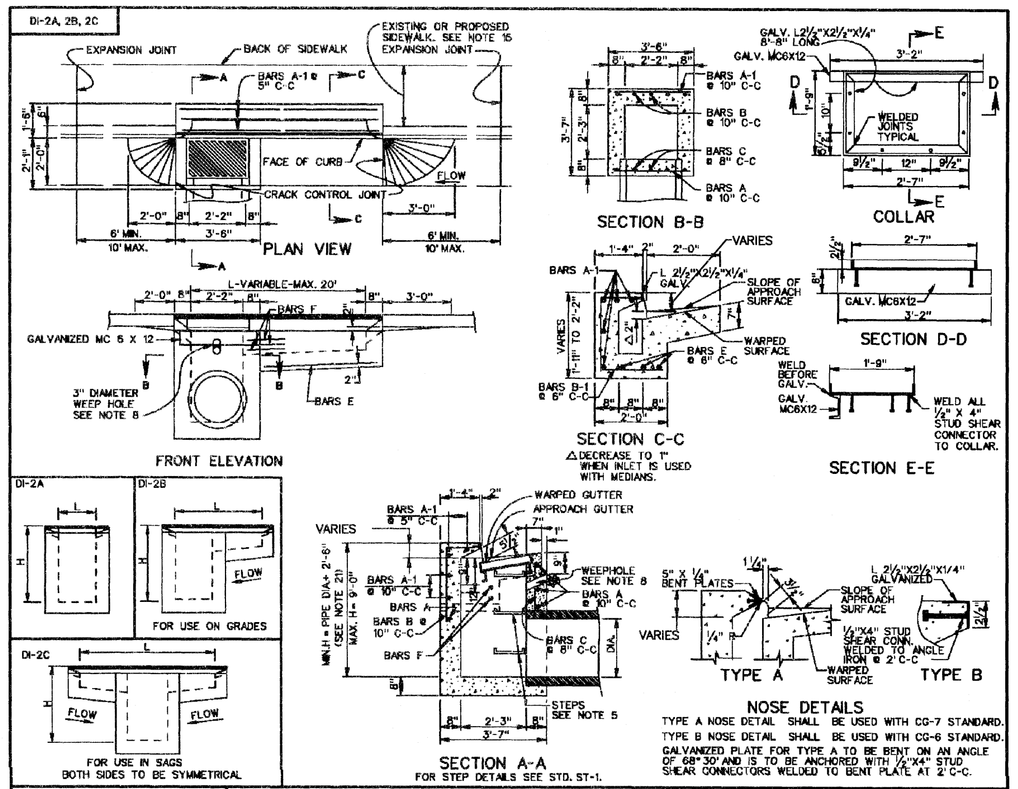
DI-2A, 2B, 2C



DI-2A

FOR USE ON GRADES

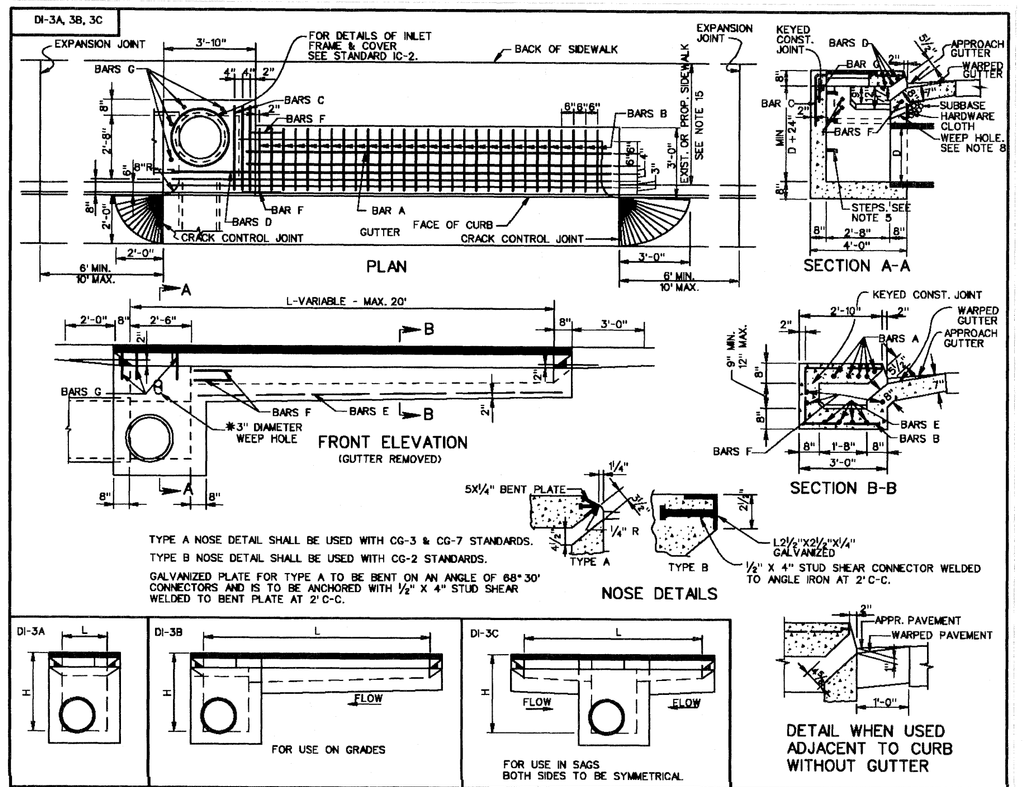
DI-2B

DI-2C

FOR USE IN SAGS BOTH SIDES TO BE SYMMETRICAL

VDOT ROAD AND BRIDGE STANDARDS		STANDARD CURB DROP INLET 12" - 24" PIPE: MAXIMUM DEPTH (H) - 9' VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE
SHEET 1 OF 2	REVISION DATE		233 302
104.03			

