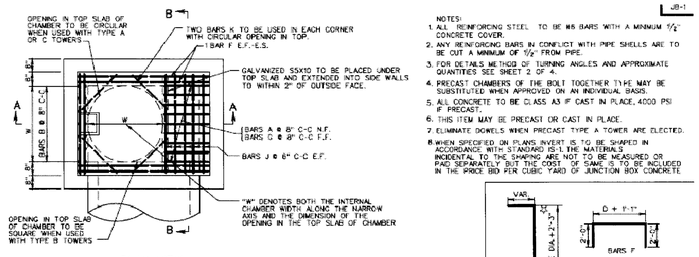
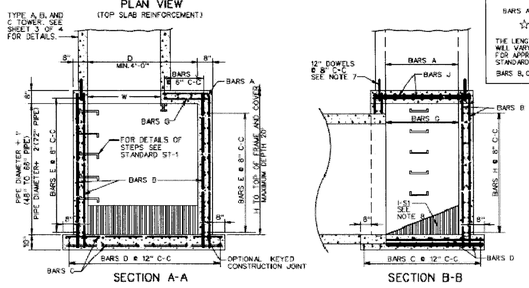
JB-1

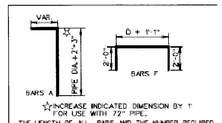
NOTES:
1. ALL REINFORCING STEEL TO BE #6 BARS WITH A MINIMUM 1½" CONCRETE COVER.
2. ANY REINFORCING BARS IN CONFLICT WITH PIPE SHELLS ARE TO BE CUT A MINIMUM OF 1½" FROM PIPE.
3. FOR DETAILS METHOD OF TURNING ANGLES AND APPROXIMATE QUANTITIES SEE SHEET 2 OF 4.
4. PRECAST CHAMBERS OF THE BOLT TOGETHER TYPE MAY BE SUBSTITUTED WHEN APPROVED ON AN INDIVIDUAL BASIS.
5. ALL CONCRETE TO BE CLASS A3 IF CAST IN PLACE, 4000 PSI IF PRECAST.
6. THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
7. ELIMINATE DOWELS WHEN PRECAST TYPE A TOWER ARE ELECTED.
8. WHEN SPECIFIED ON PLANS INVERT IS T.G. BE SHAPED IN ACCORDANCE WITH STANDARD IS-1. THE MATERIALS INCIDENTAL TO THE SHAPING ARE NOT TO BE MEASURED OR PAID SEPARATELY BUT THE COST OF SAME IS TO BE INCLUDED IN THE PRICE BID PER CUBIC YARD OF JUNCTION BOX CONCRETE.



PLAN VIEW
(TOP SLAB REINFORCEMENT)



SECTION A-A SECTION B-B



☆INCREASE INDICATED DIMENSION BY 1' FOR USE WITH 72" PIPE.

THE LENGTH OF ALL BARS AND THE NUMBER REQUIRED WILL VARY WITH THE SIZE OF CHAMBER. FOR APPROXIMATE WEIGHT SEE SHEET 2 AND 4 OF THIS STANDARD.

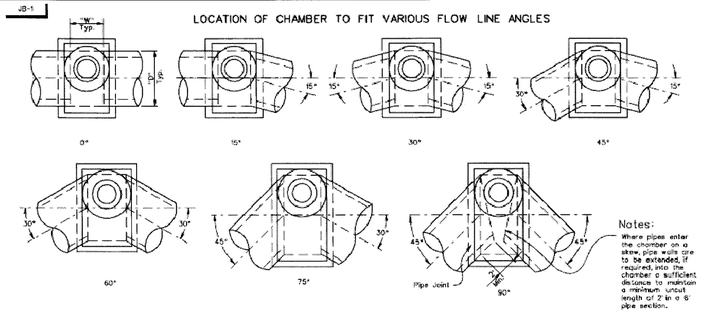
BARS B, C, E, G, H, AND J ARE STRAIGHT.

SHEET 1 OF 4

1 JUNCTION BOX CHAMBER DETAILS FOR 48" – 72" PIPE CULVERTS (JB 1)
SCALE: NO SCALE

JB-1

LOCATION OF CHAMBER TO FIT VARIOUS FLOW LINE ANGLES



Notes:
Where pipes enter the chamber on a skew, pipe walls are to be extended, if required, into the chamber a sufficient distance to maintain a minimum uncut length of 2' in a 6' pipe section.

