

MANHOLE FOR 12" - 48" PIPE CULVERTS

DEPTH FEET	BRICK MANHOLE		CONCRETE MANHOLE	
	BRICK THOUSANDS	CONCRETE CU. YARDS	CONCRETE THOUSANDS	CONCRETE CU. YARDS
4	0.5	0.785	1.637	1.637
5	0.7	0.785	1.509	1.509
6	0.9	0.785	1.381	1.381
7	1.0	0.785	1.253	1.253
8	1.2	0.785	1.125	1.125
9	1.4	0.785	0.997	0.997
10	1.6	0.785	0.869	0.869
11	1.8	0.970	1.445	1.445
12	2.2	0.970	1.317	1.317
13	2.5	0.970	1.189	1.189
14	2.8	0.970	1.061	1.061
15	3.1	0.970	0.933	0.933
16	3.4	0.970	0.805	0.805
17	4.0	1.173	1.032	1.032
INCREMENT	0.45	-	0.982	-

NOTE: QUANTITIES SHOWN ARE FOR MANHOLE WITHOUT PIPES. THE AMOUNT DISPLACED BY PIPES MUST BE DEDUCTED TO OBTAIN TRUE QUANTITIES.

NOTE: A BASE THICKNESS OF 9" WAS USED IN COMPUTING CONCRETE QUANTITIES.

NOTE: INCREMENTS TO BE ADDED FOR EACH ADDITIONAL FOOT OF DEPTH.

NOTE: MATERIALS MAY BE BRICK, CONCRETE OR APPROVED CONCRETE MANHOLE BLOCK.

NOTE: F BLOCKS ARE USED THE MINIMUM THICKNESS OF SAME IS TO BE 9". OTHER THICKNESSES ARE TO CONFORM TO WALL THICKNESS SHOWN FOR CONCRETE.

NOTE: ALL CONCRETE TO BE CLASS A3.

NOTE: WHEN SPECIFIED ON PLANS THE INVERT IS TO BE SHAPED IN ACCORDANCE WITH STANDARD IS-1. THE COST OF FINISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.

VDOT ROAD AND BRIDGE STANDARDS SHEET 1 OF 4 106.01

NO PROJECTION OF PIPE ABOVE GROUND LINE

PIPE PROJECTION ABOVE GROUND LINE

INSTALL. OF PIPE CULVERTS AND STORM SEWERS CIRC. PIPE BEDDING AND BACKFILL - METHOD "A"

NOTE: FOR GENERAL NOTES ON PIPE BEDDING, SEE INSTALLATION OF PIPE CULVERTS AND STORM SEWERS GENERAL NOTES ON SHEET 107.00.

NOTE: CRUSHED GLASS CONFORMING TO THE SIZE REQUIREMENTS FOR CRUSHER RUN AGGREGATE SIZE 25 AND 26 MAY BE USED IN PLACE OF CLASS I BACKFILL.

VDOT ROAD AND BRIDGE STANDARDS SHEET 1 OF 4 107.01

STANDARD DROP INLET

12" - 24" PIPE; MAXIMUM DEPTH (H) - 10'

PIPE DIAMETER	CONCRETE PIPE	CONCRETE COLLAR	CONCRETE GRATE	CONCRETE INVERT
12"	1.440	0.880	0.100	0.100
18"	1.820	1.120	0.130	0.130
24"	2.170	1.360	0.160	0.160

NOTE: 12" CONCRETE PIPE - 1.440 CU. YD. CONCRETE
18" CONCRETE PIPE - 1.820 CU. YD. CONCRETE
24" CONCRETE PIPE - 2.170 CU. YD. CONCRETE
ADD 0.440 CU. YD. PER ADDITIONAL FOOT OF DEPTH.

VDOT ROAD AND BRIDGE STANDARDS SHEET 1 OF 1 104.01

STANDARD METHOD OF SHAPING MANHOLE & INLET INVERTS

NOTE: SHAPING OF MANHOLE AND INLET INVERTS IN ACCORDANCE WITH THIS DRAWING IS TO APPLY TO THOSE STRUCTURES SPECIFIED ON PLANS OR WHERE INVERT OF PIPE IS ABOVE INVERT OF STRUCTURE.

NOTE: MANHOLE OR DROP INLET IS TO BE FORMED AND CONSTRUCTED IN ACCORDANCE WITH APPLICABLE STANDARDS OR SPECIAL DRAWING. THE INVERT SHAPING AS DETAILED HEREON IS TO CONSIST OF A PORTLAND CEMENT CONCRETE MIX CONFORMING TO CLASS A3 OR CLASS OF CONCRETE THAT GIVES CONCRETE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI. THE SURFACE SHALL BE LEFT SMOOTH BY MEANS OF HAND TROWELLING, NONE OF THE COURSE AGGREGATE SHALL REMAIN EXPOSED.

