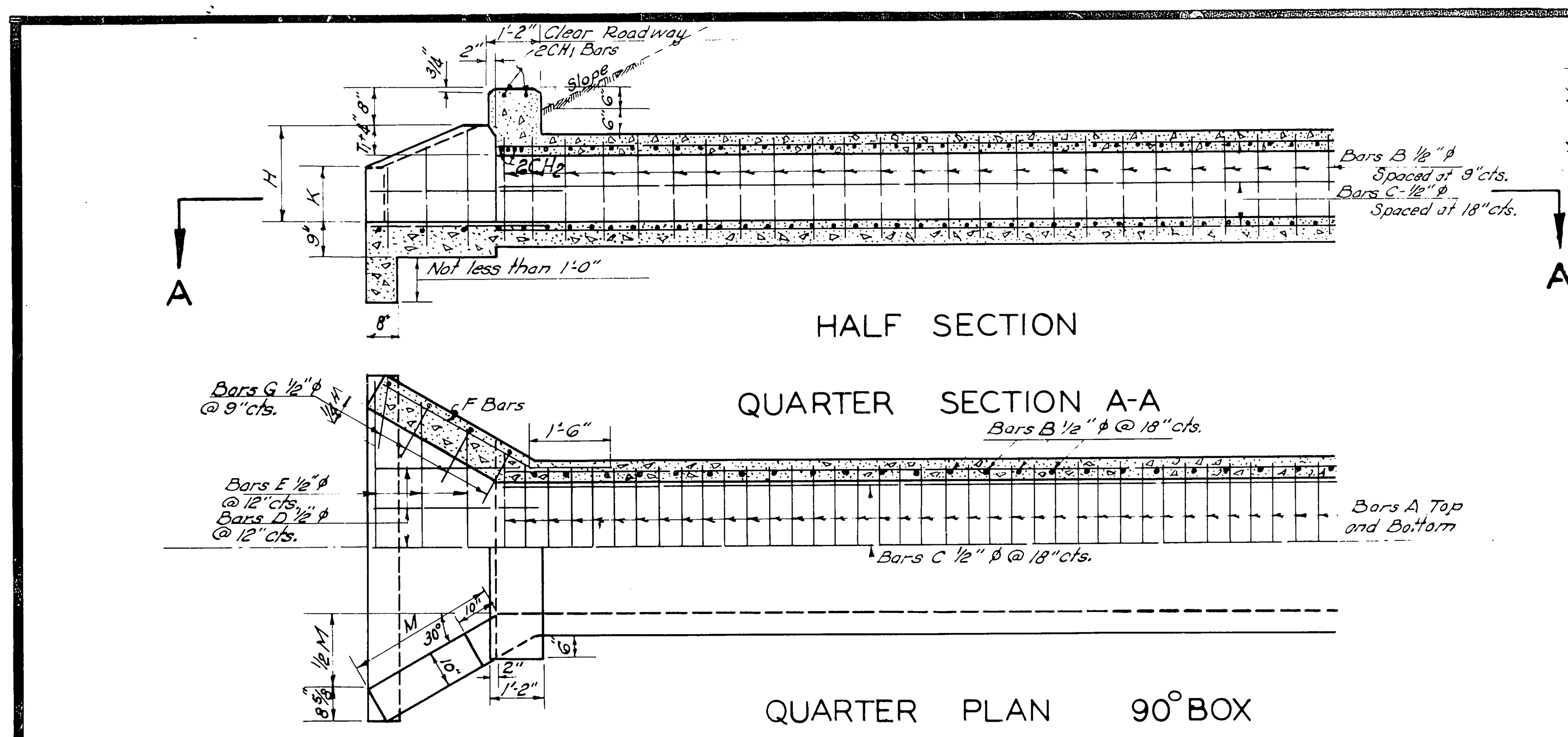
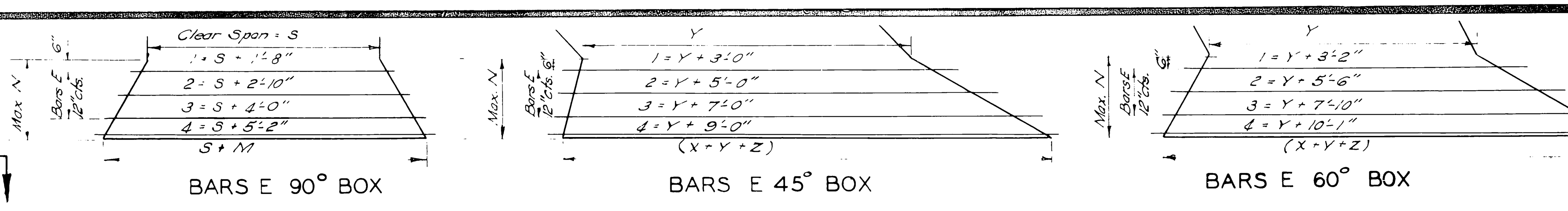
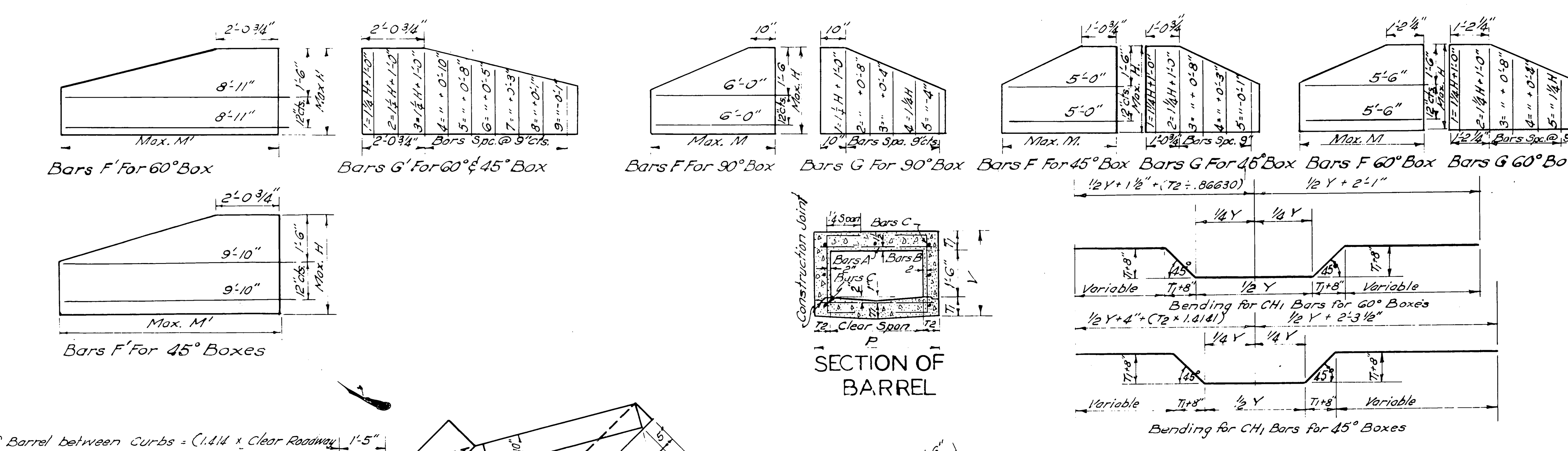
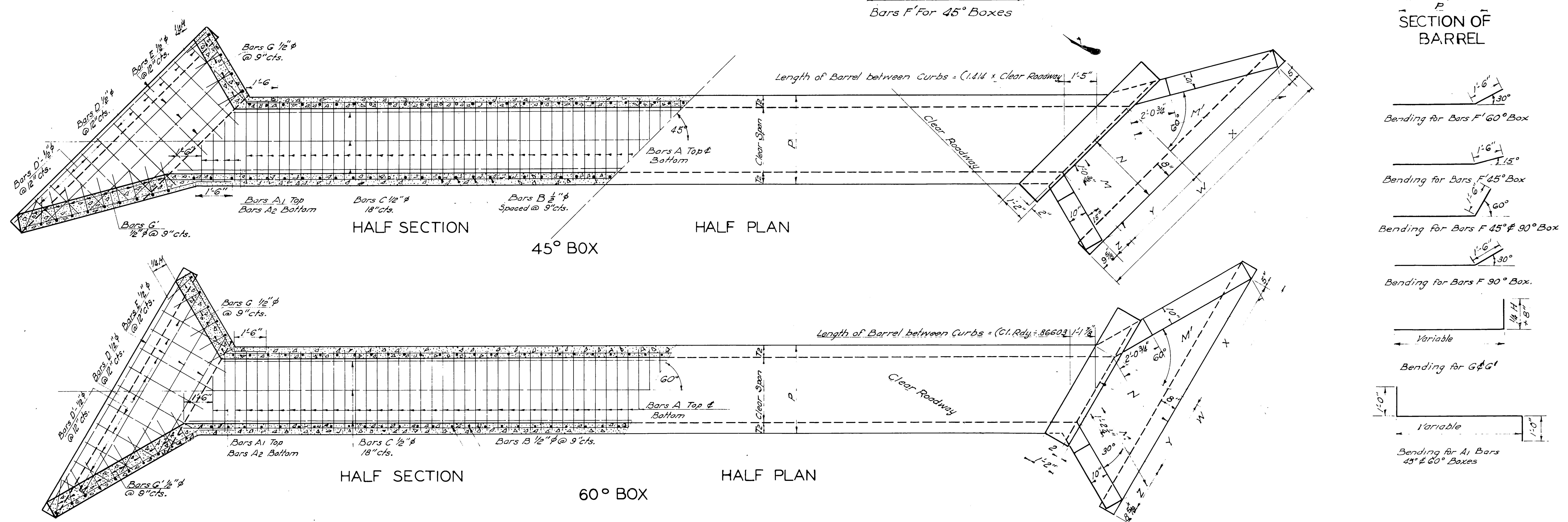
FED. ROAD DIST NO.	STATE	[redacted] PROJ. No.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.	[redacted]	[redacted]	[redacted]	[redacted]

