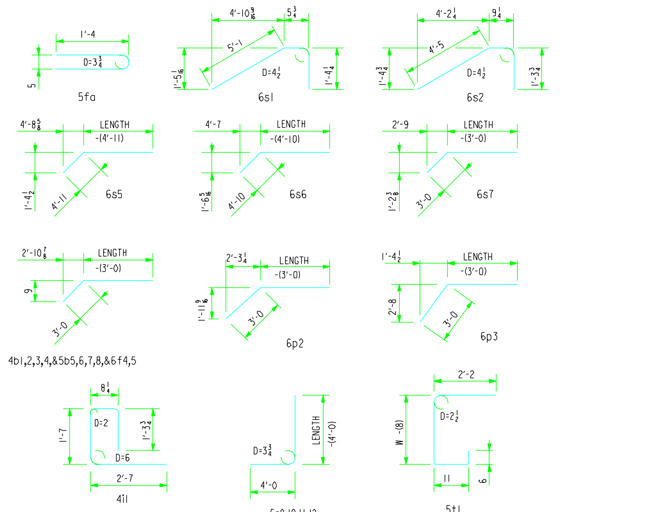
BILL OF REINFORCING FOR ONE HEADWALL 15° SKEW CULVERT SPAN X CULVERT HEIGHT

LOCATION	SHAPE	BAR	12' X 12'			12' X 10'			12' X 8'			12' X 6'			10' X 12'			10' X 10'			10' X 8'			10' X 6'			8' X 10'			8' X 8'			8' X 6'			BAR
			NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	NO.	LENGTH	WT.	
FENCE ANCHOR (GALV.)		5fa	2	3'-1	6	2	3'-1	6	2	3'-1	6	2	3'-1	6	2	3'-1	6	2	3'-1	6	2	3'-1	6	2	3'-1	6	2	3'-1	6	2	3'-1	6	2	3'-1	6	5fa
WINGWALL, B.F.H. L		4b1	1	45'-1	31	1	38'-3	26	1	31'-5	21	1	24'-6	16	1	45'-1	31	1	38'-3	26	1	31'-5	21	1	24'-6	16	1	38'-3	26	1	31'-5	21	1	24'-6	16	4b1
WINGWALL, B.F.H. S		4b2	1	39'-10	27	1	33'-10	23	1	27'-10	19	1	21'-10	15	1	39'-10	27	1	33'-10	23	1	27'-10	19	1	21'-10	15	1	33'-10	23	1	27'-10	19	1	21'-10	15	4b2
WINGWALL, B.F.H. L		4b3	10 VAR	12'-8 TO 43'-7	191	8 VAR	12'-8 TO 36'-8	132	6 VAR	12'-8 TO 29'-10	85	4 VAR	12'-8 TO 23'-0	48	10 VAR	12'-8 TO 43'-7	191	8 VAR	12'-8 TO 36'-8	132	6 VAR	12'-8 TO 29'-10	85	4 VAR	12'-8 TO 23'-0	48	8 VAR	12'-8 TO 36'-8	132	6 VAR	12'-8 TO 29'-10	85	4 VAR	12'-8 TO 23'-0	48	4b3
WINGWALL, B.F.H. S		4b4	10 VAR	11'-5 TO 38'-5	166	8 VAR	11'-5 TO 32'-5	117	6 VAR	11'-5 TO 26'-5	76	4 VAR	11'-5 TO 20'-5	43	10 VAR	11'-5 TO 38'-5	166	8 VAR	11'-5 TO 32'-5	117	6 VAR	11'-5 TO 26'-5	76	4 VAR	11'-5 TO 20'-5	43	8 VAR	11'-5 TO 32'-5	117	6 VAR	11'-5 TO 26'-5	76	4 VAR	11'-5 TO 20'-5	43	4b4
WINGWALL, F.F.H. L		5b5	1	45'-1	49	1	38'-3	40	1	31'-5	33	1	24'-6	26	1	45'-1	49	1	38'-3	40	1	31'-5	33	1	24'-6	26	1	38'-3	40	1	31'-5	33	1	24'-6	26	5b5
WINGWALL, F.F.H. S		5b6	1	39'-10	42	1	33'-10	35	1	27'-10	29	1	21'-10	23	1	39'-10	42	1	33'-10	35	1	27'-10	29	1	21'-10	23	1	33'-10	35	1	27'-10	29	1	21'-10	23	5b6
WINGWALL, F.F.H. L		5b7	11 VAR	9'-2 TO 43'-7	307	9 VAR	9'-2 TO 36'-8	215	7 VAR	9'-2 TO 29'-10	142	5 VAR	9'-2 TO 23'-0	84	11 VAR	9'-2 TO 43'-7	307	9 VAR	9'-2 TO 36'-8	215	7 VAR	9'-2 TO 29'-10	142	5 VAR	9'-2 TO 23'-0	84	9 VAR	9'-2 TO 36'-8	215	7 VAR	9'-2 TO 29'-10	142	5 VAR	9'-2 TO 23'-0	84	5b7
WINGWALL, F.F.H. S		5b8	11 VAR	8'-5 TO 38'-5	269	9 VAR	8'-5 TO 32'-5	192	7 VAR	8'-5 TO 26'-5	127	5 VAR	8'-5 TO 20'-5	75	11 VAR	8'-5 TO 38'-5	269	9 VAR	8'-5 TO 32'-5	192	7 VAR	8'-5 TO 26'-5	127	5 VAR	8'-5 TO 20'-5	75	9 VAR	8'-5 TO 32'-5	192	7 VAR	8'-5 TO 26'-5	127	5 VAR	8'-5 TO 20'-5	75	5b8
