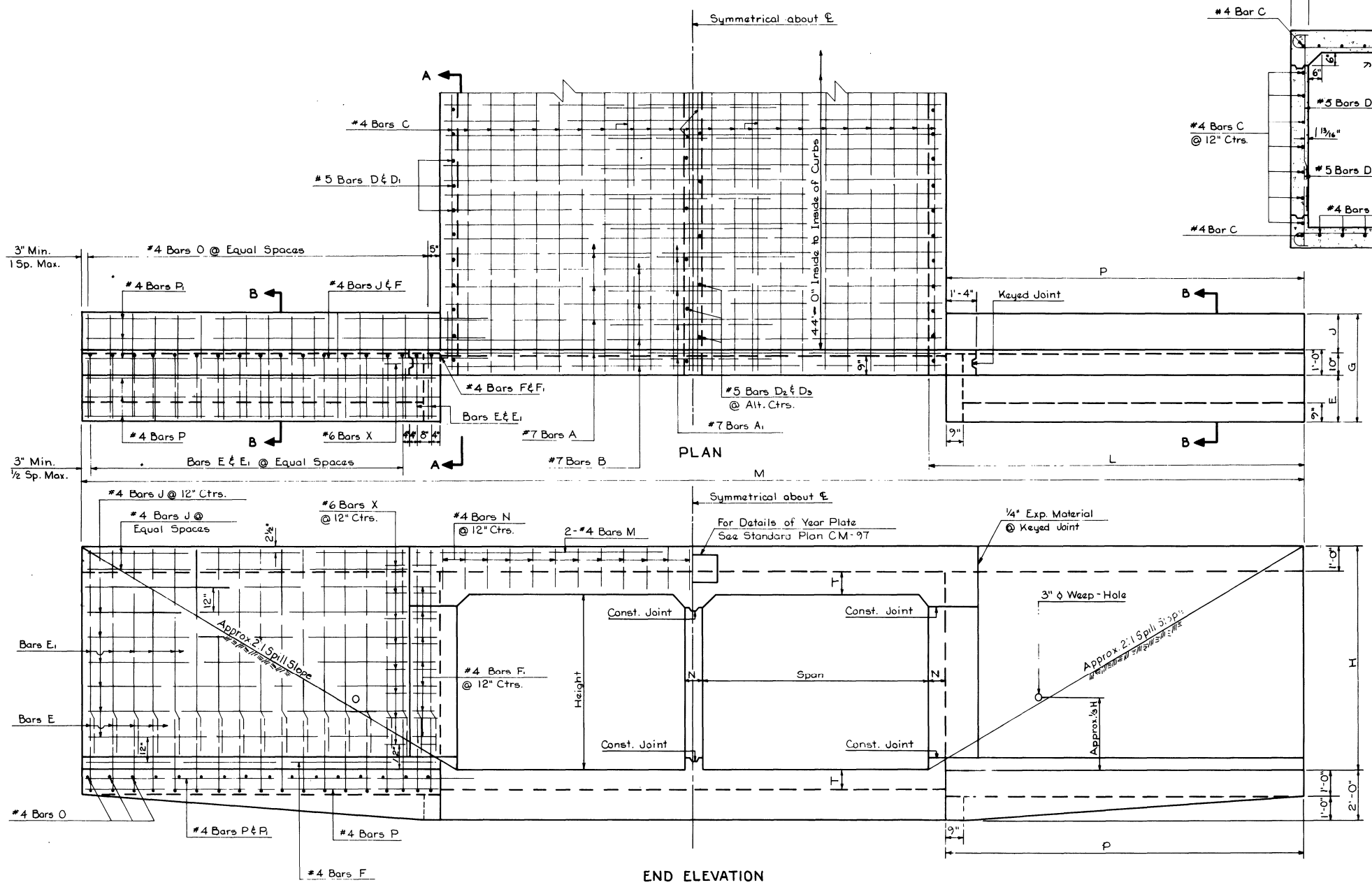
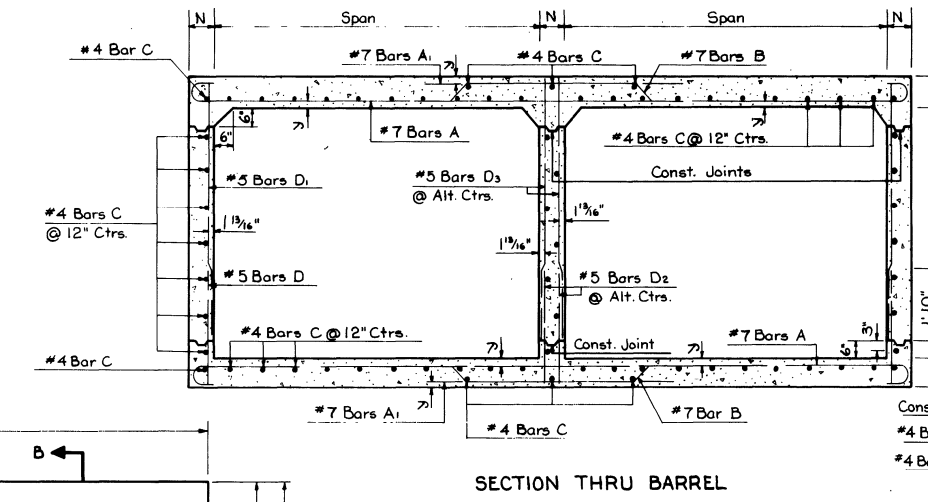
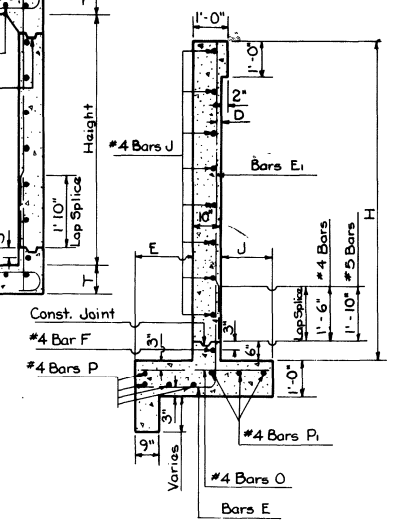
STATE PROJECT	PARISH	SHEET NO.

