

ENGLISH REDIGNSIGNEDTRIPLECULVERTS.DGN - TRH 30-8-12 - THIS SHEET ISSUED 04-12.

BILL OF REINFORCING FOR ONE HEADWALL 30° SKEW CULVERT SPAN x CULVERT HEIGHT

BAR	LOCATION	SHAPE	12' x 5'		12' x 4'		10' x 12'		10' x 11'		10' x 10'		10' x 9'		10' x 8'		BAR								
			NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH		WT.	NO.	LENGTH	WT.				
5fa	FENCE ANCHOR (GALV.)		2	2'-10	6	2	2'-10	6	2	2'-10	6	2	2'-10	6	2	2'-10	6	5fa							
4b1	WINGWALL, B.F.H. LONG		1	25'-0	17	1	20'-10	14	1	54'-2	38	1	50'-0	35	1	45'-10	32	1	41'-8	29	1	37'-6	25	4b1	
4b2	WINGWALL, B.F.H. SHORT		1	19'-5	13	1	16'-3	11	1	41'-2	29	1	38'-1	25	1	35'-0	23	1	31'-10	21	1	28'-9	19	4b2	
4b3	WINGWALL, B.F.H. LONG		3	14'-8 TO 23'-1	38	2	14'-8 TO 18'-10	22	10	14'-8 TO 52'-3	228	9	14'-8 TO 48'-1	192	8	14'-8 TO 43'-11	158	7	14'-8 TO 39'-9	127	6	14'-8 TO 35'-7	101	4b3	
4b4	WINGWALL, B.F.H. SHORT		3	11'-9 TO 18'-0	30	2	11'-9 TO 14'-10	18	10	11'-11 TO 39'-9	173	9	11'-11 TO 36'-8	146	8	11'-11 TO 33'-7	122	7	11'-10 TO 30'-5	99	6	11'-10 TO 27'-4	78	4b4	
5b5	WINGWALL, F.F.H. LONG		1	25'-0	26	1	20'-10	22	1	54'-3	59	1	50'-1	55	1	45'-11	50	1	41'-9	46	1	37'-7	39	5b5	
5b6	WINGWALL, F.F.H. SHORT		1	19'-5	20	1	16'-4	17	1	41'-3	45	1	38'-2	40	1	35'-0	37	1	31'-11	33	1	28'-9	30	5b6	
5b7	WINGWALL, F.F.H. LONG		4	10'-7 TO 23'-1	70	3	10'-7 TO 18'-11	46	11	10'-7 TO 52'-4	368	10	10'-7 TO 48'-2	311	9	10'-7 TO 43'-11	258	8	10'-7 TO 39'-9	210	7	10'-7 TO 35'-7	169	5b7	
5b8	WINGWALL, F.F.H. SHORT		4	8'-9 TO 18'-0	56	3	8'-8 TO 14'-11	37	11	8'-10 TO 39'-10	279	10	8'-10 TO 36'-9	238	9	8'-10 TO 33'-7	199	8	8'-10 TO 30'-6	164	7	8'-9 TO 27'-4	132	5b8	
5b9	INTERIOR WALLS, BOTH F.H.		14	EA. 5'-10 TO 14'-9	150	10	EA. 6'-1 TO 12'-5	96	42	EA. 5'-7 TO 30'-11	799	38	EA. 5'-7 TO 28'-8	679	34	EA. 5'-7 TO 26'-4	566	30	EA. 5'-7 TO 24'-0	463	26	EA. 5'-8 TO 21'-9	372	5b9	
4c1	WINGWALL, F.F.V. LONG		22	2'-10 TO 7'-10	78	18	2'-10 TO 6'-11	59	51	2'-9 TO 14'-9	298	47	2'-9 TO 13'-9	259	43	2'-9 TO 12'-10	224	39	2'-9 TO 11'-10	190	35	2'-9 TO 10'-11	160	4c1	
4c2	WINGWALL, F.F.V. SHORT		17	2'-10 TO 8'-0	62	14	2'-10 TO 7'-0	46	38	2'-9 TO 14'-8	221	35	2'-9 TO 13'-8	192	32	2'-9 TO 12'-9	166	29	2'-9 TO 11'-9	140	26	2'-9 TO 10'-9	117	4c2	
4c3	WINGWALL, F.F.V. LONG		---	---	---	---	---	---	23	8'-4 TO 13'-8	169	19	8'-4 TO 12'-8	133	15	8'-4 TO 11'-9	101	11	8'-4 TO 10'-9	70	---	---	---	---	4c3