CENTER WALL, BOTH F.H.		5b9	21 VAR	5'-0 TO 27'-11	360	17 VAR	5'-0 TO 23'-10	256	13 VAR	5'-1 TO 19'-8	168	9 VAR	5'-2 TO 15'-6	97	21 VAR	5'-0 TO 27'-11	360	17 VAR	5'-0 TO 23'-10	256	13 VAR	5'-1 TO 19'-8	168	9 VAR	5'-2 TO 15'-6	97	17 VAR	5'-0 TO 23'-10	256	13 VAR	5'-1 TO 19'-8	168	9 VAR	5'-2 TO 15'-6	97	5b9
WINGWALL, F.F.V. L		4c1	42 VAR	2'-10 TO 14'-10	248	35 VAR	2'-10 TO 12'-9	182	29 VAR	2'-10 TO 10'-9	132	22 VAR	2'-10 TO 8'-8	85	42 VAR	2'-9 TO 14'-9	245	35 VAR	2'-9 TO 12'-8	180	29 VAR	2'-9 TO 10'-8	130	22 VAR	2'-9 TO 8'-7	83	35 VAR	2'-7 TO 12'-6	176	29 VAR	2'-7 TO 10'-6	127	22 VAR	2'-7 TO 8'-5	81	4c1
WINGWALL, F.F.V. S		4c2	37 VAR	2'-11 TO 14'-11	220	31 VAR	2'-11 TO 12'-11	164	25 VAR	2'-11 TO 10'-11	116	19 VAR	2'-11 TO 8'-11	75	37 VAR	2'-10 TO 14'-10	218	31 VAR	2'-10 TO 12'-10	162	25 VAR	2'-10 TO 10'-10	114	19 VAR	2'-10 TO 8'-10	74	31 VAR	2'-8 TO 12'-8	159	25 VAR	2'-8 TO 10'-8	111	19 VAR	2'-8 TO 8'-8	72	4c2
WINGWALL, F.F.V. L		4c3	1	13'-9	9	1	11'-9	8	1	9'-9	7	1	7'-9	5	1	13'-8	9	1	11'-8	8	1	9'-8	6	1	7'-8	5	1	11'-6	8	1	9'-6	6	1	7'-6	5	4c3
WINGWALL, F.F.V. S		4c3	1	13'-9	9	1	11'-9	8	1	9'-9	7	1	7'-9	5	1	13'-8	9	1	11'-8	8	1	9'-8	6	1	7'-8	5	1	11'-6	8	1	9'-6	6	1	7'-6	5	4c3
CENTER WALL, BOTH F.V.		4c4	2	1'-9	2	2	1'-9	2	2	1'-9	2	2	1'-9	2	2	1'-8	2	2	1'-8	2	2	1'-8	2	2	1'-8	2	2	1'-6	2	2	1'-6	2	2	1'-6	2	4c4
CENTER WALL, BOTH F.V.		4c5	49 VAR	2'-0 TO 12'-5	236	41 VAR	2'-0 TO 10'-6	171	33 VAR	2'-0 TO 8'-6	116	24 VAR	2'-0 TO 6'-5	67	49 VAR	1'-11 TO 12'-4	233	41 VAR	1'-11 TO 10'-5	169	33 VAR	1'-11 TO 8'-5	114	24 VAR	1'-11 TO 6'-4	66	41 VAR	1'-9 TO 10'-3	164	33 VAR	1'-9 TO 8'-3	110	24 VAR	1'-9 TO 6'-2	63	4c5
CENTER WALL, BOTH F.V.		4c6	2	12'-7	17	2	10'-7	14	2	8'-7	12	2	6'-7	9	2	12'-6	17	2	10'-6	14	2	8'-6	11	2	6'-6	9	2	10'-4	14	2	8'-4	11	2	6'-4	8	4c6
WINGWALL, B.F.V. L		5c7	9 VAR	2'-10 TO 5'-2	38	9 VAR	2'-10 TO 5'-2	38	9 VAR	2'-10 TO 5'-2	38	9 VAR	2'-10 TO 5'-2	38	9 VAR	2'-9 TO 5'-1	37	9 VAR	2'-9 TO 5'-1	37	9 VAR	2'-9 TO 5'-1	37	9 VAR	2'-9 TO 5'-1	37	9 VAR	2'-7 TO 4'-11	35	9 VAR	2'-7 TO 4'-11	35	9 VAR	2'-7 TO 4'-11	35	5c7
WINGWALL, B.F.V. S		5c8	6 VAR	2'-11 TO 4'-7	23	6 VAR	2'-11 TO 4'-7	23	6 VAR	2'-11 TO 4'-7	23	6 VAR	2'-11 TO 4'-7	23	6 VAR	2'-10 TO 4'-6	23	6 VAR	2'-10 TO 4'-6	23	6 VAR	2'-10 TO 4'-6	23	6 VAR	2'-10 TO 4'-6	23	6 VAR	2'-8 TO 4'-4	22	6 VAR	2'-8 TO 4'-4	22	6 VAR	2'-8 TO 4'-4	22	5c8