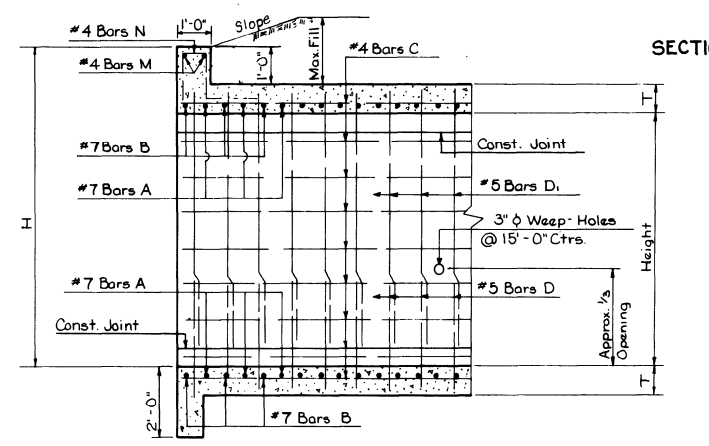




SECTION THRU BARREL



SECTION B-B



SECTION A-A

GENERAL NOTES:

Construction Specifications: Latest Approved La. Dept. of Highway Std. Specifications.
Design Specifications: A.A.S.H.O. 1969.
Live Load: HS 20-44 or Military Loading, Whichever is Greater.
All Concrete to be Class "A".
All Exposed Corners to have ¾" Chamfer, unless Otherwise noted.
Reinforcement shall be **Billet-Steel A.S.T.M. A615 or Rail-Steel A.S.T.M. A616 or Axle-Steel A.S.T.M. A617.**
Dimensions Relating to Reinf. Steel are to Bar Centers.
For Details of Joints See Std. Plan C.M.-49.
A 1'-6" Square of Plastic Filter Cloth (See Qualified Products List) shall be placed in contact with Concrete behind each Weep Hole, in addition to approx. 2 Cu. Ft. of Concrete Sand.
For Detail of Joints, See Std. Plan C.M.-49.

