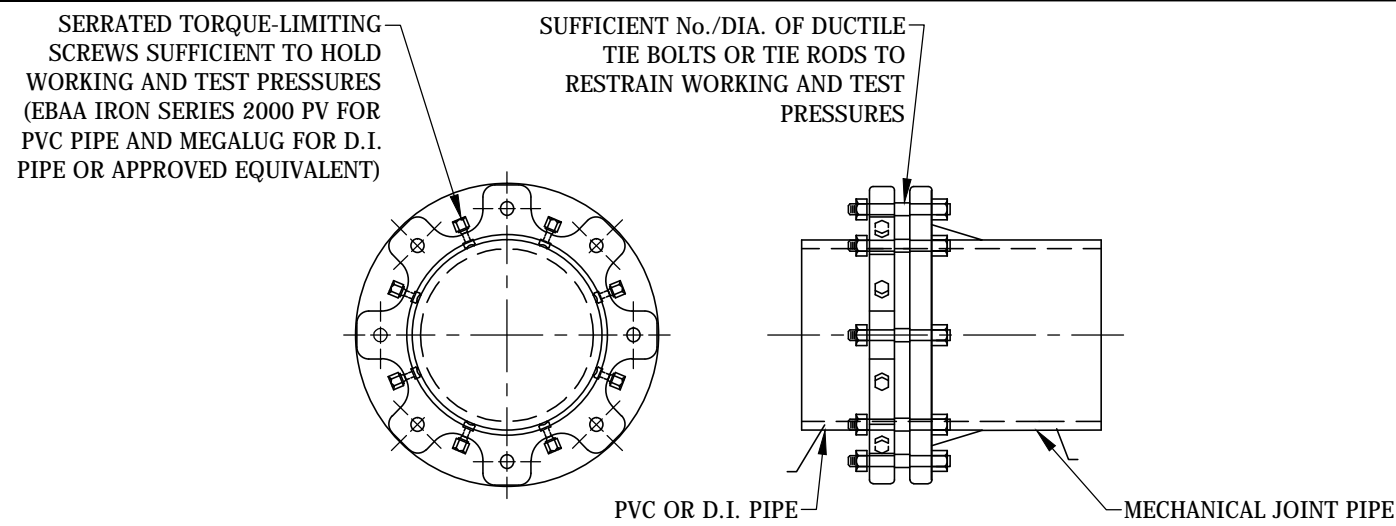
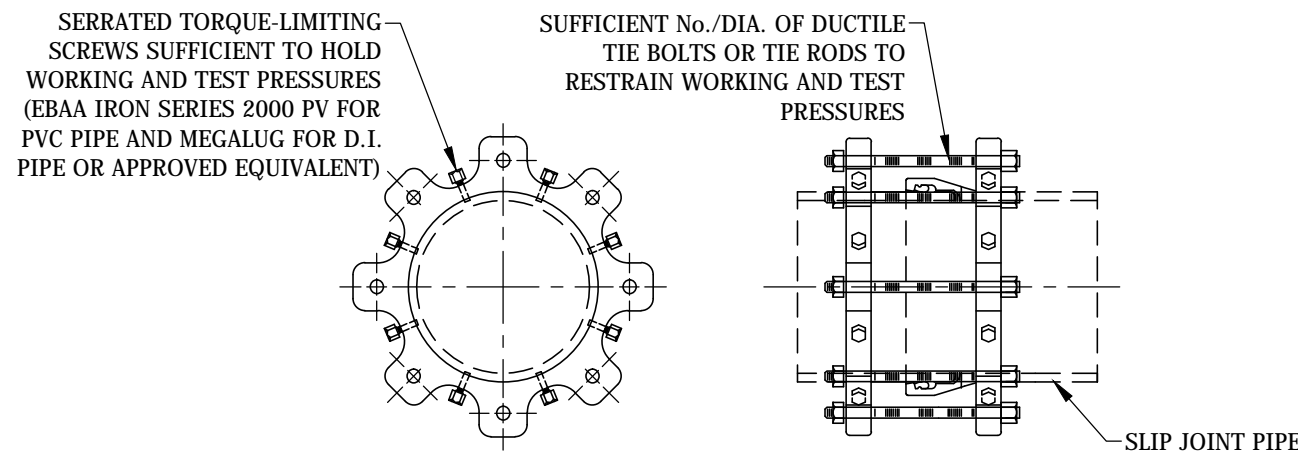


File: J:\ENGINEER\AUTOCAD\Standards\Detail Drawings\Water\02-DETAILS-DW09 thru DW16.dwg



