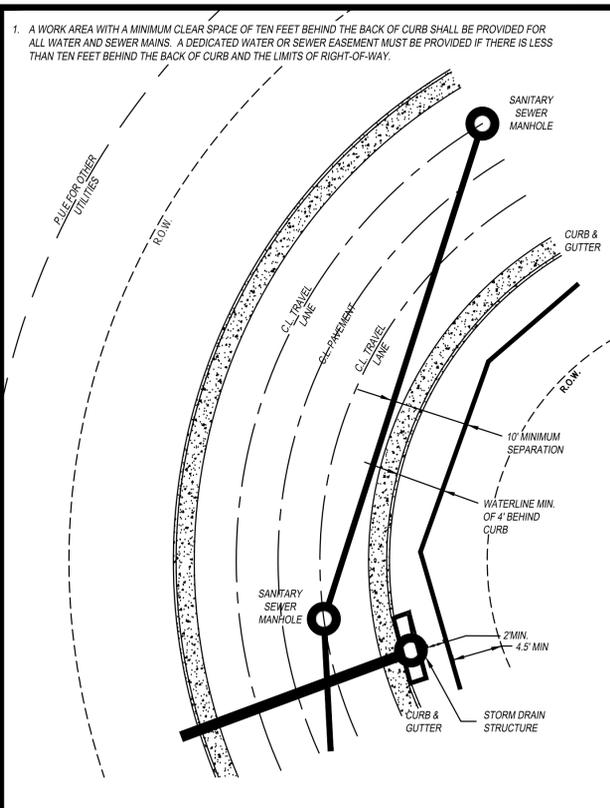
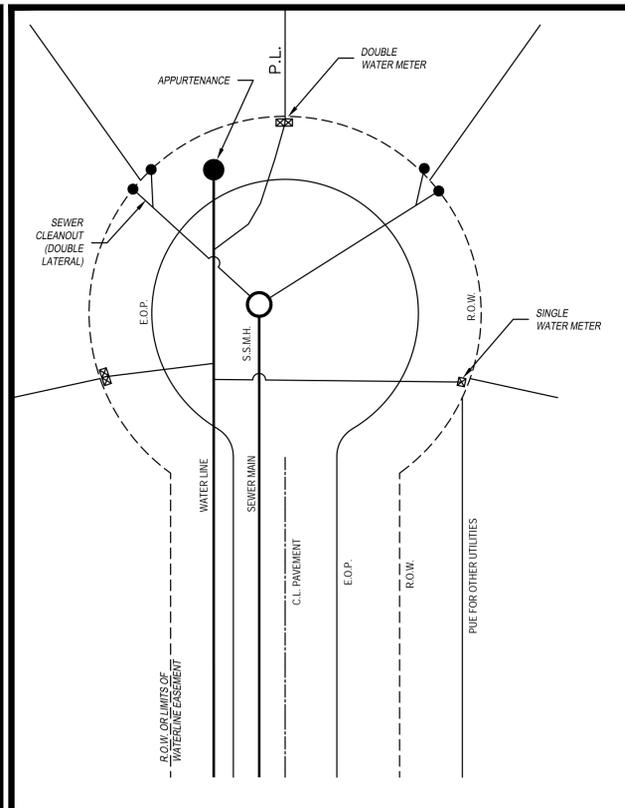


