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| Version | Date | Description of Revisions |
| 1 | August 30, 2006 | Approved final document. |
| 2 | October 16, 2007 | Minor revisions by Legal Services. |
| 3 | November 13, 2009 | Modified ‘Related Sections’ |
| 4 | March 14, 2011 | Minor Legal Changes. |
| 5 | June 4, 2012 | Addition of References and Replacement Parts sections on this page |
| 6 | June 28, 2012 | Reformatted to Remove White Space |
| 7 | July 10, 2015 | Followed OPSS Specs with comments from Roads |
| 8 | October 20, 2015 | Legal comments 2nd review addressed, Spec realigned to OPSS 401 |
| 9 | March 21, 2016 | Revised Based on OPSS 180 and OPSS 401 (AAM) |
| 10 | December 14, 2016 | Updated references to OPSS.MUNI 401 (AAM) |
| 11 | February 21, 2017 | Addition of Subsection 3.1 which highlights Contractor responsibilities under the Ontario Underground Infrastructure Notification System Act, 2012 (AV) |
| 12 | August 21, 2018 | 3.2 401.07.06 Corrected requirement for professional engineer licensed in Ontario (BM) |

NOTE:

This is a CONTROLLED Document. Any documents appearing in paper form are not controlled and should be checked against the on-line file version prior to use.

**Notice:** This Document hardcopy must be used for reference purpose only.

**The on-line copy is the current version of the document.**

# GEneral

## Related Sections

### *[Under "Related Sections", identify other Sections that are related to, and/or dependent on, the work results or information specified elsewhere. The list should be limited to Sections with specific information that the reader might expect to find in this Section, but is specified elsewhere. For example, if hardware for aluminum entrances is specified in the aluminum entrance Section, a cross-reference would be appropriate in the finish hardware Section. The purpose of this cross-referencing is for information only, to aid in finding those other requirements—not to define the scope of the Section.*

### *Cross-referencing here may also be used to coordinate assemblies or systems whose components may span multiple Sections and which must meet certain performance requirements as an assembly or system.*

### *Contractor is responsible for coordination of the Work.*

### *This Section is to be completed/updated during the design development by the Consultant. If it is not applicable to the section for the specific project it may be deleted.]*

### *[List Sections specifying installation of products supplied but not installed under this Section and indicate specific items.]*

### .1 Section [\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_]: Execution requirements for ...[item]... specified under this Section.

### *[List Sections specifying products installed but not supplied under this Section and indicate specific items.]*

### .2 Section [\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_]: Product requirements for ...[item]... for installation under this Section.

### *[List Sections specifying related requirements.]*

### Section [\_\_\_\_\_\_ – \_\_\_\_\_\_\_\_\_\_\_\_]: [Optional short phrase indicating relationship].

#### Section 01300 – Submittals

#### Section 01353 – Traffic Control

#### Section 01571 – Erosion and Sediment Controls

#### Section 01710 – Pre-Construction Structural Survey

#### Section 02140 – Dewatering

#### Section 02260 – Excavation Support Systems

#### Section 02261 – Excavation Temporary Support Systems

#### Section 02446 – Horizontal Directional Drilling

#### Section 02511 – Watermains

#### Section 02530 – Sewerage

#### Section 02531 – Sewage Forcemains

#### Section 02631 – Manholes and Catchbasins

#### Section 02701 – Aggregates General

## References

### Ontario Underground Infrastructure Notification System Act, 2012

### Ontario Provincial Standard Specifications (OPSS)

#### OPSS.MUNI 180 (Nov 2015) – Management of Excess Materials

#### OPSS.MUNI 401 (Nov 2016) – Trenching Backfilling and Compacting

# Materials

## Comply with the requirements of OPSS 401 and Section 02701 - Aggregates General.

# EXECUTION

## Locates

### The Contractor shall be deemed an “excavator” under the Ontario Underground Infrastructure Notification System Act, 2012, and shall comply with all applicable requirements of the Act.  The Contractor shall obtain locates of underground infrastructure from Ontario One Call prior to commencing an excavation or dig.

## OPSS.MUNI 401 is amended as follows:

### **401.07.01- General** is amended by the addition of the following:

### *[Designer Note: Stockpiling may not be allowed based on the space constraints of the Site. This must be specified on the Drawings/ specification section if this is the case so that the Contractor is aware of this condition at the time of bidding.]*

### .1 Stockpile fill materials in areas approved by the Consultant.

### .2 Stockpiling should not occur near natural features, catch basins, or road side ditches.

### .3 Stockpile granular materials in a manner which will prevent segregation.

### .4 Protect all grounds and material within the Site from contamination or exposure to potentially hazardous material.

### .5 Protect stockpiles from erosion and control run off with silt protection.

### **401.07.02 -Site Preparation** is amended by the addition of the following:

### Remove any obstructions, ice and snow, from all surfaces to be excavated within the limits indicated on the Contract Drawings.