Revised July 27, 1943
Redrawn March 23 1947
Rev. Note for Reinf. wts. 5-7-63
Rev. ~ Rem. 2:1 Slope 5-7-85









GENERAL NOTES

This work shall be constructed in accordance with the Oklahoma Standard Specifications.

All exposed edges shall have a 3/4" chamfer unless otherwise noted
All reinforcing steel shall be deformed round bars.
The design and table are based upon net area of bars, as follows:
1/2" ϕ = .20 sq. in. 5/8" ϕ = .31 sq. in. 3/4" ϕ = .44 sq. in.
Other sizes may be used provided they are spaced so as to give as much net sectional area per ft. width of slab.
Plans showing such changed sizes and spacing must be aproved

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

DESIGN DATA

Conc. Slab 6' Span 8 1/2"	106 Lbs.	L.L.M. = 909 x 40 = 36,360 in. lbs.
Dirt Fill	100 "	I = 30% LL = 10,910 " "
Paving 7"	87 "	D.L.M. = 1/8 WL² =
Total D.L.	293 "	1/8 x 293 x 6.67² x 12 = 19,550 " "
		66,820 in. Lbs.

$10,000 \div 5.5 = 1818$

MAXIMUM FILL OF 3 FT.
WITH WINGS FOR 2:1 SLOPE

BARREL OF CULVERT (WATERWAY / Dimensions / Reinforcing Steel / Quantities)

