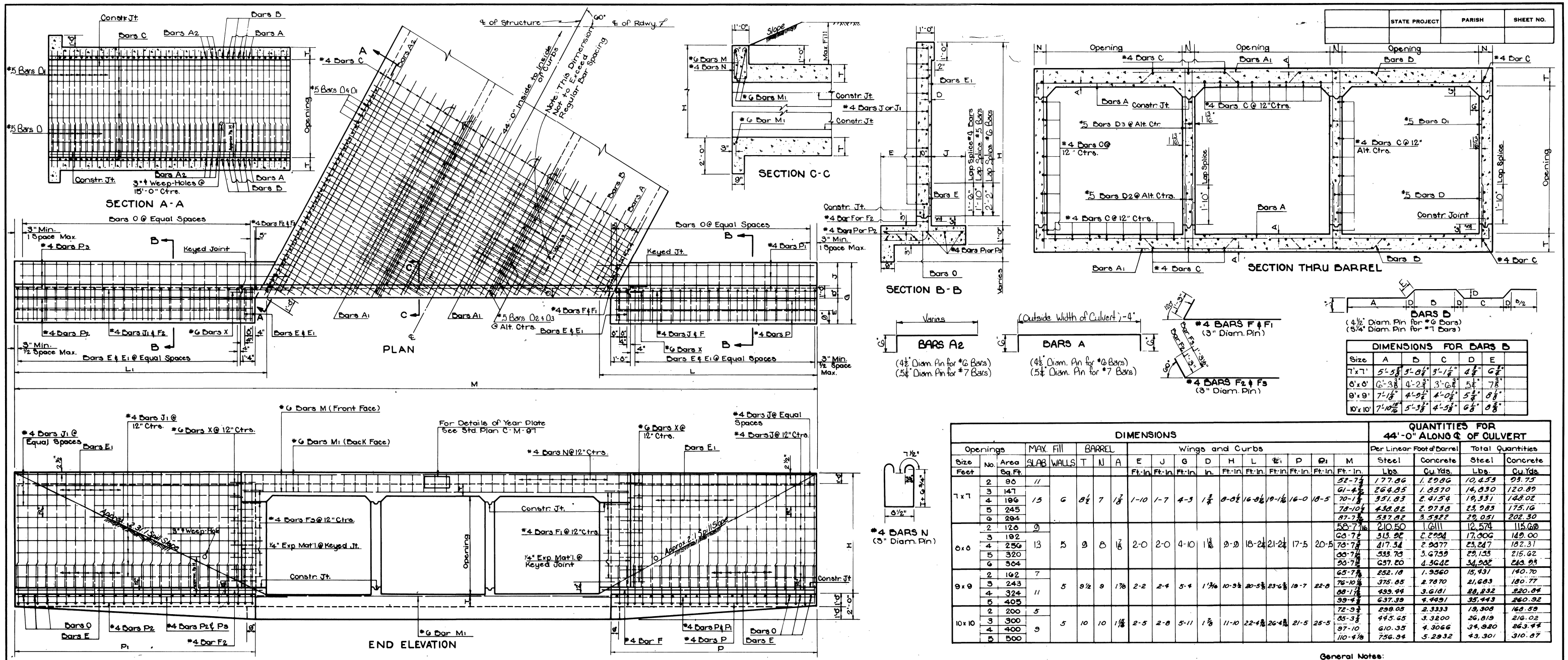
STATE PROJECT	PARISH	SHEET NO.



DIMENSIONS FOR BARS B					
Size	A	B	C	D	E
7'x7'	5'-5⅜"	5'-8⅞"	3'-1⅛"	4⅞"	6⅞"
8'x8'	6'-3⅜"	6'-2⅞"	3'-6⅞"	5¼"	7⅞"
9'x9'	7'-1⅞"	6'-10⅞"	4'-0⅞"	5⅞"	8⅞"
10'x10'	7'-10 15/16"	5'-3⅞"	4'-5⅞"	6⅞"	8⅞"

