

SEWER

LOCATION OF 8" X 4" TEE-Y'S AND CLEANOUTS

LOT	LENGTH FROM MANHOLE	MANHOLE	DISTANCE OFF SEWER	DEPTH OF CLEANOUT
5	0+72.8	B	0	5.6
6	1+50	B	17.6	7.7
7	2+25.7	B	16.7	8
8	1+41	C	45.6	5.1
9	1+97.5	C	53	4.7
10	OUT OF MANHOLE	D	8.3	5.1
11	2+05	C	26.5	4.5
12	1+89.4	C	51.7	3.1
13	0+97	C	27.2	4.7
14	0+51	C	28.9	5
15	OUT OF MANHOLE	C	38.2	4.7
16	0+60	C	22.8	6.1
17	OUT OF MANHOLE	E	24	5.2
18	2+49.1	B	32.5	6.3
19	1+75.5	B	32.7	8.5
20	1+15	B	31.5	7.1
21	0+56	B	29.2	6.1
22	OUT OF MANHOLE	B	19	7.3

Lot 1 existing Water and Sewer service, Lots 2, 3, 4 Water Service and Sewer Laterals installed by Southwest Virginia Water Authority.

MANHOLE DEPTHS

A	6.5
B	7
C	8.2
D	5.7
E	5.2

SEWER MANHOLE DATA

LINE	DISTANCE
Existing to "A"	49.5
"A" to "B"	83.5
"B" to "C"	288.6
"C" to "D"	221.5
"D" to "E"	96.2
"E" to Stub	66.3

Double Water Meters are located on the following lot corners and serving the same lots: Lot 6-7, 9-10, 11-12, 14-15, 18-19, and 20-21. Single Water Meters are on the following lots: Lot 5, 8, 13, 16, 17, and 22

W.V.W.A. SERVICE LATERAL INFORMATION

LOT	DOWNSIDE MANHOLE	DIST.	TOP OF S.S. MAIN	MIN. F.F. ELEVATION	APPROX. F.F. ELEVATION	APPROX. WATER PRESSURE
1	'A'	218.0	1042.6	1045.6	1058.5-Ex	34
2	'A'	218.0	1042.6	1045.6	1054.0	36
3	'A'	94.0	1036.3	1039.3	1048.0	38
4	'A'	94.0	1036.3	1039.3	1044.0	40
5	'B'	77.4	1040.1	1043.1	1052.5	72
6	'B'	145.2	1045.8	1048.8	1057.5	70
7	'B'	227.2	1052.7	1055.7	1062.5	68
8	'C'	139.9	1062.4	1065.4	1068.0	66
9	'C'	198.3	1064.4	1067.4	1070.0	65
10	'C'	0-	1065.3	1068.3	1072.0	64
11	'C'	0-	1065.3	1068.3	1074.0	63
12	'C'	189.4	1063.6	1066.6	1075.0	63
13	'C'	102.5	1061.2	1064.2	1074.0	63
14	'C'	47.6	1059.3	1062.3	1073.0	64
15	'C'	0-	1058.6	1060.6	1072.0	64
16	'C'	73.3	1060.4	1063.4	1071.0	64
17	'C'	0-	1061.5	1064.5	1069.0	65
18	'B'	240.2	1053.8	1056.8	1064.0	68
19	'B'	164.2	1048.4	1050.4	1059.0	70
20	'B'	108.2	1042.7	1045.7	1054.0	72
21	'B'	58.2	1038.4	1041.4	1049.0	74
22	'B'	0-	1033.5	1036.5	1044.0	76

SANITARY SEWER MANHOLE DATA

LINE	BEARING	DISTANCE
Existing to 'A'	S. 75°09' E.	50.2'
'A' to 'B'	N. 14°39' E.	75.0'
'B' to 'C'	N. 24°32' E.	298.7'
'C' to 'D'	S. 68°18' E.	222.7'
'D' to 'E'	N. 53°12' W.	101.8'
'E' to 'STUB'	N. 13°45' W.	54.0'

STATIONS AND OFFSETS ARE MEASURED ALONG A BASELINE FROM CENTER OF MANHOLE TO CENTER OF MANHOLE WITH 0+00.0 BEING THE BEGINNING AT THE LOWER MANHOLE.
THE MIN. FLOOR ELEVATION IS BASED ON SEC. 200.02-2-0-1-h OF THE WESTERN VIRGINIA WATER AUTHORITY WATER & SEWER REGULATIONS. LOT OWNERS REQUESTING A LOWER SERVICE ELEVATION WILL REQUIRE THE USE OF A PRIVATE SEWAGE PUMP FACILITY, INSTALLED AND MAINTAINED BY THE HOMEOWNER.

