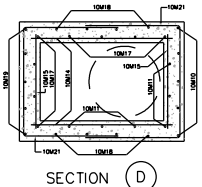
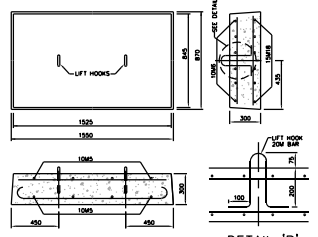
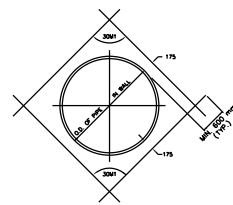
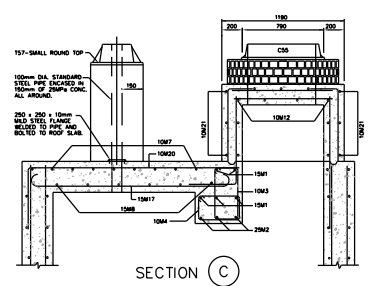
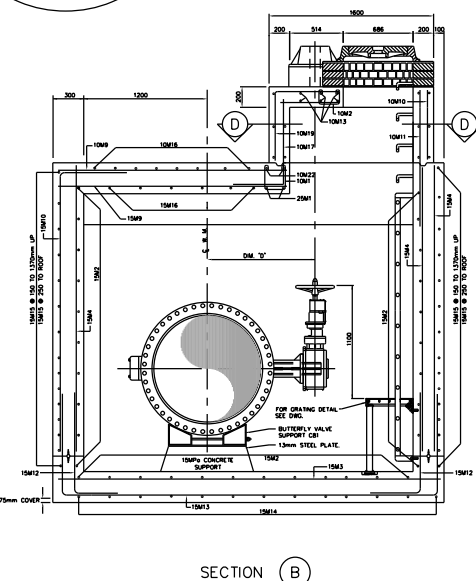
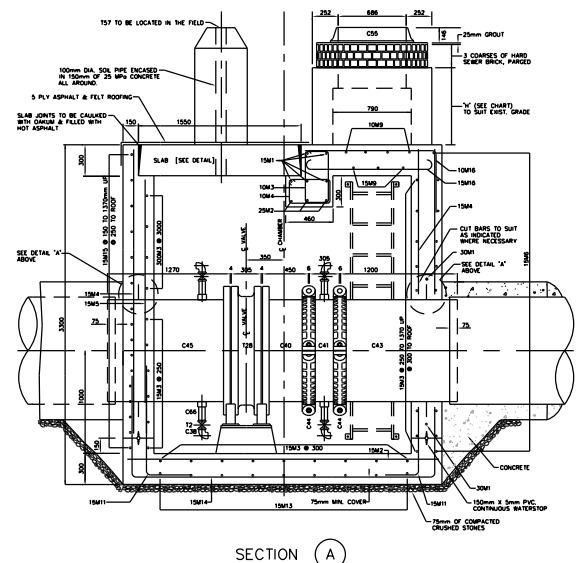
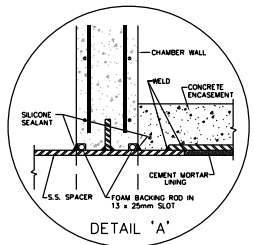
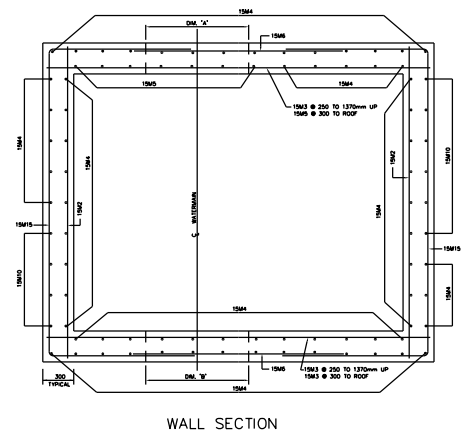
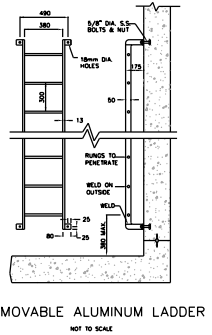
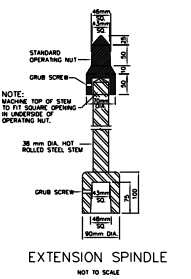


