



MINIMUM FOOTAGE OF RESTRAINED PIPE FOR VARIOUS DIAMETERS □ DEGREES CAST □ DUCTILE IRN ELBOWS								
COVER DIA. MAIN	DEGREE OF ELBOW					BRANCH OF TEE		REDUCER (LARGE SIDE ONLY)
	11 1/4"	22 1/2"	45°	90°	VERTICAL OFFSET 45°			
					UPPER BEND (3')	LOWER BEND (3')		
					3'	5'	3'	
6"	2'	3'	10'	25'	49'	10'	9'	159'
10"	4'	8'	16'	39'	77'	15'	119'	107'
12"	5'	9'	19'	47'	90'	36'	163'	N/A

DW09 - RESTRAINED JOINTS (MECHANICAL JOINT AND SLIP JOINT PIPES)

SCALE: N.T.S



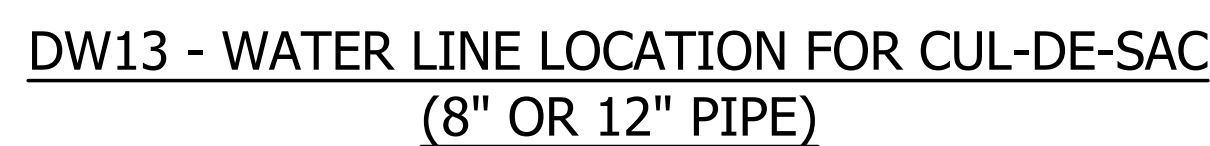
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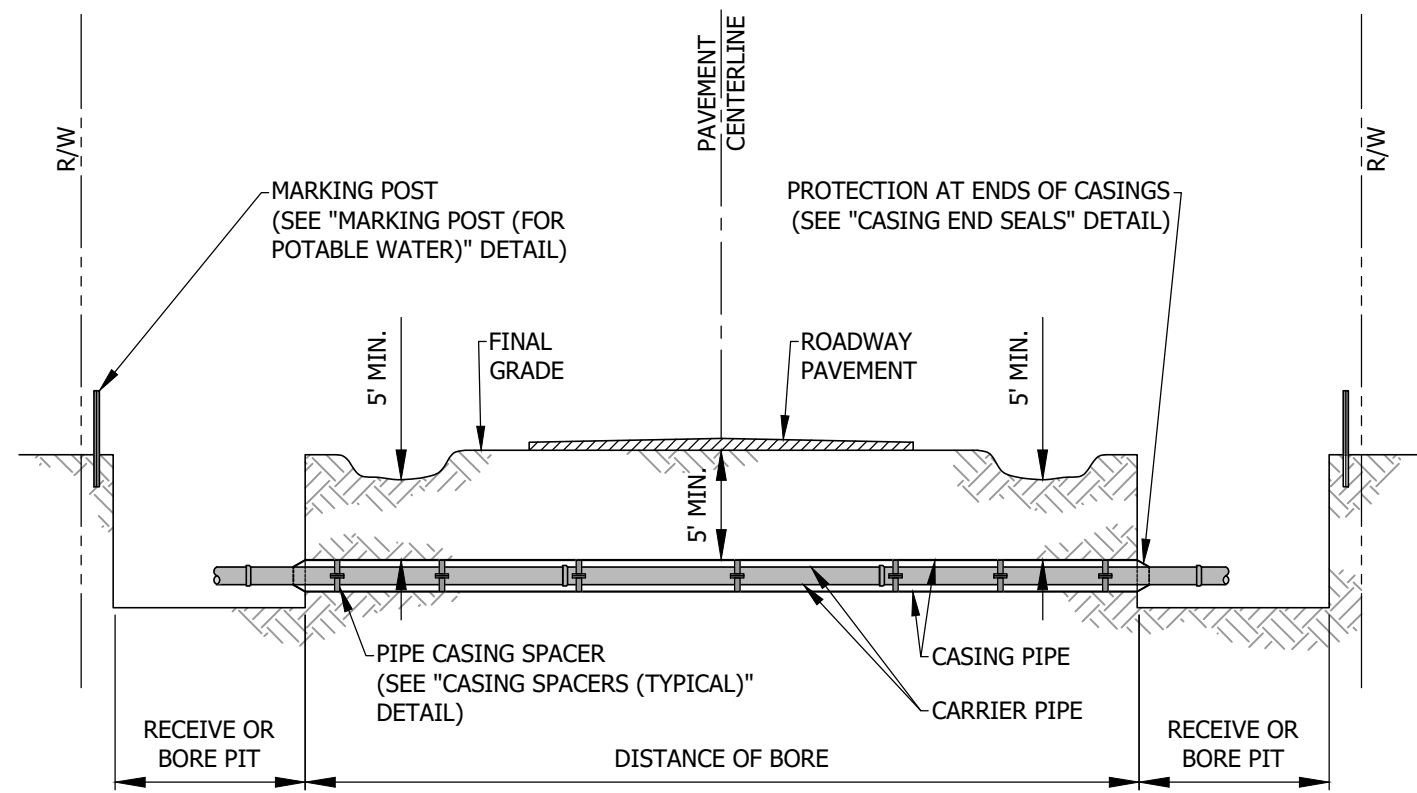
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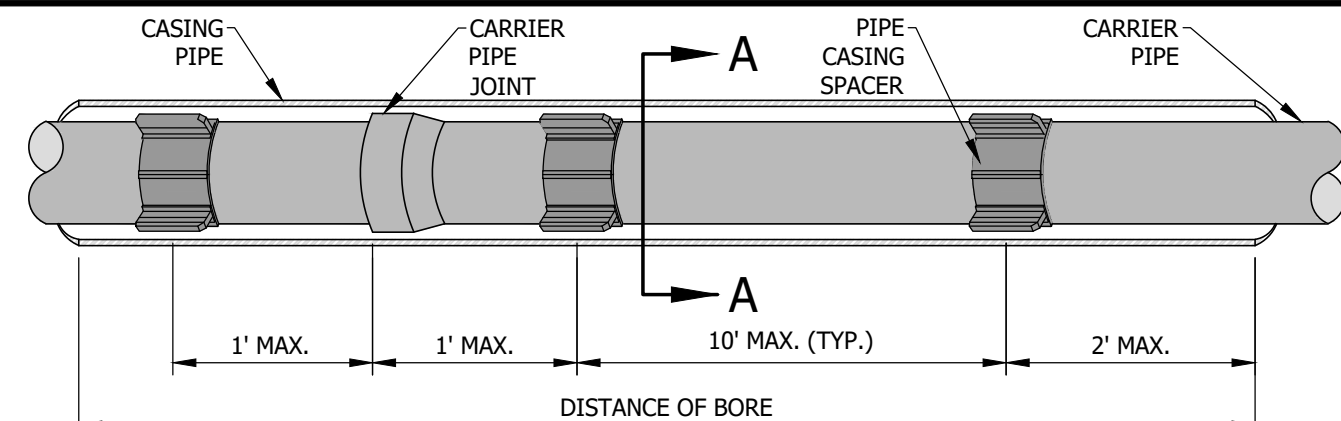


