

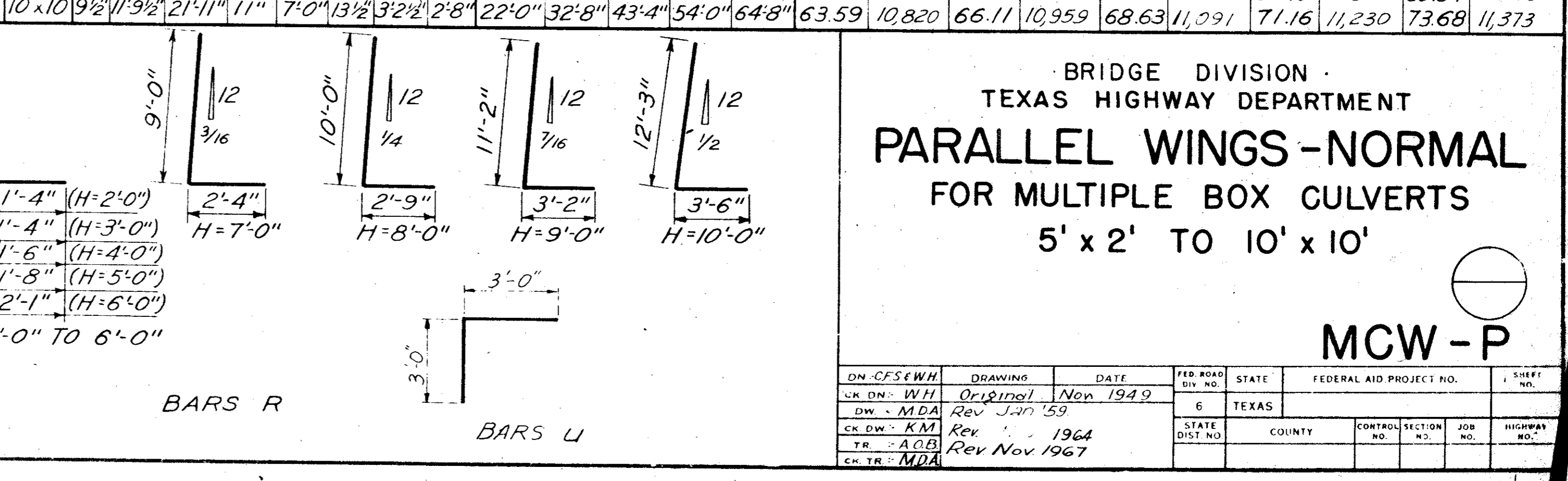
REINFORCING FOR 2 CULVERT APRONS		TABLE OF DIMENSIONS												TOTAL QUANTITIES (FOR 4 WINGS AND 2 APRONS)																																																																																																	
BARS X - #4 @ 12" ±						BARS S2 - #4 @ 12" ±						CULVERT SIZE	WING												APRON																																																																																						
NUMBER OF SPANS						NUMBER OF SPANS							NUMBER OF SPANS						NUMBER OF SPANS																																																																																												
2	3	4	5	6	6	2	3	4	5	6	2	3	4	5	6	2	3	4	5	6	2	3	4	5	6	2	3	4	5	6	2	3	4	5	6																																																																												
WT.	WT.	WT.	WT.	WT.	WT.	WT.	WT.	WT.	WT.	WT.	H	T	Z	L	R	W	V	D	Y	2	3	4	5	6	CONC.	REINF.	CONC.	REINF.	CONC.	REINF.	CONC.	REINF.	CONC.	REINF.	CONC.	REINF.																																																																											
31	45	60	75	90	3.11	24	63	36	94	46	120	58	152	68	178	5	2	6	3'-6"	5'-4"	7"	2'-6"	8"	10"	1'-0"	11'-6"	17'-0"	22'-6"	28'-0"	33'-6"	5.11	5.92	5.75	6.37	6.78	7.01	7.25	7.65	7.66	5	3	6	4'-6"	7'-4"	7"	2'-0"	8"	1'-2"	1'-0"	11'-6"	17'-0"	22'-6"	28'-0"	33'-6"	7.47	8.83	8.10	9.28	8.79	9.69	9.37	10.16	10.00	5	4	6	5'-6"	9'-4"	7"	3'-5"	8"	1'-7"	1'-2"	11'-6"	17'-0"	22'-6"	28'-0"	33'-6"	10.61	14.33	11.27	14.80	11.94	15.22	12.61	15.70	13.28	5	5	6	6'-6"	11'-4"	7"	4'-0"	8"	2'-0"	1'-4"	11'-9"	17'-4"	22'-11"	28'-6"	34'-11"	14.37	21.01	15.08	21.57	15.80	22.09	16.51	22.65	17.22

