

(All dimensions are in mm unless otherwise noted)

GENERAL NOTE

Capacity: MS18 Loading and Alternate Military Loading.

Specifications:

Construction - Va. Department of Transportation Metric Road and Bridge Specifications, Current Edition.  
 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 30.

Deformed reinforcing bars shall conform to ASTM A615M, Grade 420. 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 10 m in length shall be poured in sections by providing vertical construction joints, not exceeding 7 m between joints nor more than 9 m from ends of barrels.

\*\* Bars BH1 & BH3 shall have a pin diameter of 24 bar diameters.

Dimensions on bar diagrams are out-to-out of bars. Bars are straight and #13 in size unless otherwise shown. BL2 shall be #10 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./meter 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 50 mm 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 0.6 m fills shall be epoxy-coated.

At the Contractor's option, BV1 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.

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.

Depth of foundation shall be investigated in accordance with Sec. 401.03(b) of the specifications.

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.

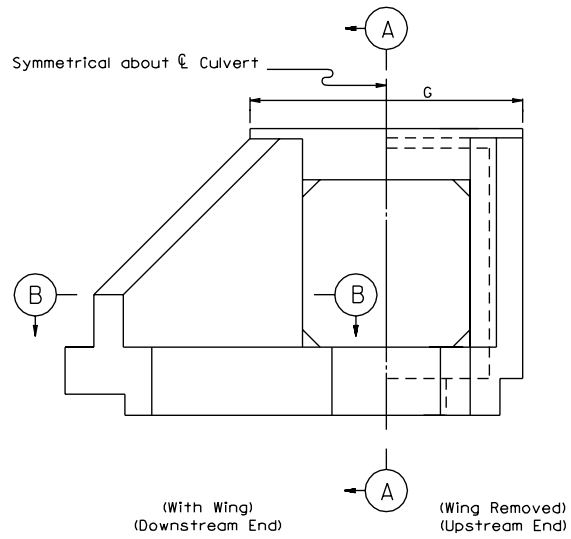
Dimensions shown in the tables are in millimeters with the exception of culvert span and height.

This standard shall be used with the BB standard series.

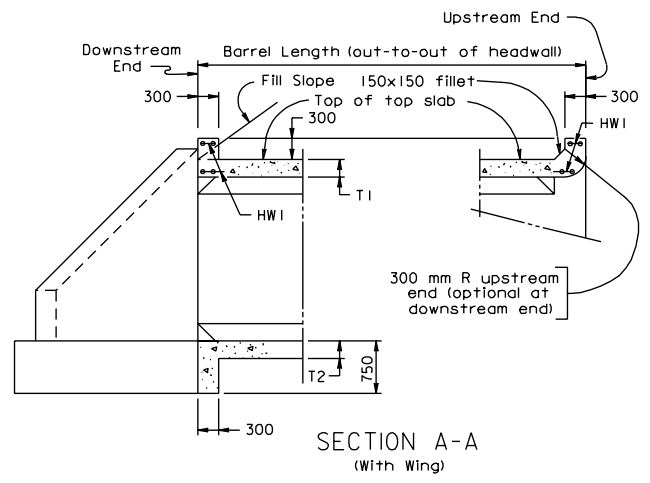
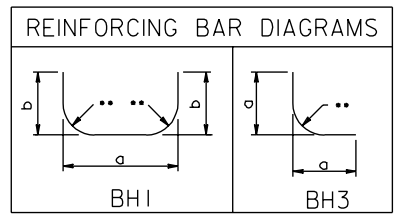
OVERSIZE BOX CULVERTS  
 STANDARD DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE  
 AND  
 BRIDGE  
 DIVISION