RESTRAINED JOINTS ON MECHANICAL JOINT PIPE & FITTINGS

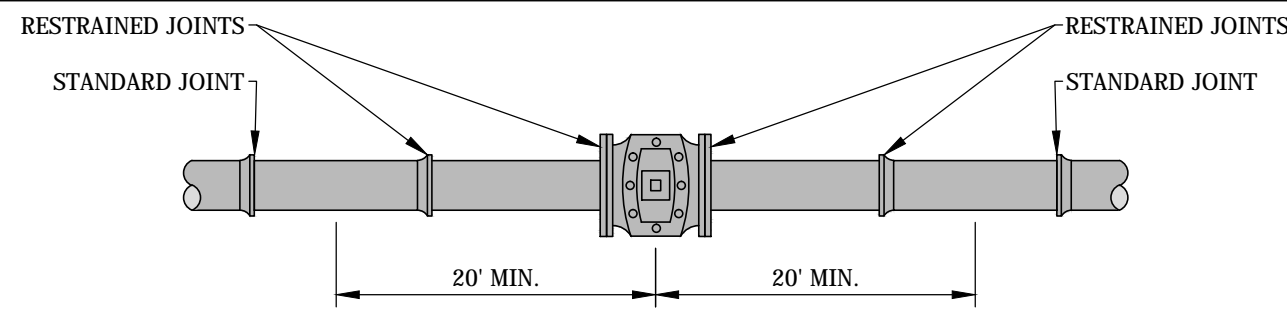


RESTRAINED JOINTS ON SLIP JOINT PIPE
(USING GRIPPING TYPE RETAINERS)

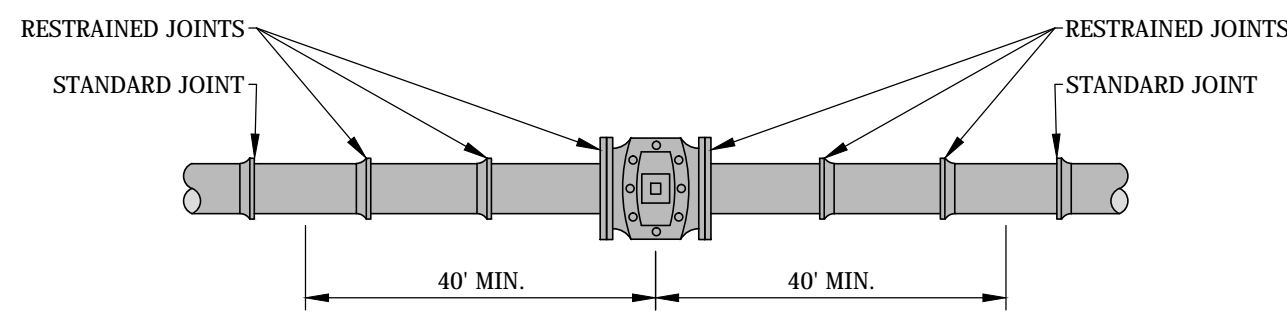
MINIMUM FOOTAGE OF RESTRAINED PIPE FOR VARIOUS DIAMETERS & DEGREES CAST & DUCTILE IRON ELBOWS									
COVER DIA. MAIN	DEGREE OF ELBOW				VERTICAL OFFSET 45°		BRANCH OF TEE	REDUCER (LARGE SIDE ONLY)	
	11 1/4°	22 1/2°	45°	90°	UPPER BEND (3')	LOWER BEND (3')			
6"	2'	5'	10'	25'	49'	10'	9'	159'	
10"	4'	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)

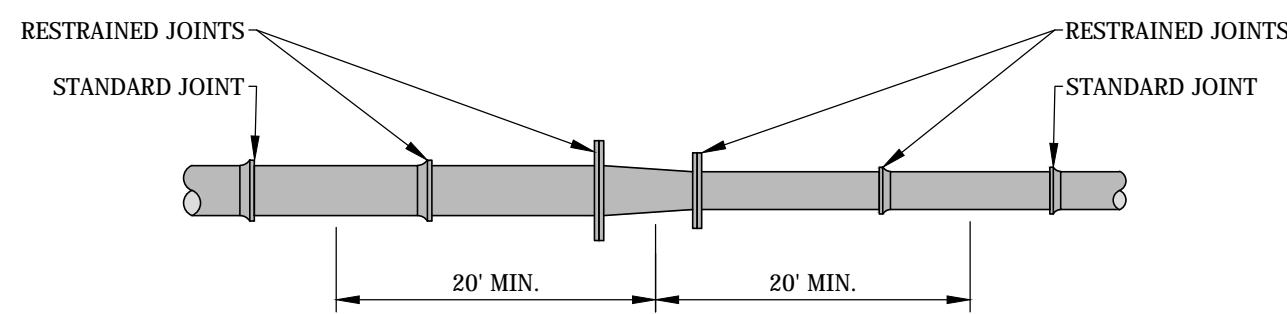
SCALE: N.T.S.



