BILL OF REINFORCING STEEL FOR 44'-0" CULVERT

BARREL

Openings Size Feet	No.	#6 Bars A No.	#6 Bars A Length Ft.-In.	#6 Bars A Spc. In.	#6 Bars A1 No.	#6 Bars A1 Length Ft.-In.	#6 Bars A1 Spc. In.	#6 Bars B No.	#6 Bars B Length Ft.-In.	#6 Bars B Spc. In.	#4 Bars C No.	#4 Bars C Length① Ft.-In.	#4 Bars D No.	#4 Bars D Length Ft.-In.	#4 Bars D Spc.
6x4	2	78	14-2	14	78	5-2	14	80	14-5½	14	46	47-2	138	5-0	12
	3	78	20-8	14	156	5-2	14	80	21-3	14	68	47-2	184	5-0	12
	4	78	27-2	14	234	5-2	14	80	28-0½	14	90	47-2	230	5-0	12
	5	78	33-8	14	312	5-2	14	80	34-10	14	112	47-2	276	5-0	12
	6	78	②42-4	14	390	5-2	14	80	②43-9½	14	134	47-2	322	5-0	12
6x5	2	78	14-2	14	78	5-2	14	80	14-5½	14	49	47-2	138	6-0	12
	3	78	20-8	14	156	5-2	14	80	21-3	14	72	47-2	184	6-0	12
	4	78	27-2	14	234	5-2	14	80	28-0½	14	95	47-2	230	6-0	12
	5	78	33-8	14	312	5-2	14	80	34-10	14	118	47-2	276	6-0	12
	6	78	②42-4	14	390	5-2	14	80	②43-9½	14	141	47-2	322	6-0	12
7x4	2	84	16-2	13	84	5-8	13	86	16-6	13	50	47-2	138	5-1	12
	3	84	23-8	13	168	5-8	13	86	24-4	13	74	47-2	184	5-1	12
	4	84	31-2	13	252	5-8	13	86	32-2	13	98	47-2	230	5-1	12
	5	84	38-8	13	336	5-8	13	86	40-0	13	122	47-2	276	5-1	12
	6	84	②48-4	13	420	5-8	13	86	②50-0	13	146	47-2	322	5-1	12
7x5	2	84	16-2	13	84	5-8	13	86	16-6	13	53	47-2	138	6-1	12
	3	84	23-8	13	168	5-8	13	86	24-4	13	78	47-2	184	6-1	12
	4	84	31-2	13	252	5-8	13	86	32-2	13	103	47-2	230	6-1	12
	5	84	38-8	13	336	5-8	13	86	40-0	13	128	47-2	276	6-1	12
	6	84	②48-4	13	420	5-8	13	86	②50-0	13	153	47-2	322	6-1	12
7x6	2	84	16-2	13	84	5-8	13	86	16-6	13	56	47-2	168	7-1	10
	3	84	23-8	13	168	5-8	13	86	24-4	13	82	47-2	224	7-1	10
	4	84	31-2	13	252	5-8	13	86	32-2	13	108	47-2	280	7-1	10
	5	84	38-8	13	336	5-8	13	86	40-0	13	134	47-2	336	7-1	10
	6	84	②48-4	13	420	5-8	13	86	②50-0	13	160	47-2	392	7-1	10
8x5	2	92	18-5	12	92	6-2	12	92	18-9¼	12	57	47-2	138	6-2	12
	3	92	27-0	12	184	6-2	12	92	27-8½	12	84	47-2	184	6-2	12
	4	92	35-7	12	276	6-2	12	92	36-7¾	12	111	47-2	230	6-2	12
	5	92	②46-4	12	368	6-2	12	92	②47-9	12	138	47-2	276	6-2	12
	6	92	②54-11	12	460	6-2	12	92	②56-8¼	12	165	47-2	322	6-2	12
8x6	2	92	18-5	12	92	6-2	12	92	18-9¼	12	60	47-2	138	7-2	12
	3	92	27-0	12	184	6-2	12	92	27-8½	12	88	47-2	184	7-2	12
	4	92	35-7	12	276	6-2	12	92	36-7¾	12	116	47-2	230	7-2	12
	5	92	②46-4	12	368	6-2	12	92	②47-9	12	144	47-2	276	7-2	12
	6	92	②54-11	12	460	6-2	12	92	②56-8¼	12	172	47-2	322	7-2	12