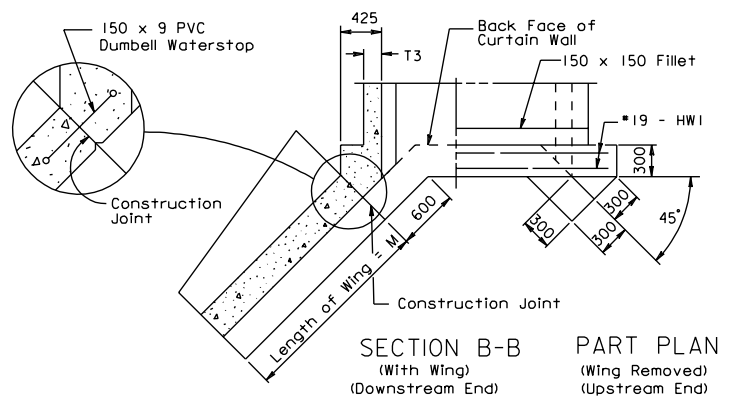


END ELEVATION



SECTION A-A  
(With Wing)

(All dimensions are in mm unless otherwise noted)



SECTION B-B (With Wing) (Downstream End)  
PART PLAN (Wing Removed) (Upstream End)

BB00.6

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3							BH1			BH2			BH3			BV1			NO. BL1 BARS	NO. BL2 BARS			
(m)	(m)	TOP SLAB (mm)	BOTTOM SLAB (mm)	WALL (mm)	A	B	C	D	E	F	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH			SIZE	SPACING C-C	LENGTH
3.65	4.26	270	270	200	11	3300	22	3300	12	3600	16	175	3960	2560	8890	25	175	3960	13	175	1190	2290	13	215	4700	63	52
3.65	4.87	295	295	207	11	3300	22	3300	14	4200	19	150	3980	2890	9500	25	150	3960	--	--	--	--	13	140	5380	63	60
4.26	2.43	270	270	200	13	3900	26	3900	6	1800	16	175	4570	1640	7670	22	175	4570	13	175	1310	2540	13	300	2870	73	28
4.26	3.04	275	275	200	13	3900	26	3900	8	2400	16	215	4570	1960	8280	25	215	4570	13	215	1310	2540	13	300	3510	73	36
4.26	3.65	275	275	200	13	3900	26	3900	10	3000	16	190	4570	2260	8890	25	190	4570	13	190	1310	2540	13	300	4110	73	44
4.26	4.26	290	290	200	13	3900	26	3900	12	3600	19	165	4570	2580	9470	25	165	4570	--	--	--	--	13	250	4750	73	52
4.26	4.87	315	315	207	13	3900	26	3900	14	4200	19	140	4580	2910	10160	25	140	4570	--	--	--	--	16	225	5410	73	60

SPAN	HGHT	REINFORCING STEEL (kg/LONG. JT)	QUAN./m		HEADWALLS							
			CONCRETE CLASS A4 (m <sup>3</sup> /m)	REINFORCING STEEL (kg/m)	HEADWALL LENGTH	SIZE	HW I LENGTH	INLET CONCRETE CL. A4 (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE CL. A4 (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)	WINDWALL
3.65	4.26	32.18	3.925	524.72	4520	19	4420	2.607	39.51	2.632	39.51	X
3.65	4.87	33.47	4.430	665.49	4520	19	4420	2.762	39.51	2.787	39.51	BB
4.26	2.43	32.13	3.531	459.89	5130	19	5030	2.168	44.97	2.198	44.97	L
4.26	3.04	33.41	3.823	451.39	5130	19	5030	2.356	44.97	2.386	44.97	P
4.26	3.65	34.69	4.059	513.95	5130	19	5030	2.548	44.97	2.578	44.97	T
4.26	4.26	35.97	4.430	616.09	5130	19	5030	2.729	44.97	2.759	44.97	X
4.26	4.87	37.25	4.965	764.57	5130	19	5030	2.880	44.97	2.910	44.97	BB

