

TYPICAL SECTION

QUADRUPLE BOX CULVERTS
STANDARD DETAILS
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

GENERAL NOTE

Capacity: HS20-44 Loading and Alternate Military Loading.

Specifications:

Construction - Va. Department of Transportation Road and Bridge Specifications, 1991.
Design - AASHTO Standard Specifications for Highway Bridges, 1983, including Interim Specifications, 1984, 1985 and VDOT Modifications, using Load Factor Design.

All concrete shall be Class A4.

Deformed reinforcing bars shall conform to ASTM A615, Grade 60. All reinforcing bar dimensions on the detailed drawings are to centers of bars except where otherwise noted and are subject to fabrication and construction tolerances.

Construction joints shall be constructed and bonded in accordance with the current Road and Bridge Specifications.

Barrels more than 35' in length shall be poured in sections by providing vertical construction joints, not exceeding 25' between joints nor more than 30' from ends of barrels.

** All bends shall be made with a pin diameter as listed in TABLE A except for Bars BH3 & BH4 which shall have a pin diameter of 24 bar diameters.

Dimensions on bar diagrams are out-to-out of bars. Bars are straight and #4 in size unless otherwise shown. BL2 shall be #3 in size.

The number of BL1 & BL2 bars shown in the table is the number of longitudinal bars shown in the Typical Section and may not equal the total number of bars required. BL1 & BL2 shall have a lap of 30 bar diameters at splices. At construction joints, first placed bars shall project 30 bar diameters beyond the joint. Estimated QUAN./LF shown for reinforcing steel does not include quantity for laps of BL1 & BL2 bars. The additional weight per longitudinal lap is shown in the table.

The centers of main reinforcing bars shall be 2" from the face of the concrete.

When concrete protective coating is required, all steel shall be epoxy-coated. All reinforcing steel for culverts under 0 to 2 foot fills shall be epoxy-coated.

At the Contractor's option, BV1 & BV2 bars may be spliced at the permissible construction joint in order to facilitate construction. No additional compensation shall be provided for the increase in reinforcing steel quantity due to the splices.

Bar HW2 shall be 4" less than culvert height in length.

Headwall quantities shown assume wingwalls are to be built at a 45° angle to the headwall.

The designs are applicable to the fill height and other conditions indicated. Any change in the conditions invalidates these designs.

Wingwalls referenced by letter apply when the acceptable foundation level is the same for both box and wings. If foundation levels are different, the height of the wingwall shall be adjusted by selection of another lettered wingwall of appropriate height. For wingwall details, refer to standard series BCW for the appropriate fill slope.

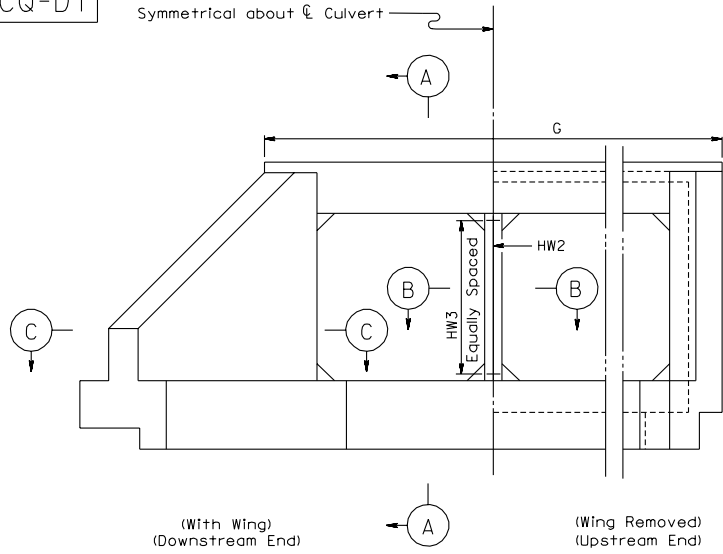
For details of extending existing boxes, refer to Standard BCE-01.

For modification of details for skewed culverts, see the Skewed Box Details included in the road plans.

This standard shall be used with the BCQ standard series.

BCQ-DT

Symmetrical about $\text{\textcircled{C}}$ Culvert



END ELEVATION

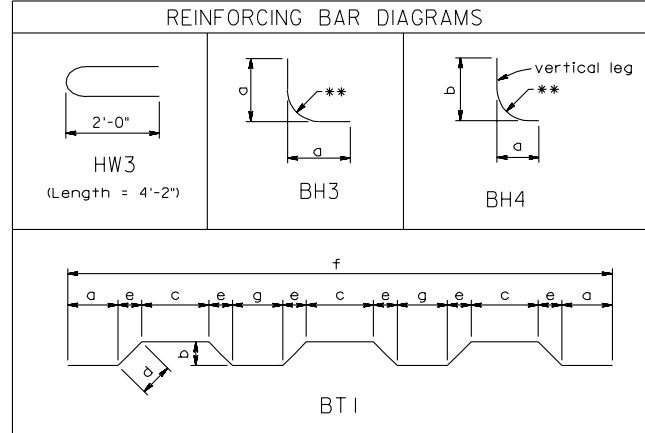
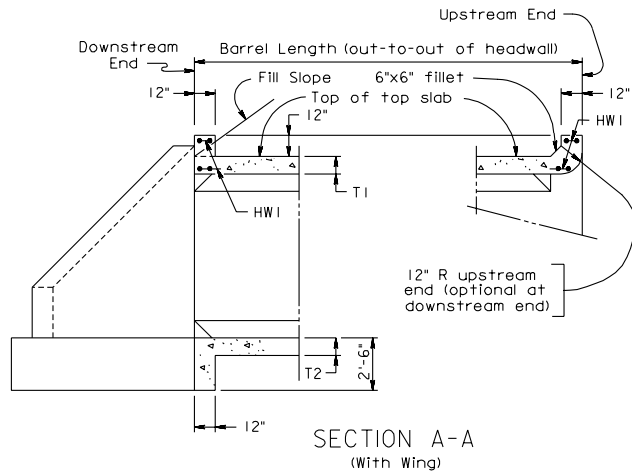
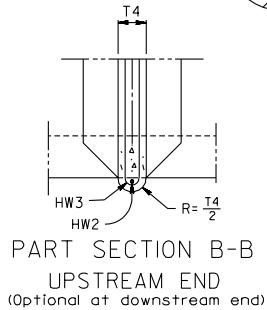


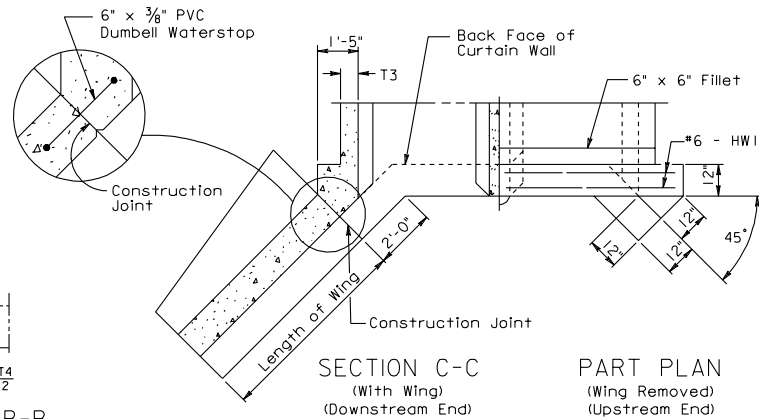
TABLE A	
Bar Size	Pin Dia.
#3	2 1/4"
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"
#9	9"



SECTION A-A
(With Wing)



PART SECTION B-B
UPSTREAM END
(Optional at downstream end)



SECTION C-C
(With Wing)
(Downstream End)

PART PLAN
(Wing Removed)
(Upstream End)

QUADRUPLE BOX CULVERTS
STANDARD DETAILS

BCQ-02

DIMENSIONS										REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	T4						BH1			BH2			BH3			BH4			BV1			BV2						
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	13	13'- 0"	26	13'- 0"	1	1'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	--	----	----	----	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	13	13'- 0"	26	13'- 0"	2	2'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	4	12"	2'- 1 1/4"	3'- 11"	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	10"	5'- 0"
4	3	9/4"	9/4"	8"	8"	17	17'- 0"	34	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	2'- 9 1/4"	4'- 10"	4	12"	4'- 2"	4	12"	4'- 2"
4	4	9/4"	9/4"	8"	8"	17	17'- 0"	34	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	3'- 3 1/4"	5'- 4"	4	12"	5'- 2"	4	9 1/2"	5'- 2"
4	5	9/2"	9/2"	8"	8"	17	17'- 0"	34	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	3'- 9 1/2"	5'- 10"	4	12"	6'- 3"	4	9"	6'- 3"
4	6	9/2"	9/2"	8"	8"	17	17'- 0"	34	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	4'- 3 1/2"	6'- 4"	4	12"	7'- 3"	4	9"	7'- 3"
5	3	9"	9"	8"	8"	21	21'- 0"	42	21'- 0"	1	1'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	4	11"	2'- 6"	4'- 9"	4	11"	2'- 6"	2'- 9"	5'- 0"	4	12"	4'- 2"	4	10"	4'- 2"
5	4	9"	9"	8"	8"	21	21'- 0"	42	21'- 0"	2	2'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	4	11"	2'- 6"	4'- 9"	4	11"	2'- 6"	3'- 3"	5'- 6"	4	12"	5'- 2"	4	7 1/2"	5'- 2"
5	5	9"	9"	8"	8"	21	21'- 0"	42	21'- 0"	3	3'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	4	11"	2'- 6"	4'- 9"	4	11"	2'- 6"	3'- 9"	6'- 0"	4	12"	6'- 2"	4	7"	6'- 2"
5	6	9"	9"	8"	8"	21	21'- 0"	42	21'- 0"	4	4'- 0"	4	11"	22'- 0"	5	11"	23'- 0"	4	11"	2'- 6"	4'- 9"	4	11"	2'- 6"	4'- 3"	6'- 6"	4	12"	7'- 2"	4	7"	7'- 2"
5	7	9"	9"	8"	8"	21	21'- 0"	42	21'- 0"	5	5'- 0"	4	10"	22'- 0"	4	10"	23'- 0"	4	10"	2'- 6"	4'- 9"	4	10"	2'- 6"	4'- 9"	7'- 0"	4	12"	8'- 2"	4	6 1/2"	8'- 2"
6	4	8 3/4"	8 3/4"	8"	8"	25	25'- 0"	50	25'- 0"	2	2'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	4	9"	2'- 8 3/8"	5'- 2"	4	9"	2'- 8 3/8"	3'- 2 3/4"	5'- 8"	4	12"	5'- 2"	5	9 1/2"	5'- 2"
6	5	8 3/4"	8 3/4"	8"	8"	25	25'- 0"	50	25'- 0"	3	3'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	4	9"	2'- 8 3/8"	5'- 2"	4	9"	2'- 8 3/8"	3'- 8 3/4"	6'- 2"	4	12"	6'- 2"	5	9"	6'- 2"
6	6	8 3/4"	8 3/4"	8"	8"	25	25'- 0"	50	25'- 0"	4	4'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	4	9"	2'- 8 3/8"	5'- 2"	4	9"	2'- 8 3/8"	4'- 2 3/4"	6'- 8"	4	12"	7'- 2"	4	5 1/2"	7'- 2"
6	7	8 3/4"	8 3/4"	8"	8"	25	25'- 0"	50	25'- 0"	5	5'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	4	9"	2'- 8 3/8"	5'- 2"	4	9"	2'- 8 3/8"	4'- 8 3/4"	7'- 2"	4	12"	8'- 2"	4	5 1/2"	8'- 2"
6	8	8 3/4"	8 3/4"	8"	8"	25	25'- 0"	50	25'- 0"	6	6'- 0"	4	8"	25'- 7"	4	8"	27'- 0"	4	8"	2'- 8 3/8"	5'- 2"	4	8"	2'- 8 3/8"	5'- 2 3/4"	7'- 8"	4	12"	9'- 2"	4	5 1/2"	9'- 2"
7	4	8 3/4"	8 3/4"	8"	8"	29	29'- 0"	58	29'- 0"	2	2'- 0"	4	8"	29'- 2"	4	8"	31'- 0"	4	8"	2'- 10 3/4"	5'- 6"	4	8"	2'- 10 3/4"	3'- 2 3/4"	5'- 10"	4	12"	5'- 2"	4	7"	5'- 2"
7	6	8 3/4"	8 3/4"	8"	8"	29	29'- 0"	58	29'- 0"	4	4'- 0"	4	8"	29'- 2"	4	8"	31'- 0"	4	8"	2'- 10 3/4"	5'- 6"	4	8"	2'- 10 3/4"	4'- 2 3/4"	6'- 10"	4	12"	7'- 2"	4	7"	7'- 2"
7	8	8 3/4"	8 3/4"	8"	8"	29	29'- 0"	58	29'- 0"	6	6'- 0"	5	11"	29'- 2"	5	11"	31'- 0"	4	11"	2'- 10 3/4"	5'- 6"	5	11"	2'- 10 3/4"	5'- 2 3/4"	7'- 10"	4	12"	9'- 2"	4	7"	9'- 2"
7	10	9"	9"	8"	8"	29	29'- 0"	58	29'- 0"	8	8'- 0"	5	11"	29'- 2"	5	11"	31'- 0"	4	11"	2'- 10 3/4"	5'- 6"	5	11"	2'- 10 3/4"	6'- 3"	8'- 10"	4	12"	11'- 2"	4	7 1/2"	11'- 2"
8	4	9"	9"	8"	8"	33	33'- 0"	66	33'- 0"	2	2'- 0"	5	12"	32'- 10"	5	12"	35'- 0"	--	----	----	----	6	12"	3'- 1 1/4"	3'- 3"	5'- 11"	4	12"	5'- 2"	5	9 1/2"	5'- 2"
8	6	9"	9"	8"	8"	33	33'- 0"	66	33'- 0"	4	4'- 0"	5	11"	32'- 10"	5	11"	35'- 0"	4	11"	3'- 1 1/4"	5'- 11"	5	11"	3'- 1 1/4"	4'- 3"	7'- 0"	4	12"	7'- 2"	4	6"	7'- 2"
8	8	9"	9"	8"	8"	33	33'- 0"	66	33'- 0"	6	6'- 0"	5	11"	32'- 10"	5	11"	35'- 0"	4	11"	3'- 1 1/4"	5'- 11"	5	11"	3'- 1 1/4"	5'- 3 1/4"	8'- 1"	4	12"	9'- 2"	5	9 1/2"	9'- 2"
8	10	9"	9"	8"	8"	33	33'- 0"	66	33'- 0"	8	8'- 0"	5	10"	32'- 10"	5	10"	35'- 0"	4	10"	3'- 1 1/4"	5'- 11"	5	10"	3'- 1 1/4"	6'- 3 1/4"	9'- 1"	4	12"	11'- 2"	4	6 1/2"	11'- 2"
9	4	9 1/2"	9 1/2"	8"	8"	37	37'- 0"	74	37'- 0"	2	2'- 0"	5	11"	36'- 5"	5	11"	39'- 0"	--	----	----	----	6	11"	3'- 3 5/8"	3'- 3 1/2"	6'- 2"	4	12"	5'- 3"	4	5 1/2"	5'- 3"
9	6	9 1/2"	9 1/2"	8"	8"	37	37'- 0"	74	37'- 0"	4	4'- 0"	5	10"	36'- 5"	5	10"	39'- 0"	4	10"	3'- 3 5/8"	6'- 4"	5	10"	3'- 3 5/8"	4'- 3 1/2"	7'- 3"	4	12"	7'- 3"	4	5 1/2"	7'- 3"
9	8	9 1/2"	9 1/2"	8"	8"	37	37'- 0"	74	37'- 0"	6	6'- 0"	5	10"	36'- 5"	5	10"	39'- 0"	4	10"	3'- 3 5/8"	6'- 4"	5	10"	3'- 3 5/8"	5'- 3 1/2"	8'- 3"	4	12"	9'- 3"	4	5 1/2"	9'- 3"
9	10	9"	9"	8"	8"	37	37'- 0"	74	37'- 0"	8	8'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	4	9"	3'- 3 5/8"	6'- 4"	5	9"	3'- 3 5/8"	6'- 3"	9'- 3"	4	12"	11'- 2"	5	8"	11'- 2"
9	12	9"	9"	8"	8"	37	37'- 0"	74	37'- 0"	10	10'- 0"	6	12"	36'- 5"	6	12"	39'- 0"	5	12"	3'- 3 5/8"	6'- 3"	6	12"	3'- 3 5/8"	7'- 3"	10'- 2"	4	10 1/2"	13'- 2"	4	5 1/2"	13'- 2"
10	4	9 3/4"	9 3/4"	8"	8"	41	41'- 0"	82	41'- 0"	2	2'- 0"	5	10"	40'- 0"	5	10"	43'- 0"	--	----	----	----	6	10"	3'- 6"	3'- 3 3/4"	6'- 5"	4	12"	5'- 3"	5	8"	5'- 3"
10	6	9 3/4"	9 3/4"	8"	8"	41	41'- 0"	82	41'- 0"	4	4'- 0"	5	9"	40'- 0"	5	9"	43'- 0"	--	----	----	----	5	9"	3'- 6"	4'- 3 3/4"	7'- 6"	4	12"	7'- 3"	4	5"	7'- 3"
10	8	9 3/4"	9 3/4"	8"	8"	41	41'- 0"	82	41'- 0"	6	6'- 0"	6	12"	40'- 0"	6	12"	43'- 0"	4	12"	3'- 6"	6'- 9"	6	12"	3'- 6"	5'- 3 3/4"	8'- 5"	4	12"	9'- 3"	4	5"	9'- 3"
10	10	9 3/4"	9 3/4"	8"	8"	41	41'- 0"	82	41'- 0"	8	8'- 0"	5	8"	40'- 0"	5	8"	43'- 0"	4	8"	3'- 6"	6'- 9"	5	8"	3'- 6"	6'- 3 3/4"	9'- 6"	4	12"	11'- 3"	5	8"	11'- 3"
10	12	9 3/4"	9 3/4"	8"	8"	41	41'- 0"	82	41'- 0"	10	10'- 0"	5	8"	40'- 0"	5	8"	43'- 0"	4	8"	3'- 6"	6'- 9"	5	8"	3'- 6"	7'- 3 3/4"	10'- 6"	4	10 1/2"	13'- 3"	5	8"	13'- 3"
12	6	10 1/4"	10 1/4"	8"	8"	49	49'- 0"	98	49'- 0"	4	4'- 0"	6	8"	47'- 2"	5	8"	51'- 0"	4	8"	3'- 10 3/4"	7'- 6"	5	8"	3'- 10 3/4"	4'- 4 1/4"	7'- 11"	4	12"	7'- 5"	5	6 1/2"	7'- 5"
12	8	10 1/4"	10 1/4"	8"	8"	49	49'- 0"	98	49'- 0"	6	6'- 0"	5	8"	47'- 2"	5	8"	51'- 0"	4	8"	3'- 10 3/4"	7'- 6"	5	8"	3'- 10 3/4"	5'- 4 1/4"	8'- 11"	4	10 1/2"	9'- 5"	5	6 1/2"	9'- 5"
12	10	10 1/4"	10 1/4"	8"	8"	49	49'- 0"	98	49'- 0"	8	8'- 0"	6	11"	47'- 2"	6	11"	51'- 0"	--	----	----	----	7	11"	3'- 10 3/4"	6'- 4 1/4"	9'- 9"	4	12"	11'- 5"	6	9 1/2"	11'- 5"
12	12	10 1/4"	10 1/4"	8"	8"	49	49'- 0"	98	49'- 0"	10	10'- 0"	6	10"	47'- 2"	6	10"	51'- 0"	4	10"	3'- 10 3/4"	7'- 6"	6	10"	3'- 10 3/4"	7'- 4 1/4"	10'- 10"	4	10"	13'- 5"	6	9 1/2"	13'- 5"

QUADRUPLE BOX CULVERTS
0 TO 2 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

SPAN		HIGHT		REINFORCING STEEL															QUAN./LF		HEADWALLS								WINGWALL
(FT.)	(FT.)	SIZE	SPACING C-C	BTI											REINFORCING STEEL (LBS/FT)	CONCRETE (CY)	G		HWI		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)			
				a	b	c	d	e	f	g	LENGTH	NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS/FT)			CONCRETE (CY)	HEADWALL LENGTH	SIZE	LENGTH									
3	3	4	12"	2'- 8 1/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	73	20	68.015	1.283	150.583	16'- 10"	6	16'- 6"	3	12	2.222	137.876	2.191	99.132	A			
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	73	30	71.545	1.404	175.497	16'- 10"	6	16'- 6"	3	15	2.333	148.230	2.284	99.132	C			
4	3	4	12"	3'- 5 7/8"	0'- 5 3/4"	1'- 10 1/4"	0'- 7 5/8"	0'- 5"	19'- 0"	1'- 11 3/4"	20'- 0"	93	20	84.715	1.626	193.113	20'- 10"	6	20'- 6"	3	12	2.595	161.908	2.577	123.164	B			
4	4	4	12"	3'- 5 7/8"	0'- 5 3/4"	1'- 10 1/4"	0'- 7 5/8"	0'- 5"	19'- 0"	1'- 11 3/4"	20'- 0"	93	30	88.245	1.749	209.002	20'- 10"	6	20'- 6"	3	15	2.706	172.262	2.670	123.164	D			
4	5	4	12"	3'- 5 3/4"	0'- 6"	1'- 10"	0'- 8"	0'- 5 1/4"	19'- 0"	1'- 11 1/2"	20'- 1"	93	40	91.775	1.901	222.899	20'- 10"	6	20'- 6"	3	18	2.808	182.616	2.753	123.164	F			
4	6	4	12"	3'- 5 3/4"	0'- 6"	1'- 10"	0'- 8"	0'- 5 1/4"	19'- 0"	1'- 11 1/2"	20'- 1"	93	50	95.305	2.023	234.675	20'- 10"	6	20'- 6"	3	21	2.919	192.970	2.845	123.164	H			
5	3	4	11"	4'- 3 5/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	23'- 0"	2'- 7 1/4"	24'- 0"	113	20	101.415	1.815	237.595	24'- 10"	6	24'- 6"	3	12	2.979	185.940	2.974	147.196	A			
5	4	4	11"	4'- 3 5/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	23'- 0"	2'- 7 1/4"	24'- 0"	113	30	104.945	1.937	257.242	24'- 10"	6	24'- 6"	3	15	3.090	196.294	3.067	147.196	C			
5	5	4	11"	4'- 3 5/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	23'- 0"	2'- 7 1/4"	24'- 0"	113	40	108.475	2.060	273.033	24'- 10"	6	24'- 6"	3	18	3.201	206.648	3.160	147.196	E			
5	6	4	11"	4'- 3 5/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	23'- 0"	2'- 7 1/4"	24'- 0"	113	50	112.005	2.181	305.275	24'- 10"	6	24'- 6"	3	21	3.313	217.002	3.253	147.196	G			
5	7	4	10"	4'- 3 5/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	23'- 0"	2'- 7 1/4"	24'- 0"	113	60	115.535	2.303	317.679	24'- 10"	6	24'- 6"	3	24	3.424	227.356	3.345	147.196	I			
6	4	4	9"	5'- 1 3/8"	0'- 5 1/4"	2'- 8 1/4"	0'- 6 5/8"	0'- 4 1/2"	27'- 0"	3'- 2 3/4"	27'- 11"	133	30	121.645	2.112	329.861	28'- 10"	6	28'- 6"	3	15	3.499	220.326	3.489	171.228	C			
6	5	4	9"	5'- 1 3/8"	0'- 5 1/4"	2'- 8 1/4"	0'- 6 5/8"	0'- 4 1/2"	27'- 0"	3'- 2 3/4"	27'- 11"	133	40	125.175	2.234	347.352	28'- 10"	6	28'- 6"	3	18	3.610	230.680	3.582	171.228	E			
6	6	4	9"	5'- 1 3/8"	0'- 5 1/4"	2'- 8 1/4"	0'- 6 5/8"	0'- 4 1/2"	27'- 0"	3'- 2 3/4"	27'- 11"	133	50	128.705	2.356	365.445	28'- 10"	6	28'- 6"	3	21	3.721	241.034	3.674	171.228	G			
6	7	4	9"	5'- 1 3/8"	0'- 5 1/4"	2'- 8 1/4"	0'- 6 5/8"	0'- 4 1/2"	27'- 0"	3'- 2 3/4"	27'- 11"	133	60	132.235	2.478	381.067	28'- 10"	6	28'- 6"	3	24	3.833	251.388	3.767	171.228	I			
6	8	4	8"	5'- 1 3/8"	0'- 5 1/4"	2'- 8 1/4"	0'- 6 5/8"	0'- 4 1/2"	27'- 0"	3'- 2 3/4"	27'- 11"	133	70	135.765	2.599	420.329	28'- 10"	6	28'- 6"	3	27	3.944	261.742	3.860	171.228	K			
7	4	4	8"	5'- 1 11"	0'- 5 1/4"	3'- 1 1/8"	0'- 6 5/8"	0'- 4 1/2"	31'- 1 1/8"	3'- 9 7/8"	31'- 11"	153	30	138.345	2.324	385.845	32'- 10"	6	32'- 6"	3	15	3.894	244.358	3.898	195.260	C			
7	6	4	8"	5'- 1 11"	0'- 5 1/4"	3'- 1 1/8"	0'- 6 5/8"	0'- 4 1/2"	31'- 1 1/8"	3'- 9 7/8"	31'- 11"	153	50	145.405	2.569	413.787	32'- 10"	6	32'- 6"	3	21	4.117	265.066	4.083	195.260	G			
7	8	5	11"	5'- 1 11"	0'- 5 3/8"	3'- 1 1/8"	0'- 7"	0'- 4 1/2"	31'- 1 1/8"	3'- 9 7/8"	31'- 11"	153	70	152.465	2.812	464.985	32'- 10"	6	32'- 6"	3	27	4.339	285.774	4.268	195.260	K			
7	10	5	11"	5'- 10 7/8"	0'- 5 5/8"	3'- 3/8"	0'- 7 3/8"	0'- 4 3/4"	31'- 1 1/8"	3'- 9 7/8"	32'- 0"	153	90	159.525	3.105	488.545	32'- 10"	6	32'- 6"	3	33	4.543	306.482	4.435	195.260	O			
8	4	5	12"	6'- 8 3/8"	0'- 5 5/8"	3'- 5 5/8"	0'- 7 3/8"	0'- 4 3/4"	34'- 11 7/8"	4'- 4 7/8"	35'- 11"	173	30	155.045	2.591	426.558	36'- 10"	6	36'- 6"	3	15	4.267	268.390	4.284	219.292	C			
8	6	5	11"	6'- 8 3/8"	0'- 5 5/8"	3'- 5 5/8"	0'- 7 3/8"	0'- 4 3/4"	34'- 11 7/8"	4'- 4 7/8"	35'- 11"	173	50	162.105	2.834	486.589	36'- 10"	6	36'- 6"	3	21	4.490	289.098	4.469	219.292	G			
8	8	5	11"	6'- 8 1/4"	0'- 5 5/8"	3'- 5 5/8"	0'- 7 3/8"	0'- 5"	34'- 11 7/8"	4'- 4 7/8"	36'- 0"	173	70	169.165	3.133	516.915	36'- 10"	6	36'- 6"	3	27	4.708	309.806	4.651	219.292	L			
8	10	5	10"	6'- 8 1/4"	0'- 5 5/8"	3'- 5 5/8"	0'- 7 3/4"	0'- 5"	34'- 11 7/8"	4'- 4 5/8"	36'- 0"	173	90	176.225	3.376	571.311	36'- 10"	6	36'- 6"	3	33	4.931	330.514	4.836	219.292	P			
9	4	5	11"	7'- 5 3/4"	0'- 6 1/8"	3'- 10"	0'- 8 1/8"	0'- 5 1/4"	39'- 0"	4'- 11 1/2"	40'- 1"	193	30	171.745	2.930	496.381	40'- 10"	6	40'- 6"	3	15	4.627	292.422	4.657	243.324	D			
9	6	5	10"	7'- 5 3/4"	0'- 6 1/8"	3'- 10"	0'- 8 1/8"	0'- 5 1/4"	39'- 0"	4'- 11 1/2"	40'- 1"	193	50	178.805	3.171	566.532	40'- 10"	6	40'- 6"	3	21	4.850	313.130	4.843	243.324	H			
9	8	5	10"	7'- 5 3/4"	0'- 6 1/8"	3'- 10"	0'- 8 1/8"	0'- 5 1/4"	39'- 0"	4'- 11 1/2"	40'- 1"	193	70	185.865	3.416	599.220	40'- 10"	6	40'- 6"	3	27	5.072	333.838	5.028	243.324	L			
9	10	5	9"	7'- 6"	0'- 5 5/8"	3'- 10 1/2"	0'- 7 3/8"	0'- 4 3/4"	39'- 0"	5'- 0"	40'- 0"	193	90	192.925	3.535	677.535	40'- 10"	6	40'- 6"	3	33	5.327	354.546	5.246	243.324	O			
9	12	6	12"	7'- 6"	0'- 5 3/4"	3'- 10 1/2"	0'- 7 1/2"	0'- 4 3/4"	39'- 0"	5'- 0"	39'- 11"	193	110	199.985	3.777	739.144	40'- 10"	6	40'- 6"	3	39	5.550	375.254	5.431	243.324	S			
10	4	5	10"	8'- 3 1/4"	0'- 6 3/8"	4'- 2 1/2"	0'- 8 3/8"	0'- 5 1/2"	43'- 0"	5'- 6 1/2"	44'- 1"	213	30	188.445	3.225	574.236	44'- 10"	6	44'- 6"	3	15	4.985	316.454	5.028	267.356	D			
10	6	5	9"	8'- 3 1/4"	0'- 6 3/8"	4'- 2 1/2"	0'- 8 3/8"	0'- 5 1/2"	43'- 0"	5'- 6 1/2"	44'- 1"	213	50	195.505	3.467	635.690	44'- 10"	6	44'- 6"	3	21	5.207	337.162	5.213	267.356	H			
10	8	6	12"	8'- 3 1/4"	0'- 6 1/2"	4'- 2 1/2"	0'- 8 1/2"	0'- 5 1/2"	43'- 0"	5'- 6 1/2"	44'- 1"	213	70	202.565	3.708	720.301	44'- 10"	6	44'- 6"	3	27	5.430	357.870	5.399	267.356	L			
10	10	5	8"	8'- 3 1/4"	0'- 6 3/8"	4'- 2 1/2"	0'- 8 3/8"	0'- 5 1/2"	43'- 0"	5'- 6 1/2"	44'- 1"	213	90	209.625	3.950	780.907	44'- 10"	6	44'- 6"	3	33	5.653	378.578	5.584	267.356	P			
10	12	5	8"	8'- 3 1/4"	0'- 6 3/8"	4'- 2 1/2"	0'- 8 3/8"	0'- 5 1/2"	43'- 0"	5'- 6 1/2"	44'- 1"	213	110	216.685	4.194	818.659	44'- 10"	6	44'- 6"	3	39	5.875	399.286	5.770	267.356	T			
12	6	5	8"	9'- 10 1/4"	0'- 6 7/8"	4'- 11 5/8"	0'- 9 1/8"	0'- 6"	51'- 1 1/8"	6'- 8 3/8"	52'- 3"	253	50	228.905	4.087	898.604	52'- 10"	6	52'- 6"	3	21	5.904	385.226	5.937	315.420	H			
12	8	5	8"	9'- 10 1/4"	0'- 6 7/8"	4'- 11 5/8"	0'- 9 1/8"	0'- 6"	51'- 1 1/8"	6'- 8 3/8"	52'- 3"	253	70	235.965	4.336	975.009	52'- 10"	6	52'- 6"	3	27	6.127	405.934	6.122	315.420	L			
12	10	6	11"	9'- 10 1/4"	0'- 7"	4'- 11 5/8"	0'- 9 1/4"	0'- 6"	51'- 1 1/8"	6'- 8 3/8"	52'- 3"	253	90	243.025	4.579	1075.051	52'- 10"	6	52'- 6"	3	33	6.349	426.642	6.308	315.420	P			
12	12	6	10"	9'- 10 1/4"	0'- 7"	4'- 11 5/8"	0'- 9 1/4"	0'- 6"	51'- 1 1/8"	6'- 8 3/8"	52'- 3"	253	110	250.085	4.818	1,028.977	52'- 10"	6	52'- 6"	3	39	6.572	447.350	6.493	315.420	T			

