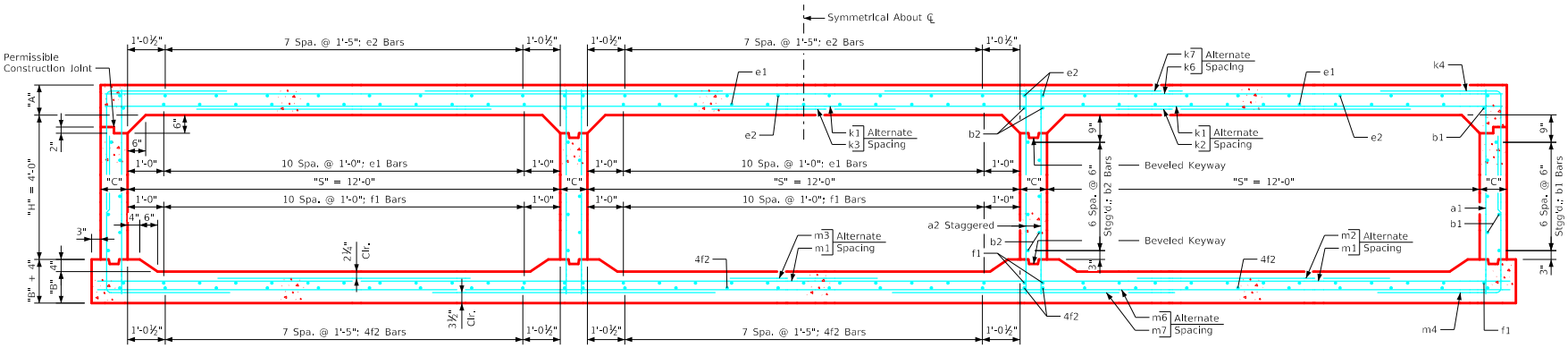
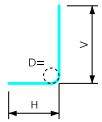


Triple 12' x 4' Barrel Section

Bent Bar Detail

Bars	D
4	3"
5	3¾"
6	4½"
7	5¼"



k4 & m4

Note:
All dimensions are out to out.
D = pin diameter.

Notes:

1. Dimensions listed on this sheet to be used in conjunction with Sheet TRRCB G3-20.
2. Fill, dimensions "S" and "H" are in feet.
3. Dimensions "A", "B", "C", "D", and "Sp." listed in the bar list are in inches.
4. Dimensions "L", "H", "V" are in feet and inches.

Variable Dimensions and Quantities for Triple 12' x 4' Barrel Sections

Dimensions

Fill	S	H	A	B	C	D	E	R	T	U	W	X	Z
0	12	4	14	11	9	9	9	0'-0	0'-0	7'-0	2'-10	4'-4	4'-3
1	12	4	13	10.5	9	9	9	0'-5	0'-3	6'-7	2'-10	4'-5	4'-3
2	12	4	10	10	9	9	9	2'-2	1'-9	5'-8	2'-8	5'-2	4'-3
3-6	12	4	9	10	9	9	6	2'-7	1'-7	4'-7	3'-7	5'-2	4'-0
7-8	12	4	9.5	11	9	9	9	3'-10	3'-0	4'-1	3'-3	5'-2	3'-11
9-10	12	4	11	12.5	9	9	9	5'-2	2'-10	3'-10	2'-10	5'-2	3'-10
11-12	12	4	12	13.5	9	9	9	5'-2	2'-8	3'-10	2'-9	5'-2	3'-10
13-15	12	4	13.5	15.5	9	6	9	4'-1	2'-6	3'-10	2'-5	4'-2	3'-10
16-17	12	4	14.5	16.5	9	9	9	4'-0	2'-3	3'-10	2'-0	4'-1	3'-10
18-19	12	4	15.5	17.5	9	9	9	3'-11	1'-9	3'-11	1'-10	4'-9	3'-11
20-21	12	4	16.5	18.5	9	9	9	4'-7	1'-4	3'-11	1'-5	4'-9	4'-0
22-23	12	4	18	20	9	9	9	4'-3	1'-1	4'-0	1'-2	4'-9	4'-1
24-25	12	4	19.5	21	9.5	9	6	4'-1	0'-11	4'-2	1'-1	4'-7	4'-2

Bar List

Fill	a1			a2			b1			b2			e1			e2			f1			f2		
	Size	Sp.	L	Size	Sp.	L	Size	Sp.	No.	Size	Sp.	No.	Size	Sp.	No.	Size	Sp.	No.	Size	Sp.	No.	Size	Sp.	No.
0	4	12	6'-0	6	9	6'-0	4	6	16	4	6	18	4	12	33	4	17	30	4	12	39	4	17	30
1	4	12	5'-10	6	9	5'-10	4	6	16	4	6	18	4	12	33	4	17	30	4	12	39	4	17	30
2	5	12	5'-7	7	9	5'-7	4	6	16	4	6	18	4	12	33	4	17	30	4	12	39	4	17	30
3-6	5	12	5'-6	5	6	5'-6	4	6	16	4	6	18	4	12	33	4	17	30	4	12	39	4	17	30
7-8	4	9	5'-7	6	9	5'-7	4	6	16	4	6	18	4	12	33	4	17	30	4	12	39	4	17	30
9-10	4	12	5'-10	6	9	5'-10	4	6	16	4	6	18	4	12	33	4	17	30	4	12	39	4	17	30
11-12	4	12	6'-0	6	9	6'-0	4	6	16	4	6	18	4	12	33	4	17	30	4	12	39	4	17	30
13-15	4	6	6'-4	6	9	6'-4	4	6	16	4	6	18	4	12	33	4	17	30	4	12	39	4	17	30
16-17	5	12	6'-6	6	9	6'-6	4	6	16	4	6	18	4	12	33	4	17	30	4	12	39	4	17	30
18-19	4	9	6'-8	6	9	6'-8	4	6	16	4	6	18	4	12	33	4	17	30	4	12	39	4	17	30
20-21	4	9	6'-10	6	9	6'-10	4	6	16	4	6	18	4	12	33	4	17	30	4	12	39	4	17	30
22-23	4	12	7'-1	6	9	7'-1	4	6	16	4	6	18	4	12	33	4	17	30	4	12	39	4	17	30
24-25	4	12	7'-3	5	6	7'-3	4	6	16	4	6	18	4	12	33	4	17	30	4	12	39	4	17	30

Fill	k1			k2			k3			k4					k6			k7		
	Size	Sp.	L	Size	Sp.	L	Size	Sp.	L	Size	Sp.	L	H	V	Size	Sp.	L	Size	Sp.	L
0	6	18	38'-8	6	18	12'-11	4	18	12'-9	6	12	6'-11	2'-11	4'-0	5	18	38'-8	6	18	14'-7
1	5	6	7'-0	3'-6	3'-6	6	18	38'-8	6	18	12'-8	4	18	11'-11	5	6	7'-0	3'-6	3'-6	5	18	38'-8	6	18	14'-2
2	5	9	38'-8	4	9	10'-2	4	9	8'-5	6	9	7'-4	3'-8	3'-8	5	18	38'-8	8	18	13'-8
3-6	5	9	38'-8	5	9	10'-9	4	9	7'-7	6	9	7'-2	3'-7	3'-7	5	9	38'-8	5	9	9'-8
7-8	5	9	38'-8	4	9	7'-11	4	9	5'-1	6	9	6'-8	3'-0	3'-8	5	12	38'-8	7	12	8'-4
9-10	5	9	38'-8	4	9	8'-5	4	9	2'-5	5	6	5'-10	2'-6	3'-4	4	9	38'-8	6	9	7'-11
11-12	5	9	38'-8	4	9	9'-1	4	9	2'-5	5	6	5'-9	2'-4	3'-5	5	12	38'-8	7	12	8'-1
13-15	6	12	38'-8	5	12	9'-9	4	12	4'-7	4	6	5'-6	2'-4	3'-2	5	12	38'-8	7	12	8'-2
16-17	6	12	38'-8	5	12	10'-4	4	12	4'-9	4	6	5'-7	2'-4	3'-3	5	9	38'-8	6	9	8'-3
18-19	7	18	38'-8	7	18	11'-2	4	18	4'-11	4	6	5'-9	2'-5	3'-4	5	9	38'-8	6	9	8'-5
20-21	5	9	38'-8	5	9	11'-7	4	9	3'-7	4	6	5'-10	2'-5	3'-5	5	9	38'-8	6	9	8'-6
22-23	5	9	38'-8	5	9	11'-10	4	9	4'-3	4	6	6'-1	2'-6	3'-7	5	9	38'-8	6	9	8'-9
24-25	5	9	38'-10	5	9	12'-1	4	9	4'-8	5	9	6'-8	2'-7	4'-1	5	9	38'-10	6	9	9'-1

