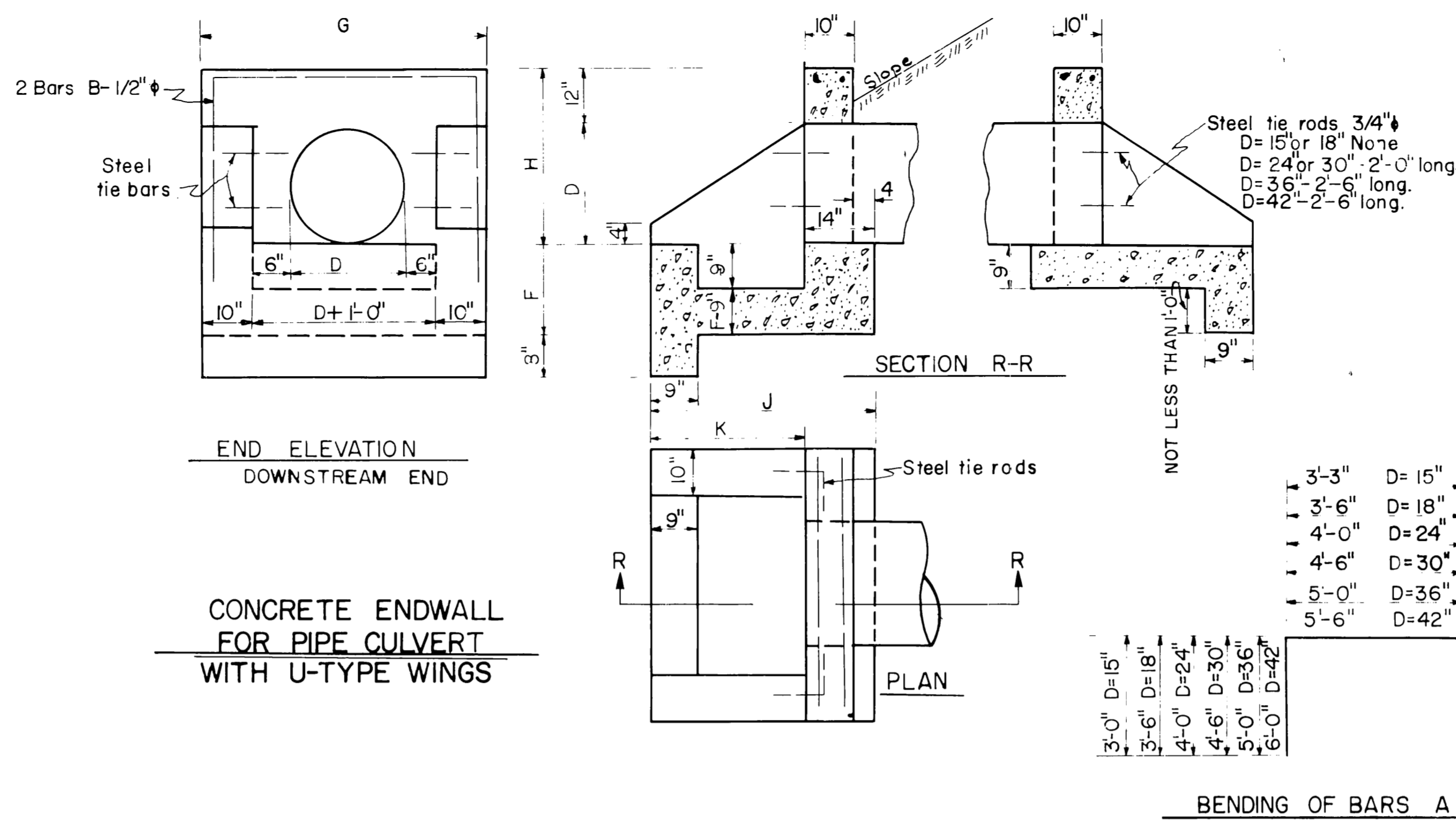
