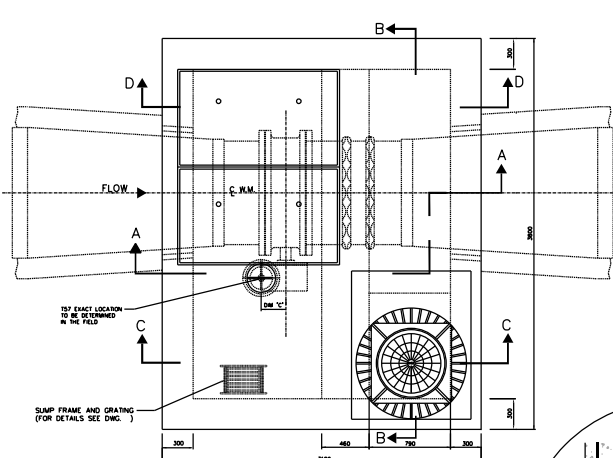


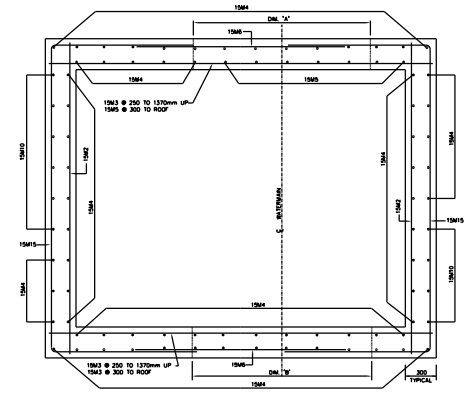
**NOTES:**

- 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 WIRED.
- 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 BRICKWORK TO BE OF HIGH QUALITY HARD SEWER BRICK, LAID IN FULL MORTAR BED AND JOINTS, PARGED INSIDE AND OUT.
- WATERSTOP (PVC) TO BE PROVIDED AT ALL CONSTRUCTION JOINTS.
- WHERE NECESSARY ADJUST REINFORCING STEEL TO SLUIT
- 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 DWC.
- DRAIN CONNECTION TO SEWER TO BE MADE BY CONTRACTOR UNLESS OTHERWISE STATED IN THE GENERAL SPECIFICATIONS.
- LADDERS, GRATING AND RAININGS 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 BITUMINOUS PAINT.
- 'Y' DIMENSIONS ON HEIGHT (H) & BARS SHALL BE COUNTED TO ENSURE THAT THE BOTTOM BAR IS LESS THAN 150mm ABOVE THE ROOF CHAMBER.

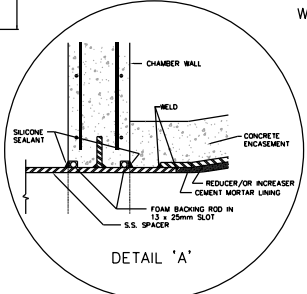


PLAN

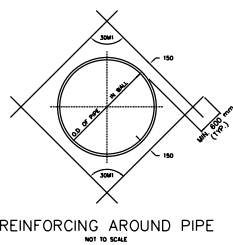
CHAMBER No.	DIA. 'A'	DN. 'Y'	DN. 'C'	DN. 'D'	DN. 'E'



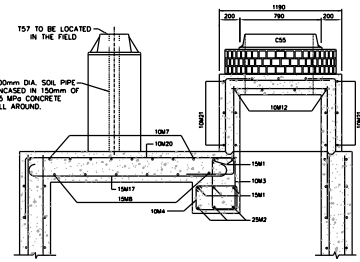
WALL SECTION



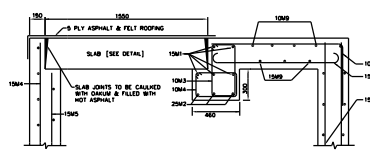
DETAIL 'A'