DI-3A, 3B, 3C



DI-3A

DI-3B

FOR USE ON GRADES

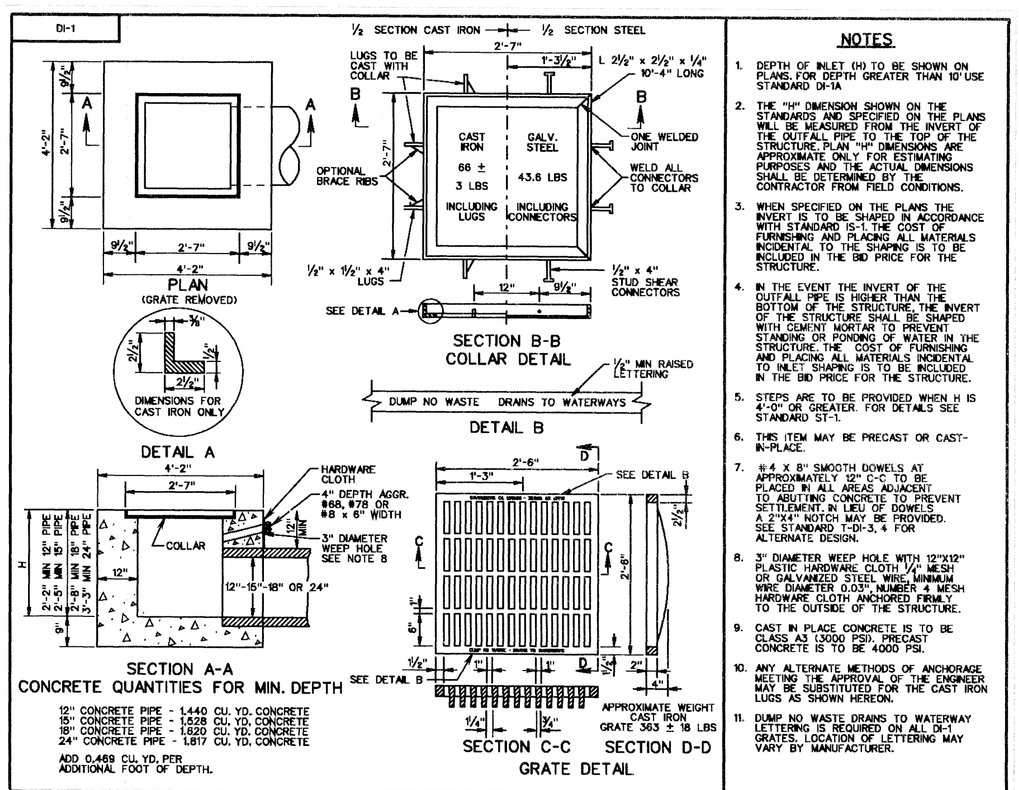
DI-3C

FOR USE IN SAGS BOTH SIDES TO BE SYMMETRICAL

DETAIL WHEN USED ADJACENT TO CURB WITHOUT GUTTER

VDOT ROAD AND BRIDGE STANDARDS		STANDARD CURB DROP INLET 12" - 30" PIPE: MAXIMUM DEPTH (H) - 8' VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE
SHEET 1 OF 2	REVISION DATE		233 302
104.09			

DI-1



NOTES

1. DEPTH OF INLET (H) TO BE SHOWN ON PLANS FOR DEPTH GREATER THAN 10' USE STANDARD DI-1A.
2. THE "H" DIMENSION SHOWN ON THE STANDARDS AND SPECIFIED ON THE PLANS WILL BE MEASURED FROM THE INVERT OF THE OUTFALL PIPE TO THE TOP OF THE STRUCTURE. PLAN "H" DIMENSIONS ARE APPROXIMATE ONLY, FOR ESTIMATING PURPOSES AND THE ACTUAL DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FROM FIELD CONDITIONS.
3. WHEN SPECIFIED ON THE PLANS THE INVERT IS TO BE SHAPED IN ACCORDANCE WITH STANDARD IS-1. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