WINGWALL, B.F.V. L		5c9	33 VAR	9'-5 TO 18'-10	486	26 VAR	9'-5 TO 16'-9	355	20 VAR	9'-5 TO 14'-9	252	13 VAR	9'-5 TO 12'-8	150	33 VAR	9'-4 TO 18'-9	483	26 VAR	9'-4 TO 16'-8	353	20 VAR	9'-4 TO 14'-8	250	13 VAR	9'-4 TO 12'-7	149	26 VAR	9'-2 TO 16'-6	348	20 VAR	9'-2 TO 14'-6	247	13 VAR	9'-2 TO 12'-5	146	5c9
WINGWALL, B.F.V. S		5c10	31 VAR	8'-11 TO 18'-11	450	25 VAR	8'-11 TO 16'-11	337	19 VAR	8'-11 TO 14'-11	236	13 VAR	8'-11 TO 12'-11	148	31 VAR	8'-10 TO 18'-10	447	25 VAR	8'-10 TO 16'-10	335	19 VAR	8'-10 TO 14'-10	234	13 VAR	8'-10 TO 12'-10	147	25 VAR	8'-8 TO 16'-8	330	19 VAR	8'-8 TO 14'-8	231	13 VAR	8'-8 TO 12'-8	145	5c10
WINGWALL, B.F.V. L		5c11	25	10'-6	274	18	10'-6	197	11	10'-6	120	-	-	-	25	10'-6	274	18	10'-6	197	11	10'-6	120	-	-	-	18	10'-6	197	11	10'-6	120	-	-	-	5c11
WINGWALL, B.F.V. S		5c11	20	10'-6	219	14	10'-6	153	8	10'-6	88	-	-	-	20	10'-6	219	14	10'-6	153	8	10'-6	88	-	-	-	14	10'-6	153	8	10'-6	88	-	-	-	5c11
WINGWALL, B.F.V. L		5c12	1	17'-8	18	1	15'-8	16	1	13'-8	14	1	11'-8	12	1	17'-7	18	1	15'-7	16	1	13'-7	14	1	11'-7	12	1	15'-5	16	1	13'-5	14	1	11'-5	12	5c12
WINGWALL, B.F.V. S		5c12	1	17'-8	18	1	15'-8	16	1	13'-8	14	1	11'-8	12	1	17'-7	18	1	15'-7	16	1	13'-7	14	1	11'-7	12	1	15'-5	16	1	13'-5	14	1	11'-5	12	5c12
APRON, LONGIT.,BOTT.		4d1	17	28'-4	322	17	24'-2	274	17	20'-0	227	17	15'-11	181	15	28'-4	284	13	24'-2	210	13	20'-0	174	13	15'-11	138	11	24'-2	178	11	20'-0	147	11	15'-11	117	4d1
APRON, LONGIT.,BOTT. L		4d2	3	39'-4	79	3	32'-8	65	3	25'-11	52	3	19'-1	38	3	39'-4	79	3	32'-8	65	3	25'-11	52	3	19'-1	38	3	32'-8	65	3	25'-11	52	3	19'-1	38	4d2
APRON, LONGIT.,BOTT. S		4d3	3	34'-11	70	3	29'-0	58	3	23'-1	46	3	17'-2	34	3	34'-11	70	3	29'-0	58	3	23'-1	46	3	17'-2	34	3	29'-0	58	3	23'-1	46	3	17'-2	34	4d3
APRON, LONGIT.,TOP		6f1	24	28'-4	1021	24	24'-2	871	24	20'-0	721	24	15'-11	574	20	28'-4	851	20	24'-2	726	20	20'-0	601	20	15'-11	478	16	24'-2	581	16	20'-0	481	16	15'-11	383	6f1
APRON, LONGIT.,TOP L		6f2	9 VAR	5'-5 TO 25'-8	210	7 VAR	6'-3 TO 21'-5	145	5 VAR	7'-2 TO 17'-4	92	4 VAR	5'-6 TO 13'-2	56	9 VAR	5'-5 TO 25'-8	210	7 VAR	6'-3 TO 21'-5	145	5 VAR	7'-2 TO 17'-4	92	4 VAR	5'-6 TO 13'-2	56	7 VAR	6'-3 TO 21'-5	145	5 VAR	7'-2 TO 17'-4	92	4 VAR	5'-6 TO 13'-2	56	6f2