WELDING:
STEEL CASING SECTIONS SHALL BE CONNECTED BY WELDING. WELD SHALL CONFORM TO AWWA C206.

- NOTE:**
1. ALL PIPE JOINTS WITHIN THE CASING ARE TO BE RESTRAINED.
 2. TRACING WIRE TO BE INSTALLED THROUGH ALL CASED BORINGS AND CONNECTED TO MARKING POSTS.
 3. STEEL PIPE CASING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A283, GRADE B, C, OR D. ALL JOINTS SHALL BE WELDED. ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C206, "AWWA STANDARD FOR FIELD WELDING OF STEEL WATER PIPE". COATING FOR STEEL CASING IS NOT REQUIRED.
 4. STEEL PIPE CASING SHALL BE INSTALLED SYMMETRICAL ABOUT WATER MAIN CENTERLINE (TYP). PIPE CASING SHALL BE LAID TRUE TO LINE AND GRADE WITH NO BENDS OR CHANGES IN GRADE FOR THE FULL LENGTH OF THE CASING.

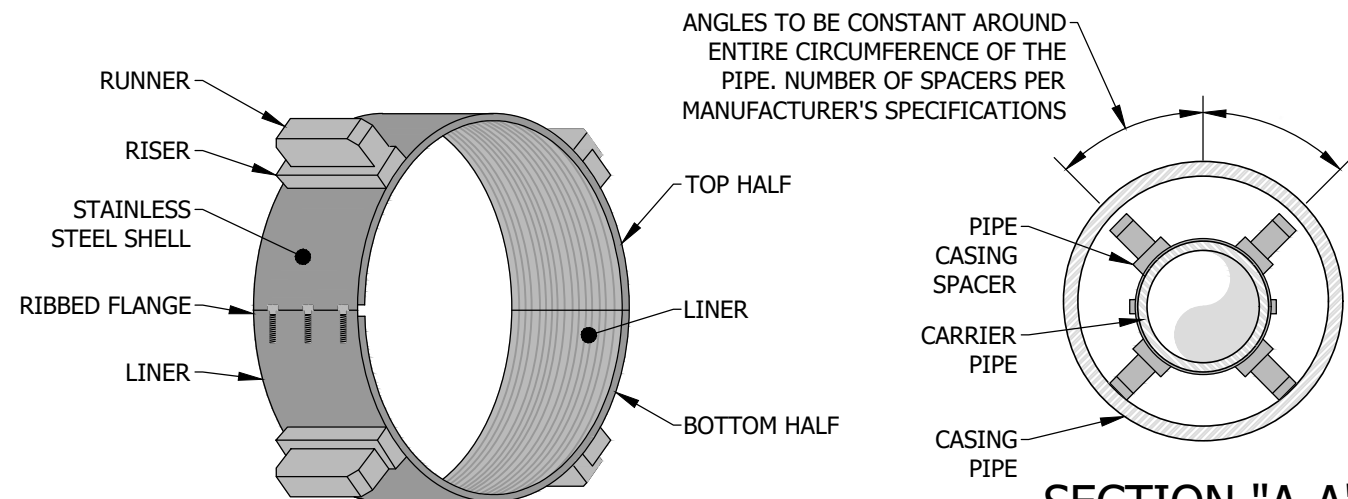
DW17 - TYPICAL JACK AND BORE CASING PIPE

SCALE: N.T.S.