DIMENSIONS

Openings Size Feet	No.	Openings Area Sq. Ft.	MAX. Fill SLAB	MAX. Fill WALLS	BARREL T	BARREL N	BARREL A	Wings and Curbs E Ft.-In.	J Ft.-In.	G Ft.-In.	D In.	H Ft.-In.	L Ft.-In.	E1 Ft.-In.	P Ft.-In.	P1 Ft.-In.	M Ft.-In.	QUANTITIES FOR 44'-0" ALONG ℄ OF CULVERT — Per Linear Foot of Barrel: Steel Lbs.	Concrete Cu. Yds.	Total Quantities: Steel Lbs.	Concrete Cu. Yds.
7x7	2	90	11														52-7½	177.86	1.2966	10,453	93.73
	3	147															61-4½	264.85	1.8570	14,830	120.89
	4	196	15	6	8½	7	1⅞	1-10	1-7	4-3	1¾	8-0½	16-8½	19-1½	16-0	18-5	70-1⅞	351.83	2.4154	19,331	148.02
	5	245															78-10½	438.82	2.9738	23,783	175.16
	6	294															87-7½	537.82	3.5322	28,031	202.30
8x8	2	126	9														55-7 15/16	210.50	1.6111	12,574	115.68
	3	192															63-4½	313.92	2.2984	17,906	149.00
	4	256	13	5	9	8	1⅞	2-0	2-0	4-10	1 15/16	9-9	18-2½	21-2½	17-5	20-5	70-7½	417.34	2.9677	23,247	182.31
	5	320															80-7½	533.78	3.6759	29,135	215.62
	6	364															90-7½	637.80	4.3645	34,505	243.93
9x9	2	162	7														65-7½	252.18	1.9560	15,931	140.70
	3	243															76-10½	375.85	2.7870	21,683	180.77
	4	324	11	5	9½	9	1 7/16	2-2	2-4	5-4	1 7/16	10-9½	20-5⅜	23-6⅜	19-7	22-8	88-1½	499.44	3.6181	28,232	220.84
	5	405															99-4½	637.39	4.4891	35,443	260.32
10x10	2	200	5														72-3½	298.05	2.3333	19,308	168.89
	3	300															85-3½	445.65	3.3200	26,819	216.02
	4	400	9	5	10	10	1 15/16	2-5	2-8	5-11	1⅞	11-10	22-4⅜	26-4⅜	21-5	25-5	97-10	610.35	4.3066	34,820	263.44
	5	500															110-4⅛	756.34	5.2932	43,301	310.87