Design No.	Clear Span	∠ Box to ℄ Roadway	Area of Opening	T1	T2	V	P	Bars A, A1 & A2 Size & Spacing	A Length	A1 & A2 No.	A1 Length	A2 Length	Bars B Bent Size & Spacing	Bars B Bent Length	Bars C Size & Spacing	Bars C No.	Reinf. Steel Per Lin. Ft. Lbs.	Conc. Per Lin. Ft. Cu. Yds.
1		90°	3.0	6"	6"	2'-6"	3'-0"	1/2"ϕ@6"	2'-8"				1/2"ϕ@9"	3'-2"	1/2"ϕ@18"	8	18.43	.167
2	2	45°	"	6"	6"	2'-6"	3'-0"	"	"	4	4'-0" to 3'-6"	2'-0" to 1'-6"	"	3'-2"	"	8	18.43	.167
3		60°	"	6"	6"	2'-6"	3'-0"	"	"				"	3'-2"	"	8	18.43	.167
4		90°	4.5	6"	6"	2'-6"	4'-0"	1/2"ϕ@6"	3'-8"				1/2"ϕ@9"	3'-8"	1/2"ϕ@18"	8	22.06	.204
5	3	45°	"	6"	6"	2'-6"	4'-0"	"	"	8	5'-0" to 3'-6"	3'-0" to 1'-6"	"	3'-8"	"	8	22.06	.204
6		60°	"	6"	6"	2'-6"	4'-0"	"	"	2	4'-6"	2'-6"	"	3'-8"	"	8	22.06	.204
7		90°	6.0	7"	6"	2'-8"	5'-0"	5/8"ϕ@8"	4'-8"				1/2"ϕ@9"	4'-4"	1/2"ϕ@18"	10	29.50	.272
8	4	45°	"	7"	6"	2'-8"	5'-0"	"	"	8	5'-6" to 3'-6"	3'-6" to 1'-6"	"	4'-4"	"	10	29.50	.272
9		60°	"	7"	6"	2'-8"	5'-0"	"	"	4	5'-8" to 4'-6"	3'-8" to 2'-6"	"	4'-4"	"	10	29.50	.272
10		90°	7.5	7 1/2"	6"	2'-9"	6'-0"	5/8"ϕ@7 1/2"	5'-8"				1/2"ϕ@9"	4'-11"	1/2"ϕ@18"	12	36.30	.333
11	5	45°	"	7 1/2"	6"	2'-9"	6'-0"	"	"	12	6'-8" to 3'-6"	6'-0" to 1'-6"	"	4'-11"	"	12	36.30	.333
12		60°	"	7 1/2"	6"	2'-9"	6'-0"	"	"	6	6'-8" to 4'-6"	4'-8" to 2'-6"	"	4'-11"	"	12	36.30	.333
13		90°	9.0	8 1/2"	6"	2'-11"	7'-0"	5/8"ϕ@6 1/2"	6'-8"				1/2"ϕ@9"	5'-7"	1/2"ϕ@18"	12	44.37	.423
14	6	45°	"	8 1/2"	6"	2'-11"	7'-0"	"	"	18	8'-0" to 3'-6"	6'-0" to 1'-6"	"	5'-7"	"	12	44.37	.423
15		60°	"	8 1/2"	6"	2'-11"	7'-0"	"	"	8	7'-4" to 4'-6"	5'-4" to 2'-6"	"	5'-7"	"	12	44.37	.423
16		90°	12.0	10"	6"	3'-2"	9'-0"	3/4"ϕ@7"	8'-8"				1/2"ϕ@9"	6'-10"	1/2"ϕ@18"	16	68.44	.611
17	8	45°	"	10"	6"	3'-2"	9'-0"	"	"	24	10'-2" to 3'-6"	8'-2" to 1'-6"	"	6'-10"	"	16	68.44	.611
18		60°	"	10"	6"	3'-2"	9'-0"	"	"	12	9'-7" to 4'-6"	7'-7" to 2'-6"	"	6'-10"	"	16	68.44	.611
19		90°	15.0	11"	6"	3'-4"	11'-0"	3/4"ϕ@6"	10'-8"				1/2"ϕ@9"	8'-0"	1/2"ϕ@18"	18	91.60	.802
20	10	45°	"	11"	6"	3'-4"	11'-0"	"	"	36	12'-2" to 3'-6"	10'-2" to 1'-6"	"	8'-0"	"	18	91.60	.802
21		60°	"	11"	6"	3'-4"	11'-0"	"	"	18	11'-5" to 4'-6"	9'-5" to 2'-6"	"	8'-0"	"	18	91.60	.802

TWO WINGS AND ONE APRON (Dimensions; Bars E, G and G' Length: Variable See Diagram)