CARRIER PIPE		
PIPE SIZE	CASING O.D.	THICKNESS *
6"	16"	1/4"
8"	18"	1/4"
10"	20"	5/16"
12"	24"	5/16"
16"	30"	3/8"
18"	30"	3/8"
20"	36"	1/2"
24"	42"	1/2"

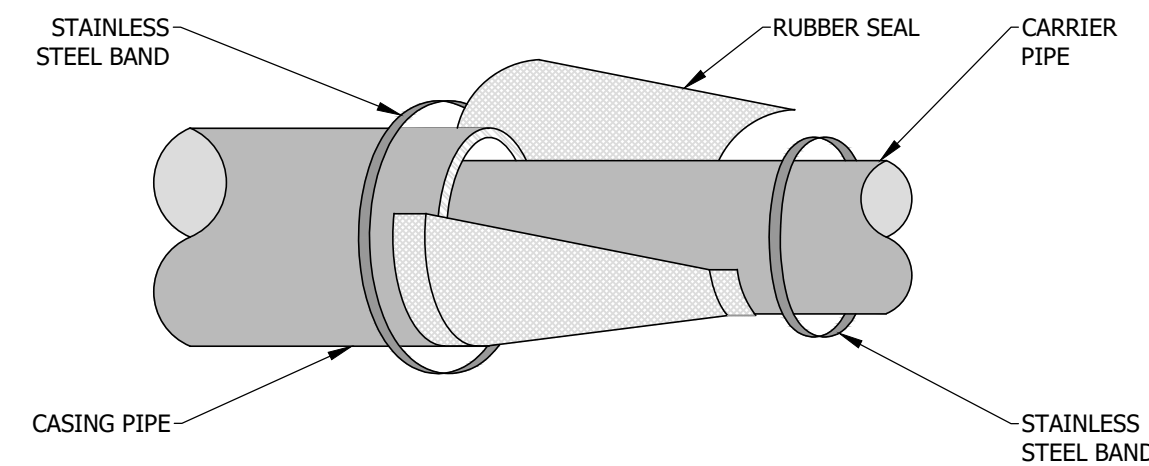
* UNLESS OTHERWISE REQUIRED BY I.N.D.O.T., RAILROAD OR OTHER SUCH GOVERNING AUTHORITY.



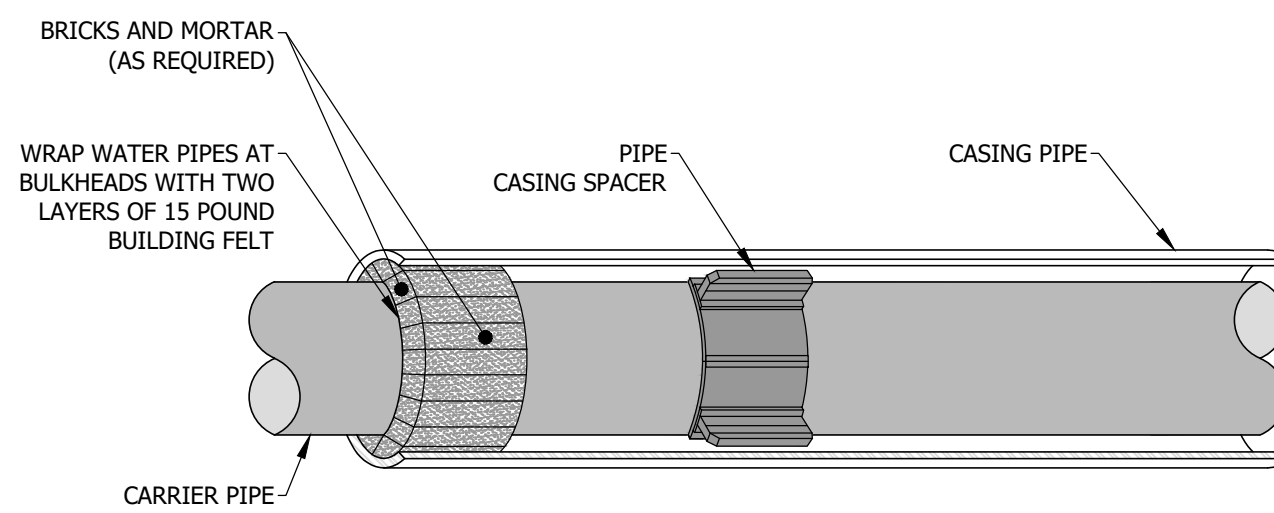
- NOTE:**
1. CASING SPACERS SHALL BE CCS SERIES BY CASCADE WATERWORKS MFG. ALTERNATE CASING SPACERS MAY BE USED WITH PRIOR APPROVAL FROM CITY UTILITIES PROJECT ENGINEER.
 2. CITY UTILITIES APPROVED CASING SPACERS AND END SEALS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. USE A 'CENTERED' CONFIGURATION AND PROVIDE THE MANUFACTURER WITH THE FOLLOWING INFORMATION: CARRIER PIPE O.D., CASING PIPE I.D., AND CASING LENGTH.

DW18 - TYPICAL CASING SPACERS

SCALE: N.T.S.