WATERLINE

Waterline tap at the corner of Sneed and Gearhart.

ITEM	FROM HOUSE 1103 GEARHART CORNER "A"	FROM HOUSE 1103 GEARHART CORNER "B"
Tapping valve	70.7	83.9
45 Bend Down	67.5	79.6
45 Bend Level	65.5	77
22 Bend	51	52.5

Corner of Gearhart and Reed Rd.

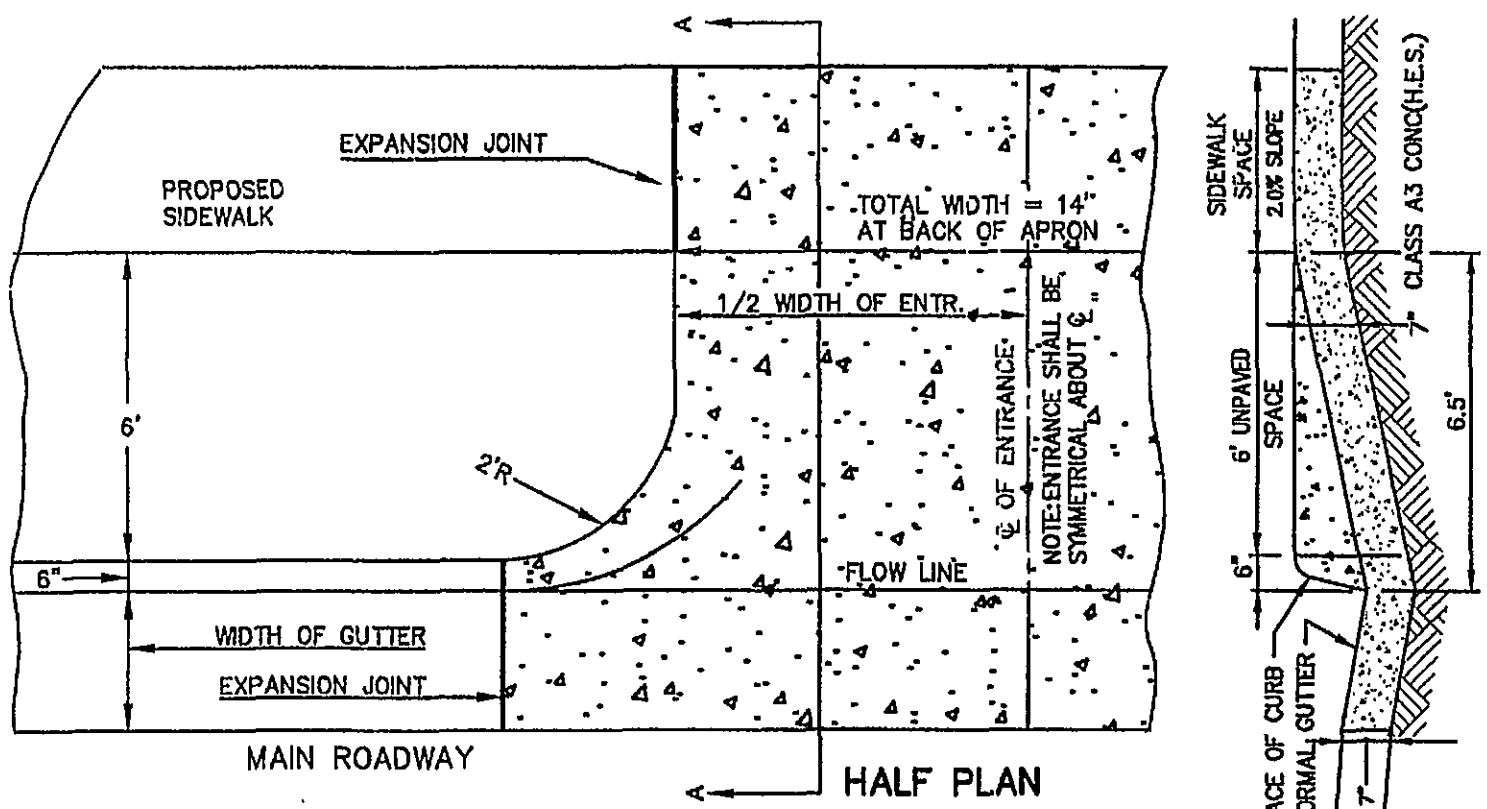
ITEM	FROM HOUSE 1122 GEARHART CORNER "A"	FROM HOUSE 1122 GEARHART CORNER "B"	FROM HOUSE 1122 GEARHART CORNER "C"
90 Bend	108.5	142.5	N/A
90 Bend	89.1	128	N/A
8" Tee	76.3	113.5	N/A
Vault Valve	73.7	112.3	N/A
Hydrant Valve	72.1	109.8	N/A
Sleeve	73	112.3	N/A
45 Bend Up	72.8	112.1	N/A
45 Bend Level	72.3	111.7	N/A
8" x 6" Reducer	41.3	74	N/A
Fire Hydrant	40.5	72.7	N/A
Sleeve	69.3	N/A	75
Vault Valve	69.3	N/A	73.5

