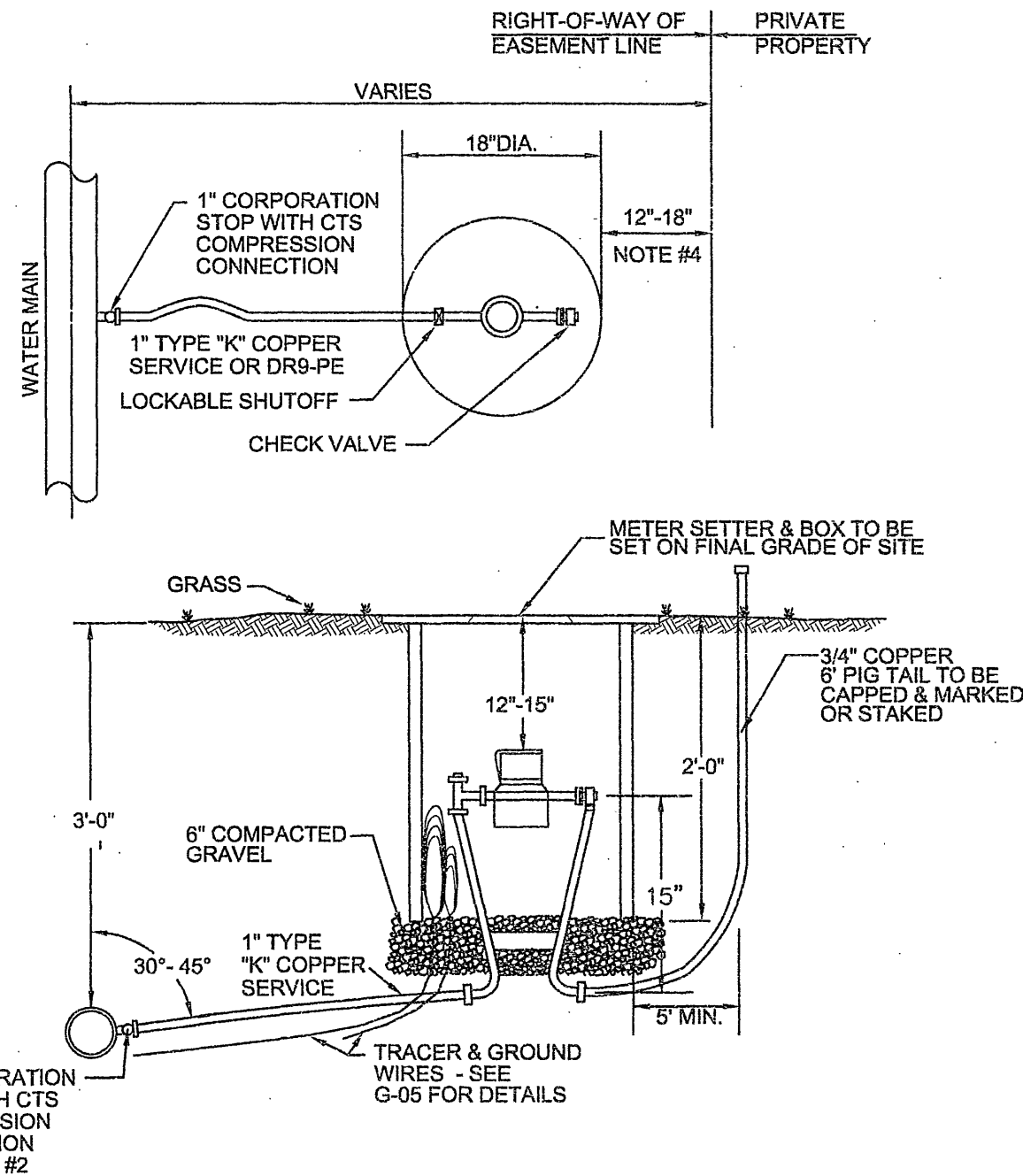