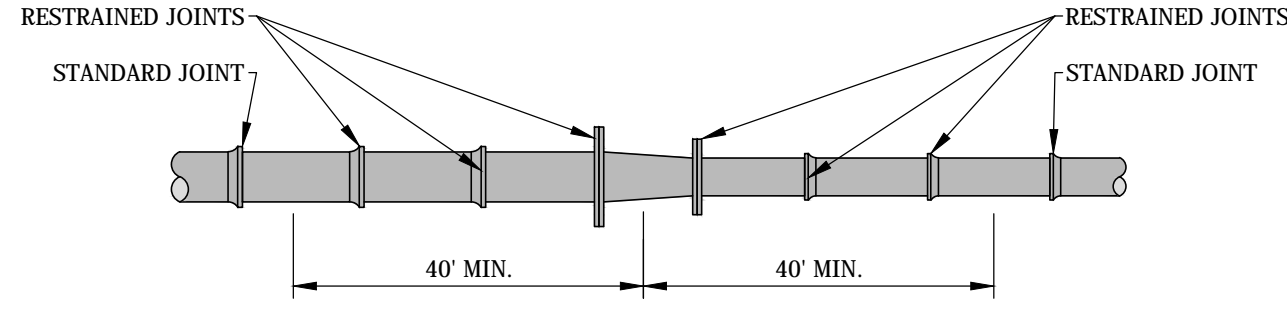
VALVES (NON-DEAD END) 8" AND SMALLER



VALVES (NON-DEAD END) 12" AND LARGER



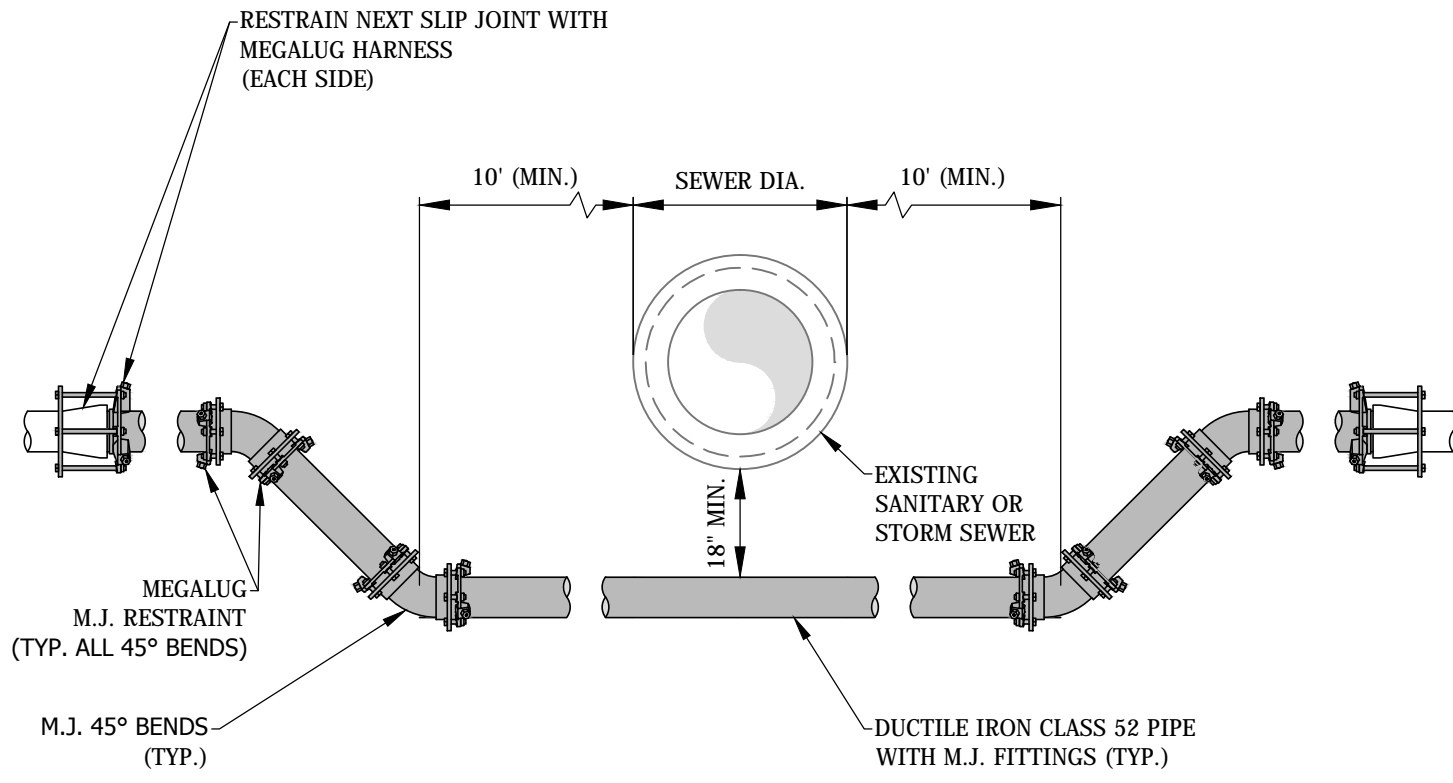
REDUCERS - LARGER PIPE DIAMETER IS 8" OR SMALLER



