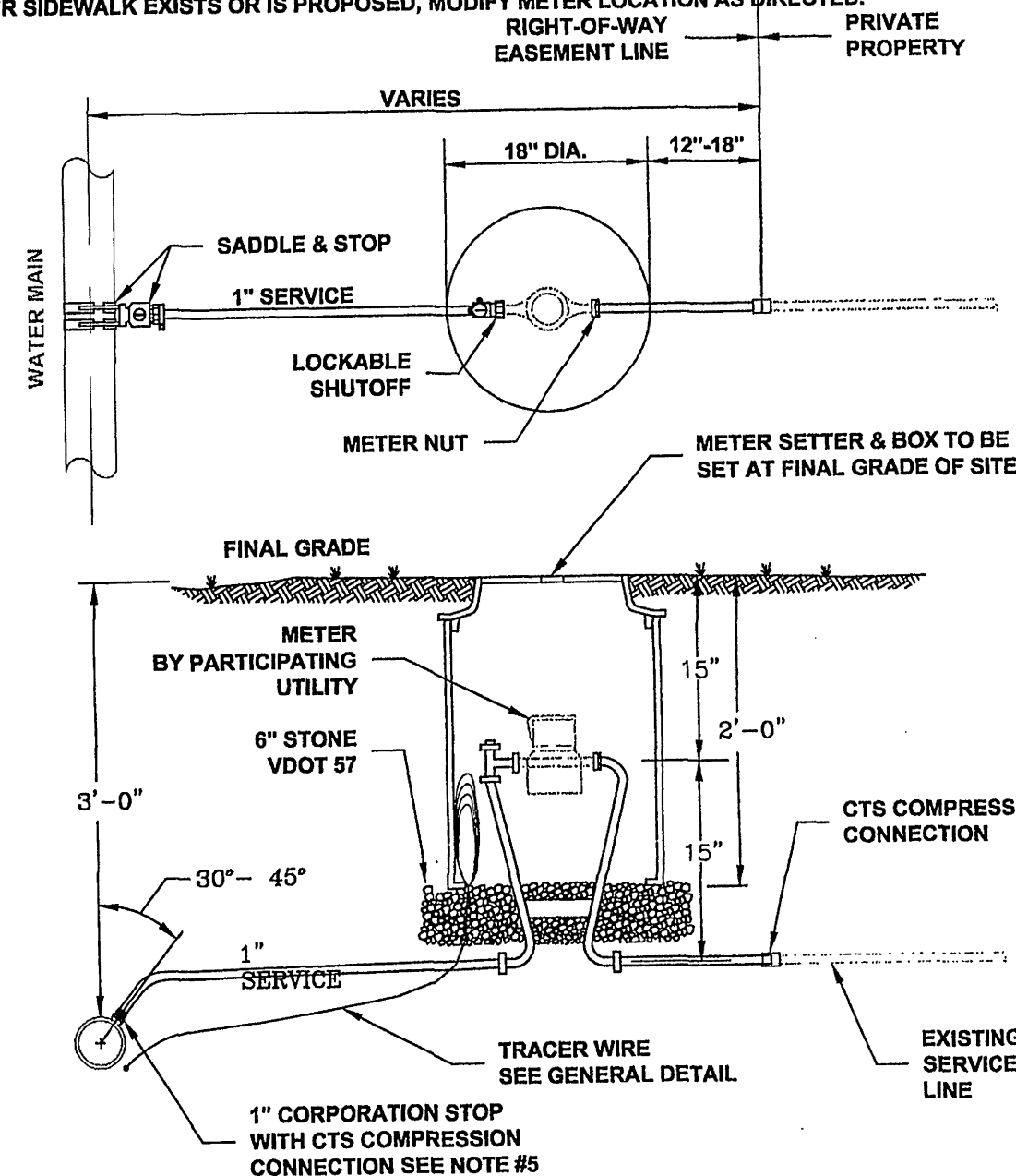


LIST OF WATER DETAIL DRAWINGS

W#	TITLE
W-1	SINGLE RESIDENTIAL WATER SERVICE - NEW DEVELOPMENT - LINE PRESSURE UNDER 120 PSI
W-2	SINGLE RESIDENTIAL WATER SERVICE - REPLACEMENT OF EXISTING SERVICE
W-3	SINGLE RESIDENTIAL WATER SERVICE FOR HIGH PRESSURE - LINE PRESSURE OVER 120 PSI
W-4	DOUBLE RESIDENTIAL WATER SERVICE - LINE PRESSURE UNDER 120 PSI
W-5	COMMERCIAL WATER SERVICE - METER SIZES 5/8" TO 2"
W-7	COMMERCIAL METER VAULT
W-9	WATER LINE VALVE AND VAULT
W-13	COMBINATION AIR VALVE ASSEMBLY
W-15	DEEP VALVE VAULT (MANHOLE)
W-16	VAULT FRAME AND COVER
W-17	FIRE HYDRANT ASSEMBLY
W-18	THRUST BLOCK REQUIREMENTS
W-19	THRUST RESTRAINT OF PIPE JOINTS DESIGN LENGTHS
W-20	TYPICAL WATER PRESSURE TEST RIG
W-21	TAPPING SLEEVE AND VALVE
W-22	DUCTILE IRON PIPE DEFLECTION ALLOWANCE TABLES

