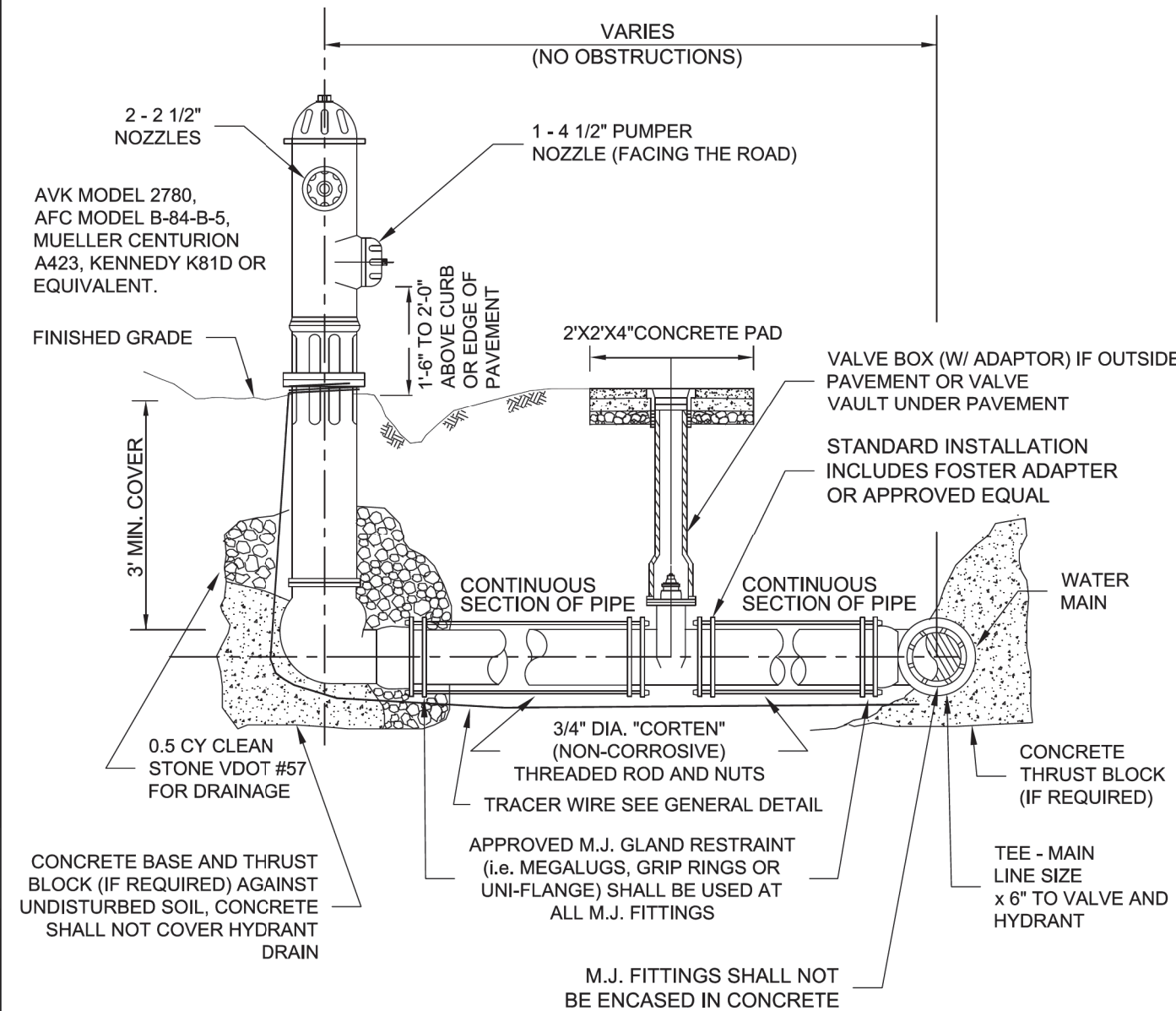


1. PUBLIC HYDRANTS SHALL BE PAINTED SILVER WITH AN OIL-BASED PAINT. PRIVATE HYDRANTS SHALL ALSO BE PAINTED SILVER WITH AN OIL-BASED PAINT UNLESS OTHERWISE SPECIFIED BY THE JURISDICTIONAL FIRE MARSHALL.
2. FIRE HYDRANT SHALL BE INSTALLED 2' MIN. AND 4' MAX. FROM BACK OF CURB OR 8' MIN. AND 12' MAX. FROM EDGE OF PAVEMENT WHEN CURB IS NOT PRESENT. FIRE HYDRANT TO BE INSTALLED WITHIN RIGHT-OF-WAY OR EASEMENT LINE.
3. AREA AROUND HYDRANT AT A RADIUS OF 4' TO BE LEVEL AND UNOBSTRUCTED.
4. WATERPROOF BAGS OR OUT OF SERVICE RINGS SHALL BE PLACED OVER ALL NEWLY INSTALLED FIRE HYDRANTS.
5. HYDRANT ASSEMBLIES SHALL BE RODDED AND RESTRAINED DURING APPROVED 31 AND 32 WORK. HIGH PRESSURE (OVER 150 PSI) ALSO REQUIRES CONCRETE THRUST BLOCKS AS SHOWN BELOW.
6. IF DURING CONSTRUCTION THE SEASONAL WATER LEVEL IS NOT TO BE ABOVE THE DRAIN OUTLETS OF THE PROPOSED HYDRANT, THE PARTICIPATING UTILITY WILL BE NOTIFIED IMMEDIATELY SO THAT THE HYDRANT CAN BE INSTALLED TO A SUITABLE LOCATION, OMITTED, OR PROTECTED.