NOTE: DETAILS OF INVERT SHAPING AS SHOWN HEREON ARE FOR EXAMPLE PURPOSES ONLY. EACH MANHOLE OR DROP INLET IS TO BE SHAPED INDIVIDUALLY TO BEST FIT THE PARTICULAR INLET AND OUTLET CONFIGURATION AND FLOW LINES.

VDOT ROAD AND BRIDGE STANDARDS SHEET 1 OF 1 106.08

FLARED END SECTION 12" - 60" CONCRETE PIPE CULVERTS

PIPE DIAMETER	A	B	C	D	E
12"	4"	2'-0"	2'-0"	4'-0"	2'-0"
15"	6"	2'-3"	2'-3"	4'-0"	2'-0"
18"	8"	2'-3"	2'-3"	4'-0"	2'-0"
24"	12"	2'-11"	2'-11"	4'-0"	2'-0"
27"	12"	3'-7"	2'-3"	8'-1"	4'-0"
30"	1'-0"	4'-0"	2'-11"	4'-8"	4'-8"
36"	1'-0"	4'-0"	2'-11"	4'-8"	5'-0"
36"	1'-0"	4'-0"	2'-3"	7'-0"	8'-6"
36"	1'-0"	4'-0"	2'-11"	4'-8"	8'-0"
42"	1'-0"	5'-3"	2'-11"	8'-2"	8'-6"
48"	2'-0"	8'-0"	2'-2"	7'-0"	7'-0"
54"	2'-3"	8'-3"	2'-9"	7'-0"	8'-4"
60"	2'-11"	5'-0"	3'-3"	8'-3"	8'-0"

VDOT ROAD AND BRIDGE STANDARDS SHEET 1 OF 1 102.01

STANDARD ENDWALL FOR MULTIPLE PIPE CULVERTS

12" - 36" CIRCULAR PIPES

D	S	G	L	CONCRETE ONE DOUBLE ENDWALL	INCREASE FOR EACH ADDITIONAL PIPE	a	b
12"	1'-10"	2'-0"	3'-10"	0.329	0.088	0'-3/4"	0'-1"
15"	2'-3"	2'-0"	7'-3"	0.571	0.179	0'-3/4"	0'-1"
18"	2'-3"	3'-0"	8'-8"	0.841	0.244	0'-2"	0'-1"
24"	3'-8"	4'-0"	11'-8"	1.763	0.444	0'-2"	0'-2"
27"	3'-8"	5'-0"	14'-4"	2.730	0.663	0'-3"	0'-2"
33"	5'-2"	8'-0"	17'-2"	3.854	0.807	0'-3"	0'-3"

D	S	G	L	CONCRETE ONE DOUBLE ENDWALL	INCREASE FOR EACH ADDITIONAL PIPE	a	b
12"	1'-7"	2'-0"	3'-7"	0.344	0.087	0'-1/2"	0'-1"
15"	1'-11/2"	2'-0"	8'-11/2"	0.589	0.175	0'-3/4"	0'-1"
18"	2'-4"	3'-0"	8'-11/2"	0.980	0.241	0'-2"	0'-1"
24"	3'-7"	4'-0"	11'-7"	1.840	0.442	0'-2"	0'-2"
27"	3'-7"	5'-0"	13'-7"	2.868	0.670	0'-3"	0'-2"
36"	4'-7"	8'-0"	18'-7"	4.078	0.931	0'-3"	0'-3"

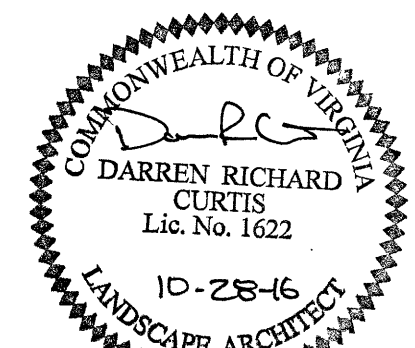
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IFB # 2017-11223-20

CHARLOTTESVILLE,
VIRGINIA

REVISIONS

DATE DESCRIPTION

COMMISSION NUMBER
2160310

SCALE: AS SHOWN

DESIGNED: DRC

DRAWN: DRC

CHECKED: DFB

DATE: 10.28.2016

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SHEET TITLE

STORMWATER
DETAILS

SHEET NUMBER

C-502

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