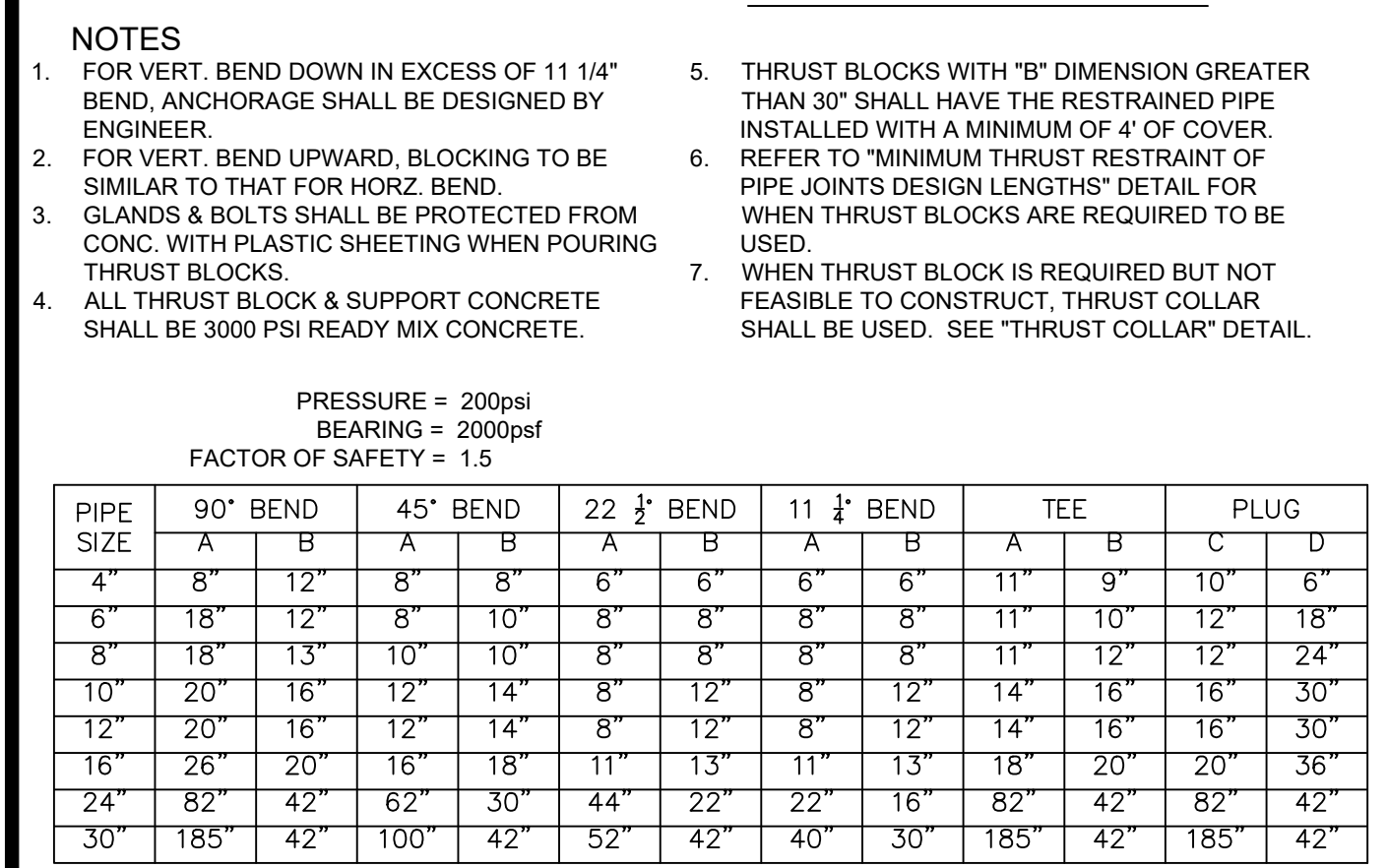


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| WESTERN VIRGINIA REGIONAL — CONSTRUCTION DETAIL | |
| COMMERCIAL
WATER SERVICE
METER SIZES 5/8" - 2" | W-5
02/17/17 |



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL	
THRUST BLOCK REQUIREMENTS	W-18

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|---|--|----------|
| WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL | | |
| WATER LINE VALVE
& VAULT | | W |
| | | 01/01/14 |

PIPE SIZE	PIPE MAT'L	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	VALVE/PLUG (NOTE 2)	TEE (NOTE 2)	REDUCER (NOTE 4)	45° VERT.	22 1/2° VERT.	11 1/4° VERT.
6"	D.I.	28'	21'	6'	3'	50'	26'	21'	10'	5'	5'
8"	D.I.	36'	21'	8'	4'	65'	41'	27'	17'	13'	7'
10"	D.I.	43'	21'	9'	5'	77'	53'	26'	32'	16'	8'
12"	D.I.	51'	21'	11'	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'	40'	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 THURST 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 THURST BLOCK(S) AND RESTRAINED JOINT(S) SHALL BE USED (UNLESS OTHERWISE APPROVED BY THE PARTICIPATING UTILITY).
6. FOR RESTRAINED JOINT PIPE 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 DIFFERENCES IN PVC AND R, J DIP BELL AND SPIGOT DIMENSIONS.

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

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| WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL | | |
| VAULT FRAME
AND COVER | | W- |
| | | 01/01/14 |

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| WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL | |
| TAPPING SLEEVE
AND VALVE | W-
01/01/14 |

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|---|----------|
| WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL | |
| FIRE HYDRANT
ASSEMBLY | W-1 |
| | 02/10/15 |

- | Nominal
Pipe Size
(inches) | Deflection
Angle - θ
(degree) | Maximum Offset - S*
(Inches) | | Approximate Radius of
Curve - R*
Produced by
Succession of Joints | |
|----------------------------------|-------------------------------------|---------------------------------|--------------------------|--|--------------------------|
| | | Joint
Length
18-Ft | Joint
Length
20-Ft | Joint
Length
18-Ft | Joint
Length
20-Ft |
| 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.

- | Nominal Pipe Size (inches) | Deflection Angle (degree) | Maximum Offset - S* (inches) | | Approximate Radius of Curve - R* Produced by Succession of Joints | |
|----------------------------|---------------------------|------------------------------|--------------------|---|--------------------|
| | | Joint Length 18-Ft | Joint Length 20-Ft | Joint Length 18-Ft | Joint Length 20-Ft |
| 3 | 8°-16" | 31 | 35 | 125 | 140 |
| 4 | 8°-16" | 31 | 35 | 125 | 140 |
| 6 | 7°-10" | 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 |
| 20 | 3°-00" | 11 | 12 | 340 | 380 |
| 24 | 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

W-2

C503