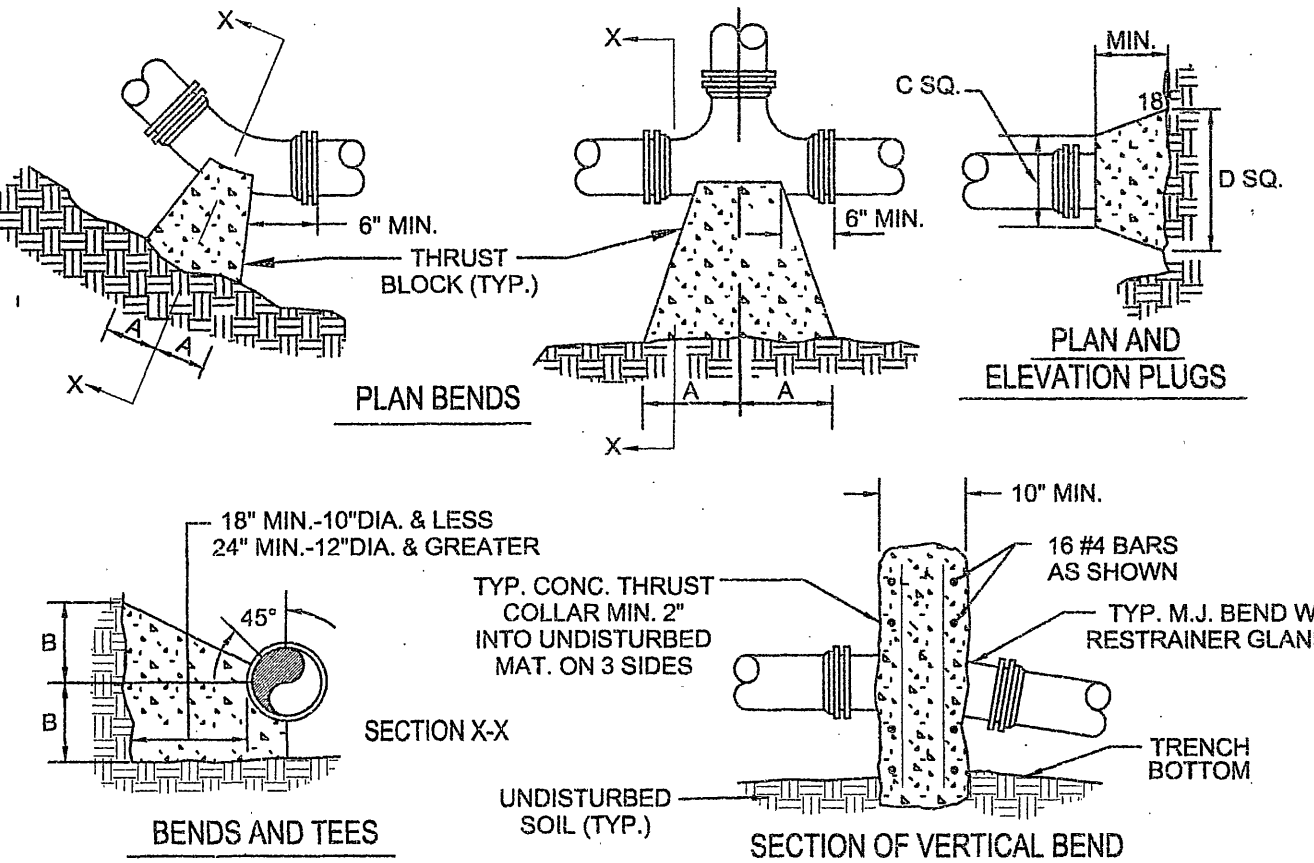