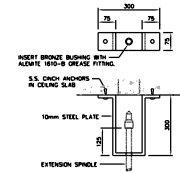
REINFORCING AROUND PIPE



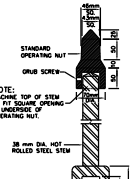
SECTION C-C



SECTION D-D



SPINDLE GUIDE BRACKET DETAIL

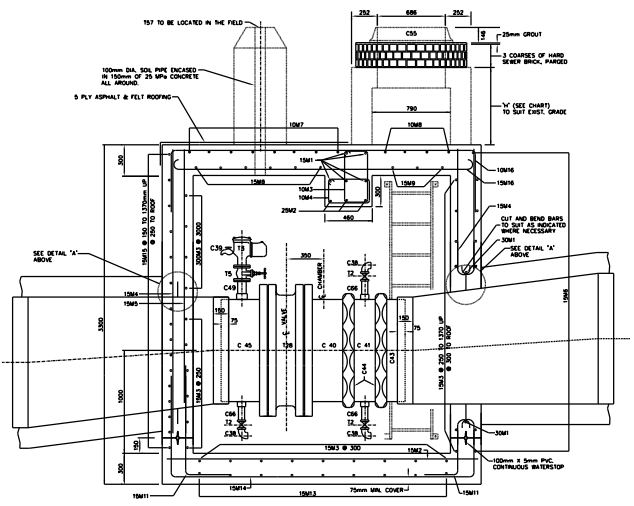


EXTENSION SPINDLE DETAIL

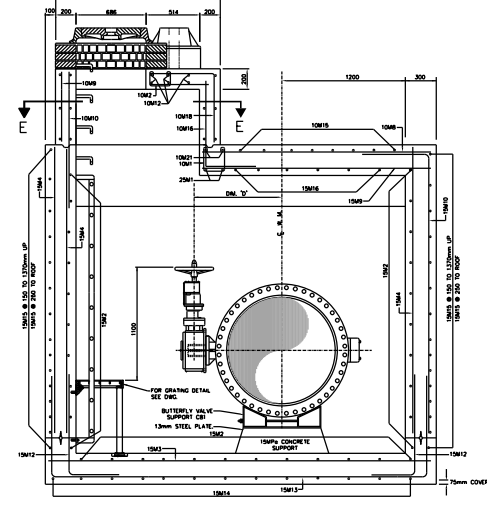
**BENDING SCHEDULE**

BAR No.	DA	LENGTH	a	b	c	d	e	f	SHAPE	O.C	NO. REQ'D.
10M1	10	900	230	230	230	230	230	230	7	200	7
10M2	10	700	130	130	130	130	130	130	8	150	8
10M3	10	1640	320	320	320	320	320	320	18	200	18
10M4	10	1380	380	320	380	320	320	320	19	200	19
10M5	10	710							AS SHOWN	16	
10M6	10	1425							AS SHOWN	4	
10M7	10	1000							200	6	
10M8	10	2200							200	5	
10M9	10	H-120							200	3	
10M10	10	H-600							200	4	
10M11	10	H-180							200	4	
10M12	10	1000							200	6	
10M13	10	1000							200	6	
10M14	10	1000							200	6	
10M15	10	H-180							200	8	
10M16	10	H-180							200	8	
10M17	10	H-180							200	8	
10M18	10	H-180							200	5	
10M19	10	2450	1900	550	550	550	550	550	200	2	
10M20	10	2850	800	1980	800	800	800	800	200	2	
10M21	10	5000	550	3000	550	550	550	550	AS SHOWN	2	
10M22	10	3700							200	20	
10M23	10	3000							200	20	
10M24	10	2700							200	28	
10M25	10	2450							200	24	
10M26	10	1800							200	22	
10M27	10	1800							200	22	
10M28	10	1800							200	22	
10M29	10	2200							200	13	
10M30	10	2370	2700	680	680	680	680	680	200	10	
10M31	10	1270	1000	200	200	200	200	200	200	22	
10M32	10	1200	700	500	500	500	500	500	200	18	
10M33	10	840	1000	3700	1000	1000	1000	1000	200	8	
10M34	10	6240	800	3000	800	800	800	800	200	13	
10M35	10	6400	1200	3000	1200	1200	1200	1200	200	4	
10M36	10	1680							200	6	
10M37	10	1800							200	4	
10M38	10	1800							200	4	
10M39	10	1800							200	13	
10M40	10	1800							200	2	
10M41	10	2840	3000	3000	3000	3000	3000	3000	200	2	
20M2	20	1280	2700						AS SHOWN	2	
20M3	20	O.D. OF PIPE + 800							AS SHOWN	8	

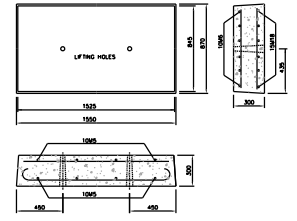
FOR REINFORCING AT DRAIN REFER TO SUMP AND DRAIN DETAIL DWG.