1. SETTER TO BE A.Y. McDONALD 20-215WDD33, FORD V872-15W-11-33 OR APPROVED EQUAL.
2. 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 202S, OR 306, OR FORD METER FS202 OR FS303. FOR DUCTILE IRON PIPE USE THE ABOVE OR POWERSEAL 3413, ROMAC 202 OR FORD METER F202.
3. METER BOX SHALL BE CARSON/MID-STATES PLASTICS, INC. PLASTIC BOX WITH FORD A32-T (ELECTRONIC READ LID) OR A.Y. McDONALD MODEL 74M32CTC CAST IRON BASE & COVER OR APPROVED EQUAL. METER BOX SHALL NOT BE PLACED IN AREAS SUBJECT TO VEHICULAR TRAFFIC. IF TRAFFIC BEARING BOX IS REQUIRED, DESIGN ENGINEER SHALL CONSULT WITH PARTICIPATING UTILITY TO DETERMINE SITE SPECIFIC REQUIREMENTS.
4. CORPORATION STOP SHALL BE FORD F1000-4-G OR APPROVED EQUAL.
5. SERVICE SHALL BE "K" TYPE COPPER, OR COPPER TUBE SIZE POLYETHYLENE (PE) 4710, SODR-9 (200 psi).
6. WHENEVER SIDEWALK EXISTS OR IS PROPOSED, MODIFY METER LOCATION AS DIRECTED.