1. SETTER TO BE A.Y. McDONALD #20-215 WDD33, FORD VBHH72-15W-1133 OR APPROVED EQUAL.
2. SADDLES MUST BE USED WITH ALL PLASTIC & CLASS 50 DUCTILE IRON PIPE. SERVICE SADDLES SHALL BE USED IN ACCORDANCE WITH SECTION 2665 OF THE WATER STANDARDS. SERVICE SADDLES FOR PLASTIC PIPE SHALL BE: POWERSEAL 3417, 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 MUST BE CARSON/MID-STATES PLASTICS, INC. PLASTIC BOX WITH FORD A32-T (ELECTRONIC READ LID) OR A.Y. McDONALD MODEL 74M32C-TC CAST IRON BASE & COVER OR APPROVED EQUAL. USE OF TRAFFIC BEARING BOX SHALL BE APPROVED BY THE AUTHORITY. TRAFFIC BEARING BOX SHALL BE CARSON/MID STATES PLASTICS H20 OR EQUIVALENT AND LID SHALL BE FORD METER BOX C32H OR EQUIVALENT.
4. WHENEVER SIDEWALK EXISTS OR IS PROPOSED, MODIFY METER LOCATION AS DIRECTED.
5. CORPORATION STOP MUST BE FORD F1000-4-G OR APPROVED EQUAL.



WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	TYPE "A" SINGLE RESIDENTIAL WATER SERVICE (LINE PRESSURE UNDER 80 PSI)	W-01
07/01/04		
03/01/06		

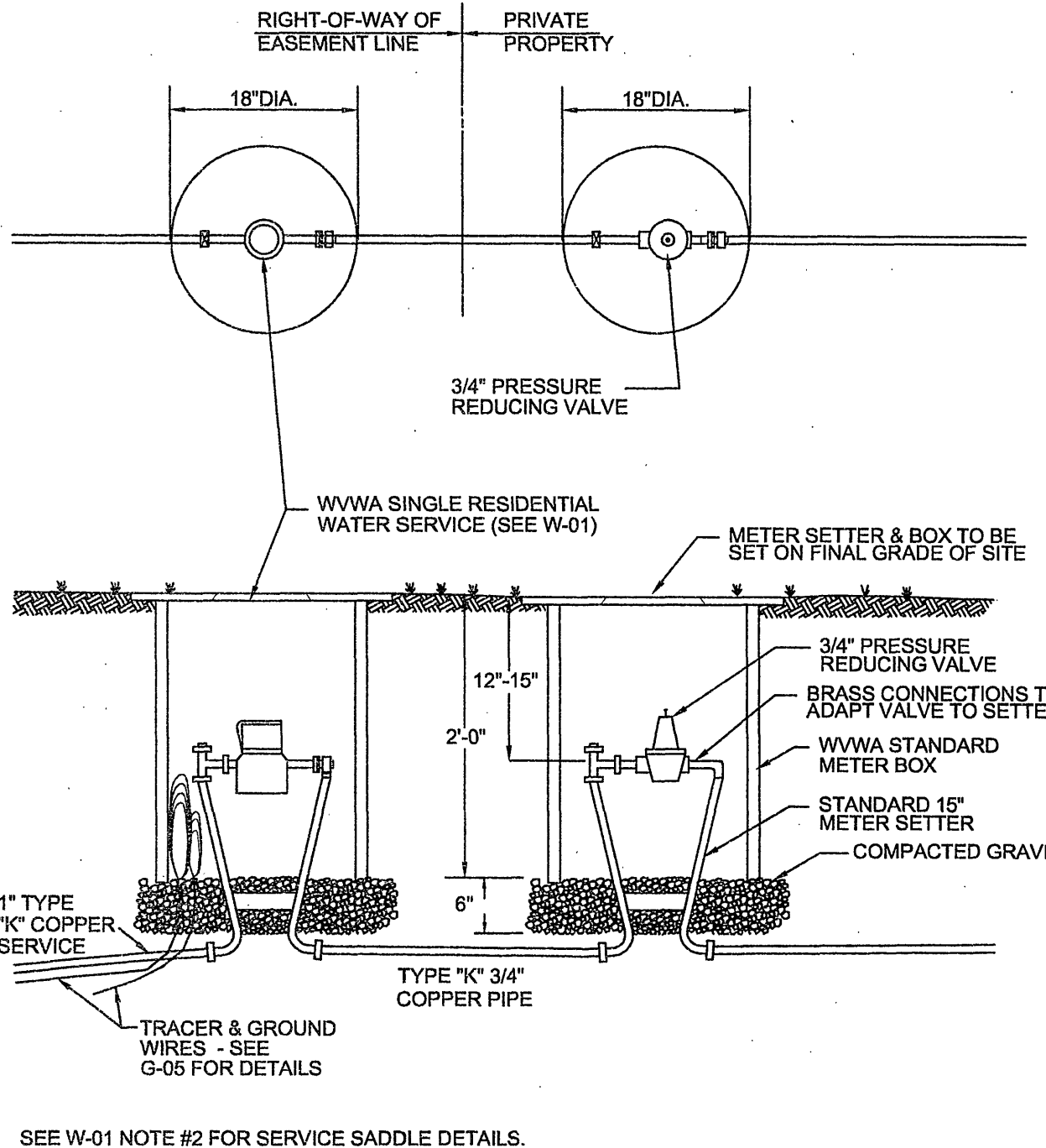


- NOTES:
- FOR VERT. BEND DOWN IN EXCESS OF 11 1/4" BEND, ANCHORAGE SHALL BE DESIGNED BY ENGINEER.
 - FOR VERT. BEND UPWARD, BLOCKING TO BE SIMILAR TO THAT FOR HORIZ. BEND.
 - GLANDS & BOLTS SHALL BE PROTECTED FROM CONC. BY PLASTIC SHEETING WHEN POURING THRUST BLOCKS.
 - ALL THRUST BLOCK & SUPPORT CONC. SHALL BE 3000 PSI READY MIX CONC.
 - THRUST BLOCKS WITH "B" DIMENSION GREATER THAN 30" SHALL HAVE THE RESTRAINED PIPE INSTALLED WITH A MINIMUM OF 4" OF COVER.
 - IF UNDER 100 PSI WORKING PRESSURE, RESTRAINT JOINTS MUST BE USED. IF EQUAL OR GREATER THAN 100 PSI WORKING PRESSURE, BOTH BLOCK AND RESTRAINT JOINTS ARE REQUIRED.
- PRESSURE = 200 psi
BEARING = 2000 psf
FACTOR OF SAFETY = 1.5

PIPE SIZE	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	TEE	PLUG
4"	8"	8"	8"	8"	8"	8"
6"	12"	8"	8"	8"	8"	8"
8"	18"	12"	10"	8"	8"	8"
10"	24"	16"	12"	8"	8"	8"
12"	30"	20"	14"	8"	8"	8"
16"	42"	28"	20"	11"	11"	11"
20"	54"	36"	24"	14"	14"	14"
24"	66"	44"	28"	18"	18"	18"
30"	81"	54"	34"	22"	22"	22"

WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	THRUST BLOCK CONSTRUCTION	W-19
07/01/04		
03/01/06		



1. THIS CONFIGURATION REQUIRED WHEN WATER PRESSURE AT THE WATER MAIN IS BETWEEN 80 AND 120 PSI.

WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	TYPE "B" SINGLE RESIDENTIAL WATER SERVICE (LINE PRESSURE UNDER 80 TO 120 PSI)	W-02
07/01/04		
03/01/06		