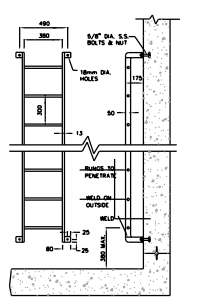
SECTION A-A



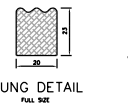
SECTION B-B



SLAB DETAIL



REMOVABLE ALUMINUM LADDER



RUNG DETAIL

**CHAMBERS**

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

ALL DIMENSIONS SHOWN HERE ARE IN MILLIMETRES UNLESS OTHERWISE NOTED

**MATERIAL LIST**

MARK	SUPPLIED BY CITY OF TORONTO	MARK	SUPPLIED BY CONTRACTOR
T2	400mm GATE VALVE (SCREW)	C40	1-900mm FABRICATED S.S. FL-VCT CONNECTION
T3	1-1000mm AIR VALVE (FLANGED)	C41	1-900mm FABRICATED S.S. VCT. TO VCT. SPACER
T4	1-1000mm GATE VALVE (FLANGED)	C42	1-900mm FABRICATED S.S. VCT. CONNECTION
T5	1-1000mm BACKFLOW CHECK VALVE	C43	3-900mm VCT. COUPLING, STEEL W/SHOULDER.
T6	1-900mm VCT. CHECK VALVE	C44	3-900mm VCT. COUPLING, STEEL W/SHOULDER.
T7	CENTRE PLUG FOR CHAMBER COVER	C45	1-900mm FABRICATED S.S. FLANGE ASSEMBLY
T8	1-900mm HOR. BUTTERFLY VALVE	C46	2-1200mm x 900mm REDUCERS
T9	1-SMALL ROUND TOP	C47	1-CIRCULAR COVER WITH FRAME AS PER METRO-POLITAN STANDARD AREA STANDARD DRAWING No. 410 AND 411 (WITHOUT CENTRE PLUG)
C38	40-50mm GALVANIZED STREET ELBOW	C48	56-M30 x 180mm S.S. BOLTS & NUTS
C39	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C49	56-E30 x 180mm S.S. STUDS EACH WITH 1 NUT (D.U.C.)
C40	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C50	2-300mm CLOTH INSERED RUBBER GASKETS (FULL FACE ONE PIECE)
C41	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C51	1-C.C. RUNNING TRAP WITH CLEANOUT AND
C42	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C52	1-150mm SOL PILING
C43	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C53	1-SUMP WITH FRAME AND GRATING
C44	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C54	STANDARD ALUMINUM LADDER AND STEPS
C45	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C55	1-STEEL PLATE, 240mm x 840mm x 6mm
C46	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C56	2-STANDARD BUTTERFLY VALVE SUPPORTS
C47	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C57	
C48	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C58	
C49	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C59	
C50	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C60	
C51	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C61	
C52	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C62	
C53	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C63	
C54	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C64	
C55	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C65	
C56	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C66	
C57	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C67	
C58	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C68	
C59	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C69	
C60	1-12mm HOLE MILE NUT SIDE FANCL. ROUGH BRASS WITH HOLE AND SLOTTED END FOR EQUIPMENT	C70	

O FOR DRAIN TYPE 'A' AND 'D' ONLY  
\* FOR DRAIN TYPE 'B' ONLY



**Toronto Engineering & Construction Services**

GENERAL MANAGER, TORONTO WATER  
DIRECTOR, Design and Construction Linear Underground Infrastructure  
EXECUTIVE DIRECTOR, Engineering & Construction Services Design and Construction Linear Underground Infrastructure  
MANAGER, Design and Construction Linear Underground Infrastructure

**Title**  
SubTitle1  
SubTitle2

**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  
DATE DATE SHEET X OF X

No.	DATE	REVISIONS	INITIAL	SIGNED