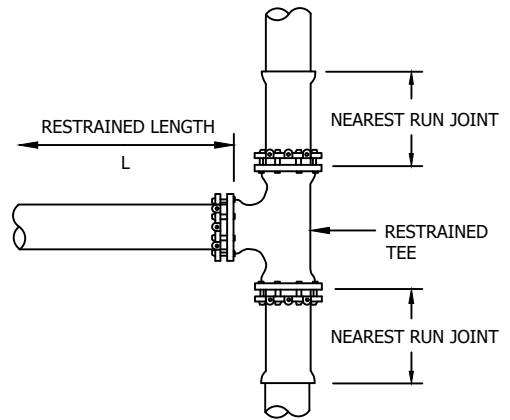
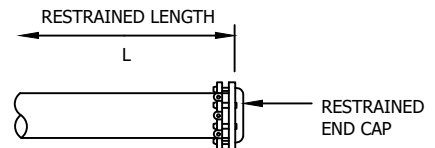


TABLE 2.1 - DEAD END, TEE, AND HORIZONTAL BENDS

CONNECTION CONDITION	RESTRAINED LENGTH, L (FT)		
	PVC	DUCTILE IRON	POLY WRAPPED DUCTILE
<b>6 INCH DIAMETER</b>			
DEAD END/TEE	40	25	73
90° HORIZONTAL BEND	15	12	17
45° HORIZONTAL BEND	6	5	7
22.5° HORIZONTAL BEND	3	3	4
11.25° HORIZONTAL BEND	2	2	2
<b>8 INCH DIAMETER</b>			
DEAD END/TEE	53	33	95
90° HORIZONTAL BEND	19	16	22
45° HORIZONTAL BEND	8	7	10
22.5° HORIZONTAL BEND	4	4	5
11.25° HORIZONTAL BEND	2	2	3
<b>12 INCH DIAMETER</b>			
DEAD END/TEE	74	46	134
90° HORIZONTAL BEND	26	22	31
45° HORIZONTAL BEND	11	9	13
22.5° HORIZONTAL BEND	6	5	6
11.25° HORIZONTAL BEND	3	3	3



TYPICAL TEE CONNECTION



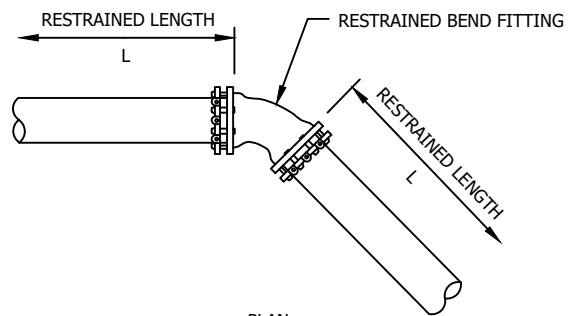
TYPICAL DEAD END CONNECTION

TABLE 2.2 - CALCULATION ASSUMPTIONS

CONDITION	VALUE
LAYING CONDITION	TYPE 4
SOIL CLASSIFICATION	GOOD SAND (GW)
DEPTH OF COVER	3 FEET MIN.
DESIGN/TEST PRESSURE	1.5 X OPERATING PRESSURE
OPERATING PRESSURE	VARIES PER PLAN
NEAREST RUN JOINT FOR TEE	1 FOOT
SAFETY FACTOR	1.0 <sup>2</sup>

1. RESTRAINED LENGTHS FOR TEES CALCULATED USING EQUAL RUN AND BRANCH DIAMETERS.
2. RESTRAINED LENGTHS CALCULATED USING SAFETY FACTOR = 1.0. WHEN A DIFFERENT SAFETY FACTOR IS TO BE USED, MULTIPLY RESTRAINED LENGTHS BY THAT SAFETY FACTOR.

NOTE: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE INFORMATION SHOWN HEREON PRIOR TO ITS USE.



PLAN

TYPICAL HORIZONTAL BEND CONNECTION



DATE REVISED

11-24-2021

**CITY OF MANHATTAN BEACH  
DEPARTMENT OF PUBLIC WORKS**

**RESTRAINED LENGTH TABLES HORIZONTAL**

APPROVED BY

PREM KUMAR, CITY ENGINEER

12/02/2021

DATE

STANDARD PLAN NUMBER

**MBWS-709A-0**

SHEET 1 OF 1