# GENERAL

## Scope of Work

### This Section covers the requirements for the installation of maintenance holes, catch basins, ditch inlets, and valve chambers.

## Related Sections

### Section 01300 – Submittals

### Section 02315 – Excavation, Trenching and Backfilling

### Section 02701 – Aggregates - General

### Section 03200 – Concrete Reinforcement

### Section 03300 – Cast in place concrete

### Section 02230 – Site Preparation for Pipelines, Utilities and Associated Structures

### Section 02240 – Dewatering-General

### Section 03410 – Plant Precast Structural Concrete

## References

All OPSS MUNI reference documents shall be the latest version.

### OPSS.MUNI 407 [November 2020], Construction Specification for Maintenance Hole, Catch Basin, Ditch Inlet, and Valve Chamber Installation.

### OPSS.MUNI 1850 [November 2020], Material Specification for Frames, Grates, Covers, and Gratings.

### OPSS.MUNI 1351 [November 2019], Material Specification for Precast Reinforced Concrete Components for Maintenance Holes, Catch Basins, Ditch Inlets, and Valve Chambers.

## Submittals

### Material Certification: Submit the manufacturer's test data and certification at least 10 Working Days prior to commencing the Work. Certification is to be marked on the units.

### The Contractor shall prepare and submit detailed layout drawings for each maintenance hole and valve chamber using the exact dimensions of all proposed chamber components. The layout drawings shall include the following details at a minimum to determine that the structure meets the requirements of the Contract Documents:

#### All piping penetrations, box out, connection details, reinforcement and thrust walls

#### Lifting device locations and structural details

#### Elevations and dimensions of the base, intermediate riser sections, transitions, roof slab, chimney and cover

#### Location of sump pits

#### Elevations of platforms and locations of ladders or steps

#### Details for joints and gasket materials

#### Details for concrete strength, exposure class and applicable standards

#### Drawings shall be sealed by a Professional Engineer where required

#### Other requirements as indicated on the Contract Drawings

### Platforms and other items noted on the Contract Drawings require designs to be prepared and submitted by the vendor's Professional Engineer.

## Measurement for Payment

### The work outlined in this Section will be measured and paid for at the Lump Sum price for each Maintenance Hole, Catch Basin, Ditch Inlet, or Valve Chamber structure as indicated in the Contract Documents for Item Nos. A2.XX in the Bid Form.

### Payment at the Contract price for the above tender items shall be full compensation for all labour, Equipment, and Material to do the work. The Lump Sum price for each item shall include all excavation, backfill, valves, fittings, couplings, piping up to the first joint outside of the structures, platforms, ladders, steps, pipe connections to structures, supports, thrust blocks, external thrust walls, lifting hooks, insulation, frost covers, cathodic protection, waterproofing, lining, benching, external drop structures to the first joint beyond the drop, valve boxes, valve stem extensions and supports, vent piping, frame and covers, hatch covers, grating, tracer wire and any other appurtenances as indicated on the Contract Drawings.

