# GENERAL

## Description

### This Section specifies the requirements for environmental controls including the control of noise, dust, surface water and erosion, and various pollution control methods including the handling of Designated Substances as defined by the Occupational Health and Safety Act (OHSA), Environmental Protection Act, and any other environmental requirements.

## Related Sections

### Section 01351 – Health and Safety

### Section 01505 – Mobilization and Demobilization

### Section 01520 – Field Office

### Section 02315 – Excavation, Trenching and Backfilling

### Section 02362 – Dust Control

### Section 02389 – Preservation of Watercourses

### Section 02911 – Topsoil and Finish Grading

### Section 02922 – Hydraulic Seeding

### Section 02933 – Sodding

### Section 02934 – Compost Seeding

### Section 02935 – Planting of Trees, Shrubs and Ground Covers

### Section 02936 – Landscape Maintenance

## References

### Ontario Provincial Standard Specifications (OPSS)

#### OPSS.MUNI 180 (Nov 2016), General Specification for the Management of Excess Materials

#### OPSS.MUNI 805 (Nov 2018) Construction Specification for Temporary Erosion and Sediment Control Measures

### Ministry of the Environment, Conservation and Parks (MECP)

#### “*Environmental Noise Guideline, Stationary and Transportation Sources - Approval and Planning, (Publication NPC-300)*”.

#### Ministry of Transportation (MTO)

##### Environmental Standards and Practices

#### O. Reg. 406/19: On-Site and Excess Soil Management

### Greater Golden Horseshoe Area Conservation Authorities

#### *“Erosion and Sediment Control Guide for Urban Construction, 2019”*

### Peterborough Stewardship Council and the Ontario Invasive Plant Council

#### *“Clean Equipment Protocol for Industry: Inspecting and cleaning equipment for the purposes of invasive species prevention, 2013”.*

## Protection of Watercourses

### Water bodies and watercourses are regulated by the local Conservation Authority, applicable ministries (Ministry of Natural Resources and Forestry (MNRF), Ministry of Environment, Conservation and Parks (MECP)) and applicable federal departments (Fisheries and Oceans Canada (DFO), Environment Canada (EC)). Permits shall be required for any work occurring within the Regulated Areas including watercourses, wetlands, floodplains and natural hazards, unless written notification is provided by the applicable regulatory body. If working within regulated areas, extensive consultation with the regulatory agencies may be required to obtain necessary approvals, which can include the development a detailed work, mitigation and restoration plans.

### The operation of construction equipment within water bodies or watercourses is prohibited unless identified on contract drawings and permits and approvals have been acquired.

### Design and construct temporary crossings to minimize environmental impact to watercourses.

### Temporary crossings are to be constructed during appropriate ecological timing windows and in accordance with various regulatory processes and approvals.

### Dumping excavated fill, waste material, or debris in any watercourse, wetland, or associated floodplain or any other key natural heritage features is prohibited.

### Do not operate construction equipment in waterways.

### Do not use waterway beds for borrow material.

### Do not dump excavated fill, waste material or debris in waterways.

### Design and construct temporary crossings to minimize erosion to waterways.

## Measurement and Payment

### All costs associated with the work of this Section shall be included in the prices for Items A1.10 in the Bid Form.

### Payment at the Contract price for the above tender items shall be full compensation for all labour, equipment, and material required to do the work. Progress payments for the work of this Section shall be made as follows:

### a) 30% for initial construction.

### b) 50% for maintenance.

### c) 20% for removal.

## General

### Comply with the following acts and corresponding regulations:

#### Federal

##### Fisheries Act

##### Migratory Birds Convention Act

##### Species at Risk Act

#### Provincial

##### Conservation Authorities Act

##### Endangered Species Act

##### Ontario Water Resources Act

##### Environmental Protection Act

##### Invasive Species Act

##### Ontario Heritage Act

### The Contractor shall establish and maintain Site procedures such that noise, dust and vibration levels from construction areas are minimized.

