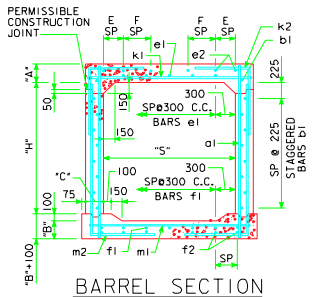
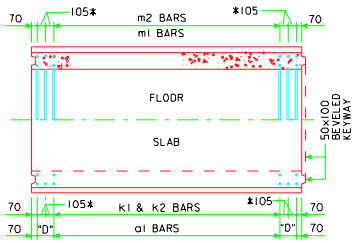
VARIABLE DIMENSIONS AND QUANTITIES FOR BARREL SECTIONS

DIMENSIONS							DIMENSIONS																																	QUANTITIES				
							a1			b1			e1			e2				f1			f2			k1			m1			k2				m2				CONCRETE m³/m				STEEL
																SPACING																												
FILL	S	H	A	B	C	*D	SIZE	SP	L	SIZE	SP	NO.	SIZE	SP	NO.	SIZE	E	F	NO.	SIZE	SP	NO.	SIZE	SP	NO.	SIZE	SP	L	SIZE	SP	L	SIZE	SP	L	h	v	SIZE	SP	L	h	v	SLAB	FLOOR	WALLS	TOTAL	kg/m
0	1800	900	255	255	230	140	15	140	1380	15	225	8	15	300	5	15	410	320	6	15	300	7	15	410	4	15	182	2160	15	210	2810	15	140	1990	1400	590	15	140	2070	820	1250	0.656	0.701	0.367	1.723	207.1
300	1800	900	270	255	230	140	15	140	1400	15	225	8	15	300	5	15	380	-	4	15	300	7	15	410	4	15	182	2160	15	280	2810	15	140	1230	640	590	15	140	2040	790	1250	0.690	0.701	0.367	1.757	182.4
600	1800	900	205	255	230	140	15	140	1330	15	225	8	15	300	5	15	380	-	4	15	300	7	15	380	4	20	280	2160	15	140	2810	15	140	1230	640	590	15	140	1840	640	1200	0.543	0.701	0.367	1.610	188.9
900-2100	1800	900	205	255	230	210	15	280	1330	15	225	8	15	300	5	15	300	-	4	15	300	7	15	330	4	15	210	2160	15	210	2810	15	140	1150	560	590	15	140	1790	590	1200	0.543	0.701	0.367	1.610	160.5
2400-3000	1800	900	205	255	230	210	15	280	1330	15	225	8	15	300	5	15	280	-	4	15	300	7	15	300	4	15	210	2160	15	280	2810	15	140	1130	540	590	15	140	1760	560	1200	0.543	0.701	0.367	1.610	155.3
3300-3900	1800	900	205	255	230	140	15	140	1330	15	225	8	15	300	5	15	280	-	4	15	300	7	15	300	4	15	140	2160	15	140	2810	15	140	1130	540	590	15	140	1760	560	1200	0.543	0.701	0.367	1.610	189.8
4200-4800	1800	900	205	255	230	140	15	140	1330	15	225	8	15	300	5	15	280	-	4	15	300	7	15	300	4	15	210	2160	15	182	2810	15	140	1130	540	590	15	140	1760	560	1200	0.543	0.701	0.367	1.610	176.4
5100-6000	1800	900	205	255	230	210	15	210	1330	15	225	8	15	300	5	15	280	-	4	15	300	7	15	300	4	15	105	2160	20	210	2810	15	105	1230	540	690	15	105	1760	560	1200	0.543	0.701	0.367	1.610	212.0
6300-7500	1800	900	205	255	230	140	15	140	1330	15	225	8	15	300	5	15	330	-	4	15	300	7	15	330	4	15	140	2160	20	182	2810	15	182	1280	590	690	15	182	1790	590	1200	0.543	0.701	0.367	1.610	183.3
0	1800	1200	255	255	230	140	15	140	1680	15	225	12	15	300	5	15	410	320	6	15	300	7	15	410	4	15	182	2160	15	280	2810	15	140	1990	1400	590	15	140	2370	820	1550	0.656	0.701	0.505	1.861	222.7
300	1800	1200	270	255	230	140	15	140	1700	15	225	12	15	300	5	15	380	-	4	15	300	7	15	410	4	15	182	2160	15	280	2810	15	140	1230	640	590	15	140	2340	790	1550	0.690	0.701	0.505	1.895	202.2
600	1800	1200	205	255	230	140	15	140	1630	15	225	12	15	300	5	15	360	-	4	15	300	7	15	380	4	15	182	2160	15	140	2810	15	140	1200	610	590	15	140	2140	640	1500	0.543	0.701	0.505	1.748	207.6