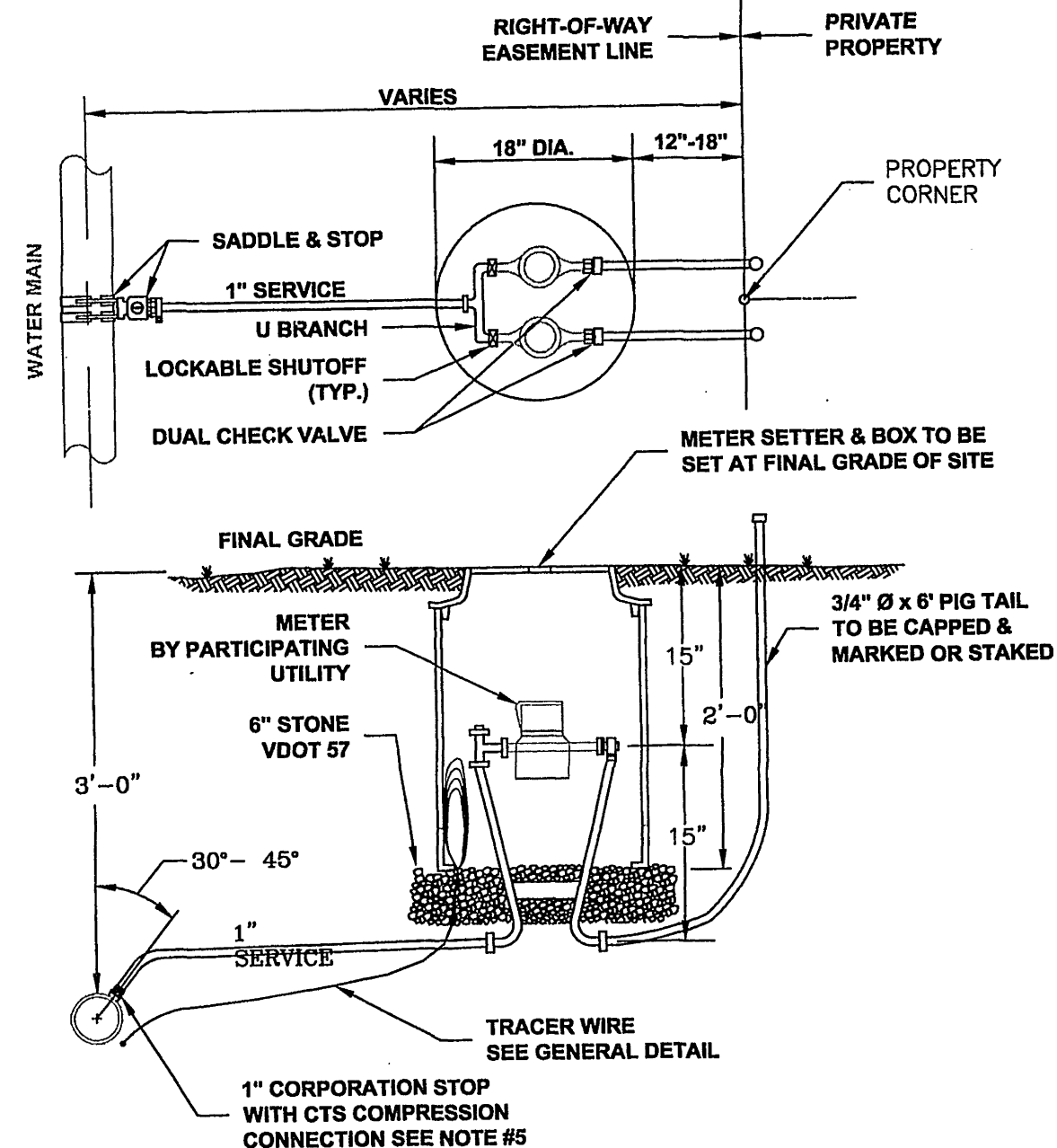
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

SINGLE RESIDENTIAL
WATER SERVICE
(REPLACEMENT OF EXISTING SERVICE)

W-2

01/01/12

1. SETTER TO BE A.Y. McDONALD 20-215 WDD33, FORD VBH72-15W-11-33 OR APPROVED EQUAL.
2. 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 202S, OR 306, OR FORD METER FS202 OR FS303. FOR DUCTILE IRON PIPE USE THE ABOVE OR POWERSEAL 3413, ROMAC 202 OR FORD METER F202.
3. METER BOX SHALL BE CARSON/MID-STATES PLASTICS, INC. PLASTIC BOX WITH FORD A32-T (ELECTRONIC READ LID) OR A.Y. McDONALD MODEL 74M32CTC CAST IRON BASE & COVER OR APPROVED EQUAL. USE OF TRAFFIC BEARING BOX SHALL BE APPROVED BY THE AUTHORITY. METER BOX SHALL NOT BE PLACED IN AREAS SUBJECT TO VEHICULAR TRAFFIC. IF TRAFFIC BEARING BOX IS REQUIRED, DESIGN ENGINEER SHALL CONSULT WITH PARTICIPATING UTILITY TO DETERMINE SITE SPECIFIC REQUIREMENTS.
4. WHENEVER SIDEWALK EXISTS OR IS PROPOSED, MODIFY METER LOCATION AS DIRECTED.
5. CORPORATION STOP SHALL BE FORD F1000-4-G OR APPROVED EQUAL.
6. SERVICE SHALL BE "K" TYPE COPPER, OR COPPER TUBE SIZE POLYETHYLENE (PE) 4710, SODR-9 (200 psi).