BILL OF REINFORCING STEEL FOR 44'-0" CULVERT

BARREL REINFORCEMENT

Openings Size Feet	No.	Bars A Size	No.	Length Ft.-In.	Spac. In.	Bars A1 Size	No.	Length Ft.-In.	Spac. In.	Bars A2 Size	No.	Short Bar Ft.-In.	Vari-ation In.	Long Bar Ft.-In.	Spac. In.	Bars B Size	No.	Length Ft.-In.	Spac. In.	#5 BARS D & D1 No.	Length Bars D Ft.-In.	Length Bars D1 Ft.-In.	Spac. In.	#5 BARS D2 & D3 No.	Length Bars D2 Ft.-In.	Length Bars D3 Ft.-In.	Spac. In.	*4 Bars C No.	Length Ft.-In.
7x7	2	#6	60	16-5	13	#6	88	5-8	9 15/16	#6	60	2-4	11.2057	15-6	6½	#6	70	16-9	13	94	2-10	7-0	12	47	2-10	7-0	12	59	47-5
	3	#6	60	24-0	13	#6	192	5-8	6 11/16	#6	92	2-4	11.2727	23-0	6½	#6	92	24-8	13	94	2-10	7-0	12	94	2-10	7-0	12	86	47-5
	4	#6	52	31-7	13	#6	312	5-8	6 11/16	#6	128	2-4	11.2667	30-6	6½	#6	94	32-7	13	94	2-10	7-0	12	141	2-10	7-0	12	113	47-5
	5	#6	44	39-2	13	#6	440	5-8	6 11/16	#6	156	2-4	11.2632	38-0	6½	#6	46	40-6	13	94	2-10	7-0	12	188	2-10	7-0	12	140	47-5
	6	#6	36	⑥48-11	13	#6	600	5-8	6 11/16	#6	188	2-4	11.2609	⑥48-6	6½	#6	38	⑥50-7	13	94	2-10	7-0	12	235	2-10	7-0	12	167	47-5
8x8	2	#6	70	18-8	12	#6	98	6-3	6 12	#6	76	2-5	10.3888	18-0	6	#6	72	19-04	12	94	2-11	8-1	12	47	2-11	8-1	12	66	47-5
	3	#6	60	27-4	12	#6	216	6-3	6 12	#6	116	2-5	10.3929	26-8	6	#6	62	28-02	12	94	2-11	8-1	12	94	2-11	8-1	12	96	47-5
	4	#6	50	36-0	12	#6	336	6-3	6 12	#6	156	2-5	10.3947	35-8	6	#6	52	37-02	12	94	2-11	8-1	12	141	2-11	8-1	12	126	47-5
	5	#6	40	⑥46-10	12	#6	512	6-3	6 12	#6	196	2-5	10.3950	⑥44-0	6	#6	42	⑥48-3	12	94	2-11	8-1	12	188	2-11	8-1	12	156	47-5
	6	#6	30	⑥55-6	12	#6	690	6-3	6 12	#6	236	2-5	10.3960	⑥52-8	6	#6	32	⑥57-3½	12	94	2-11	8-1	12	235	2-11	8-1	12	186	47-5
9x9	2	#6	76	20-11	11	#6	108	6-9	5⅝ 11	#6	92	2-6	9.5455	20-0	5½	#6	76	21-3⅜	11	106	2-11	9-1	10½	53	2-11	9-1	10½	73	47-5
	3	#6	64	30-8	11	#6	240	6-9	5⅝ 11	#6	140	2-6	9.5894	29-6	5½	#6	64	31-5½	11	106	2-11	9-1	10½	106	2-11	9-1	10½	106	47-5
	4	#6	50	40-5	11	#6	402	6-9	5⅝ 11	#6	192	2-6	9.5319	39-10	5½	#6	50	41-7½	11	106	2-11	9-1	10½	159	2-11	9-1	10½	139	47-5
	5	#6	38	⑥52-4	11	#6	570	6-9	5⅝ 11	#6	240	2-6	9.5256	⑥49-4	5½	#6	40	⑥53-11	11	106	2-11	9-1	10½	212	2-11	9-1	10½	172	47-5
10x10	2	#7	58	23-2	14	#7	86	7-8	7¼ 11	#7	60	2-7	12.1053	21-9	7	#7	58	23-7	14	124	3-0	10-2	9	47	3-0	10-2	9	80	47-5
	3	#7	46	34-0	14	#7	132	7-8	7¼ 11	#7	124	2-7	12.1333	32-11	7	#7	48	34-10	14	124	3-0	10-2	9	124	3-0	10-2	9	116	47-5
	4	#7	34	⑥47-5	14	#7	318	7-8	7¼ 11	#7	168	2-7	12.1220	⑥44-0	7	#7	36	⑥48-8	14	124	3-0	10-2	9	186	3-0	10-2	9	152	47-5
	5	#7	24	⑥58-3	14	#7	476	7-8	7¼ 11	#7	212	2-7	12.1154	⑥55-1	7	#7	24	⑥59-11	14	124	3-0	10-2	9	248	3-0	10-2	9	188	47-5

