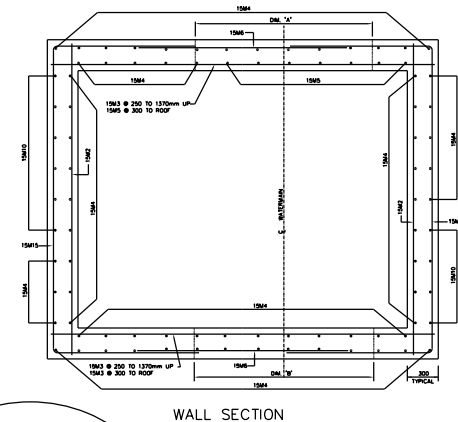
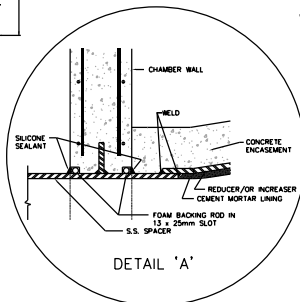


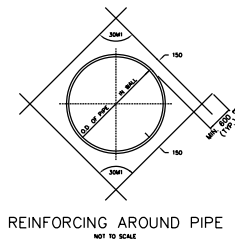
PLAN



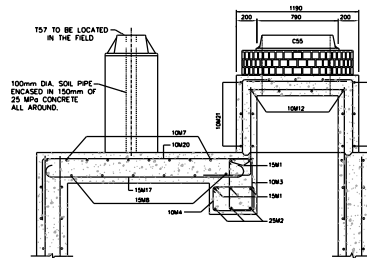
WALL SECTION



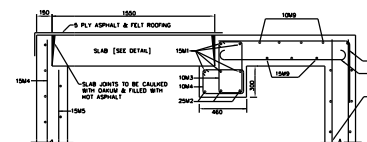
DETAIL 'A'



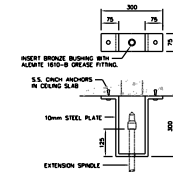
REINFORCING AROUND PIPE



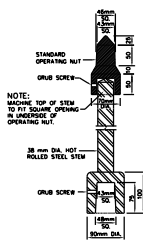
SECTION C-C



SECTION D-D



SPINDLE GUIDE BRACKET DETAIL



EXTENSION SPINDLE DETAIL

# NOTES:

- 25MPa CONCRETE TO BE USED EXCEPT AS NOTED.
- MAXIMUM SIZE OF COARSE AGGREGATE TO BE 20mm.
- COVER TO MAIN REINFORCEMENT TO BE 50mm OR AS INDICATED.
- ALL BAR DIMENSIONS ARE OUT TO OUT.
- BARS TO BE BENT COLD, MINIMUM INSIDE RADIUS TO 4 DIAMETERS.
- ALL CROSSING BARS TO BE WELL WIRDED.
- ALL REINFORCING STEEL TO BE DEFORMED BILLET-STEEL BARS GRADE 350, CONFORMING TO C.S.A. STANDARD C308.10M.
- ALL LAPS IN REINFORCING STEEL TO BE AT LEAST 30 DIAMETERS IN LENGTH OR AS SHOWN, AND TO BE STAGGERED.
- ALL BROCKHORN TO BE OF HIGH QUALITY HARD SEWER BRICK, LAID IN FULL MORTAR BED AND JOINTS, PARSED INSIDE AND OUT.
- WATERSTOP (PVC) TO BE PROVIDED AT ALL CONSTRUCTION JOINTS.
- WHERE NECESSARY ADJUST REINFORCING STEEL TO SLUT.
- PROVIDE SUMP PIT WITH GRATING AND SLOPE FLOOR TO SUMP 10mm/METRE.
- DRAIN OUTLET TO BE LOCATED AT NEAREST POINT TO EXISTING SEWER. IF ELEVATION OF SEWER IS HIGHER THAN CHAMBER FLOOR THE DRAIN MAY BE CLAMPED TO THE WALL BY AN APPROVED METHOD. IF NO SEWER IS AVAILABLE BULLETT DRAIN TYPE 'A' AND CONSTRUCT DRAIN TYPE 'B' AND INSTALL PIPE WITH STOPPER AS SHOWN ON DWG.
- DRAIN CONNECTION TO SEWER TO BE MADE BY CONTRACTOR UNLESS OTHERWISE STATED IN THE GENERAL SPECIFICATIONS.
- LADDERS, GRATINGS AND RAILINGS TO BE ALUMINUM AND OF REMOVABLE TYPE WITH STAINLESS STEEL BOLTS.
- TOP TWO STEPS AND ANY ADDITIONAL STEPS IN THE CHAMBER TO BE OF THE REMOVABLE TYPE.
- CHAMBERS DEEPER THAN 1200mm FROM SURFACE ELEVATION TO TOP OF VALVE OPERATING SPINDLE SHALL HAVE EXTENSION SPINDLE AND GUIDE BRACKET.
- ALL ALUMINUM SURFACES CONTACTING CONCRETE TO RECEIVE ONE COAT OF EPIMURUS PAINT.
- 'Y' DEPENDS ON HEIGHT (H) & BARS SHALL BE COUNTED TO ENSURE THAT THE BOTTOM BAR IS LESS THAN 150mm ABOVE THE ROOF CHAMBER.