# PRODUCTS

## Maintenance Holes, Catch Basins, Ditch Inlets and Valve Chambers

**OPSS.MUNI 1351** shall be followed with the amendments:

### **1351.04.01.03 Precast Concrete Adjustment Units** is amended by adding the following:

#### Grade adjustment rings are not permitted for grade adjustment of valve chambers and maintenance holes.

#### Refer to the Region’s Standard Drawings 02.21.

#### Approved Suppliers:

##### Anchor Concrete Products Limited.

##### Con Cast Pipe Ltd.

##### M-Con Products Inc.

##### DECAST Ltd.

##### Forterra Pipe and Precast Ltd.

##### Or Equivalent.

### **1351.04.01.04** **Steps** is amended by adding the following:

#### Steps for ditch inlet or catch basins shall be in accordance with OPSD 405.010 to 405.020.

#### Ladders shall be FRP or aluminum construction, as indicated in the Contract Documents.

#### Refer to the Region’s Standard Drawings for ladders 02.30 and 02.31.

#### Approved Suppliers of aluminum steps and ladders:

##### MSU Mississauga Ltd.

##### Stepcon Industries Inc.

##### Or Equivalent.

#### Approved Suppliers of FRP ladders:

##### Access Industrial Inc.

##### Stepcon Industries Inc.

##### Or Equivalent.

### **1351.04.01.05 Aluminum Safety Platforms** is amended by adding the following:

#### Safety Platforms shall be FRP or aluminum construction, as indicated in the Contract Drawings.

#### Refer to the Region’s Standard Drawings 02.34.

#### Approved Suppliers of aluminum safety platforms:

##### MSU Mississauga Ltd.

##### Stepcon Industries Inc.

##### Or Equivalent.

#### Approved suppliers of FRP safety platforms:

##### Access Industrial Inc.

##### Stepcon Industries Inc.

##### Or Equivalent.

### **1351.05.01 Aggregates** is amended by deleting and replacing with the following:

#### Aggregates shall be in accordance with Section 02701 – Aggregates – General.

### **1351.05.05 Steel Reinforcement** is deleted and replaced with the following:

#### Concrete reinforcement in accordance with Section 03200 – Concrete Reinforcement.

#### Position metal inserts in accordance with the dimensions and details as indicated in the Contract Documents.

### **1351.05.06 Steps** is amended by adding the following:

#### FRP ladders shall be according to CAN/CGSB-41.22-93.

### **1351.05.07 Concrete** is amended by adding the following:

#### Perform cast in place concrete work in accordance with Section 03300 – Cast in Place Concrete.

### **1351.07.01 General** is deleted and replaced with the following:

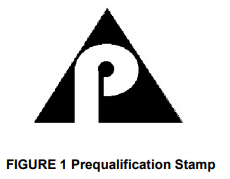
#### A manufacturer producing precast reinforced concrete components for maintenance holes, catch basins, ditch inlets, and valve chambers shall be pre-qualified and possess a current plant certificate issued under the Canadian Precast Concrete Quality Assurance (CPCQA) Certification Program.

### **1351.07.03 Marking** is amended by deleting the second sentence and replacing with the following**:**

#### Markings shall be according to CAN/CSA A257.4 and be permanently marked on all precast components in a position readily visible for inspection. The following information shall also be marked on maintenance hole, catch basin, ditch inlet, and valve chamber components:

a) The term HOOP on precast concrete riser sections using hoop steel reinforcement.

b) The prequalification stamp as shown in Figure 1.



## Frames and Covers

**OPSS.MUNI 1850** shall be followed with the following amendments:

### **1850.07.01 Frames, Grates, and Covers** is amended by adding the following:

#### Three piece frame and cover in accordance with Standard Drawing 02.02.

#### Square frame and cover in accordance with Standard Drawing 02.19.

#### Hatch covers in accordance with the Contract Drawings Any metallic surfaces in contact with concrete shall be painted with 2 coats of black bituminous paint.

### **1850.07.01.02 Markings** is amended by adding the following:

#### Refer to the Region’s Standard Drawings 02.02, 02.72 and as noted on the Contract Drawings.

#### The cover is to be marked “WATER” or “SANITARY” and “DANGER”.

### **1850.07.01.03 Finish** is amended by adding the following:

#### All surfaces shall be shop painted with 2 coats of black bituminous paint.

# EXECUTION

## Installation of Maintenance Holes and Valve Chambers

**OPSS.MUNI 407** shall be followed with the following amendments:

### **407.07.01 General** is amended by adding the following:

#### All maintenance hole, catch basin, ditch inlet, and valve chamber structures shall be watertight with no observed infiltration. Any infiltration shall be sealed and repaired by the Contractor at no additional cost to the Region.

#### Installing units in existing systems:

##### Where a new unit is to be installed in an existing run of pipe, ensure full support of the existing pipe during the installation, and carefully remove that portion of existing pipe to the dimensions required and install the new unit as specified in the Contract Documents. The Contractor shall submit a comprehensive plan to the Consultant for review of the support of the existing pipe and installation of the new unit a minimum of twenty (20) Working Days prior to performing the work.

##### Make the joints watertight between the new unit and existing pipe.

##### Provide additional mechanical restraint, concrete thrust blocks, pipe cradles or other requirements for the protection of piping systems

##### Where deemed expedient to maintain service around existing pipes and when systems constructed under this Contract are ready to be put into operation, complete the installation with appropriate break outs, removals, redirection of flows, blocking unused pipes or other necessary Work.

### **407.07.03 Site Preparation** is deleted and replaced with the following:

#### Site preparation shall be in accordance with Section 02230 – Site Preparation for Pipelines, Utilities and Associated Structures.

### **407.07.08 Excavating, Backfilling, and Compacting** is deleted and replaced with the following:

#### Excavate and backfill in accordance with Section 02315 – Excavation, Trenching and Backfilling and as indicated in the Contract Documents.

#### Unshrinkable fill shall be in accordance with Section 02315 – Excavation, Trenching and Backfilling.

#### Obtain approval of the Consultant for bearing capacity and subbase suitability before installing maintenance holes, catch basins, ditch inlets and valve chambers.

