VARIABLE DIMENSIONS AND QUANTITIES FOR BARREL SECTIONS

DIMENSIONS

FILL	S	H	A	B	E	*D	*E	*F	*G	*J	*K	U	V	W	X	Y	Z
0	3000	3600	280	280	305	210	105	210	280	315	105	380	3400	780	640	3480	655
300	3000	3600	295	295	305	210	105	210	280	280	105	410	3400	765	640	3380	615
600	3000	3600	230	255	305	210	105	70	280	280	105	460	3400	755	710	3250	655
900-2100	3000	3600	205	255	305	210	105	105	280	280	105	660	3120	690	740	3130	755
2400-2700	3000	3600	205	255	305	210	105	210	280	280	105	790	3120	780	690	3130	690
3000-3300	3000	3600	220	280	305	210	105	210	280	280	105	790	3070	680	690	3130	705
3600-3900	3000	3600	230	295	305	210	105	210	280	280	105	760	3120	715	690	3130	755
4200-4500	3000	3600	255	320	305	210	105	210	280	315	105	790	3120	715	690	3180	755
4800-5100	3000	3600	280	345	305	210	105	210	315	315	105	790	3170	765	710	3180	755
5400-5700	3000	3600	295	370	305	140	105	70	315	315	105	710	3170	755	690	3180	765
6000-6600	3000	3600	320	395	305	140	105	70	280	315	105	690	3120	765	690	3180	765
6900-7500	3000	3600	355	420	305	210	105	70	280	280	135	690	3150	780	760	3180	805

BAR LIST

FILL	a1 SIZE	a1 SP	a1 L	a2 SIZE	a2 SP	a2 L	b1 SIZE	b1 SP	b1 NO.	b2 SIZE	b2 SP	b2 NO.	e1 SIZE	e1 SP	e1 NO.	e2 SIZE	e2 SP	e2 NO.	f1 SIZE	f1 SP	f1 NO.	f2 SIZE	f2 SP	f2 NO.	k1 SIZE	k1 SP	k1 L	k2 SIZE	k2 SP	k2 L	k4 SIZE	k4 SP	k4 L	k4 h	k4 v	FILL
0	20	280	4180	25	210	4130	15	225	32	15	225	17	15	300	18	15	450	16	15	300	22	15	450	16	15	280	6810	15	280	2630	15	280	1340	640	700	0
300	20	280	4160	25	210	4160	15	225	32	15	225	17	15	300	18	15	450	16	15	300	22	15	450	16	15	280	6810	15	280	2580	15	420	1440	640	800	300
600	20	280	4060	25	210	4060	15	225	32	15	225	17	15	300	18	15	450	16	15	300	22	15	450	16	15	210	6810	15	210	2470	20	350	1570	770	800	600
900-2100	20	280	4080	25	210	4030	15	225	32	15	225	17	15	300	18	15	450	16	15	300	22	15	450	16	15	280	6810	15	280	2090	15	210	1660	840	820	900-2100
2400-2700	20	280	4080	25	210	4030	15	225	32	15	225	17	15	300	18	15	450	16	15	300	22	15	450	16	15	210	6810	15	210	1840	15	280	1590	890	800	2400-2700
3000-3300	20	280	4070	25	210	4070	15	225	32	15	225	17	15	300	18	15	450	16	15	300	22	15	450	16	15	280	6810	15	280	1920	15	280	1570	870	800	3000-3300
3600-3900	20	280	4100	25	210	4100	15	225	32	15	225	17	15	300	18	15	450	16	15	300	22	15	450	16	15	280	6810	15	280	1940	20	280	1690	890	800	3600-3900
4200-4500	20	280	4150	25	210	4150	15	225	32	15	225	17	15	300	18	15	450	16	15	300	22	15	450	16	15	280	6810	15	280	1970	20	280	1670	870	800	4200-4500
4800-5100	20	280	4200	25	210	4200	15	225	32	15	225	17	15	300	18	15	450	16	15	300	22	15	450	16	15	280	6810	15	280	1990	20	280	1720	920	800	4800-5100
5400-5700	20	280	4240	25	210	4240	15	225	32	15	225	17	15	300	18	15	450	16	15	300	22	15	450	16	15	210	6810	15	210	2170	25	350	1940	940	1000	5400-5700
6000-6600	20	280	4290	25	210	4290	15	225	32	15	225	17	15	300	18	15	450	16	15	300	22	15	450	16	15	210	6810	15	210	2220	25	350	1890	890	1000	6000-6600
6900-7500	20	280	4350	25	210	4350	15	225	32	15	225	17	15	300	18	15	450	16	15	300	22	15	450	16	15	210	6810	15	210	2300	25	350	1890	890	1000	6900-7500