## BENDING SCHEDULE

BAR NO.	DA	LENGTH	#	#	#	SHAPE	O.C.	NO. REQD.
10M1	10	900	230	230	230		200	7
10M2	10	700	120	120	120		100	8
10M3	10	1640	320	320	320		200	19
10M4	10	1380	380	380	380		200	18
10M5	10	700	120	120	120		100	8
10M6	10	1420	320	320	320		200	4
10M7	10	1000	200	200	200		200	8
10M8	10	2200	200	200	200		200	3
10M9	10	1100	200	200	200		200	5
10M10	10	1400	200	200	200		200	4
10M11	10	1400	200	200	200		200	6
10M12	10	1400	200	200	200		200	6
10M13	10	1400	200	200	200		200	6
10M14	10	1400	200	200	200		200	6
10M15	10	1400	200	200	200		200	6
10M16	10	1400	200	200	200		200	6
10M17	10	1400	200	200	200		200	6
10M18	10	1400	200	200	200		200	6
10M19	10	1400	200	200	200		200	6
10M20	10	1400	200	200	200		200	6
10M21	10	1400	200	200	200		200	6
10M22	10	1400	200	200	200		200	6
10M23	10	1400	200	200	200		200	6
10M24	10	1400	200	200	200		200	6
10M25	10	1400	200	200	200		200	6
10M26	10	1400	200	200	200		200	6
10M27	10	1400	200	200	200		200	6
10M28	10	1400	200	200	200		200	6
10M29	10	1400	200	200	200		200	6
10M30	10	1400	200	200	200		200	6
10M31	10	1400	200	200	200		200	6
10M32	10	1400	200	200	200		200	6
10M33	10	1400	200	200	200		200	6
10M34	10	1400	200	200	200		200	6
10M35	10	1400	200	200	200		200	6
10M36	10	1400	200	200	200		200	6
10M37	10	1400	200	200	200		200	6
10M38	10	1400	200	200	200		200	6
10M39	10	1400	200	200	200		200	6
10M40	10	1400	200	200	200		200	6
10M41	10	1400	200	200	200		200	6
10M42	10	1400	200	200	200		200	6
10M43	10	1400	200	200	200		200	6
10M44	10	1400	200	200	200		200	6
10M45	10	1400	200	200	200		200	6
10M46	10	1400	200	200	200		200	6
10M47	10	1400	200	200	200		200	6
10M48	10	1400	200	200	200		200	6
10M49	10	1400	200	200	200		200	6
10M50	10	1400	200	200	200		200	6
10M51	10	1400	200	200	200		200	6
10M52	10	1400	200	200	200		200	6
10M53	10	1400	200	200	200		200	6
10M54	10	1400	200	200	200		200	6
10M55	10	1400	200	200	200		200	6
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10M84	10	1400	200	200	200		200	6
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10M87	10	1400	200	200	200		200	6
10M88	10	1400	200	200	200		200	6
10M89	10	1400	200	200	200		200	6
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10M91	10	1400	200	200	200		200	6
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10M93	10	1400	200	200	200		200	6
10M94	10	1400	200	200	200		200	6
10M95	10	1400	200	200	200		200	6
10M96	10	1400	200	200	200		200	6
10M97	10	1400	200	200	200		200	6
10M98	10	1400	200	200	200		200	6
10M99	10	1400	200	200	200		200	6
10M100	10	1400	200	200	200		200	6

FOR REINFORCING AT DRAIN REFER TO SUMP AND DRAIN DETAIL DWG.