BCQ-05

DIMENSIONS										REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3	T4						BH1			BH2			BH3			BH4			BV1			BV2						
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	1	1'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	2	2'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	2'- 8"	4'- 8"	4	12"	4'- 0"	4	12"	4'- 0"
4	4	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	3'- 2"	5'- 2"	4	12"	5'- 0"	4	12"	5'- 0"
4	5	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	3'- 8"	5'- 8"	4	12"	6'- 0"	4	11 1/2"	6'- 0"
4	6	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	4'- 2"	6'- 2"	4	12"	7'- 0"	4	11"	7'- 0"
5	3	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	1	1'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	2'- 8"	4'- 11"	4	12"	4'- 0"	4	12"	4'- 0"
5	4	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	3'- 2"	5'- 5"	4	12"	5'- 0"	4	10"	5'- 0"
5	5	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	3	3'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	3'- 8"	5'- 11"	4	12"	6'- 0"	4	10"	6'- 0"
5	6	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	4'- 2"	6'- 5"	4	12"	7'- 0"	4	10"	7'- 0"
5	7	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	5	5'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	4'- 8"	6'- 11"	4	12"	8'- 0"	4	9 1/2"	8'- 0"
6	4	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	2	2'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	--	---	----	----	5	12"	2'- 8 3/8"	3'- 2"	5'- 6"	4	12"	5'- 0"	4	9"	5'- 0"
6	5	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	3	3'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	--	---	----	----	5	12"	2'- 8 3/8"	3'- 8"	6'- 0"	4	12"	6'- 0"	4	8"	6'- 0"
6	6	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	4	4'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	--	---	----	----	5	12"	2'- 8 3/8"	4'- 2"	6'- 6"	4	12"	7'- 0"	4	7 1/2"	7'- 0"
6	7	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	5	5'- 0"	4	11"	25'- 7"	4	11"	27'- 0"	--	---	----	----	5	11"	2'- 8 3/8"	4'- 8"	7'- 0"	4	12"	8'- 0"	4	7 1/2"	8'- 0"
6	8	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	6	6'- 0"	4	11"	25'- 7"	4	11"	27'- 0"	4	11"	2'- 8 3/8"	5'- 2"	5	11"	2'- 8 3/8"	5'- 2"	7'- 6"	4	12"	9'- 0"	4	7 1/2"	9'- 0"
7	4	8"	8"	8"	8"	29	29'- 0"	29	29'- 0"	2	2'- 0"	4	8"	29'- 2"	4	8"	31'- 0"	4	8"	2'- 10 3/4"	5'- 6"	4	8"	2'- 10 3/4"	3'- 2"	5'- 10"	4	12"	5'- 0"	4	7"	5'- 0"
7	6	8"	8"	8"	8"	29	29'- 0"	29	29'- 0"	4	4'- 0"	4	8"	29'- 2"	4	8"	31'- 0"	4	8"	2'- 10 3/4"	5'- 6"	4	8"	2'- 10 3/4"	4'- 2"	6'- 10"	4	12"	7'- 0"	5	9 1/2"	7'- 0"
7	8	8"	8"	8"	8"	29	29'- 0"	29	29'- 0"	6	6'- 0"	4	8"	29'- 2"	4	8"	31'- 0"	4	8"	2'- 10 3/4"	5'- 6"	4	8"	2'- 10 3/4"	5'- 2"	7'- 10"	4	12"	9'- 0"	4	6"	9'- 0"
7	10	8"	8"	8"	8"	29	29'- 0"	29	29'- 0"	8	8'- 0"	4	8"	29'- 2"	4	8"	31'- 0"	4	8"	2'- 10 3/4"	5'- 6"	4	8"	2'- 10 3/4"	6'- 2"	8'- 10"	4	12"	11'- 0"	5	9"	11'- 0"
8	4	8"	8"	8"	8"	33	33'- 0"	33	33'- 0"	2	2'- 0"	5	10"	32'- 10"	5	10"	35'- 0"	4	10"	3'- 1 1/4"	5'- 11"	5	10"	3'- 1 1/4"	3'- 2"	5'- 11"	4	12"	5'- 0"	4	6"	5'- 0"
8	6	8 1/4"	8 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	4	4'- 0"	5	11"	32'- 10"	5	11"	35'- 0"	--	---	----	----	6	11"	3'- 1 1/4"	4'- 2 1/4"	6'- 11"	4	12"	7'- 0"	4	5 1/2"	7'- 0"
8	8	8 1/4"	8 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	6	6'- 0"	6	11"	32'- 10"	5	11"	35'- 0"	4	11"	3'- 1 1/4"	5'- 11"	6	11"	3'- 1 1/4"	5'- 2 1/4"	7'- 11"	4	12"	9'- 0"	5	8"	9'- 0"
8	10	8 1/2"	8 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	8	8'- 0"	5	10"	32'- 10"	5	10"	35'- 0"	4	10"	3'- 1 1/4"	5'- 11"	5	10"	3'- 1 1/4"	6'- 2 1/2"	9'- 0"	4	12"	11'- 1"	5	8"	11'- 1"
9	4	8 1/2"	8 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	2	2'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	4	9"	3'- 3 5/8"	6'- 4"	5	9"	3'- 3 5/8"	3'- 2 1/2"	6'- 2"	4	12"	5'- 1"	4	5 1/2"	5'- 1"
9	6	8 1/2"	8 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	4	4'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	4	9"	3'- 3 5/8"	6'- 4"	5	9"	3'- 3 5/8"	4'- 2 1/2"	7'- 2"	4	12"	7'- 1"	5	8"	7'- 1"
9	8	8 1/2"	8 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	6	6'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	4	9"	3'- 3 5/8"	6'- 4"	5	9"	3'- 3 5/8"	5'- 2 1/2"	8'- 2"	4	12"	9'- 1"	5	8"	9'- 1"
9	10	9"	9"	8"	8"	37	37'- 0"	37	37'- 0"	8	8'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	4	9"	3'- 3 5/8"	6'- 4"	5	9"	3'- 3 5/8"	6'- 3"	9'- 3"	4	12"	11'- 2"	4	5 1/2"	11'- 2"
9	12	9"	9"	8"	8"	37	37'- 0"	37	37'- 0"	10	10'- 0"	6	12"	36'- 5"	6	12"	39'- 0"	4	12"	3'- 3 5/8"	6'- 4"	6	12"	3'- 3 5/8"	7'- 3"	10'- 2"	4	10"	13'- 2"	5	9"	13'- 2"
10	4	9"	9"	8"	8"	41	41'- 0"	41	41'- 0"	2	2'- 0"	6	12"	40'- 0"	6	12"	43'- 0"	--	---	----	----	7	12"	3'- 6"	3'- 3"	6'- 3"	4	12"	5'- 2"	4	5"	5'- 2"
10	6	9"	9"	8"	8"	41	41'- 0"	41	41'- 0"	4	4'- 0"	6	12"	40'- 0"	6	12"	43'- 0"	--	---	----	----	7	12"	3'- 6"	4'- 3"	7'- 3"	4	12"	7'- 2"	5	7 1/2"	7'- 2"
10	8	9 1/4"	9 1/4"	8"	8"	41	41'- 0"	41	41'- 0"	6	6'- 0"	5	8"	40'- 0"	5	8"	43'- 0"	4	8"	3'- 6"	6'- 9"	5	8"	3'- 6"	5'- 3 1/4"	8'- 5"	4	12"	9'- 2"	4	5"	9'- 2"
10	10	9 1/2"	9 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	8	8'- 0"	6	11"	40'- 0"	6	11"	43'- 0"	4	11"	3'- 6"	6'- 9"	6	11"	3'- 6"	6'- 3 1/2"	9'- 5"	4	12"	11'- 3"	5	8"	11'- 3"
10	12	9 3/4"	9 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	10	10'- 0"	6	11"	40'- 0"	6	11"	43'- 0"	--	---	----	----	7	11"	3'- 6"	7'- 3 3/4"	10'- 4"	4	10"	13'- 3"	4	5 1/2"	13'- 3"
12	6	10 1/2"	10 1/2"	8"	8"	49	49'- 0"	49	49'- 0"	4	4'- 0"	6	12"	47'- 2"	6	12"	51'- 0"	--	---	----	----	7	12"	3'- 10 3/4"	4'- 4 1/2"	7'- 10"	4	12"	7'- 5"	5	7 1/2"	7'- 5"
12	8	10 1/4"	10 1/4"	8"	8"	49	49'- 0"	49	49'- 0"	6	6'- 0"	6	8"	47'- 2"	5	8"	51'- 0"	4	8"	3'- 10 3/4"	7'- 6"	5	8"	3'- 10 3/4"	5'- 4 1/4"	8'- 11"	4	12"	9'- 5"	4	4 1/2"	9'- 5"
12	10	10 1/4"	10 1/4"	8"	8"	49	49'- 0"	49	49'- 0"	8	8'- 0"	6	10"	47'- 2"	6	10"	51'- 0"	4	10"	3'- 10 3/4"	7'- 6"	6	10"	3'- 10 3/4"	6'- 4 1/4"	9'- 10"	4	12"	11'- 5"	5	7 1/2"	11'- 5"
12	12	10"	10"	8"	8"	49	49'- 0"	49	49'- 0"	10	10'- 0"	6	9"	47'- 2"	6	9"	51'- 0"	4	9"	3'- 10 3/4"	7'- 6"	6	9"	3'- 10 3/4"	7'- 4"	10'- 10"	4	10"	13'- 4"	6	9 1/2"	13'- 4"

Sheet 1 of 2

For Typical Section, notes and other details, refer to standard BCQ-DT.

QUADRUPLE BOX CULVERTS
2 TO 5 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

1005.06

SPAN		HIGHT		REINFORCING STEEL															QUAN./LF		HEADWALLS								WINGWALL				
(FT.)	(FT.)	SIZE	SPACING C-C	BTI										NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS/LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HWI		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)					
				a	b	c	d	e	f	g	LENGTH							HEADWALL LENGTH	SIZE	LENGTH													
3	3	4	12"	2'- 8 1/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	20	57.160	1.284	141.899	16'- 10"	6	16'- 6"	3	12	2.222	137.876	2.191	99.132	A							
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	30	60.690	1.406	152.339	16'- 10"	6	16'- 6"	3	15	2.333	148.230	2.284	99.132	C							
4	3	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	20	70.520	1.479	168.508	20'- 10"	6	20'- 6"	3	12	2.626	161.908	2.609	123.164	A							
4	4	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	30	74.050	1.601	190.527	20'- 10"	6	20'- 6"	3	15	2.738	172.262	2.702	123.164	C							
4	5	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	40	77.580	1.723	202.012	20'- 10"	6	20'- 6"	3	18	2.849	182.616	2.794	123.164	E							
4	6	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	50	81.110	1.846	213.957	20'- 10"	6	20'- 6"	3	21	2.960	192.970	2.887	123.164	G							
5	3	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	20	83.880	1.674	208.031	24'- 10"	6	24'- 6"	3	12	3.031	185.940	3.027	147.196	A							
5	4	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	30	87.410	1.796	222.479	24'- 10"	6	24'- 6"	3	15	3.142	196.294	3.120	147.196	C							
5	5	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	40	90.940	1.919	233.721	24'- 10"	6	24'- 6"	3	18	3.254	206.648	3.212	147.196	E							
5	6	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	50	94.470	2.041	244.963	24'- 10"	6	24'- 6"	3	21	3.365	217.002	3.305	147.196	G							
5	7	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	60	98.000	2.164	258.229	24'- 10"	6	24'- 6"	3	24	3.476	227.356	3.398	147.196	I							
6	4	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	30	100.770	1.992	247.095	28'- 10"	6	28'- 6"	3	15	3.547	220.326	3.537	171.228	C							
6	5	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	40	104.300	2.114	263.629	28'- 10"	6	28'- 6"	3	18	3.658	230.680	3.630	171.228	E							
6	6	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	50	107.830	2.236	279.629	28'- 10"	6	28'- 6"	3	21	3.770	241.034	3.723	171.228	G							
6	7	4	11"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	60	111.360	2.358	305.635	28'- 10"	6	28'- 6"	3	24	3.881	251.388	3.816	171.228	I							
6	8	4	11"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	70	114.890	2.479	334.480	28'- 10"	6	28'- 6"	3	27	3.992	261.742	3.908	171.228	K							
7	4	4	8"	5'- 11 3/8"	0'- 4 1/2"	3'- 1 1/8"	0'- 5 7/8"	0'- 3 3/4"	31'- 1 1/8"	3'- 10 5/8"	31'- 10"	124	30	114.130	2.180	364.938	32'- 10"	6	32'- 6"	3	15	3.952	244.358	3.955	195.260	C							
7	6	4	8"	5'- 11 3/8"	0'- 4 1/2"	3'- 1 1/8"	0'- 5 7/8"	0'- 3 3/4"	31'- 1 1/8"	3'- 10 5/8"	31'- 10"	124	50	121.190	2.424	400.118	32'- 10"	6	32'- 6"	3	21	4.174	265.066	4.141	195.260	G							
7	8	4	8"	5'- 11 3/8"	0'- 4 1/2"	3'- 1 1/8"	0'- 5 7/8"	0'- 3 3/4"	31'- 1 1/8"	3'- 10 5/8"	31'- 10"	124	70	128.250	2.669	431.128	32'- 10"	6	32'- 6"	3	27	4.397	285.774	4.326	195.260	K							
7	10	4	8"	5'- 11 3/8"	0'- 4 1/2"	3'- 1 1/8"	0'- 5 7/8"	0'- 3 3/4"	31'- 1 1/8"	3'- 10 5/8"	31'- 10"	124	90	135.310	2.913	464.968	32'- 10"	6	32'- 6"	3	33	4.620	306.482	4.512	195.260	O							
8	4	5	10"	6'- 8 7/8"	0'- 4 5/8"	3'- 6 5/8"	0'- 6"	0'- 3 3/4"	34'- 11 7/8"	4'- 5 7/8"	35'- 9"	140	30	127.490	2.371	459.442	36'- 10"	6	36'- 6"	3	15	4.356	268.390	4.373	219.292	C							
8	6	5	11"	6'- 8 3/4"	0'- 4 7/8"	3'- 6 3/8"	0'- 6 1/4"	0'- 4"	34'- 11 1/8"	4'- 5 5/8"	35'- 9"	140	50	134.550	2.672	463.936	36'- 10"	6	36'- 6"	3	21	4.557	289.098	4.536	219.292	G							
8	8	5	11"	6'- 8 3/4"	0'- 4 7/8"	3'- 6 3/8"	0'- 6 1/4"	0'- 4"	34'- 11 1/8"	4'- 5 5/8"	35'- 9"	140	70	141.610	2.912	554.080	36'- 10"	6	36'- 6"	3	27	4.779	309.806	4.722	219.292	K							
8	10	5	10"	6'- 8 5/8"	0'- 5 1/8"	3'- 6 1/8"	0'- 6 5/8"	0'- 4 1/4"	34'- 11 7/8"	4'- 5 3/8"	35'- 10"	140	90	148.670	3.212	569.734	36'- 10"	6	36'- 6"	3	33	4.980	330.514	4.885	219.292	O							
9	4	5	9"	7'- 6 1/4"	0'- 5 1/8"	3'- 11"	0'- 6 5/8"	0'- 4 1/4"	39'- 0"	5'- 1 1/2"	39'- 10"	156	30	140.850	2.683	544.147	40'- 10"	6	40'- 6"	3	15	4.710	292.422	4.740	243.324	C							
9	6	5	9"	7'- 6 1/4"	0'- 5 1/8"	3'- 11"	0'- 6 5/8"	0'- 4 1/4"	39'- 0"	5'- 1 1/2"	39'- 10"	156	50	147.910	2.927	581.941	40'- 10"	6	40'- 6"	3	21	4.933	313.130	4.926	243.324	G							
9	8	5	9"	7'- 6 1/4"	0'- 5 1/8"	3'- 11"	0'- 6 5/8"	0'- 4 1/4"	39'- 0"	5'- 1 1/2"	39'- 10"	156	70	154.970	3.172	616.469	40'- 10"	6	40'- 6"	3	27	5.156	333.838	5.111	243.324	K							
9	10	5	9"	7'- 6"	0'- 5 5/8"	3'- 10 1/2"	0'- 7 3/8"	0'- 4 3/4"	39'- 0"	5'- 0"	40'- 0"	156	90	162.030	3.538	645.647	40'- 10"	6	40'- 6"	3	33	5.327	354.546	5.246	243.324	O							
9	12	6	12"	7'- 6"	0'- 5 3/4"	3'- 10 1/2"	0'- 7 1/2"	0'- 4 3/4"	39'- 0"	5'- 0"	39'- 11"	156	110	169.090	3.780	701.005	40'- 10"	6	40'- 6"	3	39	5.550	375.254	5.431	243.324	S							
10	4	6	12"	8'- 3 5/8"	0'- 5 3/4"	4'- 3 1/4"	0'- 7 1/2"	0'- 4 3/4"	43'- 0"	5'- 7 1/4"	43'- 11"	172	30	154.210	3.021	615.136	44'- 10"	6	44'- 6"	3	15	5.052	316.454	5.095	267.356	C							
10	6	6	12"	8'- 3 5/8"	0'- 5 3/4"	4'- 3 1/4"	0'- 7 1/2"	0'- 4 3/4"	43'- 0"	5'- 7 1/4"	43'- 11"	172	50	161.270	3.265	655.563	44'- 10"	6	44'- 6"	3	21	5.274	337.162	5.280	267.356	G							
10	8	5	8"	8'- 3 1/2"	0'- 5 7/8"	4'- 3"	0'- 7 3/4"	0'- 5"	43'- 0"	5'- 7"	44'- 0"	172	70	168.330	3.574	718.747	44'- 10"	6	44'- 6"	3	27	5.487	357.870	5.456	267.356	L							
10	10	6	11"	8'- 3 3/8"	0'- 6 1/4"	4'- 2 3/4"	0'- 8 1/8"	0'- 5 1/4"	43'- 0"	5'- 6 3/4"	44'- 0"	172	90	175.390	3.884	766.954	44'- 10"	6	44'- 6"	3	33	5.681	378.578	5.613	267.356	P							
10	12	6	11"	8'- 3 1/4"	0'- 6 1/2"	4'- 2 1/2"	0'- 8 1/2"	0'- 5 1/2"	43'- 0"	5'- 6 1/2"	44'- 1"	172	110	182.450	4.196	801.995	44'- 10"	6	44'- 6"	3	39	5.875	399.286	5.770	267.356	T							
12	6	6	12"	9'- 10 1/8"	0'- 7 1/4"	4'- 11 3/8"	0'- 9 5/8"	0'- 6 1/4"	51'- 1 1/8"	6'- 8 1/8"	52'- 3"	204	50	187.990	4.175	755.139	52'- 10"	6	52'- 6"	3	21	5.869	385.226	5.902	315.420	H							
12	8	5	8"	9'- 10 1/4"	0'- 6 7/8"	4'- 11 1/8"	0'- 9 1/8"	0'- 6"	51'- 1 1/8"	6'- 8 3/8"	52'- 3"	204	70	195.050	4.332	897.281	52'- 10"	6	52'- 6"	3	27	6.127	405.934	6.122	315.420	L							
12	10	6	10"	9'- 10 1/4"	0'- 7"	4'- 11 1/8"	0'- 9 1/4"	0'- 6"	51'- 1 1/8"	6'- 8 3/8"	52'- 3"	204	90	202.110	4.576	936.842	52'- 10"	6	52'- 6"	3	33	6.349	426.642	6.308	315.420	P							
12	12	6	9"	9'- 10 3/8"	0'- 6 3/4"	4'- 11 7/8"	0'- 8 7/8"	0'- 5 3/4"	51'- 1 1/8"	6'- 8 5/8"	52'- 2"	204	110	209.170	4.736	1066.426	52'- 10"	6	52'- 6"	3	39	6.607	447.350	6.528	315.420	T							

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DIMENSIONS								REINFORCING STEEL																								
SPAN	HGHT	T1	T2	T3	T4							BH1		BH2		BH3		BH4			BV1		BV2									
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	1	1'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	2	2'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	2'- 8"	4'- 8"	4	12"	4'- 0"	4	12"	4'- 0"
4	4	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 2"	5'- 2"	4	12"	5'- 0"	4	12"	5'- 0"
4	5	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 8"	5'- 8"	4	12"	6'- 0"	4	12"	6'- 0"
4	6	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	4'- 2"	6'- 2"	4	12"	7'- 0"	4	12"	7'- 0"
5	3	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	1	1'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	--	---	----	----	4	12"	2'- 6"	2'- 8"	4'- 11"	4	12"	4'- 0"	4	12"	4'- 0"
5	4	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	--	---	----	----	4	12"	2'- 6"	3'- 2"	5'- 5"	4	12"	5'- 0"	4	12"	5'- 0"
5	5	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	3	3'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	--	---	----	----	4	12"	2'- 6"	3'- 8"	5'- 11"	4	12"	6'- 0"	4	12"	6'- 0"
5	6	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	--	---	----	----	4	12"	2'- 6"	4'- 2"	6'- 5"	4	12"	7'- 0"	4	12"	7'- 0"
5	7	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	5	5'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	--	---	----	----	4	12"	2'- 6"	4'- 8"	6'- 11"	4	12"	8'- 0"	4	12"	8'- 0"
6	4	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	2	2'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	3'- 2"	5'- 7"	4	12"	5'- 0"	4	12"	5'- 0"
6	5	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	3	3'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	3'- 8"	6'- 1"	4	12"	6'- 0"	4	12"	6'- 0"
6	6	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	4	4'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	4'- 2"	6'- 7"	4	12"	7'- 0"	4	12"	7'- 0"
6	7	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	5	5'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	4'- 8"	7'- 1"	4	12"	8'- 0"	4	12"	8'- 0"
6	8	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	6	6'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	5'- 2"	7'- 7"	4	12"	9'- 0"	4	12"	9'- 0"
7	4	8"	8"	8"	8"	29	29'- 0"	29	29'- 0"	2	2'- 0"	4	12"	29'- 2"	4	12"	31'- 0"	--	---	----	----	5	12"	2'- 10 3/4"	3'- 2"	5'- 9"	4	12"	5'- 0"	4	12"	5'- 0"
7	6	8"	8"	8"	8"	29	29'- 0"	29	29'- 0"	4	4'- 0"	4	12"	29'- 2"	4	12"	31'- 0"	--	---	----	----	5	12"	2'- 10 3/4"	4'- 2"	6'- 9"	4	12"	7'- 0"	4	12"	7'- 0"
7	8	8"	8"	8"	8"	29	29'- 0"	29	29'- 0"	6	6'- 0"	4	12"	29'- 2"	4	12"	31'- 0"	--	---	----	----	5	12"	2'- 10 3/4"	5'- 2"	7'- 9"	4	12"	9'- 0"	4	11 1/2"	9'- 0"
7	10	8"	8"	8"	8"	29	29'- 0"	29	29'- 0"	8	8'- 0"	4	11"	29'- 2"	4	11"	31'- 0"	--	---	----	----	5	11"	2'- 10 3/4"	6'- 2"	8'- 9"	4	12"	11'- 0"	4	12"	11'- 0"
8	4	8 1/4"	8 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	2	2'- 0"	4	11"	32'- 10"	4	11"	35'- 0"	3	11"	3'- 1 1/4"	6'- 0"	5	11"	3'- 1 1/4"	3'- 2 1/4"	6'- 0"	4	9"	5'- 0"	4	12"	5'- 0"
8	6	8 1/2"	8 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	4	4'- 0"	4	11"	32'- 10"	4	11"	35'- 0"	--	---	----	----	5	11"	3'- 1 1/4"	4'- 2 1/2"	7'- 0"	4	12"	7'- 1"	4	12"	7'- 1"
8	8	8 1/2"	8 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	6	6'- 0"	4	10"	32'- 10"	4	10"	35'- 0"	--	---	----	----	5	10"	3'- 1 1/4"	5'- 2 1/2"	8'- 0"	4	12"	9'- 1"	4	12"	9'- 1"
8	10	8 3/4"	8 3/4"	8"	8"	33	33'- 0"	33	33'- 0"	8	8'- 0"	4	9"	32'- 10"	4	9"	35'- 0"	--	---	----	----	5	9"	3'- 1 1/4"	6'- 2 3/4"	9'- 0"	4	12"	11'- 2"	4	12"	11'- 2"
9	4	9"	9"	8"	8"	37	37'- 0"	37	37'- 0"	2	2'- 0"	5	9"	36'- 5"	4	9"	39'- 0"	3	9"	3'- 3 5/8"	6'- 5"	5	9"	3'- 3 5/8"	3'- 3"	6'- 3"	4	8"	5'- 2"	4	12"	5'- 2"
9	6	9 1/4"	9 1/4"	8"	8"	37	37'- 0"	37	37'- 0"	4	4'- 0"	5	9"	36'- 5"	4	9"	39'- 0"	--	---	----	----	5	9"	3'- 3 5/8"	4'- 3 1/4"	7'- 3"	4	12"	7'- 2"	4	12"	7'- 2"
9	8	9 1/2"	9 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	6	6'- 0"	5	9"	36'- 5"	4	9"	39'- 0"	4	9"	3'- 3 5/8"	6'- 4"	4	9"	3'- 3 5/8"	5'- 3 1/2"	8'- 4"	4	12"	9'- 3"	4	12"	9'- 3"
9	10	9 1/2"	9 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	8	8'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	5	9"	3'- 3 5/8"	6'- 3 1/2"	9'- 3"	4	12"	11'- 3"	4	12"	11'- 3"
9	12	9 3/4"	9 3/4"	8"	8"	37	37'- 0"	37	37'- 0"	10	10'- 0"	4	8"	36'- 5"	4	8"	39'- 0"	4	8"	3'- 3 5/8"	6'- 4"	5	8"	3'- 3 5/8"	7'- 3 3/4"	10'- 3"	4	8"	13'- 3"	4	12"	13'- 3"
10	4	9 3/4"	9 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	2	2'- 0"	5	8"	40'- 0"	4	8"	43'- 0"	--	---	----	----	5	8"	3'- 6"	3'- 3 3/4"	6'- 6"	4	7"	5'- 3"	4	12"	5'- 3"
10	6	10"	10"	8"	8"	41	41'- 0"	41	41'- 0"	4	4'- 0"	5	8"	40'- 0"	4	8"	43'- 0"	--	---	----	----	5	8"	3'- 6"	4'- 4"	7'- 6"	4	11 1/2"	7'- 4"	4	12"	7'- 4"
10	8	10 1/4"	10 1/4"	8"	8"	41	41'- 0"	41	41'- 0"	6	6'- 0"	5	8"	40'- 0"	4	8"	43'- 0"	4	8"	3'- 6"	6'- 9"	4	8"	3'- 6"	5'- 4 1/4"	8'- 7"	4	12"	9'- 5"	4	12"	9'- 5"
10	10	10 1/4"	10 1/4"	8"	8"	41	41'- 0"	41	41'- 0"	8	8'- 0"	5	8"	40'- 0"	5	8"	43'- 0"	--	---	----	----	5	8"	3'- 6"	6'- 4 1/4"	9'- 6"	4	12"	11'- 5"	4	12"	11'- 5"
10	12	10 1/2"	10 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	10	10'- 0"	5	10"	40'- 0"	5	10"	43'- 0"	3	10"	3'- 6"	6'- 10"	6	10"	3'- 6"	7'- 4 1/2"	10'- 6"	4	9"	13'- 5"	4	12"	13'- 5"
12	6	11 3/4"	11 3/4"	8"	8"	49	49'- 0"	49	49'- 0"	4	4'- 0"	6	12"	47'- 2"	6	12"	51'- 0"	3	12"	3'- 10 3/4"	7'- 7"	6	12"	3'- 10 3/4"	4'- 5 3/4"	8'- 0"	4	10"	7'- 8"	4	10"	7'- 8"
12	8	11 3/4"	11 3/4"	8"	8"	49	49'- 0"	49	49'- 0"	6	6'- 0"	6	11"	47'- 2"	6	11"	51'- 0"	--	---	----	----	6	11"	3'- 10 3/4"	5'- 5 3/4"	9'- 0"	4	12"	9'- 8"	4	12"	9'- 8"
12	10	12"	12"	8"	8"	49	49'- 0"	49	49'- 0"	8	8'- 0"	6	9"	47'- 2"	5	9"	51'- 0"	3	9"	3'- 10 3/4"	7'- 7"	5	9"	3'- 10 3/4"	6'- 6"	10'- 1"	4	12"	11'- 8"	4	12"	11'- 8"
12	12	12 1/4"	12 1/4"	8"	8"	49	49'- 0"	49	49'- 0"	10	10'- 0"	6	9"	47'- 2"	5	9"	51'- 0"	--	---	----	----	6	9"	3'- 10 3/4"	7'- 6 1/4"	11'- 0"	4	10 1/2"	13'- 9"	4	12"	13'- 9"

QUADRUPLE BOX CULVERTS
5 TO 10 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