4. IN THE EVENT THE INVERT OF THE OUTFALL PIPE IS HIGHER THAN THE BOTTOM OF THE STRUCTURE, THE INVERT OF THE STRUCTURE SHALL BE SHAPED WITH CEMENT MORTAR TO PREVENT STANDING OR PONDING OF WATER IN THE STRUCTURE. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO INLET SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
5. STEPS ARE TO BE PROVIDED WHEN H IS 4'-0" OR GREATER. FOR DETAILS SEE STANDARD ST-1.
6. THIS ITEM MAY BE PRECAST OR CAST-IN-PLACE.
7. #4 X 8" SMOOTH DOWELS AT APPROXIMATELY 12" C-C TO BE PLACED IN ALL AREAS ADJACENT TO ABUTTING CONCRETE TO PREVENT A CRACK. TIE BARS IN LIEU OF DOWELS A STEP WITH KEY MAY BE PROVIDED. SEE STANDARD T-10-3, A FOR ALTERNATE DESIGN.
8. 3" DIAMETER WEEP HOLE WITH 12"X12" PLASTIC HARDWARE CLOTH ½" MESH OR GALVANIZED STEEL WIRE, MINIMUM WIRE DIAMETER 0.035", NUMBER 4 MESH HARDWARE CLOTH ANCHORED FIRMLY TO THE OUTSIDE OF THE STRUCTURE.
9. CAST IN PLACE CONCRETE IS TO BE CLASS A3 (3000 PSI). PRECAST CONCRETE IS TO BE 4000 PSI.
10. ANY ALTERNATE METHODS OF ANCHORAGE MEETING THE APPROVAL OF THE ENGINEER, MAY BE SUBSTITUTED FOR THE CAST IRON LUGS AS SHOWN HEREON.
11. DUMP NO WASTE DRAINS TO WATERWAY LETTERING IS REQUIRED ON ALL DI-1 GRATES. LOCATION OF LETTERING MAY VARY BY MANUFACTURER.