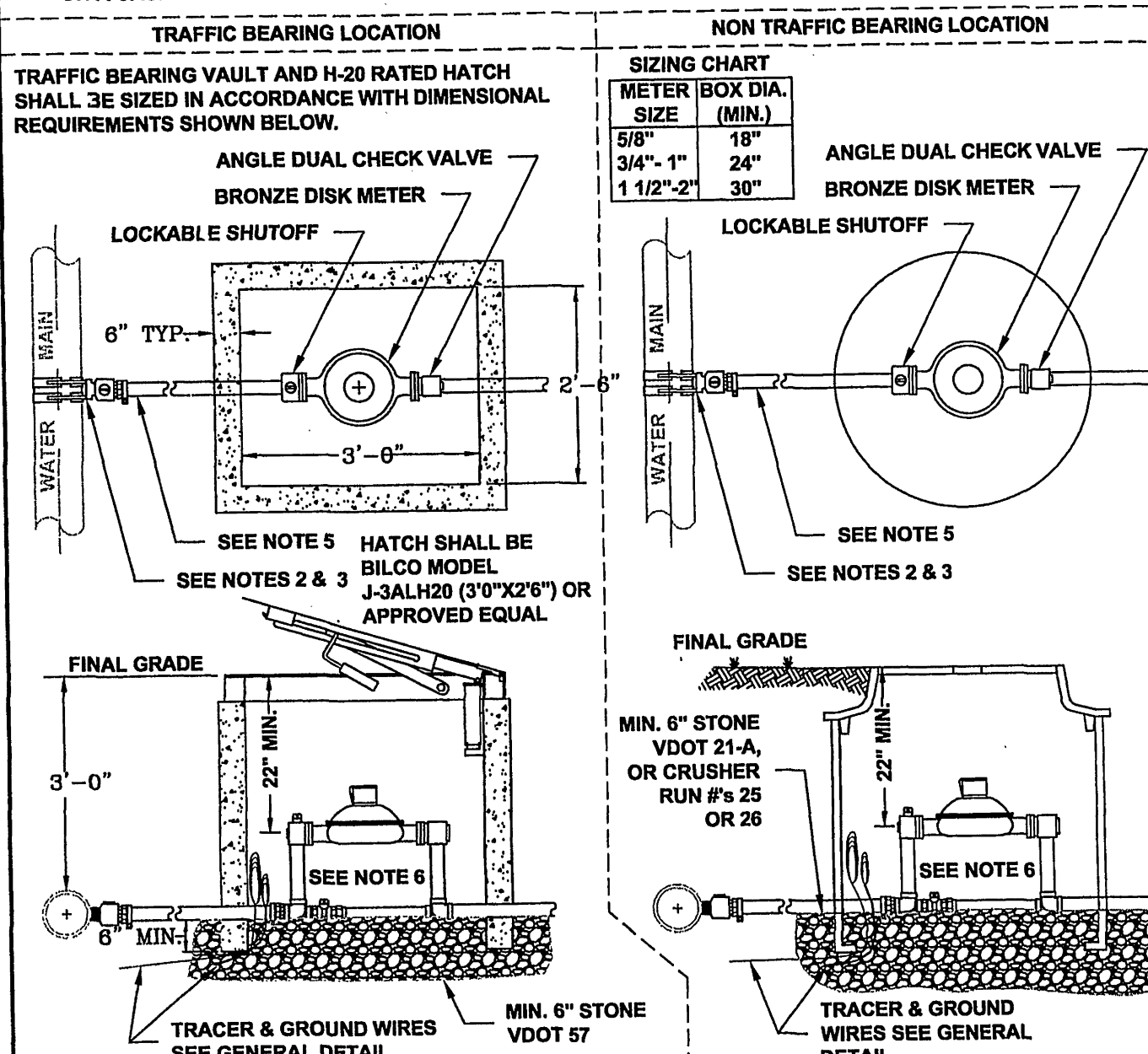
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

DOUBLE RESIDENTIAL
WATER SERVICE
(LINE PRESSURE UNDER 120 PSI)