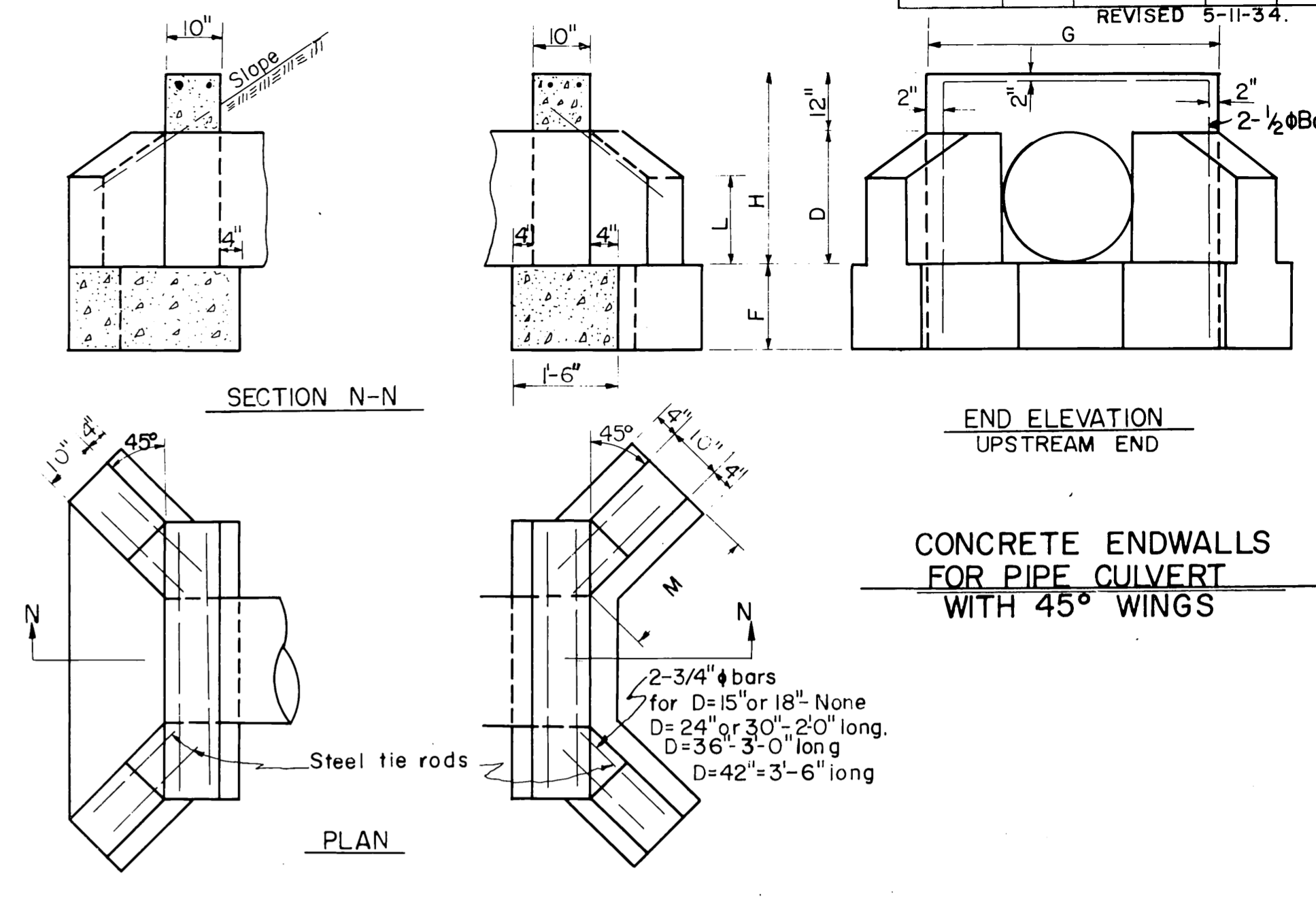