APRON, LONGIT.,TOP S		6f3	8 VAR	5'-5 TO 25'-8	187	6 VAR	7'-0 TO 21'-7	129	5 VAR	5'-9 TO 17'-5	87	4 VAR	4'-5 TO 13'-3	53	8 VAR	5'-5 TO 25'-8	187	6 VAR	7'-0 TO 21'-7	129	5 VAR	5'-9 TO 17'-5	87	4 VAR	4'-5 TO 13'-3	53	6 VAR	7'-0 TO 21'-7	129	5 VAR	5'-9 TO 17'-5	87	4 VAR	4'-5 TO 13'-3	53	6f3
APRON, LONGIT.,TOP L		6f4	1	45'-1	71	1	38'-3	57	1	31'-5	47	1	24'-6	37	1	45'-1	71	1	38'-3	57	1	31'-5	47	1	24'-6	37	1	38'-3	57	1	31'-5	47	1	24'-6	37	6f4
APRON, LONGIT.,TOP S		6f5	1	39'-10	60	1	33'-10	51	1	27'-10	42	1	21'-10	33	1	39'-10	60	1	33'-10	51	1	27'-10	42	1	21'-10	33	1	33'-10	51	1	27'-10	42	1	21'-10	33	6f5
PARAPET, VERTICAL		4l1	51	6'-2	210	49	6'-2	202	49	6'-2	202	49	6'-2	202	43	6'-2	178	41	6'-2	169	41	6'-2	169	41	6'-2	169	33	6'-2	136	33	6'-2	136	33	6'-2	136	4l1
PARAPET, HORIZONTAL		7j1	4	26'-2	214	4	26'-0	213	4	26'-0	213	4	25'-11	212	4	22'-0	180	4	21'-10	179	4	21'-10	179	4	21'-9	178	4	17'-9	145	4	17'-9	145	4	17'-8	144	7j1
APRON,TRANS.,TOP		6m1	6 VAR	28'-0 TO 29'-0	257	6 VAR	27'-6 TO 28'-6	252	6 VAR	27'-6 TO 28'-6	252	6 VAR	27'-3 TO 28'-3	250	5 VAR	23'-10 TO 24'-8	182	5 VAR	23'-4 TO 24'-2	178	5 VAR	23'-4 TO 24'-2	178	5 VAR	23'-2 TO 23'-11	177	4 VAR	19'-2 TO 19'-10	117	4 VAR	19'-2 TO 19'-10	117	4 VAR	18'-11 TO 19'-7	116	6m1
APRON,TRANS.,TOP		6m2	25 VAR	29'-2 TO 38'-1	1263	20 VAR	28'-8 TO 35'-8	966	14 VAR	28'-8 TO 33'-5	653	9 VAR	28'-5 TO 31'-4	404	27 VAR	24'-10 TO 34'-6	1203	21 VAR	24'-4 TO 31'-8	883	16 VAR	24'-4 TO 29'-10	651	10 VAR	24'-1 TO 27'-4	386	23 VAR	20'-0 TO 28'-1	831	18 VAR	20'-0 TO 26'-2	624	12 VAR	19'-9 TO 23'-8	391	6m2
APRON,TRANS.,TOP		6m3	5 VAR	18'-9 TO 29'-2	180	4 VAR	17'-9 TO 26'-3	132	5 VAR	16'-0 TO 26'-5	159	4 VAR	15'-7 TO 23'-11	119	4 VAR	16'-7 TO 24'-5	123	4 VAR	16'-6 TO 24'-4	123	4 VAR	14'-2 TO 22'-0	109	4 VAR	14'-3 TO 22'-1	109	3 VAR	14'-0 TO 19'-11	76	3 VAR	12'-3 TO 17'-6	67	3 VAR	12'-4 TO 17'-7	67	6m3
APRON,TRANS.,TOP		6m4	3	18'-2	82	3	17'-2	77	3	16'-0	72	3	14'-11	67	2	16'-4	49	2	15'-3	46	2	14'-1	42	2	13'-1	39	2	13'-3	40	2	12'-5	37	2	11'-1	33	6m4
APRON,TRANS.,BOTT.		6m5	24 VAR	21'-6 TO 33'-10	997	20 VAR	21'-3 TO 31'-6	792	16 VAR	21'-3 TO 29'-4	608	12 VAR	21'-2 TO 27'-2	436	24 VAR	17'-4 TO 29'-8	847	20 VAR	17'-2 TO 27'-5	670	16 VAR	17'-2 TO 25'-3	510	12 VAR	17'-1 TO 23'-0	361	20 VAR	13'-0 TO 23'-3	544	16 VAR	13'-0 TO 21'-1	410	12 VAR	12'-11 TO 18'-10	286	6m5
