or downstream of the Working Area at the Contractor's expense and managed in compliance with the requirements for excess earth material, as specified elsewhere in the Contract.

.11 No claims can be made for extra compensation for the cost of fulfilling the obligations set out in this operational constraint.

1.5 FIRES

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

1.6 DRAINAGE

.1 Provide temporary drainage and pumping required to keep site free from water.

.2 Ensure any pumped water discharged into waterways, sewer or drainage systems is free of suspended materials. Sediment laden discharge is prohibited from directly entering the Ottawa River or any other watercourse, sewer or drainage system.

.3 In order to prevent silt and sedimentation from entering the watercourse, use a pump to remove the silted water from the work area. Treat silted water by discharging into settling basins, vegetated areas or sediment traps prior to release into the River.

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

1.7 SITE CLEARING AND PLANT PROTECTION

.1 Ensure that all construction equipment and material stays within the confines of the work area during construction so as not to disrupt or damage any vegetation, including tree roots and overhanging tree canopies.

.2 The storage of equipment, material, and vehicles around any trees or on grassed areas is prohibited, unless the area has been identified as a storage and/or stockpiling area.

.3 Fuel is not to be stored within the drip line of any tree, and exhaust fumes from all equipment are not to be directed towards any tree's canopy.

.4 Protect all trees, plants, and shrubs within and adjacent to construction work, storage and staging areas, and trucking lanes. Protect all trees whose driplines are within five (5) metres of the work area by installing snow fence outside of the tree's dripline/rootzone and by protecting the trunk of the trees with wood lath fence to a height of 2.4 metres.

.5 Avoid unnecessary traffic, dumping and storage of materials over root zones of trees.

.6 Minimize stripping of topsoil and vegetation.

.7 Claims for extra compensation cannot be made for the cost of fulfilling the obligations set out in this operational constraint.

1.8 WORK ADJACENT TO AND OVER WATERWAYS

.1 No construction equipment is to be operated in or adjacent to waterways, except for the use of barges.

.2 In-water work is not permitted, except for the use of barges.

.3 Do not use waterway beds for borrow material.

.4 Waterways to be kept free of all deleterious material such as fuel, chemicals, excavated fill, waste material, dust, and debris.

.5 Machinery is to arrive on-site in clean condition and is to be maintained free of fuel leaks.

.6 Store heavy equipment beyond 15 m from the edge of the slopes leading to any watercourse when not in use.

.7 Dumping deleterious material such as excavated fill, waste material, dust, and debris in the watercourse is prohibited.

.8 Ensure all equipment maintenance and fueling operations are located at least 15 metres away from waterways, and are controlled to prevent discharge of petroleum products into waterways. If working on barge, ensure proper protection is implemented to contain spills.

.9 Do not clean equipment in the water body or in any area where the waste water can enter the watercourse.

.10 The discharge of chemicals and cleaning agents into aquatic habitats is prohibited.

.11 Store all oils, lubricants, fuels, chemicals, and cleaning agents in secure areas on impermeable pads and away from waterways. If working on barge, ensure proper protection is implemented to contain spills.

.12 Store, mix and transfer paints and solvents on land and not on the bridge to prevent these materials from entering the watercourse in the event of a spill.

.13 Deploy containment measures during rehabilitation of the existing bridge, to prevent potential deposition of deleterious substances into the receiving environment, including the Ottawa River.

.14 Do not skid logs or construction materials across waterways.

.15 Take measures and provide a protection system or systems to ensure that no construction material or debris is allowed to fall into the Ottawa River. These measures must be included in the Environmental Protection Plan for approval by the Departmental Representative.

.16 Ensure no foreign material including garbage, sand, debris, cleaning solvents or paint enters the watercourse.

1.9 POLLUTION CONTROL

.1 Ensure that no contamination, waste or other substances which may be detrimental to marine life or quality of water enters the River as either a direct or indirect result of construction. Meet all requirements of all relevant Federal, Provincial, and Municipal authorities or agencies with respect to environmental protection.

.2 Install and maintain temporary pollution control features for the control of emissions such as: dust; abrasive blast medium and other debris generated from work on structures involving abrasive blast cleaning of concrete and reinforcing steel; cutting and grinding, including scarification, of concrete; effluent from sawcutting operations; vehicle emissions; application of coating material with spray equipment; and any other pollutant generated as part of the Work.

.3 Control emissions from equipment and plant in accordance with local authorities' emission requirements.

.4 Unnecessary idling of vehicles and machinery when not in use is not permitted.

.5 When coating material is applied with spray equipment, a full enclosure that prevents the escape of coating material must be installed and maintained.

.6 Remove paint or protective coatings in a manner that prevents any paints, paint flakes, primers, blasting abrasives, rust, solvents, degreasers or other waste material from entering the watercourse.