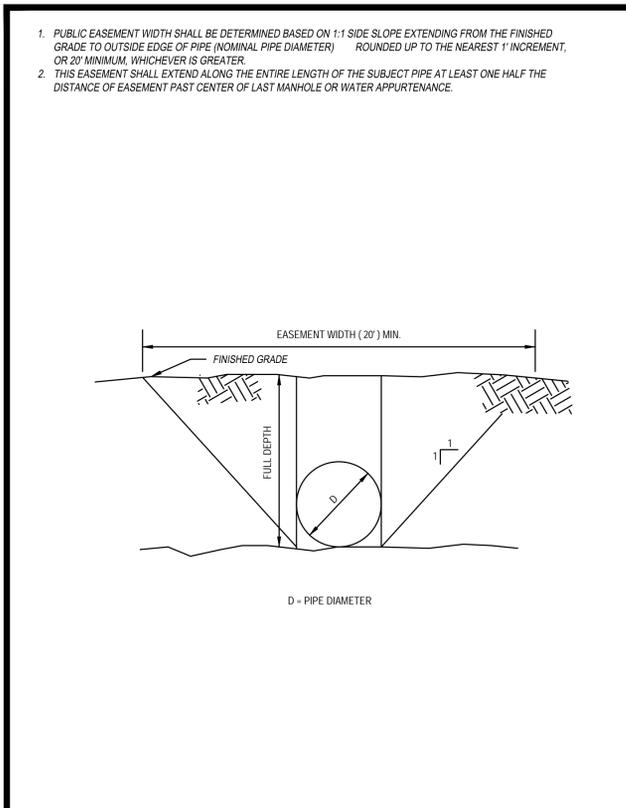
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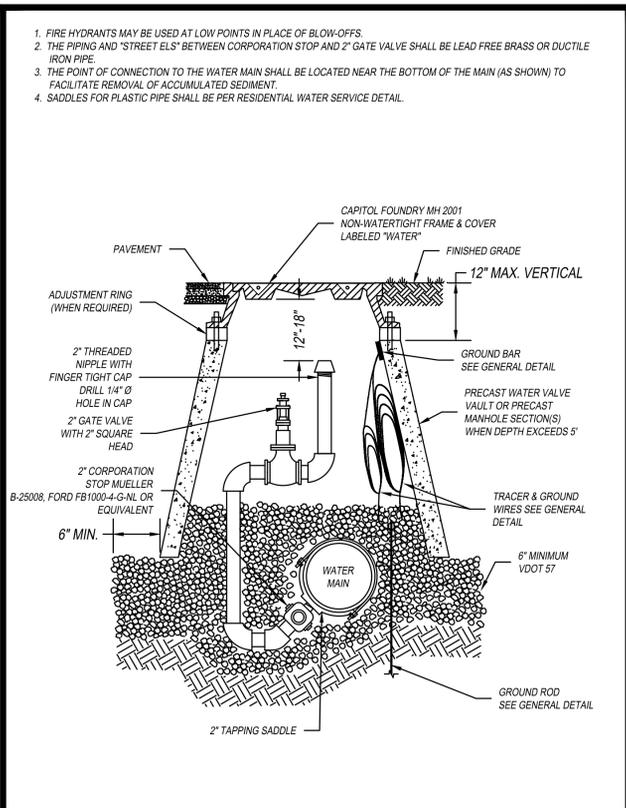
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL  
PUBLIC WATER AND SANITARY SEWER STANDARD CONFIGURATION IN PUBLIC ROADS  
01/01/14 G-1



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL  
PUBLIC WATER AND SANITARY SEWER STANDARD CUL-DE-SAC CONFIGURATION  
01/01/14 G-2



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL  
SANITARY SEWER AND WATER LINE EASEMENTS  
01/01/14 G-3



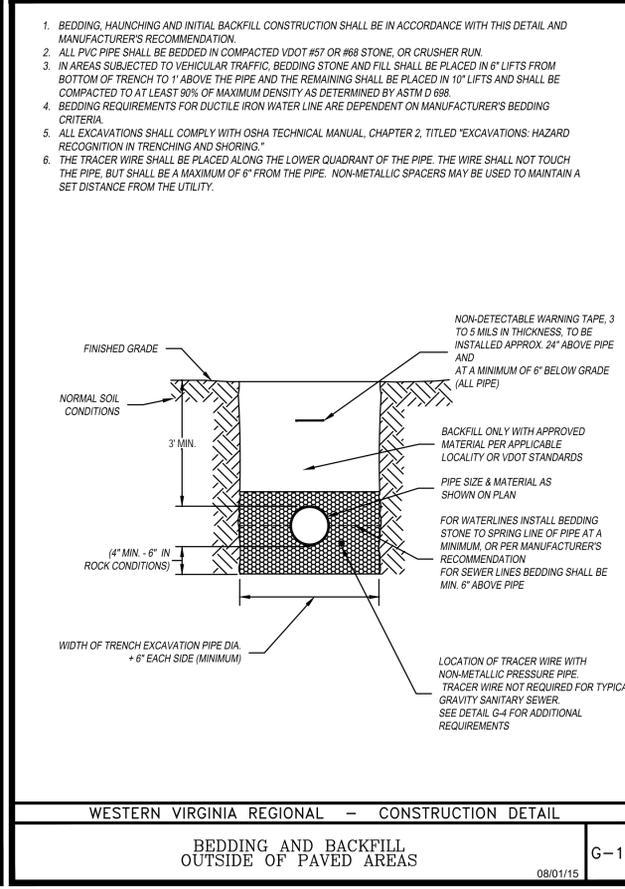
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL  
IN-LINE BLOW-OFF ASSEMBLY  
02/10/15 G-8