VDOT ROAD AND BRIDGE STANDARDS		STANDARD DROP INLET 12" - 24" PIPE: MAXIMUM DEPTH (H) - 10' VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE
SHEET 1 OF 1	REVISION DATE		233 302
104.01			

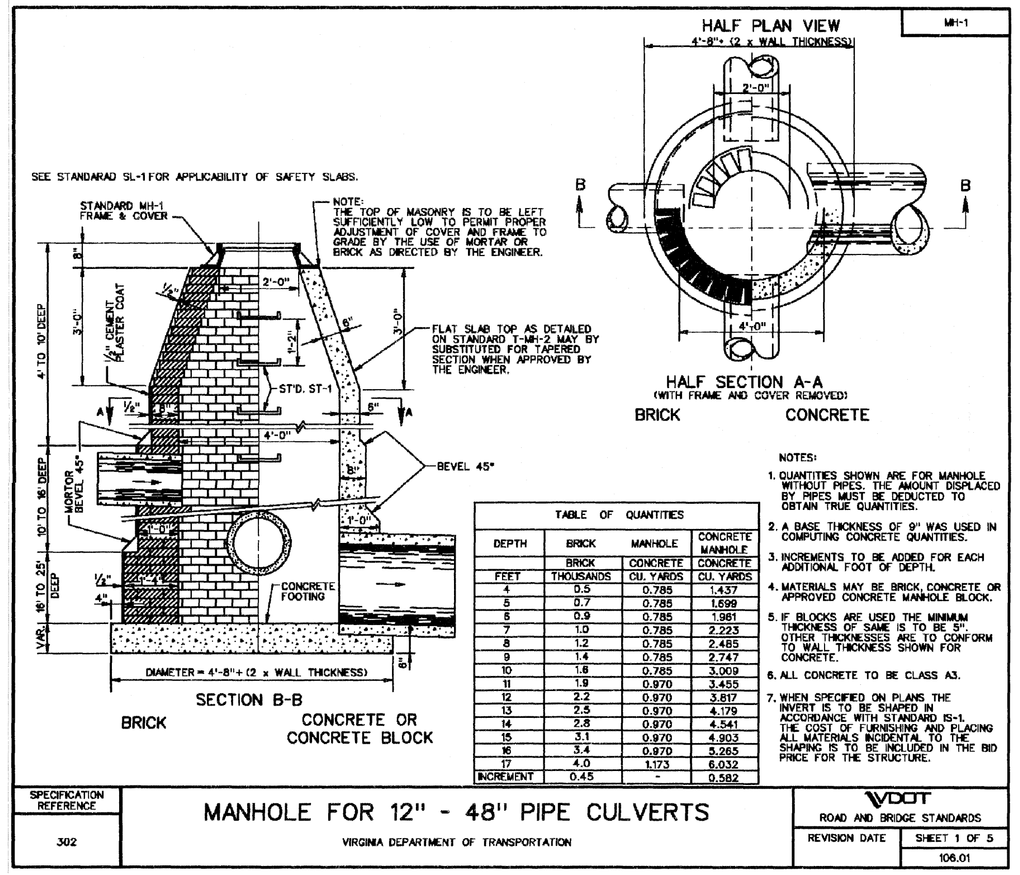
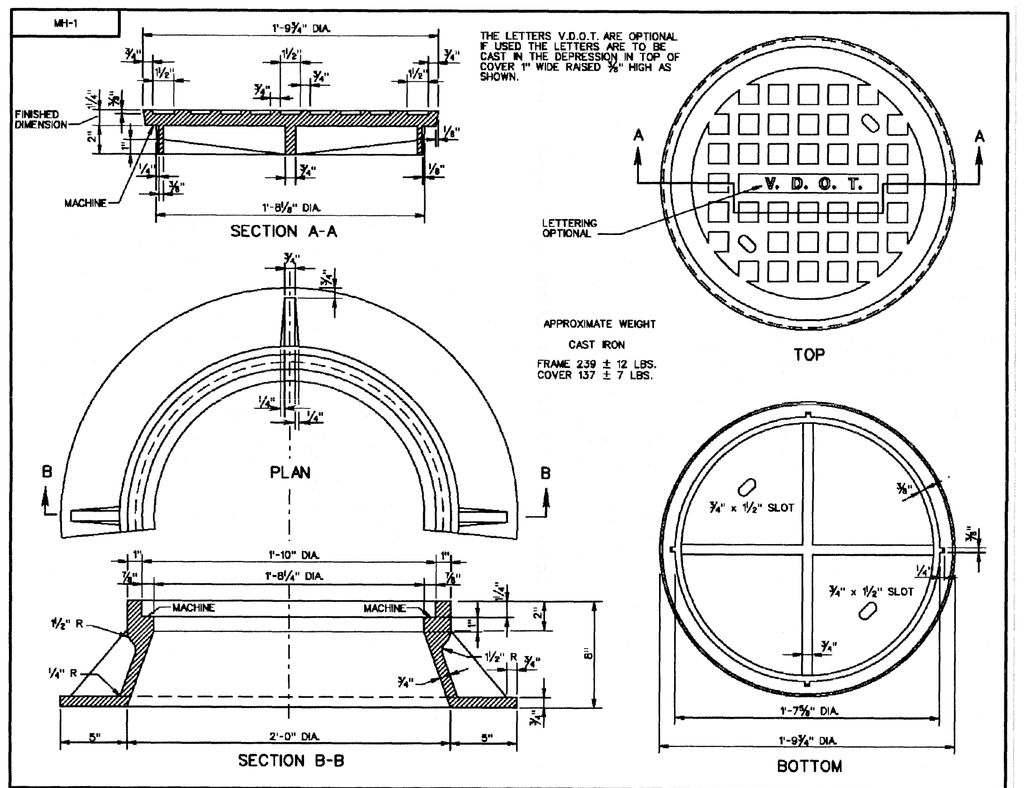