BAR LIST

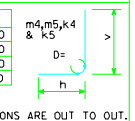
FILL	k5 SIZE	k5 SP	k5 L	k5 h	k5 v	k6 SIZE	k6 SP	k6 L	k7 SIZE	k7 SP	k7 L	k9 SIZE	k9 SP	k9 L	m1 SIZE	m1 SP	m1 L	m2 SIZE	m2 SP	m2 L	m4 SIZE	m4 SP	m4 L	m4 h	m4 v	m5 SIZE	m5 SP	m5 L	m5 h	m5 v	m6 SIZE	m6 SP	m6 L	m7 SIZE	m7 SP	m7 L	m9 SIZE	m9 SP	m9 L
0	15	280	1290	590	700	15	280	6810	15	280	1560	15	105	6810	15	280	6960	15	280	2140	15	280	4770	720	4050	15	280	4610	560	4050	15	350	6960	15	350	1910	15	182	6960
300	20	420	1440	640	800	15	280	6810	15	280	1530	15	105	6810	15	280	6960	15	280	2170	20	420	5140	1070	4070	20	420	4680	610	4070	15	210	4810	15	210	1230	15	105	6960
600	20	350	1470	670	800	15	280	6810	15	280	1510	15	105	6810	15	280	6960	15	280	1970	20	350	4860	890	3970	20	350	4580	610	3970	15	210	4730	15	210	1310	15	105	6960
900-2100	15	210	1510	690	820	15	280	4530	15	280	1380	15	105	6810	15	280	6960	15	280	1920	15	210	4820	870	3950	15	210	4590	640	3950	15	280	4610	20	280	1510	15	105	6960
2400-2700	20	280	1490	690	800	15	280	4530	20	280	1560	15	105	6810	15	210	6960	15	210	2040	15	280	4790	840	3950	20	280	4620	670	3950	20	280	4610	20	280	1380	20	105	6960
3000-3300	20	280	1470	670	800	15	210	4480	15	210	1460	15	105	6810	15	210	6960	15	210	2090	15	280	4810	840	3970	20	280	4640	670	3970	20	280	4610	20	280	1410	20	105	6960
3600-3900	20	280	1470	670	800	20	280	4530	20	280	1430	20	105	6810	15	210	6960	15	210	2120	20	280	4890	890	4000	20	280	4610	610	4000	15	210	4610	20	210	1510	15	105	6960
4200-4500	20	280	1440	640	800	20	280	4530	20	280	1430	20	105	6810	15	210	6960	15	210	2140	20	280	4920	870	4050	20	280	4660	610	4050	25	350	4660	25	350	1510	25	182	6960
4800-5100	20	280	1440	640	800	25	350	4580	25	350	1530	25	182	6810	15	210	6960	15	210	2170	20	280	4940	840	4100	20	280	4710	610	4100	25	350	4660	25	350	1510	25	182	6960
5400-5700	25	350	1770	770	1000	25	350	4580	25	350	1510	25	182	6810	15	210	6960	15	210	2220	25	350	5040	890	4150	25	350	4890	740	4150	25	350	4660	25	350	1530	25	182	6960
6000-6600	25	350	1740	740	1000	15	210	4530	20	210	1530	15	105	6810	15	210	6960	15	210	2270	25	350	5140	940	4200	25	350	4940	740	4200	25	350	4660	25	350	1530	25	182	6960
6900-7500	25	350	1740	740	1000	15	210	4560	20	210	1560	15	105	6810	20	360	6960	20	360	2140	25	350	5140	890	4250	25	350	4990	740	4250	15	210	4660	20	210	1610	15	105	6960

QUANTITIES

FILL	CONCRETE SLAB	CONCRETE FLOOR	CONCRETE WALLS	CONCRETE TOTAL	STEEL kg/m	FILL
0	2.108	2.140	3.182	7.430	693.2	0
300	2.212	2.246	3.182	7.640	728.4	300
600	1.762	1.963	3.182	6.908	745.1	600
900-2100	1.590	1.963	3.182	6.735	700.7	900-2100
2400-2700	1.590	1.963	3.182	6.735	755.1	2400-2700
3000-3300	1.643	2.140	3.182	7.015	744.5	3000-3300
3600-3900	1.762	2.246	3.182	7.190	775.8	3600-3900
4200-4500	1.935	2.422	3.182	7.540	802.6	4200-4500
4800-5100	2.108	2.599	3.182	7.889	852.4	4800-5100
5400-5700	2.212	2.776	3.182	8.170	997.9	5400-5700
6000-6600	2.385	2.952	3.182	8.519	980.5	6000-6600
6900-7500	2.627	3.129	3.182	8.938	954.1	6900-7500