1005.08

SPAN		HIGHT		REINFORCING STEEL															QUAN./LF		HEADWALLS								WINGWALL
(FT.)	(FT.)	SIZE	SPACING C-C	BTI											REINFORCING STEEL (LBS/FT)	CONCRETE CLASS (CY)	REINFORCING STEEL (LBS/FT)	G		HWI		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)		
				a	b	c	d	e	f	g	LENGTH	NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS/LONG. JT)				CONCRETE CLASS (CY)	REINFORCING STEEL (LBS/FT)	HEADWALL LENGTH	SIZE							LENGTH	
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	20	57.160	1.284	141.899	16'- 10"	6	16'- 6"	3	12	2.222	137.876	2.191	99.132	A			
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	30	60.690	1.406	152.339	16'- 10"	6	16'- 6"	3	15	2.333	148.230	2.284	99.132	C			
4	3	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	20	70.520	1.479	168.508	20'- 10"	6	20'- 6"	3	12	2.626	161.908	2.609	123.164	A			
4	4	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	30	74.050	1.602	178.948	20'- 10"	6	20'- 6"	3	15	2.738	172.262	2.702	123.164	C			
4	5	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	40	77.580	1.724	189.388	20'- 10"	6	20'- 6"	3	18	2.849	182.616	2.794	123.164	E			
4	6	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	50	81.110	1.847	199.828	20'- 10"	6	20'- 6"	3	21	2.960	192.970	2.887	123.164	G			
5	3	4	12"	4'- 4 7/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	20	83.880	1.675	195.339	24'- 10"	6	24'- 6"	3	12	3.031	185.940	3.027	147.196	A			
5	4	4	12"	4'- 4 7/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	30	87.410	1.797	205.779	24'- 10"	6	24'- 6"	3	15	3.142	196.294	3.120	147.196	C			
5	5	4	12"	4'- 4 7/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	40	90.940	1.920	216.219	24'- 10"	6	24'- 6"	3	18	3.254	206.648	3.212	147.196	E			
5	6	4	12"	4'- 4 7/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	50	94.470	2.043	226.659	24'- 10"	6	24'- 6"	3	21	3.365	217.002	3.305	147.196	G			
5	7	4	12"	4'- 4 7/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	60	98.000	2.165	237.099	24'- 10"	6	24'- 6"	3	24	3.476	227.356	3.398	147.196	I			
6	4	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	30	100.770	1.992	246.193	28'- 10"	6	28'- 6"	3	15	3.547	220.326	3.537	171.228	C			
6	5	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	40	104.300	2.114	256.633	28'- 10"	6	28'- 6"	3	18	3.658	230.680	3.630	171.228	E			
6	6	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	50	107.830	2.237	267.073	28'- 10"	6	28'- 6"	3	21	3.770	241.034	3.723	171.228	G			
6	7	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	60	111.360	2.360	277.513	28'- 10"	6	28'- 6"	3	24	3.881	251.388	3.816	171.228	I			
6	8	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	70	114.890	2.482	287.953	28'- 10"	6	28'- 6"	3	27	3.992	261.742	3.908	171.228	K			
7	4	4	12"	5'- 11 3/8"	0'- 4 1/2"	3'- 1 1/8"	0'- 5 7/8"	0'- 3 3/4"	31'- 1 1/8"	3'- 10 5/8"	31'- 10"	124	30	114.130	2.188	267.733	32'- 10"	6	32'- 6"	3	15	3.952	244.358	3.955	195.260	C			
7	6	4	12"	5'- 11 3/8"	0'- 4 1/2"	3'- 1 1/8"	0'- 5 7/8"	0'- 3 3/4"	31'- 1 1/8"	3'- 10 5/8"	31'- 10"	124	50	121.190	2.433	290.113	32'- 10"	6	32'- 6"	3	21	4.174	265.066	4.141	195.260	G			
7	8	4	12"	5'- 11 3/8"	0'- 4 1/2"	3'- 1 1/8"	0'- 5 7/8"	0'- 3 3/4"	31'- 1 1/8"	3'- 10 5/8"	31'- 10"	124	70	128.250	2.678	314.061	32'- 10"	6	32'- 6"	3	27	4.397	285.774	4.326	195.260	K			
7	10	4	11"	5'- 11 3/8"	0'- 4 1/2"	3'- 1 1/8"	0'- 5 7/8"	0'- 3 3/4"	31'- 1 1/8"	3'- 10 5/8"	31'- 10"	124	90	135.310	2.922	349.365	32'- 10"	6	32'- 6"	3	33	4.620	306.482	4.512	195.260	O			
8	4	4	11"	6'- 8 3/4"	0'- 4 3/4"	3'- 6 3/8"	0'- 6 1/4"	0'- 4"	34'- 11 7/8"	4'- 5 5/8"	35'- 10"	140	30	127.490	2.436	321.988	36'- 10"	6	36'- 6"	3	15	4.334	268.390	4.351	219.292	C			
8	6	4	11"	6'- 8 3/8"	0'- 5"	3'- 6 1/8"	0'- 6 1/2"	0'- 4 1/4"	34'- 11 7/8"	4'- 5 5/8"	35'- 10"	140	50	134.550	2.736	333.122	36'- 10"	6	36'- 6"	3	21	4.534	289.098	4.514	219.292	G			
8	8	4	10"	6'- 8 5/8"	0'- 5"	3'- 6 1/8"	0'- 6 1/2"	0'- 4 1/4"	34'- 11 7/8"	4'- 5 5/8"	35'- 10"	140	70	141.610	2.980	374.631	36'- 10"	6	36'- 6"	3	27	4.757	309.806	4.700	219.292	K			
8	10	4	9"	6'- 8 1/2"	0'- 5 1/4"	3'- 5 7/8"	0'- 6 7/8"	0'- 4 1/2"	34'- 11 7/8"	4'- 5 5/8"	35'- 11"	140	90	148.670	3.278	421.912	36'- 10"	6	36'- 6"	3	33	4.957	330.514	4.863	219.292	O			
9	4	4	9"	7'- 6"	0'- 5 1/2"	3'- 10 1/2"	0'- 7 1/4"	0'- 4 3/4"	39'- 0"	5'- 0"	40'- 0"	156	30	140.850	2.813	436.196	40'- 10"	6	40'- 6"	3	15	4.659	292.422	4.689	243.324	C			
9	6	4	9"	7'- 5 7/8"	0'- 5 3/4"	3'- 10 1/4"	0'- 7 3/8"	0'- 5"	39'- 0"	4'- 11 3/4"	40'- 0"	156	50	147.910	3.120	443.648	40'- 10"	6	40'- 6"	3	21	4.875	313.130	4.868	243.324	H			
9	8	4	9"	7'- 5 3/4"	0'- 6"	3'- 10"	0'- 8"	0'- 5 1/4"	39'- 0"	4'- 11 1/2"	40'- 1"	156	70	154.970	3.425	474.373	40'- 10"	6	40'- 6"	3	27	5.072	333.838	5.028	243.324	L			
9	10	4	9"	7'- 5 3/4"	0'- 6"	3'- 10"	0'- 8"	0'- 5 1/4"	39'- 0"	4'- 11 1/2"	40'- 1"	156	90	162.030	3.668	530.783	40'- 10"	6	40'- 6"	3	33	5.295	354.546	5.213	243.324	P			
9	12	4	8"	7'- 5 5/8"	0'- 6 1/4"	3'- 9 7/8"	0'- 8 3/8"	0'- 5 1/2"	39'- 0"	4'- 11 1/4"	40'- 2"	156	110	169.090	3.974	546.385	40'- 10"	6	40'- 6"	3	39	5.492	375.254	5.373	243.324	T			
10	4	4	8"	8'- 3 1/4"	0'- 6 1/4"	4'- 2 1/2"	0'- 8 3/8"	0'- 5 1/2"	43'- 0"	5'- 6 1/2"	44'- 2"	172	30	154.210	3.231	499.761	44'- 10"	6	44'- 6"	3	15	4.985	316.454	5.028	267.356	D			
10	6	4	8"	8'- 3 1/8"	0'- 6 1/2"	4'- 2 1/4"	0'- 8 5/8"	0'- 5 3/4"	43'- 0"	5'- 6 1/4"	44'- 2"	172	50	161.270	3.543	520.088	44'- 10"	6	44'- 6"	3	21	5.179	337.162	5.185	267.356	H			
10	8	4	8"	8'- 3"	0'- 6 3/4"	4'- 2"	0'- 9"	0'- 6"	43'- 0"	5'- 6"	44'- 3"	172	70	168.330	3.854	553.004	44'- 10"	6	44'- 6"	3	27	5.373	357.870	5.342	267.356	L			
10	10	4	8"	8'- 3"	0'- 6 3/4"	4'- 2"	0'- 9"	0'- 6"	43'- 0"	5'- 6"	44'- 3"	172	90	175.390	4.096	617.582	44'- 10"	6	44'- 6"	3	33	5.595	378.578	5.527	267.356	P			
10	12	5	10"	8'- 2 7/8"	0'- 7 1/8"	4'- 1 3/4"	0'- 9 1/2"	0'- 6 1/4"	43'- 0"	5'- 5 3/4"	44'- 3"	172	110	182.450	4.408	640.495	44'- 10"	6	44'- 6"	3	39	5.790	399.286	5.684	267.356	T			
12	6	6	12"	9'- 9 1/2"	0'- 8 1/2"	4'- 10 1/8"	0'- 11 3/8"	0'- 7 1/2"	51'- 1 1/8"	6'- 6 7/8"	52'- 6"	204	50	187.990	4.577	716.309	52'- 10"	6	52'- 6"	3	21	5.696	385.226	5.728	315.420	H			
12	8	6	11"	9'- 9 1/2"	0'- 8 1/2"	4'- 10 1/8"	0'- 11 3/8"	0'- 7 1/2"	51'- 1 1/8"	6'- 6 7/8"	52'- 6"	204	70	195.050	4.820	766.987	52'- 10"	6	52'- 6"	3	27	5.918	405.934	5.914	315.420	L			
12	10	5	9"	9'- 9 3/8"	0'- 8 5/8"	4'- 9 5/8"	0'- 11 3/8"	0'- 7 3/4"	51'- 1 1/8"	6'- 6 5/8"	52'- 7"	204	90	202.110	5.145	780.774	52'- 10"	6	52'- 6"	3	33	6.106	426.642	6.065	315.420	P			
12	12	5	9"	9'- 9 1/4"	0'- 8 7/8"	4'- 9 5/8"	1'- 0"	0'- 8"	51'- 1 1/8"	6'- 6 3/8"	52'- 8"	204	110	209.170	5.468	819.103	52'- 10"	6	52'- 6"	3	39	6.294	447.350	6.215	315.420	T			

BCQ-15

DIMENSIONS								REINFORCING STEEL																								
SPAN	HGHT	T1	T2	T3	T4							BH1		BH2		BH3		BH4				BV1		BV2								
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	1	1'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	2	2'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	2'- 8"	4'- 8"	4	12"	4'- 0"	4	12"	4'- 0"
4	4	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 2"	5'- 2"	4	12"	5'- 0"	4	12"	5'- 0"
4	5	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 8"	5'- 8"	4	12"	6'- 0"	4	12"	6'- 0"
4	6	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	4'- 2"	6'- 2"	4	12"	7'- 0"	4	12"	7'- 0"
5	3	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	1	1'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	--	---	----	----	4	12"	2'- 6"	2'- 8"	4'- 11"	4	12"	4'- 0"	4	12"	4'- 0"
5	4	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	--	---	----	----	4	12"	2'- 6"	3'- 2"	5'- 5"	4	12"	5'- 0"	4	12"	5'- 0"
5	5	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	3	3'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	--	---	----	----	4	12"	2'- 6"	3'- 8"	5'- 11"	4	12"	6'- 0"	4	12"	6'- 0"
5	6	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	--	---	----	----	4	12"	2'- 6"	4'- 2"	6'- 5"	4	12"	7'- 0"	4	12"	7'- 0"
5	7	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	5	5'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	--	---	----	----	4	12"	2'- 6"	4'- 8"	6'- 11"	4	12"	8'- 0"	4	12"	8'- 0"
6	4	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	2	2'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	--	---	----	----	5	12"	2'- 8 3/8"	3'- 2"	5'- 6"	4	12"	5'- 0"	4	12"	5'- 0"
6	5	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	3	3'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	3'- 8"	6'- 1"	4	12"	6'- 0"	4	12"	6'- 0"
6	6	8"	8"	8"	8"	25	25'- 0"	25	25'- 0"	4	4'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	4'- 2"	6'- 7"	4	12"	7'- 0"	4	12"	7'- 0"
6	7	8 1/4"	8 1/4"	8"	8"	25	25'- 0"	25	25'- 0"	5	5'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	4'- 8 1/4"	7'- 1"	4	12"	8'- 0"	4	12"	8'- 0"
6	8	8 1/4"	8 1/4"	8"	8"	25	25'- 0"	25	25'- 0"	6	6'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	5'- 2 1/4"	7'- 7"	4	12"	9'- 0"	4	12"	9'- 0"
7	4	9"	9"	8"	8"	29	29'- 0"	29	29'- 0"	2	2'- 0"	4	11"	29'- 2"	4	11"	31'- 0"	--	---	----	----	5	11"	2'- 10 3/4"	3'- 3"	5'- 10"	4	11"	5'- 2"	4	12"	5'- 2"
7	6	9 1/4"	9 1/4"	8"	8"	29	29'- 0"	29	29'- 0"	4	4'- 0"	4	11"	29'- 2"	4	11"	31'- 0"	--	---	----	----	5	11"	2'- 10 3/4"	4'- 3 1/4"	6'- 10"	4	12"	7'- 2"	4	12"	7'- 2"
7	8	9 1/4"	9 1/4"	8"	8"	29	29'- 0"	29	29'- 0"	6	6'- 0"	4	10"	29'- 2"	4	10"	31'- 0"	3	10"	2'- 10 3/4"	5'- 7"	4	10"	2'- 10 3/4"	5'- 3 1/4"	7'- 11"	4	12"	9'- 2"	4	12"	9'- 2"
7	10	9 1/2"	9 1/2"	8"	8"	29	29'- 0"	29	29'- 0"	8	8'- 0"	4	10"	29'- 2"	4	10"	31'- 0"	3	10"	2'- 10 3/4"	5'- 7"	5	10"	2'- 10 3/4"	6'- 3 1/2"	8'- 10"	4	9 1/2"	11'- 3"	4	12"	11'- 3"
8	4	10"	10"	8"	8"	33	33'- 0"	33	33'- 0"	2	2'- 0"	4	9"	32'- 10"	4	9"	35'- 0"	--	---	----	----	5	9"	3'- 1 1/4"	3'- 4"	6'- 1"	4	9"	5'- 4"	4	12"	5'- 4"
8	6	10 1/4"	10 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	4	4'- 0"	4	9"	32'- 10"	4	9"	35'- 0"	--	---	----	----	5	9"	3'- 1 1/4"	4'- 4 1/4"	7'- 2"	4	12"	7'- 5"	4	12"	7'- 5"
8	8	10 1/2"	10 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	6	6'- 0"	4	9"	32'- 10"	5	9"	35'- 0"	--	---	----	----	5	9"	3'- 1 1/4"	5'- 4 1/2"	8'- 2"	4	12"	9'- 5"	4	12"	9'- 5"
8	10	10 1/2"	10 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	8	8'- 0"	4	9"	32'- 10"	4	9"	35'- 0"	--	---	----	----	5	9"	3'- 1 1/4"	6'- 4 1/2"	9'- 2"	4	11"	11'- 5"	4	12"	11'- 5"
9	4	11"	11"	8"	8"	37	37'- 0"	37	37'- 0"	2	2'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	5	9"	3'- 3 5/8"	3'- 5"	6'- 5"	4	9"	5'- 6"	4	12"	5'- 6"
9	6	11 1/4"	11 1/4"	8"	8"	37	37'- 0"	37	37'- 0"	4	4'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	3	9"	3'- 3 5/8"	6'- 5"	4	9"	3'- 3 5/8"	4'- 5 1/4"	7'- 6"	4	12"	7'- 6"	4	12"	7'- 6"
9	8	11 1/2"	11 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	6	6'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	4	9"	3'- 3 5/8"	5'- 5 1/2"	8'- 6"	4	12"	9'- 7"	4	12"	9'- 7"
9	10	11 1/2"	11 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	8	8'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	3	9"	3'- 3 5/8"	6'- 5"	5	9"	3'- 3 5/8"	6'- 5 1/2"	9'- 5"	4	11 1/2"	11'- 7"	4	12"	11'- 7"
9	12	11 3/4"	11 3/4"	8"	8"	37	37'- 0"	37	37'- 0"	10	10'- 0"	5	8"	36'- 5"	5	8"	39'- 0"	4	8"	3'- 3 5/8"	6'- 4"	5	8"	3'- 3 5/8"	7'- 5 3/4"	10'- 5"	4	6"	13'- 8"	4	12"	13'- 8"
10	4	12"	12"	8"	8"	41	41'- 0"	41	41'- 0"	2	2'- 0"	5	9"	40'- 0"	5	9"	43'- 0"	--	---	----	----	5	9"	3'- 6"	3'- 6"	6'- 8"	4	8"	5'- 8"	4	12"	5'- 8"
10	6	12 1/4"	12 1/4"	8"	8"	41	41'- 0"	41	41'- 0"	4	4'- 0"	5	9"	40'- 0"	5	9"	43'- 0"	--	---	----	----	5	9"	3'- 6"	4'- 6 1/4"	7'- 8"	4	12"	7'- 9"	4	12"	7'- 9"
10	8	12 1/2"	12 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	6	6'- 0"	5	9"	40'- 0"	5	9"	43'- 0"	--	---	----	----	5	9"	3'- 6"	5'- 6 1/2"	8'- 9"	4	12"	9'- 9"	4	12"	9'- 9"
10	10	12 1/2"	12 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	8	8'- 0"	5	9"	40'- 0"	5	9"	43'- 0"	3	9"	3'- 6"	6'- 10"	5	9"	3'- 6"	6'- 6 1/2"	9'- 9"	4	12"	11'- 9"	4	12"	11'- 9"
10	12	12 3/4"	12 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	10	10'- 0"	5	10"	40'- 0"	5	10"	43'- 0"	4	10"	3'- 6"	6'- 9"	6	10"	3'- 6"	7'- 6 3/4"	10'- 8"	4	6"	13'- 9"	4	12"	13'- 9"
12	6	14 1/2"	14 1/2"	8"	8"	49	49'- 0"	49	49'- 0"	4	4'- 0"	6	9"	47'- 2"	5	9"	51'- 0"	--	---	----	----	5	9"	3'- 10 3/4"	4'- 8 1/2"	8'- 3"	4	12"	8'- 1"	4	12"	8'- 1"
12	8	14 1/2"	14 1/2"	8"	8"	49	49'- 0"	49	49'- 0"	6	6'- 0"	6	9"	47'- 2"	5	9"	51'- 0"	--	---	----	----	5	9"	3'- 10 3/4"	5'- 8 1/2"	9'- 3"	4	12"	10'- 1"	4	12"	10'- 1"
12	10	14 3/4"	14 3/4"	8"	8"	49	49'- 0"	49	49'- 0"	8	8'- 0"	6	9"	47'- 2"	5	9"	51'- 0"	3	9"	3'- 10 3/4"	7'- 7"	5	9"	3'- 10 3/4"	6'- 8 3/4"	10'- 4"	4	12"	12'- 1"	4	12"	12'- 1"
12	12	14 3/4"	14 3/4"	8"	8"	49	49'- 0"	49	49'- 0"	10	10'- 0"	6	9"	47'- 2"	5	9"	51'- 0"	3	9"	3'- 10 3/4"	7'- 7"	6	9"	3'- 10 3/4"	7'- 8 3/4"	11'- 3"	4	6 1/2"	14'- 1"	4	12"	14'- 1"

Sheet 1 of 2

For Typical Section, notes and other details, refer to standard BCQ-DT.

QUADRUPLE BOX CULVERTS
10 TO 15 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

1005.10

SPAN		HIGHT		REINFORCING STEEL															QUAN./LF		HEADWALLS								WINGWALL	
(FT.)	(FT.)	SIZE	SPACING C-C	BTI											NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS/LONG. JT)	CONCRETE CL. A4 (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HWI		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)		OUTLET REINFORCING STEEL (LBS)
				a	b	c	d	e	f	g	LENGTH	HEADWALL LENGTH	SIZE	LENGTH																
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	20	57.160	1.284	141.899	16'- 10"	6	16'- 6"	3	12	2.222	137.876	2.191	99.132	A				
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	30	60.690	1.406	152.339	16'- 10"	6	16'- 6"	3	15	2.333	148.230	2.284	99.132	C				
4	3	3	12"	3'- 6 1/2"	0'- 4 3/8"	1'- 11 3/8"	0'- 5 7/8"	0'- 3 3/8"	19'- 1 1/8"	2'- 7/8"	19'- 10"	76	20	70.520	1.480	157.037	20'- 10"	6	20'- 6"	3	12	2.626	161.908	2.609	123.164	A				
4	4	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	30	74.050	1.602	178.948	20'- 10"	6	20'- 6"	3	15	2.738	172.262	2.702	123.164	C				
4	5	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	40	77.580	1.724	189.388	20'- 10"	6	20'- 6"	3	18	2.849	182.616	2.794	123.164	E				
4	6	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	50	81.110	1.847	199.828	20'- 10"	6	20'- 6"	3	21	2.960	192.970	2.887	123.164	G				
5	3	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	20	83.880	1.675	195.339	24'- 10"	6	24'- 6"	3	12	3.031	185.940	3.027	147.196	A				
5	4	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	30	87.410	1.797	205.779	24'- 10"	6	24'- 6"	3	15	3.142	196.294	3.120	147.196	C				
5	5	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	40	90.940	1.920	216.219	24'- 10"	6	24'- 6"	3	18	3.254	206.648	3.212	147.196	E				
5	6	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	50	94.470	2.043	226.659	24'- 10"	6	24'- 6"	3	21	3.365	217.002	3.305	147.196	G				
5	7	4	12"	4'- 4 1/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	60	98.000	2.165	237.099	24'- 10"	6	24'- 6"	3	24	3.476	227.356	3.398	147.196	I				
6	4	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	30	100.770	1.992	240.415	28'- 10"	6	28'- 6"	3	15	3.547	220.326	3.537	171.228	C				
6	5	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	40	104.300	2.114	256.633	28'- 10"	6	28'- 6"	3	18	3.658	230.680	3.630	171.228	E				
6	6	4	12"	5'- 1 3/4"	0'- 4 1/2"	2'- 9"	0'- 5 7/8"	0'- 3 3/4"	27'- 0"	3'- 3 1/2"	27'- 9"	108	50	107.830	2.237	267.073	28'- 10"	6	28'- 6"	3	21	3.770	241.034	3.723	171.228	G				
6	7	4	12"	5'- 1 3/8"	0'- 4 3/4"	2'- 8 3/4"	0'- 6 1/4"	0'- 4"	27'- 0"	3'- 3 1/4"	27'- 10"	108	60	111.360	2.402	277.625	28'- 10"	6	28'- 6"	3	24	3.865	251.388	3.799	171.228	I				
6	8	4	12"	5'- 1 5/8"	0'- 4 3/4"	2'- 8 3/4"	0'- 6 1/4"	0'- 4"	27'- 0"	3'- 3/4"	27'- 10"	108	70	114.890	2.525	288.065	28'- 10"	6	28'- 6"	3	27	3.976	261.742	3.892	171.228	K				
7	4	4	11"	5'- 10 7/8"	0'- 5 1/2"	3'- 7/8"	0'- 7 1/4"	0'- 4 3/4"	31'- 1 1/8"	3'- 9 3/8"	32'- 0"	124	30	114.130	2.380	283.228	32'- 10"	6	32'- 6"	3	15	3.875	244.358	3.878	195.260	C				
7	6	4	11"	5'- 10 7/8"	0'- 5 3/4"	3'- 5 1/8"	0'- 7 5/8"	0'- 5"	31'- 1 1/8"	3'- 9 3/8"	32'- 1"	124	50	121.190	2.673	305.481	32'- 10"	6	32'- 6"	3	21	4.097	265.066	4.063	195.260	H				
7	8	4	10"	5'- 10 3/4"	0'- 5 3/4"	3'- 5 1/8"	0'- 7 5/8"	0'- 5"	31'- 1 1/8"	3'- 9 3/8"	32'- 1"	124	70	128.250	2.918	341.495	32'- 10"	6	32'- 6"	3	27	4.319	285.774	4.248	195.260	L				
7	10	4	10"	5'- 10 5/8"	0'- 6"	3'- 3 1/8"	0'- 8"	0'- 5 1/4"	31'- 1 1/8"	3'- 9 1/8"	32'- 1"	124	90	135.310	3.210	382.942	32'- 10"	6	32'- 6"	3	33	4.523	306.482	4.415	195.260	P				
8	4	4	9"	6'- 7 7/8"	0'- 6 1/2"	3'- 4 5/8"	0'- 8 5/8"	0'- 5 3/4"	34'- 11 7/8"	4'- 3 7/8"	36'- 2"	140	30	127.490	2.815	354.775	36'- 10"	6	36'- 6"	3	15	4.196	268.390	4.213	219.292	D				
8	6	4	9"	6'- 7 3/4"	0'- 6 3/4"	3'- 4 3/8"	0'- 9"	0'- 6"	34'- 11 1/8"	4'- 3 5/8"	36'- 3"	140	50	134.550	3.114	377.228	36'- 10"	6	36'- 6"	3	21	4.396	289.098	4.376	219.292	H				
8	8	4	9"	6'- 7 5/8"	0'- 7"	3'- 4 1/8"	0'- 9 3/8"	0'- 6 1/4"	34'- 11 1/8"	4'- 3 3/8"	36'- 3"	140	70	141.610	3.411	435.998	36'- 10"	6	36'- 6"	3	27	4.597	309.806	4.539	219.292	L				
8	10	4	9"	6'- 7 5/8"	0'- 7"	3'- 4 1/8"	0'- 9 3/8"	0'- 6 1/4"	34'- 11 1/8"	4'- 3 3/8"	36'- 3"	140	90	148.670	3.659	426.155	36'- 10"	6	36'- 6"	3	33	4.819	330.514	4.725	219.292	P				
9	4	4	9"	7'- 5"	0'- 7 1/2"	3'- 8 1/2"	0'- 10 1/8"	0'- 6 3/4"	39'- 0"	4'- 10"	40'- 5"	156	30	140.850	3.296	464.778	40'- 10"	6	40'- 6"	3	15	4.474	292.422	4.504	243.324	D				
9	6	4	9"	7'- 4 7/8"	0'- 7 3/4"	3'- 8 1/4"	0'- 10 1/2"	0'- 7"	39'- 0"	4'- 9 3/4"	40'- 6"	156	50	147.910	3.602	484.578	40'- 10"	6	40'- 6"	3	21	4.671	313.130	4.664	243.324	H				
9	8	4	9"	7'- 4 3/4"	0'- 8"	3'- 8"	0'- 10 3/4"	0'- 7 1/4"	39'- 0"	4'- 9 1/2"	40'- 6"	156	70	154.970	3.909	493.927	40'- 10"	6	40'- 6"	3	27	4.869	333.838	4.824	243.324	L				
9	10	4	9"	7'- 4 3/4"	0'- 8"	3'- 8"	0'- 10 3/4"	0'- 7 1/4"	39'- 0"	4'- 9 1/2"	40'- 6"	156	90	162.030	4.152	547.774	40'- 10"	6	40'- 6"	3	33	5.091	354.546	5.010	243.324	P				
9	12	4	8"	7'- 4 5/8"	0'- 8 1/4"	3'- 7 3/4"	0'- 11 1/8"	0'- 7 1/2"	39'- 0"	4'- 9 1/4"	40'- 6"	156	110	169.090	4.452	644.574	40'- 10"	6	40'- 6"	3	39	5.288	375.254	5.170	243.324	T				
10	4	5	9"	8'- 2 1/8"	0'- 8 5/8"	4'- 1 1/4"	0'- 11 5/8"	0'- 7 3/4"	43'- 0"	5'- 4 1/4"	44'- 7"	172	30	154.210	3.829	552.180	44'- 10"	6	44'- 6"	3	15	4.728	316.454	4.771	267.356	D				
10	6	5	9"	8'- 2"	0'- 8 7/8"	4'- 0"	1'- 0"	0'- 8"	43'- 0"	5'- 4"	44'- 8"	172	50	161.270	4.141	622.843	44'- 10"	6	44'- 6"	3	21	4.922	337.162	4.928	267.356	H				
10	8	5	9"	8'- 1 7/8"	0'- 9 1/8"	3'- 11 3/4"	1'- 1 1/4"	0'- 8 1/4"	43'- 0"	5'- 3 3/4"	44'- 8"	172	70	168.330	4.453	697.077	44'- 10"	6	44'- 6"	3	27	5.116	357.870	5.085	267.356	L				
10	10	5	9"	8'- 1 1/8"	0'- 9 1/8"	3'- 11 3/4"	1'- 1 1/4"	0'- 8 1/4"	43'- 0"	5'- 3 3/4"	44'- 8"	172	90	175.390	4.697	834.551	44'- 10"	6	44'- 6"	3	33	5.339	378.578	5.270	267.356	P				
10	12	5	10"	8'- 1 3/4"	0'- 9 3/8"	3'- 11 1/2"	1'- 5 1/8"	0'- 8 1/2"	43'- 0"	5'- 3 1/2"	44'- 9"	172	110	182.450	5.008	966.435	44'- 10"	6	44'- 6"	3	39	5.533	399.286	5.427	267.356	T				
12	6	5	9"	9'- 8 1/8"	0'- 11 1/8"	4'- 7 3/8"	1'- 3 1/8"	0'- 10 1/4"	51'- 1 1/8"	6'- 4 1/8"	53'- 1"	204	50	187.990	5.447	722.570	52'- 10"	6	52'- 6"	3	21	5.314	385.226	5.346	315.420	H				
12	8	5	9"	9'- 8 1/8"	0'- 11 1/8"	4'- 7 3/8"	1'- 3 1/8"	0'- 10 1/4"	51'- 1 1/8"	6'- 4 1/8"	53'- 1"	204	70	195.050	5.693	786.014	52'- 10"	6	52'- 6"	3	27	5.536	405.934	5.532	315.420	L				
12	10	5	9"	9'- 8"	0'- 11 3/8"	4'- 7 1/8"	1'- 3 1/2"	0'- 10 1/2"	51'- 1 1/8"	6'- 3 3/8"	53'- 2"	204	90	202.110	6.016	876.341	52'- 10"	6	52'- 6"	3	33	5.724	426.642	5.683	315.420	P				
12	12	5	9"	9'- 8"	0'- 11 3/8"	4'- 7 1/8"	1'- 3 1/2"	0'- 10 1/2"	51'- 1 1/8"	6'- 3 3/8"	53'- 2"	204	110	209.170	6.258	852.782	52'- 10"	6	52'- 6"	3	39	5.947	447.350	5.868	315.420	T				

STRUCTURE AND BRIDGE DIVISION	QUADRUPLE BOX CULVERTS
	10 TO 15 FT. FILLS
	VIRGINIA DEPARTMENT OF TRANSPORTATION
	1005.11

BCQ-20

DIMENSIONS								REINFORCING STEEL																								
SPAN	HGHT	T1	T2	T3	T4							BH1		BH2		BH3		BH4				BV1		BV2								
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	1	1'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	2	2'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	2'- 8"	4'- 8"	4	12"	4'- 0"	4	12"	4'- 0"
4	4	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 2"	5'- 2"	4	12"	5'- 0"	4	12"	5'- 0"
4	5	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 8"	5'- 8"	4	12"	6'- 0"	4	12"	6'- 0"
4	6	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	4'- 2"	6'- 2"	4	12"	7'- 0"	4	12"	7'- 0"
5	3	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	1	1'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	2'- 8"	4'- 11"	4	12"	4'- 0"	4	12"	4'- 0"
5	4	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	3'- 2"	5'- 5"	4	12"	5'- 0"	4	12"	5'- 0"
5	5	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	3	3'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	3	12"	2'- 6"	4'- 10"	4	12"	2'- 6"	3'- 8"	5'- 11"	4	12"	6'- 0"	4	12"	6'- 0"
5	6	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	3	12"	2'- 6"	4'- 10"	4	12"	2'- 6"	4'- 2"	6'- 5"	4	12"	7'- 0"	4	12"	7'- 0"
5	7	8"	8"	8"	8"	21	21'- 0"	21	21'- 0"	5	5'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	4'- 8"	6'- 11"	4	12"	8'- 0"	4	12"	8'- 0"
6	4	9 1/4"	9 1/4"	8"	8"	25	25'- 0"	25	25'- 0"	2	2'- 0"	4	12"	25'- 7"	4	11"	27'- 0"	4	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	3'- 3 1/4"	5'- 8"	4	12"	5'- 2"	4	12"	5'- 2"
6	5	9 1/4"	9 1/4"	8"	8"	25	25'- 0"	25	25'- 0"	3	3'- 0"	4	11"	25'- 7"	4	11"	27'- 0"	4	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	3'- 9 1/4"	6'- 2"	4	12"	6'- 2"	4	12"	6'- 2"
6	6	9 1/2"	9 1/2"	8"	8"	25	25'- 0"	25	25'- 0"	4	4'- 0"	4	12"	25'- 7"	4	12"	27'- 0"	4	12"	2'- 8 3/8"	5'- 2"	4	12"	2'- 8 3/8"	4'- 3 1/2"	6'- 9"	4	12"	7'- 3"	4	12"	7'- 3"
6	7	9 1/2"	9 1/2"	8"	8"	25	25'- 0"	25	25'- 0"	5	5'- 0"	4	11"	25'- 7"	4	11"	27'- 0"	4	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	4'- 9 1/2"	7'- 3"	4	12"	8'- 3"	4	12"	8'- 3"
6	8	9 1/2"	9 1/2"	8"	8"	25	25'- 0"	25	25'- 0"	6	6'- 0"	4	11"	25'- 7"	4	11"	27'- 0"	--	---	----	----	5	11"	2'- 8 3/8"	5'- 3 1/2"	7'- 8"	4	12"	9'- 3"	4	12"	9'- 3"
7	4	10 1/2"	10 1/2"	8"	8"	29	29'- 0"	29	29'- 0"	2	2'- 0"	4	10"	29'- 2"	4	10"	31'- 0"	3	10"	2'- 10 3/4"	5'- 7"	4	10"	2'- 10 3/4"	3'- 4 1/2"	6'- 0"	4	12"	5'- 5"	4	12"	5'- 5"
7	6	10 3/4"	10 3/4"	8"	8"	29	29'- 0"	29	29'- 0"	4	4'- 0"	4	10"	29'- 2"	4	10"	31'- 0"	3	10"	2'- 10 3/4"	5'- 7"	4	10"	2'- 10 3/4"	4'- 4 3/4"	7'- 0"	4	12"	7'- 5"	4	12"	7'- 5"
7	8	11"	11"	8"	8"	29	29'- 0"	29	29'- 0"	6	6'- 0"	4	10"	29'- 2"	4	10"	31'- 0"	3	10"	2'- 10 3/4"	5'- 7"	4	10"	2'- 10 3/4"	5'- 5"	8'- 1"	4	12"	9'- 6"	4	12"	9'- 6"
7	10	11 1/4"	11 1/4"	8"	8"	29	29'- 0"	29	29'- 0"	8	8'- 0"	4	10"	29'- 2"	4	10"	31'- 0"	3	10"	2'- 10 3/4"	5'- 7"	5	10"	2'- 10 3/4"	6'- 5/4"	9'- 0"	5	10 1/2"	11'- 6"	4	12"	11'- 6"
8	4	12"	12"	8"	8"	33	33'- 0"	33	33'- 0"	2	2'- 0"	4	9"	32'- 10"	4	9"	35'- 0"	3	9"	3'- 1 1/4"	6'- 0"	4	9"	3'- 1 1/4"	3'- 6"	6'- 4"	4	12"	5'- 8"	4	12"	5'- 8"
8	6	12 1/4"	12 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	4	4'- 0"	4	9"	32'- 10"	4	9"	35'- 0"	--	---	----	----	4	9"	3'- 1 1/4"	4'- 6 1/4"	7'- 4"	4	12"	7'- 9"	4	12"	7'- 9"
8	8	12 1/4"	12 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	6	6'- 0"	5	9"	32'- 10"	5	9"	35'- 0"	3	9"	3'- 1 1/4"	6'- 0"	4	9"	3'- 1 1/4"	5'- 6 1/4"	8'- 4"	4	12"	9'- 9"	4	12"	9'- 9"
8	10	12 1/2"	12 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	8	8'- 0"	5	9"	32'- 10"	5	9"	35'- 0"	3	9"	3'- 1 1/4"	6'- 0"	5	9"	3'- 1 1/4"	6'- 6 1/2"	9'- 4"	4	7"	11'- 9"	4	12"	11'- 9"
9	4	13"	13"	8"	8"	37	37'- 0"	37	37'- 0"	2	2'- 0"	5	8"	36'- 5"	5	8"	39'- 0"	3	8"	3'- 3 5/8"	6'- 5"	4	8"	3'- 3 5/8"	3'- 7"	6'- 7"	4	10 1/2"	5'- 10"	4	12"	5'- 10"
9	6	13 1/4"	13 1/4"	8"	8"	37	37'- 0"	37	37'- 0"	4	4'- 0"	5	8"	36'- 5"	5	8"	39'- 0"	--	---	----	----	4	8"	3'- 3 5/8"	4'- 7 1/4"	7'- 8"	4	12"	7'- 10"	4	12"	7'- 10"
9	8	13 1/4"	13 1/4"	8"	8"	37	37'- 0"	37	37'- 0"	6	6'- 0"	5	8"	36'- 5"	5	8"	39'- 0"	3	8"	3'- 3 5/8"	6'- 5"	4	8"	3'- 3 5/8"	5'- 7 1/4"	8'- 8"	4	12"	9'- 10"	4	12"	9'- 10"
9	10	13 1/2"	13 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	8	8'- 0"	5	8"	36'- 5"	5	8"	39'- 0"	4	8"	3'- 3 5/8"	6'- 4"	4	8"	3'- 3 5/8"	6'- 7 1/2"	9'- 8"	4	8"	11'- 11"	4	12"	11'- 11"
9	12	13 1/2"	13 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	10	10'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	7	9"	3'- 3 5/8"	7'- 7 1/2"	10'- 6"	5	7 1/2"	13'- 11"	4	12"	13'- 11"
10	4	14 1/4"	14 1/4"	8"	8"	41	41'- 0"	41	41'- 0"	2	2'- 0"	5	9"	40'- 0"	5	9"	43'- 0"	--	---	----	----	5	9"	3'- 6"	3'- 8 1/4"	6'- 10"	4	10"	6'- 0"	4	12"	6'- 0"
10	6	14 1/2"	14 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	4	4'- 0"	5	9"	40'- 0"	5	9"	43'- 0"	--	---	----	----	5	9"	3'- 6"	4'- 8 1/2"	7'- 11"	4	12"	8'- 1"	4	12"	8'- 1"
10	8	14 1/2"	14 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	6	6'- 0"	5	9"	40'- 0"	5	9"	43'- 0"	--	---	----	----	5	9"	3'- 6"	5'- 8 1/2"	8'- 11"	4	12"	10'- 1"	4	12"	10'- 1"
10	10	14 3/4"	14 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	8	8'- 0"	5	9"	40'- 0"	5	9"	43'- 0"	3	9"	3'- 6"	6'- 10"	5	9"	3'- 6"	6'- 8 3/4"	9'- 11"	4	8"	12'- 1"	4	12"	12'- 1"
10	12	14 3/4"	14 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	10	10'- 0"	6	9"	40'- 0"	5	9"	43'- 0"	3	9"	3'- 6"	6'- 10"	6	9"	3'- 6"	7'- 8 3/4"	10'- 10"	5	7 1/2"	14'- 1"	4	12"	14'- 1"
12	6	17"	17"	8"	8"	49	49'- 0"	49	49'- 0"	4	4'- 0"	6	8"	47'- 2"	5	8"	51'- 0"	--	---	----	----	4	8"	3'- 10 3/4"	4'- 11"	8'- 7"	4	12"	8'- 6"	4	12"	8'- 6"
12	8	17 1/4"	17 1/4"	8"	8"	49	49'- 0"	49	49'- 0"	6	6'- 0"	6	8"	47'- 2"	5	8"	51'- 0"	3	8"	3'- 10 3/4"	7'- 7"	4	8"	3'- 10 3/4"	5'- 11 1/4"	9'- 7"	4	12"	10'- 6"	4	12"	10'- 6"
12	10	17 1/2"	17 1/2"	8"	8"	49	49'- 0"	49	49'- 0"	8	8'- 0"	6	8"	47'- 2"	5	8"	51'- 0"	--	---	----	----	4	8"	3'- 10 3/4"	6'- 11 1/2"	10'- 7"	4	7 1/2"	12'- 7"	4	12"	12'- 7"
12	12	17 1/2"	17 1/2"	8"	8"	49	49'- 0"	49	49'- 0"	10	10'- 0"	6	8"	47'- 2"	5	8"	51'- 0"	4	8"	3'- 10 3/4"	7'- 6"	5	8"	3'- 10 3/4"	7'- 11 1/2"	11'- 6"	5	7 1/2"	14'- 7"	4	12"	14'- 7"

Sheet 1 of 2

For Typical Section, notes and other details, refer to standard BCQ-DT.