REDUCERS - LARGER PIPE DIAMETER IS 12" OR LARGER

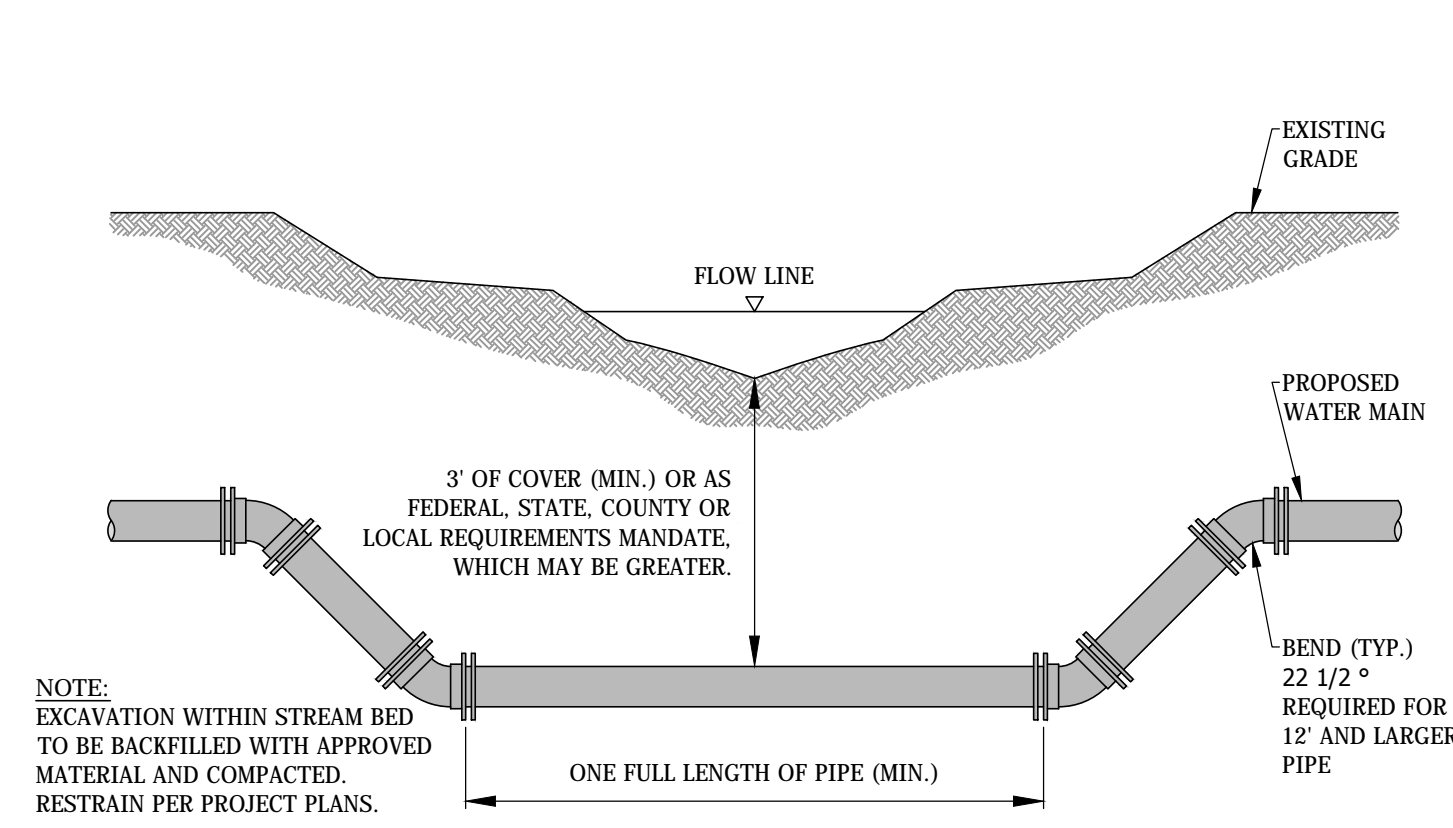
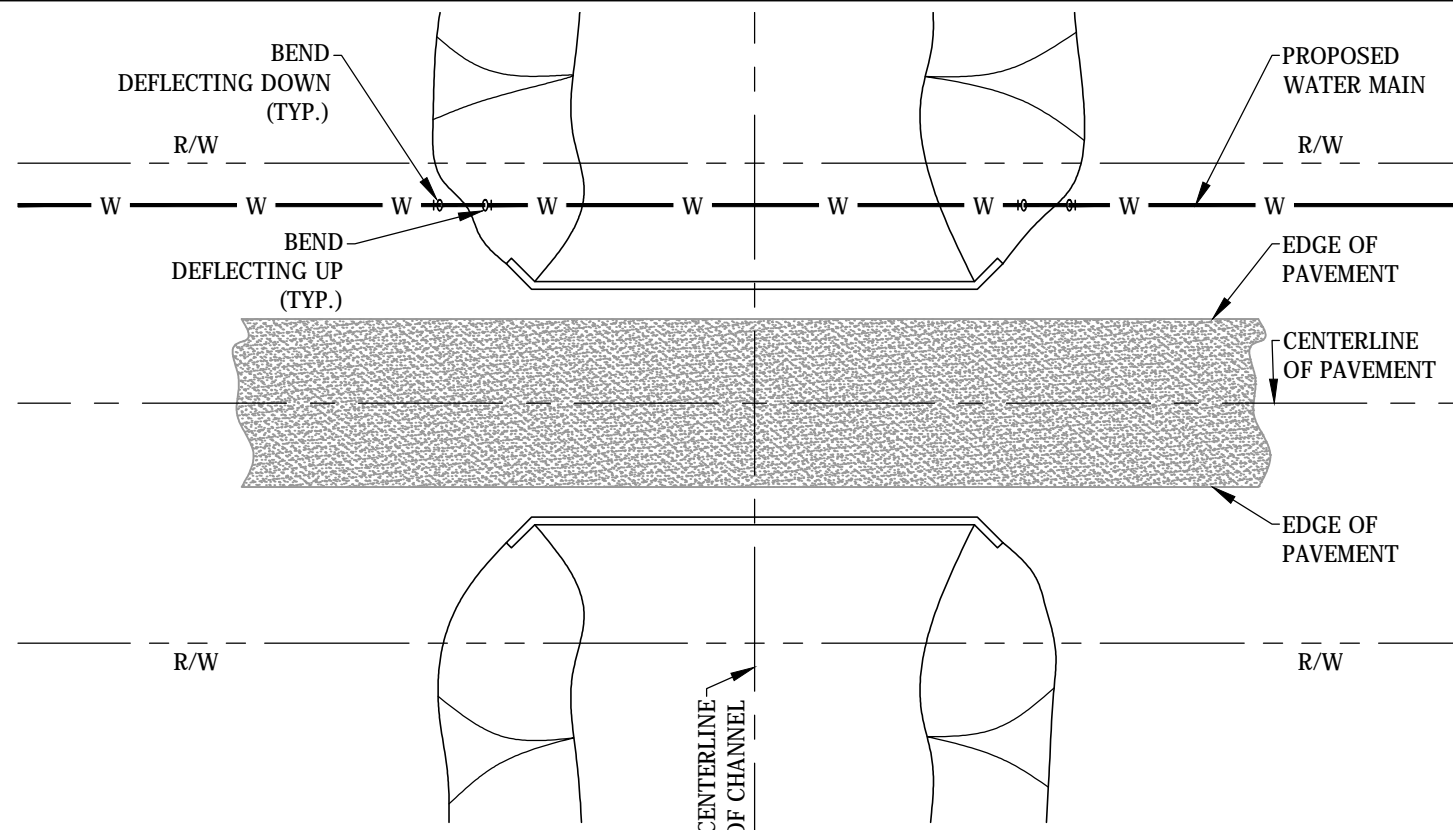
DW10 - TYPICAL RESTRAINING FOR VALVES AND REDUCERS