For Typical Section, notes and other details, refer to Standard BB-DT

OVERSIZE BOX CULVERTS  
0 TO 0.6 m FILLS  
VIRGINIA DEPARTMENT OF TRANSPORTATION

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3							BH1				BH2			BH3				BV1			NO. BL1 BARS	NO. BL2 BARS	
(m)	(m)	TOP SLAB (mm)	BOTTOM SLAB (mm)	WALL (mm)	A	B	C	D	E	F	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C			LENGTH
3.65	4.26	275	275	200	11	3300	11	3300	12	3600	16	175	3960	2570	8890	25	175	3960	13	175	1190	2290	13	215	4720	52	52
3.65	4.87	305	305	207	11	3300	11	3300	14	4200	19	165	3980	2900	9530	25	165	3960	13	165	1190	2310	16	190	5410	52	60
4.26	2.43	260	260	200	13	3900	13	3900	6	1800	16	150	4570	1630	7650	22	150	4570	--	--	--	--	13	190	2870	60	28
4.26	3.04	260	260	200	13	3900	13	3900	8	2400	19	175	4570	1940	8200	25	175	4570	--	--	--	--	13	190	3480	60	36
4.26	3.65	265	265	200	13	3900	13	3900	10	3000	16	140	4570	2250	8860	22	140	4570	--	--	--	--	13	300	4090	60	44
4.26	4.26	290	290	200	13	3900	13	3900	12	3600	16	165	4570	2580	9530	25	165	4570	10	165	1310	2570	13	300	4750	60	52
4.26	4.87	315	315	215	13	3900	13	3900	14	4200	19	150	4600	2910	10160	25	150	4600	--	--	--	--	13	150	5410	60	60

SPAN	HGHT	REINFORCING STEEL (kg/LONG. JT)	QUAN./m		HEADWALLS																					
			CONCRETE CLASS A4 (m <sup>3</sup> /m)	REINFORCING STEEL (kg/m)	C	HW1		INLET CONCRETE CL. A4 (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE CL. A4 (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)	WINGWALL														
(m)	(m)				HEADWALL LENGTH	SIZE	LENGTH																			
3.65	4.26	28.02	3.967	513.97	4520	19	4420	2.604	39.51	2.629	39.51	X														
3.65	4.87	29.30	4.510	678.21	4520	19	4420	2.757	39.51	2.781	39.51	BB														
4.26	2.43	27.21	3.439	449.01	5130	19	5030	2.175	44.97	2.205	44.97	L														
4.26	3.04	28.49	3.673	533.17	5130	19	5030	2.367	44.97	2.397	44.97	P														
4.26	3.65	29.77	3.967	506.42	5130	19	5030	2.556	44.97	2.586	44.97	T														
4.26	4.26	31.05	4.437	554.49	5130	19	5030	2.729	44.97	2.759	44.97	X														
4.26	4.87	32.33	5.059	711.39	5130	19	5030	2.854	44.97	2.883	44.97	BB														

For Typical Section, notes and other details, refer to Standard BB-DT

BB03.0

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3							BH1			BH2			BH3			BV1			NO. BL1 BARS	NO. BL2 BARS			
(m)	(m)	TOP SLAB (mm)	BOTTOM SLAB (mm)	WALL (mm)	A	B	C	D	E	F	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH			SIZE	SPACING C-C	LENGTH
3.65	4.26	290	290	200	11	3300	11	3300	12	3600	16	165	3960	2580	8920	25	165	3960	13	165	1190	2290	13	190	4750	52	52
3.65	4.87	300	300	220	11	3300	11	3300	14	4200	19	150	4000	2900	9550	25	150	3990	--	--	--	--	16	190	5380	52	60
4.26	2.43	295	295	200	13	3900	13	3900	6	1800	19	165	4570	1670	7670	25	165	4570	--	--	--	--	13	150	2950	60	28
4.26	3.04	295	295	200	13	3900	13	3900	8	2400	16	150	4570	1970	8330	25	150	4570	10	150	1310	2570	13	150	3560	60	36
4.26	3.65	300	300	200	13	3900	13	3900	10	3000	16	150	4570	2290	8940	25	150	4570	10	150	1310	2570	13	300	4170	60	44
4.26	4.26	315	315	200	13	3900	13	3900	12	3600	16	140	4570	2600	9580	25	140	4570	10	140	1310	2570	13	290	4800	60	52
4.26	4.87	320	320	215	13	3900	13	3900	14	4200	19	140	4600	2910	10190	25	140	4600	--	--	--	--	13	140	5440	60	60