Corner of Reed Rd. and Updike Rd., and end of Updike Rd. to the West

ITEM	FROM HOUSE 3147 REED RD. CORNER "A"	FROM HOUSE 3147 REED RD. CORNER "B"	FROM HOUSE 3147 REED RD. CORNER "C"
Hydrant Valve	60.9	43.1	N/A
8" Tee to Hydrant	54.7	33.3	N/A
8" Valve	67.4	41.5	N/A
8" x 6" Reducer	64.3	37.9	N/A
8" Tee	63.1	36.1	N/A
8" Valve	59.8	26.9	N/A
8" x 6" Reducer to Fire Hydrant	66.2	77.2	N/A
Fire Hydrant	87.7	78.2	N/A
Air Release	N/A	59.4	42.8
Temp. Blow-off Valve	N/A	64.1	46.5
Blow-off	N/A	109.1	90

East end of Updike Rd.

ITEM	FROM HOUSE 1122 UPDIKE RD. CORNER "A"	FROM HOUSE 1122 UPDIKE RD. CORNER "B"
Perm. Blow Off	66.7	88
Air Release	74.3	91.5

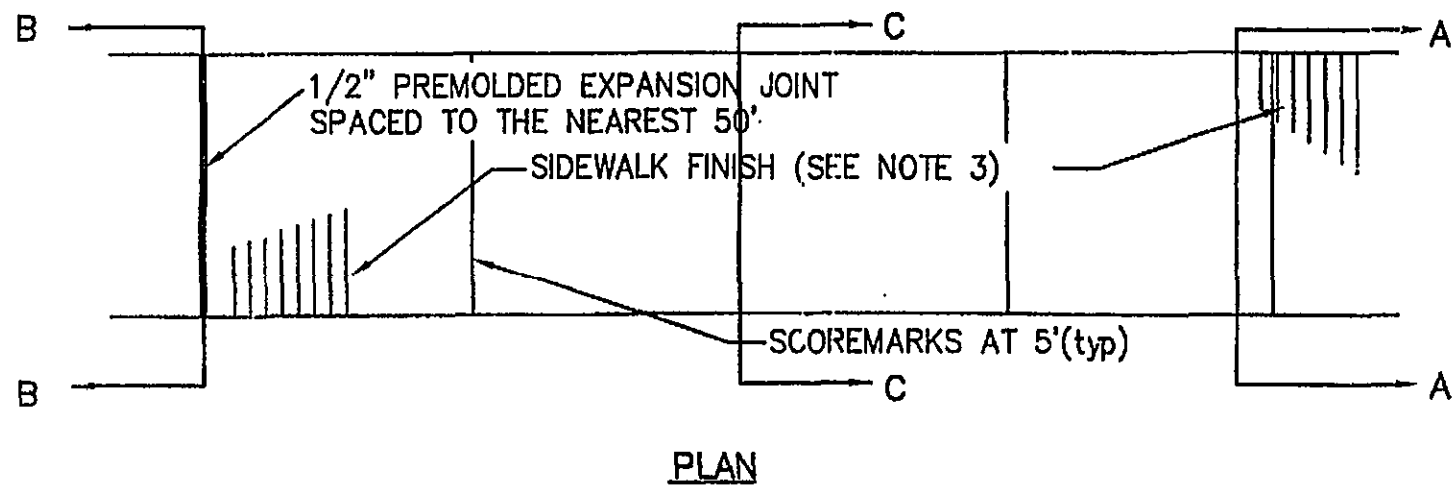


GENERAL NOTES:

- Standard Residential "Entrance" shall have a minimum curb radius(R) of 2.5 feet.
- Maximum entrance width to be 14 feet.
- Where curb & gutter already exists both curb & gutter shall be removed, if proposed entrance falls within five(5) feet of an existing joint removal & reconstruction shall be to that joint. Any concrete removed at other than an existing joint shall be cut with a mechanical saw specifically manufactured for that purpose.
- Where sidewalk exists or is to be constructed across driveways the thickness thereof must correspond with the thickness of the entrance.
- Whenever "Entrances" exceeds twenty-four(24) feet in width a 1/2" premolded expansion joint filler shall be installed through the center perpendicular to flow line.
- Finish "Entrances" shall have a "course broom finish" running parallel to flow line.
- Curing shall be accomplished by the use of a liquid membrane seal containing white pigment applied at the rate of one(1) gallon per 150 square feet.