DIMENSIONS

OPENINGS SIZE Ft.	NO.	AREA Sq. Ft.	MAX. FILL SLAB Ft.	MAX. FILL WALLS Ft.	BARREL T In.	BARREL N In.	BARREL Y In.	WINGS AND CURBS D In.	E Ft-In.	J Ft-In.	G Ft-In.	H Ft-In.	L Ft-In.	P Ft-In.	M Ft. In.
10x7	2	140	6	8	10	8	1 5/16	1 3/4	1-11	1-8	4-5	8-10	16-9	16-1	54-2
	3	210													64-10
	4	280	10												75-6
	5	350													86-2
10x8	2	160	5	6	10	9	1 5/16	1 13/16	2-0	2-0	4-10	9-10	19-2	18-5	59-1
	3	240													69-10
	4	320	10												80-7
	5	400													91-4
10x9	2	180	5	5	10	9	1 5/16	1 13/16	2-2	2-4	5-4	10-10	20-8	19-11	62-1
	3	270	10												72-10
	4	360													83-7
	5	450													94-4

BILL OF REINFORCING STEEL FOR 44'-0" CULVERT — BARREL REINFORCEMENT

Mark	Size	No.	Length Ft-In.	Spac. In.	Mark	Size	No.	Length Ft-In.	Spac. In.	Mark	Size	No.	Length Ft-In.	Spac. In.	Mark	No.	Length Ft-In.	Spac. In.	Mark	No.	Length Bars D2 Ft-In.	Length Bars D3 Ft-In.	Spac. In.
10x7	#7	78	23-3½	14	#7	78	7-7	14	#7	80	23-8½	14	71	47-2	92	3-0	7-2	12	46	3-0	7-2	12
	#7	78	33-11¼	14	#7	156	7-7	14	#7	80	34-9½	14	104	47-2	92	3-0	7-2	12	92	3-0	7-2	12
	#7	78	47-2½ ①	14	#7	234	7-7	14	#7	80	48-5½ ①	14	137	47-2	92	3-0	7-2	12	138	3-0	7-2	12
	#7	78	57-10½ ②	14	#7	312	7-7	14	#7	80	59-6½ ②	14	170	47-2	92	3-0	7-2	12	184	3-0	7-2	12
10x8	#7	78	23-6½	14	#7	78	7-7	14	#7	80	23-11½	14	74	47-2	92	3-0	8-2	12	46	3-0	8-2	12
	#7	78	34-3½	14	#7	156	7-7	14	#7	80	35-1½	14	108	47-2	92	3-0	8-2	12	92	3-0	8-2	12
	#7	78	47-7½ ①	14	#7	234	7-7	14	#7	80	48-10½ ①	14	142	47-2	92	3-0	8-2	12	138	3-0	8-2	12
	#7	78	58-4½ ②	14	#7	312	7-7	14	#7	80	60-0½ ②	14	176	47-2	92	3-0	8-2	12	184	3-0	8-2	12
10x9	#7	78	23-6½	14	#7	78	7-7	14	#7	80	23-11½	14	77	47-2	106	3-0	9-2	10½	53	3-0	9-2	10½
	#7	78	34-3½	14	#7	156	7-7	14	#7	80	35-1½	14	112	47-2	106	3-0	9-2	10½	106	3-0	9-2	10½
	#7	78	47-7½ ①	14	#7	234	7-7	14	#7	80	48-10½ ①	14	147	47-2	106	3-0	9-2	10½	159	3-0	9-2	10½
	#7	78	58-4½ ②	14	#7	312	7-7	14	#7	80	60-0½ ②	14	182	47-2	106	3-0	9-2	10½	212	3-0	9-2	10½

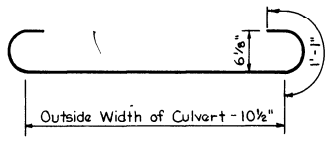
BILL OF REINFORCING STEEL FOR 44'-0" CULVERT — WINGS AND CURBS REINFORCEMENT

Mark	Size	No.	Length Ft-In.	Spac. In.	Mark	Size	No.	Length Ft-In.	Spac. In.	Mark	No.	Length Ft-In.	Spac. In.	Mark	No.	Length Ft-In.	Mark	No.	Length Ft-In.	Mark	Size	No.	Length Ft-In.	Spac. In.	Mark	No.	Length Ft-In.	Mark	No.	Length Ft-In.	Mark	No.	Length Ft-In.	Mark	No.	Length Ft-In.
10x7	#4	80	5-1	10	#4	80	8-2	10	4	17-8	28	2-10	36	14-5	#4	64	4-0	12	16	15-9	12	17-5	44	5-3	4	24-1	32	2-0							
																							66	5-3	4	34-9	32	2-0							
																							88	5-3	4	46-1 ①	32	2-0							
																							108	5-3	4	57-7 ②	32	2-0							
10x8	#5	84	5-6	11	#4	84	9-2	11	4	20-1	32	2-11	40	16-9	#4	72	4-5	12	16	18-1	12	19-9	46	5-3	4	24-4	36	2-0							
																							66	5-3	4	35-1	36	2-0							
																							88	5-3	4	47-4 ①	36	2-0							
																							110	5-3	4	58-1 ②	36	2-0							
10x9	#5	120	5-8	8	#4	120	10-2	8	4	21-7	36	2-11	44	18-3	#4	96	4-11	10	16	19-7	12	21-3	46	5-3	4	24-4	40	2-0							
																							66	5-3	4	35-1	40	2-0							
																							88	5-3	4	47-4 ①	40	2-0							
																							110	5-3	4	58-1 ②	40	2-0							

