

MINIMUM RESTRAINED LENGTHS (IN FEET) BACK FROM BOTH SIDES OF FITTING

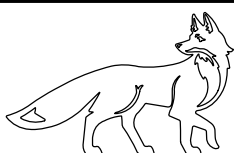
Fitting type/nominal size	4"	6"	8"	10"	12"	16"
90 Degree Bend	17	25	32	38	45	59
45 Degree Bend	7	10	13	16	19	24
22.5 Degree Bend	3	5	6	8	9	12
11.25 Degree Bend	2	2	3	4	4	6
Dead End	39	55	73	87	103	134
Top Side Vertical Offset * (45 Degree)	16	23	30	36	43	55
Bottom Side Vertical Offset * (45 Degree)	4	6	8	10	11	15
Tee Run X Branch **						
6" by	1	17				
8" by	1	5	34			
10" by	1	1	24	49		
12" by	1	1	15	41	65	
16" by	1	1	1	26	52	95
Reducer ***						
6" by	28					
8" by	52	30				
10" by	71	54	29			
12" by	90	75	55	51		
16" by	123	113	97	94	54	

* Vertical offset with minimum 10' of solid pipe between upper and lower bend.

** Tee with MINIMUM 10' solid pipe on both sides of run.

Number indicates length of branch to be restrained.

*** Length back from Large Eng of Reducer.



CITY OF ST. CHARLES
ILLINOIS • SINCE 1834
Pride of the Fox

WATER MAIN RESTRAINT

DATE: 5-12-2021

NOT TO SCALE

REVISED:

DRAWING NO. B-09