### The Contractor shall control surface and groundwater in accordance with MECP and Conservation Authority standards, Regional and municipal drainage and sewer use bylaws, and prevent impacts to adjacent natural receivers.

### The Contractor shall comply with ecological timing windows (e.g. no in-water or near water work outside of designated fisheries timing windows, no tree-clearing or vegetation removal outside of migratory birds timing windows) unless approval is obtained through consultation with regulatory authorities.

### The Contractor shall ensure that the construction has no impact on adjacent natural habitats. This includes but is not limited to impacts associated with sedimentation, erosion, release of deleterious materials, vegetation removal, or harmful alteration to ground water or surface water regimes.

### The Contractor shall monitor weather throughout the Work to ensure that the Work is conducted during favourable conditions.

### All in-water or near-water works shall be conducted in the dry and isolated from any adjacent natural receivers using appropriate erosion and sediment controls.

### Disturbed areas shall be minimized to the extent possible, and temporarily or permanently stabilized or restored as the work progresses. Restore/revegetate areas that have not been active for more than 30 days.

### All access to the Site shall be from either side of the watercourse, where present, and at no time shall equipment or vehicles enter or cross through the watercourse unless approved by applicable regulatory agencies (e.g. Conservation Authority, MNRF, MECP and/or DFO depending on the regulatory regime applicable to the watercourse).

### The Contractor shall supply, install, maintain and remove at the end of construction, all required sediment and erosion control items as shown on the Contract Drawings.

### The Contractor shall ensure that works on site do not result in the introduction or spread of invasive species. All equipment arriving on site shall be clean and free of plant material including seed and root/rhizomes.

## Notification

### The Consultant will notify Contractor in writing of any observed non-compliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of environmental protection. Upon receipt of this notice, the Contractor shall inform the Consultant of the proposed corrective action and take such action within 48 hours as approved by the Consultant.

### The Consultant may issue stop order of work until satisfactory corrective action has been taken.

### No Contract Time extensions will be granted or equitable adjustments allowed to Contractor for such suspensions.

* 1. Contingency Plans

### The Contractor shall provide an Environmental Protection Plan for approval by the Region, Municipalities and the Consultant 30 Days prior to mobilization to Site. The Environmental Protection Plan shall include the following contingency plans, as stand alone, or in combination with other documents in this listing:

#### Methodology-Based Contingency Plans

##### Sediment breach contingency plan for earthwork in close proximity to headwater drainage feature on site.

* + - 1. Dewatering and Monitoring Contingency Plans
      2. Bypass Operations Plans
      3. Spill Response and Contingency Plan
      4. Flood/Rainfall Event Contingency Plan

## Measures

### Noise Controls:

#### The Contractor shall provide a communication plan for noise impact satisfactory to the Region, prior to the commencement of any Work on the Site.

#### Use vehicles and equipment with efficient muffling devices.

#### Provide and use devices that will minimize noise levels in all construction areas.

#### Provide noise attenuation fencing, hoarding and devices as required to eliminate noise nuisance.

#### Control noise levels in accordance with the applicable local area municipality’s bylaws and the MECP’s “Environmental Noise Guideline, Stationary and Transportation Sources - Approval and Planning, (Publication NPC-300)”.

### Dust Controls:

#### Dust control shall be in accordance with Section 02362 – Dust Control.

#### Transport dusty materials in covered haulage vehicles.

#### Public roadways shall be kept clean and free of mud to the satisfaction of the Consultant.

#### Prevent any dust nuisance resulting from construction operations at all locations within the Site.

### Surface Water Control

#### Control all surface water including rainfall, run-off, seepage from cofferdams and diversion channels, ice, and snow.

#### Implement appropriate erosion and sediment controls (for example, silt fences, filter socks, filter bags, check dams, erosion control blanket, etc.) to prevent run-off from entering any watercourses and ensure that erosion is controlled and that flooding of excavations or damage to structures does not occur.