SPAN	HGHT	REINFORCING STEEL (kg/LONG. JT)	QUAN./m		HEADWALLS							
			CONCRETE CLASS A4 (m <sup>3</sup> /m)	REINFORCING STEEL (kg/m)	HEADWALL LENGTH	SIZE	HW I LENGTH	INLET CONCRETE CL. A4 (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE CL. A4 (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)	WINCWALL
3.65	4.26	28.02	4.085	544.20	4520	19	4420	2.596	39.51	2.621	39.51	X
3.65	4.87	29.30	4.613	669.13	4520	19	4420	2.717	39.51	2.742	39.51	BB
4.26	2.43	27.21	3.754	542.28	5130	19	5030	2.149	44.97	2.179	44.97	L
4.26	3.04	28.49	3.993	579.82	5130	19	5030	2.341	44.97	2.371	44.97	P
4.26	3.65	29.77	4.284	577.38	5130	19	5030	2.530	44.97	2.560	44.97	T
4.26	4.26	31.05	4.660	634.57	5130	19	5030	2.711	44.97	2.741	44.97	X
4.26	4.87	32.33	5.101	756.92	5130	19	5030	2.850	44.97	2.879	44.97	BB

For Typical Section, notes and other details, refer to Standard BB-DT

OVERSIZE BOX CULVERTS  
1.5 TO 3.0 m FILLS  
VIRGINIA DEPARTMENT OF TRANSPORTATION

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3							BH1				BH2			BH3				BV1			NO. BL1 BARS	NO. BL2 BARS	
(m)	(m)	TOP SLAB (mm)	BOTTOM SLAB (mm)	WALL (mm)	A	B	C	D	E	F	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C			LENGTH
3.65	4.26	315	315	200	11	3300	11	3300	12	3600	16	150	3960	2600	8970	25	150	3960	13	150	1190	2290	13	150	4800	52	52
3.65	4.87	325	325	220	11	3300	11	3300	14	4200	16	150	4000	2920	9650	25	150	3990	13	150	1210	2340	16	150	5440	52	60
4.26	2.43	345	345	200	13	3900	13	3900	6	1800	16	150	4570	1720	7820	25	150	4570	10	150	1310	2570	13	165	3050	60	28
4.26	3.04	350	350	200	13	3900	13	3900	8	2400	16	140	4570	2030	8430	25	140	4570	--	--	--	--	13	225	3660	60	36
4.26	3.65	350	350	200	13	3900	13	3900	10	3000	16	140	4570	2340	9040	25	140	4570	10	140	1310	2570	13	300	4270	60	44
4.26	4.26	355	355	200	13	3900	13	3900	12	3600	16	125	4570	2650	9680	25	125	4570	10	125	1310	2570	16	265	4880	60	52
4.26	4.87	370	370	225	13	3900	13	3900	14	4200	19	125	4620	2970	10310	25	125	4620	--	--	--	--	16	190	5510	60	60