QUANTITIES FOR CHAMBER *

	PIPE SIZE	0° DIM. D	0° CU. YDS. CONC.	0° LBS. REINF STEEL	15° - 30° DIM. D	15° - 30° CU. YDS. CONC.	15° - 30° LBS. REINF STEEL	31° - 60° DIM. D	31° - 60° CU. YDS. CONC.	31° - 60° LBS. REINF STEEL	61° - 90° DIM. D	61° - 90° CU. YDS. CONC.	61° - 90° LBS. REINF STEEL
TYPE A, "W" = 4'-0"	48"	4'-10"	4.56	1293	5'-0"	4.65	1317	5'-7"	4.99	1412	6'-10"	5.72	1602
	54"	5'-6"	5.16	1466	5'-7"	5.26	1558	6'-3"	5.16	1817	7'-8"	6.53	1798
	60"	6'-0"	5.80	1657	6'-3"	5.96	1794	6'-11"	6.38	1831	8'-6"	7.38	2064
	66"	6'-7"	6.46	2028	6'-10"	6.63	2069	7'-7"	7.12	2220	9'-4"	8.27	2510
	72"	7'-2"	7.77	2248	7'-5"	7.95	2306	8'-3"	8.56	2490	10'-2"	9.97	2843
TYPE B, "W" = 5'-0"	48"	4'-10"	4.08	1149	5'-0"	4.15	1173	5'-7"	4.46	1274	6'-10"	5.12	1440
	54"	5'-5"	4.61	1308	5'-7"	4.70	1373	6'-3"	5.07	1452	7'-8"	5.83	1619
	60"	6'-0"	5.19	1487	6'-3"	5.33	1531	6'-11"	5.71	1651	8'-6"	6.53	1925
	66"	6'-7"	5.79	1815	6'-10"	5.94	1934	7'-7"	6.40	2056	9'-4"	7.45	2359
	72"	7'-2"	7.00	2020	7'-5"	7.17	2086	8'-3"	7.73	2264	10'-2"	9.03	2585
TYPE C, "W" = 5'-0"	48"	4'-10"	3.53	1030	5'-0"	3.61	1052	5'-7"	3.88	1133	6'-10"	4.47	1294
	54"	5'-5"	4.02	1177	5'-7"	4.10	1236	6'-3"	4.43	1305	7'-8"	5.14	1454
	60"	6'-0"	4.54	1337	6'-3"	4.67	1381	6'-11"	5.02	1484	8'-6"	5.85	1710
	66"	6'-7"	5.09	1592	6'-10"	5.22	1674	7'-7"	5.64	1789	9'-4"	6.50	2062
	72"	7'-2"	6.19	1835	7'-5"	6.34	1885	8'-3"	6.86	2050	10'-2"	8.05	2355

* Quantities shown are for chamber without pipes. Pipe displacement of concrete and steel must be deducted to obtain true quantities. See Sheet 4 of 4.

Chamber and tower quantities for concrete and reinforcing steel must be added for complete totals.

"W"	STRUCT. STEEL
2'-0"	30 Lbs.
3'-0"	40 Lbs.
4'-0"	50 Lbs.

Sheet 2 of 4

2 JUNCTION BOX DETAILS FOR ANGULAR CONNECTIONS OF 48"–72" CULVERTS (JB 1)
SCALE: NO SCALE

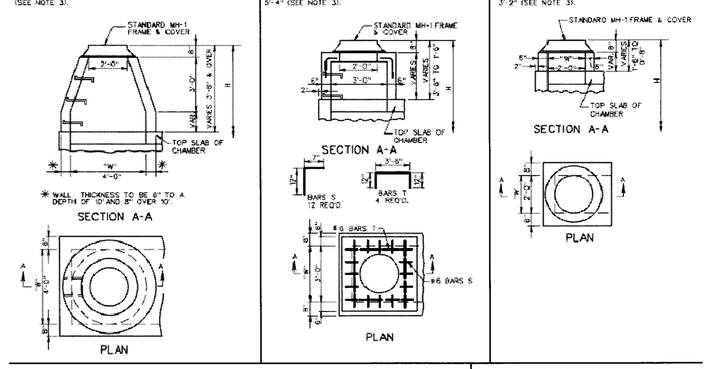
DETAILS OF TOWERS

JB-1

TYPE A
TO BE USED WHEN VERTICAL DISTANCE BETWEEN GRADE AND INVERT OF PIPE IS PIPE DIAMETER PLUS 5'-4" OR GREATER (SEE NOTE 3).