#### Intercept and divert surface drainage away from all excavations and any groundwater monitoring devices, where used. Intercept surface drainage as far back from excavations as practical by means of ditches, berms or other interception methods as may be required for the effective control of surface drainage.

#### Pumped water or run-off shall be directed to appropriate filtration (for example appropriately sized and maintained settlement tanks, filter bags, etc.) prior to its discharging into adjacent storm sewers, sanitary sewers (with approval from the Region) or watercourses to ensure discharge complies with quality objectives of the receiver (for example, Sewer Use Bylaw (Bylaw No. 2011-56) objectives for sewers, Provincial Water Quality objectives for watercourses, etc.).

#### Provide settling ponds, check dams, sediment basins, catch basin silt sacks or other approved mitigation measures at all drainage outlets.

##### Control overflow rates from mitigation measures to ensure that the off-site migration of sediments is prevented.

##### Provide filter socks, check dams, filter berms, sand bags or catch basin silt sacks as required in order to retard and filter run-off prior to its discharge into storm sewers, sanitary sewers or watercourses.

##### Maintain mitigation measures as required so that sediment discharge is prevented.

##### Inspect all erosion, sediment and surface water control measures after each rainfall or significant snowmelt event and take all corrective measures required.

#### Intercept and divert concentrated run-off from unstable areas (for example exposed soil) to the satisfaction of the Consultant.

#### Do not direct any flow of water across or over pavements, except through approved pipes or properly constructed troughs, or as directed by the Consultant.

#### Keep stormwater conveyance networks open at all times in order to provide adequate surface drainage. Construct and/or realign ditches as required in order to perform the Work.

#### Maintain all existing storm sewers, ditches and culverts clean and free of any deleterious materials and blockages.

#### Provide splash pads or other energy dissipation devices where water is discharged into a drainage ditch, watercourse or other natural feature which may be adversely affected by erosion

#### Dispose of water in a manner which is not injurious to public health or safety, to property or to any part of the Work completed or under construction.

#### The Contractor shall not use or take water from any watercourse or waterbody for use in construction or site activities.

#### Provide temporary drainage and pumping as necessary to keep excavations and site free from water.

#### Do not pump water containing suspended materials into waterways, areas where they could enter waterways, sewer or drainage systems.

#### Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with regulatory or local bylaw requirements.

### Erosion and Sediment Control (ESC)

#### Removal of any vegetation shall be kept to a minimum.

#### The Contractor shall make every effort to control sediment at its source.

#### Compact and stabilize banks that have been disturbed or damaged during the performance of the Work in accordance with Contract Drawings and permitting requirements, or as directed by the Consultant.

#### Prior to any grading or filling, downstream roadside ditches shall be protected with check dams or staked filter socks, as required in order to trap sediment and to prevent its entry into watercourses. Sediment barriers shall also be provided upstream of all ditch inlet catch basins in order to prevent the entry of sediment into the sewer system. Maintain barriers and remove sediment in accordance with OPSS.MUNI 805 (November 2018) until vegetative ground cover is established.

#### All filled/graded areas shall be consolidated and re-vegetated as work progresses in order to prevent erosion.

#### Monitor downstream drainage paths during construction, testing, flushing and commissioning activities in order to ensure that there is no adverse impact. Adjust operations as needed in order to avoid any potential downstream impacts at no additional cost to the Region.

#### Install ESC measures as per the design prior to any site disturbance. Maintain, repair, and/or replace ESC measures for the duration of the construction phase. Any required maintenance, repairs, and/or replacement noted during inspection or otherwise to be implemented within 48 hours. Removal of ESC measures to occur after construction phase is completed and soils are stabilized with vegetation (as determined by the Region and Consultant).

## Refueling Areas

### Review all proposed construction areas to plan access routes and fuelling areas. Do not locate on brows of hills, around sharp curves or at other locations where oncoming traffic would not otherwise have adequate warning of their existence.