SCALE: N.T.S.



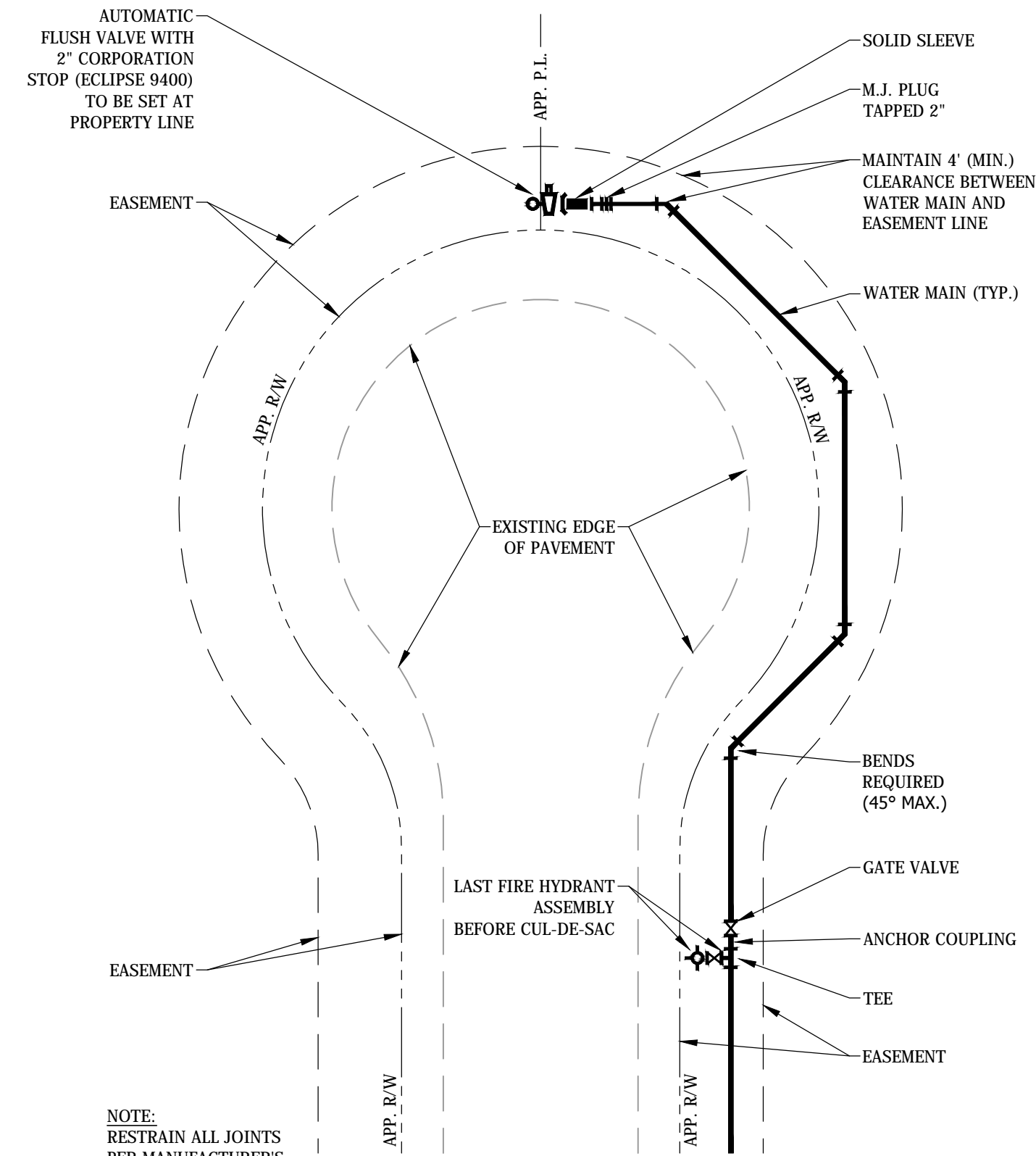
DW11 - TYPICAL OFFSET ASSEMBLY
(STORM OR SANITARY CROSSING)