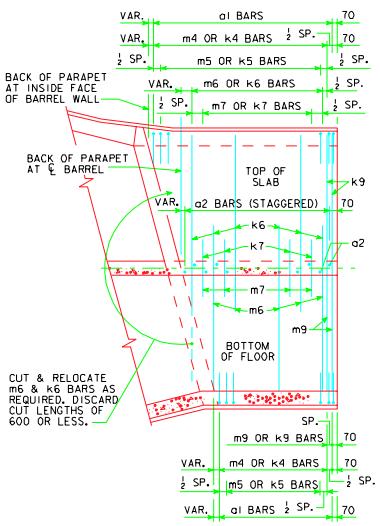
BENT BAR DETAIL

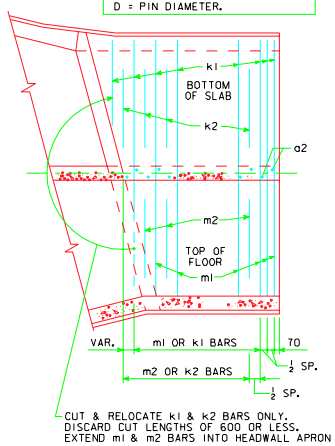
BARS	D
15	100
20	120
25	150
30	240



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

* THESE DIMENSIONS ARE CORRECT FOR 11 480 LONG STANDARD SECTIONS ONLY. DIMENSIONS MUST BE RECALCULATED FOR ALL OTHER SECTION LENGTHS.



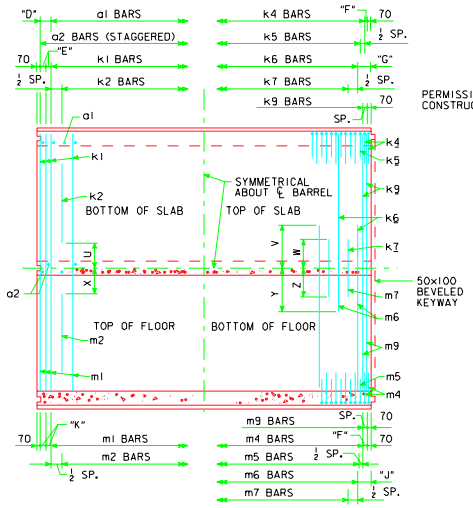


END SECTION - PLAN VIEW

(KEYWAY NOT SHOWN)

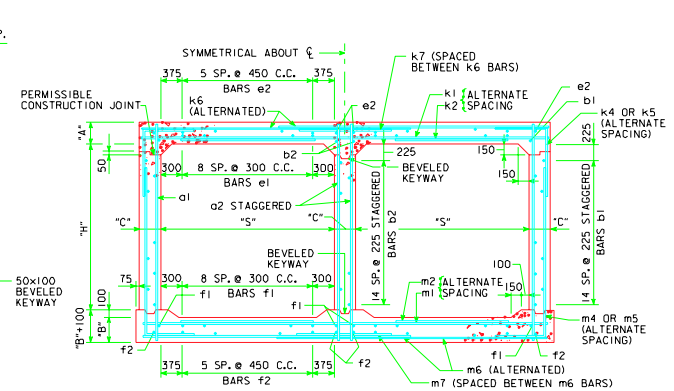
NOTE:

1. END SECTION DETAILS SHOWN ARE FOR A 15° SKEW BARREL. USE FOR SKEWS OF 30° & 45° BY INCREASING THE NUMBER OF TRANSVERSE REINFORCING BARS REQUIRED TO BE CUT & RELOCATED.
2. ALL LONGITUDINAL BARREL STEEL SHALL EXTEND AT LEAST TO THE BACK OF PARAPET.



STANDARD SECTION PLAN VIEW

NOTE: TYPICAL FOR LENGTHS OF 11 480 mm
(KEYWAY IS TO BE OMITTED WHEN BELL JOINTS ARE USED)

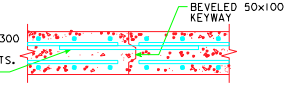


BARREL SECTION

NOTES:

1. SEE SHEET MTWRCB-GI-95 FOR GENERAL INFORMATION, SPECIFICATIONS, AND DESIGN STRESSES.

ONE SET OF SIZE 15 r1 x 1050 DOWEL BARS @ 300 SPACING REQUIRED IN SLAB AT ALL CULVERT BARREL JOINTS, EXCEPT JOINTS WITH BELL JOINTS. r1 BARS REQUIRED = 22, TOTAL MASS = 36 kg.



TOP SLAB CONSTRUCTION JOINT DETAIL

LATEST REVISION DATE : 04-02

APPROVED BY : William A. Kendzierski

STANDARD DESIGN

CULVERT BARREL DETAILS

FOR
TWIN REINFORCED CONCRETE BOX CULVERTS

PROJECT DEVELOPMENT DIVISION
IOWA DEPARTMENT OF TRANSPORTATION

JULY, 1995

MTWRCB 3000-3600-95

REVISED : 12/96 ; KEYWAY NOTATION CHANGED.

REVISED 04-02 - NUMBER OF SPACES ADDED TO BARREL SECTION.
TWB3036MLSOI

XXXXXXXXXXSYSTEMTIME XXXXXXXUSERNAME XXXXXXXXXX