CONCRETE ENDWALL FOR PIPE CULVERT WITH STRAIGHT WINGS



CONCRETE ENDWALL FOR PIPE CULVERT WITH U-TYPE WINGS



CONCRETE ENDWALLS FOR PIPE CULVERT WITH 45° WINGS

DIMENSIONS & QUANTITIES FOR STRAIGHT ENDWALL

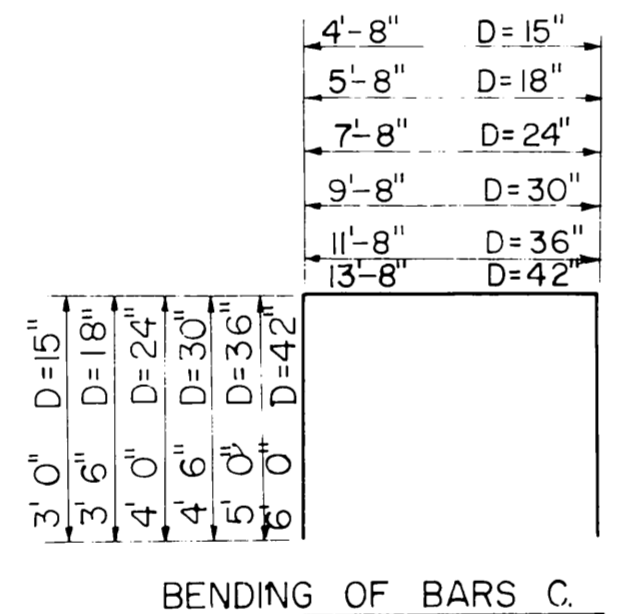
OPENING D	DIMENSIONS		CONCRETE IN ENDWALL CLASS A				REINF. STEEL IN ENDWALL LBS.
	Area Sq. Ft.	WALL	FOOTING	WALL	FOOTING	TOTAL	
15"	1.2	5'-0"	2'-3"	1'-2"	1'-10"	1'-2"	15
18"	1.8	6'-0"	2'-6"	1'-3"	1'-11"	1'-3"	17
24"	3.1	8'-0"	3'-0"	1'-4"	2'-0"	1'-4"	21
30"	4.9	10'-0"	3'-6"	1'-6"	2'-2"	1'-6"	25
36"	7.1	12'-0"	4'-0"	1'-8"	2'-4"	1'-8"	29
42"	9.6	14'-0"	4'-6"	1'-10"	2'-6"	1'-10"	35

TABLE OF DIMENSIONS & QUANTITIES FOR ENDWALL WITH U-TYPE WINGS

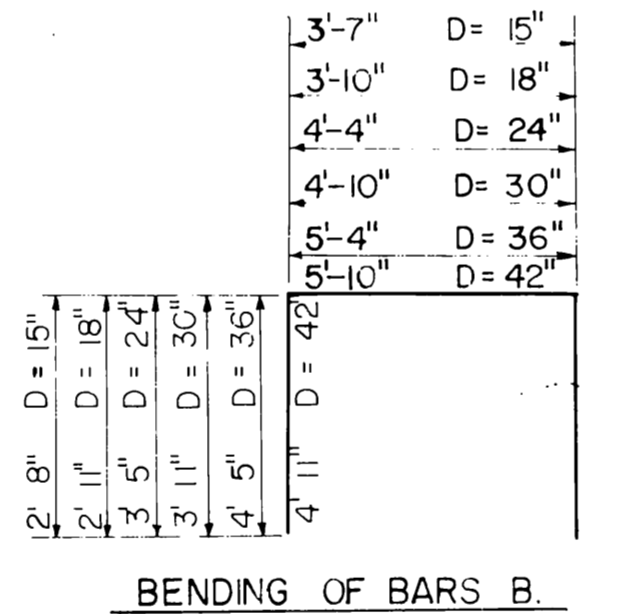
OPENING D	DIMENSIONS		QUANTITIES IN ONE ENDWALL				REINF. STEEL LBS.	ADDITIONAL MATERIAL REQUIRED FOR CATCH BASIN
	Area Sq. Ft.	WALL	FOOTING	WALL	FOOTING	TOTAL		
15"	1.2	3'-11"	2'-3"	1'-6"	1'-3"	2'-8"	12	None
18"	1.8	4'-2"	2'-6"	1'-9"	1'-3"	2'-11"	13	None
24"	3.1	4'-8"	3'-0"	2'-6"	1'-6"	3'-8"	27	.29 Cu. Yd.
30"	4.9	5'-2"	3'-6"	3'-3"	1'-6"	4'-5"	29	.34 " "
36"	7.1	5'-8"	4'-0"	4'-0"	1'-9"	5'-2"	34	.67 " "
42"	9.6	6'-2"	4'-6"	4'-9"	1'-9"	5'-11"	36	.79 " "