METHOD 'A'

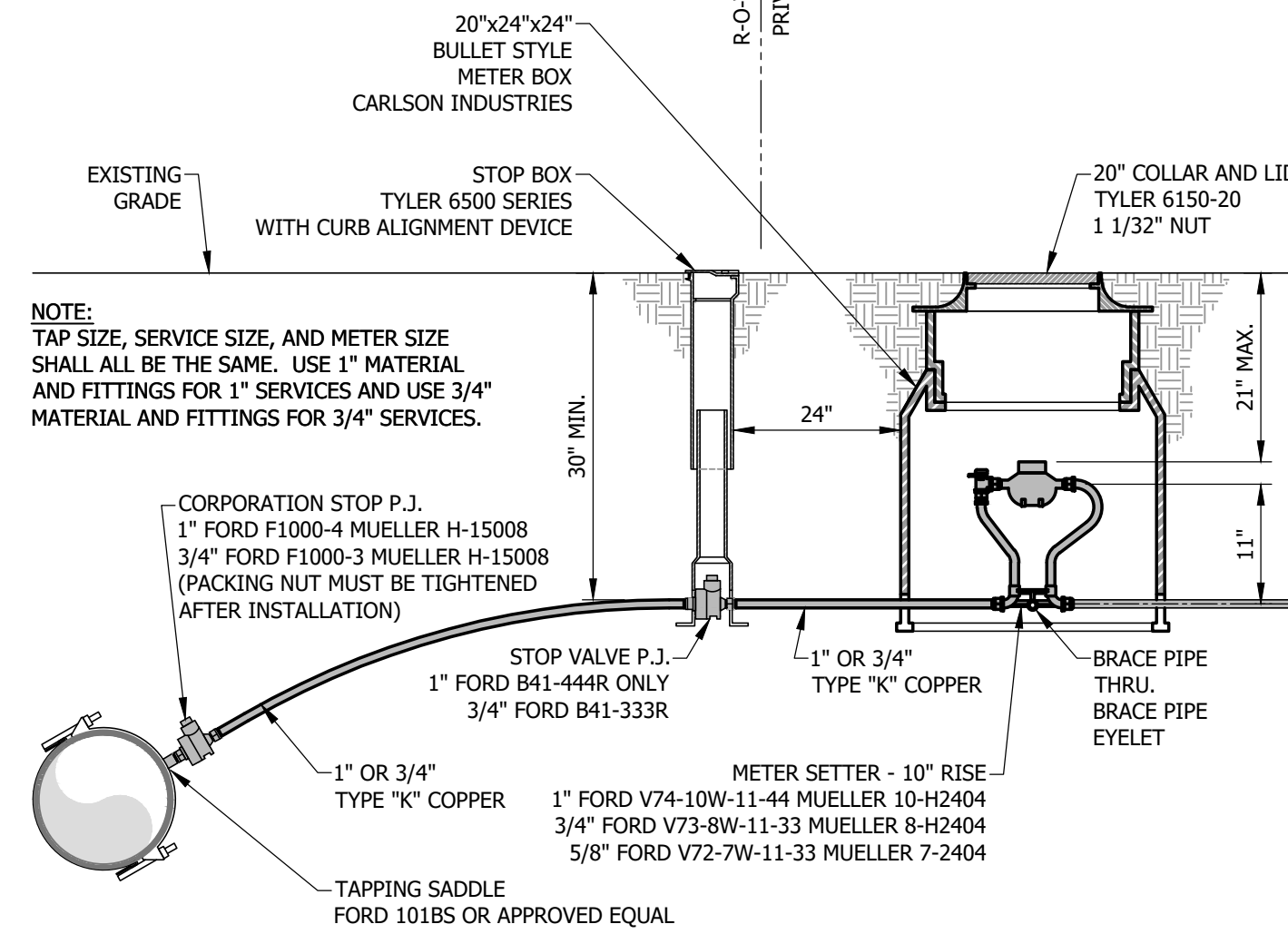
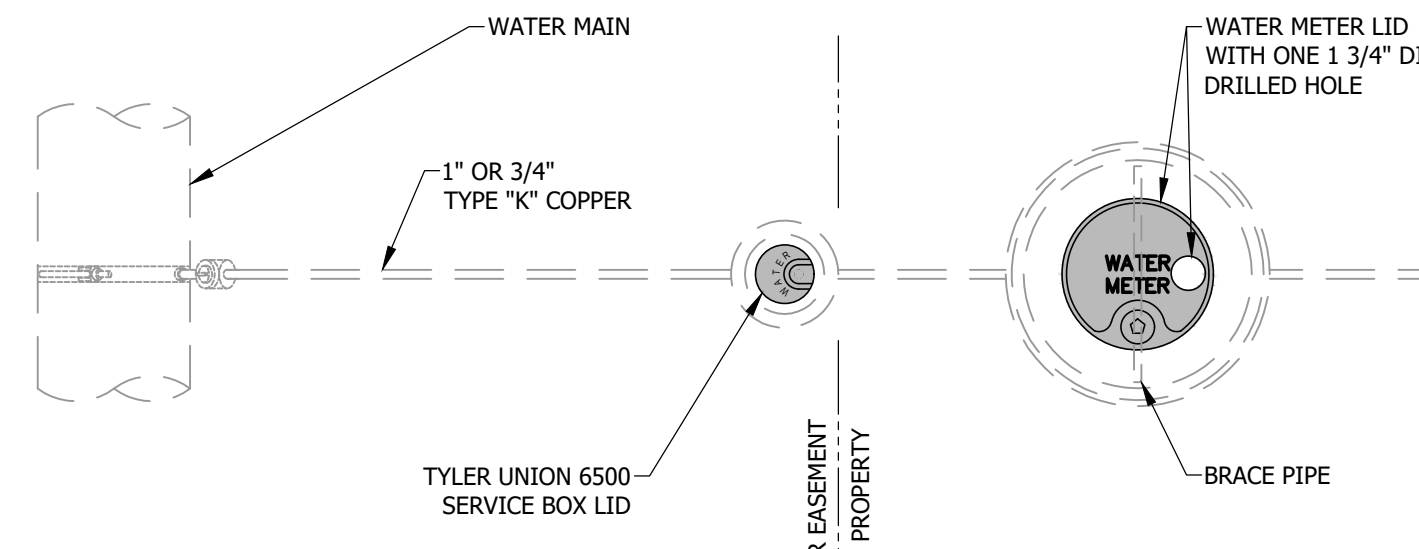