- All "Entrances" shall be constructed according to City of Roanoke specifications and to the lines and grades established by the construction plans and actual field elevations.

STD. CITY OF ROANOKE ENTRANCE

NO SCALE



STANDARD CONCRETE PEDESTRIAN SIDEWALK NOTES

- ALL CONCRETE SHALL BE CLASS A, 3000 PSI.
- SPACING FOR EXPANSION JOINTS SHALL BE AT MAXIMUM 50' INTERVALS FOR MAINTENANCE OF TRAFFIC MUST BE PREPARED IN ACCORDANCE WITH "MUTCD" (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES) AND THE "VIRGINIA WORK AREA PROTECTION MANUAL". THE PLAN SHALL BE SUBMITTED TO THE CITY OF ROANOKE PUBLIC WORKS DEPARTMENT FOR REVIEW AND APPROVAL. SPECIAL ATTENTION TO MAINTAIN ACCESS TO THE ADJOINING PROPERTIES MUST BE PROVIDED. ALL FLAGGERS SHALL BE CERTIFIED AND MUST SPEAK ENGLISH WHILE PERFORMING THEIR DUTIES ON THE PROJECT. UPON ACQUIRING APPROVAL OF THE PLANS, THE G.C. SHALL BE RESPONSIBLE FOR ACQUISITION OF ALL PERMITS.
- SIDEWALK FINISH: SIDEWALK SHALL BE FIRST SMOOTH TROWELED, THEN ENDING WITH A LIGHT BROOM FINISH, UNLESS OTHERWISE NOTED.
- WHEN SIDEWALK ABUTS A CURBING OR A PREVIOUS CONCRETE POUR, A 1/2" PREMOLDED EXPANSION JOINT IS TO BE USED.
- CURING SHALL BE ACCOMPLISHED BY THE USE OF A LIQUID MEMBRANE SEAL CONTAINING WHITE PIGMENT, APPLIED AT THE RATE OF ONE (1) GALLON PER 150 SQUARE FEET.

PUBLIC SIDEWALK

NO SCALE

GENERAL CITY OF ROANOKE ENGINEER NOTES:
WORK SHALL NOT COMMENCE IN PUBLIC RIGHT-OF-WAY BEFORE APPROVAL BY AN INSPECTOR AND A PERMIT IS OBTAINED.

NOTIFY CONSTRUCTION INSPECTORS' OFFICE AT 853-2856 - 48 HOURS BEFORE WORK BEGINS.