SPAN	HGHT	REINFORCING STEEL (kg/LONG. JT)	QUAN./m		HEADWALLS																					
			CONCRETE CLASS A4 (m <sup>3</sup> /m)	REINFORCING STEEL (kg/m)	C	HW1		INLET CONCRETE CL. A4 (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE CL. A4 (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)	WINGWALL														
(m)	(m)				HEADWALL LENGTH	SIZE	LENGTH																			
3.65	4.26	28.02	4.280	600.52	4520	19	4420	2.582	39.51	2.607	39.51	X														
3.65	4.87	29.30	4.817	670.94	4520	19	4420	2.703	39.51	2.727	39.51	BB														
4.26	2.43	27.21	4.218	554.36	5130	19	5030	2.112	44.97	2.142	44.97	L														
4.26	3.04	28.49	4.508	558.42	5130	19	5030	2.301	44.97	2.331	44.97	P														
4.26	3.65	29.77	4.745	613.51	5130	19	5030	2.493	44.97	2.523	44.97	T														
4.26	4.26	31.05	5.022	722.85	5130	19	5030	2.681	44.97	2.711	44.97	X														
4.26	4.87	32.33	5.670	845.63	5130	19	5030	2.779	44.97	2.808	44.97	BB														

For Typical Section, notes and other details, refer to Standard BB-DT

BB06.0

DIMENSIONS										REINFORCING STEEL																	
SPAN	HIGHT	T1	T2	T3	A	B	C	D	E	F	BHI			BH2			BH3			BVI			NO. BLS	NO. BLS			
		TOP SLAB (mm)	BOTTOM SLAB (mm)	WALL (mm)							SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH			SIZE	SPACING	LENGTH
3.65	4.26	375	375	207	11	3300	11	3300	12	3600	19	150	3980	2670	9070	25	150	3960	--	--	--	19	240	4930	52	52	
3.65	4.87	380	380	245	11	3300	11	3300	14	4200	19	140	4050	2980	9750	25	140	4040	10	140	1230	2410	22	290	5560	52	60
4.26	2.43	420	420	200	13	3900	13	3900	6	1800	13	140	4570	1800	8000	25	140	4570	13	140	1310	2540	13	275	3200	60	28
4.26	3.04	420	420	200	13	3900	13	3900	8	2400	16	125	4570	2100	8590	25	125	4570	--	--	--	--	13	300	3810	60	36
4.26	3.65	420	420	200	13	3900	13	3900	10	3000	16	125	4570	2410	9190	25	125	4570	--	--	--	--	13	250	4420	60	44
4.26	4.26	420	420	215	13	3900	13	3900	12	3600	16	125	4600	2710	9830	25	125	4600	13	125	1320	2570	19	290	5030	60	52
4.26	4.87	425	425	240	13	3900	13	3900	14	4200	19	125	4650	3020	10440	25	125	4650	--	--	--	--	19	225	5640	60	60

SPAN	HIGHT	REINFORCING (kg/LONG. FT)		QUAN./m		HEADWALLS		HEADWALLS		HEADWALLS		HEADWALLS	
		STEEL	CONCRETE	STEEL	CONCRETE	STEEL	CONCRETE	STEEL	CONCRETE	STEEL	CONCRETE	STEEL	CONCRETE
3.65	4.26	28.02	4.830	652.69	4520	19	4420	2.528	39.51	2.553	39.51	39.51	X
3.65	4.87	29.30	5.534	781.10	4520	19	4420	2.614	39.51	2.638	39.51	39.51	CC
4.26	2.43	27.21	4.918	543.57	5130	19	5030	2.085	44.97	2.114	44.97	44.97	M
4.26	3.04	28.49	5.154	608.86	5130	19	5030	2.277	44.97	2.306	44.97	44.97	O
4.26	3.65	29.77	5.394	638.14	5130	19	5030	2.469	44.97	2.499	44.97	44.97	U
4.26	4.26	31.05	5.773	784.55	5130	19	5030	2.615	44.97	2.645	44.97	44.97	Y
4.26	4.87	32.33	6.356	874.21	5130	19	5030	2.164	44.97	2.193	44.97	44.97	I