- NOTE:**
1. THIS STANDARD IS APPLICABLE FOR 4" DIAMETER AND LARGER CARRIER PIPE.

METHOD 'B'

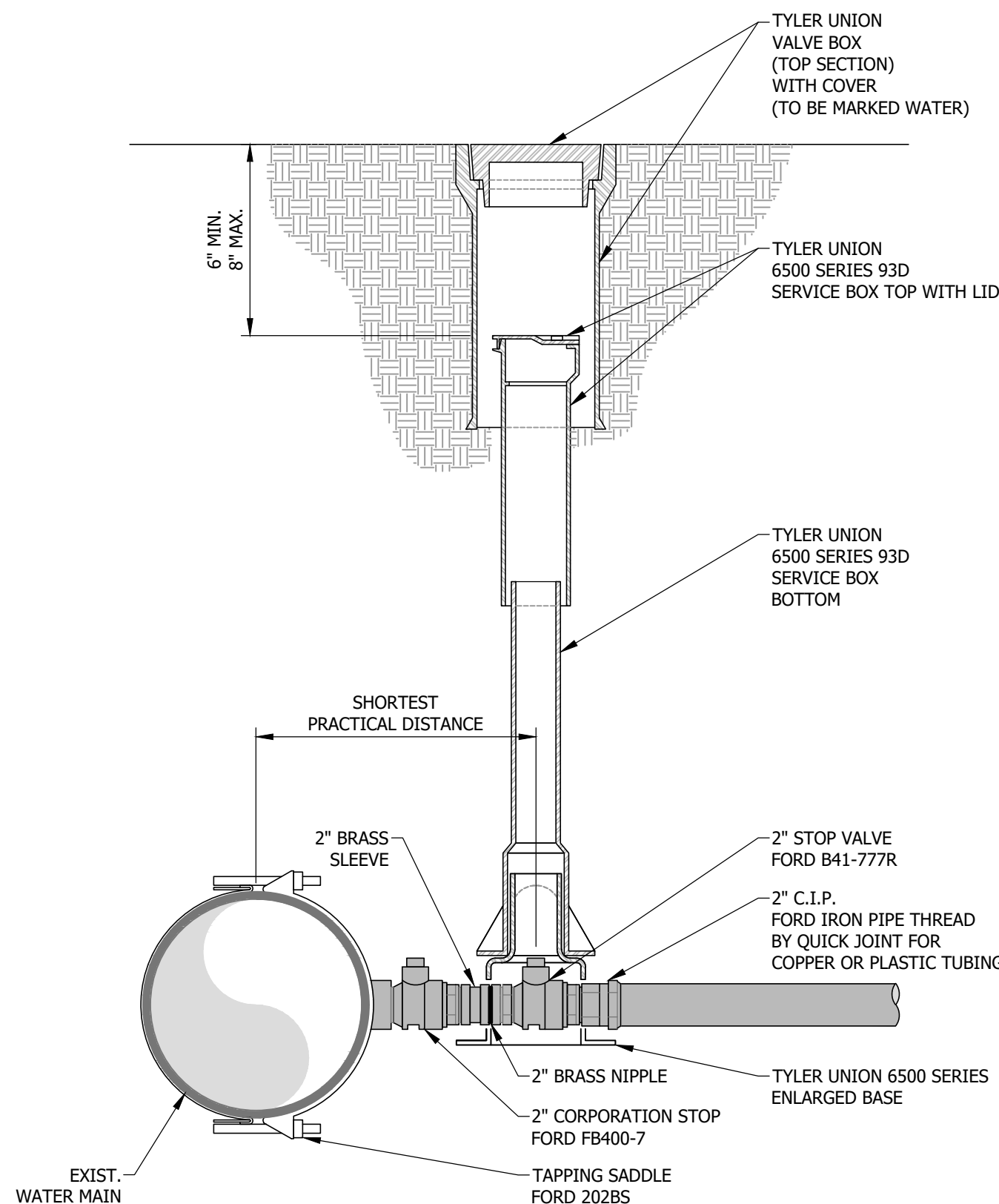
DW19 - TYPICAL CASING END SEALS

SCALE: N.T.S.



