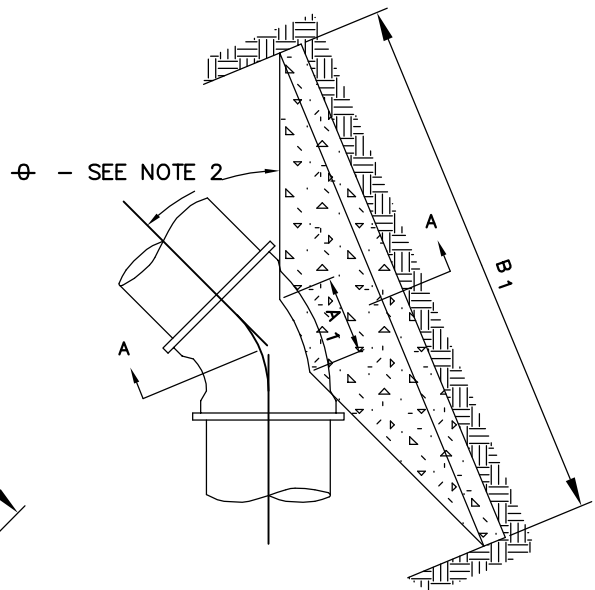
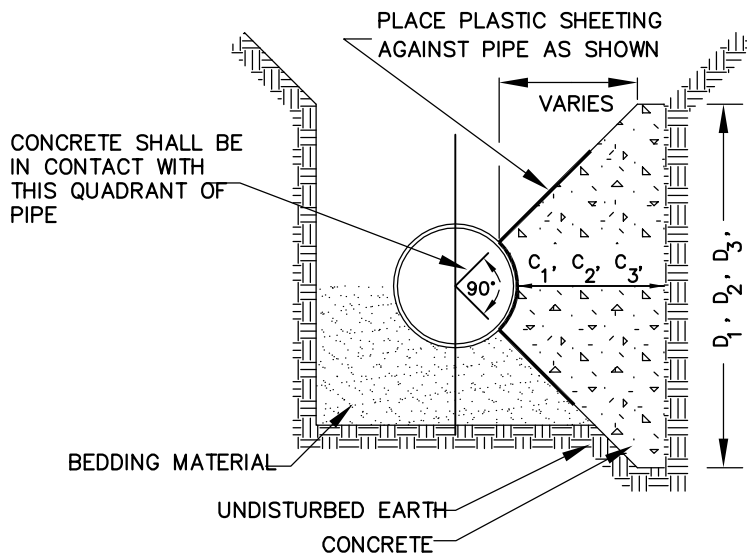


PLAN - 90° BENDS

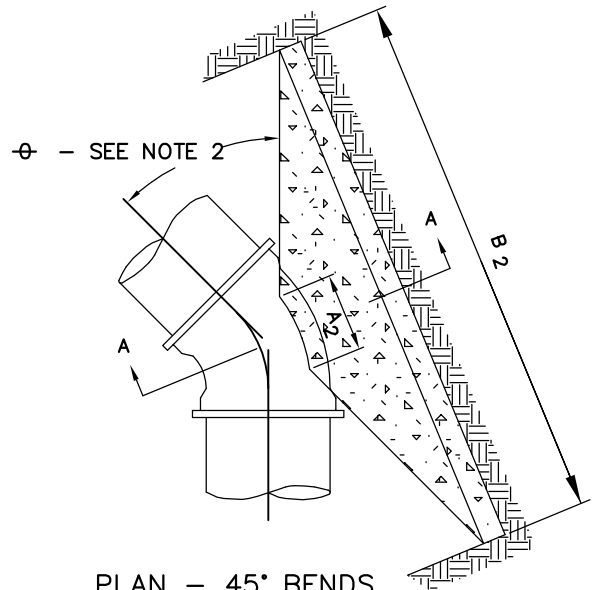


PLAN - 22 1/2°-45° BENDS



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

SECTION A-A



PLAN - 45° BENDS

NOTES:

DIMENSIONS IN TABLE ARE BASED ON A WATER PRESSURE OF 150 PSI AND AN EARTH RESISTANCE OF 1 TON PER SQ. FT.

DIMENSION C1, C2, C3 SHOULD BE AS LARGE ENOUGH TO MAKE ANGLE ≥ 45°

DIMENSION A1, A2, A3 SHOULD BE AS LARGE AS POSSIBLE WITHOUT INTERFERING WITH M.J. BOLTS.

SHAPE OF BACK OF BUTTRESS MAY VARY AS LONG AS POUR IS AGAINST FIRM UNDISTURBED EARTH.

MEGA LUGS MAY BE USED IN CONJUNCTION WITH MIXED CONCRETE THRUST BLOCKING.

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	
	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"



LAST REVISION
NOVEMBER 2014

CONCRETE THRUST BLOCKING

CITY OF MAPLE GROVE ENGINEERING
& PUBLIC WORKS DEPARTMENTS

STANDARD
PLATE #
WM-11