CURTAIN, HORIZONTAL		6p1	4	26'-5	159	4	26'-2	157	4	26'-2	158	4	26'-1	157	4	22'-3	134	4	22'-1	133	4	22'-1	133	4	21'-11	132	4	17'-11	108	4	17'-11	108	4	17'-10	107	6p1
CURTAIN, HORIZONTAL L		6p2	4	21'-9	131	4	18'-9	113	4	15'-9	95	4	12'-9	77	4	21'-9	131	4	18'-9	113	4	15'-9	95	4	12'-9	77	4	18'-9	113	4	15'-9	95	4	12'-9	77	6p2
CURTAIN, HORIZONTAL S		6p3	4	16'-10	101	4	14'-7	88	4	12'-5	75	4	10'-2	61	4	16'-10	101	4	14'-7	88	4	12'-5	75	4	10'-2	61	4	14'-7	88	4	12'-5	75	4	10'-2	61	6p3
WING SLOPE, BOTH F. L		6s1	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	2	6'-11	21	2	6'-11	21	2	6'-11	21	2	6'-11	21	6s1
WING SLOPE, BOTH F. S		6s2	2	6'-6	20	2	6'-6	20	2	6'-6	20	2	6'-6	20	2	6'-6	20	2	6'-6	20	2	6'-6	20	2	6'-6	20	2	6'-6	20	2	6'-6	20	2	6'-6	20	6s2
WING SLOPE, BOTH F. L		6s3	2	41'-9	131	2	34'-7	104	2	27'-6	83	2	20'-4	61	2	41'-9	131	2	34'-7	104	2	27'-6	83	2	20'-4	61	2	34'-7	104	2	27'-6	83	2	20'-4	61	6s3
WING SLOPE, BOTH F. S		6s4	2	37'-4	112	2	31'-0	93	2	24'-8	74	2	18'-4	55	2	37'-4	112	2	31'-0	93	2	24'-8	74	2	18'-4	55	2	31'-0	93	2	24'-8	74	2	18'-4	55	6s4
WING SLOPE, F.F L		6s5	1	46'-1	72	1	38'-11	58	1	31'-9	48	1	24'-7	37	1	46'-1	72	1	38'-11	58	1	31'-9	48	1	24'-7	37	1	38'-11	58	1	31'-9	48	1	24'-7	37	6s5
WING SLOPE, F.F S		6s6	1	41'-3	65	1	34'-11	52	1	28'-8	43	1	22'-4	34	1	41'-3	65	1	34'-11	52	1	28'-8	43	1	22'-4	34	1	34'-11	52	1	28'-8	43	1	22'-4	34	6s6
CENTER WALL, BOTH F.H.		6s7	2	30'-6	92	2	25'-11	78	2	21'-4	64	2	16'-9	50	2	30'-6	92	2	25'-11	78	2	21'-4	64	2	16'-9	50	2	25'-11	78	2	21'-4	64	2	16'-9	50	6s7
CURTAIN, VERT.		5t1	42	7'-11	347	38	7'-5	294	35	6'-11	252	30	6'-5	201	38	7'-11	314	34	7'-5	263	31	6'-11	224	26	6'-5	174	30	7'-5	232	27	6'-11	195	22	6'-5	147	5t1
ESTIMATED QUANTITIES ONE HEADWALL	REINF. STEEL		10,189 lbs.			8088 lbs.			6289 lbs.			4534 lbs.			9467 lbs.			7427 lbs.			5728 lbs.			4065 lbs.			6810 lbs.			5206 lbs.			3635 lbs.			
	CONCRETE	PARAPET Δ	2.9	92.2 cu. yd.		2.7	67.6 cu. yd.		2.7	51.2 cu. yd.		2.6	35.7 cu. yd.		2.6	84.0 cu. yd.		2.4	60.8 cu. yd.		2.4	45.7 cu. yd.		2.3	31.4 cu. yd.		2.1	52.7 cu. yd.		2.1	39.2 cu. yd.		2.0	26.5 cu. yd.		
		WINGWALLS	29.4			17.7			12.0			6.6			29.4			17.7			12.0			6.6			17.7			12.0			6.6			
		FOOTINGS	59.9			47.2			36.5			26.5			52.0			40.7			31.3			22.5			32.9			25.1			17.9			