TABLE OF DIMENSIONS & QUANTITIES FOR ENDWALLS WITH 45° WINGS

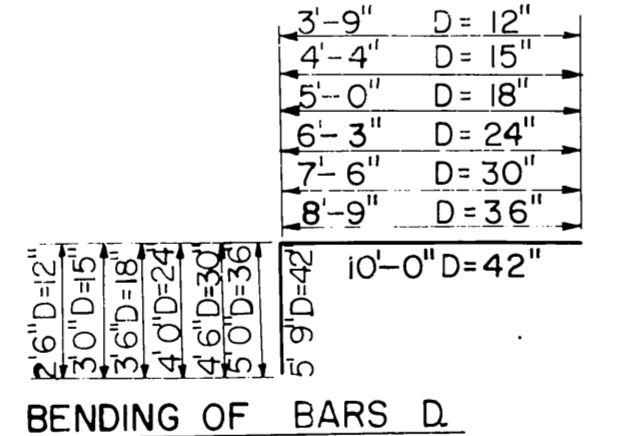
OPENING D	DIMENSIONS		QUANTITIES IN ONE ENDWALL				REINF. STEEL LBS.	ADDITIONAL MATERIAL REQUIRED FOR APRON
	Area Sq. Ft.	WALL	FOOTING	WALL	FOOTING	TOTAL		
15"	1.2	2'-3"	3'-7"	1'-0"	1'-11"	1'-2"	13	.02 Cu. Yd.
18"	1.8	2'-6"	3'-10"	1'-2"	1'-7"	1'-3"	14	.07 " "
24"	3.1	3'-0"	4'-4"	1'-5"	2'-11"	1'-4"	28	.16 " "
30"	4.9	3'-6"	4'-10"	1'-9"	2'-5"	1'-6"	30	.27 " "
36"	7.1	4'-0"	5'-4"	2'-0"	2'-11"	1'-8"	38	.47 " "
42"	9.6	4'-6"	5'-10"	2'-3"	3'-6"	1'-10"	45	.77 " "



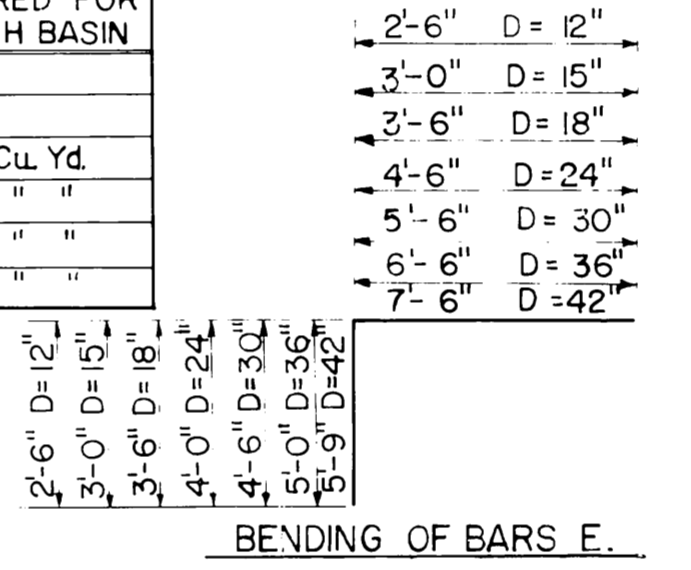
BENDING OF BARS C.



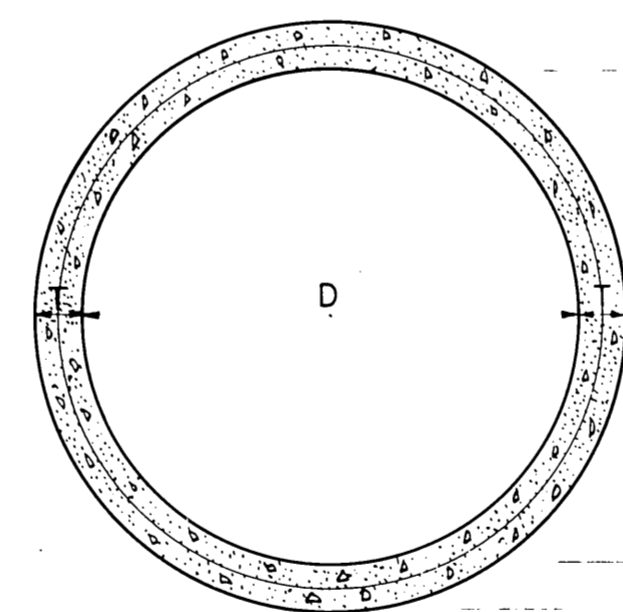
BENDING OF BARS B.



BENDING OF BARS D.