TYPE B
TO BE USED WHEN VERTICAL DISTANCE BETWEEN GRADE AND INVERT OF PIPE IS PIPE DIAMETER PLUS 3'-2" TO 5'-4" (SEE NOTE 3).

TYPE C
TO BE USED WHEN DISTANCE BETWEEN GRADE AND INVERT OF PIPE IS PIPE DIAMETER PLUS 2'-4" TO 3'-2" (SEE NOTE 3).



NOTES:
1. PRECAST UNITS IN ACCORDANCE WITH STANDARD MH-2 MAY BE SUBSTITUTED FOR TYPE A TOWER SHOWN. IF SUBSTITUTED, PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE FOR CONCRETE AND STEEL BASED ON THE THEORETICAL QUANTITIES THAT WOULD HAVE BEEN REQUIRED TO BUILD THE TYPE A TOWER.
2. SEE STANDARD SL-1 FOR APPLICABILITY OF SAFETY SLABS.
3. INCREASE INDICATED DIMENSION BY ONE FOOT FOR USE WITH 72" DIAMETER PIPE.
4. CHAMBER AND TOWER QUANTITIES FOR CONCRETE AND REINFORCING STEEL MUST BE ADDED TO OBTAIN TOTALS.

QUANTITIES FOR TOWER **

	TYPE A	TYPE B	TYPE C
CONCRETE	0.843 C.Y.	0.525 C.Y.	——
INCREMENT PER FOOT	0.262 TO 10' DEPTH 0.362 OVER 10'	0.259	0.145
REINFORCING STEEL	——	82 LBS.	——

** QUANTITIES SHOWN ARE FOR MINIMUM TOWERS OF EACH TYPE. FOR TOWERS ABOVE MINIMUM HEIGHT INCREMENTS SHOWN PER FOOT MUST BE ADDED.

SHEET 3 OF 4

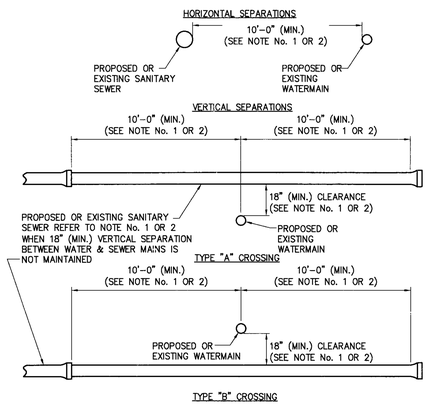
3 JUNCTION BOX TOWER DETAILS FOR 48"–72" CULVERTS (JB 1)
SCALE: NO SCALE

JB-1

DISPLACEMENT QUANTITIES FOR PIPE OPENINGS
(To be used with STD JB-1 Junction Box)

PIPE SIZE	PIPE CLASS	CONCRETE 0° Cu. Yards	15° Cu. Yards	30° Cu. Yards	45° Cu. Yards	REINF. STEEL Lbs.
12"	III, IV, V	.035	.036	.040	.050	17.67
12"	CM	.019	.020	.022	.027	11.06
15"	III, IV, V	.050	.052	.058	.071	24.88
15"	CM	.030	.031	.034	.042	15.93
18"	III, IV, V	.069	.072	.080	.099	33.23
18"	CM	.043	.044	.049	.061	21.65
24"	III, IV, V	.118	.122	.137	.168	53.53
24"	CM	.076	.078	.087	.108	35.83
30"	III, IV, V	.179	.186	.208	.256	78.64
30"	CM	.118	.122	.137	.168	53.53
36"	III, IV, V	.254	.263	.294	.362	108.76
36"	CM	.170	.176	.197	.242	74.76
42"	III, IV, V	.341	.353	.395	.486	143.33
42"	CM	.231	.240	.268	.330	99.53
48"	III, IV, V	.441	.457	.511	.629	182.90
48"	CM	.302	.313	.350	.431	127.85
54"	III, IV	.554	.574	.642	.789	227.29
54"	V	.580	.600	.672	.826	237.42
54"	CM	.382	.396	.443	.545	159.70
60"	III, IV	.679	.704	.787	.965	276.49
60"	V	.708	.734	.821	1.009	287.65
60"	CM	.472	.481	.551	.673	195.09
66"	III, IV	.818	.847	.948	1.166	330.50
66"	V	.849	.880	.985	1.211	342.70
66"	CM	.571	.591	.662	.814	234.02
72"	III, IV	.969	1.004	1.123	1.382	389.34
72"	V	1.003	1.040	1.163	1.431	402.58
72"	CM	.679	.704	.787	.969	275.49