## MATERIAL LIST

MARK	SUPPLIED BY CITY OF TORONTO	MARK	SUPPLIED BY CONTRACTOR
T2	4-50mm GATE VALVE (SCREWS)	C40	1-900mm FABRICATED S.S. FL-VCT CONNECTION
T3	1-150mm GATE VALVE (FLANGED)	C41	1-900mm FABRICATED S.S. VCT. TO VCT. SPACER
T4	1-150mm GATE VALVE (FLANGED)	C42	1-900mm FABRICATED S.S. VCT. TO VCT. SPACER
T5	1-150mm BACKWATER CHECK VALVE	C43	1-900mm VCT. COUPLING, STEELAS INSOLATED
T6	CENTRE PLUG FOR CHAMBER COVER	C44	1-900mm VCT. COUPLING, STEELAS INSOLATED
T7	1-150mm HOR. BUTTERFLY VALVE	C45	1-900mm FABRICATED S.S. FLANGE ASSEMBLY
T8	1-150mm HOR. BUTTERFLY VALVE	C46	1-1200mm TO 900mm REDUCERS
T9	1-SMALL ROUND TOP	C47	1-CIRCULAR COVER WITH FRAME AS PER METRO-POLITAN STANDARD AREA STANDARD DRAWINGS No. 410 AND 411 (WITHOUT CENTRE PLUG)
C30	4-50mm GALVANIZED STREET ELBOW	C48	56-M30 x 150mm S.S. BOLTS & NUTS
C31	1-150mm MALE NUT SSW FANCL. BRUSH BRASS WITH HOSE END AND 2-150mm UP EQUIPMENT	C49	56-400 x 150mm S.S. STUDS EACH WITH 150mm NUT
C32	1-FABRICATED 100mm S.S. NOZZLE	C50	1-CATCH ANCHOR WITH M16 S.S. BOLTS WITH NUT
C33	1-150mm LONG EXTRA STRONG BRASS NUTS	C51	2-900mm CLOTH INSERTED RUBBER GASKETS (FULL FACE ONE PIECE)
C34	1-150mm LONG EXTRA STRONG BRASS NUTS	C52	1-C.C. RUNNING TRAP WITH CLEANOUT & COVER
C35	1-150mm LONG EXTRA STRONG BRASS NUTS	C53	1-150mm SUMP PUMP
C36	1-150mm LONG EXTRA STRONG BRASS NUTS	C54	1-SUMP WITH FRAME AND GRATING
C37	1-150mm LONG EXTRA STRONG BRASS NUTS	C55	STANDARD ALUMINUM LADDER AND STEPS
C38	1-150mm LONG EXTRA STRONG BRASS NUTS	C56	1-STEEL PLATE, 300mm x 800mm x 8mm
C39	1-150mm LONG EXTRA STRONG BRASS NUTS	C57	2-STANDARD BUTTERFLY VALVE SUPPORTS

0 FOR DRAIN TYPE 'Y' AND 'Z' ONLY  
1 FOR DRAIN TYPE 'W' ONLY

ALL DIMENSIONS SHOWN HERE ARE IN MILLIMETRES UNLESS OTHERWISE NOTED

Toronto Water

Toronto Engineering & Construction Services

GENERAL MANAGER,  
TORONTO WATER

DIRECTOR,  
Design and Construction  
Linear Underground Infrastructure

EXECUTIVE DIRECTOR,  
Engineering & Construction Services

MANAGER,  
Design and Construction  
Linear Underground Infrastructure

900 mm HORIZONTAL BUTTERFLY VALVE CHAMBER (POSITION 'B')

DESIGN	Design	DRAWN	Drawn	CHECKED	Checked	CONTRACT NO. X-X
SCALE	SCALE	DRAWING NUMBER	T-1110.09-2	SHEET	X OF X	

No.	DATE	REVISIONS	INITIAL	SIGNED
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