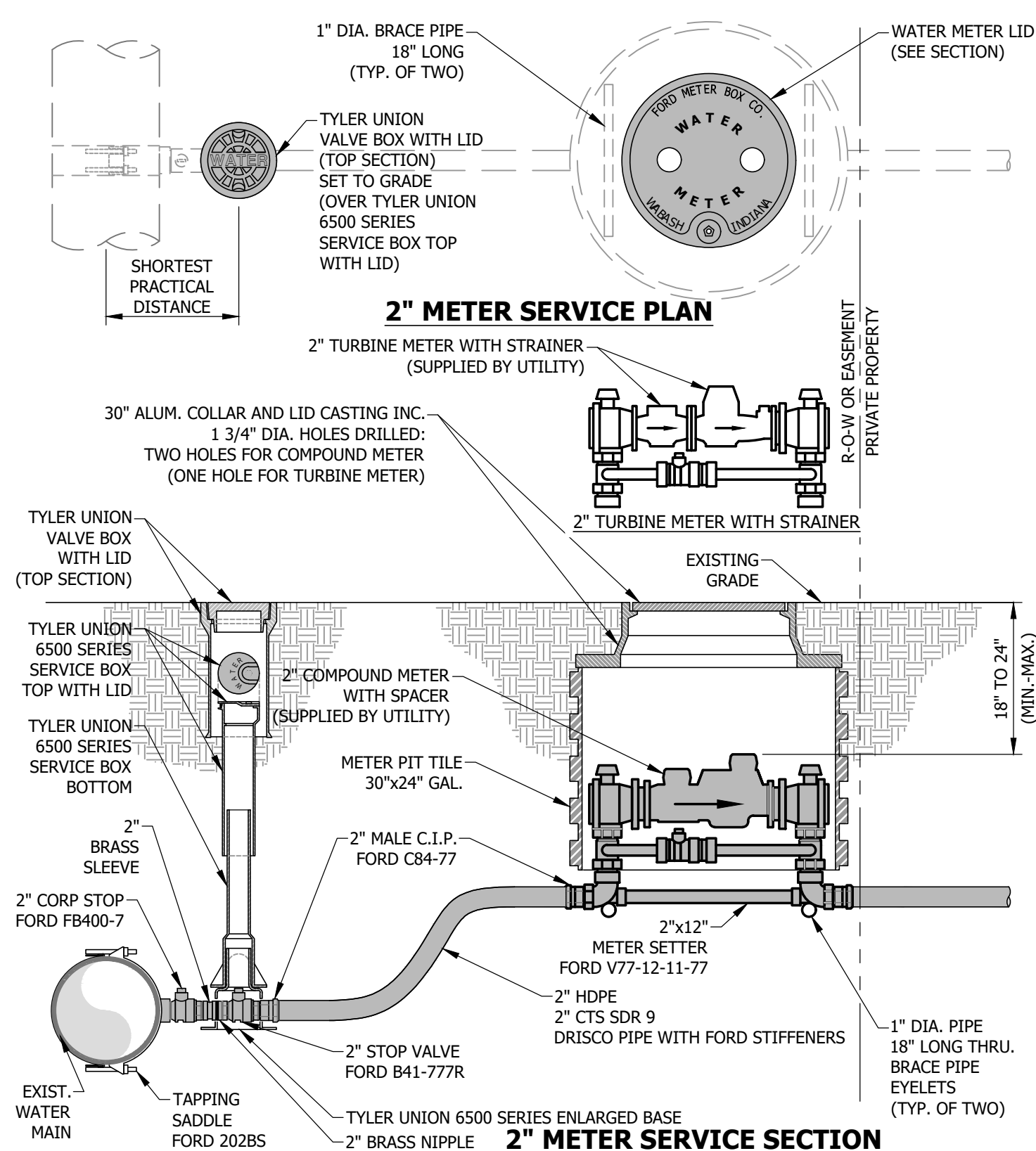
DW20 - 3/4" OR 1" METER SERVICE CONNECTION

SCALE: N.T.S.