4 JUNCTION BOX DISPLACEMENT QUANITIES FOR 48"–72" PIPE CULVERTS (JB 1)
SCALE: NO SCALE

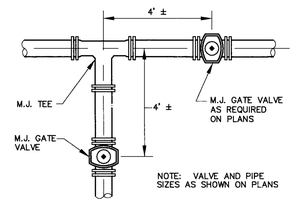


NOTES:
WHEN IT IS IMPOSSIBLE TO OBTAIN PROPER HORIZONTAL AND VERTICAL SEPARATION AS STIPULATED ABOVE, ONE OF THE FOLLOWING METHODS MUST BE SPECIFIED:

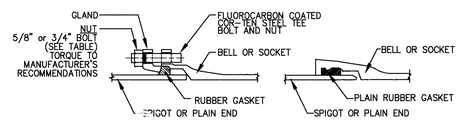
1. THE SEWER SHALL BE DESIGNED AND CONSTRUCTED EQUAL TO WATER PIPE AND SHALL BE PRESSURE TESTED AT 150 PSI TO ASSURE WATER TIGHTNESS PRIOR TO BACKFILLING.

2. EITHER THE WATER OR THE SEWER LINE MAY BE ENCASED IN A WATERTIGHT CARRIER PIPE WHICH EXTENDS 10 FEET ON BOTH SIDES OF THE CROSSING, MEASURED PERPENDICULAR TO THE WATERMAIN. THE CARRIER PIPE SHALL BE OF MATERIALS APPROVED BY THE HEALTH DEPARTMENT FOR USE IN WATERMAIN CONSTRUCTION.

5 SEWERMAIN & WATERMAIN SEPARATIONS DETAIL
SCALE: N.T.S.



6 JUNCTION LAYOUT DETAIL
SCALE: N.T.S.



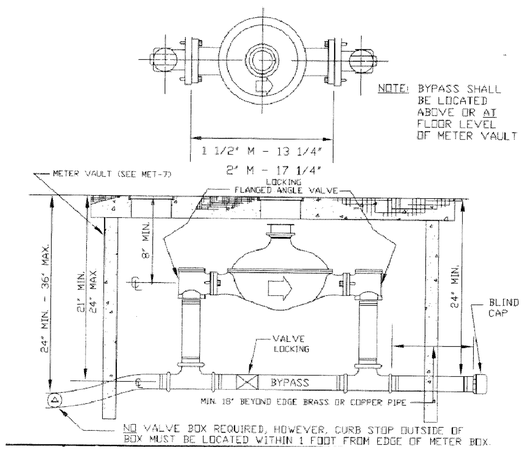
MECHANICAL JOINT TORQUE		
JOINT SIZE (IN)	BOLT SIZE (IN)	RANGE OF TORQUE (FT-LB)
3	5/8	45-60
4-24	3/4	75-90

7 TYPICAL WATERMAIN JOINT DETAILS
SCALE: N.T.S.

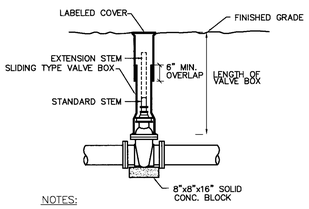
PRINCE GEORGE COUNTY
DEPARTMENT OF PUBLIC UTILITIES

NOTES:

1. SADDLES SHALL BE USED FOR ALL 1 1/2" AND 2" TAPS.
2. WATER SERVICE LATERALS FOR 1 1/2" AND 2" SERVICES WILL BE TYPE-K HARD COPPER. CONNECTIONS FOR 1 1/2" AND 2" SERVICES WILL BE APPROVED COMPRESSION FITTINGS. ALL CONNECTIONS AT CORPORATION STOPS WILL BE APPROVED COMPRESSION FITTINGS.
3. TAPS SHOULD BE MADE AT THE SPRING LINE OF THE MAIN LINE.
4. FOR DETAIL OF VAULT, SEE MET-7.
5. YOKE MUST BE INSTALLED WITH A METER SPACER THAT WILL BE FURNISHED TO THE CONTRACTOR BY THE METER SUPPLIER. THE SPACER WILL BE REMOVED BY THE UTILITIES DEPARTMENT WHEN THE METER IS SET.