TABLE OF QUANTITIES			
DEPTH	BRICK	MANHOLE	CONCRETE MANHOLE
	BRICK	CONCRETE	CONCRETE
FEET	THOUSANDS	CU. YARDS	CU. YARDS
4	0.5	0.785	1.437
5	0.7	0.785	1.599
6	0.9	0.785	1.981
7	1.0	0.785	2.223
8	1.2	0.785	2.485
9	1.4	0.785	2.747
10	1.6	0.785	3.009
11	1.8	0.970	3.455
12	2.2	0.970	3.817
13	2.5	0.970	4.179
14	2.8	0.970	4.541
15	3.1	0.970	4.903
16	3.4	0.970	5.265
17	4.0	1.173	6.032
INCREMENT	0.45	-	0.582

NOTES:
1. QUANTITIES SHOWN ARE FOR MANHOLE WITHOUT PIPES. THE AMOUNT DISPLACED BY PIPES MUST BE DEDUCTED TO OBTAIN TRUE QUANTITIES.
2. A BASE THICKNESS OF 9" WAS USED IN COMPUTING CONCRETE QUANTITIES.
3. INCREMENTS TO BE ADDED FOR EACH ADDITIONAL FOOT OF DEPTH.
4. MATERIALS MAY BE BRICK, CONCRETE OR APPROVED CONCRETE MANHOLE BLOCK.
5. IF BLOCKS ARE USED THE MINIMUM THICKNESS OF SAME IS TO BE 5". OTHER THICKNESSES ARE TO CONFORM TO WALL THICKNESS SHOWN FOR CONCRETE.
6. ALL CONCRETE TO BE CLASS A3.
7. WHEN SPECIFIED ON PLANS THE INVERT IS TO BE SHAPED IN ACCORDANCE WITH STANDARD IS-1. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.

SPECIFICATION REFERENCE	MANHOLE FOR 12" - 48" PIPE CULVERTS VIRGINIA DEPARTMENT OF TRANSPORTATION	VDOT ROAD AND BRIDGE STANDARDS	
302		REVISION DATE	SHEET 1 OF 5
			106.01