SCALE: N.T.S.



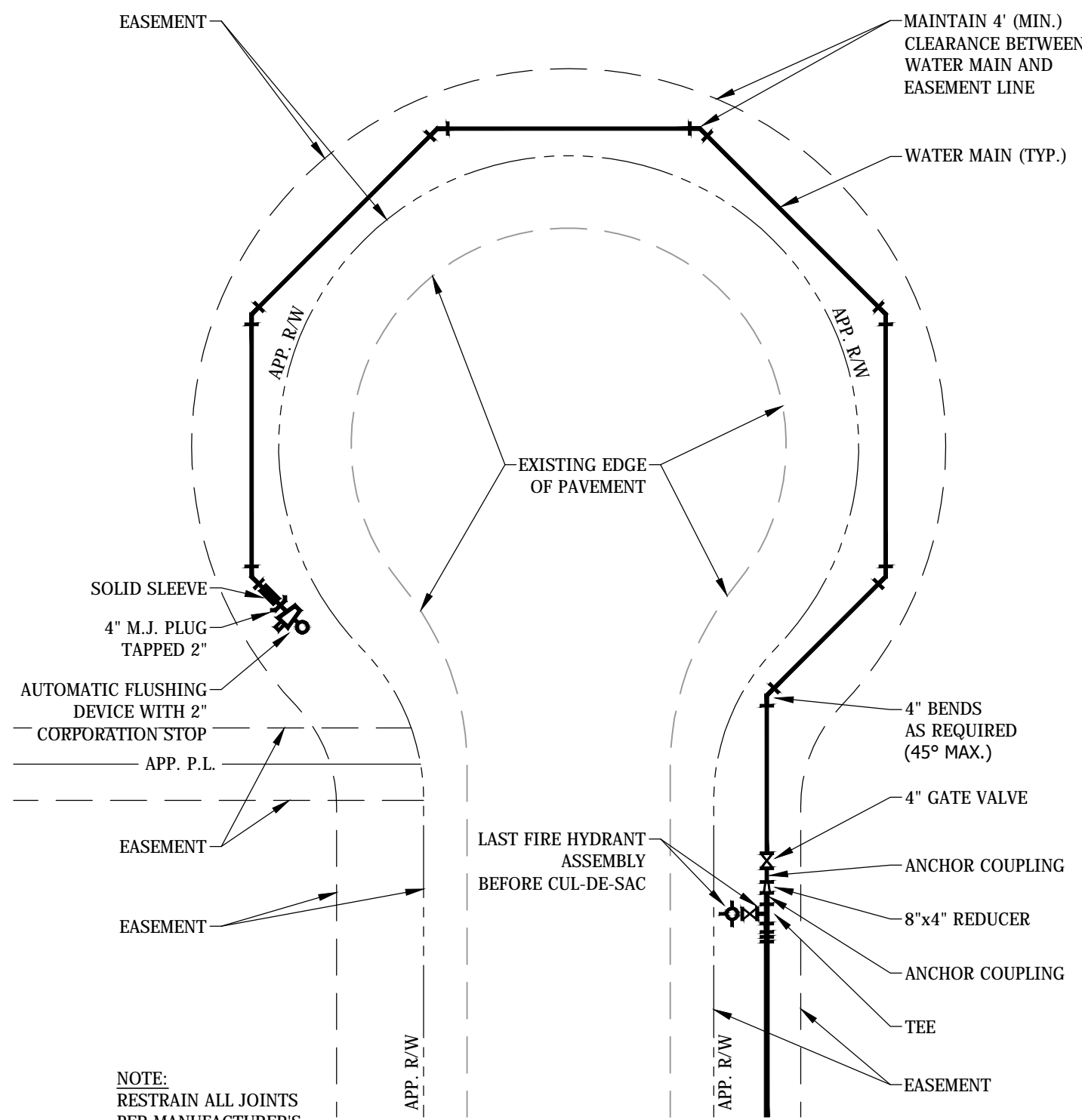
DW12 - TYPICAL CHANNEL CROSSING

SCALE: N.T.S.