QUADRUPLE BOX CULVERTS
15 TO 20 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

1005.12

SPAN		HIGHT		REINFORCING STEEL															QUAN./LF		HEADWALLS								WINGWALL
(FT.)	(FT.)	SIZE	SPACING C-C	BTI											REINFORCING STEEL (LBS/LONG. JT)	CONCRETE CL. A4 (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HWI		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)		
				a	b	c	d	e	f	g	LENGTH	NO. BL1 BARS	NO. BL2 BARS	HEADWALL LENGTH				SIZE	LENGTH										
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	20	57.160	1.284	141.899	16'- 10"	6	16'- 6"	3	12	2.222	137.876	2.191	99.132	A			
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	30	60.690	1.406	152.339	16'- 10"	6	16'- 6"	3	15	2.333	148.230	2.284	99.132	C			
4	3	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	20	70.520	1.479	168.508	20'- 10"	6	20'- 6"	3	12	2.626	161.908	2.609	123.164	A			
4	4	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	30	74.050	1.602	178.948	20'- 10"	6	20'- 6"	3	15	2.738	172.262	2.702	123.164	C			
4	5	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	40	77.580	1.724	189.388	20'- 10"	6	20'- 6"	3	18	2.849	182.616	2.794	123.164	E			
4	6	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	50	81.110	1.847	199.828	20'- 10"	6	20'- 6"	3	21	2.960	192.970	2.887	123.164	G			
5	3	4	12"	4'- 4 7/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	20	83.880	1.674	208.031	24'- 10"	6	24'- 6"	3	12	3.031	185.940	3.027	147.196	A			
5	4	4	12"	4'- 4 7/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	30	87.410	1.796	218.471	24'- 10"	6	24'- 6"	3	15	3.142	196.294	3.120	147.196	C			
5	5	4	12"	4'- 4 7/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	40	90.940	1.919	223.489	24'- 10"	6	24'- 6"	3	18	3.254	206.648	3.212	147.196	E			
5	6	4	12"	4'- 4 7/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	50	94.470	2.042	233.929	24'- 10"	6	24'- 6"	3	21	3.365	217.002	3.305	147.196	G			
5	7	4	12"	4'- 4 7/8"	0'- 4 1/2"	2'- 4 1/4"	0'- 5 7/8"	0'- 3 3/4"	23'- 0"	2'- 8 1/4"	23'- 9"	92	60	98.000	2.164	249.791	24'- 10"	6	24'- 6"	3	24	3.476	227.356	3.398	147.196	I			
6	4	4	12"	5'- 1 1/8"	0'- 5 3/4"	2'- 7 3/4"	0'- 7 5/8"	0'- 5"	27'- 0"	3'- 2 1/4"	28'- 0"	108	30	100.770	2.202	247.641	28'- 10"	6	28'- 6"	3	15	3.485	220.326	3.475	171.228	D			
6	5	4	11"	5'- 1 1/8"	0'- 5 3/4"	2'- 7 3/4"	0'- 7 5/8"	0'- 5"	27'- 0"	3'- 2 1/4"	28'- 0"	108	40	104.300	2.324	270.321	28'- 10"	6	28'- 6"	3	18	3.596	230.680	3.568	171.228	F			
6	6	4	12"	5'- 1"	0'- 6"	2'- 7 1/2"	0'- 8"	0'- 5 1/4"	27'- 0"	3'- 2"	28'- 1"	108	50	107.830	2.490	269.600	28'- 10"	6	28'- 6"	3	21	3.691	241.034	3.644	171.228	H			
6	7	4	11"	5'- 1"	0'- 6"	2'- 7 1/2"	0'- 8"	0'- 5 1/4"	27'- 0"	3'- 2"	28'- 1"	108	60	111.360	2.612	292.553	28'- 10"	6	28'- 6"	3	24	3.803	251.388	3.737	171.228	J			
6	8	4	11"	5'- 1"	0'- 6"	2'- 7 1/2"	0'- 8"	0'- 5 1/4"	27'- 0"	3'- 2"	28'- 1"	108	70	114.890	2.734	300.357	28'- 10"	6	28'- 6"	3	27	3.914	261.742	3.830	171.228	L			
7	4	4	10"	5'- 10 5/8"	0'- 7"	2'- 11 3/8"	0'- 9 3/8"	0'- 6 1/4"	31'- 1 1/8"	3'- 8 1/8"	32'- 4"	124	30	114.130	2.669	300.670	32'- 10"	6	32'- 6"	3	15	3.778	244.358	3.781	195.260	D			
7	6	4	10"	5'- 10"	0'- 7 1/4"	2'- 11 1/8"	0'- 9 3/4"	0'- 6 1/2"	31'- 1 1/8"	3'- 7 7/8"	32'- 4"	124	50	121.190	2.962	322.084	32'- 10"	6	32'- 6"	3	21	3.981	265.066	3.947	195.260	H			
7	8	4	10"	5'- 9 7/8"	0'- 7 1/2"	2'- 10 1/8"	0'- 10 1/8"	0'- 6 3/4"	31'- 1 1/8"	3'- 7 5/8"	32'- 5"	124	70	128.250	3.256	344.345	32'- 10"	6	32'- 6"	3	27	4.184	285.774	4.113	195.260	L			
7	10	4	10"	5'- 9 3/4"	0'- 7 3/4"	2'- 10 3/8"	0'- 10 1/2"	0'- 7"	31'- 1 1/8"	3'- 7 3/8"	32'- 6"	124	90	135.310	3.547	393.878	32'- 10"	6	32'- 6"	3	33	4.388	306.482	4.280	195.260	P			
8	4	4	9"	6'- 6 7/8"	0'- 8 1/2"	3'- 2 5/8"	0'- 11 1/2"	0'- 7 3/4"	34'- 11 7/8"	4'- 1 7/8"	36'- 7"	140	30	127.490	3.251	355.679	36'- 10"	6	36'- 6"	3	15	4.017	268.390	4.034	219.292	D			
8	6	4	9"	6'- 6 3/4"	0'- 8 3/4"	3'- 2 3/8"	0'- 11 1/8"	0'- 8"	34'- 11 1/8"	4'- 1 5/8"	36'- 8"	140	50	134.550	3.552	366.012	36'- 10"	6	36'- 6"	3	21	4.217	289.098	4.197	219.292	H			
8	8	4	9"	6'- 6 3/4"	0'- 8 3/4"	3'- 2 3/8"	0'- 11 1/8"	0'- 8"	34'- 11 1/8"	4'- 1 5/8"	36'- 8"	140	70	141.610	3.791	467.648	36'- 10"	6	36'- 6"	3	27	4.440	309.806	4.382	219.292	L			
8	10	4	9"	6'- 6 5/8"	0'- 9"	3'- 2 1/8"	1'- 1 1/4"	0'- 8 1/4"	34'- 11 1/8"	4'- 1 3/8"	36'- 9"	140	90	148.670	4.088	519.448	36'- 10"	6	36'- 6"	3	33	4.640	330.514	4.546	219.292	P			
9	4	4	8"	7'- 4"	0'- 9 1/2"	3'- 6 1/2"	1'- 7/8"	0'- 8 3/4"	39'- 0"	4'- 8"	40'- 9"	156	30	140.850	3.779	506.278	40'- 10"	6	40'- 6"	3	15	4.270	292.422	4.301	243.324	D			
9	6	4	8"	7'- 3 7/8"	0'- 9 3/4"	3'- 6 1/4"	1'- 1 1/4"	0'- 9"	39'- 0"	4'- 7 3/4"	40'- 10"	156	50	147.910	4.086	513.406	40'- 10"	6	40'- 6"	3	21	4.468	313.130	4.461	243.324	H			
9	8	4	8"	7'- 3 7/8"	0'- 9 3/4"	3'- 6 1/4"	1'- 1 1/4"	0'- 9"	39'- 0"	4'- 7 3/4"	40'- 10"	156	70	154.970	4.330	550.098	40'- 10"	6	40'- 6"	3	27	4.690	333.838	4.646	243.324	L			
9	10	4	8"	7'- 3 3/4"	0'- 10"	3'- 6"	1'- 1 3/8"	0'- 9 1/4"	39'- 0"	4'- 7 1/2"	40'- 11"	156	90	162.030	4.634	591.795	40'- 10"	6	40'- 6"	3	33	4.888	354.546	4.806	243.324	P			
9	12	4	9"	7'- 3 3/4"	0'- 10"	3'- 6"	1'- 1 5/8"	0'- 9 1/4"	39'- 0"	4'- 7 1/2"	40'- 11"	156	110	169.090	4.877	644.903	40'- 10"	6	40'- 6"	3	39	5.110	375.254	4.992	243.324	T			
10	4	5	9"	8'- 1"	0'- 10 7/8"	3'- 10"	1'- 2 3/4"	0'- 10"	43'- 0"	5'- 2"	45'- 0"	172	30	154.210	4.430	553.865	44'- 10"	6	44'- 6"	3	15	4.471	316.454	4.514	267.356	D			
10	6	5	9"	8'- 7/8"	0'- 11 1/8"	3'- 9 3/4"	1'- 3 1/8"	0'- 10 1/4"	43'- 0"	5'- 1 3/4"	45'- 1"	172	50	161.270	4.742	577.174	44'- 10"	6	44'- 6"	3	21	4.665	337.162	4.671	267.356	H			
10	8	5	9"	8'- 7/8"	0'- 11 1/8"	3'- 9 3/4"	1'- 3 1/8"	0'- 10 1/4"	43'- 0"	5'- 1 3/4"	45'- 1"	172	70	168.330	4.987	600.944	44'- 10"	6	44'- 6"	3	27	4.887	357.870	4.856	267.356	L			
10	10	5	9"	8'- 3/4"	0'- 11 3/8"	3'- 9 1/2"	1'- 3 1/2"	0'- 10 1/2"	43'- 0"	5'- 1 1/2"	45'- 2"	172	90	175.390	5.298	646.721	44'- 10"	6	44'- 6"	3	33	5.082	378.578	5.013	267.356	P			
10	12	5	9"	8'- 3/4"	0'- 11 3/8"	3'- 9 1/2"	1'- 3 1/2"	0'- 10 1/2"	43'- 0"	5'- 1 1/2"	45'- 2"	172	110	182.450	5.536	765.626	44'- 10"	6	44'- 6"	3	39	5.304	399.286	5.199	267.356	T			
12	6	5	8"	9'- 6 7/8"	1'- 1 5/8"	4'- 4 7/8"	1'- 6 5/8"	1'- 3 3/4"	51'- 1 1/8"	6'- 1 5/8"	53'- 7"	204	50	187.990	6.236	774.672	52'- 10"	6	52'- 6"	3	21	4.985	385.226	5.018	315.420	I			
12	8	5	8"	9'- 6 3/4"	1'- 1 1/8"	4'- 4 5/8"	1'- 7"	1'- 1"	51'- 1 1/8"	6'- 1 3/8"	53'- 8"	204	70	195.050	6.559	814.257	52'- 10"	6	52'- 6"	3	27	5.173	405.934	5.169	315.420	M			
12	10	5	8"	9'- 6 5/8"	1'- 2 1/8"	4'- 4 3/8"	1'- 7 3/8"	1'- 1 1/4"	51'- 1 1/8"	6'- 1 1/8"	53'- 8"	204	90	202.110	6.884	828.477	52'- 10"	6	52'- 6"	3	33	5.361	426.642	5.319	315.420	Q			
12	12	5	8"	9'- 6 5/8"	1'- 2 1/8"	4'- 4 3/8"	1'- 7 3/8"	1'- 1 1/4"	51'- 1 1/8"	6'- 1 1/8"	53'- 9"	204	110	209.170	7.123	927.078	52'- 10"	6	52'- 6"	3	39	5.584	447.350	5.505	315.420	U			

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DIMENSIONS								REINFORCING STEEL																								
SPAN	HGHT	T1	T2	T3	T4							BH1		BH2		BH3		BH4				BV1		BV2								
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	1	1'- 0"	4	12"	14'-10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	2	2'- 0"	4	12"	14'-10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	2'- 8"	4'- 8"	4	12"	4'- 0"	4	12"	4'- 0"
4	4	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 2"	5'- 2"	4	12"	5'- 0"	4	12"	5'- 0"
4	5	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 8"	5'- 8"	4	12"	6'- 0"	4	12"	6'- 0"
4	6	8"	8"	8"	8"	17	17'- 0"	17	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	4'- 2"	6'- 2"	4	12"	7'- 0"	4	12"	7'- 0"
5	3	8 3/4"	8 3/4"	8"	8"	21	21'- 0"	21	21'- 0"	1	1'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	2'- 8 3/4"	5'- 0"	4	12"	4'- 2"	4	12"	4'- 2"
5	4	9"	9"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	3	12"	2'- 6"	4'-10"	4	12"	2'- 6"	3'- 3"	5'- 6"	4	12"	5'- 2"	4	12"	5'- 2"
5	5	9"	9"	8"	8"	21	21'- 0"	21	21'- 0"	3	3'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	3	12"	2'- 6"	4'-10"	4	12"	2'- 6"	3'- 9"	6'- 0"	4	12"	6'- 2"	4	12"	6'- 2"
5	6	9"	9"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	4'- 3"	6'- 6"	4	12"	7'- 2"	4	12"	7'- 2"
5	7	9 1/4"	9 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	5	5'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	4'- 9 1/4"	7'- 0"	4	12"	8'- 2"	4	12"	8'- 2"
6	4	10 1/2"	10 1/2"	8"	8"	25	25'- 0"	25	25'- 0"	2	2'- 0"	4	11"	25'- 7"	4	11"	27'- 0"	4	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	3'- 4 1/2"	5'-10"	4	12"	5'- 5"	4	12"	5'- 5"
6	5	10 1/2"	10 1/2"	8"	8"	25	25'- 0"	25	25'- 0"	3	3'- 0"	4	11"	25'- 7"	4	11"	27'- 0"	3	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	3'-10 1/2"	6'- 4"	4	12"	6'- 5"	4	12"	6'- 5"
6	6	10 3/4"	10 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	4	4'- 0"	4	11"	25'- 7"	4	11"	27'- 0"	3	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	4'- 4 3/4"	6'-10"	4	12"	7'- 5"	4	12"	7'- 5"
6	7	10 3/4"	10 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	5	5'- 0"	4	11"	25'- 7"	4	11"	27'- 0"	4	11"	2'- 8 3/8"	5'- 2"	4	11"	2'- 8 3/8"	4'-10 3/4"	7'- 4"	4	12"	8'- 5"	4	12"	8'- 5"
6	8	10 3/4"	10 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	6	6'- 0"	4	11"	25'- 7"	4	11"	27'- 0"	--	---	----	----	5	11"	2'- 8 3/8"	5'- 4 3/4"	7'- 9"	4	11 1/2"	9'- 5"	4	12"	9'- 5"
7	4	12 1/4"	12 1/4"	8"	8"	29	29'- 0"	29	29'- 0"	2	2'- 0"	4	9"	29'- 2"	4	9"	31'- 0"	--	---	----	----	4	9"	2'-10 3/4"	3'- 6 1/4"	6'- 2"	4	12"	5'- 9"	4	12"	5'- 9"
7	6	12 1/2"	12 1/2"	8"	8"	29	29'- 0"	29	29'- 0"	4	4'- 0"	4	9"	29'- 2"	4	9"	31'- 0"	--	---	----	----	4	9"	2'-10 3/4"	4'- 6 1/2"	7'- 2"	4	12"	7'- 9"	4	12"	7'- 9"
7	8	12 3/4"	12 3/4"	8"	8"	29	29'- 0"	29	29'- 0"	6	6'- 0"	4	9"	29'- 2"	4	9"	31'- 0"	3	9"	2'-10 3/4"	5'- 7"	4	9"	2'-10 3/4"	5'- 6 3/4"	8'- 2"	4	11 1/2"	9'- 9"	4	12"	9'- 9"
7	10	12 3/4"	12 3/4"	8"	8"	29	29'- 0"	29	29'- 0"	8	8'- 0"	4	9"	29'- 2"	4	9"	31'- 0"	3	9"	2'-10 3/4"	5'- 7"	5	9"	2'-10 3/4"	6'- 6 3/4"	9'- 2"	4	6"	11'- 9"	4	12"	11'- 9"
8	4	13 1/2"	13 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	2	2'- 0"	5	9"	32'-10"	5	9"	35'- 0"	--	---	----	----	4	9"	3'- 1 1/4"	3'- 7 1/2"	6'- 6"	4	12"	5'-11"	4	12"	5'-11"
8	6	13 1/2"	13 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	4	4'- 0"	5	9"	32'-10"	5	9"	35'- 0"	--	---	----	----	4	9"	3'- 1 1/4"	4'- 7 1/2"	7'- 6"	4	12"	7'-11"	4	12"	7'-11"
8	8	13 3/4"	13 3/4"	8"	8"	33	33'- 0"	33	33'- 0"	6	6'- 0"	5	9"	32'-10"	5	9"	35'- 0"	3	9"	3'- 1 1/4"	6'- 0"	4	9"	3'- 1 1/4"	5'- 7 3/4"	8'- 6"	4	12"	10'- 0"	4	12"	10'- 0"
8	10	13 3/4"	13 3/4"	8"	8"	33	33'- 0"	33	33'- 0"	8	8'- 0"	5	9"	32'-10"	5	9"	35'- 0"	3	9"	3'- 1 1/4"	6'- 0"	5	9"	3'- 1 1/4"	6'- 7 3/4"	9'- 5"	4	6"	12'- 0"	4	12"	12'- 0"
9	4	15"	15"	8"	8"	37	37'- 0"	37	37'- 0"	2	2'- 0"	5	8"	36'- 5"	5	8"	39'- 0"	--	---	----	----	4	8"	3'- 3 5/8"	3'- 9"	6'- 9"	4	12"	6'- 2"	4	12"	6'- 2"
9	6	15"	15"	8"	8"	37	37'- 0"	37	37'- 0"	4	4'- 0"	5	8"	36'- 5"	5	8"	39'- 0"	--	---	----	----	4	8"	3'- 3 5/8"	4'- 9"	7'- 9"	4	12"	8'- 2"	4	12"	8'- 2"
9	8	15 1/4"	15 1/4"	8"	8"	37	37'- 0"	37	37'- 0"	6	6'- 0"	5	8"	36'- 5"	5	8"	39'- 0"	3	8"	3'- 3 5/8"	6'- 5"	4	8"	3'- 3 5/8"	5'- 9 1/4"	8'-10"	4	12"	10'- 3"	4	12"	10'- 3"
9	10	15 1/4"	15 1/4"	8"	8"	37	37'- 0"	37	37'- 0"	8	8'- 0"	5	8"	36'- 5"	5	8"	39'- 0"	--	---	----	----	5	8"	3'- 3 5/8"	6'- 9 1/4"	9'- 9"	4	6"	12'- 3"	4	12"	12'- 3"
9	12	15 1/4"	15 1/4"	8"	8"	37	37'- 0"	37	37'- 0"	10	10'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	7	9"	3'- 3 5/8"	7'- 9 1/4"	10'- 7"	5	6"	14'- 3"	4	12"	14'- 3"
10	4	16 1/2"	16 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	2	2'- 0"	6	9"	40'- 0"	5	9"	43'- 0"	--	---	----	----	4	9"	3'- 6"	3'-10 1/2"	7'- 1"	4	12"	6'- 5"	4	12"	6'- 5"
10	6	16 1/2"	16 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	4	4'- 0"	6	9"	40'- 0"	5	9"	43'- 0"	--	---	----	----	4	9"	3'- 6"	4'-10 1/2"	8'- 1"	4	12"	8'- 5"	4	12"	8'- 5"
10	8	16 3/4"	16 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	6	6'- 0"	6	9"	40'- 0"	5	9"	43'- 0"	3	9"	3'- 6"	6'-10"	4	9"	3'- 6"	5'-10 3/4"	9'- 2"	4	12"	10'- 6"	4	12"	10'- 6"
10	10	16 3/4"	16 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	8	8'- 0"	6	9"	40'- 0"	5	9"	43'- 0"	3	9"	3'- 6"	6'-10"	5	9"	3'- 6"	6'-10 3/4"	10'- 1"	4	6"	12'- 6"	4	12"	12'- 6"
10	12	17"	17"	8"	8"	41	41'- 0"	41	41'- 0"	10	10'- 0"	6	9"	40'- 0"	5	9"	43'- 0"	4	9"	3'- 6"	6'- 9"	6	9"	3'- 6"	7'-11"	11'- 0"	5	6"	14'- 6"	4	12"	14'- 6"
12	6	19 3/4"	19 3/4"	8"	8"	49	49'- 0"	49	49'- 0"	4	4'- 0"	6	8"	47'- 2"	5	8"	51'- 0"	--	---	----	----	4	8"	3'-10 3/4"	5'- 1 3/4"	8'- 9"	4	12"	9'- 0"	4	10 1/2"	9'- 0"
12	8	19 3/4"	19 3/4"	8"	8"	49	49'- 0"	49	49'- 0"	6	6'- 0"	6	8"	47'- 2"	5	8"	51'- 0"	3	8"	3'-10 3/4"	7'- 7"	4	8"	3'-10 3/4"	6'- 1 3/4"	9'- 9"	4	12"	11'- 0"	4	10 1/2"	11'- 0"
12	10	19 3/4"	19 3/4"	8"	8"	49	49'- 0"	49	49'- 0"	8	8'- 0"	6	8"	47'- 2"	5	8"	51'- 0"	--	---	----	----	5	8"	3'-10 3/4"	7'- 1 3/4"	10'- 9"	4	6"	13'- 0"	4	10 1/2"	13'- 0"
12	12	20"	20"	8"	8"	49	49'- 0"	49	49'- 0"	10	10'- 0"	6	8"	47'- 2"	5	8"	51'- 0"	4	8"	3'-10 3/4"	7'- 6"	5	8"	3'-10 3/4"	8'- 2"	11'- 9"	7	11 1/2"	15'- 0"	4	10 1/2"	15'- 0"

Sheet 1 of 2 For Typical Section, notes and other details, refer to standard BCQ-DT.

1005.14	<h2 style="margin: 0;">QUADRUPLE BOX CULVERTS</h2> <p style="margin: 0;">20 TO 25 FT. FILLS</p> <p style="margin: 0;">VIRGINIA DEPARTMENT OF TRANSPORTATION</p>	<p style="margin: 0;">STRUCTURE AND BRIDGE DIVISION</p>
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SPAN		HIGHT		REINFORCING STEEL															QUAN./LF		HEADWALLS								WINGWALL	
(FT.)	(FT.)	SIZE	SPACING C-C	BTI											NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS/LONG. JT)	CONCRETE CL. A4 (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HWI		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)		OUTLET REINFORCING STEEL (LBS)
				a	b	c	d	e	f	g	LENGTH	HEADWALL LENGTH	SIZE	LENGTH																
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	20	57.160	1.284	141.899	16'- 10"	6	16'- 6"	3	12	2.222	137.876	2.191	99.132	A				
3	4	3	12"	2'- 8 7/8"	0'- 4 3/8"	1'- 6 1/2"	0'- 5 7/8"	0'- 3 7/8"	15'- 0"	1'- 5 3/4"	15'- 9"	60	30	60.690	1.407	143.141	16'- 10"	6	16'- 6"	3	15	2.333	148.230	2.284	99.132	C				
4	3	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	20	70.520	1.479	168.508	20'- 10"	6	20'- 6"	3	12	2.626	161.908	2.609	123.164	A				
4	4	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	30	74.050	1.602	178.948	20'- 10"	6	20'- 6"	3	15	2.738	172.262	2.702	123.164	C				
4	5	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	40	77.580	1.724	189.388	20'- 10"	6	20'- 6"	3	18	2.849	182.616	2.794	123.164	E				
4	6	4	12"	3'- 6 1/2"	0'- 4 1/2"	1'- 11 1/2"	0'- 5 7/8"	0'- 3 3/4"	19'- 0"	2'- 1"	19'- 9"	76	50	81.110	1.847	199.828	20'- 10"	6	20'- 6"	3	21	2.960	192.970	2.887	123.164	G				
5	3	4	12"	4'- 3 3/4"	0'- 5 1/4"	2'- 3 1/2"	0'- 6 7/8"	0'- 4 1/2"	23'- 0"	2'- 7 1/2"	23'- 11"	92	20	83.880	1.781	209.367	24'- 10"	6	24'- 6"	3	12	2.992	185.940	2.987	147.196	A				
5	4	4	12"	4'- 3 5/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	23'- 0"	2'- 7 1/4"	24'- 0"	92	30	87.410	1.941	214.496	24'- 10"	6	24'- 6"	3	15	3.090	196.294	3.067	147.196	C				
5	5	4	12"	4'- 3 5/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	23'- 0"	2'- 7 1/4"	24'- 0"	92	40	90.940	2.063	224.936	24'- 10"	6	24'- 6"	3	18	3.201	206.648	3.160	147.196	E				
5	6	4	12"	4'- 3 5/8"	0'- 5 1/2"	2'- 3 1/4"	0'- 7 1/4"	0'- 4 3/4"	23'- 0"	2'- 7 1/4"	24'- 0"	92	50	94.470	2.186	240.799	24'- 10"	6	24'- 6"	3	21	3.313	217.002	3.253	147.196	G				
5	7	4	12"	4'- 3 1/2"	0'- 5 3/4"	2'- 3"	0'- 7 5/8"	0'- 5"	23'- 0"	2'- 7"	24'- 0"	92	60	98.000	2.344	251.239	24'- 10"	6	24'- 6"	3	24	3.429	227.356	3.351	147.196	J				
6	4	4	11"	5'- 1/2"	0'- 7"	2'- 6 1/2"	0'- 9 3/8"	0'- 6 1/4"	27'- 0"	3'- 1"	28'- 3"	108	30	100.770	2.412	262.244	28'- 10"	6	28'- 6"	3	15	3.404	220.326	3.394	171.228	D				
6	5	4	11"	5'- 1/2"	0'- 7"	2'- 6 1/2"	0'- 9 3/8"	0'- 6 1/4"	27'- 0"	3'- 1"	28'- 3"	108	40	104.300	2.535	266.224	28'- 10"	6	28'- 6"	3	18	3.515	230.680	3.487	171.228	F				
6	6	4	11"	5'- 3/8"	0'- 7 1/4"	2'- 6 1/4"	0'- 9 3/4"	0'- 6 1/2"	27'- 0"	3'- 3/4"	28'- 4"	108	50	107.830	2.700	276.907	28'- 10"	6	28'- 6"	3	21	3.610	241.034	3.563	171.228	H				
6	7	4	11"	5'- 3/8"	0'- 7 1/4"	2'- 6 1/4"	0'- 9 3/4"	0'- 6 1/2"	27'- 0"	3'- 3/4"	28'- 4"	108	60	111.360	2.822	294.051	28'- 10"	6	28'- 6"	3	24	3.722	251.388	3.656	171.228	J				
6	8	4	11"	5'- 3/8"	0'- 7 1/4"	2'- 6 1/4"	0'- 9 3/4"	0'- 6 1/2"	27'- 0"	3'- 3/4"	28'- 4"	108	70	114.890	2.945	302.538	28'- 10"	6	28'- 6"	3	27	3.833	261.742	3.749	171.228	L				
7	4	4	9"	5'- 9 1/4"	0'- 8 3/4"	2'- 9 5/8"	0'- 11 1/8"	0'- 8"	31'- 1 1/8"	3'- 6 3/8"	32'- 8"	124	30	114.130	3.006	312.177	32'- 10"	6	32'- 6"	3	15	3.642	244.358	3.646	195.260	D				
7	6	4	9"	5'- 9 1/4"	0'- 9"	2'- 9 5/8"	1'- 1/4"	0'- 8 1/4"	31'- 1 1/8"	3'- 6 1/8"	32'- 9"	124	50	121.190	3.300	334.096	32'- 10"	6	32'- 6"	3	21	3.846	265.066	3.812	195.260	H				
7	8	4	9"	5'- 9"	0'- 9 1/4"	2'- 9 1/8"	1'- 1/2"	0'- 8 1/2"	31'- 1 1/8"	3'- 5 7/8"	32'- 9"	124	70	128.250	3.593	367.629	32'- 10"	6	32'- 6"	3	27	4.049	285.774	3.978	195.260	L				
7	10	4	9"	5'- 9"	0'- 9 1/4"	2'- 9 1/8"	1'- 1/2"	0'- 8 1/2"	31'- 1 1/8"	3'- 5 7/8"	32'- 9"	124	90	135.310	3.835	422.865	32'- 10"	6	32'- 6"	3	33	4.272	306.482	4.164	195.260	P				
8	4	4	9"	6'- 6 1/8"	0'- 10"	3'- 1 1/8"	1'- 1 5/8"	0'- 9 1/4"	34'- 11 7/8"	4'- 3/8"	36'- 11"	140	30	127.490	3.574	414.004	36'- 10"	6	36'- 6"	3	15	3.883	268.390	3.900	219.292	D				
8	6	4	9"	6'- 6 1/8"	0'- 10"	3'- 1 1/8"	1'- 1 5/8"	0'- 9 1/4"	34'- 11 7/8"	4'- 3/8"	36'- 11"	140	50	134.550	3.819	435.775	36'- 10"	6	36'- 6"	3	21	4.105	289.098	4.085	219.292	H				
8	8	4	9"	6'- 6"	0'- 10 1/4"	3'- 7/8"	1'- 2"	0'- 9 1/2"	34'- 11 7/8"	4'- 1 1/8"	37'- 0"	140	70	141.610	4.118	470.171	36'- 10"	6	36'- 6"	3	27	4.306	309.806	4.248	219.292	L				
8	10	4	9"	6'- 6"	0'- 10 1/4"	3'- 7/8"	1'- 2"	0'- 9 1/2"	34'- 11 7/8"	4'- 1 1/8"	37'- 0"	140	90	148.670	4.360	526.510	36'- 10"	6	36'- 6"	3	33	4.528	330.514	4.434	219.292	P				
9	4	4	8"	7'- 3"	0'- 11 1/2"	3'- 4 1/2"	1'- 3 3/4"	0'- 10 3/4"	39'- 0"	4'- 6"	41'- 3"	156	30	140.850	4.265	494.140	40'- 10"	6	40'- 6"	3	15	4.067	292.422	4.097	243.324	D				
9	6	4	8"	7'- 3"	0'- 11 1/2"	3'- 4 1/2"	1'- 3 3/4"	0'- 10 3/4"	39'- 0"	4'- 6"	41'- 3"	156	50	147.910	4.510	516.356	40'- 10"	6	40'- 6"	3	21	4.289	313.130	4.282	243.324	H				
9	8	4	8"	7'- 2 7/8"	0'- 11 3/4"	3'- 4 1/4"	1'- 4 1/8"	0'- 11"	39'- 0"	4'- 5 3/4"	41'- 3"	156	70	154.970	4.815	553.828	40'- 10"	6	40'- 6"	3	27	4.505	333.838	4.461	243.324	M				
9	10	4	8"	7'- 2 7/8"	0'- 11 3/4"	3'- 4 1/4"	1'- 4 1/8"	0'- 11"	39'- 0"	4'- 5 3/4"	41'- 3"	156	90	162.030	5.059	599.537	40'- 10"	6	40'- 6"	3	33	4.728	354.546	4.646	243.324	Q				
9	12	5	9"	7'- 2 7/8"	0'- 11 7/8"	3'- 4 1/4"	1'- 4 1/8"	0'- 11"	39'- 0"	4'- 5 3/4"	41'- 3"	156	110	169.090	5.298	701.994	40'- 10"	6	40'- 6"	3	39	4.951	375.254	4.832	243.324	U				
10	4	5	9"	7'- 11 7/8"	1'- 1 1/8"	3'- 7 3/4"	1'- 6"	1'- 1 1/4"	43'- 0"	4'- 11 3/4"	45'- 6"	172	30	154.210	5.029	592.064	44'- 10"	6	44'- 6"	3	15	4.232	316.454	4.276	267.356	E				
10	6	5	9"	7'- 11 7/8"	1'- 1 1/8"	3'- 7 3/4"	1'- 6"	1'- 1 1/4"	43'- 0"	4'- 11 3/4"	45'- 6"	172	50	161.270	5.275	613.834	44'- 10"	6	44'- 6"	3	21	4.455	337.162	4.461	267.356	I				
10	8	5	9"	7'- 11 3/4"	1'- 1 3/8"	3'- 7 1/2"	1'- 6 1/4"	1'- 1 1/2"	43'- 0"	4'- 11 1/2"	45'- 6"	172	70	168.330	5.586	650.050	44'- 10"	6	44'- 6"	3	27	4.649	357.870	4.618	267.356	M				
10	10	5	9"	7'- 11 3/4"	1'- 1 3/8"	3'- 7 1/2"	1'- 6 1/4"	1'- 1 1/2"	43'- 0"	4'- 11 1/2"	45'- 6"	172	90	175.390	5.828	708.391	44'- 10"	6	44'- 6"	3	33	4.872	378.578	4.804	267.356	Q				
10	12	5	9"	7'- 11 3/8"	1'- 1 5/8"	3'- 7 1/4"	1'- 6 3/8"	1'- 3/4"	43'- 0"	4'- 11 1/4"	45'- 7"	172	110	182.450	6.135	793.624	44'- 10"	6	44'- 6"	3	39	5.066	399.286	4.960	267.356	U				
12	6	6	8"	9'- 5 1/2"	1'- 4 1/2"	4'- 2 1/8"	1'- 10 5/8"	1'- 3 1/2"	51'- 1 1/8"	5'- 10 7/8"	54'- 2"	204	50	187.990	7.101	859.578	52'- 10"	6	52'- 6"	3	21	4.603	385.226	4.636	315.420	I				
12	8	6	8"	9'- 5 1/2"	1'- 4 1/2"	4'- 2 1/8"	1'- 10 5/8"	1'- 3 1/2"	51'- 1 1/8"	5'- 10 7/8"	54'- 2"	204	70	195.050	7.345	900.047	52'- 10"	6	52'- 6"	3	27	4.826	405.934	4.821	315.420	M				
12	10	6	8"	9'- 5 1/2"	1'- 4 1/2"	4'- 2 1/8"	1'- 10 5/8"	1'- 3 1/2"	51'- 1 1/8"	5'- 10 7/8"	54'- 2"	204	90	202.110	7.588	947.856	52'- 10"	6	52'- 6"	3	33	5.048	426.642	5.007	315.420	Q				
12	12	6	8"	9'- 5 3/8"	1'- 4 3/4"	4'- 1 7/8"	1'- 11"	1'- 3 3/4"	51'- 1 1/8"	5'- 10 5/8"	54'- 3"	204	110	209.170	7.908	1,030.481	52'- 10"	6	52'- 6"	3	39	5.236	447.350	5.158	315.420	U				

