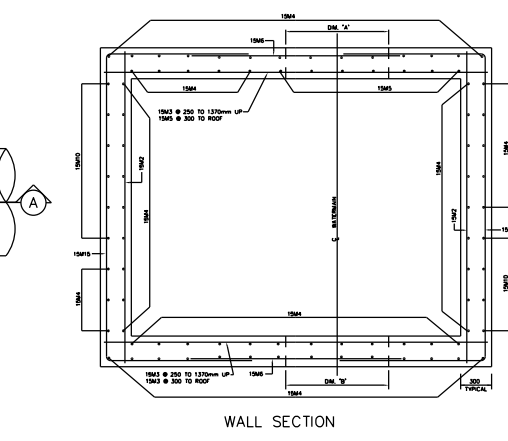
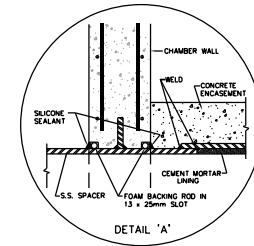


PLAN

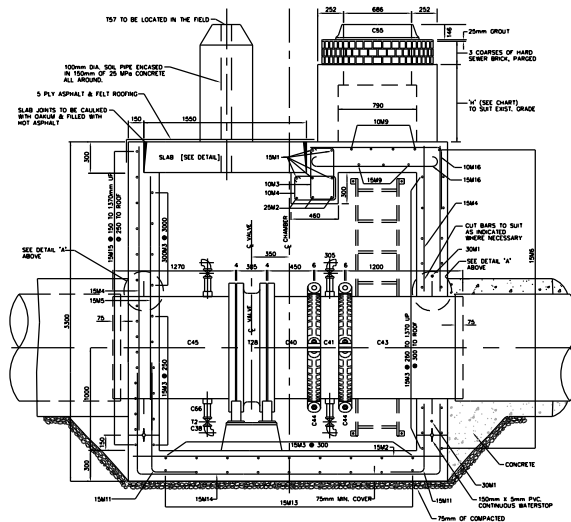
CHAMBER No.	DM. 'A'	DM. 'B'	DM. 'C'	DM. 'D'	DM. 'E'



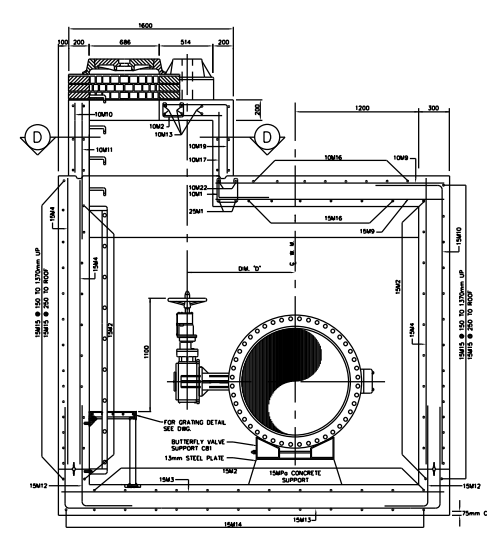
WALL SECTION



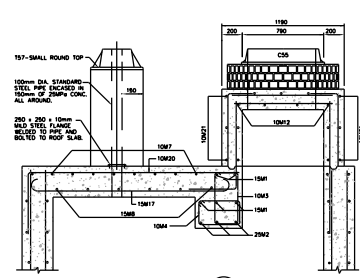
DETAIL 'A'



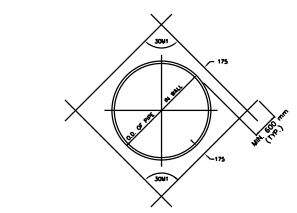
SECTION A



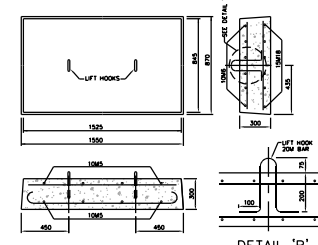
SECTION B



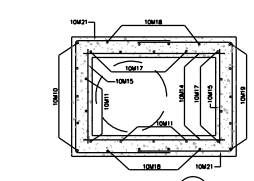
SECTION C



REINFORCING AROUND PIPE



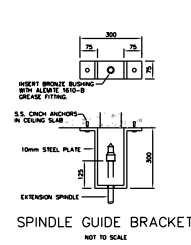
REMOVABLE SLAB (2 REQUIRED)



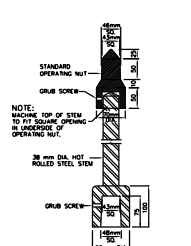
SECTION D

CHAMBER No.	CHARGE No.	BETWEEN G. & S.S.	SURFACE S.S.	OFFSET IN S.S.	COVER LOCATION	DRAIN TYPE	QUILT DIRECTION	FOR LOCATION NOTE TO PLAN No.	REMARKS

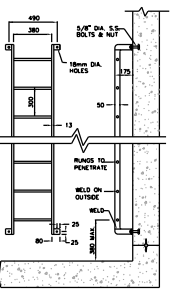
FOR DETAILS OF C40, C41, C43, C45 AND C81 SEE DWG.