### Establish suitable fuelling and maintenance areas and obtain the approval of the Consultant.

### Do not refuel or maintain equipment within 30 m of any watercourse, or in a watercourse or over water supply aquifers unless non-spill facilities are used.

### Store fuel in accordance with the requirements of the MECP, the Region, the local conservation authorities, TSSA and other applicable authorities.

## Cleaning Equipment

### Do not clean equipment in streams or lakes.

### Clean all construction equipment prior to the equipment entering roadways.

### Do not clean equipment in locations where debris from the cleaning can gain access to sewers, watercourses, wetlands, or aquifers.

### If working in any areas with invasive species, the Contractor shall follow the Clean Equipment Protocol for Industry.

## Spills

### Submit procedures for the interception, rapid clean-up and disposal of any spillage that may occur, for the Consultant’s review, prior to commencing the Work.

### Be prepared, at all times, to intercept, clean-up and dispose of any spillage that may occur during the performance of the Work, whether on land or water.

### Keep all materials required for the clean-up of spillages readily accessible at the Site.

### Report immediately any spills causing damage to the environment to the Consultant, the Region and to the MECP Spills Action Centre at 1-800-268-6060 or 416-325-3000.

### Refer to Spills Reporting in the General Conditions of the Contract for additional requirements.

## Use of Pesticides

### Coordinate the use of herbicides, pesticides and fungicides with adjacent landowners and occupants and the Regional Pesticides Control Office of the MECP and obtain all necessary approvals prior to their use.

### Obtain approval from MECP prior to using any herbicides, pesticides and fungicides within an aquifer protection area.

## Sensitive Areas

### Inform the Consultant in writing of the particular schedule for each river crossing, channelizing or other items of Work in the designated sensitive areas.

### Avoid encroachment on unique natural areas and establish boundary protection and signage to avoid any such encroachments.

### The Contractor shall not disturb the habitats of rare, special concern, threatened or endangered species.

### Protect wetland sites used as feeding or breeding areas by migratory fowl, or as habitats for other animals, and establish boundary protection and signage to avoid any such encroachment.

### Schedule construction in sensitive areas so that there will be minimal interference with water uses, including fish migration or spawning, or the disruption of the incubation period of eggs.

### Keep the removal of vegetation in sensitive areas to a minimum. Vegetation removal areas to be reviewed and approved by the Consultant.

### Tree removals and pruning must be performed by or under the supervision of an ISA certified Arborist.

## Management and Disposal of Excess Materials

### The requirements of OPSS.MUNI 180 shall apply except for the following revisions and amendments:

#### Subsection 180.07.02, Conditions on Management by Re-Use, shall be amended by the addition of the following: “Recycled hot mix asphalt or excess bituminous pavement shall not be used as trench backfill or bedding.”

#### Subsection 180.07.04, Conditions on Management by Open Burning, shall be deleted. No open burning will be permitted. Fires and burning of rubbish at the Site is not permitted.

#### The Region shall be given the first right of refusal for any excess materials.

### Disposal of excess soil shall be performed in accordance with Ontario Regulation 406/19.

## Removal and Disposal of Hazardous Materials

### Hazardous materials shall be removed from the Site and handled in accordance with the applicable MECP Regulations current at the time of construction.

### Asbestos-cement (transite) pipe shall be considered as a Designated Substance. Where the Work required includes the removal and disposal of asbestos-cement pipe, the Contractor shall ensure that work on or in the vicinity of asbestos-cement pipe complies with the Ministry of Labour Guide to the Regulation Respecting Asbestos on Construction Projects and in Buildings and Repair Operations.

### Comply with the governing Ministry of Labour Regulations respecting the protection of works, remedial handling and disposition of the Designated Substances encountered.

### Submit a Waste Quantity Report (Form OPSF 180-5) for all Solid Non-Hazardous Waste in accordance with the requirements of OPSS.MUNI 180.