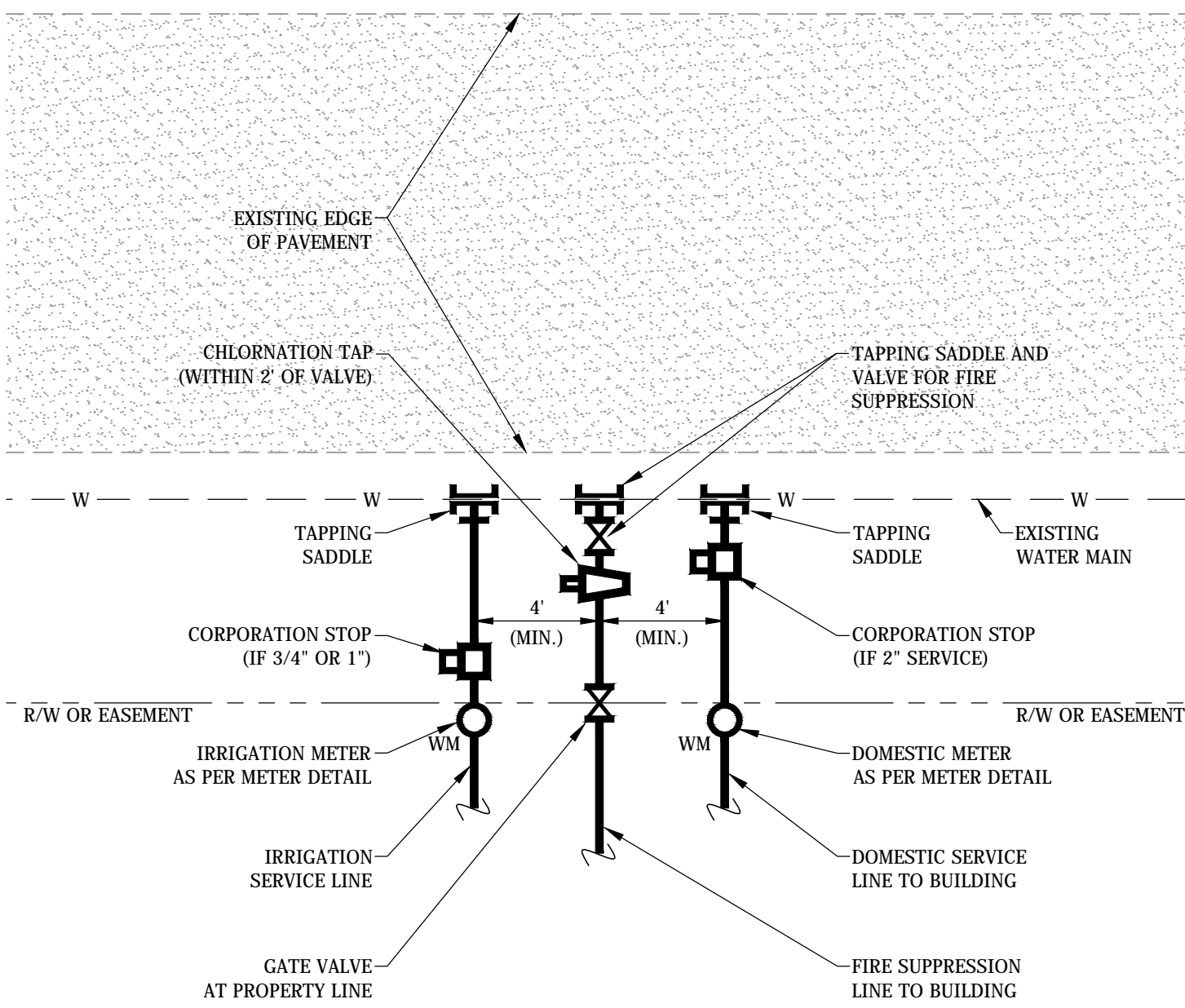
DW13 - WATER LINE LOCATION FOR CUL-DE-SAC
(8" OR 12" PIPE)

SCALE: N.T.S.



