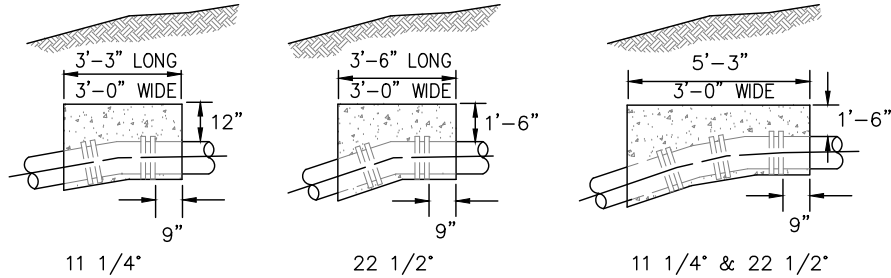
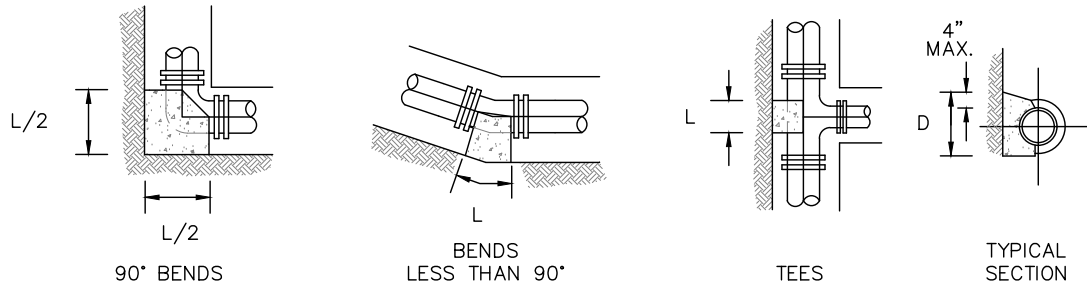


**DETAIL - END OF WATER LINE**



BENDS								
SIZE OF PIPE	DEGREE OF BEND							
	11 1/4°		22 1/2°		45°		90°	
	L	D	L	D	L	D	L	D
3", 4", 6"	8"	6"	10"	6"	20"	6"	36"	6"
8"	9"	8"	14"	8"	24"	9"	50"	8"
12"	14"	12"	22"	12"	30"	16"	60"	15"
16"	18"	16"	24"	18"	33"	36"	70"	22"

**CONCRETE BLOCKING FOR VERTICAL BENDS**



TEES								
RUN	BRANCH							
	3", 4", 6"		8"		12"		16"	
	L	D	L	D	L	D	L	D
3", 4", 6"	16"	6"	18"	8"	24"	12"	30"	16"
8"	14"	8"	18"	12"	24"	18"	30"	26"
12"	9"	12"	18"	12"	24"	18"	30"	26"
16"	8"	16"	14"	16"	28"	16"	30"	26"

**NOTES**

A. CARE SHALL BE TAKEN TO KEEP CONCRETE AWAY FROM MECHANICAL JOINTS BY PLACING VISQUEEN OR OTHER APPROVED MATERIAL OVER PIPE BEFORE PLACING OF CONCRETE. BOLTS SHALL NOT BE ENCASED IN CONCRETE.

B. BLOCKING SHALL BE USED ONLY WITH RESTRAINTS OR AS APPROVED BY CITY ENGINEER. CONCRETE FOR BLOCKING SHALL CONFORM TO SECTION ODOT 499 CLASS C.

C. CONTRACTOR SHALL USE THE THRUST BLOCKS AS SHOWN ONLY IF PREAPPROVED FOR SPECIAL CONDITION BY THE CITY PRIOR TO BEGINNING CONSTRUCTION AND IT IS DISCOURAGED.

**CONCRETE BLOCKING FOR HORIZONTAL BENDS**