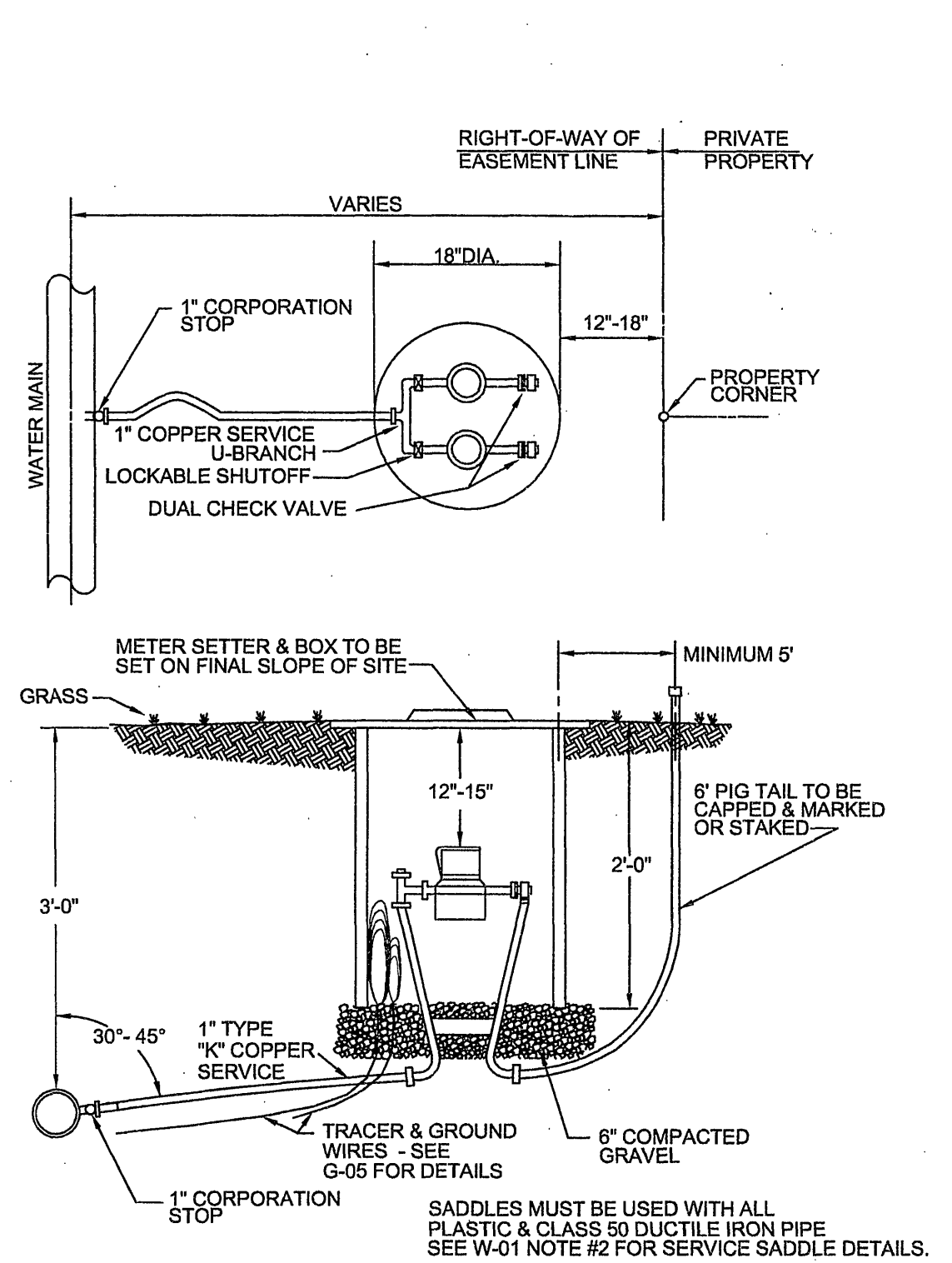
FACTOR OF SAFETY = 1.5													
PIPE SIZE	PIPE MAT'L	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	VALVE /PLUG	TEE	REDUCER (NOTE 2)	VERT. 45°	VERT. 22 1/2°	VERT. 11 1/4°	VERT. 45°	VERT. 22 1/2°
6"	D.I.	28'	12'	6'	3'	38'	34'	20'	23'	11'	5'		
8"	D.I.	37'	15'	7'	4'	51'	47'	21'	30'	15'	7'		
10"	D.I.	45'	19'	9'	4'	61'	57'	20'	37'	18'	9'		
12"	D.I.	53'	22'	11'	5'	73'	69'	38'	43'	21'	10'		
6"	PVC	30'	12'	6'	3'	56'	38'	29'	35'	17'	8'		
8"	PVC	40'	16'	8'	4'	74'	56'	31'	46'	22'	11'		
10"	PVC	47'	20'	9'	5'	89'	82'	30'	56'	27'	13'		
12"	PVC	56'	23'	11'	6'	106'	88'	56'	66'	32'	16'		

1. ALL JOINTS SHALL BE RESTRAINED ON BOTH SIDES OF THE FITTING FOR THE LENGTH SHOWN UNLESS OTHERWISE INDICATED.
2. REDUCER IS ONE SIZE SMALLER THAN PIPE LISTED. RESTRAINED LENGTH IS UPSTREAM ON THE LARGE SIDE OF THE REDUCER.
3. IF UNDER 100 PSI WORKING PRESSURE, RESTRAINT JOINT(S) ARE TO BE USED. IF EQUAL TO OR OVER 100 PSI WORKING PRESSURE, BOTH THRUST BLOCK AND RESTRAINT JOINTS SHALL BE USED.

WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

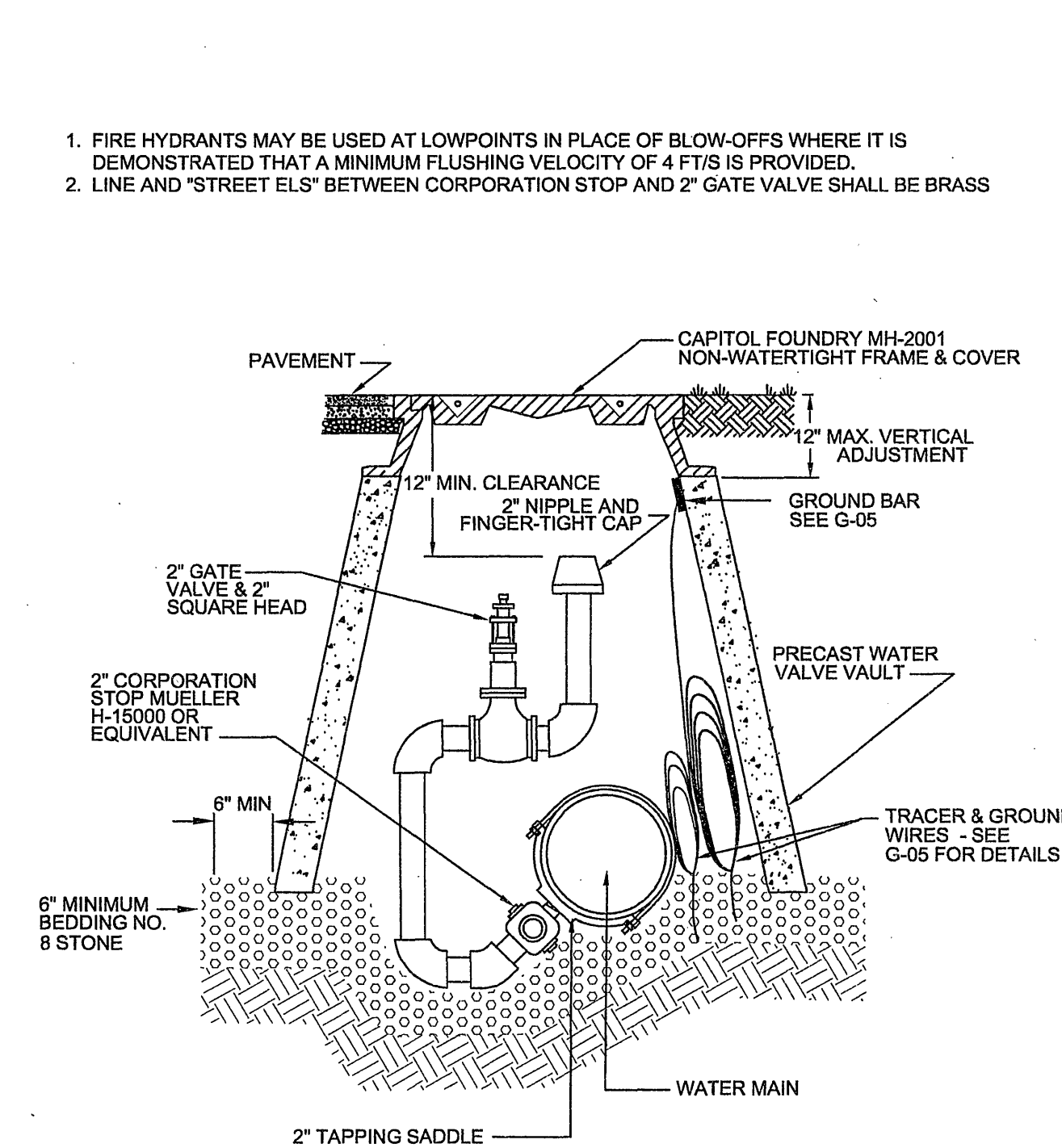
REVISION DATE	THRUST RESTRAINT OF PIPE JOINTS DESIGN LENGTHS	W-20
07/01/04		
03/01/06		

1. SETTER TO BE A.Y. McDONALD #20-215 WDD33, FORD VBHH72-15W-1133 OR APPROVED EQUAL.
2. METER BOX MUST BE CARSON/MID-STATES PLASTICS, INC. PLASTIC BOX WITH FORD A32-T (ELECTRONIC READ LID) OR A.Y. McDONALD MODEL 74M32C-TC CAST IRON BASE & COVER OR APPROVED EQUAL.
3. CORPORATION STOP MUST BE FORD F1000-4-G OR APPROVED EQUAL.



