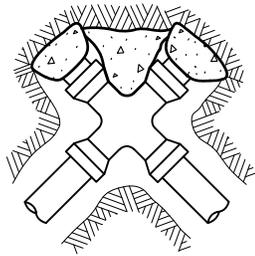
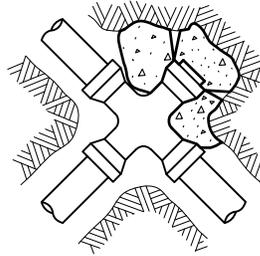




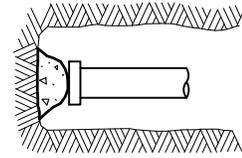
UNBALANCED CROSS
(Use Column A)



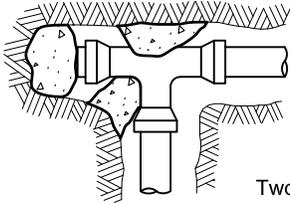
PLUGGED CROSS
(Use Column B)



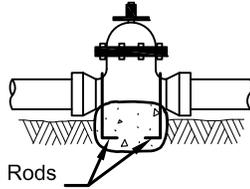
PLUGGED CROSS
(Use Column A)



DEAD END

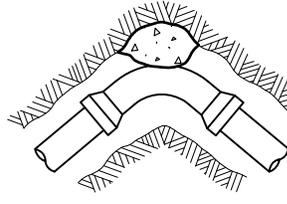


PLUGGED TEE
(Use Column B)

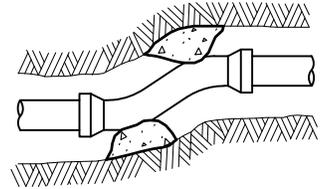


Two 1" DIA. Rods
See Note 4

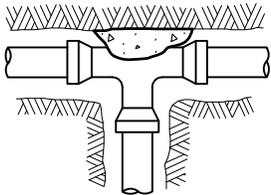
VALVE
(Use Column A)



BEND



OFFSET
Use Columns B - E



TEE

Size	Test Pressure PSI	Thrust at Fittings in Pounds				
		A	B	C	D	E
		Tee and Dead Ends	90° Bend	45° Bend	22.5° Bend	11.25° Bend
4"	250	3,140	4,440	2,405	1,225	615
6"	250	7,070	9,995	5,410	2,760	1,385
8"	250	12,565	17,770	9,620	4,905	2,465
10"	250	19,635	27,770	15,030	7,660	3,850
12"	250	28,275	39,985	21,640	11,030	5,545
14"	250	38,485	54,425	29,455	15,015	7,545
16"	250	50,265	71,085	38,470	19,615	9,855

NOTES:

- Contractor to provide blocking adequate to withstand full test pressure.
- Divide thrust by safe bearing load to determine required area (in square feet) of concrete to distribute load.
- Areas to be adjusted for other pressure conditions.
- Provide two 1" minimum diameter rods on valves up through 10" diameter. Valves larger than 10" require special tie rod design.
- Concrete thrust blocking to be poured against undisturbed earth.
- Keep concrete clear of joint and accessories.

ALL WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE LATEST EDITION OF THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION

Soil Type	Safe Bearing Load PSF
Muck, peat, etc.	0
Soft clay	1,000
Sand	2,000
Sand and gravel	3,000
Sand and gravel cemented with clay	4,000
Hard shale	10,000

KMC
DESIGNED BY
JMC 2/8/06
DRAWN BY
BAB
APPROVED BY
4/30/12
DATE

**THRUST BLOCKING
DETAILS**

N T S



DEPARTMENT
OF PUBLIC
WORKS

1600-13TH AVENUE SOUTH
KELSO, WASHINGTON
98626

DRAWING:CC-1903

SHEET
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