WING SIZE		BARS R		BARS S1		#4 BARS T1 @ 18"		#4 BARS T2 @ 12"		BARS U		#4 BARS W @ 12"		TOTAL WEIGHT															
H	L	NO.	SIZE	NO.	SIZE	NO.	SIZE	NO.	SIZE	NO.	SIZE	NO.	SIZE																
2'-0"	5'-4"	24	#4	12	5'-11"	8	24	16	5'-1"	54	8	5'-0"	27	16	438														
3'-0"	7'-5"	36	#4	11	6'-11"	146	36	#4	11	4'-3"	102	24	7'-2"	115	8	7'-1"	38	24	#4	18	6'-0"	150	24	4'-9"	76	28	8'-8"	162	789
4'-0"	9'-6"	68	#4	7	7'-4"	333	68	#4	7	4'-0"	219	32	9'-3"	198	8	9'-2"	49	32	#5	8	6'-0"	200	28	5'-9"	108	32	10'-9"	230	1337
5'-0"	11'-6"	68	#5	8	8'-6"	603	68	#5	8	5'-5"	384	32	11'-3"	240	11	11'-2"	90	32	#5	8	6'-0"	200	36	6'-9"	162	36	12'-9"	307	1986
6'-0"	13'-6"	96	#5	7	9'-11"	993	96	#5	7	6'-1"	609	40	13'-3"	354	12	13'-2"	106	40	#5	8	6'-0"	250	40	7'-9"	207	36	14'-9"	355	2874
7'-0"	15'-6"	136	#5	5 1/2	11'-4"	1607	136	#5	5 1/2	6'-7"	933	48	15'-3"	489	12	15'-2"	122	18	#5	8	6'-0"	300	48	8'-9"	281	40	16'-9"	448	4180
8'-0"	17'-7"	132	#6	6 1/2	12'-9"	2528	132	#6	6 1/2	7'-6"	1487	48	17'-4"	556	16	17'-3"	184	18	#5	8	6'-0"	300	52	9'-9"	339	44	18'-10"	554	5948
9'-0"	19'-9"	172	#6	5 1/2	14'-4"	3702	172	#6	5 1/2	8'-1"	2087	56	19'-6"	729	16	19'-5"	208	18	#5	8	6'-0"	300	60	10'-0"	434	44	21'-0"	617	8127
10'-0"	21'-11"	212	#6	5	15'-9"	5015	212	#6	5	8'-7"	2732	64	21'-8"	926	16	21'-7"	231	18	#5	8	6'-0"	300	62	11'-0"	497	48	23'-2"	743	10538

TABLE OF REINFORCING STEEL FOR 4 WING WALLS																													
WING SIZE		BARS R		BARS S1		#4 BARS T1 @ 18"		#4 BARS T2 @ 12"		BARS U		#4 BARS W @ 12"		TOTAL WEIGHT															
H	L	NO.	SIZE	NO.	SIZE	NO.	SIZE	NO.	SIZE	NO.	SIZE	NO.	SIZE																
2'-0"	5'-4"	24	#4	12	5'-11"	8	24	16	5'-1"	54	8	5'-0"	27	16	438														
3'-0"	7'-5"	36	#4	11	6'-11"	146	36	#4	11	4'-3"	102	24	7'-2"	115	8	7'-1"	38	24	#4	18	6'-0"	150	24	4'-9"	76	28	8'-8"	162	789
4'-0"	9'-6"	68	#4	7	7'-4"	333	68	#4	7	4'-0"	219	32	9'-3"	198	8	9'-2"	49	32	#5	8	6'-0"	200	28	5'-9"	108	32	10'-9"	230	1337
5'-0"	11'-6"	68	#5	8	8'-6"	603	68	#5	8	5'-5"	384	32	11'-3"	240	11	11'-2"	90	32	#5	8	6'-0"	200	36	6'-9"	162	36	12'-9"	307	1986
6'-0"	13'-6"	96	#5	7	9'-11"	993	96	#5	7	6'-1"	609	40	13'-3"	354	12	13'-2"	106	40	#5	8	6'-0"	250	40	7'-9"	207	36	14'-9"	355	2874
7'-0"	15'-6"	136	#5	5 1/2	11'-4"	1607	136	#5	5 1/2	6'-7"	933	48	15'-3"	489	12	15'-2"	122	18	#5	8	6'-0"	300	48	8'-9"	281	40	16'-9"	448	4180
8'-0"	17'-7"	132	#6	6 1/2	12'-9"	2528	132	#6	6 1/2	7'-6"	1487	48	17'-4"	556	16	17'-3"	184	18	#5	8	6'-0"	300	52	9'-9"	339	44	18'-10"	554	5948
9'-0"	19'-9"	172	#6	5 1/2	14'-4"	3702	172	#6	5 1/2	8'-1"	2087	56	19'-6"	729	16	19'-5"	208	18	#5	8	6'-0"	300	60	10'-0"	434	44	21'-0"	617	8127
10'-0"	21'-11"	212	#6	5	15'-9"	5015	212	#6	5	8'-7"	2732	64	21'-8"	926	16	21'-7"	231	18	#5	8	6'-0"	300	62	11'-0"	497	48	23'-2"	743	10538

*NO BARS X (Lgth = Dim. "C")
 2 Bars when H = 2', 3' & 4'
 3 Bars when H = 5', 6' & 7'
 4 Bars when H = 8', 9' & 10'

GENERAL NOTES: All concrete shall be Class C. Chaper all exposed corners 3/4" unless specified otherwise.
 All dimensions relating to reinforcing steel are to center of bars. Provide Weep holes for H = 5'-0" and greater.
 The bottom slab of the barrel, wing footings and walls shall be placed in one continuous operation.



BRIDGE DIVISION
 TEXAS HIGHWAY DEPARTMENT
PARALLEL WINGS-NORMAL
 FOR MULTIPLE BOX CULVERTS
 5' x 2' TO 10' x 10'

MCW-P

DATE: Nov. 1949
 DRAWING: Original
 STATE: TEXAS
 COUNTY: []
 FEDERAL AID PROJECT NO.: []
 CONTROL SECTION NO.: []
 JOB NO.: []
 SHEET NO.: []