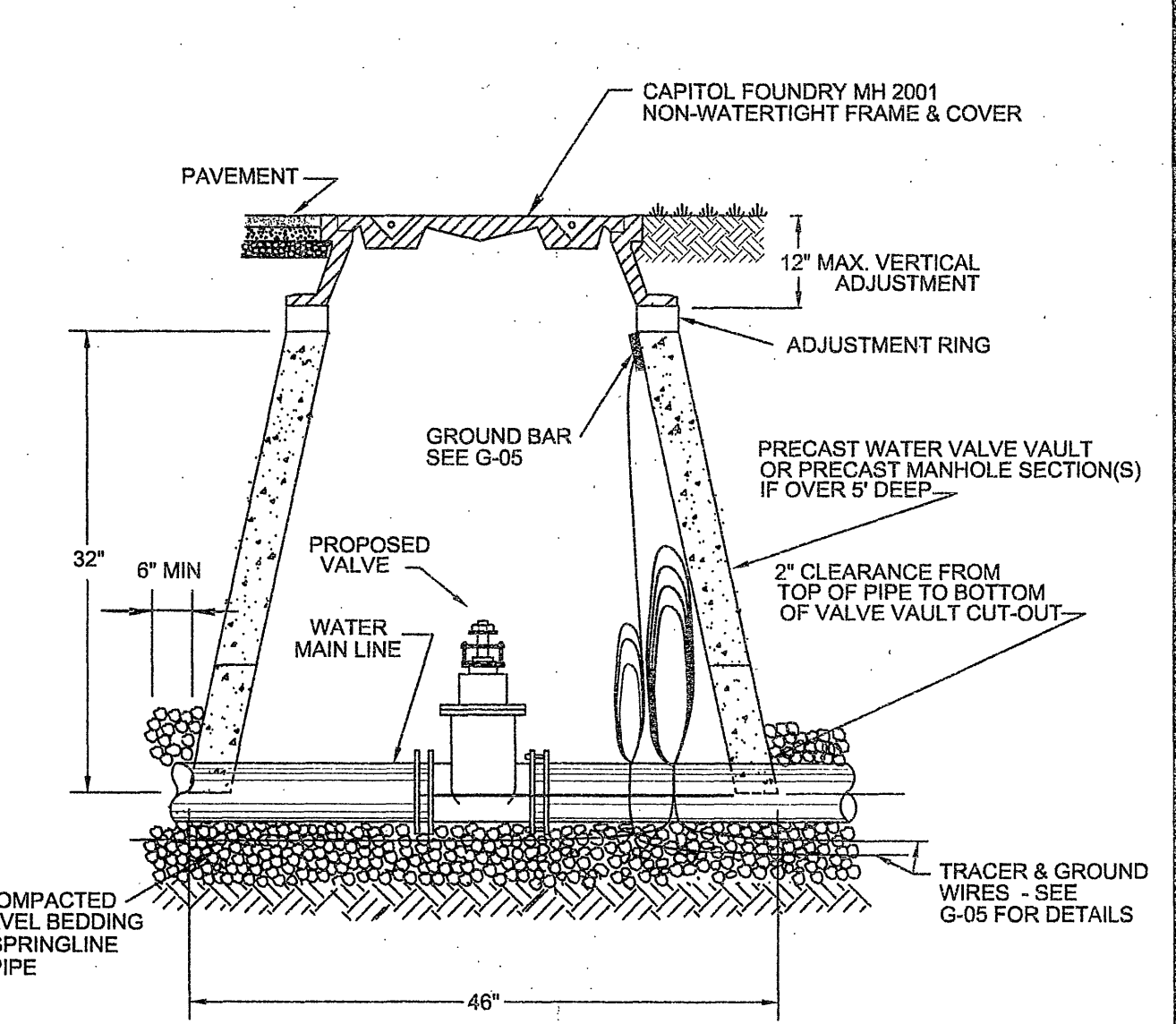
WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	DOUBLE RESIDENTIAL WATER SERVICE	W-04
07/01/04		
03/01/06		