Design No.	H	K	M	M'	N	W	X	Y	Z	Bars D No.	Bars D Length	Bars D' No.	Bars D' Length	Bars E No.	Bars E Length	Bars F No.	Bars F Length	Bars F No.	Bars F Length	Bars F' No.	Bars F' Length	Bars F' No.	Bars F' Length	Bars G No.	Bars G Length	Bars G' No.	Bars G' Length	Bars G1 No.	Bars G1 Length
1	2'-4"	1'-3"	3'-5"		2'-11 1/2"					4	3'-4"			3	Variable See Diagram	2	5'-5"							8	Variable See Diagram		Variable See Diagram		
2	"	1'-4"	3'-0 1/2"	5'-11"	"	9'-11 5/8"	5'-1 1/2"	2'-10"	0'-9 1/2"	4	3'-4"	4	3'-2" to 1'-5"	3		1	4'-6"			1	8'-7"			4		8			
3	"	1'-4"	3'-5"	5'-11"	"	10'-3 3/8"	5'-1 1/2"	2'-3 3/4"	1'-8 1/2"	4	3'-4"	4	2'-10" to 1'-2"	3		1	4'-10"			1	7'-10"			5		8			
4	2'-4"	1'-3"	3'-5"		2'-11 1/2"					5	3'-4"			3		2	5'-5"							8					
5	"	1'-4"	3'-0 1/2"	5'-11"	"	11'-4 1/2"	5'-1 1/2"	4'-2 7/8"	0'-9 1/2"	6	3'-4"	4	2'-10" to 1'-1"	3		1	4'-6"			1	8'-7"			4		8			
6	"	1'-4"	3'-5"	5'-11"	"	11'-5/8"	5'-1 1/2"	3'-5 1/2"	1'-8 1/2"	5	3'-4"	4	2'-11" to 1'-2"	3		1	4'-10"			1	7'-10			5		8			
7	2'-5"	1'-3"	3'-6 1/2"		3'-0 3/4"					6	3'-6"			3		2	5'-6"							8					
8	"	1'-5"	3'-2"	6'-1 1/2"	"	13'-0 1/8"	5'-3 3/4"	5'-7 7/8"	0'-9 7/8"	7	3'-6"	4	3'-3" to 1'-6"	3		1	4'-7"			1	9'-0"			4		8			
9	"	1'-5"	3'-6 1/2"	6'-1 1/2"	"	12'-10"	5'-3 3/4"	4'-7 3/8"	1'-9 1/4"	6	3'-6"	4	3'-2" to 1'-5"	3		1	4'-11"			1	8'-1"			5		8			
10	2'-5 1/2"	1'-3"	3'-7"		3'-1 1/2"					7	3'-6"			3		2	5'-7"							8					
11	"	1'-5"	3'-2 3/4"	6'-3"	"	14'-6"	5'-4 1/2"	7'-0 7/8"	0'-10"	9	3'-6"	4	2'-11" to 1'-2"	3		1	4'-8"			1	9'-1"			5		8			
12	"	1'-5"	3'-7"	6'-3"	"	14'-0 3/4"	5'-4 1/2"	5'-9 1/4"	1'-9 1/2"	7	3'-6"	4	3'-3" to 1'-6"	3		1	5'-0"			1	8'-2"			5		8			
13	2'-6 1/2"	1'-4"	3'-8 1/2"		3'-2 1/2"					8	3'-8"			3		4	5'-9"							10					
14	"	1'-5"	3'-4"	6'-5"	"	16'-1 1/2"	5'-6 5/8"	8'-5 7/8"	0'-10 3/8"	10	3'-8"	4	3'-4" to 1'-7"	3		2	4'-9"			2	9'-3"			5		8			
15	"	1'-5"	3'-8 1/2"	6'-5"	"	15'-5 5/8"	5'-6 5/8"	6'-11 7/8"	1'-10 1/4"	8	3'-8"	4	3'-6" to 1'-9"	3		2	5'-2"			2	8'-5"			5		8			
16	2'-8"	1'-4"	3'-11"		3'-4 3/4"					10	3'-10"			3		4	5'-11"							10					
17	"	1'-6"	3'-6"	6'-9 1/2"	"	19'-3 3/4"	5'-10 1/2"	11'-3 3/4"	0'-10 7/8"	13	3'-10"	4	3'-4" to 1'-7"	3		2	4'-11"			2	9'-7"			5		8			
18	"	1'-6"	3'-11"	6'-9 1/2"	"	18'-2 1/2"	5'-10 1/2"	9'-2 7/8"	1'-11 1/2"	11	3'-10"	4	3'-3" to 1'-6"	3		2	5'-4"			2	8'-9"			5		8			
19	2'-9"	1'-4"	4'-0 1/2"		3'-6"					12	3'-11"			4		4	6'-0"							10					
20	"	1'-6"	3'-7 1/2"	7'-0"	"	22'-4 3/8"	6'-0 3/4"	14'-1 3/4"	0'-11 1/4"	16	3'-11"	4	3'-4" to 1'-7"	4		2	5'-0"			2	9'-10"			5		9			
21	"	1'-6"	4'-0 1/2"	7'-0"	"	20'-9 1/8"	6'-0 3/4"	11'-6 1/2"	2'-0 1/4"	13	3'-11"	5	3'-7" to 1'-3"	4		2	5'-6"			2	8'-11"			5		9			