W-4

01/01/12

1. ALL METERS ARE TO BE PROVIDED AND INSTALLED BY PARTICIPATING UTILITY AT OWNER/DEVELOPERS EXPENSE. METER BOX, SERVICE, AND SETTER TO BE FURNISHED AND INSTALLED BY OWNER/DEVELOPER IN ACCORDANCE WITH THE MINIMUM REQUIREMENTS SHOWN BELOW.
2. 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 202S, OR 306, OR FORD METER FS202 OR FS303. FOR DUCTILE IRON PIPE USE THE ABOVE OR POWERSEAL 3413, ROMAC 202 OR FORD METER F202.
3. CORPORATION STOP SHALL BE FORD F1000-4-G, MUELLER H-15000 OR APPROVED EQUAL.
4. METER BOXES LOCATED IN AN AREAS SUBJECT TO VEHICULAR TRAFFIC SHALL BE CONCRETE WITH H-20 RATED TRAFFIC BEARING HATCH. ALL OTHER METER BOXES MAY BE CARSON/MID-STATES PLASTICS, INC. PLASTIC BOX WITH FORD A32-T (ELECTRONIC READ LID) OR A.Y. McDONALD MODEL 74M32CTC CAST IRON BASE & COVER OR APPROVED EQUAL.
5. SERVICE SHALL BE "K" TYPE COPPER OR P.E. 4710, CTS O.D., MINIMUM CELL CLASS 445474E AND 445474D.
6. COPPER METER SETTER TO BE FORD, A.Y. McDONALD OR APPROVED EQUAL WITH ANGLE DUAL CHECK VALVE, AND BYPASS HAVING LOCKABLE SHUTOFF VALVE.
7. SERVICES REQUIRING METERS LARGER THAN 2-INCH SHALL BE REVIEWED BY THE PARTICIPATING UTILITY ON A CASE BY CASE BASIS.



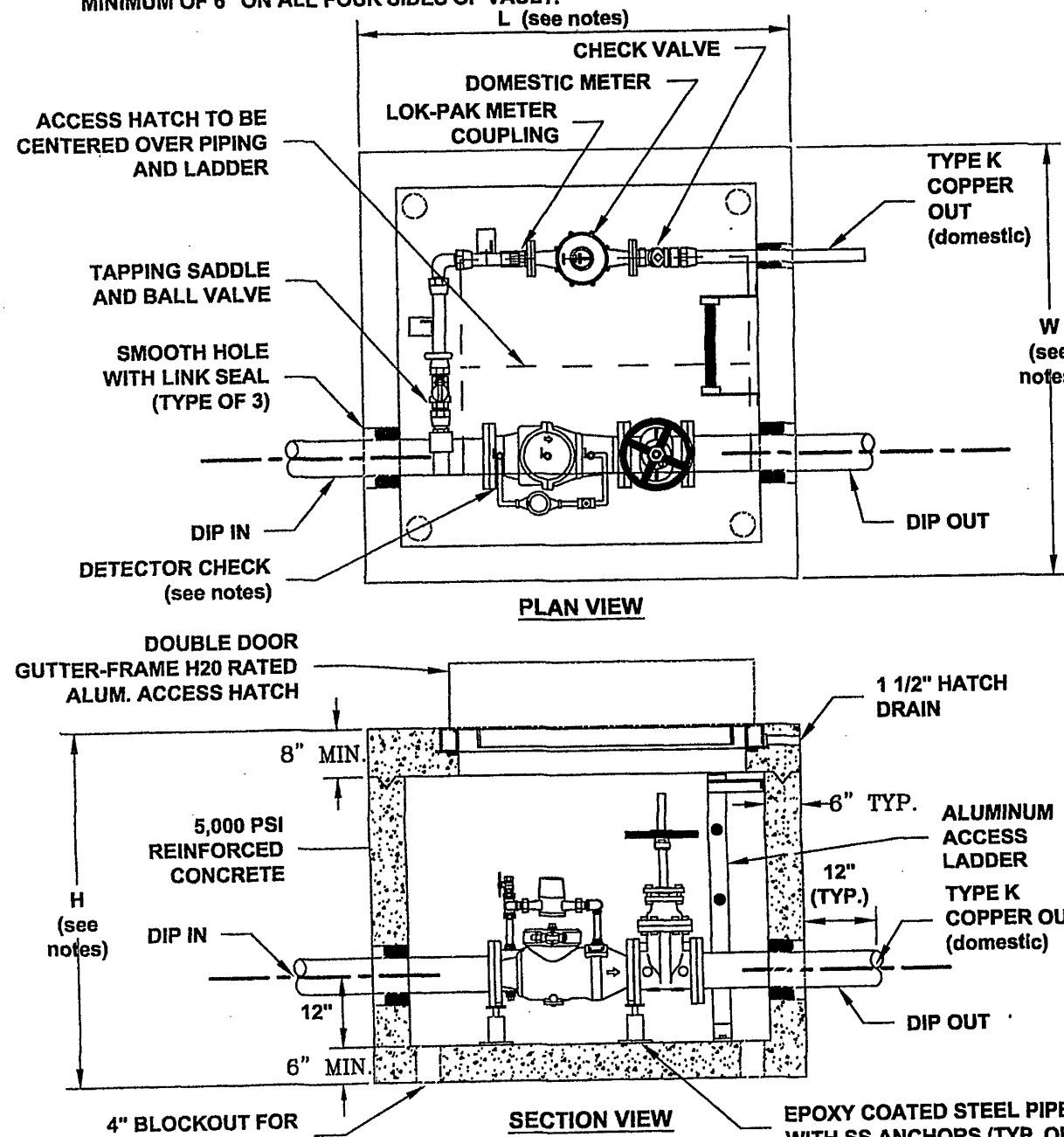
WESTERN VIRGINIA REGIONAL - CONSTRUCTION DETAIL