7. TWO WRAPS OF TRACER WIRE SHALL BE WRAPPED AROUND BASE OF HYDRANT.
8. APPROVED MODELS - AVK MODEL 2780, AFC MODEL B-84-B-5, MUELLER CENTURION 4243, KENNEDY K810 OR EQUIVALENT.
9. WHERE HYDRANT LATERALS ARE PROVIDED BY THE PARTICIPATING UTILITY TO BE LONGER IN LENGTH, MAKING THE CONTINUOUS SECTION OF PIPE ON EACH SIDE OF THE GATE VALVE UNFEASIBLE, RESTRAINED PIPE JOINTS SHALL BE INSTALLED BETWEEN THE TEE AND GATE VALVE IN LIEU OF RODDING. HOWEVER, A RODDED CONTINUOUS SECTION OF PIPE SHALL ALWAYS BE INSTALLED BETWEEN THE GATE VALVE AND HYDRANT.



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

FIRE HYDRANT ASSEMBLY

W-17

02/10/15

FACTOR OF SAFETY = 1.5											
PIPE SIZE	PIPE MAT'L	90° BEND	45° BEND	22 3⁄4° BEND	11 1⁄2° BEND	VALVE/ PLUG (NOTE 2)	TEE BRANCH (NOTE 3)	REDUCER (NOTE 4)	45° VERT.	22 3⁄4° VERT.	11 1⁄2° 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 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).

