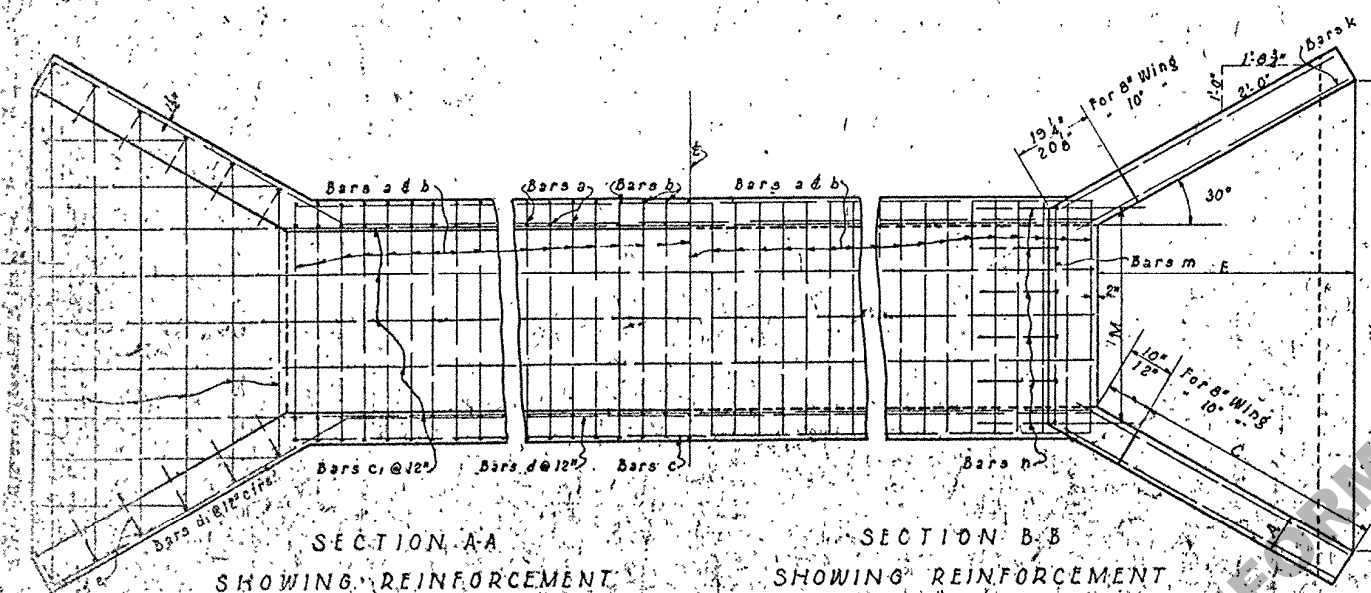
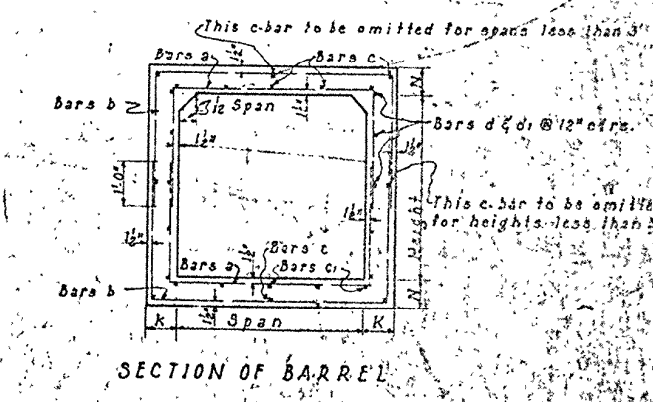
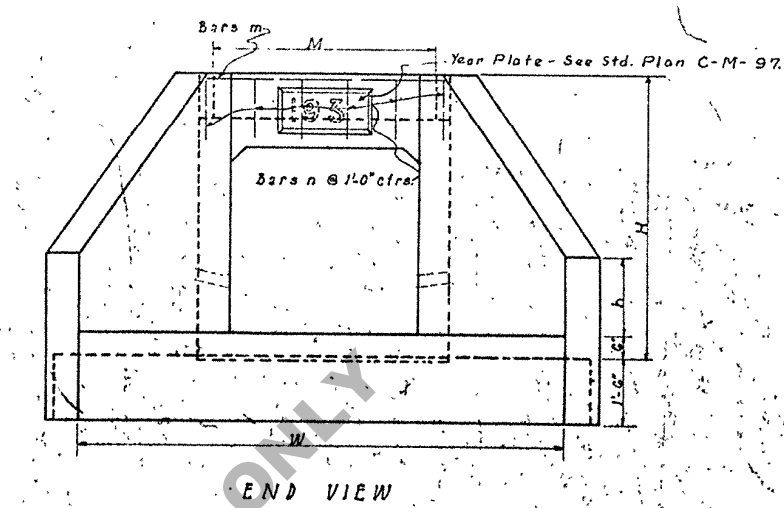
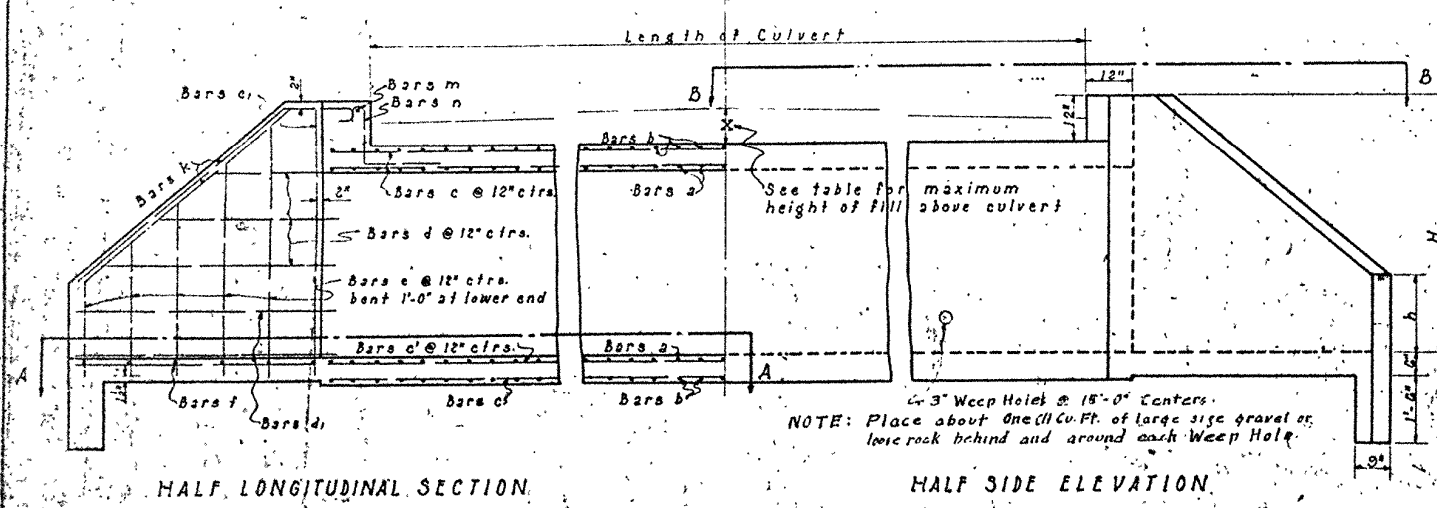