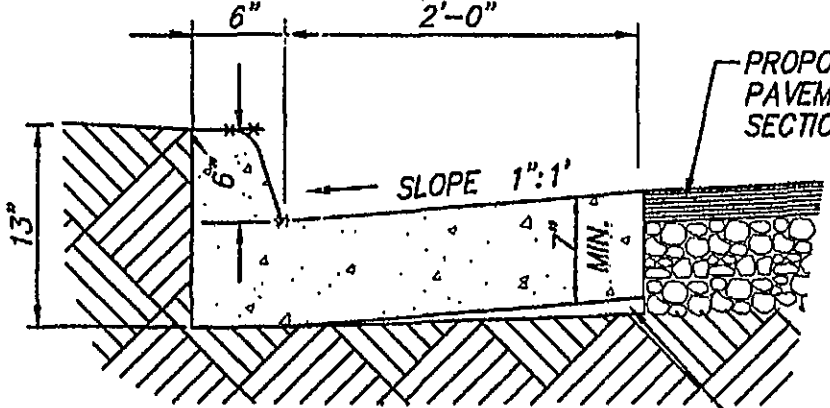
DO NOT POUR ANY CONCRETE BEFORE FORMS HAVE BEEN INSPECTED AND APPROVED.

USE ONLY STANDARD METAL FORMS AS APPROVED BY VDOT (WOOD FORMS WILL NOT BE PERMITTED).

JOINTS OR SCORE MARKS ARE TO BE SHARP AND CLEAN WITHOUT SHOWING EDGES OF JOINTING TOOL.

ALL RADIUS SHOWN SHALL BE 1/2" UNLESS OTHERWISE NOTED FOR PREMOLDED EXPANSION JOINTS.

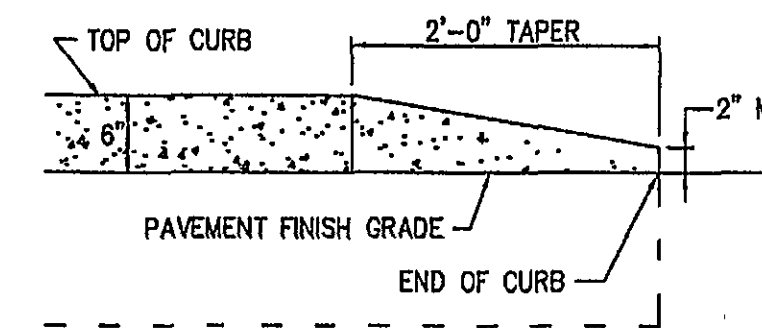
ALL CONCRETE: SHALL BE CLASS A 3000 P.S.I.