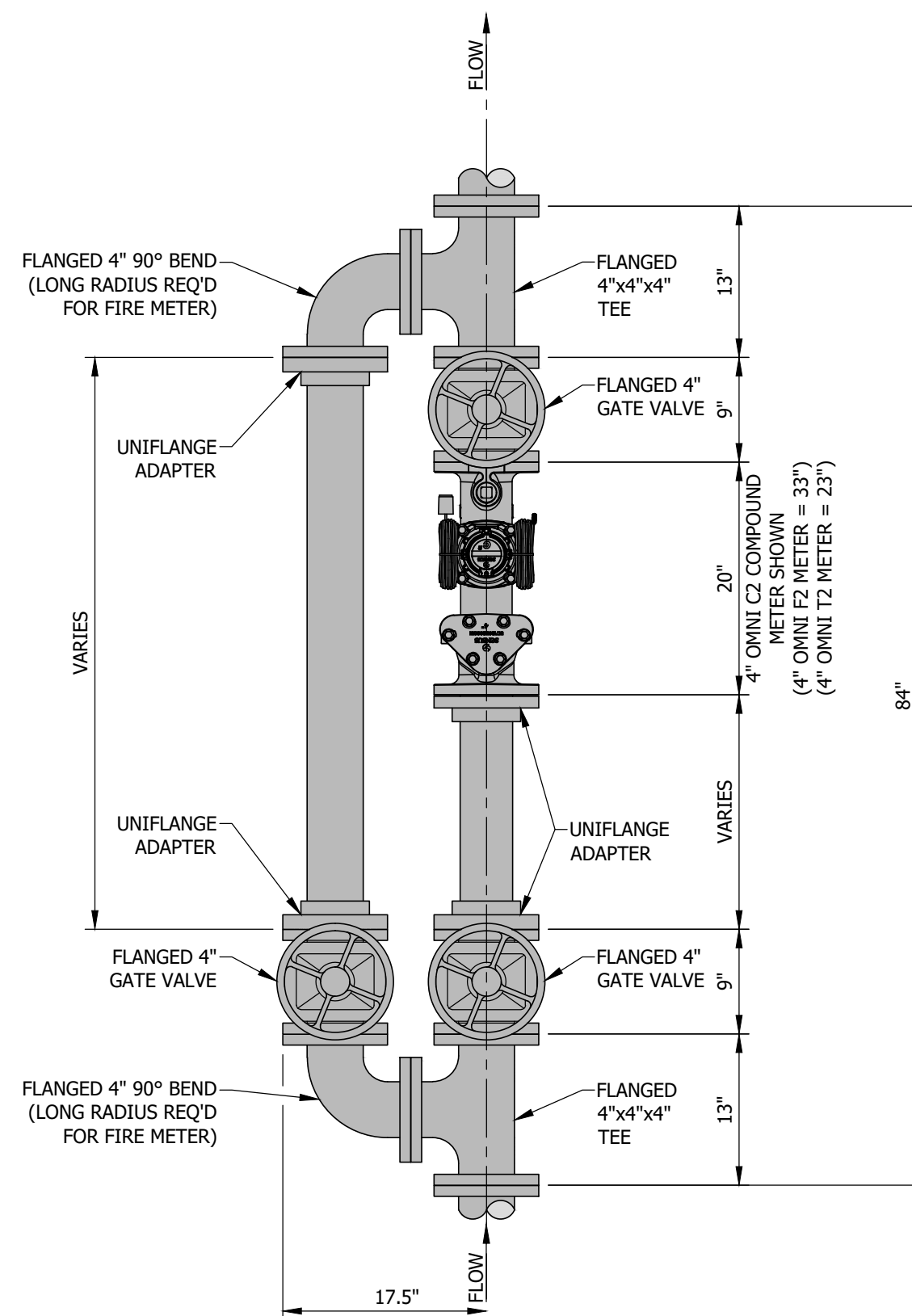
DW21 - 2" TAP DETAIL

SCALE: N.T.S.