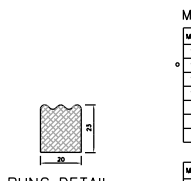
SPINDLE GUIDE BRACKET



EXTENSION SPINDLE



REMOVABLE ALUMINUM LADDER



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 DIMENSIONS ARE OUT TO OUT.
  - BARS TO BE BENT COLD, MINIMUM INSIDE RADIUS TO 4 DIAMETERS.
  - ALL CROSSING BARS TO BE WELL WELDED.
  - ALL REINFORCING STEEL TO BE DEFORMED BILLET-STEEL BARS GRADE 350, CONFORMING TO C.S.A. STANDARD C30.129.
  - ALL LAPS IN REINFORCING STEEL TO BE AT LEAST 3 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 SUIT WATERSTOPS 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. ELEVATION OF SEWER IS HIGHER THAN CHAMBER FLOOR THE DRAWER 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.
  - 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 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.
  - 'X' DEFLECTION ON HEIGHT (H) & BARS SHALL BE COUNTED TO ENSURE THAT THE BOTTOM BAR IS LESS THAN 150mm ABOVE THE ROOF CHAMBER.

BENDING SCHEDULE

BWP No.	DL	TOTAL LENGTH	DIMENSIONS				SHAPE	O.C.	No. REQS.
			a	b	c	d			
10M1	10	900	200	200	200	200	1	200	7
10M2	10	710	120	230	120	120	1	200	8
10M3	10	1840	320	220	520	230	1	200	19
10M4	10	1360	380	220	380	220	1	200	19
10M5	10	770						AS SHOWN	16
10M6	10	1425						AS SHOWN	15
10M7	10	1665						AS SHOWN	8
10M8	10	2200						200	5
10M9	10	2200						200	5
10M10	10	H+300						300	6
10M11	10	H+800						300	6
10M12	10	614						300	4
10M13	10	1090						300	6
10M14	10	1500						300	7
10M15	10	1090						300	7
10M16	10	1830	1300	550				300	9
10M17	10	H+830	H+200	450				300	8
10M18	10	H+180	H+100	300				300	5
10M19	10	H+494	H+100	614				300	8
10M20	10	2440	1910	550				300	7
10M21	10	2980	2000	900				300	12
10M22	10	4060	550	3000	550			AS SHOWN	7
15M1	15	3700						AS SHOWN	5
15M2	15	3000						300	20
15M3	15	3700						250-600	29
15M4	15	2750						300	68
15M5	15	2450						300	6
15M6	15	1800						300	22
15M8	15	1660						300	5
15M9	15	2200						300	3
15M10	15	3370	2750	570				300	10
15M11	15	1270	700	550				300	22
15M12	15	2640	1200	1000				300	18
15M13	15	2640	800	1000				300	9
15M14	15	4540	800	3000	800			300	13
15M15	15	5440	1250	3000	1250			150-350	32
15M16	15	1850	1350					300	8
15M17	15	2270	1910					300	4
15M18	15	1810	1450					AS SHOWN	12
20M1	20	3560						300	2
25M2	25	4360	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 (SCREWED)	C40	1-750mm FABRICATED S.S. FLT-VCT CONNECTION
16	1-150mm BACKWATER CHECK VALVE	C41	1-150mm FABRICATED S.S. VCT. TO VCT. SPACER
19	1-CENTRE PLUG FOR CHIMNEY CONNECTION	C43	1-150mm FABRICATED S.S. METALLIC CONNECTION
75	1-CENTRE PLUG FOR SMALL ROAD TOP	C44	2-750mm VCT. COUPLING STEEL'S SHOULDERED
128	1-750mm HOR. BUTTERFLY VALVE	C45	1-750mm FABRICATED S.S. FLANGE ASSEMBLY
137	1-SMALL ROUND TOP	C50	1-CIRCULAR COVER WITH FRAME AS PER METHOD-1707mm DIA. PER 150mm DIA. BITUMINOUS No. 410 AND #11 (8"SHOUL) CENTRE PLUG)
		C81	56-#19 x 150mm S.S. BOLTS & NUTS
		C81	56-#19 x 150mm LG. S.S. STUDS EACH WITH 1 NUT (EXCL.)
		C82	1-CNCH ANCHOR WITH M16 S.S. BOLTS WITH NUT
		C82	2-750mm CLOTH INSERED RUBBER GASKETS (FULL FACE ONE PIECE)
		C83	1-CI. RUNNING TRAP WITH CLEANOUT & COVER
		C84	1-150mm SOL. PIPING
		C85	1-SUMP WITH FRAME AND GRATING
		C86	STANDARD ALUMINUM LADDER AND STEPS
		C75	1-STEEL PLATE, 240mm x 900mm x 6mm
		C81	2-STANDARD BUTTERFLY VALVE SUPPORTS

FOR DETAILS OF C40, C41, C43, C45 AND C81 SEE DWG.

ALL DIMENSIONS SHOWN HERE ARE IN MILLIMETRES UNLESS OTHERWISE NOTED



Toronto Engineering & Construction Services

Title  
Sub#11  
Sub#02

GENERAL MANAGER,  
TORONTO WATER

DIRECTOR,  
Design and Construction  
Linear Underground Infrastructure

EXECUTIVE DIRECTOR,  
Engineering & Construction Services

MANAGER,  
Design and Construction  
Linear Underground Infrastructure

750 mm HORIZONTAL BUTTERFLY VALVE CHAMBER (POSITION 'B')									
DESIGN	Desgn	DRAWN	Drawn	CHECKED	Checked	CONTRACT No. X-X			
SCALE	SCALE			DRAWING NUMBER			SHEET X OF X		
DATE	DATE	DATE	DATE	DATE	DATE	T-1110.08-2			

No.	DATE	REVISIONS	INITIAL	SIGNED