BENT BAR DETAILS



NOTE:
ALL DIMENSIONS ARE OUT TO OUT.
D = PIN DIAMETER.

Δ NOTE: INCLUDES TOP OF WINGWALL QUANTITIES.
WEIGHT OF BARS OVER 40'-0 LONG INCLUDE AN ALLOWANCE OF 2'-0 FOR LAP.

SUBSCRIPT L DENOTES LONG WING.
SUBSCRIPT S DENOTES SHORT WING.

NOTES:
1. SEE DRAWING TWRCB-GI-87 FOR GENERAL INFORMATION, SPECIFICATIONS, AND DESIGN STRESSES.

HEADWALL NOTES:

THIS HEADWALL IS BASED ON A 3:1 SLOPE NORMAL TO CENTERLINE OF ROADWAY.

THE SIDES OF THE FOOTING ARE TO BE FORMED TO INSURE CORRECT LINE AND GRADE.

ALL EXPOSED CORNERS OF 90° OR SHARPER ARE TO BE FILLETED WITH A ¾" DRESSED AND BEVELED STRIP.

ALL REINFORCING IS TO BE SECURELY WIRED IN PLACE BEFORE THE CONCRETE IS POURED. ALL SLAB AND FLOOR REINFORCING STEEL IS TO BE SUPPORTED BY BAR CHAIRS AT INTERVALS OF NOT MORE THAN 3'-0 IN EITHER DIRECTION AS OUTLINED IN THE STANDARD SPECIFICATIONS.

CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN. CLEARANCE TO THE BOTTOM ENDS OF VERTICAL BARS SHALL BE 3 INCHES.

CONCRETE QUANTITIES ARE ESTIMATED FROM BACK OF PARAPET.

HORIZONTAL TAILS OF BARS "b" & "s" ESTIMATED TO EXTEND 2'-0 BEYOND BACK OF PARAPET (INTO END OF BARREL). LONGITUDINAL BARS "d", "6f1", "6f4" AND "6f5" ESTIMATED TO PROJECT INTO END SECTION OF BARREL A MINIMUM OF 2'-0 BEYOND BACK OF PARAPET.

THE "LENGTH" COLUMN REFLECTS TOTAL NUMBER OF FEET NECESSARY TO MEET THESE REQUIREMENTS.

LATEST REVISION DATE : 1-1-98

APPROVED BY: [signature]

STANDARD DESIGN

FLARED WING HEADWALLS

FOR
TWIN REINFORCED CONCRETE BOX CULVERTS

HIGHWAY DIVISION
IOWA DEPARTMENT OF TRANSPORTATION

JULY , 1987

TWH 15-5-87

REVISED 1/98: BEND DIMENSIONS OF 4l1 BAR CHANGED.
REVISED : 12/96 ; NOTE CORRECTED.
TWH155.S01

XXXXXXXXXXSYSTEMTIME XXXXXXXUSERNAME XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXDGNSPEC