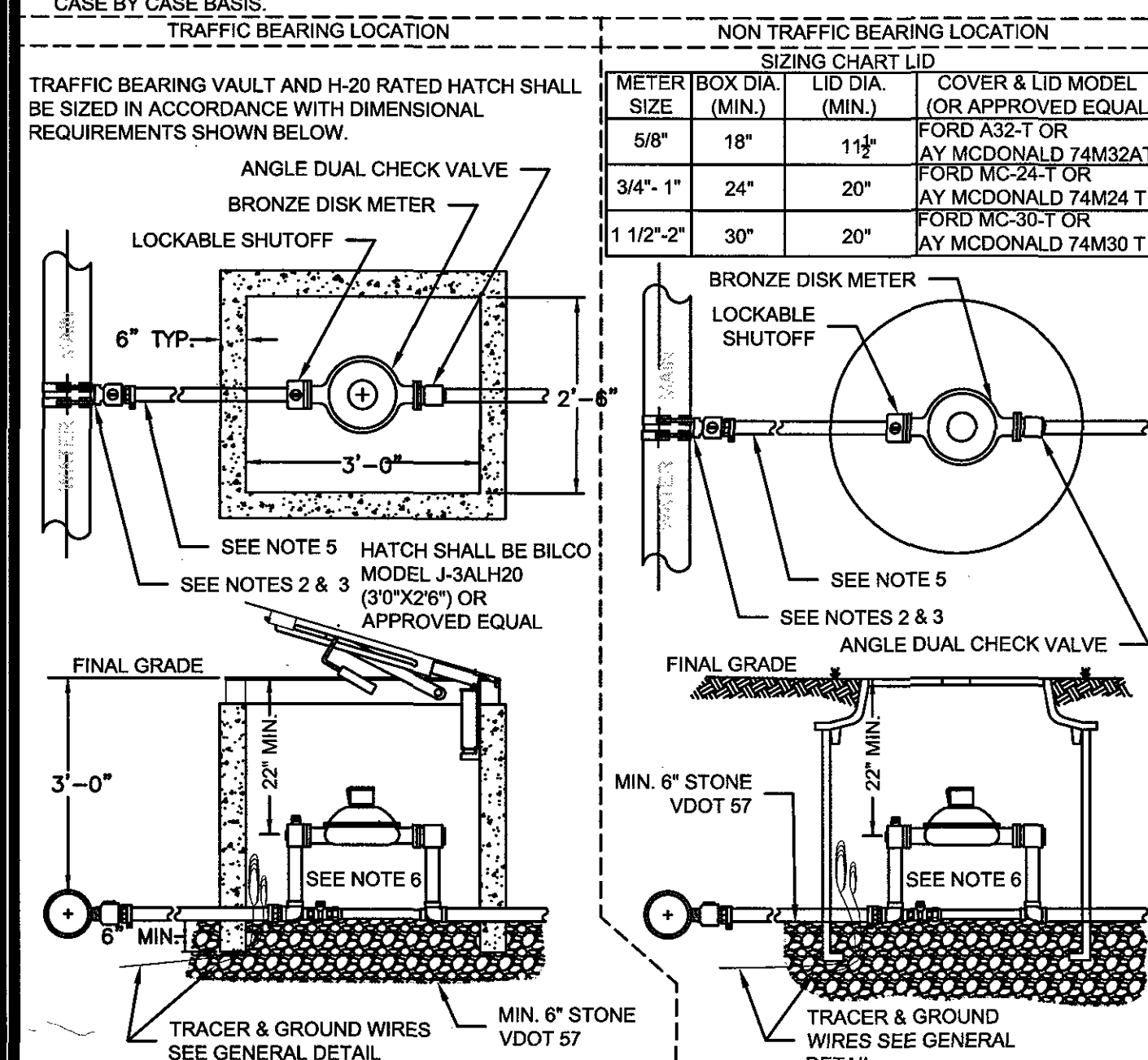


- ALL METERS ARE TO BE PROVIDED AND INSTALLED BY PARTICIPATING UTILITY AT OWNER/DEVELOPER'S EXPENSE. METER BOX, SERVICE, AND SETTER TO BE FURNISHED AND INSTALLED BY OWNER/DEVELOPER IN ACCORDANCE WITH THE MINIMUM REQUIREMENTS SHOWN BELOW.
- SADDLES MUST BE USED WITH ALL PLASTIC & DUCTILE IRON PIPE. SERVICE SADDLES SHALL BE USED IN ACCORDANCE WITH WATER DISTRIBUTION PIPING SPECIFICATION. SERVICE SADDLES FOR PLASTIC PIPE SHALL BE: POWERSEAL 3417, OR 3412AS, ROMAC 2025, OR 308, OR FORD METER FS202 OR FS303. FOR DUCTILE IRON PIPE USE THE ABOVE, OR POWERSEAL 3413, ROMAC 202 OR FORD METER FS202.
- CORPORATION STOP SHALL BE FORD F1000-4-G, MUELLER H-15000 OR APPROVED EQUAL.
- METER BOXES LOCATED IN AREAS SUBJECT TO VEHICULAR TRAFFIC SHALL BE CONCRETE WITH H-20 RATED TRAFFIC BEARING HATCH. ALL OTHER METER BOXES SHALL BE CARBON/ST-PLASTICS, INC. PLASTIC BOX, ADS CORRUGATED HDPE BOX, OR APPROVED EQUAL. MINIMUM METER BOX & LID DIAMETERS SHALL BE IN ACCORDANCE WITH SIZING CHART BELOW.
- SERVICE SHALL BE "K" TYPE COPPER OR P.E. 4710, CTS O.D., MINIMUM CELL CLASS 445474E AND 445474D.
- COPPER METER SETTER TO BE FORD, A.Y. McDONALD OR APPROVED EQUAL WITH ANGLE DUAL CHECK VALVE AND BYPASS HAVING LOCKABLE SHUTOFF VALVE.
- SERVICES REQUIRING METERS LARGER THAN 2-INCH SHALL BE REVIEWED BY THE PARTICIPATING UTILITY ON A CASE BY CASE BASIS.

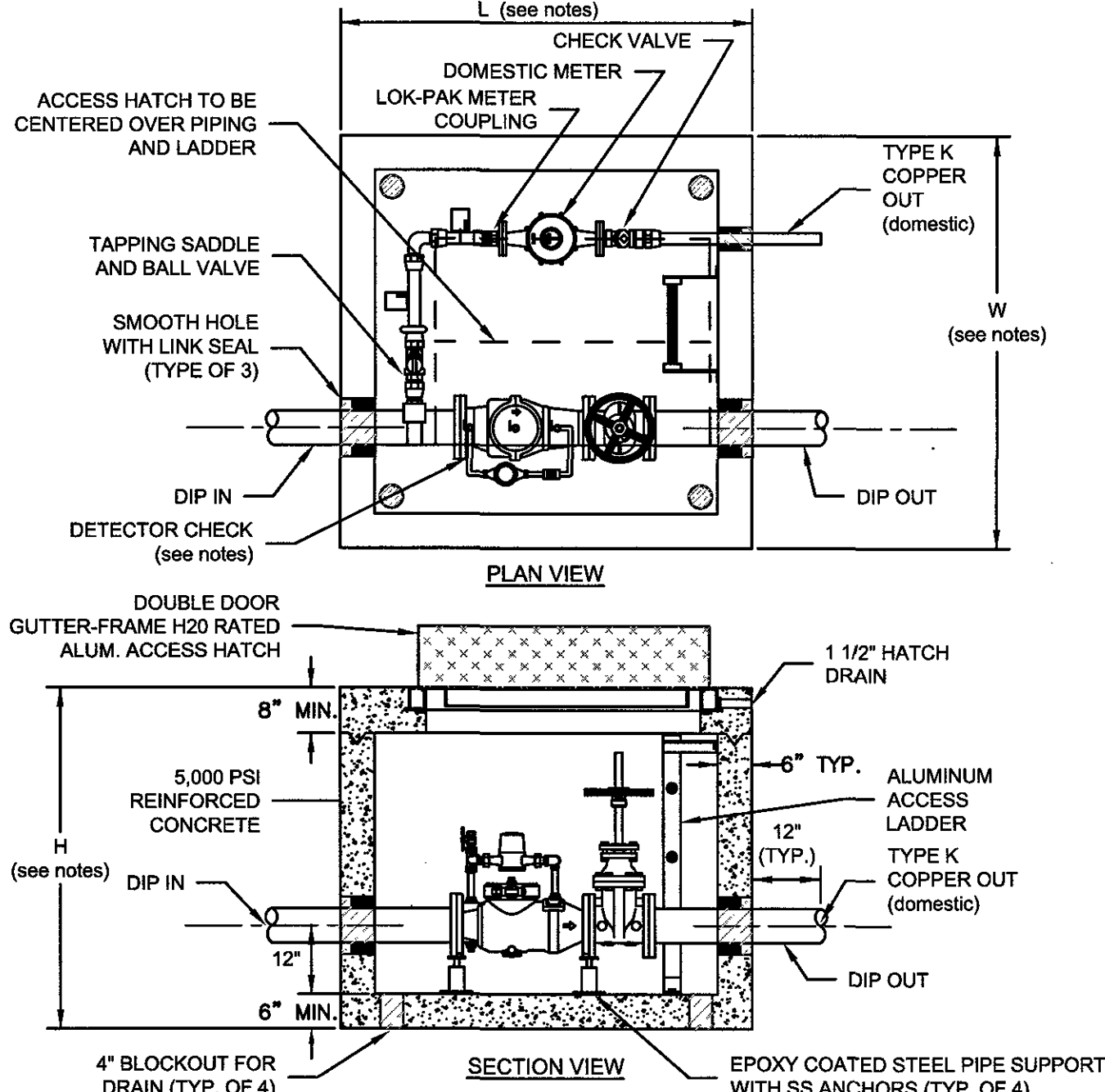


WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

COMMERCIAL  
WATER SERVICE  
METER SIZES 5/8" - 2"

W-5

- FOR 6" FIRE LINE, EXTERIOR VAULT DIMENSIONS SHALL BE (L x W x H) 6' x 6' x 5' WITH DOMESTIC TAP MADE INSIDE VAULT AS SHOWN BELOW.
- FOR 8" FIRE LINE EXTERIOR VAULT DIMENSIONS SHALL BE (L x W x H) 8' x 6' x 6' WITH DOMESTIC TAP MADE OUTSIDE VAULT. BALL VALVE WITH LOCKING TABS SHALL BE PROVIDED INSIDE VAULT TO ALLOW FOR ISOLATION OF DOMESTIC METER.
- SINGLE DETECTOR CHECK VALVE SHALL BE WILKINS 310 DALM, WATTS ES-S507F - BP, OR APPROVED EQUAL WITH FLANGED END CONNECTIONS, BYPASS ASSEMBLY, AND ONE OS&Y GATE VALVE.
- DOMESTIC SHALL BE TYPE K COPPER WITH GRIP JOINT FITTINGS, BALL VALVE AT TAPPING SADDLE (WITH LOCKING TABS) AND CHECK VALVE ON OUTLET.
- DOMESTIC METER TO BE SUPPLIED BY OWNER AND INSTALLED BY VENDOR.
- "UNI FLANGE" ADAPTOR FLANGE, OR APPROVED EQUAL, OR FLANGED - PLAIN END PIPING REQUIRED FOR INLET AND OUTLET PIPING.
- VAULT TO BE INSTALLED ON MIN. 6" COMPACTED VDOT #57 STONE WITH FILTER FABRIC PLACED BETWEEN BOTTOM OF VAULT AND STONE BEDDING. FILTER FABRIC TO EXTEND VERTICALLY A MINIMUM OF 6" ON ALL FOUR SIDES OF VAULT.

