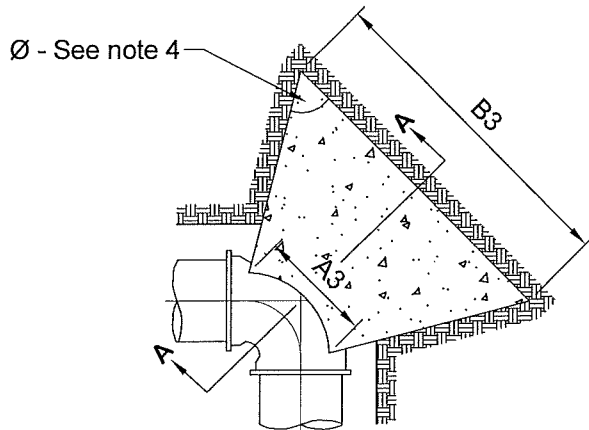


NOTES:

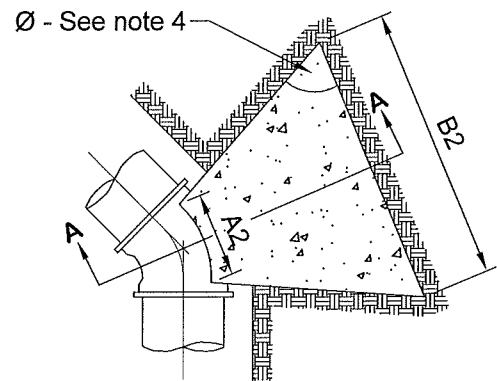
1. Shape of back of buttress may vary as long as poured against firm undisturbed earth.
2. Dimension C1, C2, & C3 should be large enough to make angle \emptyset equal to or larger than 45° .
3. Dimension A1, A2, & A3 should be as large as possible without interfering with MJ bolts.
4. $\emptyset = 45^\circ$ Minimum.
5. Place polyethylene between concrete & pipe.

BUTTRESS DIMENSIONS

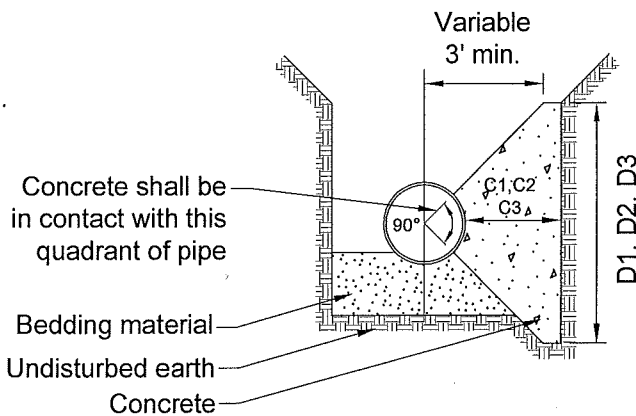
PIPE SIZE	22 1/2° BEND		45° BEND		90° BEND	
	B1	D1	B2	D2	B3	D3
6"	1'-5"	1'-5"	1'-5"	1'-5"	2'-1"	1'-6"
8"	1'-5"	1'-5"	2'-1"	1'-6"	2'-8"	2'-0"
12"	1'-10"	1'-10"	3'-4"	2'-0"	4'-9"	2'-6"
16"	3'-0"	2'-0"	3'-10"	3'-0"	6'-2"	3'-6"
20"	3'-6"	2'-8"	5'-6"	3'-4"	8'-4"	4'-0"
24"	4'-4"	3'-0"	6'-10"	3'-10"	9'-8"	5'-0"
30"	-	-	9'-3"	6'-0"	17'-0"	6'-0"



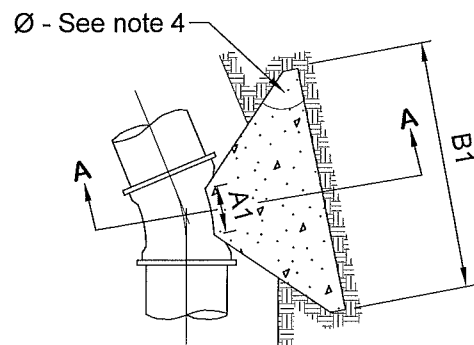
PLAN 90° BENDS



PLAN 45° BENDS



SECTION A-A



PLAN 22 1/2° BENDS

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City Plate No.:
WAT-7
Last Revision:
11/10/2009
File:
WAT_7.dwg

**STANDARD DETAILS
CONCRETE
THRUST BLOCKING**

City of Minot
ENGINEERING DEPARTMENT