BCQ-30

DIMENSIONS								REINFORCING STEEL																								
SPAN	HGHT	T1	T2	T3	T4							BH1		BH2		BH3		BH4			BV1		BV2									
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	1	1'- 0"	4	12"	14'-10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	2	2'- 0"	4	12"	14'-10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	8 1/2"	8 1/2"	8"	8"	17	17'- 0"	17	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	2'- 8 1/2"	4'- 9"	4	12"	4'- 1"	4	12"	4'- 1"
4	4	8 1/2"	8 1/2"	8"	8"	17	17'- 0"	17	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 2 1/2"	5'- 3"	4	12"	5'- 1"	4	12"	5'- 1"
4	5	8 1/2"	8 1/2"	8"	8"	17	17'- 0"	17	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 8 1/2"	5'- 9"	4	12"	6'- 1"	4	12"	6'- 1"
4	6	8 1/2"	8 1/2"	8"	8"	17	17'- 0"	17	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	4'- 2 1/2"	6'- 3"	4	12"	7'- 1"	4	12"	7'- 1"
5	3	10 1/4"	10 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	1	1'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	3	12"	2'- 6"	4'-10"	4	12"	2'- 6"	2'-10 1/4"	5'- 1"	4	12"	4'- 5"	4	12"	4'- 5"
5	4	10"	10"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	3	12"	2'- 6"	4'-10"	4	12"	2'- 6"	3'- 4"	5'- 7"	4	12"	5'- 4"	4	12"	5'- 4"
5	5	10 1/4"	10 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	3	3'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	3	12"	2'- 6"	4'-10"	4	12"	2'- 6"	3'-10 1/4"	6'- 1"	4	12"	6'- 5"	4	12"	6'- 5"
5	6	10"	10"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	4'- 4"	6'- 7"	4	12"	7'- 4"	4	12"	7'- 4"
5	7	10"	10"	8"	8"	21	21'- 0"	21	21'- 0"	5	5'- 0"	4	12"	22'- 0"	4	12"	23'- 0"	4	12"	2'- 6"	4'- 9"	4	12"	2'- 6"	4'-10"	7'- 1"	4	12"	8'- 4"	4	12"	8'- 4"
6	4	12"	12"	8"	8"	25	25'- 0"	25	25'- 0"	2	2'- 0"	4	10"	25'- 7"	4	10"	27'- 0"	--	---	----	----	4	10"	2'- 8 3/8"	3'- 6"	5'-11"	4	12"	5'- 8"	4	12"	5'- 8"
6	5	12 1/4"	12 1/4"	8"	8"	25	25'- 0"	25	25'- 0"	3	3'- 0"	4	10"	25'- 7"	4	10"	27'- 0"	--	---	----	----	4	10"	2'- 8 3/8"	4'- 1/4"	6'- 5"	4	12"	6'- 9"	4	12"	6'- 9"
6	6	11 1/2"	11 1/2"	8"	8"	25	25'- 0"	25	25'- 0"	4	4'- 0"	4	10"	25'- 7"	4	10"	27'- 0"	--	---	----	----	4	10"	2'- 8 3/8"	4'- 5 1/2"	6'-11"	4	12"	7'- 7"	4	12"	7'- 7"
6	7	11 1/2"	11 1/2"	8"	8"	25	25'- 0"	25	25'- 0"	5	5'- 0"	4	10"	25'- 7"	4	10"	27'- 0"	3	10"	2'- 8 3/8"	5'- 2"	4	10"	2'- 8 3/8"	4'-11 1/2"	7'- 5"	4	12"	8'- 7"	4	12"	8'- 7"
6	8	11 3/4"	11 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	6	6'- 0"	4	10"	25'- 7"	4	10"	27'- 0"	--	---	----	----	5	10"	2'- 8 3/8"	5'- 5 3/4"	7'-10"	4	8 1/2"	9'- 8"	4	12"	9'- 8"
7	4	13 1/4"	13 1/4"	8"	8"	29	29'- 0"	29	29'- 0"	2	2'- 0"	4	9"	29'- 2"	4	9"	31'- 0"	--	---	----	----	4	9"	2'-10 3/4"	3'- 7 1/4"	6'- 3"	4	12"	5'-10"	4	12"	5'-10"
7	6	13 1/4"	13 1/4"	8"	8"	29	29'- 0"	29	29'- 0"	4	4'- 0"	4	9"	29'- 2"	5	9"	31'- 0"	--	---	----	----	4	9"	2'-10 3/4"	4'- 7 1/4"	7'- 3"	4	12"	7'-10"	4	12"	7'-10"
7	8	13 1/4"	13 1/4"	8"	8"	29	29'- 0"	29	29'- 0"	6	6'- 0"	4	9"	29'- 2"	5	9"	31'- 0"	3	9"	2'-10 3/4"	5'- 7"	4	9"	2'-10 3/4"	5'- 7 1/4"	8'- 3"	4	9"	9'-10"	4	12"	9'-10"
7	10	13 1/4"	13 1/4"	8"	8"	29	29'- 0"	29	29'- 0"	8	8'- 0"	4	9"	29'- 2"	5	9"	31'- 0"	3	9"	2'-10 3/4"	5'- 7"	5	9"	2'-10 3/4"	6'- 7 1/4"	9'- 2"	5	8"	11'-10"	4	12"	11'-10"
8	4	15"	15"	8"	8"	33	33'- 0"	33	33'- 0"	2	2'- 0"	5	9"	32'-10"	5	9"	35'- 0"	--	---	----	----	4	9"	3'- 1 1/4"	3'- 9"	6'- 7"	4	12"	6'- 2"	4	12"	6'- 2"
8	6	15"	15"	8"	8"	33	33'- 0"	33	33'- 0"	4	4'- 0"	5	9"	32'-10"	5	9"	35'- 0"	--	---	----	----	4	9"	3'- 1 1/4"	4'- 9"	7'- 7"	4	12"	8'- 2"	4	12"	8'- 2"
8	8	15 1/4"	15 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	6	6'- 0"	5	9"	32'-10"	5	9"	35'- 0"	3	9"	3'- 1 1/4"	6'- 0"	4	9"	3'- 1 1/4"	5'- 9 1/4"	8'- 7"	4	9"	10'- 3"	4	12"	10'- 3"
8	10	15"	15"	8"	8"	33	33'- 0"	33	33'- 0"	8	8'- 0"	5	9"	32'-10"	5	9"	35'- 0"	3	9"	3'- 1 1/4"	6'- 0"	5	9"	3'- 1 1/4"	6'- 9"	9'- 6"	6	11 1/2"	12'- 2"	4	12"	12'- 2"
9	4	17"	17"	8"	8"	37	37'- 0"	37	37'- 0"	2	2'- 0"	6	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	4	9"	3'- 3 5/8"	3'-11"	6'-11"	4	12"	6'- 6"	4	12"	6'- 6"
9	6	17"	17"	8"	8"	37	37'- 0"	37	37'- 0"	4	4'- 0"	6	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	4	9"	3'- 3 5/8"	4'-11"	7'-11"	4	12"	8'- 6"	4	12"	8'- 6"
9	8	17"	17"	8"	8"	37	37'- 0"	37	37'- 0"	6	6'- 0"	6	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	5	9"	3'- 3 5/8"	5'-11"	8'-11"	4	9"	10'- 6"	4	12"	10'- 6"
9	10	17"	17"	8"	8"	37	37'- 0"	37	37'- 0"	8	8'- 0"	5	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	6	9"	3'- 3 5/8"	6'-11"	9'-10"	5	8"	12'- 6"	4	12"	12'- 6"
9	12	17"	17"	8 1/2"	8"	37	37'- 0"	37	37'- 0"	10	10'- 0"	5	9"	36'- 5"	5	9"	39'- 1"	--	---	----	----	7	9"	3'- 4 1/8"	7'-11"	10'-10"	5	5 1/2"	14'- 6"	4	12"	14'- 6"
10	4	18 1/2"	18 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	2	2'- 0"	6	9"	40'- 0"	5	9"	43'- 0"	--	---	----	----	4	9"	3'- 6"	4'- 1/2"	7'- 3"	4	12"	6'- 9"	4	10 1/2"	6'- 9"
10	6	18 1/2"	18 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	4	4'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	--	---	----	----	4	9"	3'- 6"	5'- 1/2"	8'- 3"	4	12"	8'- 9"	4	10 1/2"	8'- 9"
10	8	18 3/4"	18 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	6	6'- 0"	6	9"	40'- 0"	5	9"	43'- 0"	3	9"	3'- 6"	6'-10"	4	9"	3'- 6"	6'- 3/4"	9'- 4"	4	9"	10'- 9"	4	11"	10'- 9"
10	10	18 3/4"	18 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	8	8'- 0"	6	9"	40'- 0"	5	9"	43'- 0"	3	9"	3'- 6"	6'-10"	5	9"	3'- 6"	7'- 3/4"	10'- 3"	4	5"	12'- 9"	4	11"	12'- 9"
10	12	18 3/4"	18 3/4"	8 1/2"	8"	41	41'- 0"	41	41'- 0"	10	10'- 0"	6	9"	40'- 0"	6	9"	43'- 1"	4	9"	3'- 6 1/2"	6'-10"	6	9"	3'- 6 1/2"	8'- 3/4"	11'- 2"	5	5 1/2"	14'- 9"	4	11"	14'- 9"
12	6	21 3/4"	21 3/4"	8"	8"	49	49'- 0"	49	49'- 0"	4	4'- 0"	6	8"	47'- 2"	6	8"	51'- 0"	--	---	----	----	4	8"	3'-10 3/4"	5'- 3 3/4"	8'-11"	4	12"	9'- 3"	4	10"	9'- 3"
12	8	21 3/4"	21 3/4"	8"	8"	49	49'- 0"	49	49'- 0"	6	6'- 0"	6	8"	47'- 2"	6	8"	51'- 0"	3	8"	3'-10 3/4"	7'- 7"	4	8"	3'-10 3/4"	6'- 3 3/4"	9'-11"	4	8 1/2"	11'- 3"	4	10"	11'- 3"
12	10	21 3/4"	21 3/4"	8"	8"	49	49'- 0"	49	49'- 0"	8	8'- 0"	6	8"	47'- 2"	6	8"	51'- 0"	3	8"	3'-10 3/4"	7'- 7"	5	8"	3'-10 3/4"	7'- 3 3/4"	10'-11"	4	5"	13'- 3"	4	10"	13'- 3"
12	12	21 3/4"	21 3/4"	8 1/2"	8"	49	49'- 0"	49	49'- 0"	10	10'- 0"	6	8"	47'- 2"	6	8"	51'- 1"	4	8"	3'-11 1/4"	7'- 7"	5	8"	3'-11 1/4"	8'- 3 3/4"	11'-11"	5	5 1/2"	15'- 3"	4	10"	15'- 3"

Sheet 1 of 2

For Typical Section, notes and other details, refer to standard BCQ-DT.

QUADRUPLE BOX CULVERTS
25 TO 30 FT. FILLS
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

1005.16

SPAN		HIGHT		REINFORCING STEEL																	QUAN./LF		HEADWALLS								WINGWALL
(FT.)	(FT.)	SIZE	SPACING C-C	BTI										NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS/LONG. JT)	CONCRETE CLASS (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HWI		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)			
				a	b	c	d	e	f	g	LENGTH	HEADWALL LENGTH	SIZE						LENGTH												
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	20	57.160	4.413	141.899	16'- 10"	6	16'- 6"	3	12	2.222	137.876	2.191	99.132	A					
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	30	60.690	4.617	152.339	16'- 10"	6	16'- 6"	3	15	2.333	148.230	2.284	99.132	C					
4	3	4	12"	3'- 6 1/4"	0'- 5"	1'- 11"	0'- 6 1/2"	0'- 4 1/4"	19'- 0"	2'- 1/2"	19'- 10"	76	20	70.520	5.195	169.287	20'- 10"	6	20'- 6"	3	12	2.606	161.908	2.589	123.164	A					
4	4	4	12"	3'- 6 1/4"	0'- 5"	1'- 11"	0'- 6 1/2"	0'- 4 1/4"	19'- 0"	2'- 1/2"	19'- 10"	76	30	74.050	5.399	179.727	20'- 10"	6	20'- 6"	3	15	2.718	172.262	2.682	123.164	C					
4	5	4	12"	3'- 6 1/4"	0'- 5"	1'- 11"	0'- 6 1/2"	0'- 4 1/4"	19'- 0"	2'- 1/2"	19'- 10"	76	40	77.580	5.603	190.167	20'- 10"	6	20'- 6"	3	18	2.829	182.616	2.774	123.164	E					
4	6	4	12"	3'- 6 1/4"	0'- 5"	1'- 11"	0'- 6 1/2"	0'- 4 1/4"	19'- 0"	2'- 1/2"	19'- 10"	76	50	81.110	5.807	200.607	20'- 10"	6	20'- 6"	3	21	2.940	192.970	2.867	123.164	G					
5	3	4	12"	4'- 3"	0'- 6 3/4"	2'- 2"	0'- 9"	0'- 6"	23'- 0"	2'- 6"	24'- 3"	92	20	83.880	5.859	205.949	24'- 10"	6	24'- 6"	3	12	2.932	185.940	2.927	147.196	B					
5	4	4	12"	4'- 3 3/8"	0'- 6 1/2"	2'- 2 1/4"	0'- 8 5/8"	0'- 5 3/4"	23'- 0"	2'- 6 1/4"	24'- 2"	92	30	87.410	6.089	215.832	24'- 10"	6	24'- 6"	3	15	3.056	196.294	3.033	147.196	D					
5	5	4	12"	4'- 3"	0'- 6 3/4"	2'- 2"	0'- 9"	0'- 6"	23'- 0"	2'- 6"	24'- 3"	92	40	90.940	6.267	226.829	24'- 10"	6	24'- 6"	3	18	3.154	206.648	3.113	147.196	F					
5	6	4	12"	4'- 3 3/8"	0'- 6 1/2"	2'- 2 1/4"	0'- 8 5/8"	0'- 5 3/4"	23'- 0"	2'- 6 1/4"	24'- 2"	92	50	94.470	6.497	242.135	24'- 10"	6	24'- 6"	3	21	3.279	217.002	3.219	147.196	H					
5	7	4	12"	4'- 3 3/8"	0'- 6 1/2"	2'- 2 1/4"	0'- 8 5/8"	0'- 5 3/4"	23'- 0"	2'- 6 1/4"	24'- 2"	92	60	98.000	6.702	252.575	24'- 10"	6	24'- 6"	3	24	3.390	227.356	3.311	147.196	J					
6	4	4	10"	4'- 11 3/4"	0'- 8 1/2"	2'- 5"	0'- 11 1/2"	0'- 7 3/4"	27'- 0"	2'- 11 1/2"	28'- 7"	108	30	100.770	6.603	262.804	28'- 10"	6	28'- 6"	3	15	3.307	220.326	3.297	171.228	D					
6	5	4	10"	4'- 11 5/8"	0'- 8 3/4"	2'- 4 3/4"	0'- 11 3/8"	0'- 8"	27'- 0"	2'- 11 1/4"	28'- 8"	108	40	104.300	6.775	274.090	28'- 10"	6	28'- 6"	3	18	3.402	230.680	3.373	171.228	F					
6	6	4	10"	5'- 0"	0'- 8"	2'- 5 1/2"	0'- 10 3/4"	0'- 7 1/4"	27'- 0"	3'- 0"	28'- 6"	108	50	107.830	7.076	283.640	28'- 10"	6	28'- 6"	3	21	3.562	241.034	3.515	171.228	H					
6	7	4	10"	5'- 0"	0'- 8"	2'- 5 1/2"	0'- 10 3/4"	0'- 7 1/4"	27'- 0"	3'- 0"	28'- 6"	108	60	111.360	7.280	303.672	28'- 10"	6	28'- 6"	3	24	3.673	251.388	3.607	171.228	J					
6	8	4	10"	4'- 11 7/8"	0'- 8 1/4"	2'- 5 1/4"	0'- 11 1/8"	0'- 7 1/2"	27'- 0"	2'- 11 3/4"	28'- 6"	108	70	114.890	7.452	324.650	28'- 10"	6	28'- 6"	3	27	3.768	261.742	3.684	171.228	L					
7	4	4	9"	5'- 8 3/4"	0'- 9 3/4"	2'- 8 5/8"	1'- 1 1/4"	0'- 9"	31'- 1 1/8"	3'- 5 3/8"	32'- 10"	124	30	114.130	7.134	313.216	32'- 10"	6	32'- 6"	3	15	3.565	244.358	3.569	195.260	D					
7	6	4	9"	5'- 8 3/4"	0'- 9 3/4"	2'- 8 5/8"	1'- 1 1/4"	0'- 9"	31'- 1 1/8"	3'- 5 3/8"	32'- 10"	124	50	121.190	7.542	365.987	32'- 10"	6	32'- 6"	3	21	3.788	265.066	3.754	195.260	H					
7	8	4	9"	5'- 8 3/4"	0'- 9 3/4"	2'- 8 5/8"	1'- 1 1/4"	0'- 9"	31'- 1 1/8"	3'- 5 3/8"	32'- 10"	124	70	128.250	7.951	403.333	32'- 10"	6	32'- 6"	3	27	4.011	285.774	3.940	195.260	L					
7	10	4	9"	5'- 8 3/4"	0'- 9 3/4"	2'- 8 5/8"	1'- 1 1/4"	0'- 9"	31'- 1 1/8"	3'- 5 3/8"	32'- 10"	124	90	135.310	8.359	459.978	32'- 10"	6	32'- 6"	3	33	4.233	306.482	4.125	195.260	P					
8	4	4	9"	6'- 5 3/8"	0'- 11 1/2"	2'- 11 5/8"	1'- 3 3/4"	0'- 10 3/4"	34'- 11 7/8"	3'- 10 7/8"	37'- 3"	140	30	127.490	7.514	416.231	36'- 10"	6	36'- 6"	3	15	3.749	268.390	3.765	219.292	D					
8	6	4	9"	6'- 5 3/8"	0'- 11 1/2"	2'- 11 5/8"	1'- 3 3/4"	0'- 10 3/4"	34'- 11 7/8"	3'- 10 7/8"	37'- 3"	140	50	134.550	7.922	438.001	36'- 10"	6	36'- 6"	3	21	3.971	289.098	3.951	219.292	H					
8	8	4	9"	6'- 5 1/4"	0'- 11 3/4"	2'- 11 3/8"	1'- 4 1/8"	0'- 11"	34'- 11 1/8"	3'- 10 5/8"	37'- 3"	140	70	141.610	8.323	476.814	36'- 10"	6	36'- 6"	3	27	4.190	309.806	4.133	219.292	M					
8	10	4	9"	6'- 5 3/8"	0'- 11 1/2"	2'- 11 5/8"	1'- 3 3/4"	0'- 10 3/4"	34'- 11 7/8"	3'- 10 7/8"	37'- 3"	140	90	148.670	8.738	534.161	36'- 10"	6	36'- 6"	3	33	4.417	330.514	4.322	219.292	P					
9	4	5	9"	7'- 2"	1'- 1 5/8"	3'- 2 1/2"	1'- 6 5/8"	1'- 3 3/4"	39'- 0"	4'- 4"	41'- 7"	156	30	140.850	7.794	544.856	40'- 10"	6	40'- 6"	3	15	3.882	292.422	3.912	243.324	E					
9	6	5	9"	7'- 2"	1'- 1 5/8"	3'- 2 1/2"	1'- 6 5/8"	1'- 3 3/4"	39'- 0"	4'- 4"	41'- 7"	156	50	147.910	8.202	566.626	40'- 10"	6	40'- 6"	3	21	4.104	313.130	4.097	243.324	I					
9	8	5	9"	7'- 2"	1'- 1 5/8"	3'- 2 1/2"	1'- 6 5/8"	1'- 3 3/4"	39'- 0"	4'- 4"	41'- 7"	156	70	154.970	8.610	610.906	40'- 10"	6	40'- 6"	3	27	4.327	333.838	4.283	243.324	M					
9	10	5	9"	7'- 2"	1'- 1 5/8"	3'- 2 1/2"	1'- 6 5/8"	1'- 3 3/4"	39'- 0"	4'- 4"	41'- 7"	156	90	162.030	9.018	631.448	40'- 10"	6	40'- 6"	3	33	4.550	354.546	4.468	243.324	Q					
9	12	5	9"	7'- 2 1/2"	1'- 1 5/8"	3'- 2 1/2"	1'- 6 5/8"	1'- 3 3/4"	39'- 1"	4'- 4"	41'- 8"	156	110	169.090	9.335	713.655	40'- 10"	6	40'- 6"	3	39	4.727	375.254	4.608	243.324	U					
10	4	6	9"	7'- 10 7/8"	1'- 3 1/4"	3'- 5 3/4"	1'- 8 3/8"	1'- 2 1/4"	43'- 0"	4'- 9 3/4"	45'- 11"	172	30	154.210	8.051	655.664	44'- 10"	6	44'- 6"	3	15	4.004	316.454	4.047	267.356	E					
10	6	5	9"	7'- 10 7/8"	1'- 3 1/8"	3'- 5 3/4"	1'- 8 3/4"	1'- 2 1/4"	43'- 0"	4'- 9 3/4"	45'- 11"	172	50	161.270	8.460	715.010	44'- 10"	6	44'- 6"	3	21	4.227	337.162	4.233	267.356	I					
10	8	6	9"	7'- 10 3/4"	1'- 3 1/2"	3'- 5 1/2"	1'- 9 1/4"	1'- 2 1/2"	43'- 0"	4'- 9 1/2"	45'- 11"	172	70	168.330	8.811	718.045	44'- 10"	6	44'- 6"	3	27	4.421	357.870	4.390	267.356	M					
10	10	6	9"	7'- 10 3/4"	1'- 3 1/2"	3'- 5 1/2"	1'- 9 1/4"	1'- 2 1/2"	43'- 0"	4'- 9 1/2"	45'- 11"	172	90	175.390	9.219	779.808	44'- 10"	6	44'- 6"	3	33	4.643	378.578	4.575	267.356	Q					
10	12	5	9"	7'- 11 1/4"	1'- 3 3/8"	3'- 5 1/2"	1'- 9 5/8"	1'- 2 1/2"	43'- 1"	4'- 9 1/2"	46'- 1"	172	110	182.450	9.534	862.627	44'- 10"	6	44'- 6"	3	39	4.820	399.286	4.714	267.356	U					
12	6	6	8"	9'- 4 1/2"	1'- 6 1/2"	4'- 1 1/8"	2'- 1 1/2"	1'- 5 1/2"	51'- 1 1/8"	5'- 8 7/8"	54'- 7"	204	50	187.990	8.721	935.948	52'- 10"	6	52'- 6"	3	21	4.344	385.226	4.377	315.420	J					
12	8	6	8"	9'- 4 1/2"	1'- 6 1/2"	4'- 1 1/8"	2'- 1 1/2"	1'- 5 1/2"	51'- 1 1/8"	5'- 8 7/8"	54'- 7"	204	70	195.050	9.129	983.064	52'- 10"	6	52'- 6"	3	27	4.567	405.934	4.562	315.420	N					
12	10	6	8"	9'- 4 1/2"	1'- 6 1/2"	4'- 1 1/8"	2'- 1 1/2"	1'- 5 1/2"	51'- 1 1/8"	5'- 8 7/8"	54'- 7"	204	90	202.110	9.537	1,050.040	52'- 10"	6	52'- 6"	3	33	4.789	426.642	4.748	315.420	R					
12	12	6	8"	9'- 5"	1'- 6 1/2"	4'- 1 1/8"	2'- 1 1/2"	1'- 5 1/2"	51'- 1 1/8"	5'- 8 7/8"	54'- 8"	204	110	209.170	9.849	1,114.396	52'- 10"	6	52'- 6"	3	39	4.964	447.350	4.885	315.420	V					