4c4	WINGWALL, F.F.V. SHORT		---	---	---	---	---	---	18	9'-4 TO 14'-10	145	15	9'-4 TO 13'-10	116	12	9'-4 TO 12'-10	89	9	9'-4 TO 11'-11	64	---	---	---	---	4c4
4c5	WINGWALL, F.F.V. LONG		2	6'-9	9	2	5'-9	8	2	13'-8	18	2	12'-8	17	2	11'-8	16	1	10'-8	7	1	9'-8	6	4c5	
4c6	WINGWALL, F.F.V. SHORT		1	6'-9	5	2	5'-9	8	2	13'-8	18	2	12'-8	17	2	11'-8	16	2	10'-8	14	2	9'-8	13	4c6	
4c7	INTERIOR WALLS, BOTH F.V.		4	1'-8	4	4	1'-8	4	4	1'-8	4	4	1'-8	4	4	1'-8	4	4	1'-8	4	4	1'-8	4	4c7	
4c8	INTERIOR WALLS, BOTH F.V.		4	5'-7	15	4	4'-7	12	4	12'-6	33	4	11'-6	31	4	10'-6	28	4	9'-6	25	4	8'-6	23	4c8	
5c9	WINGWALL, B.F.V. LONG		11	2'-10 TO 5'-3	46	11	2'-10 TO 5'-3	46	11	2'-9 TO 5'-2	45	11	2'-9 TO 5'-2	45	11	2'-9 TO 5'-2	45	11	2'-9 TO 5'-2	45	11	2'-9 TO 5'-2	45	5c9	
5c10	WINGWALL, B.F.V. SHORT		5	2'-10 TO 4'-2	18	5	2'-10 TO 4'-2	18	5	2'-9 TO 4'-1	18	5	2'-9 TO 4'-1	18	5	2'-9 TO 4'-1	18	5	2'-9 TO 4'-1	18	5	2'-9 TO 4'-1	18	5c10	
5c11	WINGWALL, B.F.V. LONG		11	9'-6 TO 11'-10	122	7	9'-6 TO 10'-11	75	40	9'-5 TO 18'-9	588	36	9'-5 TO 17'-8	510	32	9'-5 TO 16'-9	438	28	9'-5 TO 15'-10	369	24	9'-5 TO 14'-11	305	5c11	
5c12	WINGWALL, B.F.V. SHORT		12	8'-6 TO 12'-0	128	9	8'-6 TO 11'-0	92	33	8'-5 TO 18'-8	466	30	8'-5 TO 17'-8	408	27	8'-5 TO 16'-9	354	24	8'-5 TO 15'-9	302	21	8'-5 TO 14'-9	254	5c12	
6c13	WINGWALL, B.F.V. LONG		---	---	---	---	---	---	33	10'-6	520	29	10'-6	457	25	10'-6	394	21	10'-6	331	17	10'-6	268	6c13	
6c14	WINGWALL, B.F.V. SHORT		---	---	---	---	---	---	25	10'-6	394	22	10'-6	347	19	10'-6	300	16	10'-6	252	13	10'-6	205	6c14	
5c14	WINGWALL, B.F.V. LONG		2	10'-9	22	2	9'-9	20	2	17'-8	37	2	16'-8	35	2	15'-8	33	1	14'-8	31	1	13'-8	24	5c14	
5c14	WINGWALL, B.F.V. SHORT		1	10'-9	11	2	9'-9	20	2	17'-8	37	2	16'-8	35	2	15'-8	33	1	14'-8	31	1	13'-8	29	5c14	
4d1	APRON, LONGIT., BOTT.		25	15'-4	256	25	13'-0	217	21	31'-6	442	21	29'-2	409	21	26'-10	376	21	24'-7	345	21	22'-3	312	4d1	
4d2	APRON, LONGIT., BOTT. LONG		3	19'-6	39	3	15'-5	31	3	48'-4	101	3	44'-2	93	3	40'-1	85	3	35'-11	72	3	31'-9	64	4d2	
4d3	APRON, LONGIT., BOTT. SHORT		3	15'-3	31	3	12'-3	25	3	36'-10	74	3	33'-9	68	3	30'-8	61	3	27'-7	55	3	24'-6	49	4d3	
6f1	APRON, LONGIT., TOP		37	15'-4	852	37	13'-0	722	31	31'-6	1467	31	29'-2	1358	31	26'-10	1249	31	24'-7	1145	31	22'-3	1036	6f1	
6f2	APRON, LONGIT., TOP LONG		4	5'-3 TO 12'-4	43	3	5'-3 TO 10'-0	34	11	5'-4 TO 28'-6	279	10	5'-4 TO 26'-2	237	9	5'-4 TO 23'-10	197	8	5'-4 TO 21'-9	162	7	5'-3 TO 19'-3	129	6f2	
6f3	APRON, LONGIT., TOP SHORT		3	6'-2 TO 12'-6	52	2	7'-0 TO 10'-3	26	8	7'-0 TO 28'-8	214	7	7'-9 TO 26'-5	180	7	5'-5 TO 24'-1	155	6	6'-2 TO 21'-9	126	5	6'-11 TO 19'-6	99	6f3	