### Cut pavement or sidewalk neatly along the limits of the proposed excavation so that the surface may break evenly and cleanly. Obtain consent from the Local Municipality prior to performing such cutting work.

### .3 Commence topsoil stripping after the area has been cleared.

### .4 Strip topsoil to the depths as indicated on the Contract Drawings or to the actual depth of topsoil encountered on Site, whichever is the deepest. Do not mix topsoil with subsoil.

### .5 Stockpile in locations as approved by the Consultant.

### .6 Dispose of unused topsoil to the designated disposal site.

### **401.07.03 - Preservation and Protection of Existing Facilities** is amended by the addition of the following:

### .1 Existing buried utilities and structures:

###### The size, depth and location of existing utilities and structures indicated on the Drawings are for guidance only. The completeness and accuracy of this information is not guaranteed.

Prior to commencing any excavation work, notify the Region and/or the utility companies and establish the location and state of the use of any buried utilities and structures in accordance with the Ontario Underground Infrastructure Notification System Act, 2012.

###### The utility owners are to clearly mark the locations in order to prevent the disturbance of buried utilities and structures during the performance of the Work.

###### Confirm the locations of all buried utilities Subsurface Utility Excavation (SUE) Level A investigation. [Consultant to confirm these requirements and wording for locates]

###### Maintain and protect from damage all water, sewer, gas, electric, telephone and other utilities and structures encountered as indicated [on the Contract Drawings].

###### Record the locations of any maintained, rerouted and abandoned underground lines.

### .2 Existing buildings and surface features:

###### Conduct, with the Consultant, a condition survey of all existing buildings, trees and other plants, lawns, fencing, service poles, wires, rail tracks, pavement, survey bench marks and monuments which may be affected by the performance of the Work. [Refer to Section 01710 – Pre-Construction Structural Survey for additional survey requirements.]

###### Protect all existing buildings and surface features from damage while the Work is in progress. In the event of damage, immediately complete the necessary repairs to the approval of the Consultant.

### **401.07.04 - Removals** is amended by the addition of the following:

###### The Contractor shall arrange for the disposal of any surplus excavated materials.

###### The Contractor shall obtain written agreements from the owners of any private properties where materials are to be placed prior to the disposal of materials setting out the terms, conditions and ultimate responsibility for the materials as placed. The agreements shall constitute a transfer of ownership of the material from the Region to the private property owner.

##### Arrange with the Consultant to have a Regional Environmental Officer of the Ministry of the Environment and Climate Control carry out an inspection of the disposal site(s) prior to, and after, the placing operations are complete.

##### Keep all disposal site(s) stable and place materials in a manner so as not to cause a nuisance, injury or inconvenience to any private property owners.

##### Comply with the requirements of OPSS 180.

### **401.07.05 - Dewatering** is amended by the addition of the following:

### 1. Dewatering shall comply with Section 02240 - Dewatering.

### 2. Submit, for the Consultant’s review and approval, the details of all proposed dewatering or heave prevention methods, such as dikes, well points, and sheet pile cut offs.

### 3. Avoid excavation below the groundwater table if a quick condition or heave is likely to occur. Prevent piping or bottom heave of excavations by groundwater lowering, sheet pile cut offs, or other means.

### 4. Protect open excavations against flooding and damage due to surface run off.

### 5. Dispose of water in a manner which is not detrimental to public and private property, or any portion of the Work completed or under construction as per the Discharge Plan in Section 02241 Provide Water Control Plan, Dewatering, Discharge Plan and Groundwater Monitoring Plan.

### **401.07.06 - Support Systems** is amended by the addition of the following:

### 1. Protect any existing features in accordance with Section 02260 Excavation Support Systems and Section 02261 - Excavation Temporary Support Systems.

### 2. Engage the services of a professional engineer who is licensed in province of Ontario, to design and inspect any cofferdams, shoring, bracing and underpinning required for the Work.

### 3. Submit the design and all supporting data to the Consultant for review a minimum of 15 Working Days prior to commencing the Work of this Section.

### 4. The design and supporting data submitted is to bear the stamp and signature of a professional engineer licensed to practice in the Province of Ontario.

### **401.07.07 - Temporary Protection Systems** is amended by the addition of the following:

### .1 Protect any existing features in accordance with Section 02261 Excavation Temporary Support Systems and Section 01571 – Erosion and Sediment Controls.

### .2 Cofferdams, Shoring, Bracing and Underpinning

Obtain a permit from the Region, the Local Municipality and the applicable Conservation Authority having jurisdiction for the temporary diversion of a water course.

Construct temporary work to the depths, heights and locations as approved by the Consultant.

During backfill operations:

Remove sheeting and shoring from excavations, unless otherwise indicated in the Contract Documents or directed by the Consultant.

Do not remove bracing until backfilling has reached the respective levels of such bracing.

Consultant to inspect work prior to concealment.

Pull sheeting in increments that will ensure that the compacted backfill is maintained at an elevation at least 500 mm above the toe of the sheeting.