CHAMBER No.	CH. "A"	CH. "B"	CH. "C"	CH. "D"	CH. "E"	CH. "F"



SPINDLE GUIDE BRACKET



RUNG 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 ENDINGS ARE CUT TO 1/4".
 - BARS TO BE BENT COLD, MINIMUM INSIDE RADIUS TO 4 DIAMETERS.
 - ALL CROSSING BARS TO BE WELL WIDED.
 - ALL REINFORCING STEEL TO BE DEFORMED BULLET-STEEL BARS GRADE 350, CONFORMING TO C.S.A. STANDARD C30.10M.
 - ALL LAPS IN REINFORCING STEEL TO BE AT LEAST 30 DIAMETERS IN LENGTH OR AS SHOWN, AND TO BE STAGGERED.
 - ALL BRICKWORK TO BE OF HIGH QUALITY HARD SEWER BRICK, LAID IN FULL MORTAR BED AND JOINTS, PARGED INSIDE AND OUT.
 - WATERTIGHT (CWC) TO BE PROVIDED AT ALL CONSTRUCTION JOINTS.
 - WHERE NECESSARY ADJUST REINFORCING STEEL TO SUIT WATERTIGHTS AND OPENINGS.
 - 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 DELETE DRAIN TYPE 'A' AND CONSTRUCT DRAIN TYPE 'B' AND INSTALL PIPE WITH STOPPER AS SHOWN ON DWG.
 - WHERE NECESSARY ADJUST REINFORCING STEEL TO SUIT WATERTIGHTS AND OPENINGS.
 - PROVIDE SUMP PIT WITH GRATING AND SLOPE FLOOR TO SUMP 10mm/METRE. 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 DELETE DRAIN TYPE 'A' AND CONSTRUCT DRAIN TYPE 'B' AND INSTALL PIPE WITH STOPPER AS SHOWN ON DWG.
 - WHERE NECESSARY ADJUST REINFORCING STEEL TO SUIT WATERTIGHTS AND OPENINGS.
 - LADDERS, GRATINGS AND RAILINGS TO BE ALUMINUM AND OF REMOVABLE TYPE WITH STAINLESS STEEL BOLTS.
 - TOP TWO STEPS AND ANY ADDITIONAL STEPS IN THE CHIMNEY 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 BUTYRLITE PAINT.
 - 'X' 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	a	b	c	d	e	f	SHAPE	O.C.	NO. REQS.
10M1	10	900	220	220	220					200	7
10M2	10	1200	120	220	120					150	8
10M3	10	1640	520	220	820	230				200	19
10M4	10	1360	380	220	380	230				200	19
10M5	10	720								AS SHOWN	4
10M6	10	1425								200	8
10M7	10	1660								200	8
10M8	10	2200								200	5
10M9	10	H-100								300	5
10M10	10	H-100								300	5
10M11	10	H-100								300	5
10M12	10	614								300	4
10M13	10	1050								300	6
10M14	10	1500								300	7
10M15	10	1090								300	7
10M16	10	H-100								300	8
10M17	10	H-100								300	8
10M18	10	H-100								300	8
10M19	10	H-100								300	8
10M20	10	2440	1810	560						300	7
10M21	10	2650	800	1050	900					300	7
10M22	10	4060	500	3000	550					AS SHOWN	2
15M1	15	3700								AS SHOWN	5
15M2	15	3700								AS SHOWN	28
15M3	15	3700								300	6
15M4	15	2750								300	8
15M5	15	2350								300	6
15M6	15	1800								300	22
15M7	15	1860								300	5
15M8	15	3270	2750	500						300	10
15M9	15	1270	1000	300						AS SHOWN	22
15M10	15	1220	700	500						300	18
15M11	15	5640	1000	3700	1000					300	9
15M12	15	4940	800	3000	800					300	13
15M13	15	5440	1250	3000	1250					1250	32
15M14	15	1660	1300							300	6
15M15	15	1660	1300							300	6
15M16	15	2270	1950							300	4
15M17	15	3800	3100							AS SHOWN	12
25M1	25	3800	3100							AS SHOWN	2
25M2	25	4260	3700							AS SHOWN	3
30M1	30	O.C. OF PIPE x 800								AS SHOWN	8