6f4	APRON, LONGIT., TOP LONG		1	19'-5	29	1	16'-4	25	1	41'-3	65	1	38'-2	57	1	35'-0	53	1	31'-11	48	1	28'-9	56	6f4	
6f5	APRON, LONGIT., TOP SHORT		1	19'-5	29	1	16'-4	25	1	41'-3	65	1	38'-2	57	1	35'-0	53	1	31'-11	48	1	28'-9	56	6f5	
4f1	PARAPET, VERTICAL		75	6'-4	317	75	6'-4	317	65	6'-4	275	63	6'-4	267	63	6'-4	267	63	6'-4	267	63	6'-4	267	4f1	
7j1	PARAPET, HORIZONTAL		4	44'-7	383	4	44'-7	383	4	38'-10	318	4	38'-5	314	4	38'-1	311	4	38'-1	311	4	38'-1	311	7j1	
6m1	APRON, TRANS., TOP		4	41'-8 TO 42'-3	266	1	41'-8 TO 41'-8	66	14	36'-3 TO 38'-8	788	14	35'-11 TO 38'-4	781	14	35'-7 TO 38'-0	774	13	35'-7 TO 37'-10	717	14	35'-7 TO 38'-0	774	6m1	
6m2	APRON, TRANS., TOP		12	22'-6 TO 36'-9	534	15	18'-6 TO 36'-8	621	13	39'-0 TO 43'-6	839	10	38'-8 TO 42'-1	627	7	38'-4 TO 40'-7	422	5	38'-0 TO 39'-6	291	11	38'-4 TO 38'-4	58	6m2	
6m3	APRON, TRANS., TOP		16	4'-7 TO 7'-0	311	13	3'-11 TO 17'-4	207	25	8'-4 TO 34'-2	814	24	8'-7 TO 34'-2	771	24	7'-9 TO 33'-9	740	24	7'-9 TO 32'-9	716	24	6'-5 TO 32'-0	692	6m3	
6m4	APRON, TRANS., BOTT.		10	38'-3 TO 44'-5	644	8	38'-3 TO 43'-1	506	24	31'-11 TO 47'-7	1473	22	31'-9 TO 46'-0	1315	20	31'-7 TO 44'-6	1167	18	31'-7 TO 43'-1	1026	16	31'-7 TO 41'-9	891	6m4	
6p1	CURTAIN, HORIZONTAL		4	43'-5	274	4	43'-5	274	4	37'-2	223	4	36'-11	222	4	36'-9	221	4	36'-9	221	4	36'-9	221	6p1	
6p2	CURTAIN, HORIZONTAL LONG		4	13'-11	84	4	11'-11	72	4	28'-0	168	4	26'-0	156	4	24'-0	144	4	22'-0	132	4	20'-0	120	6p2	
6p3	CURTAIN, HORIZONTAL SHORT		4	8'-8	52	4	7'-7	46	4	15'-11	96	4	14'-11	90	4	13'-10	83	4	12'-10	77	4	11'-9	71	6p3	
6s1	WING SLOPE, BOTH F. LONG		2	8'-0	24	2	8'-0	24	2	8'-0	24	2	8'-0	24	2	8'-0	24	2	8'-0	24	2	8'-0	24	6s1	
6s2	WING SLOPE, BOTH F. SHORT		2	6'-11	21	2	6'-11	21	2	6'-11	21	2	6'-11	21	2	6'-11	21	2	6'-11	21	2	6'-11	21	6s2	
6s3	WING SLOPE, BOTH F. LONG		2	19'-3	58	2	15'-0	45	2	49'-4	155	2	45'-0	142	2	40'-9	129	2	36'-5	109	2	32'-2	97	6s3	
6s4	WING SLOPE, BOTH F. SHORT		2	15'-7	47	2	12'-3	37	2	38'-6	116	2	35'-2	106	2	31'-11	96	2	28'-8	86	2	25'-4	76	6s4	
6s5	WING SLOPE, F.F. LONG		1	24'-6	37	1	20'-3	30	1	54'-7	85	1	50'-3	79	1	46'-0	72	1	41'-8	66	1	37'-5	56	6s5	
6s6	WING SLOPE, F.F. SHORT		1	19'-8	30	1	16'-5	25	1	42'-7	67	1	39'-4	59	1	36'-1	54	1	32'-9	49	1	29'-6	44	6s6	
6s7	INTERIOR WALLS, BOTH F.H.		4	15'-5	93	4	12'-11	78	4	32'-10	197	4	30'-5	183	4	27'-11	168	4	25'-5	153	4	22'-11	138	6s7	