900-2100	1800	1200	205	255	230	180	15	180	1630	15	225	12	15	300	5	15	300	-	4	15	300	7	15	300	4	15	210	2160	15	182	2810	15	182	1150	560	590	15	182	2060	560	1500	0.543	0.701	0.505	1.748	172.8
2400-3000	1800	1200	205	255	230	180	15	180	1630	15	225	12	15	300	5	15	280	-	4	15	300	7	15	300	4	15	280	2160	15	182	2810	15	182	1130	540	590	15	182	2060	560	1500	0.543	0.701	0.505	1.748	158.6
3300-3900	1800	1200	205	255	230	140	15	140	1630	15	225	12	15	300	5	15	280	-	4	15	300	7	15	280	4	15	140	2160	15	140	2810	15	140	1130	540	590	15	140	2040	540	1500	0.543	0.701	0.505	1.748	209.1
4200-4800	1800	1200	205	255	230	140	15	140	1630	15	225	12	15	300	5	15	280	-	4	15	300	7	15	280	4	15	182	2160	15	182	2810	15	140	1130	540	590	15	140	2040	540	1500	0.543	0.701	0.505	1.748	198.1
5100-6000	1800	1200	205	255	230	210	15	210	1630	15	225	12	15	300	5	15	280	-	4	15	300	7	15	280	4	15	105	2160	15	140	2810	15	105	1230	540	690	15	105	2040	540	1500	0.543	0.701	0.505	1.748	230.3
6300-7500	1800	1200	205	255	230	140	15	140	1630	15	225	12	15	300	5	15	300	-	4	15	300	7	15	330	4	20	182	2160	20	182	2810	15	182	1250	560	690	15	182	2090	590	1500	0.543	0.701	0.505	1.748	205.4
0	1800	1500	255	255	230	140	15	140	1980	15	225	14	15	300	5	15	380	360	6	15	300	7	15	410	4	15	182	2160	15	280	2810	15	140	1990	1400	590	15	140	2680	820	1860	0.656	0.701	0.643	1.999	239.6
300	1800	1500	270	255	230	140	15	140	2000	15	225	14	15	300	5	15	410	-	4	15	300	7	15	410	4	15	182	2160	15	280	2810	15	140	1280	590	590	15	140	2650	790	1860	0.690	0.701	0.643	2.033	220.2
600	1800	1500	205	255	230	140	15	140	1930	15	225	14	15	300	5	15	380	-	4	15	300	7	15	380	4	15	182	2160	15	140	2810	15	140	1230	640	590	15	140	2450	640	1810	0.543	0.701	0.643	1.886	225.2
900-2100	1800	1500	205	255	230	180	15	180	1930	15	225	14	15	300	5	15	360	-	4	15	300	7	15	360	4	15	280	2160	15	280	2810	15	182	1200	610	590	15	182	2420	610	1810	0.543	0.701	0.643	1.886	178.0
2400-3000	1800	1500	205	255	230	180	15	180	1930	15	225	14	15	300	5	15	280	-	4	15	300	7	15	300	4	15	280	2160	15	140	2810	15	182	1130	540	590	15	182	2370	560	1810	0.543	0.701	0.643	1.886	188.2
3300-3900	1800	1500	205	255	230	140	15	140	1930	15	225	14	15	300	5	15	280	-	4	15	300	7	15	300	4	15	140	2160	15	140	2810	15	140	1130	540	590	15	140	2370	560	1810	0.543	0.701	0.643	1.886	226.4
4200-4800	1800	1500	205	255	230	140	15	140	1930	15	225	14	15	300	5	15	280	-	4	15	300	7	15	300	4	15	182	2160	15	182	2810	15	140	1130	540	590	15	140	2370	560	1810	0.543	0.701	0.643	1.886	215.5
5100-6000	1800	1500	205	255	230	210	15	210	1930	15	225	14	15	300	5	15	280	-	4	15	300	7	15	300	4	15	105	2160	15	140	2810	15	105	1230	540	690	15	105	2370	560	1810	0.543	0.701	0.643	1.886	247.7
6300-7500	1800	1500	205	255	230	140	15	140	1930	15	225	14	15	300	5	15	330	-	4	15	300	7	15	330	4	20	182	2160	25	210	2810	15	182	1280	590	690	15	182	2400	590	1810	0.543	0.701	0.643	1.886	235.5

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

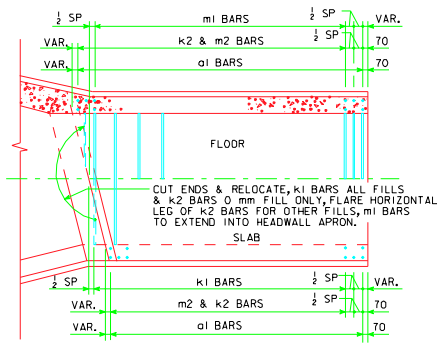


BARREL SECTION



STANDARD SECTION PLAN VIEW

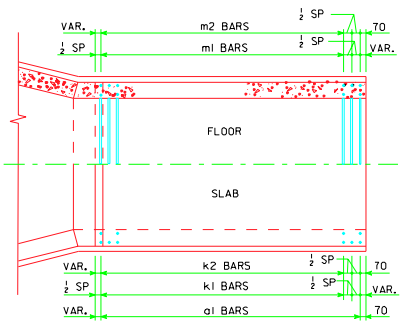
NOTE:
TYPICAL FOR LENGTHS OF 11 480 mm.
(KEYWAY IS TO BE OMITTED WHEN BELL JOINTS ARE USED)



PLAN - SKEW TYPICAL

(KEYWAY NOT SHOWN)

NOTE:
ALL LONGITUDINAL BARREL STEEL SHALL EXTEND AT LEAST TO THE BACKFACE OF PARAPET.

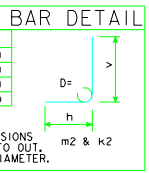


PLAN - 0° SKEW

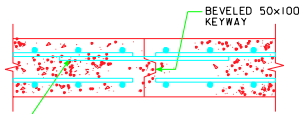
(KEYWAY NOT SHOWN)

BENT BAR DETAIL

BARS	D
15	100
20	120
25	150
30	240



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



ONE SET OF SIZE 15 r1x1050 mm DOWEL BARS @ 300 mm SPACING REQUIRED IN SLAB AT ALL CULVERT BARREL JOINTS, EXCEPT JOINTS WITH BELL JOINTS.
r1 BARS REQUIRED = 7, TOTAL MASS = 12 kg.

TOP SLAB CONSTRUCTION JOINT DETAIL

NOTES:

1. SEE SHEET MRCB-G1-95 FOR GENERAL INFORMATION, SPECIFICATIONS, AND DESIGN STRESSES.

LATEST REVISION DATE :

APPROVED BY :

STANDARD DESIGN

CULVERT BARREL DETAILS

FOR

REINFORCED CONCRETE BOX CULVERTS

PROJECT DEVELOPMENT DIVISION
IOWA DEPARTMENT OF TRANSPORTATION

JULY, 1995

MRCB-1800-1-95

RCB1BM1.SOI

XXXXXXXXXSYSTEMTIME XXXXXXXUSERNAME XXXXXXXXX