### **407.07.10 Dewatering** is deleted and replaced with the following:

#### Dewatering shall be in accordance with Section 02240 – Dewatering.

### **407.07.11 Cast-in-Place Structures** is deleted and replaced with the following:

#### Cast in place concrete in accordance with Section 03300 – Cast in Place Concrete.

#### Construct cast in place units in accordance with the details indicated in the Contract Documents, plumb and true to alignment and grade.

### **407.07.13 Installation of Inlet and Outlet Pipes Into Concrete Structures** is amended by adding the following:

#### For rigid or semi-rigid pipe wall connection details refer to Standard Drawing 02.38.

### **407.07.12 Precast Structures** is amended by adding the following:

#### Monolithic bases are to be approved by the Consultant.

#### Construct precast units in accordance with the details indicated in the Contract Documents, plumb and true to alignment and grade.

#### Dewater the excavation to the approval of the Consultant and remove soft and foreign material before placing the concrete base. Obtain approval of the Consultant for bearing capacity and subbase suitability before installing precast structures.

#### Set precast concrete base on a minimum depth of 150 mm of 19mm clear stone or as indicated on the Contract Drawings.

#### Complete installation of units as the pipe laying progresses. Clean surplus mortar and joint compounds from the interior surface of the unit as the Work progresses.

#### Make each precast joint watertight with rubber ring gaskets.

#### All precast joints below grade shall be externally waterproofed. A petrolatum tape waterproof membrane shall be applied externally around all riser, grade adjustment, top and base section joints on all maintenance holes and valve chambers. Extend completely around all riser section joints with a minimum 300 mm wide strip, installed as per manufacturer’s specifications. The tape shall be sealed to the concrete surface to ensure no air pockets or other spaces that might allow water infiltration.

#### Refer to the Region’s Standard Drawings 02.01, 02.10for waterproofing of maintenance holes and valve chambers.

### **407.07.14 Benching and Channeling** is amended by adding the following:

#### For sewers, bench to provide a smooth U-shaped channel. Benching is to be constructed to the obvert of the pipe. The benching shall be sloped at 2% to the channel. Curve channels smoothly. Slope invert to establish the sewer grade.

#### Refer to the Region’s Standard Drawings 02.17.

### **407.07.15 Installation of Adjustment Units** is deleted and replaced with the following:

#### For any grade adjustments up to 150mm deep, use non-shrink mortar (SikaQuick 1000, VeraSpeed 100, or Equivalent). Grade adjustments greater than 150mm require a cast in place or precast riser. Refer to the Region’s Standard Drawings 02.21.

#### All structures shall be adjusted plumb, true to alignment and grade, and as specified in the Contract Drawings.

#### During the progress of the work and until the final acceptance, all structures shall be kept clean and free of all extraneous material.

### **407.07.16 Installation of Frames with Grates or Covers** is deleted and replaced with the following:

#### Refer to the Region’s Standard Drawings 02.02 and 02.72.

### **407.07.17 Installation of Aluminum Safety Platforms** is amended by adding the following:

#### Install aluminum or FRP safety platforms in maintenance holes and valve chambers having a depth of 5 metres or greater, as indicated on the Contract Drawings.

#### Refer to the Region’s Standard Drawings 02.32 and 02.34.

### **407.07.18 Installation of Extension Stems and Boxes for Valve Chambers** is amended by adding the following:

#### Refer to the Region’s Standard Drawing 02.66.

### **407.07.19 Installation of Ladders and Steps** is amended by adding the following:

#### Refer to the Region’s Standard Drawing 02.30 and 02.31.

### **407.07.21 Valve Chamber Insulation** is amended by adding the following:

#### Insulation to be installed on all chambers with air release valves or as indicated on the Contract Drawings.

#### Refer to the Region’s Standard Drawing 02.23.

### **407.07.23 Clean Out of Structures** is amended by adding the following:

#### Clean the units of debris and foreign materials. Remove fins, excess concrete and sharp projections. Prevent debris from entering the system. Precast anchors for lifting segments are to be filled in with non-shrink grout to be flush with the wall or floor surfaces. Any form ties or bug holes in diameter or depth of 20mm are to be filled in with non-shrink mortar.

### **407.07.25 Leakage Test** is deleted and replaced by the following:

#### All catch basin, ditch inlet, maintenance hole and valve chamber structures shall be watertight with no observed infiltration. Any infiltration shall be sealed and repaired by the Contractor at no additional cost to the Region.

### **407.09 Measurement for Payment** is deleted and replaced with the following:

#### This section is not used, refer to section 1.5 of this specification Section.

### **407.10 Basis of Payment** is deleted and replaced with the following:

#### This section is not used, refer to section 1.5 of this specification Section.

**END OF SECTION**