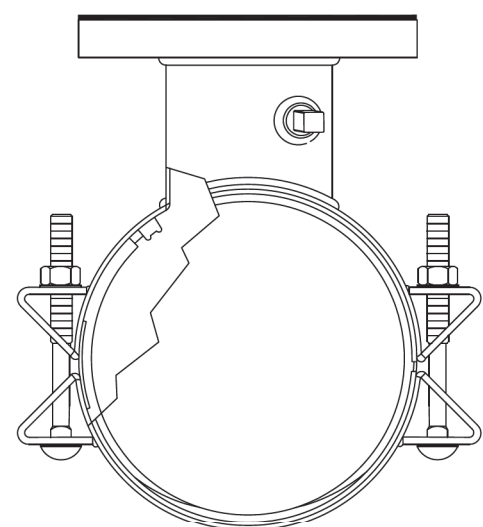
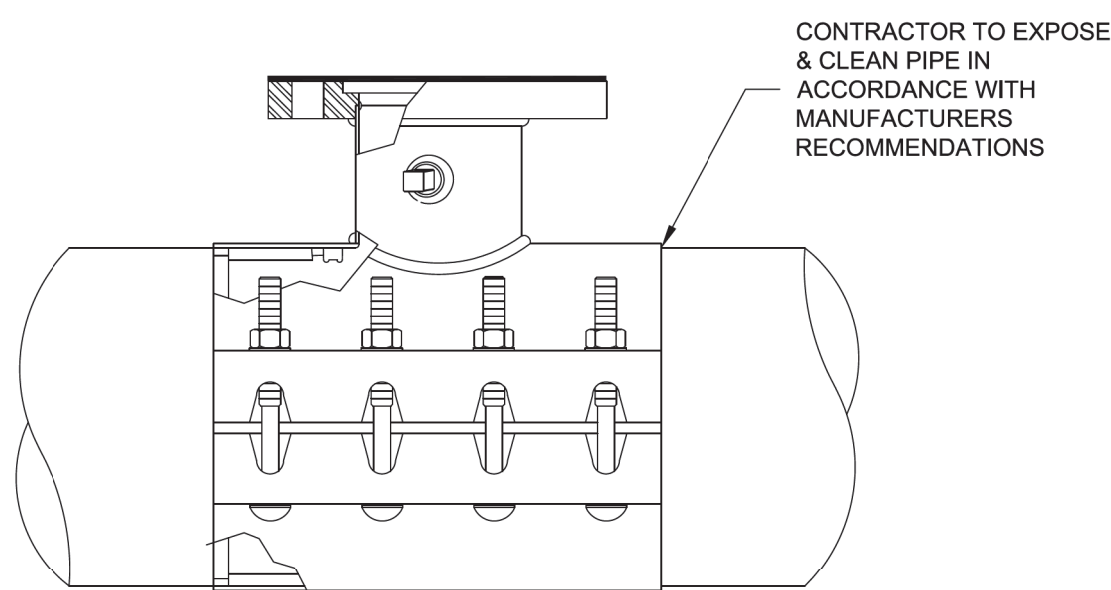
6. FOR RESTRAINED JOINT PIPING REQUIREMENTS AT FITTING R.J. PVC AND R.J. DIP MAY BE USED INTERCHANGEABLY WITH APPROVAL FROM PARTICIPATING UTILITY. CONTRACTOR MUST PLAN ACCORDINGLY FOR THE DIFFERENCE IN PVC AND DIP BELL AND SPIGOT DIMENSIONS.

WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

MINIMUM THRUST RESTRAINT OF PIPE JOINTS DESIGN LENGTHS

02/10/15

1. TAPPING SLEEVE SHALL BE POWERWELD MODEL 3490 TYPE 304 STAINLESS STEEL WITH CARBON STEEL FLANGE, ROMAC'S MODEL SST II. FORD MODEL FTS90 WITH CARBON STEEL FLANGE OR APPROVED EQUIVALENT. SLEEVE SHALL BE RATED AT 100 PSI OVER WORKING PRESSURE AND MUST HAVE A TEST RECORD.
2. TAPPING VALVE SHALL BE AVK RESILIENT SEATED GATE VALVE SERIES 25 MJFL, MUELLER T-2360 RESILIENT WEDGE TAPPING VALVE WITH MJFL OR AFC SERIES 2500 RESILIENT WEDGE TAPPING VALVE WITH MJFL. VALVE SHALL BE RATED AT 250 PSI.
3. TAPPING BRASS END AND STEEL END SHALL BE FULL PORT TO ACCEPT FULL SIZE SHELL CUTTER.
4. STEEL FLANGE SHALL MEET ANWWA C207.
5. SIZE-ON-SIZE TAPPING NOT ALLOWED UNLESS APPROVED BY PARTICIPATING UTILITY.