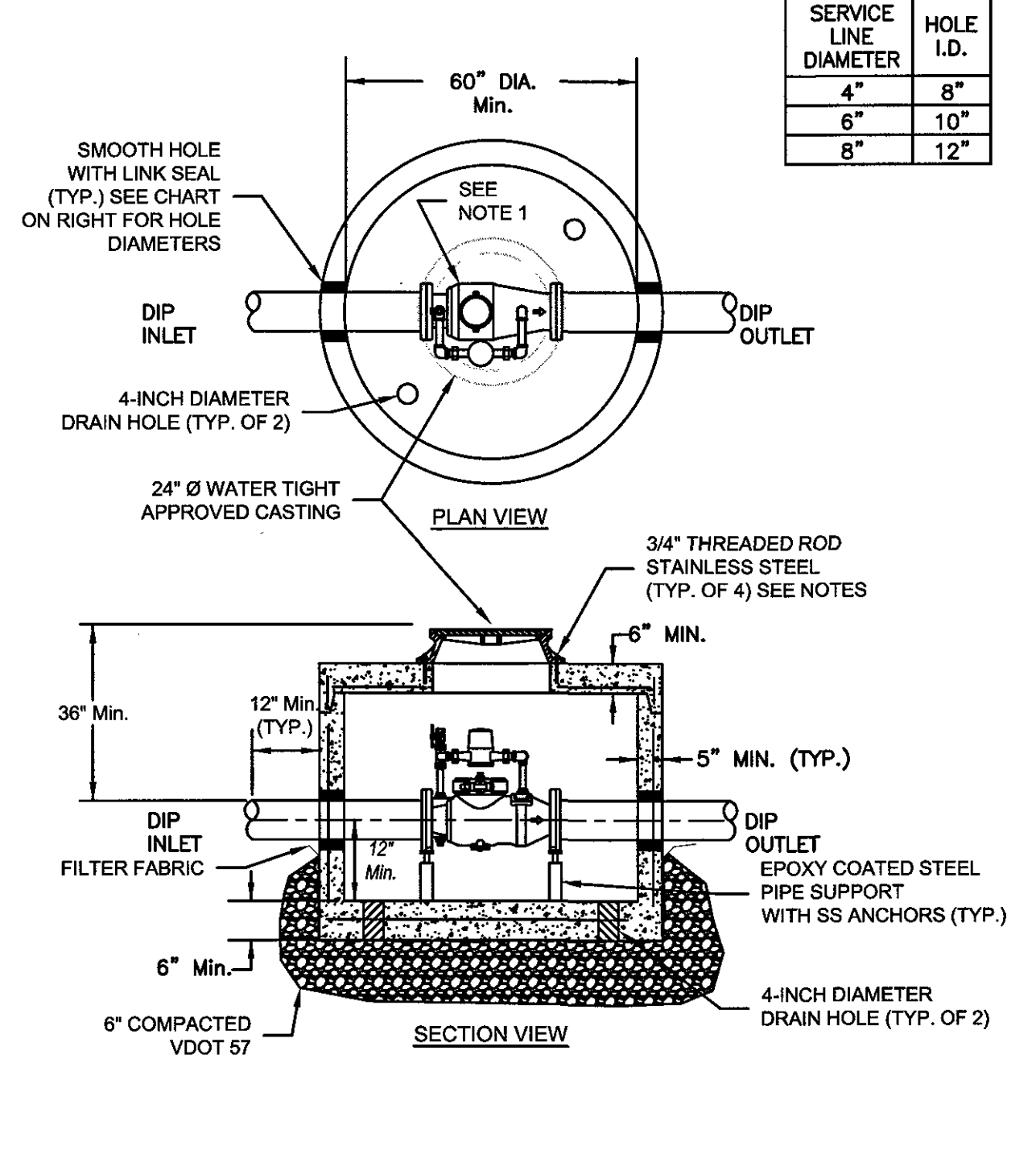


WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

COMMERCIAL METER VAULT

W-7

- SINGLE DETECTOR CHECK VALVE SHALL BE WILKINS MODEL 310 DALM, WATTS ES-S507F-BP, OR APPROVED EQUAL WITH FLANGED END CONNECTIONS AND BYPASS ASSEMBLY.
- BYPASS ASSEMBLY SHALL INCLUDE 2 CORPORATION STOPS TO ISOLATE METER.
- BYPASS METER TO BE SUPPLIED BY OWNER AND INSTALLED BY VENDOR.
- MANHOLE SECTIONS MUST MEET ASTM C478, ASHTO M-199 REQUIREMENTS.
- "UNI FLANGE" ADAPTOR FLANGE, OR APPROVED EQUAL, OR FLANGED - PLAIN END PIPING REQUIRED FOR INLET AND OUTLET PIPING.
- 3/4" THREADED ROD TO BE EMBEDDED A MINIMUM OF 4" INTO CONCRETE AND TO BE FIRMLY SECURED WITH EPOXY.