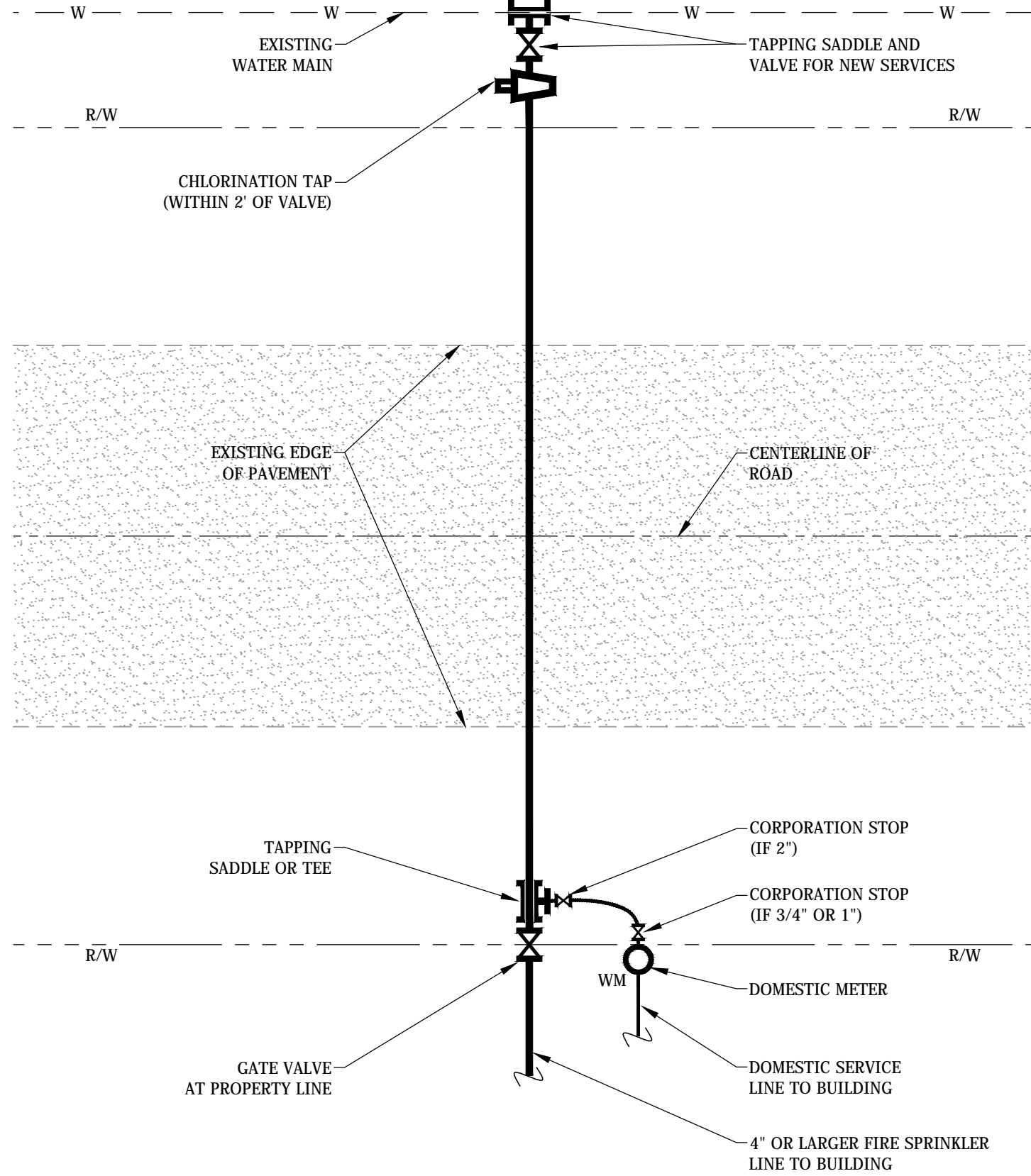
DW14 - WATER LINE LOCATION FOR CUL-DE-SAC
(4" PIPE)

SCALE: N.T.S.



DW15 - TYPICAL COMMERCIAL SERVICE CONNECTIONS
(SAME SIDE OF ROADWAY)

SCALE: N.T.S.



DW16 - TYPICAL COMMERCIAL SERVICE CONNECTIONS
(ROAD BORING REQUIRED)

SCALE: N.T.S.

APPROVED:	11/10/15	ADOPTED:	11/10/15	11/10/15
APPROVED BY:	M.D.L.	SCALE:	N.T.S.	
FIGURES:	DW-09 THROUGH DW-16			
APPROVED:				
TITLE:				

EVANSVILLE WATER AND SEWER UTILITY
1931 Allens Lane - Evansville, IN 47720 (812) 421-2126

STANDARD WATER DETAILS

THE CITY OF EVANSVILLE
INDIANA
19900215
STATE OF INDIANA
PROFESSIONAL ENGINEER
Michael D. Bittke
November 10, 2015

REVISIONS	APPROVED
DATE	DESCRIPTION

DRAWING NO: 1

SHEET NO: 2 of 5