BOTTOM OF THE CURB & GUTTER MAY BE CONSTRUCTED PARALLEL TO THE SLOPE OF THE SUBBASE

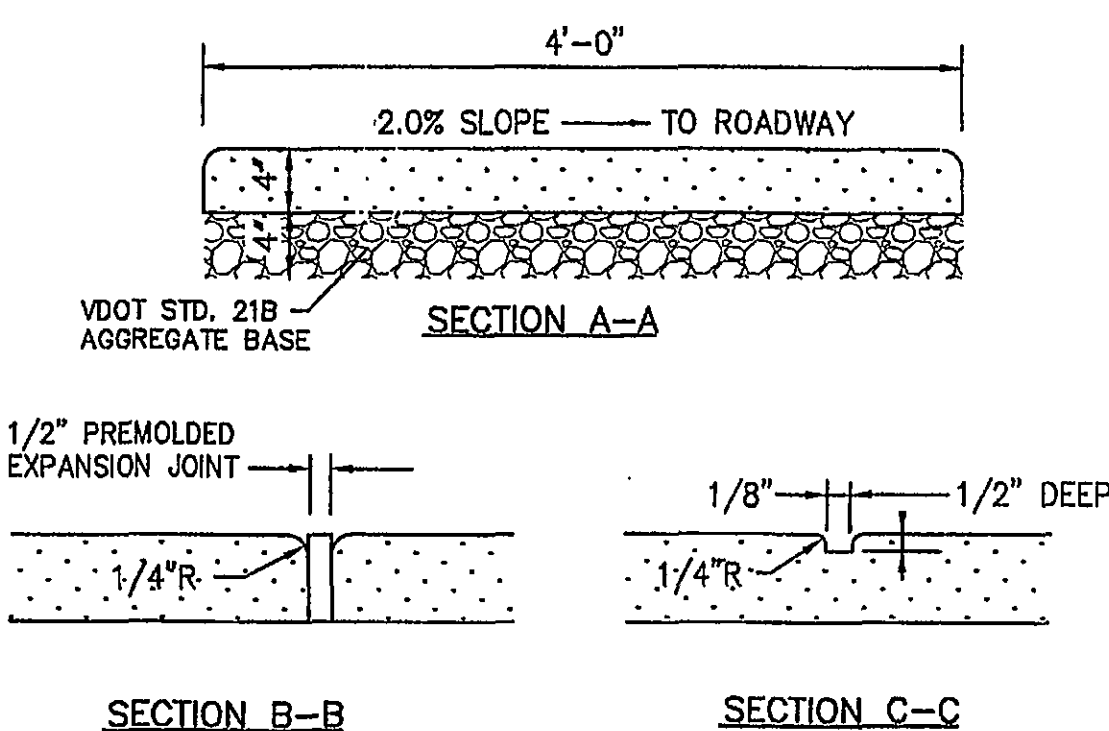
STD. CITY OF ROANOKE CURB & GUTTER

NO SCALE



CURB TAPER DETAIL

NO SCALE



GENERAL NOTES

- PRIOR TO BEGINNING ANY CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY FOR GEARHART ROAD, A TRAFFIC CONTROL PLAN SEQUENCED WITH A PLAN OF OPERATION FOR MAINTENANCE OF TRAFFIC MUST BE PREPARED IN ACCORDANCE WITH "MUTCD" (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES) AND THE "VIRGINIA WORK AREA PROTECTION MANUAL". THE PLAN SHALL BE SUBMITTED TO THE CITY OF ROANOKE PUBLIC WORKS DEPARTMENT FOR REVIEW AND APPROVAL. SPECIAL ATTENTION TO MAINTAIN ACCESS TO THE ADJOINING PROPERTIES MUST BE PROVIDED. ALL FLAGGERS SHALL BE CERTIFIED AND MUST SPEAK ENGLISH WHILE PERFORMING THEIR DUTIES ON THE PROJECT. UPON ACQUIRING APPROVAL OF THE PLANS, THE G.C. SHALL BE RESPONSIBLE FOR ACQUISITION OF ALL PERMITS.
- UPON COMPLETION OF THE INSTALLATION OF THE CURB & GUTTER AND STONE BASE, THE G.C. SHALL INSTALL TEMPORARY 'STOP' SIGNS AT THE INTERSECTION AS INDICATED. THE SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH PART 2 OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
- VDOT STD. C0-12 HANDICAP RAMP
- STD. CITY OF ROANOKE RESIDENTIAL ENTRANCE, WIDTH=12' TO BE CONSTRUCTED TO PROVIDE VEHICULAR ACCESS TO THE PRIVATE SWM FACILITY
- GRASS LANDSCAPE ISLAND TO BE CONSTRUCTED CONCENTRIC WITH RIGHT-OF-WAY USING VDOT STD. C0-2 CURBING. RADIUS SHALL BE 10' TO FACE OF CURB.
- NEW 18'x20' PARKING AREA TO BE ESTABLISHED USING A MINIMUM OF 4" VDOT STD. CRUSHER RUN AGGREGATE #25, OR #26.
- UPON COMPLETION OF THE INSTALLATION OF THE CURB & GUTTER, THE G.C. SHALL INSTALL PERMANENT 'NO PARKING' AS INDICATED, (3 REQD.). THE SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH PART 2 OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
- THE PROPOSED SIDEWALK SHALL BE WIDENED TO 5' FOR A MINIMUM DISTANCE OF 5' TO PROVIDE A PASSING SPACE IN ACCORDANCE WITH ADA STANDARDS. MAXIMUM LENGTH FOR THE 4' WIDE SECTION SHALL BE 200'.