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

TAPPING SLEEVE AND VALVE

W-21

01/01/14

INSTALLATION OF DUCTILE IRON WATER MAINS
TABLE 3 AWWA C600-05
Maximum Joint Deflection Full Length of Pipe - Push on Type Joint

		Maximum Offset - S* (Inches)		Approximate Radius of Curve - R* Produced by Succession of Joints	
Nominal Pipe Size (Inches)	Deflection Angle - θ (Degrees)	Joint Length 18'-Feet	Joint Length 20'-Feet	Joint Length 18'-Feet	Joint Length 20'-Feet
3	5°	19	21	205	230
4	5°	19	21	205	230
6	5°	19	21	205	230
8	5°	19	21	205	230
10	5°	19	21	205	230
12	5°	19	21	205	230
14	3°	11	12	340	380
16	3°	11	12	340	380
18	3°	11	12	340	380
20	3°	11	12	340	380
24	3°	11	12	340	380
30	3°	11	12	340	380

* SEE FIGURE 4.
For 14-inch and larger push-on joints, maximum deflection angle may be larger than shown above. Consult the manufacturer.

INSTALLATION OF DUCTILE IRON WATER MAINS
TABLE 4 AWWA C600-05
Maximum Joint Deflection Full Length of Pipe - Mechanical Joint Pipe

		Maximum Offset - S* (Inches)		Approximate Radius of Curve - R* Produced by Succession of Joints	
Nominal Pipe Size (Inches)	Deflection Angle - θ (degree)	Joint Length 18'-Feet	Joint Length 20'-Feet	Joint Length 18'-Feet	Joint Length 20'-Feet
3	8°-18"	31	35	125	140
4	8°-18"	31	35	125	140
6	7°-07"	27	30	145	160
8	5°-21"	20	22	195	220
10	5°-21"	20	22	195	220
12	5°-21"	20	22	195	220
14	3°-35"	13.5	15	285	320
16	3°-35"	13.5	15	285	320
18	3°-00"	11	12	340	380
20	3°-00"	11	12	340	380
24	2°-23"	9	10	450	500

* SEE FIGURE 4.

WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

DUCTILE IRON PIPE DEFLECTION ALLOWANCE TABLES

01/01/14

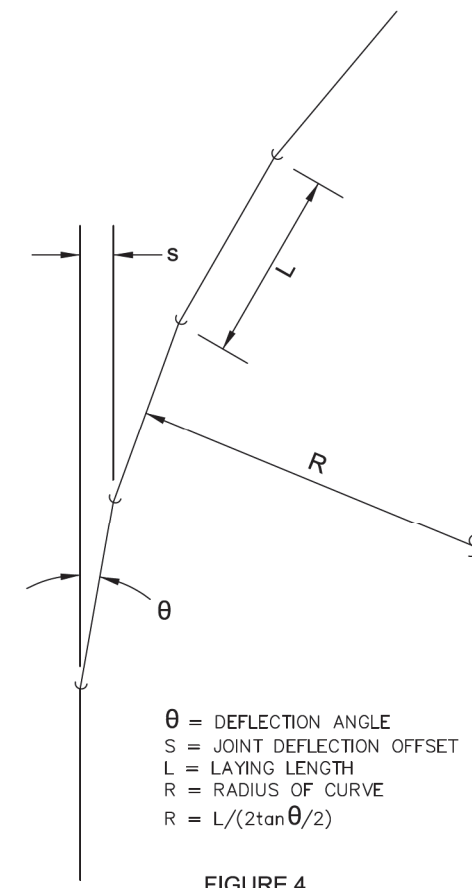


FIGURE 4.

[illegible]

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Drawn By: RPK

Designed By: RPH

Date: 03/10/17

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City of Roanoke
Planning, Building, & Development
COMPREHENSIVE DEVELOPMENT PLAN

APPROVED
by Adrian Gilbert 03/15/2018

BERKLEY ROAD OVER GLADE CREEK TRIBUTARY A
UTILITY DETAILS
CITY OF ROANOKE, VA

Vertical Scale:
N/A

Horizontal Scale:
1" = 25'

Commission Number:
34301

Sheet No.:

C-6C