

**ALTERNATIVES**

**A PRECAST SLAB BASE**

**B CAST-IN-PLACE BASE**

**C PRECAST FLAT CAP**

**NOTES:**

- 1 The sump is measured from the lowest invert.
- 2 A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
- 3 Precast concrete components shall be according to OPSD 701.030, 701.031, 701.032, 701.041, 703.011, 703.021, and 708.010.
- 4 Structures exceeding 5.0m in depth shall include safety platform according to OPSD 404.020 or 404.021.
- 5 Pipe support shall be according to OPSD 708.020.
- 6 For benching and pipe opening details, see OPSD 704.010.
- 7 For adjustment unit and frame installation, see OPSD 704.010.
- 8 All dimensions are nominal.
- 9 All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2014 Rev 5  
**PRECAST CONCRETE MAINTENANCE HOLE**  
 1200mm DIAMETER  
**OPSD 701.010**

**ALTERNATIVES**

**A PRECAST MONOLITHIC BASE**

**B CAST-IN-PLACE BASE**

**C TAPERED TRANSITION SLAB**

**D 1200mm PRECAST FLAT CAP**

**E 1500mm PRECAST FLAT CAP**

**NOTES:**

- 1 For sump detail, see OPSD 701.010.
- 2 A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
- 3 Precast concrete components shall be according to OPSD 701.030, 701.031, 701.032, 701.041, 703.011, 703.021, and 708.010.
- 4 Structures exceeding 5.0m in depth shall include safety platform according to OPSD 404.020 or 404.021.
- 5 Pipe support shall be according to OPSD 708.020.
- 6 For benching and pipe opening details, see OPSD 704.010.
- 7 For adjustment unit and frame installation, see OPSD 704.010.
- 8 All dimensions are nominal.
- 9 All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2014 Rev 5  
**PRECAST CONCRETE MAINTENANCE HOLE**  
 1500mm DIAMETER  
**OPSD 701.011**

**ALTERNATIVES**

**A CAST-IN-PLACE BASE**

**B TAPERED TRANSITION SLAB**

**C 1200mm PRECAST FLAT CAP**

**D 1800mm PRECAST FLAT CAP**

**NOTES:**

- 1 For sump detail, see OPSD 701.010.
- 2 A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
- 3 Precast concrete components shall be according to OPSD 701.030, 701.031, 701.032, 701.041, 703.011, 703.021, and 708.020.
- 4 Structures exceeding 5.0m in depth shall include safety platform according to OPSD 404.020 or 404.021.
- 5 Pipe support shall be according to OPSD 708.020.
- 6 For benching and pipe opening details, see OPSD 704.010.
- 7 For adjustment unit and frame installation, see OPSD 704.010.
- 8 All dimensions are nominal.
- 9 All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2014 Rev 5  
**PRECAST CONCRETE MAINTENANCE HOLE**  
 1800mm DIAMETER  
**OPSD 701.012**

**ALTERNATIVES**

**A CAST-IN-PLACE BASE**

**B 1200mm PRECAST FLAT CAP**

**C 3000mm PRECAST FLAT CAP**

**NOTES:**

- 1 For sump detail, see OPSD 701.010.
- 2 A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
- 3 Precast concrete components shall be according to OPSD 701.030, 701.031, 701.032, 701.041, 703.011, 703.021, 703.024, 706.040 and 706.041.
- 4 Structures exceeding 5.0m in depth shall include safety platform according to OPSD 404.020.
- 5 D Pipe support shall be according to OPSD 708.020.
- 6 E For benching and pipe opening details, see OPSD 704.010.
- 7 F For adjustment unit and frame installation, see OPSD 704.010.
- 8 G All dimensions are nominal.
- 9 H All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2014 Rev 4  
**PRECAST CONCRETE MAINTENANCE HOLE**  
 3000mm DIAMETER  
**OPSD 701.014**

**SECTION A-A**

**SECTION B-B**

**NOTES:**

- 1 The sump is measured from the lowest invert. Benching as shown in Benching Detail.
- 2 Lap horizontal 10M rebar 300mm. Lap shall be placed at corners.
- 3 Lap horizontal wire 300mm or weld welds to develop 125% of yield strength of wire. Laps or welds shall be placed at corners.
- 4 End rebar or WWR in base 75mm from outside face of wall.
- 5 Where inlet is placed across ditch and is accessible to vehicular traffic, grating slope shall be 6H:1V or flatter.
- 6 Granular backfill shall be placed to a minimum thickness of 300mm all around the ditch inlet maintenance hole.
- 7 Concrete for benching shall be as specified.
- 8 Benching slope and height shall be as specified.
- 9 Grating shall be according to OPSD 403.010.
- 10 Slopes shall be according to OPSD 405.010 or 405.020.
- 11 Maximum plate size straight through=1200mm dia, right angle pipes=700mm diameter.
- 12 Pipe support shall be according to OPSD 708.020.
- 13 Centre reinforcing in walls 335mm. All other reinforcing shall have a minimum cover of 25mm.
- 14 All dimensions are in millimetres unless otherwise shown.