WINGS AND CURB REINFORCEMENT

Openings Size Feet	No.	Bars E Size	No.	Length Ft.-In.	Spac. In.	Bars E1 Size	No.	Length Ft.-In.	Spac. In.	*4 Bars F No.	Length Ft.-In.	*4 Bars F1 No.	Length Ft.-In.	*4 Bars F2 No.	Length Ft.-In.	*4 Bars F3 No.	Length Ft.-In.	*4 Bars J No.	Length Ft.-In.	*4 Bars J1 No.	Length Ft.-In.	Bars O Size	No.	Length Ft.-In.	Spac. In.	*4 Bars P No.	Length Ft.-In.	*4 Bars P1 No.	Length Ft.-In.	*4 Bars P2 No.	Length Ft.-In.	*4 Bars P3 No.	Length Ft.-In.	*4 Bars N No.	Length Ft.-In.	*6 Bars M No.	Length Ft.-In.	*6 Bars M1 No.	Length Ft.-In.	Ⓐ *6 Bars X No.	Length Ft.-In.
7x7	2	#4	78	5-0	11	#4	78	8-0	11	2	17-2	14	2-8	2	20-4	14	3-2	18	14-0	18	16-9	#4	68	3-10	12	8	15-8	6	17-0	8	18-1	6	21-0	36	4-6	4	20-8	6	17-10	32	2-0
	3																																	54	4-6	4	29-5	6	26-7	32	2-0
	4																																	72	4-6	4	38-2	6	35-4	32	2-0
	5																																	88	4-6	4	⑥49-1	6	⑥46-3	32	2-0
	6																																	106	4-6	4	⑥57-10	6	⑥55-0	32	2-0
8x8	2																																	42	4-7	4	23-3	6	20-4	36	2-0
	3																																	62	4-7	4	35-3	6	30-0	36	2-0
	4																																	82	4-7	4	⑥45-5	6	⑥42-0	36	2-0
	5																																	102	4-7	4	⑥55-5	6	⑥52-7	36	2-0
	6																																	122	4-7	4	⑥65-5	6	⑥62-7	36	2-0
9x9	2	#5	126	5-8	8	#4	126	10-1	8	2	20-11	18	2-11	2	24-9	18	3-4	22	17-7	22	21-0	#4	100	4-11	10	8	19-3	6	20-7	8	22-4	6	25-8	46	4-8	4	28-10	6	29-0	40	2-0
	3																																	70	4-8	4	37-1	6	34-3	40	2-0
	4																																	92	4-8	4	⑥50-6	6	⑥47-8	40	2-0
	5																																	114	4-8	4	⑥61-9	6	⑥58-11	40	2-0
10x10	2																																	52	4-9	4	28-5	6	25-7	44	2-0
	3																																	76	4-9	4	⑥43-1	6	38-1	44	2-0
	4																																	102	4-9	4	⑥55-7	6	⑥52-9	44	2-0
	5																																	126	4-9	4	⑥68-2	6	⑥65-3	44	2-0
	6	#5	132	6-2	8½	#5	132	11-2	8½	2	22-10	20	3-0	2	27-7	20	3-5	24	18-6	24	23-9	#5	102	5-6	11	8	21-1	6	22-5	8	25-1	6	28-7									

⑦ Includes 1-1'-6" Lap Splice.
⑧ Includes 1-2'-2" Lap Splice.
⑨ Does not include Lap Splice.
When Bar Length Exceeds 40'-0" Add 1-2'-2" Lap Splice.
⑩ Includes one 2'-7" Lap Splice.

Does not include Lap Splice when Bar Length Exceeds 40'-0", Add 2'-7" Lap Splice.

General Notes Cont'd
For Detail of Joints, See Std. Plan C.M. - 48.

Ⓐ *6 Bars X to be ¾"ϕ Smooth and Greased for 1'-0" of Length.

APPROVED BY:

Original Signed by Chief Engineer
CHIEF ENGINEER — DATE

CC·S·M·7-10·S·60°·2

DATE	DESCRIPTION	BY
2-15-64	Rev. General Notes	W.E.M.
9-2-64	Added 9'x9'x10'x10'	
2-1-64	DOWELS 'X' TO SMOOTH	W.E.M.
9-4-63	Added 3-6 op. 8'x8'	
5-29-63	7'x7' Added	
6-8-72	Rev. General Notes for Steel	W.E.M.
5-2-67	Added Axle Steel	W.E.M.
1-5-78	Rev. Weep Hole Note	W.T.J.
9-20-76	Rev. Steel Quan. 10'x10'	W.T.J.
2-20-75	Rev. Slope Intercept	W.T.J.

REVISIONS

General Notes:
Construction Specifications: Latest Approved La. Dept. of Highways Standard Specifications.
Design Specifications: A.A.S.H.O. 1961 as Amended by Int. Spec. 1964.
Live Load H.S. 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. A 615 or Rail-Steel A.S.T.M. A 616 or Axle-Steel A.S.T.M. A 617.
Dimensions Relating to Reinforcing Steel are to Bar Centers.
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.

DIMENSIONS FOR BARS E				
Opening	Bar Size	R	X	Y
7'x7'	#4	2½"	2'-7"	2'-5"
8'x8'	#5	2 13/16"	2'-10⅝"	2'-7½"
9'x9'	#5	2 15/16"	2'-10⅝"	2'-9½"
10'x10'	#6	3⅜"	3'-1⅞"	3'-0½"

BARS E

STANDARD PLAN
MULTIPLE OPENINGS
REINFORCED CONCRETE BOX CULVERTS
STRAIGHT WINGS 60° CROSSING
2:1 SPILL SLOPE NORMAL TO CHANNEL
DATED October 25, 1962 7'x7' TO 10'x10'

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

DESIGNED G.A.H./M.Y.Y. DETAILED J.F.N. TRACED C.J.H.
CHECKED W.E.Marcum CHECKED W.E.Marcum CHECKED W.E.Marcum
BRIDGE DESIGN SECTION

CC·S·M·7-10·S·60°·2