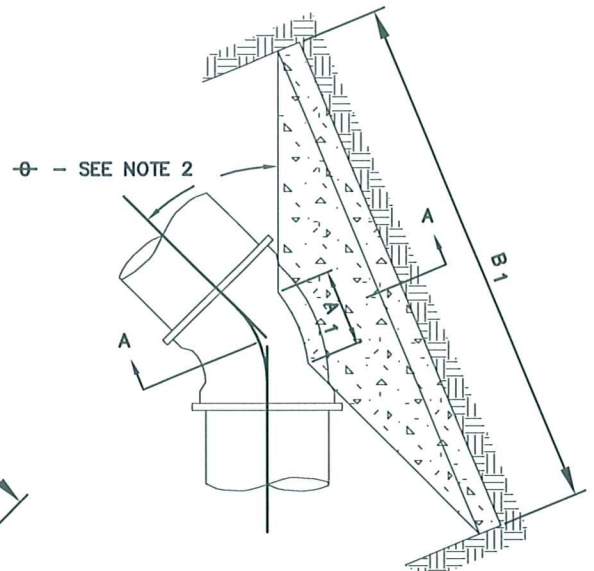
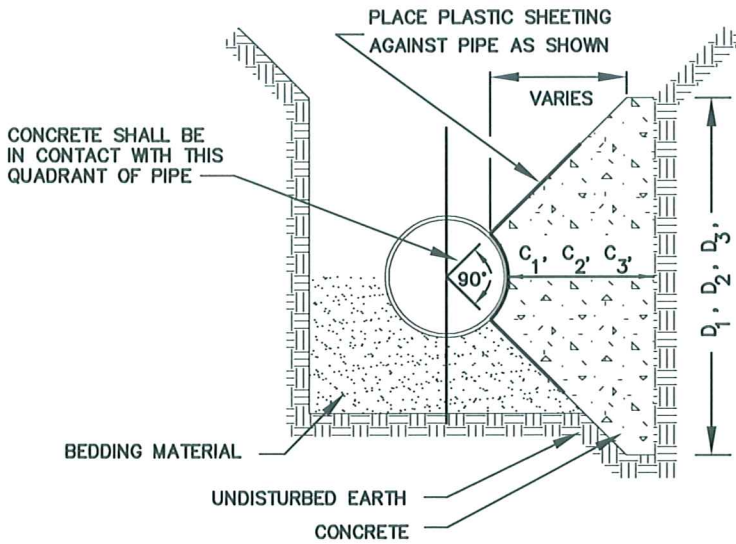


PLAN - 90° BENDS

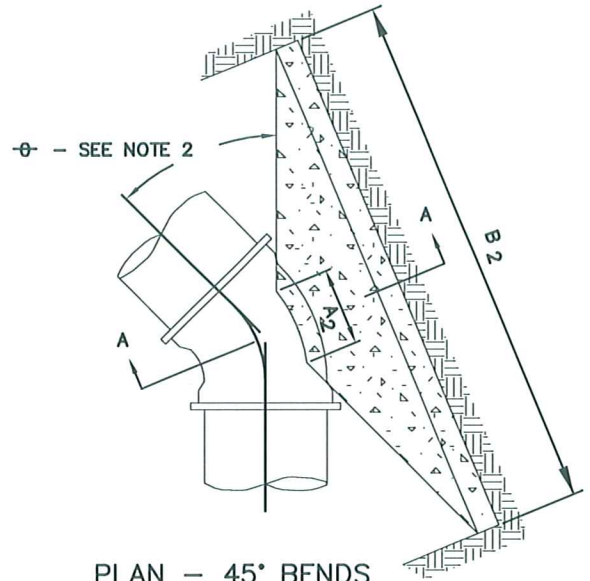


PLAN - 22 1/2°-45° BENDS



APPROXIMATE 1:1 SLOPE WHERE  
DEPTH BELOW PIPE EXCEEDS 6".

SECTION A-A



PLAN - 45° BENDS

**NOTES:**

1. DIMENSIONS IN TABLE ARE BASED ON A WATER PRESSURE OF 150 PSI AND AN EARTH RESISTANCE OF 1 TON PER SQ. FT.
2. DIMENSION C1,C2,C3 SHOULD BE AS LARGE ENOUGH TO MAKE ANGLE > 45 DEGREES.
3. DIMENSION A1,A2,A3 SHOULD BE AS LARGE AS POSSIBLE WITHOUT INTERFERING WITH M.J. BOLTS.
4. SHAPE OF BACK OF BUTTRESS MAY VARY AS LONG AS POUR IS AGAINST FIRM UNDISTURBED EARTH.
5. MEGA LUGS MAY BE USED IN CONJUNCTION WITH MIXED CONCRETE THRUST BLOCKING.
6. READY MIX CONCRETE ONLY MAY BE USED (MNDOT SPEC. 2461, GRADE 'B')

**BUTTRESS DIMENSIONS**

PIPE SIZE	22 1/2° BEND		45° BEND		TEES/90° BEND	
	B 1	D 1	B 2	D 2	B 3	D 3
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"



CITY OF EDINA  
ENGINEERING  
& PUBLIC  
WORKS  
DEPTS.

**CONCRETE THRUST BLOCK**

*Wagner Houls*  
APPROVED: CITY ENGINEER

REVISED:  
04-09

STANDARD  
PLATE  
120