SANITARY SEWER SCHEDULE

SS 'A'	NEW STRADDLE MANHOLE TO BE INSTALLED OVER THE EXISTING MAIN IN ACCORDANCE WITH WVA STD. S-02. APPROX. STA. 9+91.5, 5.5' LT. ANGLES = 90° & 180°	SS 'E'	SANITARY SEWER MANHOLE STA. 10+94.95, 5.5' LT. ANGLE = 220°
SS 'B'	SANITARY SEWER MANHOLE STA. 10+66.5, 5.5' RL. ANGLES = 90° & 190°	SS 'F'	PLUG 8" MAIN WITH STD. END CAP STA. 11+48.0, STA. 5.0' RL.
SS 'C'	SANITARY SEWER MANHOLE STA. 13+65.15, 5.5' RL. ANGLES = 102° & 267°	SS 'G'	EXISTING S.S. LATERAL TO BE ABANDONED IN-PLACE (WITH PLUGS) WHERE IT CROSSES NEW LOT LINE. GC SHALL VERIFY DEPTH TO COORDINATE THE INSTALLATION OF THE NEW COMBINED 8" BY TWO 4" LATERAL AS INDICATED.
SS 'D'	SANITARY SEWER MANHOLE STA. 7+72.04, 5.5' RL. ANGLE = 145°		

NOTE: THE GENERAL CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY TO INSTALL, BACKFILL AND TEST ALL SANITARY SEWER COLLECTOR LINES AND ASSOCIATED STRUCTURES IN ACCORDANCE WITH THE WESTERN VIRGINIA WATER AUTHORITY WATER AND SEWER DESIGN & CONSTRUCTION STANDARDS, LATEST EDITION.

STORM DRAIN SCHEDULE

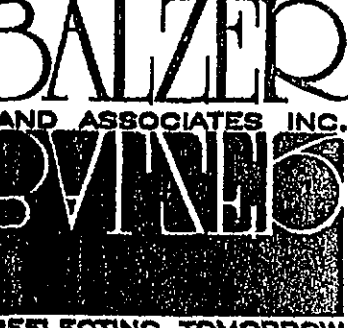
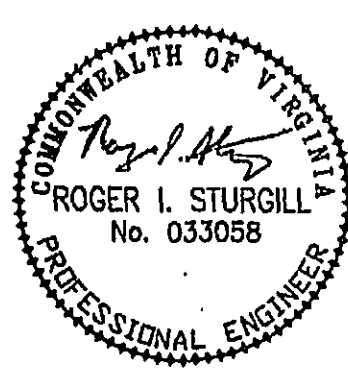
SD #1	VDOT STD. D1-3C THROAT = 10' STA. 10+05.4, 14.5' RL.	SD #8	VDOT STD. D1-5 TYPE E III GRATE STA. 10+30, 51.4' LT.
SD #2	VDOT STD. D1-3B THROAT = 12' STA. 11+10.45, 14.45' LT. w/VDOT IS-1 SHAPING	SD #9	VDOT STD. MH-2 STA. 10+75.5, 116' LT.
SD #3	VDOT STD. D1-3B THROAT = 6' STA. 10+30.0, 14.5' LT.	SD #10	VDOT STD. ES-1 & VDOT STD. EC-1 CLASS 1 RIPRAP, DETAIL STA. 10+95.5, 125.5' LT.
SD #4	VDOT STD. D1-3B THROAT = 10' STA. 10+04.5, 42.0' RL.	SD #11	12' LONG x 4" THK CONC. TRANSITION. 24' LENGTH TO VDOT STD. PC-24, TYPE E DITCH. ALL JOINTS TO BE DOWLED.
SD #5	VDOT STD. D1-3B THROAT = 14' STA. 11+10.60, 14.55' RL.	SWM	STORMWATER MANAGEMENT CONTROL STRUCTURE AND OUTLET PIPE, SEE DETAIL ON SHEET C-8 FOR CONSTRUCTION REQUIREMENTS.
SD #6	VDOT STD. D1-7 TYPE A III GRATE STA. 11+114.5, 83.0' RL.	SWQ	PREMANUFACTURED BMP, HYDROGUARD STORM WATER SEPARATOR, MODEL HG-6 OR APPROVED EQUAL. THE PRE-MANUFACTURED UNIT SHALL NOT BE INSTALLED INTO THE MANHOLE BASE UNTIL STABILIZING OF ALL THE DENuded AREAS WITHIN THE LIMITS OF THE DRAINAGE AREA DISCHARGING THROUGH THE FACILITY HAS BEEN ACHIEVED.
SD #7	VDOT STD. D1-3B THROAT = 6' STA. 10+32.0, 14.5' RL.		

