

PART 1 - GENERAL

1.1 RELATED  
SECTIONS

- .1 Section 31 23 10: Excavating, Trenching and Backfilling.
- .2 Section 33 44 01: Storm sewers.
- .3 Section 33 34 01: Sanitary sewers and forcemains.

1.2 SOURCE QUALITY  
CONTROL

- .1 Departmental Representative will inspect material at construction site.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Cement: to CAN/CSA-A3001-08, Type GU.
- .2 Water, aggregates, admixtures: to CSA A23.1-09/A23.2-09, Concrete materials and methods of concrete construction/Test methods and standard practices for concrete.
- .3 Frames, gratings, covers: to plan dimensions and to following requirements for designated materials:
  - .1 Metal gratings and covers to bear evenly on frames. A frame with grating or cover to constitute one unit. Assemble and mark unit components before shipment.
  - .2 Sanitary maintenance hole frames and covers: cover cast without perforations and complete with two 25 mm square lifting holes to OPSD 401.010 Nov. 2007, Type A.
  - .3 Storm maintenance hole frames and covers: cover cast with perforations and complete with two 25 mm lifting hole to OPSD 401.010 Nov.2007 Type B.
  - .4 All frames and covers to be lockable. Bolted closed is considered locked.
- .4 Precast maintenance holes: to ASTM C478M-09.
- .5 Ladder rungs: to OPSD 405.010 Nov. 2008.
- .6 Mortar:
  - .1 Aggregate: to CSA A179-04(R2009).
  - .2 Cement: to CAN/CSA-A3002-08.

- 2.1 MATERIALS
- .7 Brick: to CAN/CSA-A82-06, Grade SW, Type FBS.
  - .8 Adjustment rings: precast concrete to ASTM C478M-09.

### PART 3 - EXECUTION

- 3.1 EXCAVATION AND BACKFILL
- .1 Excavation and backfill to Section 31 23 10.
  - .2 Excavation requires approval prior to installing maintenance holes or catch basins.

- 3.2 CONCRETE WORK
- .1 Do concrete work to CSA-A23.1-09/A23.2-09.
  - .2 Position metal inserts to dimensions and details shown or required.

- 3.3 INSTALLATION
- .1 Construct units to details indicated, plumb and true to alignment and grade.
  - .2 Complete maintenance holes as pipe laying progresses. Maximum of 3 maintenance holes behind point of pipe laying will be allowed.
  - .3 Pump maintenance hole excavation dry and remove soft and foreign material before placing concrete base.
  - .4 Set precast concrete slab on 300mm minimum of well compacted granular A material.
  - .5 Set bottom section of precast unit in place. Make each successive joint watertight with approved rubber ring gaskets, mastic joint filler, cement mortar, or combination thereof.
  - .6 Clean surplus mortar and joint compounds from interior surface of unit as work progresses.
  - .7 Plug lifting holes with precast concrete plugs set in cement mortar or compound.
  - .8 For sanitary sewers:
    - .1 Place stub outlets and bulkheads at elevations and in positions indicated.

3.3 INSTALLATION  
(Cont'd)

- .8 (Cont'd)
  - .2 Bench to provide a smooth U-shaped channel. Side height of channel to be half diameter of sewer. Adjacent floor to be sloped at 75 mm/m. Channels to be curved smoothly. Slope invert to establish sewer grade. For pipes smaller than 150 use standard fittings, breaking out upper half of fitting upon completion of maintenance hole.
- .9 Installing units in existing systems:
  - .1 Where new unit is within existing run of pipe, carefully remove existing pipe to dimensions required and install new unit as specified.
  - .2 Make joints watertight between new unit and existing pipe.
  - .3 Where deemed expedient to maintain service around existing pipes and when systems constructed under this project are ready to be put into operation, complete the installation with appropriate break-outs, removals, redirection of flows, blocking unused pipes or any other necessary work.
- .10 Set frame and cover to required elevation, parge and make smooth and watertight.
- .11 Place frame and cover on top section to elevation indicated. If adjustment required use concrete ring.
- .12 Clean units of debris and foreign materials; remove fins or sharp protuberances.

3.4 ADJUSTING TOPS  
EXISTING UNITS

- .1 Remove existing gratings, and 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.
- .3 Monolithic units:
  - .1 Raise monolithic units by roughening existing top to ensure proper bond and extend to required elevation with:

- 3.4 ADJUSTING TOPS .3 (Cont'd)  
EXISTING UNITS .1 (Cont'd)  
(Cont'd) .1 Mortared brick course for 150 mm or  
less alteration.  
.2 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 to be 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 maintenance hole ladder  
rungs in adjusted portion of units as required.  
.5 Re-use existing gratings, frames.  
.6 Re-set gratings and frames to required  
elevation on full bed of cement mortar, parge  
and trowel smooth.
- 3.5 SEALING OVER .1  
EXISTING UNITS Cut galvanized iron sheet to extend 50 mm beyond  
opening of existing maintenance hole or catch  
basin grating. Center iron sheet over existing  
grating and spot or stitchweld to grating.