### Do not empty any fuel, lubricants, herbicides, pesticides, fungicides, paint materials, solvents or other chemicals onto the ground or into storm or sanitary sewers or watercourses.

### Do not bury rubbish and waste materials on site.

### Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers or onto the ground.

# PRODUCTS

## Rolled Erosion Control Products (RECPs)

### Type of RECP (netting, blankets, turf reinforced mats) as shown on the Contract Drawings.

### Installation, inspection and maintenance of RECPs shall be in accordance with the TRCA’s Erosion and Sediment Control Guide for Urban Construction and as specified in the Contract Drawings.

## Filter Socks

### Filter Socks shall consists of a tubular mesh casing filled with a natural material, free of refuse, weeds, contaminants, or other materials which may be detrimental to the natural environment.

### Installation, inspection, maintenance and removal of Filter Socks shall be in accordance with the TRCA’s Erosion and Sediment Control Guide for Urban Construction and as specified in the Contract Drawings.

### In accordance with the Contract Drawings.

## Sediment Control Fence

### Sediment Control Fence consists of non-woven geotextile material with wire fence backing trenched into the ground and supported by steel t-bar posts.

### Geotextile shall be free of holes, tears, and punctures.

### In accordance with OPSD 219.130 unless otherwise stated in the Contract Drawings.

## Storm Drain Inlet Protection

### Storm Drain Inlet Protection shall be capable of removing debris and sediments.

### Wrapping of the storm drain grate is not permitted; the use of storm drain inlet filter bags is required, in accordance with the Contract Drawings.

### Installation, inspection, maintenance and removal of Storm Drain Inlet Protection shall be in accordance with the TRCA’s Erosion and Sediment Control Guide for Urban Construction and as specified in the Contract Drawings.

## Sediment (Dewatering) Bags

### Installation, inspection, maintenance and removal of Sediment (Dewatering) Bags shall be in accordance with the TRCA’s Erosion and Sediment Control Guide for Urban Construction and as specified in the Contract Drawings.

### The Contractor shall use appropriately sized sediment bags based on sediment, discharge rates, and volume.

# EXECUTION

## Preparation

### Obtain the required work permits issued by the applicable governing Federal, Provincial and/or Municipal Agencies as well as the local Conservation Authority and maintain them on Site.

## Existing Conditions

### The Contractor shall not negatively influence the existing flow, thermal, and sediment regimes in natural watercourse systems.

### The Contractor shall not change the existing riffle-pool and step-pool patterns in natural systems.

## Site Clearing and Plant Protection

### Conduct the Work in a way which minimizes disturbance to vegetated buffer zones. Protect trees and plants on the Site and adjacent properties where indicated in the Contract Documents.

### Leave cuttings from trees and other vegetation on Site as brush piles to allow for natural degradation. Secure large piles with degradable materials in order to prevent interference with watercourses.

### Remove only those trees that may offer future blockage problems as instructed by the Consultant.

### Leave root masses and stumps in place.

### Protect trees and plants on site and adjacent properties where indicated in the Contract Drawings.

### Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid traffic, dumping and storage of materials over root zones.

### Minimize stripping of topsoil and vegetation.

### Restrict tree removal to areas indicated or designated by Consultant.

## Drainage

### Discharge of deleterious materials, including sediment-laden water, to any natural feature is prohibited.

### Establish approved erosion mitigation measures to accommodate safe surface water entry to a watercourse to the satisfaction of the Consultant.

## Site Restoration

### Establish vegetated buffer zones with suitable vegetation to a minimum of 3m along the edge of watercourse banks to the satisfaction of the Consultant.

### Plant non-invasive vegetation that is native to the area, suitable for application without the requirement for fertilizers, pesticides and other chemicals.

### All site restoration shall be completed in accordance with the requirements of applicable regulatory agencies and conservation authorities, and in consultation with the Region and the Consultant.

### All disturbed areas at the Site shall be stabilized and re-vegetated after completion of the Work and restored to their pre-construction condition or better.

**END OF SECTION**