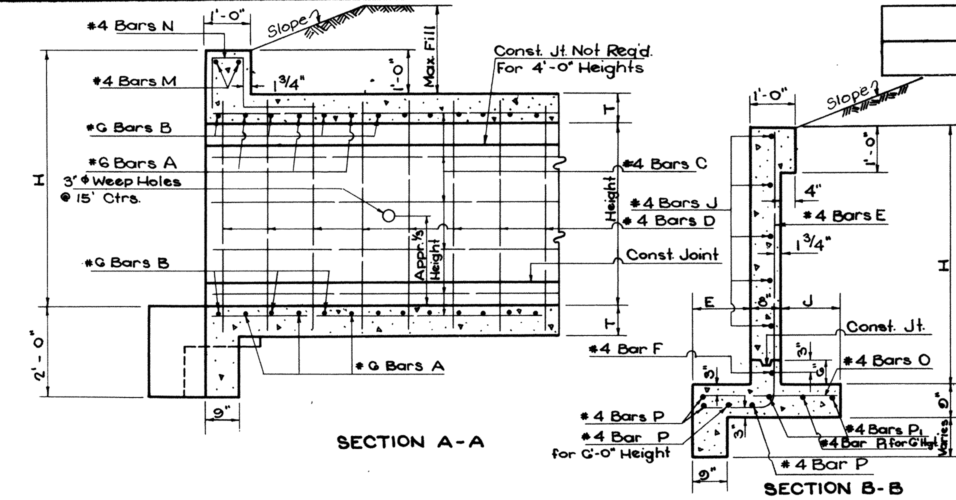
WINGS AND CURBS

Openings Size Feet	No.	#4 Bars E No.	#4 Bars E Length Ft.-In.	#4 Bars F No.	#4 Bars F Length Ft.-In.	#4 Bars F1 No.	#4 Bars F1 Length Ft.-In.	#4 Bars J No.	#4 Bars J Length Ft.-In.	#4 Bars M No.	#4 Bars M Length Ft.-In.	#4 Bars N No.	#4 Bars N Length Ft.-In.	#4 Bars O No.	#4 Bars O Length Ft.-In.	#4 Bars P No.	#4 Bars P Length Ft.-In.	#4 Bars P1 No.	#4 Bars P1 Length Ft.-In.	#6 Bars X Ⓐ No.	#6 Bars X Ⓐ Length Ft.-In.
6x4	2	40	7-6	4	11-3	16	3-2	20	7-8	4	16-7	28	4-11	40	2-4	12	9-6	8	11-2	20	2-0
	3									4	23-1	40	4-11								
	4									4	29-7	54	4-11								
	5									4	36-1	66	4-11								
	6									4	①44-1	80	4-11								
6x5	2	48	8-8	4	13-3	20	3-2	24	9-8	4	16-7	28	4-11	48	2-10	12	11-6	8	13-2	24	2-0
	3									4	23-1	40	4-11								
	4									4	29-7	54	4-11								
	5									4	36-1	66	4-11								
	6									4	①44-1	80	4-11								
7x4	2	40	7-6½	4	11-3	16	3-2	20	7-8	4	18-7	32	5-0	40	2-4	12	9-6	8	11-2	20	2-0
	3									4	26-1	48	5-0								
	4									4	33-7	62	5-0								
	5									4	①42-7	78	5-0								
	6									4	①50-1	92	5-0								
7x5	2	48	8-8½	4	13-3	20	3-2	24	9-8	4	18-7	32	5-0	48	2-10	12	11-6	8	13-2	24	2-0
	3									4	26-1	48	5-0								
	4									4	33-7	62	5-0								
	5									4	①42-7	78	5-0								
	6									4	①50-1	98	5-0								
7x6	2	56	9-10½	4	15-3	24	3-2	28	11-8	4	18-7	32	5-0	56	3-4	16	13-6	12	15-2	28	2-0
	3									4	26-1	48	5-0								
	4									4	33-7	62	5-0								
	5									4	①42-7	78	5-0								
	6									4	①50-1	92	5-0								
8x5	2	48	8-9	4	13-4	20	3-3	24	9-8	4	20-10	36	5-1	48	2-10	12	11-6	8	13-2	24	2-0
	3									4	29-5	54	5-1								
	4									4	38-0	72	5-1								
	5									4	①48-1	88	5-1								
	6									4	①56-8	106	5-1								
8x6	2	56	9-11	4	15-4	24	3-3	28	11-8	4	20-10	36	5-1	56	3-4	16	13-6	12	15-2	28	2-0
	3									4	29-5	54	5-1								
	4									4	38-0	72	5-1								
	5									4	①48-1	88	5-1								
	6									4	①56-8	106	5-1								