FACTOR OF SAFETY = 1.5

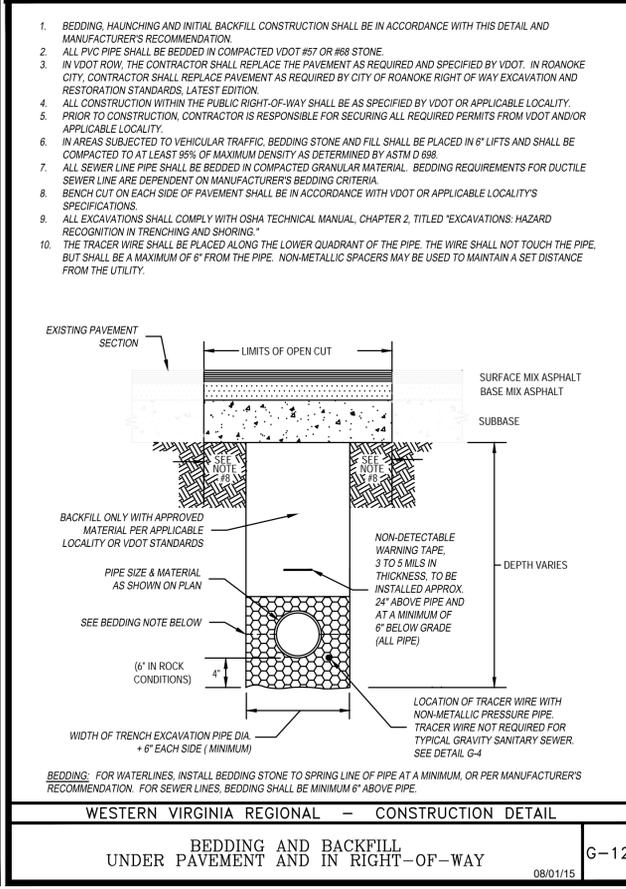
PIPE SIZE	PIPE MAT'L	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	VALVE/PLUG (NOTE 2)	TEE BRANCH (NOTE 3)	REDUCER (NOTE 4)	45° VERT.	22 1/2° VERT.	11 1/4° VERT.
6"	D.I.	28'	21'	6'	3'	50'	26'	26'	21'	10'	5'
8"	D.I.	36'	21'	8'	4'	65'	41'	27'	27'	13'	7'
10"	D.I.	43'	21'	9'	5'	77'	53'	26'	32'	16'	8'
12"	D.I.	51'	21'	10'	5'	91'	67'	27'	38'	18'	9'
6"	PVC	29'	21'	6'	3'	78'	25'	40'	32'	16'	8'
8"	PVC	37'	21'	8'	4'	102'	49'	43'	42'	21'	10'
10"	PVC	44'	21'	9'	5'	122'	68'	41'	51'	25'	12'
12"	PVC	51'	21'	11'	6'	143'	89'	42'	60'	29'	15'