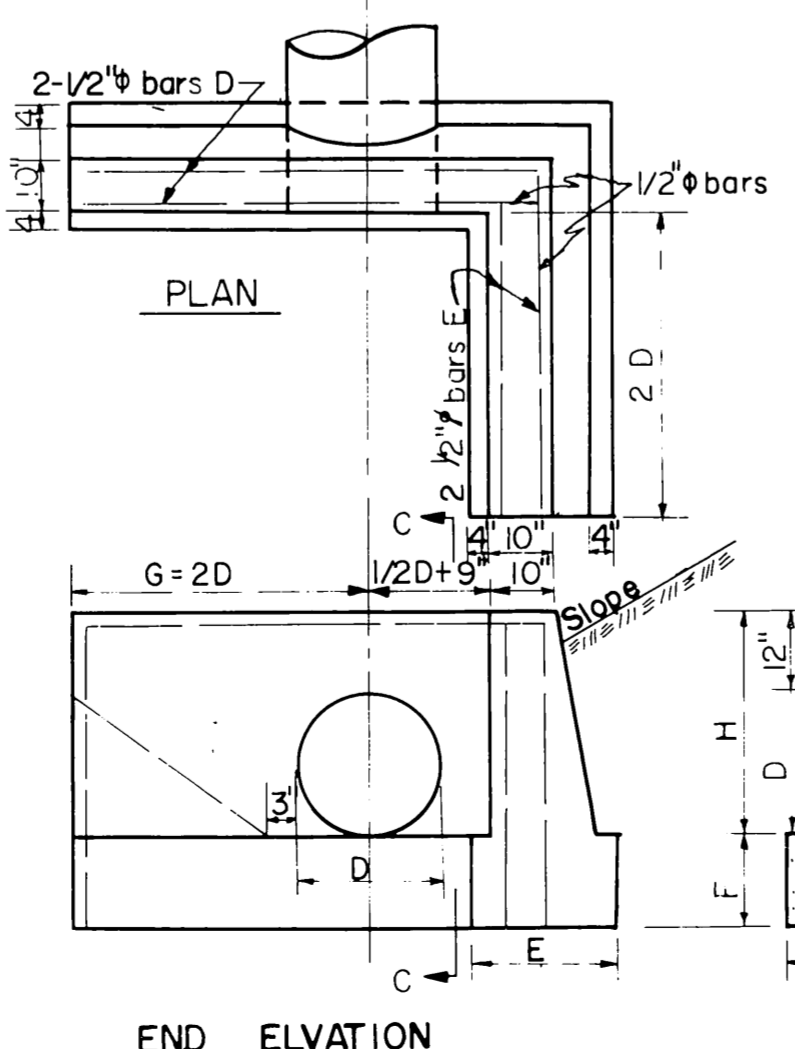


BENDING OF BARS E.



DIMENSIONS	
D	T
15"	2 1/4"
18"	2 1/2"
24"	3"
30"	3 1/2"
36"	4"
42"	4 1/2"

REINFORCED CONCRETE PIPE



CONCRETE ENDWALLS FOR PIPE CULVERTS USED AS SIDE DRAINS & FARM ENTRANCES

OPENING D	DIMENSIONS		CONC. IN ENDWALL CLASS A				REINF. STEEL IN ONE ENDWALL LBS.
	Area Sq. Ft.	WALL	FOOTING	WALL	FOOTING	TOTAL	
12"	0.78	2'-0"	2'-0"	1'-0"	1'-8"	1'-0"	10.0
15"	1.29	2'-6"	2'-3"	1'-2"	1'-10"	1'-2"	14.4
18"	1.80	3'-0"	2'-6"	1'-3"	1'-11"	1'-3"	19.1
24"	3.10	4'-0"	3'-0"	1'-4"	2'-0"	1'-4"	29.6
30"	4.90	5'-0"	3'-6"	1'-5"	2'-1"	1'-5"	42.7
36"	7.07	6'-0"	4'-0"	1'-6"	2'-2"	1'-6"	59.1
42"	9.62	7'-0"	4'-6"	1'-7"	2'-3"	1'-7"	78.2

GENERAL NOTES

Unless otherwise specified, all exposed concrete surfaces shall have a finish in accordance with the current standard specifications.

Chamfer All Exposed Edges 3/4"

All construction and materials requirements shall be in accordance with the current standard specifications.

Minimum Depth Of Fill Over Culverts Shall Be 1'-0"

REVISIONS		RECORD		OKLAHOMA DEPARTMENT OF TRANSPORTATION OKLAHOMA CITY, OKLAHOMA <h3>STANDARD CONCRETE PIPE CULVERTS CONCRETE ENDWALLS</h3>			
NO.	DESCRIPTION	BY	DATE			ITEM	BY DATE
	Rev. 1987 Spec.					DESIGN	
						DETAIL	
						TRACED	
				CHECKED			
				APPROVED			
				SQUAD			

04-6-86 ORG