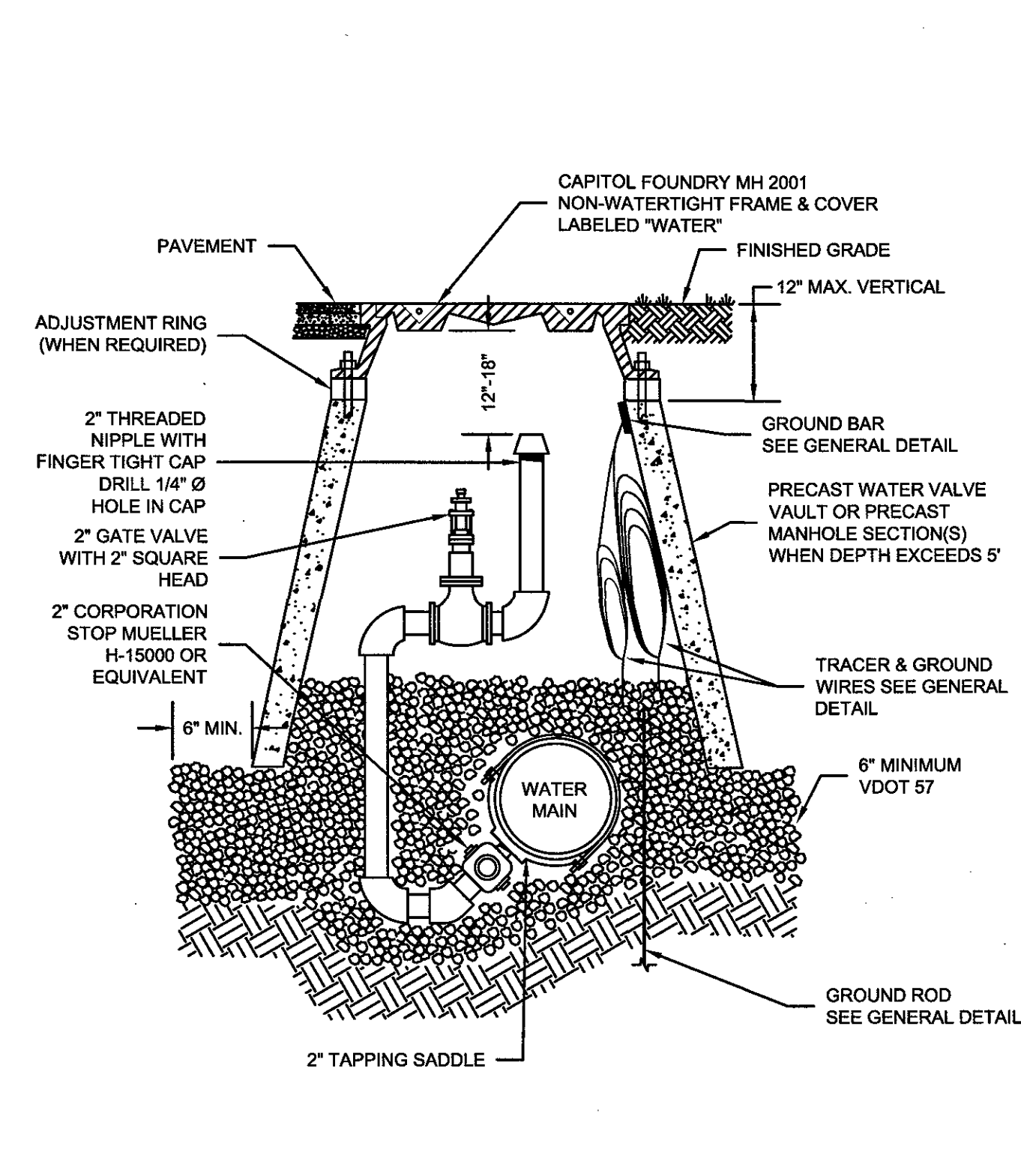


WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

FIRE SERVICE VAULT FOR  
PRIVATE HYDRANT

W-8

- FIRE HYDRANTS MAY BE USED AT LOW POINTS IN PLACE OF BLOW-OFFS.
- THE PIPING AND "STREET ELB" BETWEEN CORPORATION STOP AND 2" GATE VALVE SHALL BE LEAD FREE BRASS OR DUCTILE IRON PIPE.
- THE POINT OF CONNECTION TO THE WATER MAIN SHALL BE LOCATED NEAR THE BOTTOM OF THE MAIN (AS SHOWN) TO FACILITATE REMOVAL OF ACCUMULATED SEDIMENT.
- SADDLES FOR PLASTIC PIPE SHALL BE PER RESIDENTIAL WATER SERVICE DETAIL.