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DIMENSIONS								REINFORCING STEEL																								
SPAN	HGHT	T1	T2	T3	T4							BH1		BH2		BH3		BH4			BV1		BV2									
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	1	1'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	2	2'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	9 1/4"	9 1/4"	8"	8"	17	17'- 0"	17	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	2'- 9 1/4"	4'- 10"	4	12"	4'- 2"	4	12"	4'- 2"
4	4	9 1/4"	9 1/4"	8"	8"	17	17'- 0"	17	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 3 1/4"	5'- 4"	4	12"	5'- 2"	4	12"	5'- 2"
4	5	9 1/4"	9 1/4"	8"	8"	17	17'- 0"	17	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 9 1/4"	5'- 10"	4	12"	6'- 2"	4	12"	6'- 2"
4	6	9 1/4"	9 1/4"	8"	8"	17	17'- 0"	17	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	3	12"	2'- 3 5/8"	4'- 5"	4	12"	2'- 3 5/8"	4'- 3 1/4"	6'- 4"	4	12"	7'- 2"	4	12"	7'- 2"
5	3	10 3/4"	10 3/4"	8"	8"	21	21'- 0"	21	21'- 0"	1	1'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	--	---	----	----	4	11"	2'- 6"	2'- 10 3/4"	5'- 2"	4	12"	4'- 5"	4	12"	4'- 5"
5	4	10 3/4"	10 3/4"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	--	---	----	----	4	11"	2'- 6"	3'- 4 3/4"	5'- 8"	4	12"	5'- 5"	4	12"	5'- 5"
5	5	11"	11"	8"	8"	21	21'- 0"	21	21'- 0"	3	3'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	--	---	----	----	4	11"	2'- 6"	3'- 11"	6'- 2"	4	12"	6'- 6"	4	12"	6'- 6"
5	6	11"	11"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	3	11"	2'- 6"	4'- 10"	4	11"	2'- 6"	4'- 5"	6'- 8"	4	12"	7'- 6"	4	12"	7'- 6"
5	7	11"	11"	8"	8"	21	21'- 0"	21	21'- 0"	5	5'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	4	11"	2'- 6"	4'- 9"	4	11"	2'- 6"	4'- 11"	7'- 2"	4	10 1/2"	8'- 6"	4	12"	8'- 6"
6	4	13"	13"	8"	8"	25	25'- 0"	25	25'- 0"	2	2'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	--	---	----	----	4	9"	2'- 8 3/8"	3'- 7"	6'- 0"	4	12"	5'- 10"	4	12"	5'- 10"
6	5	13"	13"	8"	8"	25	25'- 0"	25	25'- 0"	3	3'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	--	---	----	----	4	9"	2'- 8 3/8"	4'- 1"	6'- 6"	4	12"	6'- 10"	4	12"	6'- 10"
6	6	13"	13"	8"	8"	25	25'- 0"	25	25'- 0"	4	4'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	--	---	----	----	4	9"	2'- 8 3/8"	4'- 7"	7'- 0"	4	12"	7'- 10"	4	12"	7'- 10"
6	7	13"	13"	8"	8"	25	25'- 0"	25	25'- 0"	5	5'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	3	9"	2'- 8 3/8"	5'- 2"	4	9"	2'- 8 3/8"	5'- 1"	7'- 6"	4	10 1/2"	8'- 10"	4	12"	8'- 10"
6	8	13"	13"	8"	8"	25	25'- 0"	25	25'- 0"	6	6'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	--	---	----	----	5	9"	2'- 8 3/8"	5'- 7"	7'- 11"	5	10 1/2"	9'- 10"	4	12"	9'- 10"
7	4	14 1/2"	14 1/2"	8"	8"	29	29'- 0"	29	29'- 0"	2	2'- 0"	5	9"	29'- 2"	5	9"	31'- 0"	--	---	----	----	4	9"	2'- 10 3/4"	3'- 8 1/2"	6'- 4"	4	12"	6'- 1"	4	12"	6'- 1"
7	6	14 1/2"	14 1/2"	8"	8"	29	29'- 0"	29	29'- 0"	4	4'- 0"	5	9"	29'- 2"	5	9"	31'- 0"	--	---	----	----	4	9"	2'- 10 3/4"	4'- 8 1/2"	7'- 4"	4	12"	8'- 1"	4	12"	8'- 1"
7	8	14 1/2"	14 1/2"	8"	8"	29	29'- 0"	29	29'- 0"	6	6'- 0"	5	9"	29'- 2"	5	9"	31'- 0"	3	9"	2'- 10 3/4"	5'- 7"	4	9"	2'- 10 3/4"	5'- 8 1/2"	8'- 4"	4	7"	10'- 1"	4	12"	10'- 1"
7	10	14 3/4"	14 3/4"	8"	8"	29	29'- 0"	29	29'- 0"	8	8'- 0"	4	9"	29'- 2"	5	9"	31'- 0"	3	9"	2'- 10 3/4"	5'- 7"	5	9"	2'- 10 3/4"	6'- 8 3/4"	9'- 4"	6	9 1/2"	12'- 1"	4	12"	12'- 1"
8	4	16 1/2"	16 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	2	2'- 0"	5	8"	32'- 10"	5	8"	35'- 0"	--	---	----	----	4	8"	3'- 1 1/4"	3'- 10 1/2"	6'- 9"	4	12"	6'- 5"	4	11 1/2"	6'- 5"
8	6	16 1/2"	16 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	4	4'- 0"	5	8"	32'- 10"	5	8"	35'- 0"	--	---	----	----	4	8"	3'- 1 1/4"	4'- 10 1/2"	7'- 9"	4	12"	8'- 5"	4	11 1/2"	8'- 5"
8	8	16 1/2"	16 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	6	6'- 0"	5	8"	32'- 10"	5	8"	35'- 0"	3	8"	3'- 1 1/4"	6'- 0"	4	8"	3'- 1 1/4"	5'- 10 1/2"	8'- 9"	5	10 1/2"	10'- 5"	4	11 1/2"	10'- 5"
8	10	16 1/2"	16 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	8	8'- 0"	5	8"	32'- 10"	5	8"	35'- 0"	3	8"	3'- 1 1/4"	6'- 0"	5	8"	3'- 1 1/4"	6'- 10 1/2"	9'- 8"	6	9 1/2"	12'- 5"	4	11 1/2"	12'- 5"
9	4	18 1/2"	18 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	2	2'- 0"	6	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	4	9"	3'- 3 5/8"	4'- 1/2"	7'- 1"	4	12"	6'- 9"	4	10 1/2"	6'- 9"
9	6	18 1/2"	18 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	4	4'- 0"	6	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	4	9"	3'- 3 5/8"	5'- 1/2"	8'- 1"	4	12"	8'- 9"	4	10 1/2"	8'- 9"
9	8	18 1/2"	18 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	6	6'- 0"	6	9"	36'- 5"	5	9"	39'- 0"	3	9"	3'- 3 5/8"	6'- 5"	4	9"	3'- 3 5/8"	6'- 1/2"	9'- 1"	5	10 1/2"	10'- 9"	4	10 1/2"	10'- 9"
9	10	18 1/2"	18 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	8	8'- 0"	6	9"	36'- 5"	5	9"	39'- 0"	--	---	----	----	6	9"	3'- 3 5/8"	7'- 1/2"	9'- 11"	6	9 1/2"	12'- 9"	4	10 1/2"	12'- 9"
9	12	18 3/4"	18 3/4"	9 1/4"	8"	37	37'- 0"	37	37'- 0"	10	10'- 0"	6	9"	36'- 5"	5	9"	39'- 3"	--	---	----	----	7	9"	3'- 4 7/8"	8'- 3/4"	11'- 0"	5	5 1/2"	14'- 9"	4	10 1/2"	14'- 9"
10	4	20 1/2"	20 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	2	2'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	--	---	----	----	4	9"	3'- 6"	4'- 2 1/2"	7'- 5"	4	12"	7'- 1"	4	10"	7'- 1"
10	6	20 1/2"	20 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	4	4'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	--	---	----	----	4	9"	3'- 6"	5'- 2 1/2"	8'- 5"	4	12"	9'- 1"	4	10"	9'- 1"
10	8	20 1/2"	20 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	6	6'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	3	9"	3'- 6"	6'- 10"	4	9"	3'- 6"	6'- 2 1/2"	9'- 5"	4	6 1/2"	11'- 1"	4	10"	11'- 1"
10	10	20 1/2"	20 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	8	8'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	3	9"	3'- 6"	6'- 10"	5	9"	3'- 6"	7'- 2 1/2"	10'- 5"	6	9"	13'- 1"	4	10"	13'- 1"
10	12	20 1/2"	20 1/2"	9 1/4"	8"	41	41'- 0"	41	41'- 0"	10	10'- 0"	6	9"	40'- 0"	6	9"	43'- 3"	3	9"	3'- 7 1/4"	7'- 0"	6	9"	3'- 7 1/4"	8'- 2 1/2"	11'- 5"	7	10 1/2"	15'- 1"	4	10"	15'- 1"
12	6	24 1/4"	24 1/4"	8"	8"	49	49'- 0"	49	49'- 0"	4	4'- 0"	6	8"	47'- 2"	6	8"	51'- 0"	--	---	----	----	4	8"	3'- 10 3/4"	5'- 6 1/4"	9'- 2"	4	12"	9'- 8"	4	10"	9'- 8"
12	8	24 1/4"	24 1/4"	8"	8"	49	49'- 0"	49	49'- 0"	6	6'- 0"	6	8"	47'- 2"	6	8"	51'- 0"	3	8"	3'- 10 3/4"	7'- 7"	4	8"	3'- 10 3/4"	6'- 6 1/4"	10'- 2"	5	9 1/2"	11'- 8"	4	10"	11'- 8"
12	10	24 1/4"	24 1/4"	8"	8"	49	49'- 0"	49	49'- 0"	8	8'- 0"	6	8"	47'- 2"	6	8"	51'- 0"	3	8"	3'- 10 3/4"	7'- 7"	5	8"	3'- 10 3/4"	7'- 6 1/4"	11'- 1"	4	4"	13'- 8"	4	10"	13'- 8"
12	12	24 1/4"	24 1/4"	9 1/4"	8"	49	49'- 0"	49	49'- 0"	10	10'- 0"	6	8"	47'- 2"	6	8"	51'- 3"	4	8"	4'- 0"	7'- 9"	5	8"	4'- 0"	8'- 6 1/4"	12'- 2"	7	10"	15'- 8"	4	10"	15'- 8"

Sheet 1 of 2

For Typical Section, notes and other details, refer to standard BCQ-DT.

QUADRUPLE BOX CULVERTS
30 TO 35 FT. FILLS
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

1005.18

SPAN		HIGHT		REINFORCING STEEL															QUAN./LF		HEADWALLS								WINGWALL	
(FT.)	(FT.)	SIZE	SPACING C-C	BTI											NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS/LONG. JT)	CONCRETE CLASS (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HWI		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)		OUTLET REINFORCING STEEL (LBS)
				a	b	c	d	e	f	g	LENGTH	HEADWALL LENGTH	SIZE	LENGTH																
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	20	57.160	1.284	141.899	16'- 10"	6	16'- 6"	3	12	2.222	137.876	2.191	99.132	A				
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	30	60.690	1.406	152.339	16'- 10"	6	16'- 6"	3	15	2.333	148.230	2.284	99.132	C				
4	3	4	12"	3'- 5 7/8"	0'- 5 3/4"	1'- 10 1/4"	0'- 7 5/8"	0'- 5"	19'- 0"	1'- 11 3/4"	20'- 0"	76	20	70.520	1.628	170.178	20'- 10"	6	20'- 6"	3	12	2.595	161.908	2.577	123.164	B				
4	4	4	12"	3'- 5 7/8"	0'- 5 3/4"	1'- 10 1/4"	0'- 7 5/8"	0'- 5"	19'- 0"	1'- 11 3/4"	20'- 0"	76	30	74.050	1.751	180.618	20'- 10"	6	20'- 6"	3	15	2.706	172.262	2.670	123.164	D				
4	5	4	12"	3'- 5 7/8"	0'- 5 3/4"	1'- 10 1/4"	0'- 7 5/8"	0'- 5"	19'- 0"	1'- 11 3/4"	20'- 0"	76	40	77.580	1.873	191.058	20'- 10"	6	20'- 6"	3	18	2.818	182.616	2.763	123.164	F				
4	6	4	12"	3'- 5 7/8"	0'- 5 3/4"	1'- 10 1/4"	0'- 7 5/8"	0'- 5"	19'- 0"	1'- 11 3/4"	20'- 0"	76	50	81.110	1.996	208.141	20'- 10"	6	20'- 6"	3	21	2.929	192.970	2.856	123.164	H				
5	3	4	11"	4'- 2 3/4"	0'- 7 1/4"	2'- 1 1/2"	0'- 9 3/4"	0'- 6 1/2"	23'- 0"	2'- 5 1/2"	24'- 4"	92	20	83.880	2.070	208.689	24'- 10"	6	24'- 6"	3	12	2.905	185.940	2.901	147.196	B				
5	4	4	11"	4'- 2 3/4"	0'- 7 1/4"	2'- 1 1/2"	0'- 9 3/4"	0'- 6 1/2"	23'- 0"	2'- 5 1/2"	24'- 4"	92	30	87.410	2.192	219.251	24'- 10"	6	24'- 6"	3	15	3.017	196.294	2.994	147.196	D				
5	5	4	11"	4'- 2 3/8"	0'- 7 1/2"	2'- 1 1/4"	0'- 10 1/8"	0'- 6 3/4"	23'- 0"	2'- 5 1/4"	24'- 5"	92	40	90.940	2.351	230.379	24'- 10"	6	24'- 6"	3	18	3.115	206.648	3.073	147.196	F				
5	6	4	11"	4'- 2 3/8"	0'- 7 1/2"	2'- 1 1/4"	0'- 10 1/8"	0'- 6 3/4"	23'- 0"	2'- 5 1/4"	24'- 5"	92	50	94.470	2.473	248.871	24'- 10"	6	24'- 6"	3	21	3.226	217.002	3.166	147.196	H				
5	7	4	11"	4'- 2 5/8"	0'- 7 1/2"	2'- 1 1/4"	0'- 10 1/8"	0'- 6 3/4"	23'- 0"	2'- 5 1/4"	24'- 5"	92	60	98.000	2.595	266.970	24'- 10"	6	24'- 6"	3	24	3.338	227.356	3.259	147.196	J				
6	4	4	9"	4'- 11 1/4"	0'- 9 1/2"	2'- 4"	1'- 7/8"	0'- 8 3/4"	27'- 0"	2'- 10 1/2"	28'- 9"	108	30	100.770	2.833	280.855	28'- 10"	6	28'- 6"	3	15	3.242	220.326	3.232	171.228	D				
6	5	4	9"	4'- 11 1/4"	0'- 9 1/2"	2'- 4"	1'- 7/8"	0'- 8 3/4"	27'- 0"	2'- 10 1/2"	28'- 9"	108	40	104.300	2.955	291.740	28'- 10"	6	28'- 6"	3	18	3.353	230.680	3.325	171.228	F				
6	6	4	9"	4'- 11 1/4"	0'- 9 1/2"	2'- 4"	1'- 7/8"	0'- 8 3/4"	27'- 0"	2'- 10 1/2"	28'- 9"	108	50	107.830	3.078	302.626	28'- 10"	6	28'- 6"	3	21	3.464	241.034	3.417	171.228	H				
6	7	4	9"	4'- 11 1/4"	0'- 9 1/2"	2'- 4"	1'- 7/8"	0'- 8 3/4"	27'- 0"	2'- 10 1/2"	28'- 9"	108	60	111.360	3.200	325.558	28'- 10"	6	28'- 6"	3	24	3.576	251.388	3.510	171.228	J				
6	8	4	9"	4'- 11 1/4"	0'- 9 1/2"	2'- 4"	1'- 7/8"	0'- 8 3/4"	27'- 0"	2'- 10 1/2"	28'- 9"	108	70	114.890	3.321	350.238	28'- 10"	6	28'- 6"	3	27	3.687	261.742	3.603	171.228	L				
7	4	4	9"	5'- 8 5/8"	0'- 11"	2'- 7 3/8"	1'- 3"	0'- 10 1/4"	31'- 1 1/8"	3'- 4 1/8"	33'- 1"	124	30	114.130	3.437	375.461	32'- 10"	6	32'- 6"	3	15	3.469	244.358	3.473	195.260	D				
7	6	4	9"	5'- 8 5/8"	0'- 11"	2'- 7 3/8"	1'- 3"	0'- 10 1/4"	31'- 1 1/8"	3'- 4 1/8"	33'- 1"	124	50	121.190	3.682	397.232	32'- 10"	6	32'- 6"	3	21	3.692	265.066	3.658	195.260	H				
7	8	4	9"	5'- 8 5/8"	0'- 11"	2'- 7 3/8"	1'- 3"	0'- 10 1/4"	31'- 1 1/8"	3'- 4 1/8"	33'- 1"	124	70	128.250	3.926	439.821	32'- 10"	6	32'- 6"	3	27	3.914	285.774	3.843	195.260	L				
7	10	4	9"	5'- 8"	0'- 11 1/4"	2'- 7 1/8"	1'- 3 3/8"	0'- 10 1/2"	31'- 1 1/8"	3'- 3 3/8"	33'- 2"	124	90	135.310	4.218	471.325	32'- 10"	6	32'- 6"	3	33	4.118	306.482	4.010	195.260	P				
8	4	4	8"	6'- 4 5/8"	1'- 1"	2'- 10 1/8"	1'- 5 7/8"	1'- 1/4"	34'- 11 7/8"	3'- 9 3/8"	37'- 6"	140	30	127.490	4.225	454.663	36'- 10"	6	36'- 6"	3	15	3.633	268.390	3.650	219.292	E				
8	6	4	8"	6'- 4 5/8"	1'- 1"	2'- 10 1/8"	1'- 5 7/8"	1'- 1/4"	34'- 11 7/8"	3'- 9 3/8"	37'- 6"	140	50	134.550	4.470	477.228	36'- 10"	6	36'- 6"	3	21	3.856	289.098	3.835	219.292	I				
8	8	4	8"	6'- 4 5/8"	1'- 1"	2'- 10 1/8"	1'- 5 7/8"	1'- 1/4"	34'- 11 7/8"	3'- 9 3/8"	37'- 6"	140	70	141.610	4.713	524.245	36'- 10"	6	36'- 6"	3	27	4.078	309.806	4.021	219.292	M				
8	10	4	8"	6'- 4 5/8"	1'- 1"	2'- 10 1/8"	1'- 5 7/8"	1'- 1/4"	34'- 11 7/8"	3'- 9 3/8"	37'- 6"	140	90	148.670	4.956	587.836	36'- 10"	6	36'- 6"	3	33	4.301	330.514	4.206	219.292	Q				
9	4	5	9"	7'- 1 1/4"	1'- 3 3/8"	3'- 1"	1'- 8 3/4"	1'- 2 1/4"	39'- 0"	4'- 2 1/2"	41'- 11"	156	30	140.850	5.111	551.493	40'- 10"	6	40'- 6"	3	15	3.729	292.422	3.759	243.324	E				
9	6	5	9"	7'- 1 1/4"	1'- 3 3/8"	3'- 1"	1'- 8 3/4"	1'- 2 1/4"	39'- 0"	4'- 2 1/2"	41'- 11"	156	50	147.910	5.356	574.978	40'- 10"	6	40'- 6"	3	21	3.952	313.130	3.945	243.324	I				
9	8	5	9"	7'- 1 1/4"	1'- 3 3/8"	3'- 1"	1'- 8 3/4"	1'- 2 1/4"	39'- 0"	4'- 2 1/2"	41'- 11"	156	70	154.970	5.599	621.543	40'- 10"	6	40'- 6"	3	27	4.174	333.838	4.130	243.324	M				
9	10	5	9"	7'- 1 1/4"	1'- 3 3/8"	3'- 1"	1'- 8 3/4"	1'- 2 1/4"	39'- 0"	4'- 2 1/2"	41'- 11"	156	90	162.030	5.840	695.187	40'- 10"	6	40'- 6"	3	33	4.397	354.546	4.315	243.324	Q				
9	12	5	9"	7'- 2 3/8"	1'- 3 3/8"	3'- 3/4"	1'- 9 1/8"	1'- 2 1/2"	39'- 2 1/2"	4'- 2 1/4"	42'- 2"	156	110	169.090	6.259	772.485	40'- 10"	6	40'- 6"	3	39	4.478	375.254	4.359	243.324	U				
10	4	6	9"	7'- 9 7/8"	1'- 5 1/4"	3'- 3 3/4"	1'- 11 3/4"	1'- 4 1/4"	43'- 0"	4'- 7 3/4"	46'- 4"	172	30	154.210	6.090	714.154	44'- 10"	6	44'- 6"	3	15	3.776	316.454	3.819	267.356	E				
10	6	6	9"	7'- 9 7/8"	1'- 5 1/4"	3'- 3 3/4"	1'- 11 3/4"	1'- 4 1/4"	43'- 0"	4'- 7 3/4"	46'- 4"	172	50	161.270	6.335	737.527	44'- 10"	6	44'- 6"	3	21	3.998	337.162	4.005	267.356	I				
10	8	6	9"	7'- 9 7/8"	1'- 5 1/4"	3'- 3 3/4"	1'- 11 3/4"	1'- 4 1/4"	43'- 0"	4'- 7 3/4"	46'- 4"	172	70	168.330	6.578	787.134	44'- 10"	6	44'- 6"	3	27	4.221	357.870	4.190	267.356	M				
10	10	6	9"	7'- 9 7/8"	1'- 5 1/4"	3'- 3 3/4"	1'- 11 3/4"	1'- 4 1/4"	43'- 0"	4'- 7 3/4"	46'- 4"	172	90	175.390	6.820	853.735	44'- 10"	6	44'- 6"	3	33	4.444	378.578	4.375	267.356	Q				
10	12	6	9"	7'- 11 1/8"	1'- 5 1/4"	3'- 3 3/4"	1'- 11 3/4"	1'- 4 1/4"	43'- 2 1/2"	4'- 7 3/4"	46'- 6"	172	110	182.450	7.181	924.455	44'- 10"	6	44'- 6"	3	39	4.548	399.286	4.442	267.356	U				
12	6	6	8"	9'- 3 3/4"	1'- 9"	3'- 9 5/8"	2'- 5"	1'- 8"	51'- 1 1/8"	5'- 6 3/8"	55'- 1"	204	50	187.990	8.520	941.764	52'- 10"	6	52'- 6"	3	21	3.997	385.226	4.030	315.420	J				
12	8	6	8"	9'- 3 3/4"	1'- 9"	3'- 9 5/8"	2'- 5"	1'- 8"	51'- 1 1/8"	5'- 6 3/8"	55'- 1"	204	70	195.050	8.763	997.846	52'- 10"	6	52'- 6"	3	27	4.219	405.934	4.215	315.420	N				
12	10	6	8"	9'- 3 3/4"	1'- 9"	3'- 9 5/8"	2'- 5"	1'- 8"	51'- 1 1/8"	5'- 6 3/8"	55'- 1"	204	90	202.110	9.005	1,067.631	52'- 10"	6	52'- 6"	3	33	4.442	426.642	4.400	315.420	R				
12	12	6	8"	9'- 4 1/2"	1'- 9"	3'- 9 5/8"	2'- 5"	1'- 8"	51'- 2 5/8"	5'- 6 3/8"	55'- 4"	204	110	209.170	9.371	1,129.835	52'- 10"	6	52'- 6"	3	39	4.542	447.350	4.462	315.420	V				

BCQ-40

DIMENSIONS										REINFORCING STEEL																									
SPAN	HGHT	T1	T2	T3	T4						BH1				BH2				BH3				BH4				BV1				BV2				
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	1	1'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	4	12"	2'- 1 1/4"	3'- 11"	4	12"	2'- 1 1/4"	2'- 8"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8"	8"	8"	8"	13	13'- 0"	13	13'- 0"	2	2'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	3	12"	2'- 1 1/4"	4'- 0"	4	12"	2'- 1 1/4"	3'- 2"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	10"	10"	8"	8"	17	17'- 0"	17	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	--	----	----	4	12"	2'- 3 5/8"	2'- 10"	4'- 10"	4	12"	4'- 4"	4	12"	4'- 4"	4	12"	4'- 4"
4	4	9 3/4"	9 3/4"	8"	8"	17	17'- 0"	17	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	--	----	----	4	12"	2'- 3 5/8"	3'- 3 3/4"	5'- 4"	4	12"	5'- 3"	4	12"	5'- 3"	4	12"	5'- 3"
4	5	9 3/4"	9 3/4"	8"	8"	17	17'- 0"	17	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	--	----	----	4	12"	2'- 3 5/8"	3'- 9 3/4"	5'- 10"	4	12"	6'- 3"	4	12"	6'- 3"	4	12"	6'- 3"
4	6	9 3/4"	9 3/4"	8"	8"	17	17'- 0"	17	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	4'- 3 3/4"	6'- 4"	4	12"	7'- 3"	4	12"	7'- 3"	4	12"	7'- 3"
5	3	12"	12"	8"	8"	21	21'- 0"	21	21'- 0"	1	1'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	--	--	----	----	4	11"	2'- 6"	3'- 0"	5'- 3"	4	12"	4'- 8"	4	12"	4'- 8"	4	12"	4'- 8"
5	4	12"	12"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	--	--	----	----	4	11"	2'- 6"	3'- 6"	5'- 9"	4	12"	5'- 8"	4	12"	5'- 8"	4	12"	5'- 8"
5	5	11 3/4"	11 3/4"	8"	8"	21	21'- 0"	21	21'- 0"	3	3'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	--	--	----	----	4	11"	2'- 6"	3'- 11 3/4"	6'- 3"	4	12"	6'- 8"	4	12"	6'- 8"	4	12"	6'- 8"
5	6	11 3/4"	11 3/4"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	3	11"	2'- 6"	4'- 10"	4	11"	2'- 6"	4'- 5 3/4"	6'- 9"	4	12"	7'- 8"	4	12"	7'- 8"	4	12"	7'- 8"
5	7	11 3/4"	11 3/4"	8"	8"	21	21'- 0"	21	21'- 0"	5	5'- 0"	4	11"	22'- 0"	4	11"	23'- 0"	4	11"	2'- 6"	4'- 9"	4	11"	2'- 6"	4'- 11 3/4"	7'- 3"	4	8 1/2"	8'- 8"	4	12"	8'- 8"	4	12"	8'- 8"
6	4	13 3/4"	13 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	2	2'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	--	--	----	----	4	9"	2'- 8 3/8"	3'- 7 3/4"	6'- 1"	4	12"	6'- 0"	4	12"	6'- 0"	4	12"	6'- 0"
6	5	13 3/4"	13 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	3	3'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	--	--	----	----	4	9"	2'- 8 3/8"	4'- 1 3/4"	6'- 7"	4	12"	7'- 0"	4	12"	7'- 0"	4	12"	7'- 0"
6	6	13 3/4"	13 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	4	4'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	--	--	----	----	4	9"	2'- 8 3/8"	4'- 7 3/4"	7'- 1"	4	12"	8'- 0"	4	12"	8'- 0"	4	12"	8'- 0"
6	7	14"	14"	8"	8"	25	25'- 0"	25	25'- 0"	5	5'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	3	9"	2'- 8 3/8"	5'- 2"	4	9"	2'- 8 3/8"	5'- 2"	7'- 7"	4	8 1/2"	9'- 0"	4	12"	9'- 0"	4	12"	9'- 0"
6	8	14"	14"	8"	8"	25	25'- 0"	25	25'- 0"	6	6'- 0"	4	9"	25'- 7"	4	9"	27'- 0"	--	--	----	----	5	9"	2'- 8 3/8"	5'- 8"	8'- 0"	4	6"	10'- 0"	4	12"	10'- 0"	4	12"	10'- 0"
7	4	15 3/4"	15 3/4"	8"	8"	29	29'- 0"	29	29'- 0"	2	2'- 0"	5	9"	29'- 2"	5	9"	31'- 0"	--	--	----	----	4	9"	2'- 10 3/4"	3'- 9 3/4"	6'- 5"	4	12"	6'- 3"	4	11 1/2"	6'- 3"	4	11 1/2"	6'- 3"
7	6	15 3/4"	15 3/4"	8"	8"	29	29'- 0"	29	29'- 0"	4	4'- 0"	5	9"	29'- 2"	5	9"	31'- 0"	--	--	----	----	4	9"	2'- 10 3/4"	4'- 9 3/4"	7'- 5"	4	12"	8'- 3"	4	11 1/2"	8'- 3"	4	11 1/2"	8'- 3"
7	8	15 3/4"	15 3/4"	8"	8"	29	29'- 0"	29	29'- 0"	6	6'- 0"	5	9"	29'- 2"	5	9"	31'- 0"	3	9"	2'- 10 3/4"	5'- 7"	4	9"	2'- 10 3/4"	5'- 9 3/4"	8'- 5"	4	6"	10'- 3"	4	11 1/2"	10'- 3"	4	11 1/2"	10'- 3"
7	10	15 3/4"	15 3/4"	8 1/2"	8"	29	29'- 0"	29	29'- 0"	8	8'- 0"	5	9"	29'- 2"	5	9"	31'- 1"	3	9"	2'- 11 1/4"	5'- 8"	5	9"	2'- 11 1/4"	6'- 9 3/4"	9'- 5"	5	6 1/2"	12'- 3"	4	12"	12'- 3"	4	12"	12'- 3"
8	4	17 3/4"	17 3/4"	8"	8"	33	33'- 0"	33	33'- 0"	2	2'- 0"	5	9"	32'- 10"	5	9"	35'- 0"	--	--	----	----	4	9"	3'- 1 1/4"	3'- 11 3/4"	6'- 10"	4	12"	6'- 7"	4	10 1/2"	6'- 7"	4	10 1/2"	6'- 7"
8	6	17 3/4"	17 3/4"	8"	8"	33	33'- 0"	33	33'- 0"	4	4'- 0"	5	8"	32'- 10"	5	8"	35'- 0"	--	--	----	----	4	8"	3'- 1 1/4"	4'- 11 3/4"	7'- 10"	4	12"	8'- 7"	4	10 1/2"	8'- 7"	4	10 1/2"	8'- 7"
8	8	17 3/4"	17 3/4"	8"	8"	33	33'- 0"	33	33'- 0"	6	6'- 0"	5	8"	32'- 10"	5	8"	35'- 0"	3	8"	3'- 1 1/4"	6'- 0"	4	8"	3'- 1 1/4"	5'- 11 3/4"	8'- 10"	4	6"	10'- 7"	4	10 1/2"	10'- 7"	4	10 1/2"	10'- 7"
8	10	17 3/4"	17 3/4"	8 1/2"	8"	33	33'- 0"	33	33'- 0"	8	8'- 0"	5	8"	32'- 10"	5	8"	35'- 1"	3	8"	3'- 1 3/4"	6'- 1"	5	8"	3'- 1 3/4"	6'- 11 3/4"	9'- 10"	6	9"	12'- 7"	4	10 1/2"	12'- 7"	4	10 1/2"	12'- 7"
9	4	20"	20"	8"	8"	37	37'- 0"	37	37'- 0"	2	2'- 0"	6	9"	36'- 5"	6	9"	39'- 0"	--	--	----	----	4	9"	3'- 3 5/8"	4'- 2"	7'- 2"	4	12"	7'- 0"	4	10"	7'- 0"	4	10"	7'- 0"
9	6	20"	20"	8"	8"	37	37'- 0"	37	37'- 0"	4	4'- 0"	6	9"	36'- 5"	6	9"	39'- 0"	--	--	----	----	4	9"	3'- 3 5/8"	5'- 2"	8'- 2"	4	12"	9'- 0"	4	10"	9'- 0"	4	10"	9'- 0"
9	8	20"	20"	8"	8"	37	37'- 0"	37	37'- 0"	6	6'- 0"	6	9"	36'- 5"	6	9"	39'- 0"	--	--	----	----	5	9"	3'- 3 5/8"	6'- 2"	9'- 2"	4	6"	11'- 0"	4	10"	11'- 0"	4	10"	11'- 0"
9	10	20"	20"	8 1/2"	8"	37	37'- 0"	37	37'- 0"	8	8'- 0"	6	9"	36'- 5"	6	9"	39'- 1"	--	--	----	----	6	9"	3'- 4 1/8"	7'- 2"	10'- 1"	6	9"	13'- 0"	4	10"	13'- 0"	4	10"	13'- 0"
9	12	20"	20"	10"	8"	37	37'- 0"	37	37'- 0"	10	10'- 0"	6	9"	36'- 5"	6	9"	39'- 4"	3	9"	3'- 5 5/8"	6'- 9"	6	9"	3'- 5 5/8"	8'- 2"	11'- 3"	7	10 1/2"	15'- 0"	4	10"	15'- 0"	4	10"	15'- 0"
10	4	22 1/2"	22 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	2	2'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	--	--	----	----	4	9"	3'- 6"	4'- 4 1/2"	7'- 7"	4	12"	7'- 5"	4	10"	7'- 5"	4	10"	7'- 5"
10	6	22 1/2"	22 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	4	4'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	--	--	----	----	4	9"	3'- 6"	5'- 4 1/2"	8'- 7"	4	12"	9'- 5"	4	10"	9'- 5"	4	10"	9'- 5"
10	8	22 1/2"	22 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	6	6'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	3	9"	3'- 6"	6'- 10"	4	9"	3'- 6"	6'- 4 1/2"	9'- 7"	5	9"	11'- 5"	4	10"	11'- 5"	4	10"	11'- 5"
10	10	22 1/2"	22 1/2"	8 1/2"	8"	41	41'- 0"	41	41'- 0"	8	8'- 0"	7	9"	40'- 0"	6	9"	43'- 1"	--	--	----	----	6	9"	3'- 6 1/2"	7'- 4 1/2"	10'- 6"	5	6"	13'- 5"	4	10"	13'- 5"	4	10"	13'- 5"
10	12	22 1/2"	22 1/2"	10"	8"	41	41'- 0"	41	41'- 0"	10	10'- 0"	6	9"	40'- 0"	6	9"	43'- 4"	3	9"	3'- 8"	7'- 2"	6	9"	3'- 8"	8'- 4 1/2"	11'- 8"	6	7 1/2"	15'- 5"	4	10"	15'- 5"	4	10"	15'- 5"
12	6	26 1/2"	26 1/2"	8"	8"	49	49'- 0"	49	49'- 0"	4	4'- 0"	6	8"	47'- 2"	6	8"	51'- 0"	--	--	----	----	4	8"	3'- 10 3/4"	5'- 8 1/2"	9'- 4"	4	11"	10'- 1"	4	9"	10'- 1"	4	9"	10'- 1"
12	8	26 1/2"	26 1/2"	8"	8"	49	49'- 0"	49	49'- 0"	6	6'- 0"	6	8"	47'- 2"	6	8"	51'- 0"	--	--	----	----	4	8"	3'- 10 3/4"	6'- 8 1/2"	10'- 4"	4	5 1/2"	12'- 1"	4	9"	12'- 1"	4	9"	12'- 1"
12	10	26 1/4"	26 1/4"	8 1/2"	8"	49	49'- 0"	49	49'- 0"	8	8'- 0"	6	8"	47'- 2"	6	8"	51'- 1"	3	8"	3'- 11 1/4"	7'- 8"	5	8"	3'- 11 1/4"	7'- 8 1/4"	11'- 4"	6	8"	14'- 0"	4	9"	14'- 0"	4	9"	14'- 0"
12	12	26 1/2"	26 1/2"	10"	8"	49	49'- 0"	49	49'- 0"	10	10'- 0"	6	8"	47'- 2"	6	8"	51'- 4"	4	8"	4'- 3/4"	7'- 10"	5	8"	4'- 3/4"	8'- 8 1/2"	12'- 5"	5	5"	16'- 1"	4	9"	16'- 1"	4	9"	16'- 1"

QUADRUPLE BOX CULVERTS
35 TO 40 FT. FILLS
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