Opening Dimensions			
Type	Slope	Ø	h
A	6H:1V	670	52
B	3H:1V	632	71
C	6H:1V	618	78
D	6H:1V	608	83
E	6H:1V	608	87

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2014 Rev 3  
**PRECAST CONCRETE DITCH INLET MAINTENANCE HOLE - TYPE A**  
 1200 x 1200mm  
**OPSD 702.040**

**LEGEND**

- VALVE & BOX
- DETECTOR CHECK VALVE IN CHAMBER
- CHECK VALVE IN CHAMBER
- TAPPING SLEEVE & VALVE & BOX
- TEE
- FIRE HYDRANT C/W VALVE & BOX
- DIRECTION OF PUMPER NOZZLE
- METER IN CHAMBER
- METER
- SAMPLING SANITARY MAINTENANCE HOLE

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2011 Rev 1  
**TYPICAL PRECAST CIRCULAR CHAMBER DETAILS**  
 FOR NEW WATERMAINS  
**OPSD 701.015**

VALVE SIZE	CHAMBER METER	CHAMBER DIAMETER
150	25	150
200	25	150
300	25	150

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2011 Rev 1  
**DETECTOR CHECK VALVE IN CHAMBER**  
**OPSD 701.016**

**FROST PROTECTION INSULATION CALCULATIONS**

PIPE	Diameter (mm)	A (mm)	MIN. WIDTH (mm)	MIN. THICKNESS (mm)	MIN. INSULATION THICKNESS (in)
DCBMH11-MH10	375	565	1545	78	4
MH10-CBMH09	375	785	1105	49	2
RD01-CBMH09	375	830	1015	43	2
CBMH09-DCBMH07	600	605	1690	73	3
DCBMH07-DCBMH06	600	515	1870	85	4
DCBMH06-DCBMH03	600	290	2320	115	5
DCBMH05-CBMH04	375	55	2565	146	6
CBMH04-DCBMH03	450	440	1870	95	4
DCBMH03-DCBMH02	750	250	2590	122	5
DICB03-MH12	250	660	1230	66	3
MH12-DCBMH02	300	640	1320	68	3
DCBMH02-TANK	750	265	2520	118	5
TANK-MH35	750	895	1260	34	2
MH35-MH34	750	715	1620	58	3
MH34-MH33	750	765	1520	52	3
DICB02-MH33	300	800	1000	47	2

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2011 Rev 1  
**FROST PROTECTION INSULATION CALCULATIONS**  
**OPSD 701.017**

**FROST PROTECTION INSULATION CALCULATIONS**

PIPE	Diameter (mm)	A (mm)	MIN. WIDTH (mm)	MIN. THICKNESS (mm)	MIN. INSULATION THICKNESS (in)
DCBMH11-MH10	375	565	1545	78	4
MH10-CBMH09	375	785	1105	49	2
RD01-CBMH09	375	830	1015	43	2
CBMH09-DCBMH07	600	605	1690	73	3
DCBMH07-DCBMH06	600	515	1870	85	4
DCBMH06-DCBMH03	600	290	2320	115	5
DCBMH05-CBMH04	375	55	2565	146	6
CBMH04-DCBMH03	450	440	1870	95	4
DCBMH03-DCBMH02	750	250	2590	122	5
DICB03-MH12	250	660	1230	66	3
MH12-DCBMH02	300	640	1320	68	3
DCBMH02-TANK	750	265	2520	118	5
TANK-MH35	750	895	1260	34	2
MH35-MH34	750	715	1620	58	3
MH34-MH33	750	765	1520	52	3
DICB02-MH33	300	800	1000	47	2

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2011 Rev 1  
**FROST PROTECTION INSULATION CALCULATIONS**  
**OPSD 701.017**

**BENCHMARK ELEVATIONS ARE REFERRED TO THE CANADIAN GEODETIC VERTICAL DATUM (CGVD-1928: PRE 1978) AND ARE DERIVED FROM CITY OF MISSISSAUGA BENCHMARK MONUMENT No. 1065, HAVING A PUBLISHED ELEVATION OF 178.912 METRES.**

1. This drawing is the exclusive property of R. J. Burnside & Associates Limited. The reproduction of any part without prior written consent of this office is strictly prohibited.
2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

**NOT FOR CONSTRUCTION**

No.	Issue / Revision	Date	Auth.
1	ISSUED FOR SITE PLAN APPROVAL	20/03/20	DN
2	RE-ISSUED FOR SITE PLAN APPROVAL	22/01/11	DN
3	RE-ISSUED FOR SITE PLAN APPROVAL	23/05/10	TR
4	RE-ISSUED FOR ZONING	24/04/03	TR
5	RE-ISSUED FOR ZONING	24/12/18	LG

**LICENSED PROFESSIONAL ENGINEER**  
 L. F. GALATI  
 100569699  
 December 18, 2009  
 PROVINCE OF ONTARIO

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**Client**  
**St. Mark and St. Demiana Coptic Orthodox Church**  
 462 FALGARDWOOD DRIVE  
 OAKVILLE, ON  
 L6H 1N3

**Drawing Title**  
**3475 NINTH LINE, MISSISSAUGA**

**DETAIL PLAN**

Drawn	Checked	Designed	Checked	Date	Drawing No.
LG	JM	LG	JM	23/03/17	
Project No.	Contract No.	Contract No.	Revision No.		
300044049			0		
Scale	CONTRACT NO.				
NOT TO SCALE					

**D1**

**FRONT ELEVATION**

**SECTION A-A**

**LEGEND:**

- ØD - Outside diameter of pipe

**NOTES:**

- 1 This OPSD to be read in conjunction with OPSD 3940.150.
- 2 If a steel grate is required, refer to OPSD 804.05.
- 3 Class of concrete: 30MPa.
- 4 Cover to reinforcing bars 70mm ± 20mm.
- 5 All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2017 Rev 2  
**CONCRETE HEADWALL**  
 FOR PIPE LESS THAN 900mm DIAMETER  
**OPSD 804.030**

**CON CAST PIPE**  
 No. 703.01

**1500 mm Dia. PRECAST CONCRETE SINGLE AND TWIN INLET FLAT CAP**

**NOTES:**

- 1 All reinforcing steel shall have 25 mm diameter.
- 2 This standard is to be used in conjunction with OPSD 701.01.
- 3 All dimensions are in millimetres.

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2017 Rev 1  
**CONCAST**  
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 Tel: 1-800-468-9176 (7473)