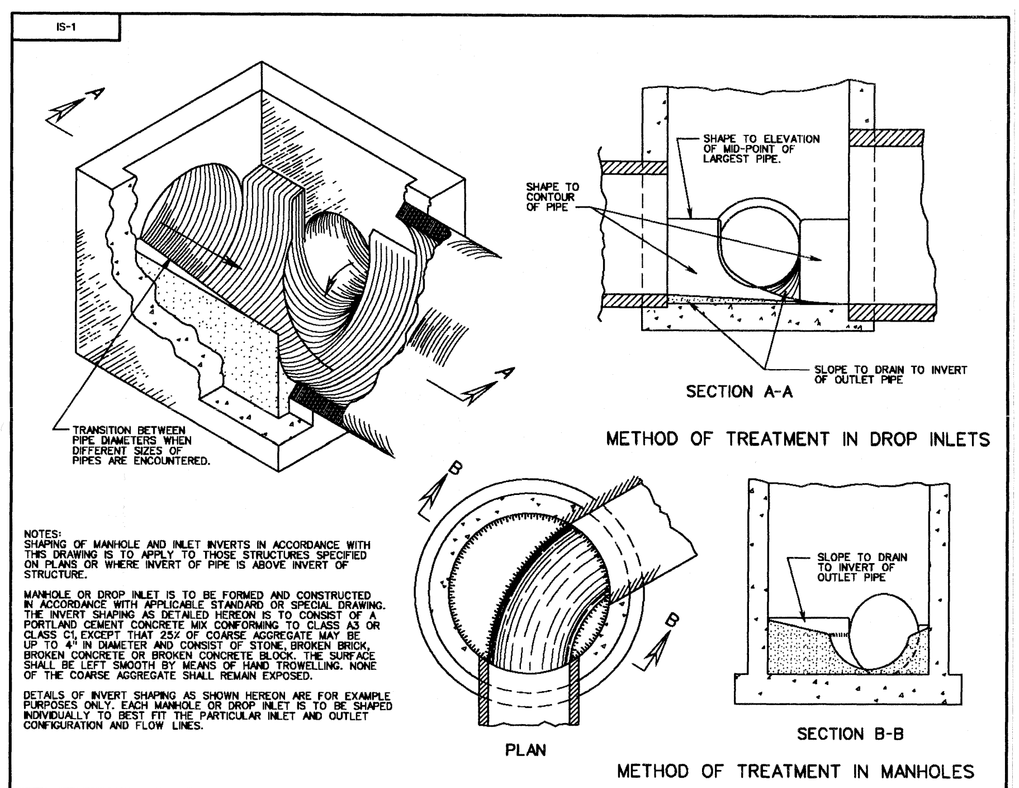
MH-1



VDOT ROAD AND BRIDGE STANDARDS		STANDARD MANHOLE FRAME AND COVER VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE
SHEET 2 OF 5	REVISION DATE		224 302
106.02			

SUBSTITUTE "STORM" IN LIEU OF "VDOT" ON ALL STORM DRAIN MANHOLE COVERS.

IS-1



NOTES:
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.

MANHOLE OR DROP INLET IS TO BE FORMED AND CONSTRUCTED IN ACCORDANCE WITH APPLICABLE STANDARD OR SPECIAL DRAWING. THE INVERT SHAPING AS DETAILED HEREON IS TO CONSIST OF A PORTLAND CEMENT CONCRETE MIX CONFORMING TO CLASS A3 OR CLASS C1, EXCEPT THAT .25% OF COARSE AGGREGATE MAY BE UP TO 4" IN DIAMETER AND CONSIST OF STONE, BROKEN BRICK, BROKEN CONCRETE OR BROKEN CONCRETE BLOCK. THE SURFACE SHALL BE LEFT SMOOTH BY MEANS OF HAND TROWELLING. NONE OF THE COARSE AGGREGATE SHALL REMAIN EXPOSED.

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		STANDARD METHOD OF SHAPING MANHOLE & INLET INVERTS VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE
SHEET 1 OF 1	REVISION DATE		302
106.08			

ISSUED FOR CONSTRUCTION

OFFICE OF THE
CITY ENGINEER
215 CHURCH AVENUE, S.W.
ROOM 350
PHONE: (540) 853-2731
FAX: (540) 853-1364
WWW.ROANOKEVA.GOV
ROANOKE

DESIGNED: JJT/ARG
DRAWN: ARG
CHECKED: JJT

SEALS:

REV.	DATE:	DESCRIPTION

DATE: 05/16/2010
SCALE: 1"=10'

MARKET BUILDING STREETSCAPE PROJECT
CITY OF ROANOKE, VIRGINIA

DETAILS

SHEET 8 OF 9
SHEET NO. 8