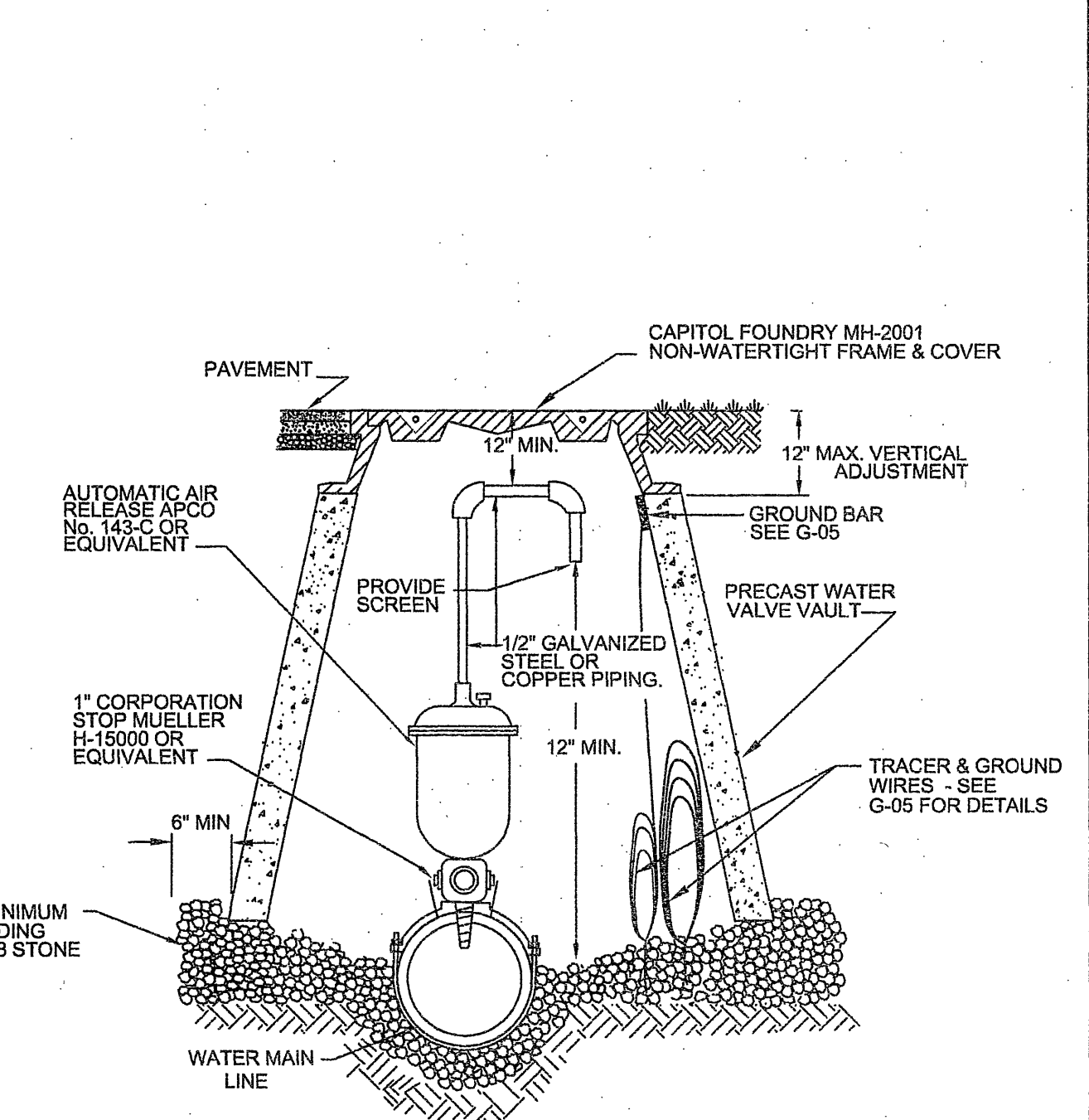
WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	IN-LINE BLOW-OFF ASSEMBLY	W-11
07/01/04		
03/01/06		



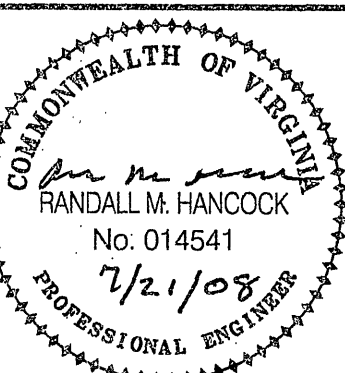
WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	WATER LINE VALVE INSTALLATION	W-08
07/01/04		
03/01/06		



WESTERN VIRGINIA WATER AUTHORITY - CONSTRUCTION STANDARDS

REVISION DATE	AUTOMATIC AIR RELEASE ASSEMBLY	W-12
07/01/04		
03/01/06		



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DETAIL SHEET
DEYERLE AREA PHASE 1 WATERLINE REPLACEMENT
WESTERN VIRGINIA WATER AUTHORITY
CITY OF ROANOKE, VIRGINIA

REVISIONS	
DESIGNED BY:	RMH
DRAWN BY:	DLD
CHECKED BY:	RMH
SCALE:	NONE
DATE:	JULY 21, 2008
PROJECT NUMBER:	B04202-08
U-4	