① Includes One 1'-6" Lap Splice ② Includes One 2'-2" Lap Splice. Ⓐ #6 Bars 'X' to be 3/4" ϕ Smooth & Greased for 1'-0" of Length.

DIMENSIONS / QUANTITIES

Openings Size Feet	No.	Area Sq.Ft.	Max. Fill Slab Feet	Max. Fill Wall Feet	Barrel T In.	Barrel N In.	E Ft.-In.	J Ft.-In.	G Ft.-In.	H Ft.-In.	L Ft.-In.	P Ft.-In.	M Ft.-In.	Per Lin. Foot of Barrel Steel Pounds	Per Lin. Foot of Barrel Concrete Cu. Yds.	44'-0" Culvert Steel Pounds	44'-0" Culvert Concrete Cu. Yds.	Openings No.	Openings Size Feet
6x4	2	48	16	12	8	6	1-3	10	2-9	5-8	10-4	9-10	33-2	127.76	0.9074	6674	53.64	2	6x4
	3	72											39-8	193.32	1.3117	9760	73.20	3	
	4	96	20										46-2	258.88	1.7161	12,853	92.77	4	
	5	120											52-8	324.45	2.1204	15,940	112.33	5	
	6	144											59-2	401.17	2.5247	19,551	131.89	6	
6x5	2	60	15	7	8	6	1-5	1-2	3-3	6-8	12-4	11-10	37-2	131.76	0.9630	7072	60.02	2	6x5
	3	90											43-8	198.66	1.3858	10,220	80.43	3	
	4	120	20										50-2	265.56	1.8087	13,376	100.84	4	
	5	150											56-8	332.46	2.2315	16,524	121.26	5	
	6	180											63-2	410.52	2.6544	20,198	141.67	6	
7x4	2	56	12	12	8½	6	1-3	10	2-9	5-8½	10-4	9-10	35-2	149.88	1.0540	7713	60.69	2	7x4
	3	84											42-8	227.54	1.5309	11,372	83.72	3	
	4	112	16										50-2	305.20	2.0077	15,024	106.75	4	
	5	140											57-8	382.86	2.4846	18,687	129.78	5	
	6	168											65-2	472.54	2.9614	22,892	152.80	6	
7x5	2	70	12	7	8½	6	1-5	1-2	3-3	6-8½	12-4	11-10	39-2	153.89	1.1096	8111	67.07	2	7x5
	3	105											46-8	232.89	1.6049	11,832	90.95	3	
	4	140	16										54-2	311.88	2.1003	15,546	114.83	4	
	5	175											61-8	390.88	2.5957	19,272	138.71	5	
	6	210											69-2	481.89	3.0910	23,539	162.59	6	
7x6	2	84	11	5	8½	6	1-7	1-6	3-9	7-8½	14-4	13-10	43-2	160.74	1.1651	8756	74.07	2	7x6
	3	126											50-2	242.02	1.6790	12,586	98.80	3	
	4	168	16										58-2	323.29	2.1929	16,410	123.53	4	
	5	210											65-8	404.57	2.7068	20,245	148.27	5	
	6	252											73-2	497.86	3.2207	24,622	173.00	6	
8x5	2	80	10	9	9	7	1-5	1-2	3-3	6-9	12-5	11-10	41-5	180.67	1.3287	9373	77.48	2	8x5
	3	120											50-0	273.98	1.9228	13,771	106.05	3	
	4	160	14										58-7	367.30	2.5170	18,168	134.61	4	
	5	200											67-2	473.63	3.1111	23,162	163.17	5	
	6	240											75-9	566.94	3.7053	27,559	191.73	6	
8x6	2	96	9	5	9	7	1-7	1-6	3-9	7-9	14-5	13-10	45-5	184.68	1.3935	9,877	84.92	2	8x6
	3	144											54-0	279.33	2.0092	14,366	114.47	3	
	4	192	13										62-7	373.98	2.6250	18,796	144.03	4	
	5	240											71-2	481.64	3.2407	23,852	173.59	5	
	6	288											79-9	576.29	3.8565	28,312	203.14	6	