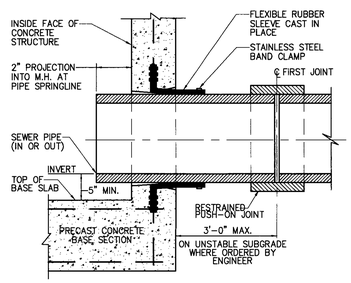


8 1 1/2" OR 2" DISC METER SETTINGS DETAIL
SCALE: N.T.S.

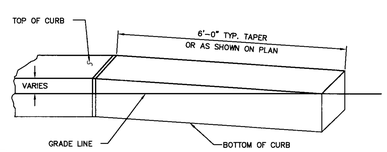


NOTES:
1. VALVE BOX COVERS SHALL BE CAST WITH AN ARROW POINTING TO THE DIRECTION OF THE OPENING AND THE WORD "OPEN". BOX AND COVER SHALL BE TAR COATED. INSTALLATION OF EXTENSION STEM REQUIRED IF STANDARD STEM IS MORE THAN FIVE (5) FEET FROM FINISHED GRADE.
2. GATE VALVE MUST MEET AWWA C509 REQUIREMENTS
3. SEE SPECIFICATIONS FOR VALVE OPEN DIRECTION REQUIRED.
4. PROVIDE A MINIMUM OF ONE VALVE KEY TO UTILITY OWNER. SEE SPECIFICATIONS FOR EXACT NUMBER TO BE REQUIRED.

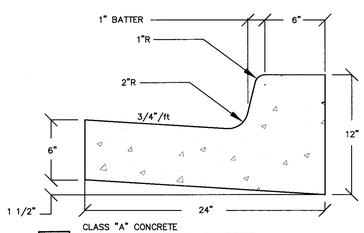
9 GATE VALVE
SCALE: N.T.S.



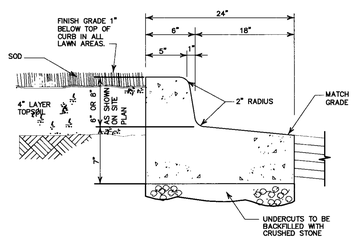
10 FLEXIBLE PIPE JOINT DETAIL
SCALE: N.T.S.



11 CURB TERMINATION / TRANSITION DETAIL
SCALE: N.T.S.



12 DETAIL-CURB & GUTTER
SCALE: N.T.S.



13 24" REVERSE PITCH CURB and GUTTER
SCALE: N.T.S.

REVISIONS
◇ PRE-BID SET ISSUE DATE △ POST BID SET ISSUE DATE

DATE	DESCRIPTION
12-14-07 ◇	County Comments
01-24-08 ◇	VDOT Comments
02-26-08 △	VDOT Comments

COMMONWEALTH OF VIRGINIA
DAVID K. WATSON
Lic. NO. 31538
PROFESSIONAL ENGINEER

CLOUGH HARBOUR & ASSOCIATES LLP
10800 Midlothian Turnpike, The Winchester Building, Suite 303 · Richmond, VA 23235-4700
Main: (804) 897-3564 · www.cloughharbour.com

LOWE'S HOME CENTERS, INC.
P.O. BOX 1111
N. WILKESBORO, NC 28656
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SITE DETAILS
LOWE'S OF PRINCE GEORGE, VA
117 K SUPER WIDE
PRINCE GEORGE, VA
PROJECT No. 16984 | DRAWN BY: KAW | CHECKED BY: ISH

ORIGINAL ISSUE DATE: 11-05-07
PERMIT SET ISSUE DATE: 12-14-07
CONSTRUCTION SET ISSUE DATE:
DRAWING NUMBER:
C-114

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