

**NOTES:**

- FOR 100 - 400mm DIAMETER WATERMAINS, WHERE THE DEPTH OF COVER IS LESS THAN 250mm.
- THICKNESS OF INSULATION SHALL BE ADJUSTED TO 25mm.
- PROBABILITY OF MAINTENANCE HOLES, CLAVETS, CARTRIDGES, ETC. INSULATION SHALL BE PLACED PER DETAIL W22.
- DEPTH OF COVER LESS THAN 150mm REQUIRES SPECIAL DESIGN.
- STAGGER JOINTS OF VALVE SHEETS.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.

ONTARIO PROVINCIAL STANDARD DRAWING  
**PRECAST CONCRETE MAINTENANCE HOLE**  
 1200mm DIAMETER  
 OPSD 701.010

ONTARIO PROVINCIAL STANDARD DRAWING  
**STANDARD ROAD CUT REINSTATEMENT**  
 OPSD 701.010

**NOTES:**

- The sump is measured from the lowest invert.
- Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
- Precast concrete components shall be according to OPSD 701.030, 701.031, or 701.032.
- Structure exceeding 5.0m in depth shall include safety platform according to OPSD 404.020.
- Pipe support according to OPSD 708.020.
- For benching and pipe opening details, see OPSD 701.021.
- For adjustment unit and frame installation, see OPSD 704.010.
- All dimensions are nominal.
- All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING  
**PRECAST CONCRETE MAINTENANCE HOLE**  
 1200mm DIAMETER  
 OPSD 701.010

**NOTES:**

- Sidewalk thickness at residential driveways and adjacent to curb shall be 150mm.
- At commercial and industrial driveways, the thickness shall be 200mm.
- This OPSD shall be read in conjunction with OPSD 310.030, 310.031, 310.032, 310.033 and 310.039.
- All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING  
**CONCRETE SIDEWALK**  
 OPSD 310.010

**NOTES:**

- THE FULL CURB DEPTH SHALL BE CARRIED THROUGH THE DEPRESSION CROSSING.
- A CONCRETE SUPPORT IS REQUIRED WHEN BUILT ADJACENT TO THE SIDEWALK.
- IF AN EXTENSION CURBING MACHINE IS USED, THE EXPANSION JOINTS SHALL BE PLACED AT THE END OF THE EXTRUSION.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
- DUMMY JOINTS SHALL BE 20mm DEEP FROM FRONT, BACK AND TOP OF SECTION AT 2m SPACING.
- FOR DEPRESSION CURB AT ENTRANCES USE 250.
- FOR DEPRESSION CURB HEIGHT - FOR PEDESTRIAN CURB RAMP 0 TO 6mm AND FOR PRIVATE ENTRANCES 0 TO 25mm.

ONTARIO PROVINCIAL STANDARD DRAWING  
**CONCRETE BARRIER CURB FOR GRANULAR BASE PAVEMENT**  
 (MODIFIED OPSD-600.110)  
 OPSD 310.010

**USE AND INTERPRETATION OF DRAWINGS**

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAIL UNLESS AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. THE CONTRACTOR CONFIRMS THAT HE HAS VISITED THE SITE, FAMILIARIZED HIMSELF WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CAD FILES OR OTHER ELECTRONIC MEDIA AND COPIED THERE OF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE USED ONLY FOR THIS PROJECT AND ARE NOT TO BE USED ON ANY OTHER PROJECT, INCLUDING REPEATS OF THE PROJECT. CHANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEER.

UNLESS THE REVISION TITLE IS ISSUED FOR CONSTRUCTION, THESE DRAWINGS SHALL BE CONSIDERED PRELIMINARY AND SHALL NOT BE USED AS A CONSTRUCTION DOCUMENT.

THESE DRAWINGS ILLUSTRATE THE WORK TO BE DONE. THE ENGINEER IS NOT RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES USED TO DO THE WORK, OR THE SAFETY ASPECTS OF CONSTRUCTION, AND NOTHING ON THESE DRAWINGS EXPRESSED OR IMPLIED CHANGES THIS CONDITION. CONTRACTOR SHALL DETERMINE ALL CONDITIONS AT THE SITE AND SHALL BE RESPONSIBLE FOR KNOWING HOW THEY AFFECT THE WORK. SUBMITTAL OF A BID TO PERFORM THIS WORK IS ACKNOWLEDGEMENT OF THE RESPONSIBILITIES, AND THAT THEY HAVE BEEN FULLY CONSIDERED IN PLANNING OF THE WORK, AND THE BID PRICE. NO CLAIMS FOR EXTRA CHARGES DUE TO THESE CONDITIONS WILL BE FORTHCOMING.

UNAUTHORIZED CHANGES

IN THE EVENT THE CLIENT, THE CLIENT'S CONTRACTORS OR SUBCONTRACTORS, OR ANYONE FOR WHOM THE CLIENT IS LEGALLY LIABLE MAKES OR PERMITS TO BE MADE ANY CHANGES TO ANY REPORTS, PLANS, SPECIFICATIONS OR OTHER CONSTRUCTION DOCUMENTS PREPARED BY LRI ASSOCIATES LTD. (LRI) WITHOUT OBTAINING LRI'S PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME FULL RESPONSIBILITY FOR THE RESULTS OF SUCH CHANGES. THEREFORE THE CLIENT AGREES TO WAIVE ANY CLAIM AGAINST LRI AND TO RELEASE LRI FROM ANY LIABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH UNAUTHORIZED CHANGES.