1. ALL JOINTS SHALL BE RESTRAINED ON BOTH SIDES OF THE FITTING AND DOCUMENTED BY THE INSPECTOR FOR THE LENGTH SHOWN UNLESS OTHERWISE INDICATED.  
 2. RESTRAINED LENGTH SHOWN REFERS TO ANY DESIGNED OR POTENTIAL LINE STOP, INCLUDING ALL GATE VALVES.  
 3. RESTRAINED LENGTH SHOWN REFERS TO THE BRANCH LINE ONLY. THE CONTINUOUS PIPE LENGTH OF THE MAIN RUN SHALL BE A MINIMUM OF 10' ON EACH SIDE OF THE TEE.  
 4. RESTRAINED LENGTH SHOWN IS BASED ON REDUCING PIPE DIAMETER TO ONE SIZE SMALLER THAN PIPE LISTED (ANY OTHER DIAMETER REDUCTION WILL REQUIRE ADDITIONAL CALCULATIONS BEFORE INSTALLATION); RESTRAINED LENGTH SHOWN IS UPSTREAM ON THE LARGE SIDE OF THE REDUCER.  
 5. 12" AND SMALLER DIAMETER: IF UNDER 150 PSI WORKING PRESSURE, RESTRAINED JOINT(S) ARE TO BE USED. IF EQUAL TO OR OVER 150 PSI WORKING PRESSURE, BOTH THRUST BLOCK(S) AND RESTRAINED JOINT(S) SHALL BE USED.  
 LARGER THAN 12" DIAMETER: IF UNDER 100 PSI WORKING PRESSURE, RESTRAINED JOINT(S) ARE TO BE USED. IF EQUAL TO OR OVER 100 PSI WORKING PRESSURE, BOTH THRUST BLOCK(S) AND RESTRAINED JOINT(S) SHALL BE USED (UNLESS OTHERWISE APPROVED BY THE PARTICIPATING UTILITY).  
 6. FOR RESTRAINED JOINT PIPING REQUIREMENTS AT FITTING R.J. PVC AND R.J. DIP MAY BE USED INTERCHANGEABLY WITH APPROVAL FROM PARTICIPATING UTILITY. CONTRACTOR MUST PLAN ACCORDINGLY FOR THE DIFFERENCE IN PVC AND DIP BELL AND SPIGOT DIMENSIONS.

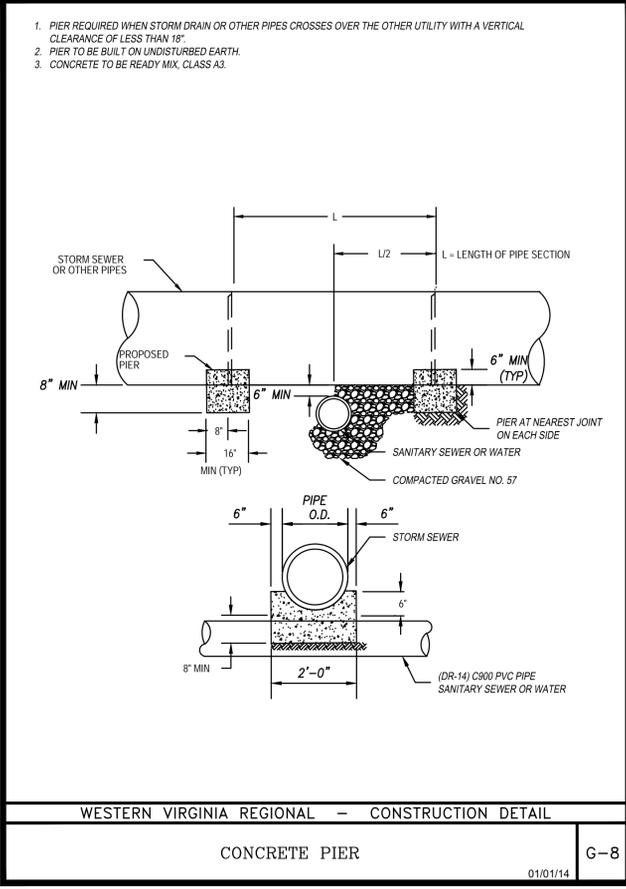
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL  
MINIMUM THRUST RESTRAINT OF PIPE JOINTS DESIGN LENGTHS  
02/10/15 G-1



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL  
BEDDING AND BACKFILL OUTSIDE OF PAVED AREAS  
08/01/15 G-11



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL  
BEDDING AND BACKFILL UNDER PAVEMENT AND IN RIGHT-OF-WAY  
08/01/15 G-12



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL  
CONCRETE PIER  
01/01/14 G-8

**ENGINEERING CONCEPTS, INC.**  
94 GREENFIELD STREET  
DALEVILLE, VIRGINIA 24083  
540.473.1253

**DALEVILLE town center**

**FRALIN & WALDRON, INC.**

APPROVED  
By Sean Nester at 1:33 pm, Feb 06, 2024

Approved  
Botetourt County  
Planning and Zoning  
C. Nicole Penellton  
02/07/2024

**DALEVILLE TOWN CENTER  
BOTETOURT COUNTY, VA**

WWA DETAILS

COMMONWEALTH OF VIRGINIA  
JASON SCOTT CALDWELL  
Lic. No. 048713  
MAY 17, 2023  
PROFESSIONAL ENGINEER

0 0 0  
GRAPHIC SCALE

PROJECT: 21061

**C-704**