

**TOTAL QUANTITIES ~ 4 WINGS & 2 APRONS**  
 REINFORCING STEEL ~ 4 WINGS & 2 APRONS  
 TABLE OF DIMENSIONS  
 WINGWALL  
 APRON  
 CULVERT SIZE

WING WALL H	2		3		4		5		6		7		8		9		10		Culvert Size	Slab
	Reinf. C.Y.	Conc. C.Y.	Reinf. Lbs.	Conc. C.Y.	Reinf. Lbs.	Conc. C.Y.	Reinf. Lbs.	Conc. C.Y.	Reinf. Lbs.	Conc. C.Y.	Reinf. Lbs.	Conc. C.Y.	Reinf. Lbs.	Conc. C.Y.	Reinf. Lbs.	Conc. C.Y.	Reinf. Lbs.	Conc. C.Y.		
2'-0"	7.23	7.99	8.13	9.02	9.91	10.82	11.76	12.73	13.73	14.76	15.82	16.91	18.02	19.15	20.31	21.49	22.69	23.91	25.15	26.41
3'-0"	10.56	11.61	12.33	13.25	14.21	15.20	16.21	17.24	18.29	19.36	20.44	21.54	22.65	23.78	24.92	26.08	27.25	28.43	29.63	30.84
4'-0"	15.00	16.42	17.55	18.97	20.11	21.64	23.18	24.73	26.29	27.86	29.44	31.02	32.61	34.20	35.80	37.40	39.01	40.62	42.24	43.86
5'-0"	20.32	22.30	23.33	25.34	27.36	29.39	31.43	33.48	35.53	37.59	39.65	41.72	43.79	45.86	47.93	50.01	52.09	54.17	56.25	58.33
6'-0"	26.68	29.68	31.66	34.67	37.69	40.72	43.76	46.81	49.87	52.93	55.99	59.06	62.13	65.20	68.28	71.35	74.43	77.51	80.59	83.67
7'-0"	33.99	38.99	42.97	47.97	51.95	56.95	60.94	64.93	68.93	72.92	76.92	80.91	84.91	88.90	92.90	96.89	100.89	104.88	108.88	112.87
8'-0"	42.24	49.24	54.23	60.23	66.23	72.23	78.23	84.23	90.23	96.23	102.23	108.23	114.23	120.23	126.23	132.23	138.23	144.23	150.23	156.23
9'-0"	50.59	59.59	65.58	72.58	78.58	85.58	91.58	98.58	104.58	110.58	116.58	122.58	128.58	134.58	140.58	146.58	152.58	158.58	164.58	170.58
10'-0"	59.93	70.93	78.93	87.93	95.93	103.93	111.93	119.93	127.93	135.93	143.93	151.93	159.93	167.93	175.93	183.93	191.93	199.93	207.93	215.93

**GENERAL NOTES:**

- Chamfer all exposed corners  $\frac{3}{8}$ " unless otherwise specified.
- All dimensions relating to reinforcing steel are to centers of bars.
- Provide Weep Holes for H=5'-0" and greater.
- The bottom slab of the barrel, wing footing and inwalls shall be placed in one continuous operation.

**TABLE OF REINFORCING STEEL FOR 4 WINGWALLS**

WING WALL H	BARS R		BARS S <sub>1</sub>		BARS S <sub>2</sub>		BARS U <sub>1</sub>		BARS U <sub>2</sub>		BARS U <sub>3</sub>		BARS U <sub>4</sub>		BARS U <sub>5</sub>		BARS U <sub>6</sub>		TOTAL WEIGHT
H	No.	Size	No.	Size	No.	Size	No.	Size	No.	Size	No.	Size	No.	Size	No.	Size	No.	Size	
2'-0"	36	#4	12	#5	12	#5	12	#5	12	#5	12	#5	12	#5	12	#5	12	#5	1050
3'-0"	48	#4	16	#5	16	#5	16	#5	16	#5	16	#5	16	#5	16	#5	16	#5	1440
4'-0"	60	#4	20	#5	20	#5	20	#5	20	#5	20	#5	20	#5	20	#5	20	#5	1800
5'-0"	72	#4	24	#5	24	#5	24	#5	24	#5	24	#5	24	#5	24	#5	24	#5	2160
6'-0"	84	#4	28	#5	28	#5	28	#5	28	#5	28	#5	28	#5	28	#5	28	#5	2520
7'-0"	96	#4	32	#5	32	#5	32	#5	32	#5	32	#5	32	#5	32	#5	32	#5	2880
8'-0"	108	#4	36	#5	36	#5	36	#5	36	#5	36	#5	36	#5	36	#5	36	#5	3240
9'-0"	120	#4	40	#5	40	#5	40	#5	40	#5	40	#5	40	#5	40	#5	40	#5	3600
10'-0"	132	#4	44	#5	44	#5	44	#5	44	#5	44	#5	44	#5	44	#5	44	#5	3960

**\* NUMBER OF BARS X**

- 2 Bars when H = 2, 3, 4
- 3 Bars when H = 5, 6, 7
- 4 Bars when H = 8, 9, 10

**Length = Dimension C**

**REPRODUCED FROM TEXAS STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION STANDARD DRAWING MCW-P-45\***

TEXAS TURNPIKE AUTHORITY  
 DALLAS NORTH TOLLWAY  
 PARALLEL WINGS - 45° SKEW  
 FOR MULTIPLE BOX CULVERTS  
 5' x 2' TO 10' x 10'  
 SECTION VII

Gibbs & Hill, Inc.  
 CONTRACT NO. DNT-115  
 STANDARD DRAWING NO. 63