.7 Use measures such as barges or shrouding to trap and prevent blasting abrasives, protective coatings, rust and grease from entering the watercourse.

.8 Power tools used for surface preparation of steel must have an effective dust collection system equipped with HEPA filters to collect spent material and to effectively prevent the escape of lead containing dust during surface preparation activities. Effective implies that the dust collection system should be capable of controlling airborne lead concentration levels to below 0.05 mg/m3.

.9 Remove lead based paint in small sections and pack as it is being removed in sealable 0.15 mm plastic bags and place in labelled containers with tight sealing lids.

.10 The containers must be made of steel, rigid plastic, or similar material and must be in sound condition. The containers must keep the material dry at all times and prevent its escape. There must be no escape of material during transfers to and from the power tool's dust collection system, or the containers. Take measures to prevent vandalism of stored spent material.

.11 Manage and dispose of spent material in accordance with Section 01 14 25 – Designate Substances, and Section 02 83 10 – Lead-Base Paint Abatement – Minimum Precautions.

.12 All lubricants, petroleum products and chemicals are to be stored in secure impermeable area.

.13 Remove all debris accidentally introduced into the environment as soon as possible.

.14 Prepare a Spills Response and Action Plan and implement immediately in the event of a spill of a deleterious substance or upon the detection of sediment release.

.15 The Spills Response and Action Plan is to address how to react to and clean-up any hazardous spills that may occur and is to also identify equipment refuelling and maintenance areas. This plan may include, but is not limited to proper containment, clean-up and reporting protocols, in accordance with various Federal and Provincial requirements.

.16 Should a spill take place during the Works:

.1 Stop work, contain the spill of deleterious substance and/or sediment-laden release, debris and other waste materials and prevent their further migration into the environment including the Ottawa River.

.2 Notify the Departmental Representative and all applicable authorities including Environment Canada, the Ontario Ministry of the Environment and Climate Change, and the Ministère de Développement Durable, Environnement et Lutte Contre les Changements Climatiques.

.3 Promptly clean–up and appropriately dispose of the deleterious substances and/or the sediment-laden water, construction debris and other waste material in a location where it cannot enter/re-enter any watercourse.

.4 Be liable for all damages and/or charges laid which result, either directly or indirectly, from the spill, or contamination of any kind which results from his constructions operations.

.17 Ensure clean-up measures are suitably applied so as not to result in further degradation of waterways.

.18 Perform the operation and refueling and maintenance of equipment with the use of toxic materials offsite.

.1 Refuel and maintain machinery or equipment, and store materials at least 15 m away from the water.

.19 An adequate supply of clean-up materials is to be on site with a work crew that is fully trained to prevent and respond to accidental spills.

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

1.10 NOISE CONTROL

.1 Consult with the relevant Municipalities to determine “normal” working hours and hours for evening and weekend work. If work is required to be completed outside of normal working hours, the project manager must notify the Departmental Representative for instruction.

1.11 PROTECTION OF FISH AND WILDLIFE

.1 Consult with regulatory agencies regarding all habitat/species protection mitigation options and methods prior to commencing work. Ensure that all permits are in place prior to commencing activities.

.2 There is a potential for species at risk to be present near the Alexandra Bridge. This project work is not anticipated to impact any species at risk and/or habitats. However, if a species at risk is encountered, stop work immediately and contact the Departmental Representative and await further direction.

.3 Install and maintain Erosion and Sediment Control measures prior to and during construction.

.4 If wildlife is encountered within the confines of the construction envelope, implement humane trapping and relocations under the direction of a qualified professional.

.5 Erosion and Sediment Control (ESC) Plan measures and construction fencing are to be designed, maintained and regularly inspected to ensure it does not entrap wildlife.

.6 Collect and remove all waste and litter from the work site on a daily basis, or store in secure containers to prevent scavenging by birds and wildlife.

.7 Protect migratory birds in accordance with refer to Section 01 14 00 – Work Restrictions.

1.12 HAZARDOUS MATERIALS AND DESIGNATED SUBSTANCES

.1 Refer to Section 01 14 25 –Designated Substances for further information regarding designated substances.

.2 Ensure proper spill control equipment/items (spill kits, MSDSs, absorbents, containers, caution signs/tape, etc.) are readily available in areas where hazardous materials are to be stored.

.3 Comply with all Federal, Provincial and local regulatory requirements pertaining to the presence of designated substances.

1.13 NOTIFICATION

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

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

.1 Take action only after receipt of written approval by Departmental Representative.

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

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

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 CLEANING

.1 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.

.2 Maintain the site in a tidy condition, free from the accumulation of waste products, debris and litter.

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

.4 An emergency spill kit is to be kept on site in case of fluid leaks or spills from machinery.

.5 Do not deposit demolition or construction debris in the waters of the Ottawa River; inert concrete/asphalt debris will be considered a deleterious substance.

.6 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

END OF SECTION