Bar List

Fill	k9			m1			m2			m3			m4					m6			m7			m9		
	Size	Sp.	L	Size	Sp.	L	Size	Sp.	L	Size	Sp.	L	Size	Sp.	L	H	V	Size	Sp.	L	Size	Sp.	L	Size	Sp.	L
0	6	4.5	38'-8	4	9	39'-2	4	9	8'-6	4	9	4'-1	7	12	8'-8	4'-4	4'-4	4	9	39'-2	5	9	8'-6	5	4.5	39'-2
1	6	4.5	38'-8	4	9	39'-2	4	9	8'-1	4	9	3'-11	5	6	8'-0	3'-8	4'-4	4	9	39'-2	5	9	8'-6	5	4.5	39'-2
2	8	4.5	38'-8	5	12	39'-2	5	12	8'-4	4	12	2'-5	6	9	7'-8	3'-5	4'-3	4	12	39'-2	7	12	8'-7	7	4.5	39'-2
3-6	5	4.5	38'-8	5	9	39'-2	4	9	6'-8	4	9	2'-5	6	9	7'-7	3'-4	4'-3	5	9	39'-2	6	9	8'-1	6	4.5	39'-2
7-8	7	4.5	38'-8	5	9	39'-2	4	9	7'-6	4	9	2'-5	6	9	7'-4	3'-0	4'-4	5	12	39'-2	7	12	8'-0	7	4.5	39'-2
9-10	6	4.5	38'-8	5	9	39'-2	4	9	8'-5	4	9	2'-5	5	6	7'-2	2'-8	4'-6	5	12	39'-2	7	12	8'-0	7	4.5	39'-2
11-12	7	4.5	38'-8	6	12	39'-2	5	12	8'-9	4	12	2'-5	5	6	7'-0	2'-5	4'-7	5	12	39'-2	7	12	8'-0	7	4.5	39'-2
13-15	7	4.5	38'-8	6	12	39'-2	5	12	10'-0	4	12	4'-5	4	6	7'-2	2'-5	4'-9	5	12	39'-2	7	12	8'-2	7	4.5	39'-2
16-17	6	4.5	38'-8	5	9	39'-2	5	9	10'-10	4	9	4'-7	4	6	7'-3	2'-5	4'-10	5	12	39'-2	7	12	8'-3	7	4.5	39'-2
18-19	6	4.5	38'-8	5	9	39'-2	5	9	11'-2	4	9	3'-3	4	6	7'-4	2'-5	4'-11	5	9	39'-2	6	9	8'-6	6	4.5	39'-2
20-21	6	4.5	38'-8	6	12	39'-2	6	12	11'-7	4	12	3'-3	4	6	7'-5	2'-5	5'-0	5	9	39'-2	6	9	8'-8	6	4.5	39'-2
22-23	6	4.5	38'-8	6	12	39'-2	6	12	11'-10	4	12	3'-3	4	6	7'-7	2'-6	5'-1	5	9	39'-2	6	9	8'-11	6	4.5	39'-2
24-25	6	4.5	38'-10	6	12	39'-4	6	12	12'-0	4	12	3'-8	5	9	7'-9	2'-7	5'-2	5	9	39'-4	6	9	9'-1	6	4.5	39'-4

Quantities

Fill	Concrete (CY/FT)				Steel (LB/FT)
	Slab	Floor	Walls	Total	
0	1.766	1.422	0.396	3.584	452.18
1	1.646	1.362	0.396	3.404	451.58
2	1.285	1.301	0.396	2.982	508.58
3-6	1.165	1.301	0.396	2.862	518.68
7-8	1.225	1.422	0.396	3.043	505.63
9-10	1.405	1.605	0.396	3.406	490.71
11-12	1.526	1.727	0.396	3.649	510.16
13-15	1.706	1.971	0.396	4.073	516.53
16-17	1.827	2.093	0.396	4.316	529.82
18-19	1.947	2.215	0.396	4.558	545.71
20-21	2.067	2.337	0.396	4.800	556.03
22-23	2.248	2.520	0.396	5.164	559.42
24-25	2.441	2.654	0.418	5.513	570.97

LATEST REVISION DATE

APPROVED BY BRIDGE ENGINEER

IOWADOT Highway Division

Standard Design

Triple Reinforced Concrete Box Culverts

July, 2020

Culvert Barrel Details

12' x 4' Barrel Sections

TRRCB 12-4-20

ENGLISHLRFDSIGNEDTRIPLECULVERTS.DGN - TRRCB 12-4-20 - THIS SHEET ISSUED 07-2020.