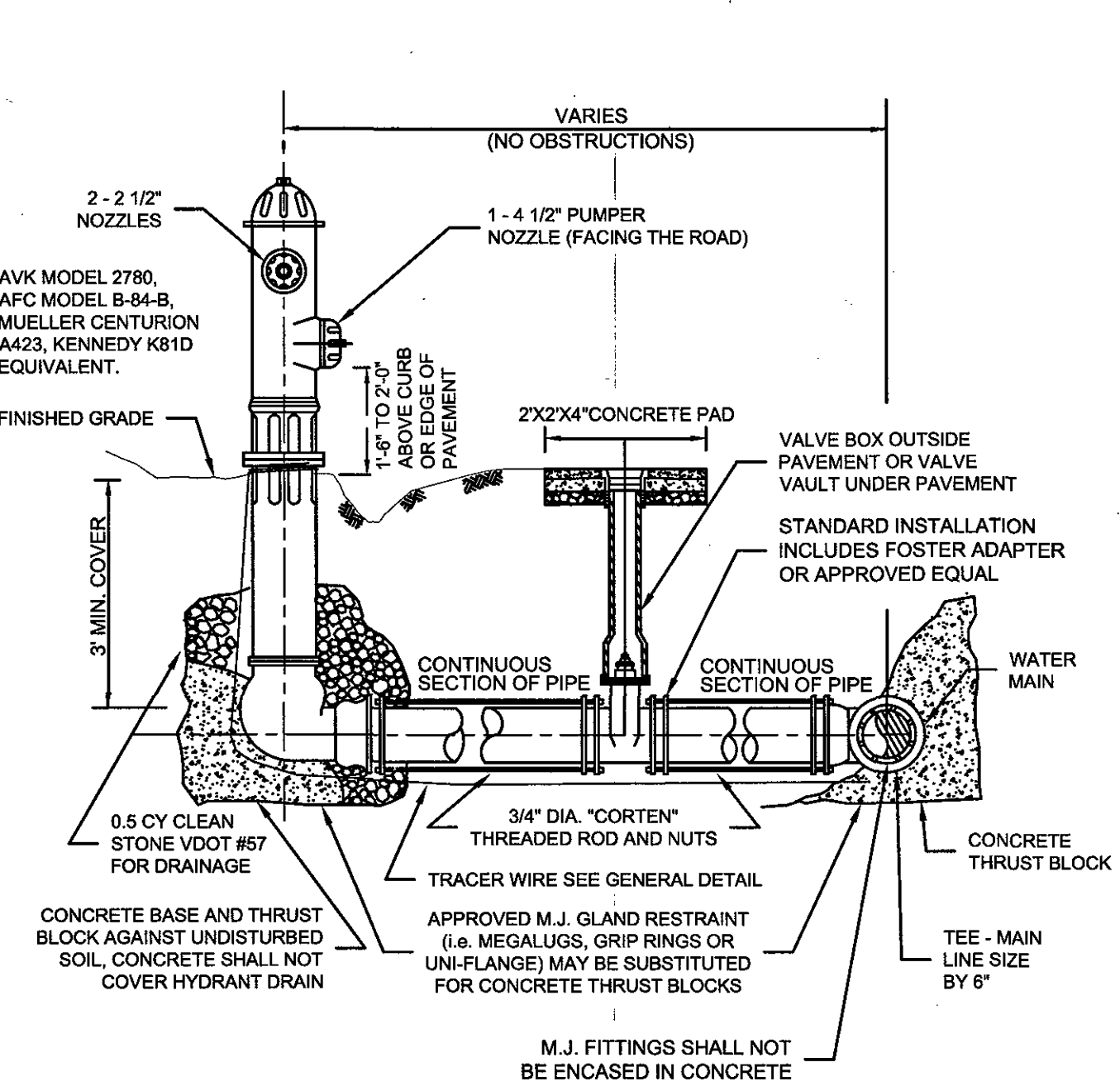


WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

IN-LINE  
BLOW-OFF ASSEMBLY

W-12

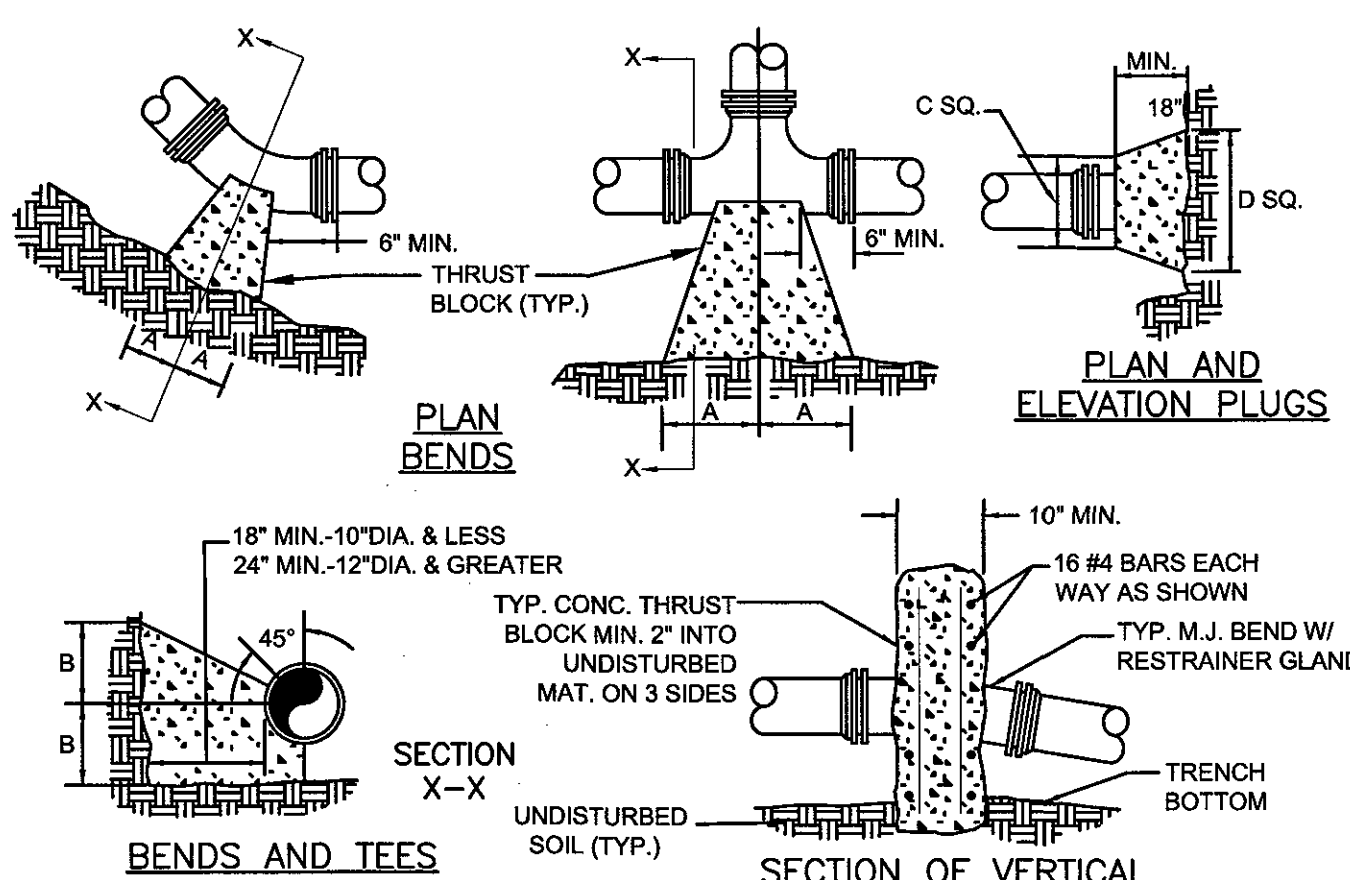
- PUBLIC HYDRANTS SHALL BE PAINTED SILVER WITH AN OIL-BASED PAINT. PRIVATE HYDRANTS SHALL ALSO BE PAINTED SILVER WITH AN OIL-BASED PAINT UNLESS OTHERWISE SPECIFIED BY THE JURISDICTIONAL FIRE MARSHAL.
- FIRE HYDRANT SHALL BE INSTALLED 2' MIN. AND 4' MAX. FROM BACK OF CURB OR 6' MIN. AND 12' MAX. FROM EDGE OF PAVEMENT WHEN CURB IS NOT PRESENT. FIRE HYDRANT TO BE INSTALLED WITHIN RIGHT-OF-WAY OR EASEMENT LINE.
- AREA AROUND HYDRANT AT A RADIUS OF 4' TO BE LEVEL AND UNOBSTRUCTED.
- WATERPROOF BAGS OR OUT OF SERVICE RINGS SHALL BE PLACED OVER ALL NEWLY INSTALLED FIRE HYDRANTS.
- HIGH PRESSURE (OVER 120 PSI) REQUIRES THE USE OF ALL 3 RESTRAINTS.
- IF DURING CONSTRUCTION THE SEASONAL WATER LEVEL IS NOTED TO BE ABOVE THE DRAIN OUTLETS OF THE PROPOSED HYDRANT, THE PARTICIPATING UTILITY WILL BE NOTIFIED IMMEDIATELY SO THAT THE HYDRANT CAN BE RELOCATED TO A SUITABLE LOCATION, OMITTED, OR THE DRAIN HOLE PLUGGED.
- TWO WRAPS OF TRACER WIRE SHALL BE WRAPPED AROUND BASE OF HYDRANT.
- APPROVED MODELS - AVK MODEL 2780, AFC MODEL B-84-B, MUELLER CENTURION A423, KENNEDY K81D EQUIVALENT.



