

REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR D.I.P. (NON-WRAPPED)

MAIN PIPE SIZE	HORIZ. BENDS			*TEES					REDUCERS			PLUGS
	90°	45°	22.5°	SIZE					SIZE			
				LENGTH					LENGTH			
48	104	43	21	X48 146	X42 108	X36 71	X30 32	X24 1	X42 48	X36 88	X30 122	203
42	95	40	19	X42 127	X36 89	X30 49	X24 9	X20 1	X36 48	X30 89	X24 122	183
36	86	36	17	X36 109	X30 68	X24 26	X20 1	X16 1	X30 50	X24 89	X20 111	163
30	75	31	15	X30 88	X24 45	X20 15	X16 1	X12 1	X24 50	X20 77	X16 100	141
24	63	27	13	X24 66	X20 35	X16 2	X12 1	X10 1	X20 36	X16 64	X12 87	118
20	55	23	11	X20 50	X16 18	X12 1	X10 1	X8 1	X16 36	X12 64	X10 75	101
16	46	19	10	X16 34	X12 1	X10 1	X8 1		X12 36	X10 50	X8 61	84
12	36	15	8	X12 17	X10 1	X8 1	X6 1		X10 20	X8 35	X6 48	65
10	31	13	7	X10 7	X8 1	X6 1			X8 19	X6 34	X4 45	56
8	26	11	6	X8 1	X6 1	X4 1			X6 20	X4 34		47
6	20	9	4	X6 1	X4 1				X4 19			36
4	15	6	3	X4 1								25

NOTES:

- 1.) RESTRAIN TO NEXT FULL JOINT BEYOND GIVEN LENGTH.
- 2.) RESTRAIN 11.25° BENDS 50% OF LENGTH FOR 22.5° BENDS.
- 3.) ALL VALVES AND FITTINGS SHALL BE RESTRAINED TO THE CONNECTING SECTIONS OF PIPE.
- 4.) PIPE ADJACENT TO IN-LINE VALVES 10" AND SMALLER SHALL BE RESTRAINED FOR 20' ON EACH SIDE, INCLUDING THE VALVE-TO-PIPE CONNECTION. ALL PIPE ADJACENT TO IN-LINE VALVES 12" AND LARGER SHALL BE RESTRAINED FOR A DISTANCE 1/4 OF REQ'D PLUG (DEAD END) LENGTH ON EACH SIDE, INCLUDING THE VALVE-TO-PIPE CONNECTION.
- 5.) PIPE SIZES ARE GIVEN IN INCHES.
- 6.) PIPE LENGTHS ARE GIVEN IN FEET.
- 7.) LENGTHS SHOWN ARE FOR A TEST PRESSURE OF 150 PSI.
- 8.) RESTRAINED LENGTHS FOR TEES REPRESENTS LENGTH ON BRANCH. RESTRAINED LENGTHS FOR REDUCERS REPRESENTS LENGTH ON LARGE END OF REDUCER.
- 9.) RESTRAINED LENGTHS ARE TO BE USED FOR POTABLE WATER.
- 10.) THE RESTRAINED LENGTHS SHOWN IN THESE TABLES ARE BASED ON THE USE OF LIGHTLY COMPACTED CLEAN SAND WITH AT LEAST A 95% COARSE PARTICLE CONTENT. ACTUAL SOIL CONDITIONS MUST BE DETERMINED BY THE ENGINEER OF RECORD AND THE RESTRAINED LENGTHS MODIFIED ACCORDINGLY. SAFETY FACTOR OF 1.5:1 TO BE CALCULATED WITH A "SM" SOIL TYPE AND TRENCH TYPE "3".

*MAIN TO BE RESTRAINED 20' ON EACH SIDE OF BRANCH

CITY OF P.C.B. UTILITIES DEPARTMENT		RESTRAINED LENGTHS FOR D.I.P. POTABLE & REUSE WATER	M-16
REV.	DATE		
1	MAR '12		
..... _____ DATE OF APPROVAL			

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