BILL OF STEEL FOR 30'-0" CULVERT - ALL 1/2" BARS																																							
OPENINGS		BARREL REINFORCEMENT																WING, CURB & APRON REINFORCEMENT																					
CLEAR	CLEAR	BARS a				BARS b				BARS c				BARS d				BARS e				BARS f				BARS g				BARS h				BARS i					
SPAN	HEIGHT	No	Lgth	Spce	No	Lgth	Spce	No	Lgth	Spce	No	Lgth	Spce	No	Lgth	Spce	No	Lgth	Spce	No	Lgth	Spce	No	Lgth	Spce	No	Lgth	Spce	No	Lgth	Spce	No	Lgth	Spce					
Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.	Flt. In.					
2-0	2-0	128	5-6	6	128	6'-4	7	31-8	6	20-2					19-3	4	8	20-5	2-6	10	4-2	4	4	4-8	4-4	1-2	6-8	2		2-7	4	8	5-7	2	3-0	8	12		
3-0	2-0	142	6-6	5 1/2	142	7-6	10	31-8	8	20-2					19-3	4	8	20-5	2-6	10	4-2	4	4	4-8	5-4	1-2	7-8	2		2-7	4	8	5-7	2	3-0	8	12		
	2-6	142	7-0	5	142	8-0	10	31-8	8	20-8					20-1	4	8	21-1	2-7	10	5-1	4	4	5-2	4-9	1-2	8-3	2	1-4	1-9	3-1	4	8	6-3	2	3-0	8	12	
	3-0	142	7-6	5 1/2	142	8-6	12	31-8	8	21-2	19-4	1-3	20-7	4	8	21-8	2-9	10	5-3	4	4	5-8	5-4	1-2	8-10	2	1-10	1-9	3-7	4	8	6-10	2	3-0	4	12			
4-0	2-0	154	7-6	5	154	8-7	11	31-8	10	20-3					19-3	4	8	20-6	2-7	10	4-3	4	4	4-9	6-5	1-2	8-9	2		2-8	4	8	5-9	2	4-0	10	20		
	2-6	154	8-0	5	154	9-1	11	31-8	10	20-9					20-2	4	8	21-2	2-8	10	5-2	4	4	5-3	5-10	1-2	9-4	2	1-5	1-9	3-2	4	8	6-3	2	4-0	12	20	
	3-0	154	8-6	5	154	9-7	13	31-8	10	21-3	19-8	1-2	20-10	4	8	21-9	2-9	9	5-0	4	4	5-9	6-5	1-2	9-11	2	1-11	1-9	3-8	4	8	7-7	2	4-0	10	20			
5-0	4-0	154	9-6	5	154	10-11	13	31-8	10	22-4	19-11	1-3	22-5	4	8	22-11	3-2	9	6-2	4	4	6-9	6-9	1-2	11-5	2	1-8	1-9	5-2	4	8	8-4	2	4-0	10	20			
	2-0	172	8-6	4 1/2	172	9-8	12	31-8	12	20-4					19-5	4	8	20-8	2-7	10	4-3	4	4	4-10	7-7	1-2	9-11	2		2-9	4	8	5-9	2	5-0	12	30		
	2-6	172	9-0	4 1/2	172	10-2	12	31-8	12	20-10					20-3	4	8	21-2	2-8	10	5-2	4	4	5-4	6-11	1-2	10-5	2	1-6	1-9	8-3	4	8	9-3	2	5-0	12	30	
	3-0	172	9-6	4 1/2	172	10-8	14	31-8	12	21-4	19-9	1-5	21-0	4	8	21-10	2-9	9	5-0	4	4	5-10	7-6	1-2	11-0	2	2-0	1-9	3-9	4	8	7-1	2	5-0	12	30			
	4-0	172	10-6	4 1/2	172	12-0	14	31-8	12	22-4	19-10	1-5	22-8	4	8	23-0	3-2	9	6-2	4	4	6-10	7-10	1-2	12-0	2	1-9	1-9	5-3	4	8	8-6	2	5-0	12	30			
5-0	172	11-6	4 1/2	172	13-0	14	31-8	12	23-8	20-0	1-5	24-3	4	8	24-6	3-3	9	7-9	4	4	7-10	7-0	1-2	14-0	2	1-3	1-9	6-6	4	8	10-	2	5-0	12	30				