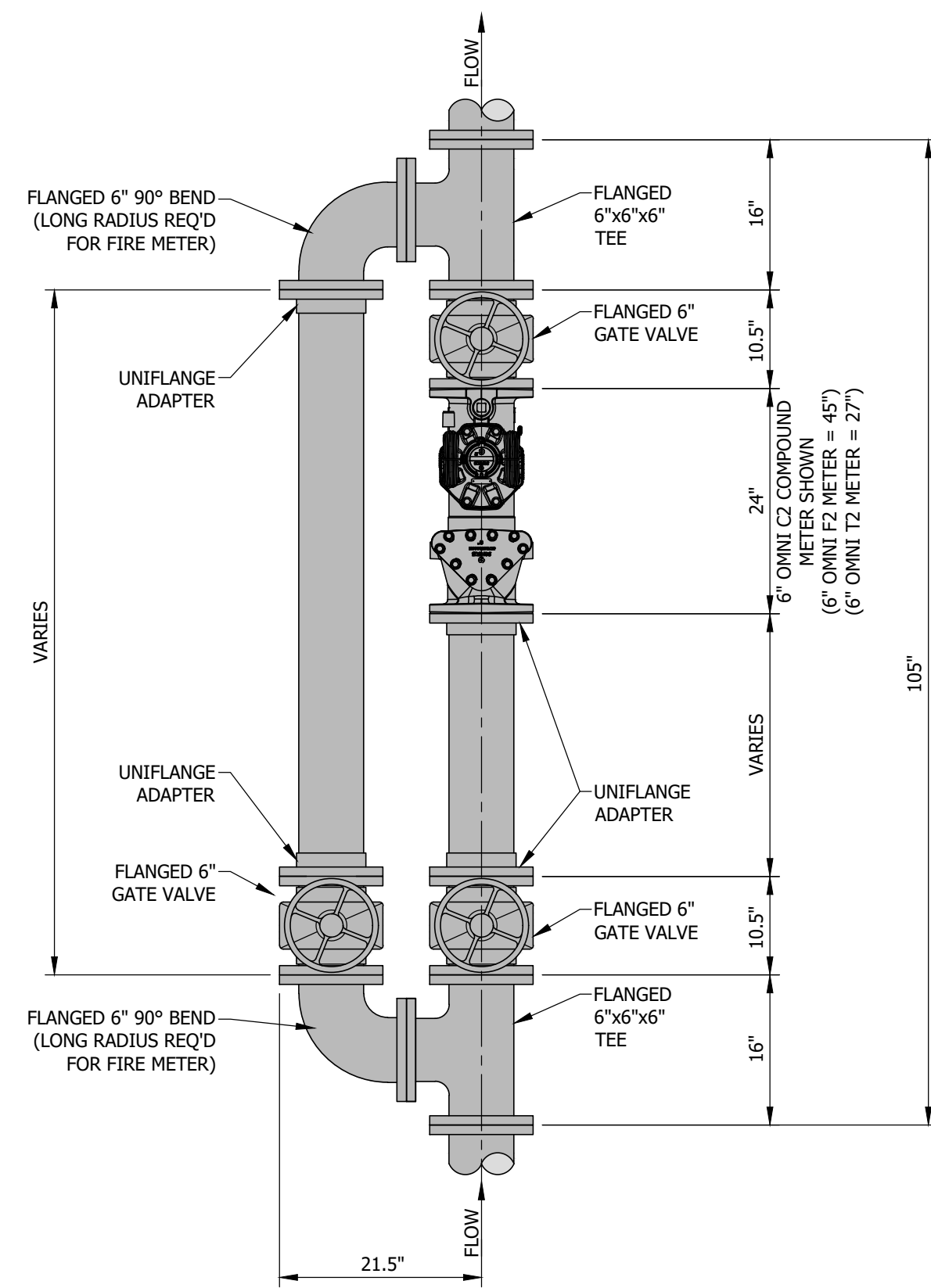
DW22 - 2" METER SERVICE CONNECTION

SCALE: N.T.S.



DW23 - 4" METER SERVICE CONNECTION

SCALE: N.T.S.



DW24 - 6" METER SERVICE CONNECTION

SCALE: N.T.S.

EVANSVILLE WATER AND SEWER UTILITY
1831 Aliens Lane - Evansville, IN 47720 (812) 421-2126

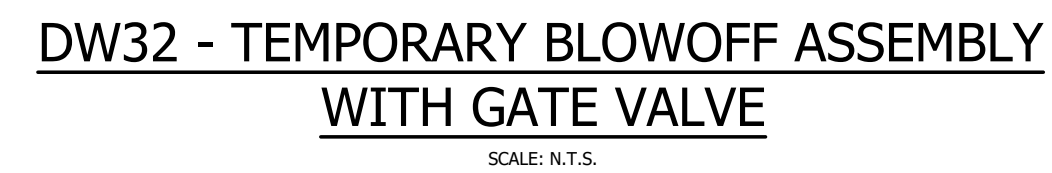
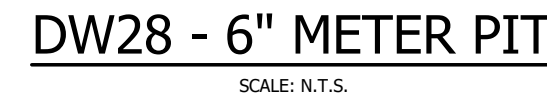





REVISIONS	APPROVED
DATE	DESCRIPTION

DRAWING NO: _____
SHEET NO: **3**
of 5

STANDARD WATER DETAILS

APPROVED: _____ DATE: _____
FIGURES: DW-17 THROUGH DW-24
SCALE: N.T.S.
ADOPTED: 02/28/17
APPROVED BY: M.D.L.
02/28/17



DRAWING NO: _____								EVANSVILLE WATER AND SEWER UTILITY 1931 Aliens Lane - Evansville, IN 47720 (812) 421-2126		EVANSVILLE WATER AND SEWER UTILITY DW-25 THROUGH DW-32		APPROVED BY: _____ M.D.L. _____ SCALE: _____ DATE: _____		APPROVED: _____ TITLE: _____ DATE: _____	
SHEET NO: 4		4 of 5													



SCALE: N.T.S.



SCALE: N.T.S.



SCALE: N.T.S

AUTOMATIC FLUSHING DEVICE SHALL HAVE A 2" BRASS FIP INLET, LEADING VERTICALLY INTO A 2" AUTOMATIC SOLENOID VALVE.

AUTOMATIC SOLENOID VALVE SHALL HAVE AN INTERNAL, SELF-CLEANING DEBRIS SCREEN, AND HAVE A 220 PSI RATING.

UNIT SHALL BE FURNISHED WITH A STAND-ALONE VALVE CONTROLLER.

VALVE CONTROLLER WILL NOT REQUIRE A SECOND HAND-HELD DEVICE FOR PROGRAMING.

CONTROLLER MUST HAVE A MINIMUM OF 9 POSSIBLE FLUSHING CYCLES PER DAY, SHALL BE SUBMERSIBLE TO 12 FEET, OPERATE WITH 9 VOLT BATTERY AND HAVE RESIN-SEALED ELECTRICAL COMPONENTS.

SOLENOID SHALL HAVE NO LOOSE PARTS WHEN REMOVED FROM VALVE.

UNIT SHALL HAVE A DOUBLE-VALVE, ALL RESIN, SAMPLING POINT.

REMOVAL OF 2" SOLENOID VALVE SHALL BE POSSIBLE VIA AN O-RING CONNECTOR LOCATED UNDER THE VALVE, AFTER REMOVAL OF STAINLESS STEEL ACCESS PLATE.

VALVE ASSEMBLY SHALL BE HOUSED IN A PVC ENCLOSURE AND EACH UNIT SHALL BE SELF DRAINING, NON-FREEZING.

ALL ABOVE-GROUND COMPONENTS SHALL BE CONTAINED WITHIN A UV-RESISTANT LOCKING COVER, AS MANUFACTURED BY KUPERLE FOUNDRY COMPANY.

ST. LOUIS, MO

1-800-231-3990

MODEL No.9800 OR MODEL No.9400 OR APPROVED EQUIAL.

SCALE: N.T.S.

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