NOTE: THE GENERAL CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY TO INSTALL, BACKFILL AND TEST ALL STORM DRAIN AND ASSOCIATED STRUCTURES IN ACCORDANCE WITH THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE STANDARDS AND SPECIFICATIONS, LATEST EDITION.

WATERLINE SCHEDULE

- approx. location of exist. 8" high pressure watermain - Static = ±130 psf. G.C. SHALL FIELD VERIFY LOCATION AND DEPTH, AND COORDINATE CONNECTION REQUIREMENTS WITH THE W.V.W.A., CONTRACTOR TO FURNISH AND INSTALL TAPPING SLEEVE AND VALVE, TAP TO BE MADE BY WVA. CONTRACTOR SHALL BE RESPONSIBLE FOR EXCAVATION AND SHORING PER OSHA REGULATIONS. G.C. SHALL INSTALL AND EXTEND THE 8" WATERMAIN AS INDICATED.
- STA. 10+11.3, 21.3' RL, FIRE HYDRANT ASSEMBLY REQUIRED
- STA. 10+10.0, 26.5' LT., 8" MAINLINE PRESSURE REDUCING VAULT, OUTLET PRESSURE TO BE SET TO 80 PSI.
- STA. 13+32.0, 16.5' RL, FIRE HYDRANT ASSEMBLY REQUIRED
- STA. 13+44.65, 26.5' LT., 8"x8" TEE, ONE(1) 8"x6" REDUCER, ONE(1) 8" GATE VALVE, AND ONE(1) 6" GATE VALVE. REFER TO PLAN VIEW TO INSURE THAT GATE VALVE TOPS ARE LOCATED AWAY FROM THE EDGES OF THE PROPOSED SIDEWALK OR CURBING.
- STA. 7+73.0, 10.5' LT., AIR RELEASE VALVE AND A PERMANENT END OF LINE ASSEMBLY AS INDICATED.
- STA. 11+18.0, 25.0' LT., AIR RELEASE VALVE AND ONE(1) 8" GATE VALVE
- STA. 11+54.6, 26.0' LT., PROVIDE ±54' OF 6" WATERMAIN AND BLOW-OFF ASSEMBLY FOR MAIN LINE TEMPORARY TERMINATION

NOTE: THE GENERAL CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY TO INSTALL, BACKFILL AND TEST ALL WATERLINE AND ASSOCIATED STRUCTURES IN ACCORDANCE WITH THE WESTERN VIRGINIA WATER AUTHORITY WATER AND SEWER DESIGN & CONSTRUCTION STANDARDS, LATEST EDITION.



1208 Corporate Circle
Roanoke, Virginia 24018
Phone: 540/772-8580
FAX: 540/772-8050

601 Branchway Road
Richmond, Virginia 23208
Phone: 804/764-0571
FAX: 804/764-2685

880 Technology Park Drive
Suite 200
Glen Allen, Virginia 23059
Phone: 804/658-0152
FAX: 804/658-0153

448 Peppers Ferry Road, NW
Christiansburg, Virginia 24075
Phone: 540/881-4200
FAX: 540/881-4201

1601 Commerce Road
Suite 401
Verona, Virginia 24492
Phone: 540/248-3220
FAX: 540/248-3221

REED ESTATES
CIVIL NOTES AND DETAILS
ROANOKE CITY, VIRGINIA

DRAWN BY: JVV
DESIGNED BY: JVV
CHECKED BY: SMH
DATE: 11/14/2007
REVISIONS:
1st - 01/18/2008 per City Review
2nd - 02/19/2008 per City Review
3rd - 04/22/2008 per Owner for Sections
4th - 06/03/2008 per City Review

SHEET NO.
C-2
JOB NO.
R0700194.00