When sheeting is required to remain in place, cut off the tops at the elevations as indicated in the Contract Documents.

Upon completion of substructure construction:

Remove cofferdams, shoring and bracing.

Remove excess materials from the Site and restore water courses as indicated in the Contract Documents and to the satisfaction of the Consultant.

### **401.07.08 -Removal of Frozen Ground** is deleted in its entirety and replaced by the following:

Obtain the prior, written consent of the Consultant before starting excavation in frozen ground. Written authorization from the Consultant must be obtained for all methods to be used to carry out such work.

The method used for removal of frozen ground shall not cause damage to adjacent structures or Utilities.

All excavations shall be protected to prevent frost from penetrating the ground below the foundations. Any footing or structure laid on frost which, in the opinion of the Consultant, has been injured through the Contractor’s failure to adhere to the requirements of this subsection or any other Specification Section, shall be removed and made good by the Contractor at the Contractor’s own expense.

Backfilling shall not be performed with frozen material and no fill shall be placed over material which is already frozen.

All sub base and excavated ground must be tested and inspected by the Consultant prior to backfilling.

Replace any excavated frozen material with suitable backfill material at no additional cost to the Region. Frozen material may be stockpiled for use after it has thawed if it has been deemed acceptable for use by the Consultant.

### **401.07.09 - Trenching** is amended by the addition of the following:

.1 Excavate to the lines, grades, elevations and dimensions as indicated on the Contract Drawings.

### .2 Do not disturb soil within the branch spread of trees or shrubs that are to remain. If excavating through roots, excavate by hand and cut roots with a sharp axe or saw.

### .3 Do not leave trench excavations open more than 15 m at the end of any Working Day's operations. Refer to Section 01353 - Special Procedures – Traffic Control.

### .4 Dispose of all surplus and unsuitable excavated material off Site.

### .5 Do not obstruct the flow of surface drainage or natural watercourses.

### .6 Earth bottoms of excavations shall be comprised of undisturbed soil, level and free from loose, soft or organic matter.

### .7 Notify the Consultant when the bottom of the excavation is reached.

### .8 Obtain inspection and approval from the Consultant of subbase excavation before proceeding with backfilling of approved non-shrinkable materials

### .9 Remove unsuitable material from the trench bottom to the extent and depth as directed by the Consultant.

### .10 Correct any unauthorized over excavation as follows:

#### .1 Fill under bearing surfaces and footings with fill concrete.

#### .2 Fill under other areas with Type 2 fill compacted a minimum of 95% of Standard Proctor Maximum Dry Density (SPMDD).

### .11 Hand trim, make firm and remove all loose material and debris from excavations. Where material at the bottom of an excavation is disturbed, compact the foundation soil to a density at least equal to that of the undisturbed soil. Clean out rock seams and fill with concrete mortar or grout to the approval of the Consultant.

### **401.07.10.01 - General** is amended by the addition of the following:

### .1 Use fill of the types as indicated on the Contract Drawings.

#### .1 Exterior side of perimeter walls: use Type 3 fill to subgrade level. Compact to 95 % SPMDD.

#### .2 Under concrete slabs: provide a 150 mm compacted thickness base course of Type 1 fill to the underside of the slab. Compact the base course to 100% SPMDD.

#### .3 Place unshrinkable fill in the areas as indicated on the Contract Drawings.

### **401.07.10.03 - Bedding** is amended by the addition of the following:

### .1 Place and compact granular material for the bedding and surround of underground services as indicated on the Contract Drawings *[Consultant to enter the drawing numbers]*.

### .2 Place bedding and surround material in unfrozen conditions.

### .3 Place bedding and surround material as specified on the Contract Drawings.

### **401.07.10.05 - Backfill** is amended by the addition of the following:

### .1 Do not proceed with backfilling operations until the Consultant has inspected and approved all installations.

### .2 Areas to be backfilled shall be free from debris, snow, ice, water and frozen ground.

### .3 Do not use backfill material which is frozen or which contains ice, snow or debris.

### .4 Place backfill material in uniform layers not exceeding 150 mm of compacted thickness up to the grades indicated in the Contract Documents. Compact each layer before placing the subsequent layer.

### .5 Place unshrinkable fill in the areas as indicated on the Contract Drawings. Consolidate and level unshrinkable fill with internal vibrators.

### **401.07.12 -Site Restoration** is amended by the addition of the following:

### .1 Upon completion of the Work in a limited area, and before proceeding to the next area , remove all waste materials and debris, trim slopes, and correct all defects as directed by the Consultant.

### .2 Place topsoil as indicated on the Contract Drawings.

### .3 Reinstate pavement and sidewalks to the elevations that existed before excavation or as indicated on the Contract Drawings.

### .4 Clean and reinstate any areas affected by the Work to the satisfaction of the Region.

### .5 Use temporary plating to support traffic loads over unshrinkable fill for the initial 24 hour curing period.

### **END OF SECTION**