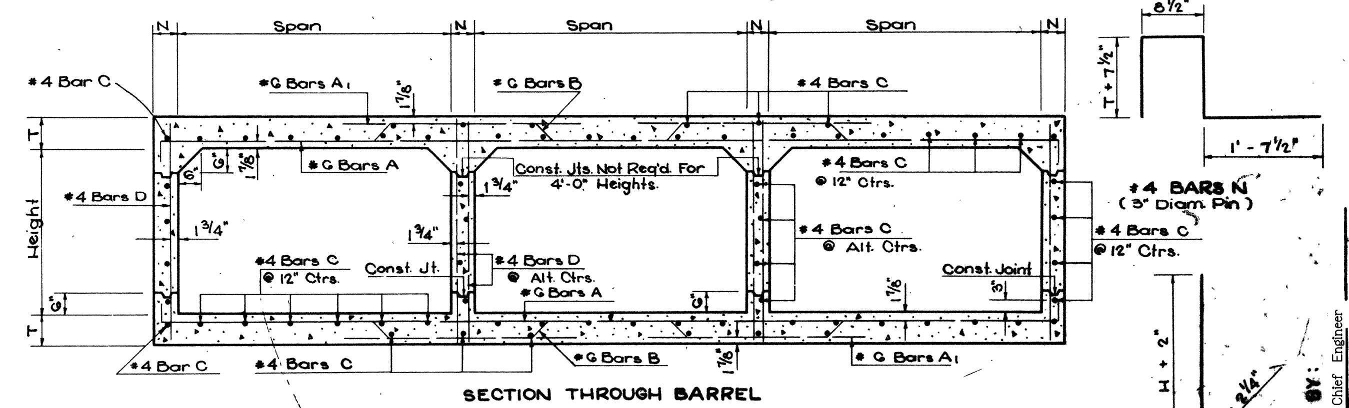


DIMENSION FOR BARS B

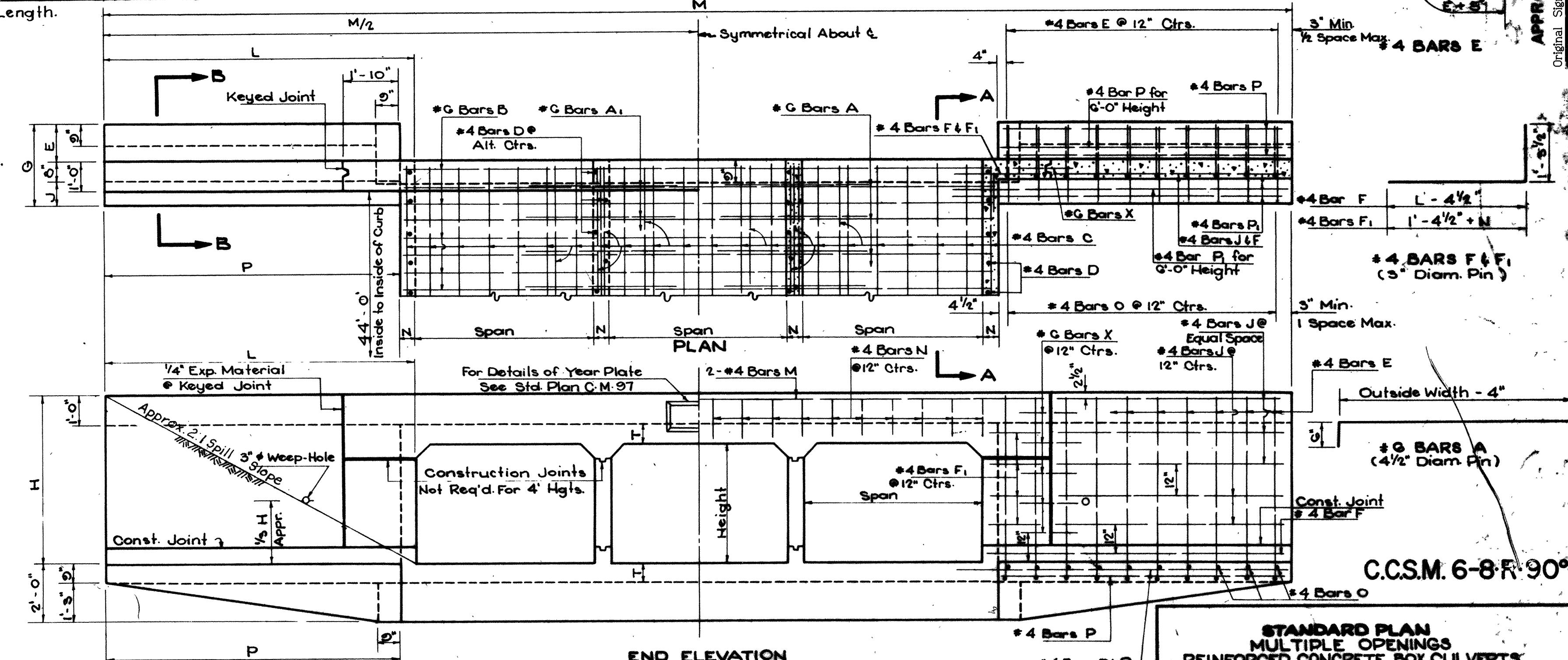
SPAN	A	B	C	D	E
6'-0"	4'-7⅞	3'-1¾	2'-7¾	4¼"	6"
7'-0"	5'-4⅝	3'-7¼	3'-1¼	4¾"	6¾
8'-0"	6'-2⅜	4'-1¾	3'-6¾	5¼"	7⅜

Outside Width of Culvert (-) 4"

#6 BARS B (4½" Diam. Pin)



APPROVED BY:
Original Signed by Chief Engineer
CHIEF ENGINEER DATE



C.C.S.M. 6-8-R 90°-1

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 HS 20-44 or Military Loading, whichever is greater.
All Concrete to be Class 'A'.
All Exposed Corners to Have 3/4" Chamfer, Unless Otherwise Noted.
Reinforcement Shall be Billet 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.
For Detail of Joints, See Std. Plan C.M.-40.

Date	Description	By
1-11-74	Rev. Weep Hole Note	M.T.J.
1-20-76	Rev. Slope Intercept	M.T.J.
6-8-72	Rev. General Notes for Steel	M.E.M.
5-2-67	Added Axle Steel	W.E.M.
2-18-66	Rev. General Notes	W.E.M.

REVISIONS

STANDARD PLAN
MULTIPLE OPENINGS
REINFORCED CONCRETE BOX CULVERTS
STRAIGHT WINGS 2:1 SPILL SLOPE
6x4, 6x5, 7x4, 7x5, 7x6, 8x5 & 8x6
DATED July 1, 1964

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

DESIGNED W.E. Marcum	DETAILED Earl J. Mangel	TRACED Lou Sibley
CHECKED N.K. Brown	CHECKED J.L. Arceneaux	CHECKED W.E. Marcum
IN CHARGE OF		