Wings and apron quantities, TWO CURBS, TOTAL QUANTITIES

Design No.	Wings & Apron Quantities: Reinf Steel Lbs.	Wings & Apron Quantities: Class A Conc. Cu. Yd.	Two Curbs: Reinf. Bars Same Size as A: 4CH1 Length	Two Curbs: 4CH2 Length	Two Curbs Quantities: Steel Lbs.	Two Curbs Quantities: Concrete Cu. Yds.	Conc. in one Curtain wall Cu. Yds. Per Ft. of depth	Total Quantities 38' Clear Roadway: Class A Conc. Cu. Yds.	Total Quantities 38' Clear Roadway: Reinf Steel Lbs.	Design No.
1	45	.87	3'-8"	2'-8"	17	.31	.169	9.07	846	1
2	69	1.23	7'-2"	4'-5"	31	.50	.246	12.90	1214	2
3	69	1.25	6'-1"	3'-5"	26	.41	.254	11.13	1016	3
4	49	.95	4'-8"	3'-8"	23	.40	.194	10.85	1006	4
5	75	1.34	8'-7"	5'-10"	39	.61	.281	15.39	1442	5
6	74	1.34	7'-3"	4'-6"	32	.52	.282	13.18	1201	6
7	55	1.09	5'-8"	4'-8"	44	.48	.222	13.98	1336	7
8	83	1.54	10'-0"	7'-3"	73	.73	.321	19.84	1915	8
9	81	1.52	8'-5"	5'-7"	59	.60	.317	16.83	1587	9
10	60	1.20	6'-8"	5'-8"	52	.56	.248	16.78	1626	10
11	93	1.71	11'-6"	8'-8"	86	.85	.358	23.83	2347	11
12	87	1.67	9'-8"	6'-9"	70	.70	.347	20.11	1934	12
13	77	1.35	7'-8"	6'-8"	61	.64	.275	20.81	1995	13
14	111	1.91	13'-0"	9'-10"	97	.97	.398	29.52	2856	14
15	104	1.84	10'-10"	8'-0"	80	.79	.382	24.77	2346	15
16	89	1.65	9'-8"	8'-8"	114	.81	.330	29.21	3041	16
17	128	2.34	15'-10"	12'-8"	173	1.21	.477	41.40	4367	17
18	118	2.23	13'-3"	10'-3"	143	.99	.450	34.57	3563	18
19	110	1.91	11'-8"	10'-8"	136	.97	.382	37.63	4024	19
20	161	2.72	18'-10	15'-6"	209	1.44	.552	53.35	5786	20
21	149	2.55	15'-7"	12'-8"	172	1.18	.513	44.35	4733	21

REVISIONS: NO.	DESCRIPTION	BY	DATE	RECORD: ITEM	BY	DATE
				DESIGN		
				DETAIL		
				TRACED		
				CHECKED	G.W.C.	3/26/47
				APPROVED		
				SCALE:		

Supervision H.K.W. & W.M.
Designed By M.H. & W.L.
Detailed By H.E.F. Jan. 1942
Traced By H.E.M. " 1942
Checked By R.W. Mar. 1947
Retraced

OKLAHOMA DEPARTMENT OF TRANSPORTATION
OKLAHOMA CITY OKLA.

STANDARD REINFORCED CONCRETE BOX CULVERT 1-6 CLEAR HEIGHT

4

OBSOLETE

BC-52A