SPAN		HIGHT		REINFORCING STEEL															QUAN./LF		HEADWALLS								WINGWALL	
(FT.)	(FT.)	SIZE	SPACING C-C	BTI											NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS/LONG. JT)	CONCRETE CLASS (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HWI		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)		OUTLET REINFORCING STEEL (LBS)
				a	b	c	d	e	f	g	LENGTH	HEADWALL LENGTH	SIZE	LENGTH																
3	3	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	20	57.160	1.283	152.365	16'- 10"	6	16'- 6"	3	12	2.222	137.876	2.191	99.132	A				
3	4	4	12"	2'- 8 7/8"	0'- 4 1/2"	1'- 6 5/8"	0'- 5 7/8"	0'- 3 3/4"	14'- 11 7/8"	1'- 5 7/8"	15'- 9"	60	30	60.690	1.406	158.355	16'- 10"	6	16'- 6"	3	15	2.333	148.230	2.284	99.132	C				
4	3	4	12"	3'- 5 1/2"	0'- 6 1/2"	1'- 9 1/2"	0'- 8 5/8"	0'- 5 3/4"	19'- 0"	1'- 11"	20'- 2"	76	20	70.520	1.718	171.291	20'- 10"	6	20'- 6"	3	12	2.565	161.908	2.547	123.164	B				
4	4	4	12"	3'- 5 5/8"	0'- 6 1/4"	1'- 9 3/4"	0'- 8 3/8"	0'- 5 1/2"	19'- 0"	1'- 11 1/4"	20'- 2"	76	30	74.050	1.810	181.286	20'- 10"	6	20'- 6"	3	15	2.686	172.262	2.650	123.164	D				
4	5	4	12"	3'- 5 5/8"	0'- 6 1/4"	1'- 9 3/4"	0'- 8 3/8"	0'- 5 1/2"	19'- 0"	1'- 11 1/4"	20'- 2"	76	40	77.580	1.933	191.726	20'- 10"	6	20'- 6"	3	18	2.798	182.616	2.743	123.164	F				
4	6	4	12"	3'- 5 5/8"	0'- 6 1/4"	1'- 9 3/4"	0'- 8 3/8"	0'- 5 1/2"	19'- 0"	1'- 11 1/4"	20'- 2"	76	50	81.110	2.055	213.745	20'- 10"	6	20'- 6"	3	21	2.909	192.970	2.835	123.164	H				
5	3	4	11"	4'- 2 1/8"	0'- 8 1/2"	2'- 1/4"	0'- 11 1/2"	0'- 7 3/4"	23'- 0"	2'- 4 1/4"	24'- 7"	92	20	83.880	2.250	210.632	24'- 10"	6	24'- 6"	3	12	2.840	185.940	2.836	147.196	B				
5	4	4	11"	4'- 2 1/8"	0'- 8 1/2"	2'- 1/4"	0'- 11 1/2"	0'- 7 3/4"	23'- 0"	2'- 4 1/4"	24'- 7"	92	30	87.410	2.372	221.194	24'- 10"	6	24'- 6"	3	15	2.951	196.294	2.928	147.196	D				
5	5	4	11"	4'- 2 1/4"	0'- 8 1/4"	2'- 1/2"	0'- 11 1/8"	0'- 7 1/2"	23'- 0"	2'- 4 1/2"	24'- 6"	92	40	90.940	2.459	231.634	24'- 10"	6	24'- 6"	3	18	3.076	206.648	3.034	147.196	F				
5	6	4	11"	4'- 2 1/4"	0'- 8 1/4"	2'- 1/2"	0'- 11 1/8"	0'- 7 1/2"	23'- 0"	2'- 4 1/2"	24'- 6"	92	50	94.470	2.581	250.126	24'- 10"	6	24'- 6"	3	21	3.187	217.002	3.127	147.196	H				
5	7	4	11"	4'- 2 1/4"	0'- 8 1/4"	2'- 1/2"	0'- 11 1/8"	0'- 7 1/2"	23'- 0"	2'- 4 1/2"	24'- 6"	92	60	98.000	2.703	271.370	24'- 10"	6	24'- 6"	3	24	3.298	227.356	3.220	147.196	J				
6	4	4	9"	4'- 10 7/8"	0'- 10 1/4"	2'- 3 1/4"	1'- 2"	0'- 9 1/2"	27'- 0"	2'- 9 3/4"	29'- 0"	108	30	100.770	2.959	282.488	28'- 10"	6	28'- 6"	3	15	3.193	220.326	3.183	171.228	D				
6	5	4	9"	4'- 10 7/8"	0'- 10 1/4"	2'- 3 1/4"	1'- 2"	0'- 9 1/2"	27'- 0"	2'- 9 3/4"	29'- 0"	108	40	104.300	3.082	293.373	28'- 10"	6	28'- 6"	3	18	3.304	230.680	3.276	171.228	F				
6	6	4	9"	4'- 10 7/8"	0'- 10 1/4"	2'- 3 1/4"	1'- 2"	0'- 9 1/2"	27'- 0"	2'- 9 3/4"	29'- 0"	108	50	107.830	3.204	304.259	28'- 10"	6	28'- 6"	3	21	3.416	241.034	3.369	171.228	H				
6	7	4	9"	4'- 10 3/4"	0'- 10 1/2"	2'- 3"	1'- 2 3/8"	0'- 9 3/4"	27'- 0"	2'- 9 1/2"	29'- 0"	108	60	111.360	3.368	330.456	28'- 10"	6	28'- 6"	3	24	3.511	251.388	3.445	171.228	J				
6	8	4	9"	4'- 10 3/4"	0'- 10 1/2"	2'- 3"	1'- 2 3/8"	0'- 9 3/4"	27'- 0"	2'- 9 1/2"	29'- 0"	108	70	114.890	3.490	355.092	28'- 10"	6	28'- 6"	3	27	3.622	261.742	3.538	171.228	L				
7	4	4	9"	5'- 7 1/2"	1'- 1/4"	2'- 6 1/8"	1'- 4 3/4"	0'- 11 1/2"	31'- 1/8"	3'- 2 7/8"	33'- 4"	124	30	114.130	3.678	378.183	32'- 10"	6	32'- 6"	3	15	3.391	244.358	3.395	195.260	E				
7	6	4	9"	5'- 7 1/2"	1'- 1/4"	2'- 6 1/8"	1'- 4 3/4"	0'- 11 1/2"	31'- 1/8"	3'- 2 7/8"	33'- 4"	124	50	121.190	3.923	400.302	32'- 10"	6	32'- 6"	3	21	3.614	265.066	3.580	195.260	I				
7	8	4	9"	5'- 7 1/2"	1'- 1/4"	2'- 6 1/8"	1'- 4 3/4"	0'- 11 1/2"	31'- 1/8"	3'- 2 7/8"	33'- 4"	124	70	128.250	4.167	447.312	32'- 10"	6	32'- 6"	3	27	3.836	285.774	3.766	195.260	M				
7	10	4	9"	5'- 8"	1'- 1/4"	2'- 6 1/8"	1'- 4 3/4"	0'- 11 1/2"	31'- 1/8"	3'- 2 7/8"	33'- 5"	124	90	135.310	4.448	503.793	32'- 10"	6	32'- 6"	3	33	4.020	306.482	3.912	195.260	Q				
8	4	5	9"	6'- 4"	1'- 2 3/8"	2'- 8 3/8"	1'- 7 3/4"	1'- 1 1/2"	34'- 11 7/8"	3'- 8 1/8"	37'- 9"	140	30	127.490	4.497	461.758	36'- 10"	6	36'- 6"	3	15	3.521	268.390	3.538	219.292	E				
8	6	5	8"	6'- 4"	1'- 2 3/8"	2'- 8 3/8"	1'- 7 3/4"	1'- 1 1/2"	34'- 11 7/8"	3'- 8 1/8"	37'- 9"	140	50	134.550	4.739	524.870	36'- 10"	6	36'- 6"	3	21	3.744	289.098	3.723	219.292	I				
8	8	5	8"	6'- 4"	1'- 2 3/8"	2'- 8 3/8"	1'- 7 3/4"	1'- 1 1/2"	34'- 11 7/8"	3'- 8 1/8"	37'- 9"	140	70	141.610	4.982	575.907	36'- 10"	6	36'- 6"	3	27	3.966	309.806	3.909	219.292	M				
8	10	4	8"	6'- 4 1/2"	1'- 2 1/4"	2'- 8 3/8"	1'- 7 5/8"	1'- 1 1/2"	35'- 1/8"	3'- 8 1/8"	37'- 10"	140	90	148.670	5.267	598.990	36'- 10"	6	36'- 6"	3	33	4.149	330.514	4.054	219.292	Q				
9	4	5	9"	7'- 1/2"	1'- 4 5/8"	2'- 11 1/2"	1'- 10 7/8"	1'- 3 3/4"	39'- 0"	4'- 1"	42'- 3"	156	30	140.850	5.471	603.620	40'- 10"	6	40'- 6"	3	15	3.576	292.422	3.606	243.324	E				
9	6	5	9"	7'- 1/2"	1'- 4 5/8"	2'- 11 1/2"	1'- 10 7/8"	1'- 3 3/4"	39'- 0"	4'- 1"	42'- 3"	156	50	147.910	5.716	626.994	40'- 10"	6	40'- 6"	3	21	3.799	313.130	3.792	243.324	I				
9	8	5	9"	7'- 1/2"	1'- 4 5/8"	2'- 11 1/2"	1'- 10 7/8"	1'- 3 3/4"	39'- 0"	4'- 1"	42'- 3"	156	70	154.970	5.959	683.397	40'- 10"	6	40'- 6"	3	27	4.022	333.838	3.977	243.324	M				
9	10	5	9"	7'- 1"	1'- 4 5/8"	2'- 11 1/2"	1'- 10 7/8"	1'- 3 3/4"	39'- 1"	4'- 1"	42'- 4"	156	90	162.030	6.241	753.562	40'- 10"	6	40'- 6"	3	33	4.203	354.546	4.122	243.324	Q				
9	12	5	9"	7'- 2 1/2"	1'- 4 5/8"	2'- 11 1/2"	1'- 10 7/8"	1'- 3 3/4"	39'- 4"	4'- 1"	42'- 7"	156	110	169.090	6.632	813.290	40'- 10"	6	40'- 6"	3	39	4.279	375.254	4.159	243.324	U				
10	4	6	9"	7'- 8 7/8"	1'- 7 1/4"	3'- 1 3/4"	2'- 2 1/2"	1'- 6 1/4"	43'- 0"	4'- 5 3/4"	46'- 8"	172	30	154.210	6.625	718.131	44'- 10"	6	44'- 6"	3	15	3.566	316.454	3.609	267.356	F				
10	6	6	9"	7'- 8 7/8"	1'- 7 1/4"	3'- 1 3/4"	2'- 2 1/2"	1'- 6 1/4"	43'- 0"	4'- 5 3/4"	46'- 8"	172	50	161.270	6.870	741.505	44'- 10"	6	44'- 6"	3	21	3.788	337.162	3.795	267.356	J				
10	8	6	9"	7'- 8 7/8"	1'- 7 1/4"	3'- 1 3/4"	2'- 2 1/2"	1'- 6 1/4"	43'- 0"	4'- 5 3/4"	46'- 8"	172	70	168.330	7.113	795.083	44'- 10"	6	44'- 6"	3	27	4.011	357.870	3.980	267.356	N				
10	10	6	9"	7'- 9 3/8"	1'- 7 1/4"	3'- 1 3/4"	2'- 2 1/2"	1'- 6 1/4"	43'- 1"	4'- 5 3/4"	46'- 9"	172	90	175.390	7.392	931.190	44'- 10"	6	44'- 6"	3	33	4.192	378.578	4.123	267.356	R				
10	12	6	9"	7'- 10 7/8"	1'- 7 1/4"	3'- 1 3/4"	2'- 2 1/2"	1'- 6 1/4"	43'- 4"	4'- 5 3/4"	47'- 0"	172	110	182.450	7.790	934.360	44'- 10"	6	44'- 6"	3	39	4.264	399.286	4.157	267.356	V				
12	6	6	8"	9'- 2 1/8"	1'- 11 1/4"	3'- 7 3/8"	2'- 8 1/8"	1'- 10 1/4"	51'- 1/8"	5'- 4 1/8"	55'- 6"	204	50	187.990	9.232	953.483	52'- 10"	6	52'- 6"	3	21	3.684	385.226	3.717	315.420	J				
12	8	6	8"	9'- 2 1/8"	1'- 11 1/4"	3'- 7 3/8"	2'- 8 1/8"	1'- 10 1/4"	51'- 1/8"	5'- 4 1/8"	55'- 6"	204	70	195.050	9.476	996.225	52'- 10"	6	52'- 6"	3	27	3.907	405.934	3.902	315.420	N				
12	10	6	8"	9'- 2 3/4"	1'- 11"	3'- 7 3/8"	2'- 7 7/8"	1'- 10"	51'- 1/8"	5'- 4 3/8"	55'- 7"	204	90	202.110	9.681	1,089.405	52'- 10"	6	52'- 6"	3	33	4.085	426.642	4.043	315.420	R				
12	12	6	8"	9'- 4 1/8"	1'- 11 1/4"	3'- 7 3/8"	2'- 8 1/8"	1'- 10 1/4"	51'- 4 1/8"	5'- 4 1/8"	55'- 10"	204	110	209.170	10.161	1,148.626	52'- 10"	6	52'- 6"	3	39	4.151	447.350	4.071	315.420	V				

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DIMENSIONS								REINFORCING STEEL																								
SPAN	HGHT	T1	T2	T3	T4							BH1		BH2		BH3		BH4				BV1		BV2								
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	8 1/4"	8 1/4"	8"	8"	13	13'- 0"	13	13'- 0"	1	1'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	4	12"	2'- 1 1/4"	3'- 11"	4	12"	2'- 1 1/4"	2'- 8 1/4"	4'- 6"	4	12"	4'- 0"	4	12"	4'- 0"
3	4	8 1/4"	8 1/4"	8"	8"	13	13'- 0"	13	13'- 0"	2	2'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	4	12"	2'- 1 1/4"	3'- 11"	4	12"	2'- 1 1/4"	3'- 2 1/4"	5'- 0"	4	12"	5'- 0"	4	12"	5'- 0"
4	3	10 1/2"	10 1/2"	8"	8"	17	17'- 0"	17	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	--	----	----	4	12"	2'- 3 5/8"	2'- 10 1/2"	4'- 11"	4	12"	4'- 5"	4	12"	4'- 5"
4	4	10 1/2"	10 1/2"	8"	8"	17	17'- 0"	17	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	--	----	----	4	12"	2'- 3 5/8"	3'- 4 1/2"	5'- 5"	4	12"	5'- 5"	4	12"	5'- 5"
4	5	10 3/4"	10 3/4"	8"	8"	17	17'- 0"	17	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	--	----	----	4	12"	2'- 3 5/8"	3'- 10 3/4"	5'- 11"	4	12"	6'- 5"	4	12"	6'- 5"
4	6	10 3/4"	10 3/4"	8"	8"	17	17'- 0"	17	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	4'- 4 3/4"	6'- 5"	4	11"	7'- 5"	4	12"	7'- 5"
5	3	12 1/2"	12 1/2"	8"	8"	21	21'- 0"	21	21'- 0"	1	1'- 0"	4	10"	22'- 0"	4	10"	23'- 0"	--	--	----	----	4	10"	2'- 6"	3'- 1/2"	5'- 3"	4	12"	4'- 9"	4	12"	4'- 9"
5	4	12 1/2"	12 1/2"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	10"	22'- 0"	4	10"	23'- 0"	--	--	----	----	4	10"	2'- 6"	3'- 6 1/2"	5'- 9"	4	12"	5'- 9"	4	12"	5'- 9"
5	5	12 1/2"	12 1/2"	8"	8"	21	21'- 0"	21	21'- 0"	3	3'- 0"	4	10"	22'- 0"	4	10"	23'- 0"	--	--	----	----	4	10"	2'- 6"	4'- 1/2"	6'- 3"	4	12"	6'- 9"	4	12"	6'- 9"
5	6	12 1/2"	12 1/2"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	10"	22'- 0"	4	10"	23'- 0"	--	--	----	----	4	10"	2'- 6"	4'- 6 1/2"	6'- 9"	4	12"	7'- 9"	4	12"	7'- 9"
5	7	12 1/2"	12 1/2"	8"	8"	21	21'- 0"	21	21'- 0"	5	5'- 0"	4	10"	22'- 0"	4	10"	23'- 0"	--	--	----	----	5	10"	2'- 6"	5'- 1/2"	7'- 3"	4	7"	8'- 9"	4	12"	8'- 9"
6	4	15 1/4"	15 1/4"	8"	8"	25	25'- 0"	25	25'- 0"	2	2'- 0"	4	9"	25'- 7"	5	9"	27'- 0"	--	--	----	----	4	9"	2'- 8 3/8"	3'- 9 1/4"	6'- 2"	4	12"	6'- 3"	4	12"	6'- 3"
6	5	15 1/4"	15 1/4"	8"	8"	25	25'- 0"	25	25'- 0"	3	3'- 0"	4	9"	25'- 7"	5	9"	27'- 0"	--	--	----	----	4	9"	2'- 8 3/8"	4'- 3 1/4"	6'- 8"	4	12"	7'- 3"	4	12"	7'- 3"
6	6	14 3/4"	14 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	4	4'- 0"	4	9"	25'- 7"	5	9"	27'- 0"	--	--	----	----	4	9"	2'- 8 3/8"	4'- 8 3/4"	7'- 2"	4	12"	8'- 1"	4	12"	8'- 1"
6	7	14 3/4"	14 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	5	5'- 0"	4	9"	25'- 7"	5	9"	27'- 0"	3	9"	2'- 8 3/8"	5'- 2"	4	9"	2'- 8 3/8"	5'- 2 3/4"	7'- 8"	4	7"	9'- 1"	4	12"	9'- 1"
6	8	14 3/4"	14 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	6	6'- 0"	4	9"	25'- 7"	5	9"	27'- 0"	--	--	----	----	5	9"	2'- 8 3/8"	5'- 8 3/4"	8'- 1"	4	5 1/2"	10'- 1"	4	12"	10'- 1"
7	4	16 3/4"	16 3/4"	8"	8"	29	29'- 0"	29	29'- 0"	2	2'- 0"	4	9"	29'- 2"	5	9"	31'- 0"	--	--	----	----	4	9"	2'- 10 3/4"	3'- 10 3/4"	6'- 6"	4	12"	6'- 6"	4	10 1/2"	6'- 6"
7	6	17"	17"	8"	8"	29	29'- 0"	29	29'- 0"	4	4'- 0"	5	9"	29'- 2"	5	9"	31'- 0"	--	--	----	----	4	9"	2'- 10 3/4"	4'- 11"	7'- 7"	4	11 1/2"	8'- 6"	4	10 1/2"	8'- 6"
7	8	17"	17"	8"	8"	29	29'- 0"	29	29'- 0"	6	6'- 0"	5	9"	29'- 2"	5	9"	31'- 0"	4	9"	2'- 10 3/4"	5'- 6"	4	9"	2'- 10 3/4"	5'- 11"	8'- 7"	4	5 1/2"	10'- 6"	4	10 1/2"	10'- 6"
7	10	17 1/4"	17 1/4"	9"	8"	29	29'- 0"	29	29'- 0"	8	8'- 0"	5	9"	29'- 2"	5	9"	31'- 2"	3	9"	2'- 11 3/4"	5'- 9"	5	9"	2'- 11 3/4"	6'- 11 1/4"	9'- 7"	4	4"	12'- 6"	4	10 1/2"	12'- 6"
8	4	19 1/4"	19 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	2	2'- 0"	6	9"	32'- 10"	5	9"	35'- 0"	--	--	----	----	4	9"	3'- 1 1/4"	4'- 1 1/4"	6'- 11"	4	12"	6'- 10"	4	10"	6'- 10"
8	6	19 1/4"	19 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	4	4'- 0"	6	9"	32'- 10"	5	9"	35'- 0"	--	--	----	----	4	9"	3'- 1 1/4"	5'- 1 1/4"	7'- 11"	4	11"	8'- 10"	4	10"	8'- 10"
8	8	19 1/4"	19 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	6	6'- 0"	5	8"	32'- 10"	5	8"	35'- 0"	3	8"	3'- 1 1/4"	6'- 0"	4	8"	3'- 1 1/4"	6'- 1 1/4"	8'- 11"	4	5 1/2"	10'- 10"	4	10"	10'- 10"
8	10	19 1/4"	19 1/4"	9"	8"	33	33'- 0"	33	33'- 0"	8	8'- 0"	5	8"	32'- 10"	5	8"	35'- 2"	3	8"	3'- 2 1/4"	6'- 2"	5	8"	3'- 2 1/4"	7'- 1 1/4"	10'- 0"	4	4"	12'- 10"	4	10"	12'- 10"
9	4	21 1/2"	21 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	2	2'- 0"	6	9"	36'- 5"	6	9"	39'- 0"	--	--	----	----	4	9"	3'- 3 5/8"	4'- 3 1/2"	7'- 4"	4	12"	7'- 3"	4	10"	7'- 3"
9	6	21 1/2"	21 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	4	4'- 0"	6	9"	36'- 5"	6	9"	39'- 0"	--	--	----	----	4	9"	3'- 3 5/8"	5'- 3 1/2"	8'- 4"	4	10 1/2"	9'- 3"	4	10"	9'- 3"
9	8	21 1/2"	21 1/2"	8"	8"	37	37'- 0"	37	37'- 0"	6	6'- 0"	6	9"	36'- 5"	6	9"	39'- 0"	--	--	----	----	5	9"	3'- 3 5/8"	6'- 3 1/2"	9'- 3"	6	11 1/2"	11'- 3"	4	10"	11'- 3"
9	10	21 1/2"	21 1/2"	9"	8"	37	37'- 0"	37	37'- 0"	8	8'- 0"	6	9"	36'- 5"	6	9"	39'- 2"	--	--	----	----	6	9"	3'- 4 5/8"	7'- 3 1/2"	10'- 3"	5	6"	13'- 3"	4	10"	13'- 3"
9	12	21 1/2"	21 1/2"	10 1/2"	8"	37	37'- 0"	37	37'- 0"	10	10'- 0"	6	9"	36'- 5"	6	9"	39'- 5"	3	9"	3'- 6 1/8"	6'- 10"	6	9"	3'- 6 1/8"	8'- 3 1/2"	11'- 5"	7	10"	15'- 3"	4	10"	15'- 3"
10	4	23 1/2"	23 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	2	2'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	--	--	----	----	4	9"	3'- 6"	4'- 5 1/2"	7'- 8"	4	12"	7'- 7"	4	9 1/2"	7'- 7"
10	6	23 1/2"	23 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	4	4'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	--	--	----	----	4	9"	3'- 6"	5'- 5 1/2"	8'- 8"	4	10"	9'- 7"	4	10"	9'- 7"
10	8	23 1/2"	23 1/2"	8"	8"	41	41'- 0"	41	41'- 0"	6	6'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	3	9"	3'- 6"	6'- 10"	4	9"	3'- 6"	6'- 5 1/2"	9'- 8"	5	8"	11'- 7"	4	10"	11'- 7"
10	10	23 1/2"	23 1/2"	9"	8"	41	41'- 0"	41	41'- 0"	8	8'- 0"	6	9"	40'- 0"	6	9"	43'- 2"	3	9"	3'- 7"	7'- 0"	5	9"	3'- 7"	7'- 5 1/2"	10'- 9"	7	11 1/2"	13'- 7"	4	10"	13'- 7"
10	12	23 1/2"	23 1/2"	10 1/2"	8"	41	41'- 0"	41	41'- 0"	10	10'- 0"	6	9"	40'- 0"	6	9"	43'- 5"	3	9"	3'- 8 1/2"	7'- 3"	6	9"	3'- 8 1/2"	8'- 5 1/2"	11'- 9"	5	5"	15'- 7"	4	10"	15'- 7"
12	6	28 1/4"	28 1/4"	8"	8"	49	49'- 0"	49	49'- 0"	4	4'- 0"	7	8"	47'- 2"	6	8"	51'- 0"	--	--	----	----	4	8"	3'- 10 3/4"	5'- 10 1/4"	9'- 6"	4	8"	10'- 5"	4	8"	10'- 5"
12	8	28 1/4"	28 1/4"	8"	8"	49	49'- 0"	49	49'- 0"	6	6'- 0"	7	8"	47'- 2"	6	8"	51'- 0"	--	--	----	----	4	8"	3'- 10 3/4"	6'- 10 1/4"	10'- 6"	4	4 1/2"	12'- 5"	4	8"	12'- 5"
12	10	28 1/4"	28 1/4"	9 1/4"	8"	49	49'- 0"	49	49'- 0"	8	8'- 0"	7	8"	47'- 2"	6	8"	51'- 3"	3	8"	4'- 0"	7'- 10"	5	8"	4'- 0"	7'- 10 1/4"	11'- 6"	6	8"	14'- 5"	4	8"	14'- 5"
12	12	28 1/4"	28 1/4"	10 1/2"	8"	49	49'- 0"	49	49'- 0"	10	10'- 0"	6	8"	47'- 2"	6	8"	51'- 5"	4	8"	4'- 1 1/4"	7'- 11"	5	8"	4'- 1 1/4"	8'- 10 1/4"	12'- 8"	8	12"	16'- 5"	4	8"	16'- 5"

Sheet 1 of 2 For Typical Section, notes and other details, refer to standard BCQ-DT.

1005.22	<h1 style="margin: 0;">QUADRUPLE BOX CULVERTS</h1> <h2 style="margin: 0;">40 TO 45 FT. FILLS</h2> <p style="margin: 0;">VIRGINIA DEPARTMENT OF TRANSPORTATION</p>	STRUCTURE AND BRIDGE DIVISION
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SPAN		HIGHT		REINFORCING STEEL															QUAN./LF		HEADWALLS									
(FT.)	(FT.)	SIZE	SPACING C-C	BTI											NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS/LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HWI		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)	OUTLET REINFORCING STEEL (LBS)	WINGWALL
				a	b	c	d	e	f	g	LENGTH	HEADWALL LENGTH	SIZE	LENGTH																
3	3	4	12"	2'- 8 3/4"	0'- 4 3/4"	1'- 6 3/8"	0'- 6 1/4"	0'- 4"	14'- 11 7/8"	1'- 5 5/8"	15'- 10"	60	20	57.160	1.306	152.476	16'- 10"	6	16'- 6"	3	12	2.215	137.876	2.184	99.132	A				
3	4	4	12"	2'- 8 3/4"	0'- 4 3/4"	1'- 6 3/8"	0'- 6 1/4"	0'- 4"	14'- 11 7/8"	1'- 5 5/8"	15'- 10"	60	30	60.690	1.429	162.916	16'- 10"	6	16'- 6"	3	15	2.326	148.230	2.277	99.132	C				
4	3	4	12"	3'- 5 1/4"	0'- 7"	1'- 9"	0'- 9 3/8"	0'- 6 1/4"	19'- 0"	1'- 10 1/2"	20'- 3"	76	20	70.520	1.777	172.071	20'- 10"	6	20'- 6"	3	12	2.545	161.908	2.527	123.164	B				
4	4	4	12"	3'- 5 1/4"	0'- 7"	1'- 9"	0'- 9 3/8"	0'- 6 1/4"	19'- 0"	1'- 10 1/2"	20'- 3"	76	30	74.050	1.900	182.511	20'- 10"	6	20'- 6"	3	15	2.656	172.262	2.620	123.164	D				
4	5	4	12"	3'- 5 1/8"	0'- 7 1/4"	1'- 8 3/4"	0'- 9 3/4"	0'- 6 1/2"	19'- 0"	1'- 10 1/4"	20'- 4"	76	40	77.580	2.052	193.062	20'- 10"	6	20'- 6"	3	18	2.757	182.616	2.703	123.164	F				
4	6	4	12"	3'- 5 1/8"	0'- 7 1/4"	1'- 8 3/4"	0'- 9 3/4"	0'- 6 1/2"	19'- 0"	1'- 10 1/4"	20'- 4"	76	50	81.110	2.174	215.981	20'- 10"	6	20'- 6"	3	21	2.869	192.970	2.795	123.164	H				
5	3	4	10"	4'- 1 7/8"	0'- 9"	1'- 11 3/4"	1'- 1/4"	0'- 8 1/4"	23'- 0"	2'- 3 3/4"	24'- 9"	92	20	83.880	2.321	223.017	24'- 10"	6	24'- 6"	3	12	2.814	185.940	2.809	147.196	B				
5	4	4	10"	4'- 1 7/8"	0'- 9"	1'- 11 3/4"	1'- 1/4"	0'- 8 1/4"	23'- 0"	2'- 3 3/4"	24'- 9"	92	30	87.410	2.443	233.724	24'- 10"	6	24'- 6"	3	15	2.925	196.294	2.902	147.196	D				
5	5	4	10"	4'- 1 7/8"	0'- 9"	1'- 11 3/4"	1'- 1/4"	0'- 8 1/4"	23'- 0"	2'- 3 3/4"	24'- 9"	92	40	90.940	2.566	244.431	24'- 10"	6	24'- 6"	3	18	3.036	206.648	2.995	147.196	F				
5	6	4	10"	4'- 1 7/8"	0'- 9"	1'- 11 3/4"	1'- 1/4"	0'- 8 1/4"	23'- 0"	2'- 3 3/4"	24'- 9"	92	50	94.470	2.689	255.138	24'- 10"	6	24'- 6"	3	21	3.148	217.002	3.088	147.196	H				
5	7	4	10"	4'- 1 7/8"	0'- 9"	1'- 11 3/4"	1'- 1/4"	0'- 8 1/4"	23'- 0"	2'- 3 3/4"	24'- 9"	92	60	98.000	2.810	287.246	24'- 10"	6	24'- 6"	3	24	3.259	227.356	3.180	147.196	J				
6	4	4	9"	4'- 10 1/8"	0'- 11 3/4"	2'- 1 3/4"	1'- 4 1/8"	0'- 11"	27'- 0"	2'- 8 1/4"	29'- 3"	108	30	100.770	3.210	311.566	28'- 10"	6	28'- 6"	3	15	3.114	220.326	3.105	171.228	E				
6	5	4	9"	4'- 10 1/8"	0'- 11 3/4"	2'- 1 3/4"	1'- 4 1/8"	0'- 11"	27'- 0"	2'- 8 1/4"	29'- 3"	108	40	104.300	3.333	322.452	28'- 10"	6	28'- 6"	3	18	3.226	230.680	3.198	171.228	G				
6	6	4	9"	4'- 10 3/8"	0'- 11 1/4"	2'- 2 1/4"	1'- 3 3/8"	0'- 10 1/2"	27'- 0"	2'- 8 3/4"	29'- 2"	108	50	107.830	3.371	332.298	28'- 10"	6	28'- 6"	3	21	3.351	241.034	3.304	171.228	H				
6	7	4	9"	4'- 10 3/8"	0'- 11 1/4"	2'- 2 1/4"	1'- 3 3/8"	0'- 10 1/2"	27'- 0"	2'- 8 3/4"	29'- 2"	108	60	111.360	3.492	362.212	28'- 10"	6	28'- 6"	3	24	3.462	251.388	3.397	171.228	J				
6	8	4	9"	4'- 10 3/8"	0'- 11 1/4"	2'- 2 1/4"	1'- 3 3/8"	0'- 10 1/2"	27'- 0"	2'- 8 3/4"	29'- 2"	108	70	114.890	3.614	385.859	28'- 10"	6	28'- 6"	3	27	3.574	261.742	3.490	171.228	L				
7	4	5	9"	5'- 7"	1'- 1 3/8"	2'- 5 1/8"	1'- 6 1/4"	1'- 1/2"	31'- 1/8"	3'- 1 1/8"	33'- 6"	124	30	114.130	3.871	387.079	32'- 10"	6	32'- 6"	3	15	3.314	244.358	3.318	195.260	E				
7	6	5	9"	5'- 6 7/8"	1'- 1 1/2"	2'- 4 1/8"	1'- 6 5/8"	1'- 3/4"	31'- 1/8"	3'- 1 5/8"	33'- 7"	124	50	121.190	4.162	440.183	32'- 10"	6	32'- 6"	3	21	3.517	265.066	3.484	195.260	I				
7	8	4	9"	5'- 6 7/8"	1'- 1 1/2"	2'- 4 1/8"	1'- 6 5/8"	1'- 3/4"	31'- 1/8"	3'- 1 5/8"	33'- 8"	124	70	128.250	4.407	465.344	32'- 10"	6	32'- 6"	3	27	3.740	285.774	3.669	195.260	M				
7	10	4	9"	5'- 7 3/4"	1'- 1 3/4"	2'- 4 5/8"	1'- 6 3/4"	1'- 1"	31'- 2 1/8"	3'- 1 3/8"	33'- 10"	124	90	135.310	4.778	516.944	32'- 10"	6	32'- 6"	3	33	3.865	306.482	3.756	195.260	Q				
8	4	5	9"	6'- 3 1/4"	1'- 3 3/8"	2'- 7 3/8"	1'- 9 7/8"	1'- 3"	34'- 11 7/8"	3'- 6 5/8"	38'- 1"	140	30	127.490	4.821	506.214	36'- 10"	6	36'- 6"	3	15	3.387	268.390	3.404	219.292	E				
8	6	5	9"	6'- 3 1/4"	1'- 3 3/8"	2'- 7 3/8"	1'- 9 7/8"	1'- 3"	34'- 11 7/8"	3'- 6 5/8"	38'- 1"	140	50	134.550	5.066	530.661	36'- 10"	6	36'- 6"	3	21	3.609	289.098	3.589	219.292	I				
8	8	5	8"	6'- 3 1/4"	1'- 3 3/8"	2'- 7 3/8"	1'- 9 7/8"	1'- 3"	34'- 11 7/8"	3'- 6 5/8"	38'- 1"	140	70	141.610	5.309	584.209	36'- 10"	6	36'- 6"	3	27	3.832	309.806	3.775	219.292	M				
8	10	5	8"	6'- 4 1/4"	1'- 3 3/8"	2'- 7 3/8"	1'- 9 7/8"	1'- 3"	35'- 1 1/8"	3'- 6 5/8"	38'- 3"	140	90	148.670	5.632	649.467	36'- 10"	6	36'- 6"	3	33	3.974	330.514	3.878	219.292	Q				
9	4	6	9"	6'- 11 3/4"	1'- 6 1/4"	2'- 10"	2'- 1 1/8"	1'- 5 1/4"	39'- 0"	3'- 11 1/2"	42'- 6"	156	30	140.850	5.831	658.465	40'- 10"	6	40'- 6"	3	15	3.442	292.422	3.472	243.324	F				
9	6	5	9"	6'- 11 3/4"	1'- 6 1/8"	2'- 10"	2'- 1"	1'- 5 1/4"	39'- 0"	3'- 11 1/2"	42'- 6"	156	50	147.910	6.080	631.585	40'- 10"	6	40'- 6"	3	21	3.665	313.130	3.658	243.324	J				
9	8	5	9"	6'- 11 3/4"	1'- 6 1/8"	2'- 10"	2'- 1"	1'- 5 1/4"	39'- 0"	3'- 11 1/2"	42'- 6"	156	70	154.970	6.322	691.631	40'- 10"	6	40'- 6"	3	27	3.887	333.838	3.843	243.324	N				
9	10	5	9"	7'- 3/4"	1'- 6 1/8"	2'- 10"	2'- 1"	1'- 5 1/4"	39'- 2"	3'- 11 1/2"	42'- 8"	156	90	162.030	6.648	760.570	40'- 10"	6	40'- 6"	3	33	4.027	354.546	3.945	243.324	R				
9	12	5	9"	7'- 2 1/4"	1'- 6 1/8"	2'- 10"	2'- 1"	1'- 5 1/4"	39'- 5"	3'- 11 1/2"	42'- 11"	156	110	169.090	7.047	821.986	40'- 10"	6	40'- 6"	3	39	4.094	375.254	3.973	243.324	V				
10	4	6	9"	7'- 8 3/8"	1'- 8 1/4"	3'- 3 1/4"	2'- 4"	1'- 7 1/4"	43'- 0"	4'- 4 3/4"	46'- 11"	172	30	154.210	6.892	722.373	44'- 10"	6	44'- 6"	3	15	3.452	316.454	3.495	267.356	F				
10	6	6	9"	7'- 8 3/8"	1'- 8 1/4"	3'- 3 1/4"	2'- 4"	1'- 7 1/4"	43'- 0"	4'- 4 3/4"	46'- 11"	172	50	161.270	7.137	746.388	44'- 10"	6	44'- 6"	3	21	3.674	337.162	3.681	267.356	J				
10	8	6	9"	7'- 8 3/8"	1'- 8 1/4"	3'- 3 1/4"	2'- 4"	1'- 7 1/4"	43'- 0"	4'- 4 3/4"	46'- 11"	172	70	168.330	7.380	801.673	44'- 10"	6	44'- 6"	3	27	3.897	357.870	3.866	267.356	N				
10	10	6	9"	7'- 9 3/8"	1'- 8 1/4"	3'- 3 1/4"	2'- 4"	1'- 7 1/4"	43'- 2"	4'- 4 3/4"	47'- 1"	172	90	175.390	7.708	867.540	44'- 10"	6	44'- 6"	3	33	4.034	378.578	3.966	267.356	R				
10	12	6	9"	7'- 10 1/8"	1'- 8 1/4"	3'- 3 1/4"	2'- 4"	1'- 7 1/4"	43'- 5"	4'- 4 3/4"	47'- 4"	172	110	182.450	8.109	941.583	44'- 10"	6	44'- 6"	3	39	4.099	399.286	3.991	267.356	V				
12	6	6	8"	9'- 1 1/4"	2'- 1"	3'- 5 5/8"	2'- 10 5/8"	2'- 0"	51'- 1/8"	5'- 2 3/8"	55'- 11"	204	50	187.990	9.780	1,047.641	52'- 10"	6	52'- 6"	3	21	3.460	385.226	3.493	315.420	K				
12	8	6	8"	9'- 1 1/4"	2'- 1"	3'- 5 5/8"	2'- 10 5/8"	2'- 0"	51'- 1/8"	5'- 2 3/8"	55'- 11"	204	70	195.050	10.023	1,094.554	52'- 10"	6	52'- 6"	3	27	3.682	405.934	3.678	315.420	O				
12	10	6	8"	9'- 2 1/2"	2'- 1"	3'- 5 5/8"	2'- 10 5/8"	2'- 0"	51'- 2 3/8"	5'- 2 3/8"	56'- 1"	204	90	202.110	10.377	1,184.256	52'- 10"	6	52'- 6"	3	33	3.793	426.642	3.750	315.420	S				
12	12	6	8"	9'- 3 3/4"	2'- 1"	3'- 5 5/8"	2'- 10 5/8"	2'- 0"	51'- 5/8"	5'- 2 3/8"	56'- 4"	204	110	209.170	10.769	1,173.047	52'- 10"	6	52'- 6"	3	39	3.872	447.350	3.791	315.420	W				

