

**PART 1 - GENERAL**

- 1.1 RELATED SECTIONS .1 Section 312333.01 – Excavating, Trenching and Backfilling
- 1.2 REFERENCES .1 Canadian General Standards Board (CGSB)  
.1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire, Inch Series.  
.2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.
- .2 Canadian Standards Association (CSA International)  
.1 CAN/CSA-A23.1-04/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
- .3 CAN/CSA-A3000-03(R2005), Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).  
.1 CSA-A3001-03, Cementitious Materials for Use in Concrete.  
.2 CSA-A3002-03, Masonry and Mortar Cement.  
.3 CAN/CSA A257, Standards for Concrete Pipe and Manhole Sections.  
.4 CAN/CSA-G30.18-M92(R2002), Billet Steel Bars for Concrete Reinforcement.  
.5 CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
- .4 Ontario Provincial Standard Specifications (OPSS)  
.1 OPSS 407-November 2007, Construction Specification For Maintenance Hole, Catch Basin, Ditch Inlet And Valve Chamber Installation.
- 1.3 ACTION AND INFORMATIONAL SUBMITTALS .1 Provide submittals in accordance with Section 013300 - Submittal Procedures.
- .2 Product Data:  
.1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.  
.2 Submit two copies WHMIS MSDS - Material Safety Data Sheets.
- .3 Quality assurance submittals: submit following in accordance with Section 014500 - Quality Assurance.  
.1 Submit manufacturer's test data and certification at least 4 weeks prior to beginning Work. Include manufacturer's drawings, information and shop drawings where pertinent.  
.2 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

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- 1.4 QUALITY ASSURANCE .1 Pre-Installation Meetings: convene pre-installation meeting one week prior to beginning on-site installation, with Contractor's representative and Departmental Representative to:
- .1 Confirm project requirements.
  - .2 Review installation and substrate conditions.
  - .3 Co-ordination with other building subtrades.
  - .4 Review manufacturer's installation instructions and warranty requirements.
- 1.5 DELIVERY, STORAGE AND HANDLING .1 Packing, shipping, handling and unloading:
- .1 Deliver, store and handle materials in accordance with manufacturer's written instructions.
- 1.6 BASIS OF PAYMENT .1 Adjust Existing CB / MH / WV - The work under this item includes the adjusting of existing catchbasins, maintenance holes, water valves and valve chamber tops. The lump sum price bid will be full compensation for all labour equipment and material to undertake the work including excavation, backfill, compaction, protection of the structure, rubber spacers, pre-cast concrete collars, mortaring and adjustment of existing catchbasin, maintenance hole, water valve and valve chamber tops as indicated on the Contract Drawings.

## **PART 2 - PRODUCTS**

- 2.1 MATERIALS .1 Precast manhole units: In accordance with CAN/CSA A257 and OPSS 1351.
- .1 Precast adjustment units: In accordance with CAN/CSA A257.
  - .2 Gaskets in joints of precast maintenance holes: Fabricated in accordance with CAN/CSA A257.
  - .3 Steps: In accordance with CAN/CSA A257.
  - .4 Sanitary maintenance hole frame and grate - closed cover: As indicated on Contract Drawings.
  - .5 Storm maintenance hole frame and grate - open cover: As indicated on Contract Drawings.
  - .6 Top sections eccentric cone or flat slab top type with opening offset for vertical ladder installation.
  - .7 Monolithic bases to be approved by Departmental Representative and set on concrete slabs cast in place.
- .2 Precast catch basin sections: With sump and goss trap in accordance with CAN/CSA A257 and OPSS 1351.
- .1 Catchbasin frame and grate - flat cover: As indicated on the Contract Drawings.
  - .2 Catchbasin leads: As indicated on the Contract Drawings.
  - .3 Precast adjustment units: In accordance with CAN/CSA A257.
- .3 Adjusting rings: to ASTM C 478M.
- .4 Frames, gratings, covers to dimensions as indicated and following requirements:
- .1 Metal gratings and covers to bear evenly on frames.

- .1 Frame with grating or cover to constitute one unit.
- .2 Assemble and mark unit components before shipment.
- .2 Manhole frames and covers: cover cast and complete with two 25 mm square lifting holes to OPSS 407.
- .3 Catch basin frames and covers: to OPSS 407.
- .4 Size: 762 mm clear diameter.
  
- .5 Granular bedding and backfill: in accordance with Section 310516 - Aggregate Materials and following requirements:
  - .1 Crushed stone.
  - .2 Gradations to be within limits specified when tested to ASTM C 136 and ASTM C 117. Sieve sizes to CAN/CGSB-8.1.
  - .3 Concrete mixes and materials: in accordance with Section 033000 - Cast-in-Place Concrete.

**PART 3 - EXECUTION**

- 3.1 MANUFACTURER'S INSTRUCTIONS .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.
  
- 3.2 EXCAVATION AND BACKFILL .1 Excavate and backfill in accordance with Section 312333.01 – Excavating, Trenching and Backfilling and as indicated.
  
- 3.3 ADJUSTING TOPS OF EXISTING UNITS .1 Remove existing gratings, frames and store for re-use at locations designated by Departmental Representative.
  - .2 Sectional units:
    - .1 Raise or lower straight walled sectional units by adding or removing precast sections as required.
    - .2 Raise or lower tapered units by removing cone section, adding, removing, or substituting riser sections to obtain required elevation, then replace cone section.
      - .1 When amount of raise is less than 600 mm use standard manhole brick, moduloc or grade rings.
  - .3 Monolithic units:
    - .1 Raise monolithic units by roughening existing top to ensure proper bond and extend to required elevation with cast-in-place concrete.
    - .2 Lower monolithic units with straight wall by removing concrete to elevation indicated for rebuilding.
    - .3 When monolithic units with tapered upper section are lowered more than 150 mm, remove concrete for entire depth of taper plus as much straight wall as necessary, then rebuild upper section to required elevation with cast-in-place concrete.
  - .4 Install additional manhole ladder rungs in adjusted portion of units as required.

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- .5 Re-use existing gratings, frames.
  - .6 Re-set gratings and frames to required elevation on not more than 4 courses of brick.
    - .1 Make brick joints and join brick to frame with cement mortar, parge and trowel smooth.
    - .2 Re-set gratings and frames to required elevation on full bed of cement mortar, parge and trowel smooth.
  - 3.4 REPLACEMENT OF STEEL GRATE .1 Not applicable.
  - 3.5 CLEANING .1 Proceed in accordance with Section 017411 - Cleaning.
    - .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

**\*\*\* END OF SECTION \*\*\***