DIMENSIONS & QUANTITIES FOR 30'-0" CULVERT																					
OPENINGS		BARREL										WING, CURB & APRON						PER LIN.		TOTAL	
CLEAR SPAN	CLEAR HEIGHT	AREA	N	K	M	N	h	C	A	W	E	X	FT. OF BARREL	STEEL CONC.	STEEL CONC.	QUANTITIES	QUANTITIES				
FT.	FT.-IN	Sq. FT.	In.	In.	FT.-IN	FT.-IN	FT.-IN	FT.-IN	In.	FT.-IN	FT.-IN	FT.	Lbs.	Cu. yds.	Lbs.	Cu. yds.					
1	2-0	4-0	6	6	2-42	3-6	1-0	3-10	8	5-10	3-4	20	53.8	0.186	19.28	8.28					
	2-0	6-0	7	6	3-41	3-7	1-0	3-10	8	6-10	3-4	20	68.9	0.229	24.59	10.60					
	2-0	7-5	7	6	3-41	4-1	1-2	4-5	8	7-5	3-10	20	72.6	0.268	28.33	11.71					
2	3-0	9-0	7	6	3-41	4-7	1-4	5-0	8	8-0	4-4	20	79.7	0.289	29.96	12.82					
	3-0	8-0	7 1/2	6	4-41	3-7 1/2	1-0	3-11	-8	7-11	3-5	20	84.3	0.310	29.57	12.90					
	3-0	10-0	7 1/2	6	4-41	4-11 1/2	1-2	4-6	8	9-0	3-11	20	98.4	0.378	31.34	14.00					
3	3-0	12-0	7 1/2	6	4-41	4-7 1/2	1-4	5-1	8	9-1	4-5	20	95.9	0.366	34.15	15.14					
	4-0	16-0	7 1/2	7	4-9	5-7 1/2	1-8	6-4	10	10-4	5-6	20	107.1	0.416	38.92	19.43					
	4-0	17-0	8	7	5-41	3-8	1-0	4-1	8	9-1	5-6	15	102.7	0.377	35.82	15.24					
4	4-0	12-5	8	16	5-41	4-2	1-2	4-7	8	9-7	4-0	15	107.3	0.393	37.81	18.51					
	3-0	15-0	8	6	5-41	4-8	1-4	5-2	8	10-2	4-6	15	115.2	0.413	40.77	21.64					
	4-0	20-6	8	7	5-9	5-8	1-6	6-5	10	11-5	5-7	15	127.4	0.489	43.95	24.81					
5	5-0	25-0	8	7	5-9	6-8	1-10	7-11	10	12-11	6-10	15	138.2	0.521	51.16	25.39					

GENERAL NOTES & DESIGN DATA

Louisiana Highway Commission Specifications.

All Concrete to be Class A, 1:2:4 Mix.

All Steel to be 1/2" Deformed Bars.

All Exposed Corners to be chamfered.

All Exposed Surfaces to be Rubbed Finish.

Design Loading: 2-15 Ton Typical Trucks per Trucks taken on Rear Wheels.

Bar Clearances and Spacing dimensions.

When clear lengths of bars exceed 20', splice.

All spliced bars to be lapped 24".

CONCRETE BOX CULVERT

2 FT TO 5 FT CLEAR SPAN

2 FT TO 5 FT HEIGHT

LOUISIANA HIGHWAY COMMISSION

BATON ROUGE, LOUISIANA

STEEL BENDING DIAGRAMS

Not to Scale