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

FIRE HYDRANT  
ASSEMBLY

W-17



WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

THRUST BLOCK  
REQUIREMENTS

W-18

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

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-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

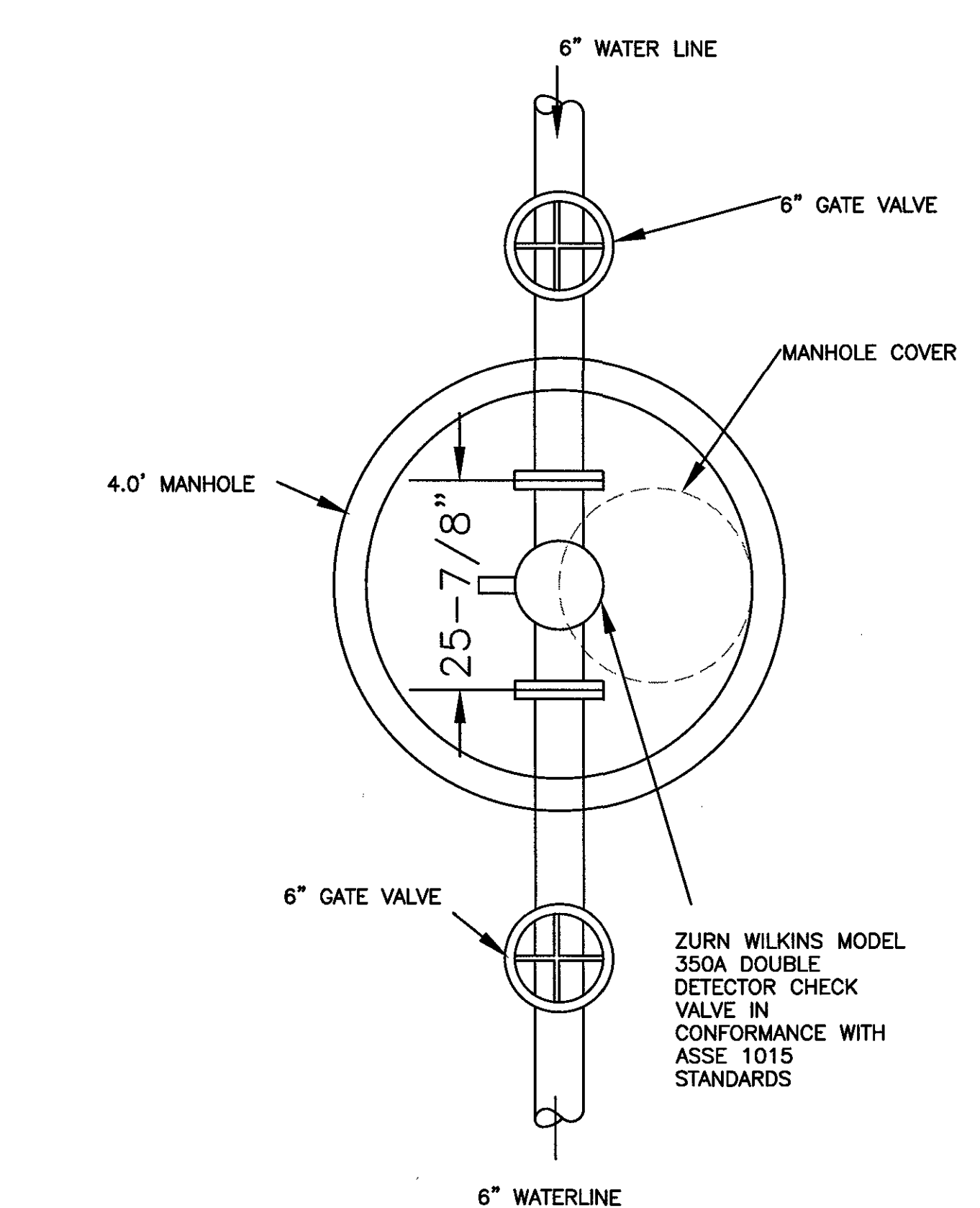
Nominal Pipe Size (Inches)	Deflection Angle - θ (degree)	Maximum Offset - S* (Inches)		Approximate Radius of Curve - R* Produced by Succession of Joints	
		Joint Length 18-Feet	Joint Length 20-Feet	Joint Length 18-Feet	Joint Length 20-Feet
3	6°-18°	31	35	125	140
4	6°-18°	31	35	125	140
6	7°-07°	27	30	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

W-22



NOTE: CONTRACTOR SHALL INSTALL 4" DRAIN IN BOTTOM OF MANHOLE TO DAYLIGHT. BOTTOM OF VALVE SHALL BE A MINIMUM OF 12" AND A MAXIMUM OF 30" ABOVE THE BOTTOM OF MANHOLE. INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

DOUBLE DETECTOR CHECK VALVE DETAIL  
NOT TO SCALE