BCQ-50

DIMENSIONS						REINFORCING STEEL																													
SPAN	HGHT	T1	T2	T3	T4	BH1										BH2				BH3				BH4				BV1			BV2				
(FT.)	(FT.)	TOP SLAB	BOTTOM SLAB	EXTERIOR WALL (IN.)	INTERIOR WALL (IN.)	A	B	C	D	E	F	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	LENGTH
3	3	9"	9"	8"	8"	13	13'- 0"	13	13'- 0"	1	1'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	2'- 9"	4'- 7"	4	12"	4'- 2"	4	12"	4'- 2"	4	12"	4'- 2"
3	4	9"	9"	8"	8"	13	13'- 0"	13	13'- 0"	2	2'- 0"	4	12"	14'- 10"	4	12"	15'- 0"	--	---	----	----	4	12"	2'- 1 1/4"	3'- 3"	5'- 1"	4	12"	5'- 2"	4	12"	5'- 2"	4	12"	5'- 2"
4	3	11"	11"	8"	8"	17	17'- 0"	17	17'- 0"	1	1'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	2'- 11"	4'- 11"	4	12"	4'- 6"	4	12"	4'- 6"	4	12"	4'- 6"
4	4	11 1/4"	11 1/4"	8"	8"	17	17'- 0"	17	17'- 0"	2	2'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 5 1/4"	5'- 6"	4	12"	5'- 6"	4	12"	5'- 6"	4	12"	5'- 6"
4	5	11"	11"	8"	8"	17	17'- 0"	17	17'- 0"	3	3'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	--	---	----	----	4	12"	2'- 3 5/8"	3'- 11"	5'- 11"	4	12"	6'- 6"	4	12"	6'- 6"	4	12"	6'- 6"
4	6	11 1/4"	11 1/4"	8"	8"	17	17'- 0"	17	17'- 0"	4	4'- 0"	4	12"	18'- 5"	4	12"	19'- 0"	4	12"	2'- 3 5/8"	4'- 4"	4	12"	2'- 3 5/8"	4'- 5 1/4"	6'- 6"	4	9"	7'- 6"	4	12"	7'- 6"	4	12"	7'- 6"
5	3	13 1/4"	13 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	1	1'- 0"	4	10"	22'- 0"	4	10"	23'- 0"	--	---	----	----	4	10"	2'- 6"	3'- 1 1/4"	5'- 4"	4	12"	4'- 10"	4	12"	4'- 10"	4	12"	4'- 10"
5	4	13 1/4"	13 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	2	2'- 0"	4	9"	22'- 0"	4	9"	23'- 0"	--	---	----	----	4	9"	2'- 6"	3'- 7 1/4"	5'- 10"	4	12"	5'- 10"	4	12"	5'- 10"	4	12"	5'- 10"
5	5	13 1/4"	13 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	3	3'- 0"	4	9"	22'- 0"	4	9"	23'- 0"	--	---	----	----	4	9"	2'- 6"	4'- 1 1/4"	6'- 4"	4	12"	6'- 10"	4	12"	6'- 10"	4	12"	6'- 10"
5	6	13 1/4"	13 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	4	4'- 0"	4	10"	22'- 0"	4	10"	23'- 0"	3	10"	2'- 6"	4'- 10"	4	10"	2'- 6"	4'- 7 1/4"	6'- 10"	4	10"	7'- 10"	4	12"	7'- 10"	4	12"	7'- 10"
5	7	13 1/4"	13 1/4"	8"	8"	21	21'- 0"	21	21'- 0"	5	5'- 0"	4	10"	22'- 0"	4	10"	23'- 0"	--	---	----	----	5	10"	2'- 6"	5'- 1 1/4"	7'- 3"	5	10 1/2"	8'- 10"	4	12"	8'- 10"	4	12"	8'- 10"
6	4	15 3/4"	15 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	2	2'- 0"	4	9"	25'- 7"	5	9"	27'- 0"	--	---	----	----	4	9"	2'- 8 3/8"	3'- 9 3/4"	6'- 3"	4	12"	6'- 3"	4	11"	6'- 3"	4	11"	6'- 3"
6	5	15 3/4"	15 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	3	3'- 0"	4	9"	25'- 7"	5	9"	27'- 0"	--	---	----	----	4	9"	2'- 8 3/8"	4'- 3 3/4"	6'- 9"	4	12"	7'- 3"	4	11"	7'- 3"	4	11"	7'- 3"
6	6	15 3/4"	15 3/4"	8"	8"	25	25'- 0"	25	25'- 0"	4	4'- 0"	4	9"	25'- 7"	5	9"	27'- 0"	--	---	----	----	4	9"	2'- 8 3/8"	4'- 9 3/4"	7'- 3"	4	9 1/2"	8'- 3"	4	11"	8'- 3"	4	11"	8'- 3"
6	7	16"	16"	8"	8"	25	25'- 0"	25	25'- 0"	5	5'- 0"	4	9"	25'- 7"	5	9"	27'- 0"	3	9"	2'- 8 3/8"	5'- 2"	4	9"	2'- 8 3/8"	5'- 4"	7'- 9"	4	6 1/2"	9'- 4"	4	11"	9'- 4"	4	11"	9'- 4"
6	8	15 1/2"	15 1/2"	8"	8"	25	25'- 0"	25	25'- 0"	6	6'- 0"	4	9"	25'- 7"	5	9"	27'- 0"	--	---	----	----	5	9"	2'- 8 3/8"	5'- 9 1/2"	8'- 2"	4	5"	10'- 3"	4	11"	10'- 3"	4	11"	10'- 3"
7	4	18"	18"	8"	8"	29	29'- 0"	29	29'- 0"	2	2'- 0"	5	8"	29'- 2"	5	8"	31'- 0"	--	---	----	----	4	8"	2'- 10 3/4"	4'- 0"	6'- 8"	4	12"	6'- 8"	4	10"	6'- 8"	4	10"	6'- 8"
7	6	17 3/4"	17 3/4"	8"	8"	29	29'- 0"	29	29'- 0"	4	4'- 0"	5	8"	29'- 2"	5	8"	31'- 0"	--	---	----	----	4	8"	2'- 10 3/4"	4'- 11 3/4"	7'- 7"	4	9 1/2"	8'- 7"	4	10"	8'- 7"	4	10"	8'- 7"
7	8	17 3/4"	17 3/4"	8"	8"	29	29'- 0"	29	29'- 0"	6	6'- 0"	5	9"	29'- 2"	5	9"	31'- 0"	--	---	----	----	5	9"	2'- 10 3/4"	5'- 11 3/4"	8'- 7"	5	7 1/2"	10'- 7"	4	10"	10'- 7"	4	10"	10'- 7"
7	10	18"	18"	9 3/4"	8"	29	29'- 0"	29	29'- 0"	8	8'- 0"	5	9"	29'- 2"	5	9"	31'- 3"	4	9"	3'- 1/2"	5'- 10"	5	9"	3'- 1/2"	7'- 0"	9'- 9"	6	9"	12'- 8"	4	10"	12'- 8"	4	10"	12'- 8"
8	4	20 1/2"	20 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	2	2'- 0"	6	9"	32'- 10"	5	9"	35'- 0"	--	---	----	----	4	9"	3'- 1 1/4"	4'- 2 1/2"	7'- 1"	4	12"	7'- 1"	4	10"	7'- 1"	4	10"	7'- 1"
8	6	20 1/2"	20 1/2"	8"	8"	33	33'- 0"	33	33'- 0"	4	4'- 0"	6	9"	32'- 10"	5	9"	35'- 0"	--	---	----	----	4	9"	3'- 1 1/4"	5'- 2 1/2"	8'- 1"	4	9"	9'- 1"	4	10"	9'- 1"	4	10"	9'- 1"
8	8	20 1/4"	20 1/4"	8"	8"	33	33'- 0"	33	33'- 0"	6	6'- 0"	6	9"	32'- 10"	5	9"	35'- 0"	--	---	----	----	5	9"	3'- 1 1/4"	6'- 2 1/4"	9'- 0"	4	4 1/2"	11'- 0"	4	10"	11'- 0"	4	10"	11'- 0"
8	10	20 1/4"	20 1/4"	9 3/4"	8"	33	33'- 0"	33	33'- 0"	8	8'- 0"	6	9"	32'- 10"	5	9"	35'- 3"	--	---	----	----	6	9"	3'- 3"	7'- 2 1/4"	10'- 0"	6	9"	13'- 0"	4	10"	13'- 0"	4	10"	13'- 0"
9	4	23"	23"	8"	8"	37	37'- 0"	37	37'- 0"	2	2'- 0"	6	9"	36'- 5"	6	9"	39'- 0"	--	---	----	----	4	9"	3'- 3 5/8"	4'- 5"	7'- 5"	4	12"	7'- 6"	4	10"	7'- 6"	4	10"	7'- 6"
9	6	23"	23"	8"	8"	37	37'- 0"	37	37'- 0"	4	4'- 0"	6	9"	36'- 5"	6	9"	39'- 0"	--	---	----	----	4	9"	3'- 3 5/8"	5'- 5"	8'- 5"	4	8"	9'- 6"	4	10"	9'- 6"	4	10"	9'- 6"
9	8	22 3/4"	22 3/4"	8"	8"	37	37'- 0"	37	37'- 0"	6	6'- 0"	6	9"	36'- 5"	6	9"	39'- 0"	--	---	----	----	5	9"	3'- 3 5/8"	6'- 4 3/4"	9'- 4"	5	7 1/2"	11'- 6"	4	10"	11'- 6"	4	10"	11'- 6"
9	10	22 3/4"	22 3/4"	9 3/4"	8"	37	37'- 0"	37	37'- 0"	8	8'- 0"	6	9"	36'- 5"	6	9"	39'- 3"	--	---	----	----	6	9"	3'- 5 3/8"	7'- 4 3/4"	10'- 5"	5	6"	13'- 6"	4	10"	13'- 6"	4	10"	13'- 6"
9	12	22 1/2"	22 1/2"	11"	8"	37	37'- 0"	37	37'- 0"	10	10'- 0"	6	9"	36'- 5"	6	9"	39'- 6"	3	9"	3'- 6 3/8"	6'- 11"	7	9"	3'- 6 3/8"	8'- 4 1/2"	11'- 6"	6	7"	15'- 5"	4	10"	15'- 5"	4	10"	15'- 5"
10	4	25"	25"	8"	8"	41	41'- 0"	41	41'- 0"	2	2'- 0"	7	9"	40'- 0"	6	9"	43'- 0"	--	---	----	----	4	9"	3'- 6"	4'- 7"	7'- 10"	4	12"	7'- 10"	4	9"	7'- 10"	4	9"	7'- 10"
10	6	24 3/4"	24 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	4	4'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	--	---	----	----	4	9"	3'- 6"	5'- 6 3/4"	8'- 10"	4	8"	9'- 9"	4	9"	9'- 9"	4	9"	9'- 9"
10	8	24 3/4"	24 3/4"	8"	8"	41	41'- 0"	41	41'- 0"	6	6'- 0"	6	9"	40'- 0"	6	9"	43'- 0"	3	9"	3'- 6"	6'- 10"	4	9"	3'- 6"	6'- 6 3/4"	9'- 10"	4	4 1/2"	11'- 9"	4	9"	11'- 9"	4	9"	11'- 9"
10	10	24 3/4"	24 3/4"	9 3/4"	8"	41	41'- 0"	41	41'- 0"	8	8'- 0"	6	9"	40'- 0"	6	9"	43'- 3"	3	9"	3'- 7 3/4"	7'- 1"	5	9"	3'- 7 3/4"	7'- 6 3/4"	10'- 11"	5	6"	13'- 9"	4	9"	13'- 9"	4	9"	13'- 9"
10	12	24 3/4"	24 3/4"	11"	8"	41	41'- 0"	41	41'- 0"	10	10'- 0"	6	9"	40'- 0"	6	9"	43'- 6"	3	9"	3'- 9"	7'- 4"	6	9"	3'- 9"	8'- 6 3/4"	11'- 11"	7	9 1/2"	15'- 9"	4	9"	15'- 9"	4	9"	15'- 9"
12	6	29 1/2"	29 1/2"	8"	8"	49	49'- 0"	49	49'- 0"	4	4'- 0"	7	9"	47'- 2"	7	9"	51'- 0"	--	---	----	----	4	9"	3'- 10 3/4"	5'- 11 1/2"	9'- 7"	4	7"	10'- 7"	4	7 1/2"	10'- 7"	4	7 1/2"	10'- 7"
12	8	29 1/2"	29 1/2"	8"	8"	49	49'- 0"	49	49'- 0"	6	6'- 0"	7	9"	47'- 2"	7	9"	51'- 0"	3	9"	3'- 10 3/4"	7'- 7"	4	9"	3'- 10 3/4"	6'- 11 1/2"	10'- 7"	5	6 1/2"	12'- 7"	4	7 1/2"	12'- 7"	4	7 1/2"	12'- 7"
12	10	29 1/2"	29 1/2"	9 3/4"	8"	49	49'- 0"	49	49'- 0"	8	8'- 0"	7	9"	47'- 2"	7	9"	51'- 3"	--	---	----	----	6	9"	4'- 1/2"	7'- 11 1/2"	11'- 7"	6	8"	14'- 7"	4	7 1/2"	14'- 7"	4	7 1/2"	14'- 7"
12	12	29 3/4"	29 3/4"	11 1/4"	8"	49	49'- 0"	49	49'- 0"	10	10'- 0"	7	8"	47'- 2"	7	8"	51'- 6"	3	8"	4'- 2"	8'- 2"	6	8"	4'- 2"	8'- 11 3/4"	12'- 9"	8	12"	16'- 8"	4	7 1/2"	16'- 8"	4	7 1/2"	16'- 8"

Sheet 1 of 2

For Typical Section, notes and other details, refer to standard BCQ-DT.

QUADRUPLE BOX CULVERTS
45 TO 50 FT. FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE
AND
BRIDGE
DIVISION

1005.24

SPAN		HIGHT		REINFORCING STEEL														QUAN./LF		HEADWALLS								WINGWALL	
(FT.)	(FT.)	SIZE	SPACING C-C	BTI										NO. BL1 BARS	NO. BL2 BARS	REINFORCING STEEL (LBS/LONG. JT)	CONCRETE CLASS A4 (CY/LF)	REINFORCING STEEL (LBS/LF)	G		HWI		NO. HW2 BARS	NO. HW3 BARS	INLET CONCRETE CL. A4 (CY)	INLET REINFORCING STEEL (LBS)	OUTLET CONCRETE CL. A4 (CY)		OUTLET REINFORCING STEEL (LBS)
				a	b	c	d	e	f	g	LENGTH	HEADWALL LENGTH	SIZE						LENGTH										
3	3	4	12"	2'- 8 3/8"	0'- 5 1/2"	1'- 5 5/8"	0'- 7 1/4"	0'- 4 3/4"	14'- 11 7/8"	1'- 4 7/8"	16'- 0"	60	20	57.160	1.378	143.347	16'- 10"	6	16'- 6"	3	12	2.194	137.876	2.163	99.132	A			
3	4	4	12"	2'- 8 3/8"	0'- 5 1/2"	1'- 5 5/8"	0'- 7 1/4"	0'- 4 3/4"	14'- 11 7/8"	1'- 4 7/8"	16'- 0"	60	30	60.690	1.501	153.787	16'- 10"	6	16'- 6"	3	15	2.305	148.230	2.256	99.132	C			
4	3	4	12"	3'- 5"	0'- 7 1/2"	1'- 8 1/2"	0'- 10 1/8"	0'- 6 3/4"	19'- 0"	1'- 10"	20'- 5"	76	20	70.520	1.837	172.739	20'- 10"	6	20'- 6"	3	12	2.525	161.908	2.507	123.164	B			
4	4	4	12"	3'- 4 7/8"	0'- 7 3/4"	1'- 8 1/4"	0'- 10 1/2"	0'- 7"	19'- 0"	1'- 9 3/4"	20'- 6"	76	30	74.050	1.989	183.513	20'- 10"	6	20'- 6"	3	15	2.626	172.262	2.590	123.164	D			
4	5	4	12"	3'- 5"	0'- 7 1/2"	1'- 8 1/2"	0'- 10 1/8"	0'- 6 3/4"	19'- 0"	1'- 10"	20'- 5"	76	40	77.580	2.082	193.619	20'- 10"	6	20'- 6"	3	18	2.747	182.616	2.693	123.164	F			
4	6	4	12"	3'- 4 7/8"	0'- 7 3/4"	1'- 8 1/4"	0'- 10 1/2"	0'- 7"	19'- 0"	1'- 9 3/4"	20'- 6"	76	50	81.110	2.233	219.311	20'- 10"	6	20'- 6"	3	21	2.849	192.970	2.775	123.164	H			
5	3	4	10"	4'- 1 1/2"	0'- 9 3/4"	1'- 11"	1'- 1 1/4"	0'- 9"	23'- 0"	2'- 3"	24'- 10"	92	20	83.880	2.429	223.863	24'- 10"	6	24'- 6"	3	12	2.774	185.940	2.770	147.196	B			
5	4	4	9"	4'- 1 1/2"	0'- 9 3/4"	1'- 11"	1'- 1 1/4"	0'- 9"	23'- 0"	2'- 3"	24'- 10"	92	30	87.410	2.550	249.088	24'- 10"	6	24'- 6"	3	15	2.886	196.294	2.863	147.196	D			
5	5	4	9"	4'- 1 1/2"	0'- 9 3/4"	1'- 11"	1'- 1 1/4"	0'- 9"	23'- 0"	2'- 3"	24'- 10"	92	40	90.940	2.673	259.973	24'- 10"	6	24'- 6"	3	18	2.997	206.648	2.955	147.196	F			
5	6	4	10"	4'- 1 1/2"	0'- 9 3/4"	1'- 11"	1'- 1 1/4"	0'- 9"	23'- 0"	2'- 3"	24'- 10"	92	50	94.470	2.796	266.801	24'- 10"	6	24'- 6"	3	21	3.108	217.002	3.048	147.196	H			
5	7	4	10"	4'- 1 1/2"	0'- 9 3/4"	1'- 11"	1'- 1 1/4"	0'- 9"	23'- 0"	2'- 3"	24'- 10"	92	60	98.000	2.917	288.732	24'- 10"	6	24'- 6"	3	24	3.220	227.356	3.141	147.196	J			
6	4	4	9"	4'- 9 7/8"	1'- 1/4"	2'- 1 1/4"	1'- 4 3/4"	0'- 11 1/2"	27'- 0"	2'- 7 3/4"	29'- 4"	108	30	100.770	3.294	314.289	28'- 10"	6	28'- 6"	3	15	3.082	220.326	3.072	171.228	E			
6	5	4	9"	4'- 9 7/8"	1'- 1/4"	2'- 1 1/4"	1'- 4 3/4"	0'- 11 1/2"	27'- 0"	2'- 7 3/4"	29'- 4"	108	40	104.300	3.417	325.539	28'- 10"	6	28'- 6"	3	18	3.193	230.680	3.165	171.228	G			
6	6	4	9"	4'- 9 7/8"	1'- 1/4"	2'- 1 1/4"	1'- 4 3/4"	0'- 11 1/2"	27'- 0"	2'- 7 3/4"	29'- 4"	108	50	107.830	3.539	339.689	28'- 10"	6	28'- 6"	3	21	3.305	241.034	3.258	171.228	I			
6	7	4	9"	4'- 9 3/4"	1'- 1/2"	2'- 1"	1'- 5 1/8"	0'- 11 3/4"	27'- 0"	2'- 7 1/2"	29'- 5"	108	60	111.360	3.703	369.574	28'- 10"	6	28'- 6"	3	24	3.400	251.388	3.334	171.228	K			
6	8	4	9"	4'- 10"	1'- 0"	2'- 1 1/2"	1'- 4 1/2"	0'- 11 1/4"	27'- 0"	2'- 8"	29'- 4"	108	70	114.890	3.740	394.496	28'- 10"	6	28'- 6"	3	27	3.544	261.742	3.460	171.228	M			
7	4	4	8"	5'- 6 3/8"	1'- 2 1/2"	2'- 3 3/8"	1'- 8"	1'- 1 3/4"	31'- 1 1/8"	3'- 5 1/8"	33'- 10"	124	30	114.130	4.110	417.866	32'- 10"	6	32'- 6"	3	15	3.217	244.358	3.221	195.260	E			
7	6	4	8"	5'- 6 1/2"	1'- 2 1/4"	2'- 4 1/8"	1'- 7 5/8"	1'- 1 1/2"	31'- 1 1/8"	3'- 5 1/8"	33'- 10"	124	50	121.190	4.307	443.857	32'- 10"	6	32'- 6"	3	21	3.459	265.066	3.426	195.260	I			
7	8	5	9"	5'- 6 1/2"	1'- 2 3/8"	2'- 4 1/8"	1'- 7 3/4"	1'- 1 1/2"	31'- 1 1/8"	3'- 5 1/8"	33'- 9"	124	70	128.250	4.549	504.336	32'- 10"	6	32'- 6"	3	27	3.682	285.774	3.611	195.260	M			
7	10	5	9"	5'- 8 1/8"	1'- 2 5/8"	2'- 3 3/8"	1'- 8 1/4"	1'- 1 3/4"	31'- 3 3/8"	3'- 5 1/8"	34'- 2"	124	90	135.310	4.980	566.414	32'- 10"	6	32'- 6"	3	33	3.746	306.482	3.637	195.260	Q			
8	4	5	9"	6'- 2 3/8"	1'- 5 1/8"	2'- 6 1/8"	1'- 11 5/8"	1'- 4 1/4"	34'- 11 7/8"	3'- 5 3/8"	38'- 4"	140	30	127.490	5.093	509.040	36'- 10"	6	36'- 6"	3	15	3.275	268.390	3.292	219.292	E			
8	6	5	9"	6'- 2 5/8"	1'- 5 1/8"	2'- 6 1/8"	1'- 11 5/8"	1'- 4 1/4"	34'- 11 7/8"	3'- 5 3/8"	38'- 4"	140	50	134.550	5.338	536.459	36'- 10"	6	36'- 6"	3	21	3.498	289.098	3.477	219.292	I			
8	8	5	9"	6'- 2 3/4"	1'- 4 7/8"	2'- 6 3/8"	1'- 11 1/4"	1'- 4"	34'- 11 7/8"	3'- 5 3/8"	38'- 3"	140	70	141.610	5.526	597.240	36'- 10"	6	36'- 6"	3	27	3.743	309.806	3.685	219.292	M			
8	10	5	9"	6'- 4 1/2"	1'- 4 7/8"	2'- 6 3/8"	1'- 11 1/4"	1'- 4"	35'- 3 3/8"	3'- 5 5/8"	38'- 7"	140	90	148.670	5.913	658.924	36'- 10"	6	36'- 6"	3	33	3.822	330.514	3.726	219.292	Q			
9	4	6	9"	6'- 11"	1'- 7 3/4"	2'- 8 1/2"	2'- 3 1/4"	1'- 6 3/4"	39'- 0"	3'- 10"	42'- 10"	156	30	140.850	6.195	661.634	40'- 10"	6	40'- 6"	3	15	3.289	292.422	3.319	243.324	F			
9	6	6	9"	6'- 11"	1'- 7 3/4"	2'- 8 1/2"	2'- 3 1/4"	1'- 6 3/4"	39'- 0"	3'- 10"	42'- 10"	156	50	147.910	6.440	691.354	40'- 10"	6	40'- 6"	3	21	3.512	313.130	3.505	243.324	J			
9	8	6	9"	6'- 11 1/8"	1'- 7 1/2"	2'- 8 3/4"	2'- 2 7/8"	1'- 6 1/2"	39'- 0"	3'- 10 1/4"	42'- 9"	156	70	154.970	6.621	749.436	40'- 10"	6	40'- 6"	3	27	3.760	333.838	3.716	243.324	N			
9	10	6	9"	7'- 7/8"	1'- 7 1/2"	2'- 8 3/4"	2'- 2 7/8"	1'- 6 1/2"	39'- 3 1/2"	3'- 10 1/4"	43'- 1"	156	90	162.030	7.012	818.377	40'- 10"	6	40'- 6"	3	33	3.835	354.546	3.752	243.324	R			
9	12	6	9"	7'- 2 1/4"	1'- 7 1/4"	2'- 9"	2'- 2 1/2"	1'- 6 1/4"	39'- 6"	3'- 10 1/2"	43'- 2"	156	110	169.090	7.334	915.311	40'- 10"	6	40'- 6"	3	39	3.941	375.254	3.820	243.324	V			
10	4	6	9"	7'- 7 5/8"	1'- 9 3/4"	2'- 11 1/4"	2'- 6"	1'- 8 3/4"	43'- 0"	4'- 3 1/4"	47'- 2"	172	30	154.210	7.288	785.584	44'- 10"	6	44'- 6"	3	15	3.280	316.454	3.324	267.356	F			
10	6	6	9"	7'- 7 3/4"	1'- 9 1/2"	2'- 11 1/2"	2'- 5 3/4"	1'- 8 1/2"	43'- 0"	4'- 3 1/2"	47'- 2"	172	50	161.270	7.470	858.170	44'- 10"	6	44'- 6"	3	21	3.532	337.162	3.538	267.356	J			
10	8	6	9"	7'- 7 3/4"	1'- 9 1/2"	2'- 11 1/2"	2'- 5 3/4"	1'- 8 1/2"	43'- 0"	4'- 3 1/2"	47'- 2"	172	70	168.330	7.713	915.966	44'- 10"	6	44'- 6"	3	27	3.754	357.870	3.723	267.356	N			
10	10	6	9"	7'- 9 1/2"	1'- 9 1/2"	2'- 11 1/2"	2'- 5 3/4"	1'- 8 1/2"	43'- 3 1/2"	4'- 3 1/2"	47'- 6"	172	90	175.390	8.108	978.209	44'- 10"	6	44'- 6"	3	33	3.826	378.578	3.756	267.356	R			
10	12	6	9"	7'- 10 3/4"	1'- 9 1/2"	2'- 11 1/2"	2'- 5 3/4"	1'- 8 1/2"	43'- 6"	4'- 3 1/2"	47'- 8"	172	110	182.450	8.495	1,057.286	44'- 10"	6	44'- 6"	3	39	3.903	399.286	3.796	267.356	V			
12	6	7	9"	9'- 5 1/8"	2'- 2 3/8"	3'- 4 1/2"	3'- 3 1/8"	2'- 1 1/8"	51'- 0"	5'- 1 1/4"	56'- 2"	204	50	187.990	10.170	1,122.541	52'- 10"	6	52'- 6"	3	21	3.286	385.226	3.319	315.420	K			
12	8	7	9"	9'- 5 1/8"	2'- 2 3/8"	3'- 4 1/2"	3'- 3 1/8"	2'- 1 1/8"	51'- 0"	5'- 1 1/4"	56'- 2"	204	70	195.050	10.412	1,185.877	52'- 10"	6	52'- 6"	3	27	3.509	405.934	3.504	315.420	O			
12	10	7	9"	9'- 2 3/8"	2'- 2 3/8"	3'- 4 1/2"	3'- 3 1/8"	2'- 1 1/8"	51'- 3 1/2"	5'- 1 1/4"	56'- 5"	204	90	202.110	10.814	1,266.080	52'- 10"	6	52'- 6"	3	33	3.572	426.642	3.529	315.420	S			
12	12	6	8"	9'- 3 3/4"	2'- 2 1/2"	3'- 4 1/8"	3'- 3 1/4"	2'- 1 1/2"	51'- 6 5/8"	5'- 7/8"	56'- 9"	204	110	209.170	11.312	1,367.579	52'- 10"	6	52'- 6"	3	39	3.582	447.350	3.500	315.420	W			