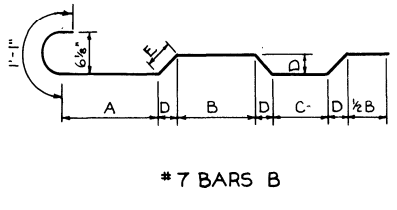
QUANTITIES

OPENINGS SIZE Ft.	NO.	PER LINEAR FOOT OF BARREL REINF. STEEL Lbs.	PER LINEAR FOOT OF BARREL CONC. Cu. Yds.	44'-0" CULVERT REINF. STEEL Lbs.	44'-0" CULVERT CONC. Cu. Yds.
10x7	2	270.50	1.8951	14448	119.84
	3	405.93	2.7356	20852	159.98
	4	559.47	3.5761	27997	200.13
	5	694.90	4.4167	34345	240.28
10x8	2	277.38	2.0586	15277	135.07
	3	415.11	2.9537	21732	177.74
	4	570.94	3.8488	29032	220.41
	5	708.67	4.7438	35494	263.07
10x9	2	287.96	2.1420	16554	145.88
	3	429.21	3.0648	23177	189.82
	4	588.56	3.9877	30645	233.76
	5	729.81	4.9105	37275	277.71

Ⓐ #6 Bars "X" to be ¾" ϕ Smooth and Greased for 1'-0" of Length.
① Includes 1 - 1'-6" Lap Splice.
② Includes 1 - 2'-7" Lap Splice.



#7 BARS A



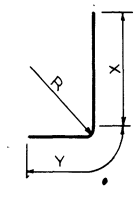
#7 BARS B

DIMENSIONS FOR BARS B

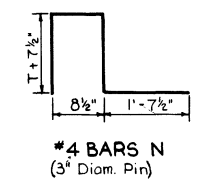
SIZE	PIN DIAM.	A	B	C	D	E
10'x7'	5¼"	7'-5 11/16"	5'-1⅞"	4'-5⅞"	6⅛"	8⅝"
10'x8'	5¼"	7'-6 11/16"	5'-2⅞"	4'-5⅞"	6⅛"	8⅝"
10'x9'	5¼"	7'-6 11/16"	5'-2⅞"	4'-5⅞"	6⅛"	8⅝"

DIMENSIONS FOR BARS E

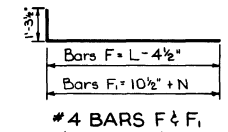
SIZE	BAR SIZE	R	X	Y
10'x7'	#4	2¼"	2'-7"	2'-6"
10'x8'	#5	2 13/16"	2'-10¾"	2'-7¼"
10'x9'	#5	2 13/16"	2'-10¾"	2'-9¼"



BARS E



#4 BARS N (3" Diam. Pin)



#4 BARS F & F1 (3" Diam. Pin)

DATE	DESCRIPTION	BY
1-5-78	Rev. Weep Hole Note	W.T.J.
1-28-75	Rev. Slope Intercept	W.T.J.
6-8-72	Rev. General Notes for Steel	W.E.M.

REVISIONS

STANDARD PLAN
MULTIPLE OPENINGS

REINF. CONCRETE BOX CULVERT

STRAIGHT HDWLS. 2:1 SPILL SLOPE

DATED Sept. 7, 1971 **10'x7'** **10'x8'** **10'x9'**

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

DESIGNED	DETAILED J.D. Bacci	TRACED J. McManus II
CHECKED	CHECKED J.J. Ribas	CHECKED J.D. Bacci
IN CHARGE OF		

APPROVED BY: Original Signed by Chief Engineer — CHIEF ENGINEER — DATE

C·C·S·M-10-R·90°-1

C·C·S·M-10-R·90°-1