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

MATERIAL LIST / CHAMBER

MARK	SUPPLIED BY CITY OF TORONTO	MARK	SUPPLIED BY CONTRACTOR
12	4-50mm GATE VALVES (SCREWS)	C40	1-750mm FABRICATED S.S. FL-VL CONNECTION
C41	1-150mm FABRICATED CHECK VALVE	C41	1-750mm FABRICATED S.S. VCLT. TO VCLT. SPACER
19	1-CENTRE PLUG FOR SMALL ROUND TOP	C43	1-750mm VCLT. CONNECTION
19	1-CENTRE PLUG FOR SMALL ROUND TOP	C44	2-750mm VCLT. CONNECTION
T28	1-750mm HUB BUTTERFLY VALVE	C45	1-150mm FABRICATED S.S. FLANGE ASSEMBLY
T27	1-SMALL ROUND TOP	C46	1-CIRCULAR COVER WITH FRAME AS PER BIDDING (TYPICAL TORONTO AREA STANDARD DRIBBLES NO. 40 AND 41) (EMPHASIS CENTRE PLUG)
		C81	56-429 x 165mm S.S. BOLTS & NUTS
		C81	56-429 x 165mm S.S. STUDS
		C82	1-50mm GALVANIZED STREET ELBOW
		C82	1-150mm MALE WELT SMT FACET, ROUGH BRASS WITH HOSE END, ENDO # 3700 OR EQUIVALENT
		C83	1-150mm MALE WELT SMT FACET, ROUGH BRASS WITH HOSE END, ENDO # 3700 OR EQUIVALENT
		C81	1-150mm S.S. BOLTS & NUTS
		C82	1-150mm S.S. BOLTS & NUTS
		C83	1-150mm S.S. BOLTS & NUTS
		C86	2-750mm CLOTH INSERTED RUBBER GASKETS (FULL FACE, ONE PIECE)
		C87	1-STEEL PLATE, 340mm x 940mm x 8mm
		C81	2-STANDARD BUTTERFLY VALVE SUPPORTS

FOR DR. FOR DRAIN TYPE 'A' AND 'C' ONLY
FOR DRAIN TYPE 'B' ONLY

CHAMBERS

CHAMBER No.	CHAMBER (m)	BATTERY (m)	SURFACE (m)	DIFFERENCE IN ELEV. (m)	COVER LOCATION	DRAIN TYPE & DIRECTION	FOR LOCATION REFER TO PLAN No.	REMARKS

ALL DIMENSIONS SHOWN HERE ARE IN MILLIMETRES UNLESS OTHERWISE NOTED



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

Title
Subfile1
Subfile2

750 mm HORIZONTAL BUTTERFLY VALVE CHAMBER (POSITION 'A')

DESIGN	Design	DRAWN	Drawn	CHECKED	Checked	CONTRACT No. X-X
SCALE	SCALE	DRAWING NUMBER	T-1110.08-1	SHEET	X OF X	

No.	DATE	REVISIONS	INITIAL	SIGNED