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

W-5

01/01/12

1. 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.
2. FOR 8" FIRE LINE EXTERIOR VAULT DIMENSIONS SHALL BE (L x W x H) 6' 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.
3. 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.
4. DOMESTIC SHALL BE TYPE K COPPER WITH GRIP JOINT FITTINGS, BALL VALVE AT TAPPING SADDLE (with locking tabs) AND CHECK VALVE ON OUTLET.
5. DOMESTIC METER TO BE SUPPLIED BY OWNER AND INSTALLED BY VENDOR.
6. "UNI FLANGE" ADAPTOR FLANGE, OR APPROVED EQUAL, OR FLANGED - PLAIN END PIPING REQUIRED FOR INLET AND OUTLET PIPING.
7. 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

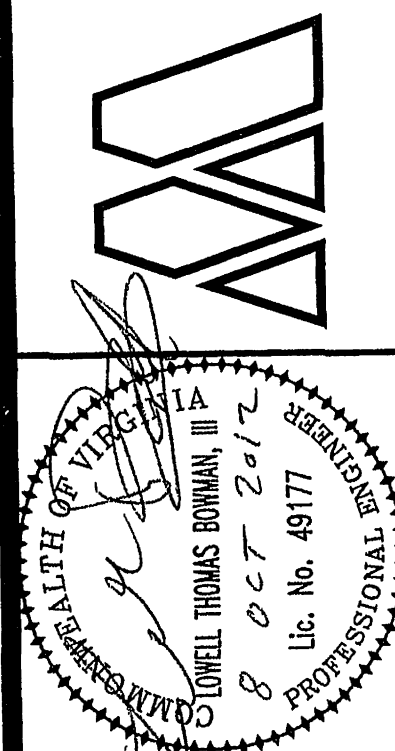
COMMERCIAL METER VAULT

W-7

01/01/12

ANDERSON & ASSOCIATES, INC.
Professional Design Services
www.andassoc.com
VA - NC - TN - WV

100 Ardmore St.
Blacksburg, Va. 24060
540-552-5592



SHENANDOAH AVENUE
WATER LINE REPLACEMENT PROJECT
DETAILS I

Designed By:	LTB
Drawn By:	GBD/LTB
Checked By:	TFB
Date:	26 JULY 2012
Revised:	23 AUG 2012 08 OCT 2012
Scale:	
Plan #:	29753-001
Sheet:	9 OF 12