IN ADDITION, THE CLIENT AGREES TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS LRI FROM ANY DAMAGES, LIABILITIES OR COSTS, INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENSE, ARISING FROM SUCH CHANGES.

EXISTING SERVICES AND UTILITIES SHOWN ON THESE DRAWINGS ARE TAKEN FROM THE BEST AVAILABLE RECORDS, BUT MAY NOT BE COMPLETE OR TO DATE. CONTRACTOR SHALL VERIFY IN FIELD FOR LOCATION AND ELEVATION OF PIPES AND CHECK WITH THE UTILITY COMPANIES BEFORE DIGGING OR PERFORMING WORK.

CONTRACTOR IS ADVISED TO COLLECT INFORMATION ON SOIL CONDITIONS BEFORE START OF CONSTRUCTION.

THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.

ONTARIO PROVINCIAL STANDARD DRAWING  
**HYDRANT LOCATION**  
 OPSD 701.010

**NOTES:**

- FOR ALL WATERMAINS.
- SEE DETAIL W02 FOR HYDRANTS IN DITCH AREAS.
- FOR WATERMAINS ABOVE AND UNDER, LOCATE VALVE WITH 10% OF CENTRELINE, RETAINING/RESTRAINING DEVICES TO BE UTILIZED. FOR WATERMAINS ABOVE AND UNDER, LOCATE VALVE WITH 10% OF CENTRELINE TO FLANGED TEES.
- RETAINING/RESTRAINING DEVICES TO BE UTILIZED.
- SEE W01 FOR BACKFILL REQUIREMENTS IN THIS AREA.
- SEE W18 FOR HYDRANT LOCATION REQUIREMENTS.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.

ONTARIO PROVINCIAL STANDARD DRAWING  
**HYDRANT INSTALLATION**  
 OPSD 701.010

**NOTES:**

- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
- FOR 200 AND 250mm VALVES AND BEDDING BELOW THE CONCRETE BLOCKS AS REQUIRED TO RAISE BELL HIGH ENOUGH TO PREVENT CONTACT WITH THE VALVE BOWNET.

ONTARIO PROVINCIAL STANDARD DRAWING  
**VALVE BOX ASSEMBLY**  
 OPSD 701.010

**NOTES:**

- PIPE EMBEDMENT MATERIAL - GRANULAR 'A'.
- FINAL BACKFILL - APPROVED NATIVE MATERIAL OR SELECT SUBGRADE IN ACCORDANCE WITH F-200.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
- SEE F-200 FOR CLEARANCE REQUIREMENTS.
- WHEN APPROVED BY THE CONTRACT ADMINISTRATOR, POOR SOILS SHALL BE EXCAVATED TO CREATE A FOUNDATION THAT SHALL BE FILLED TO THE BEDDING WITH GRANULAR 'A'.

ONTARIO PROVINCIAL STANDARD DRAWING  
**STANDARD TRENCH DETAIL**  
 OPSD 701.010

**NOTES:**

- FOR 300mm OR GREATER DIAMETER WATERMAIN BENDS SHALL BE MAXIMUM 225°.
- REGULATION PER W22 AT EXISTING WATERMAIN.
- REFER TO W25 FOR RESTRAINED LENGTH REQUIREMENTS.
- REFER TO W23 AND W25 FOR THURST BLOCK REQUIREMENTS.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.

ONTARIO PROVINCIAL STANDARD DRAWING  
**TYPICAL CONNECTION DETAIL FROM NEW TO EXISTING WATERMAIN**  
 OPSD 701.010

**NOTES:**

- Pipe embedment or bedding, cover, and backfill shall be according to:
  - a) Flexible OPSD 802.010, 802.013, 802.014, 802.020, 802.023, and 802.024.
  - b) Rigid - OPSD 802.030, 802.031, 802.032, 802.033, 802.034, 802.050, 802.051, 802.052, 802.053, and 802.054.
- Frost toppers shall start at bedding grade.

LEGEND:  
 d - depth of roadbed granular  
 k - depth of frost treatment below profile grade  
 f - depth of frost penetration below profile grade

ONTARIO PROVINCIAL STANDARD DRAWING  
**FROST TREATMENT - PIPE CULVERTS**  
 FROST PENETRATION LINE BELOW BEDDING GRADE  
 OPSD 803.030

**NOTES:**

- Covers shall be Type A or Type B, as specified.
- All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING  
**CAST IRON, SQUARE FRAME WITH CIRCULAR CLOSED OR OPEN COVER FOR MAINTENANCE HOLES**  
 OPSD 401.010

**NOTES:**

- The thickness of the rip-rap layer shall be at least 1.5 times the rip-rap mean diameter.
- All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING  
**GENERAL RIP-RAP LAYOUT FOR SEWER AND CULVERT OUTLETS**  
 OPSD 810.010

**NOTES:**

- INSULATION SHALL EXTEND 300mm EACH WAY FROM THE ENDS OF THE STRUCTURE, PARALLEL TO THE WATERMAIN.
- STAGGER JOINTS OF WALKING SHEETS.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
- INSULATION CAN BE AT EITHER LOCATION OR BOTH.

ONTARIO PROVINCIAL STANDARD DRAWING  
**THERMAL INSULATION OF WATERMAINS AT OPEN STRUCTURES**  
 OPSD 701.010

NOT AUTHENTIC UNLESS SIGNED AND DATED

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PROJECT: PROPOSED ASSEMBLY HALL 4835 BANK STREET, OTTAWA

DRAWING TITLE: CONSTRUCTION DETAIL PLAN

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