For Typical Section, notes and other details, refer to Standard BB-DT

OVERSIZE BOX CULVERTS  
4.5 TO 6.0 m FILLS

DIMENSIONS										REINFORCING STEEL																	
SPAN (m)	HGT (m)	T1	T2	T3	A	B	C	D	E	F	BH1			BH2			BH3			BVI			NO. BL1 BARS	NO. BL2 BARS			
		TOP SLAB (mm)	BOTTOM SLAB (mm)	WALL (mm)							SIZE	SPACING	o	b	LENGTH	SIZE	SPACING	o	LENGTH	SIZE	SPACING	o			LENGTH	SIZE	SPACING
3.65	4.26	425	425	240	11	3300	11	3300	12	3600	19	140	4040	25	140	4040	--	--	--	13	115	5030	52	52			
3.65	4.87	430	430	260	11	3300	11	3300	14	4200	22	140	4080	25	140	4060	--	--	--	22	250	5640	52	60			
4.26	2.43	495	495	200	13	3900	13	3900	6	1800	13	125	4570	25	125	4570	--	--	--	13	300	3350	60	28			
4.26	3.04	495	495	200	13	3900	13	3900	8	2400	13	125	4570	25	125	4570	10	125	1310	13	300	3960	60	36			
4.26	3.65	500	500	200	13	3900	13	3900	10	3000	16	125	4570	25	125	4570	--	--	--	19	290	4570	60	44			
4.26	4.26	495	495	225	13	3900	13	3900	12	3600	16	125	4620	25	125	4620	10	125	1340	16	165	5180	60	52			
4.26	4.87	495	495	260	13	3900	13	3900	14	4200	19	115	4690	25	115	4670	--	--	--	16	140	5790	60	60			

SPAN (m)	HGT (m)	QUAN./m		HEADWALLS													
		CONCRETE CLASS A4 (m <sup>3</sup> )	REINFORCING STEEL (kg/m)	C	HW1		HW2		HW3		HW4		HW5		HW6		
				HEADWALL LENGTH	SIZE	LENGTH	INLET CONCRETE CLASS A4 (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE CLASS A4 (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)	WINGWALL LENGTH	SIZE	LENGTH	INLET CONCRETE CLASS A4 (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE CLASS A4 (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)
3.65	4.26	28.20	5.568	4520	19	4420	2.427	39.51	2.451	39.51	Y						
3.65	4.87	29.30	6.108	4520	19	4420	2.533	39.51	2.556	39.51	CC						
4.26	2.43	27.21	5.621	5130	19	5030	2.029	44.97	2.059	44.97	M						
4.26	3.04	28.49	5.857	5130	19	5030	2.221	44.97	2.251	44.97	O						
4.26	3.65	29.77	6.135	5130	19	5030	2.410	44.97	2.440	44.97	U						
4.26	4.26	31.05	6.582	5130	19	5030	2.527	44.97	2.557	44.97	Y						
4.26	4.87	32.33	7.244	5130	19	5030	2.588	44.97	2.616	44.97	CC						

For Typical Section, notes and other details, refer to Standard BB-DT

**STRUCTURE AND BRIDGE DIVISION**  
**OVERSIZE BOX CULVERTS**  
**6.0 TO 7.5 m FILLS**  
 VIRGINIA DEPARTMENT OF TRANSPORTATION  
1001.08



BB09.0

DIMENSIONS										REINFORCING STEEL																			
SPAN	HIGHT	T1	T2	T3	TOP SLAB (mm)			BOTTOM SLAB (mm)			WALL (mm)			BHI			BH2			BH3			BVI			NO. BLS	NO. BLS		
		A	B	C	D	E	F	SIZE	SPACING	LENGTH	a	b	LENGTH	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH	SIZE	SPACING	LENGTH				
3.65	4.26	490	490	490	245	11	3300	11	3300	12	3600	16	140	4050	2780	9420	25	140	4040	13	140	1230	2390	19	200	5160	52	52	
3.65	4.87	490	490	490	275	11	3300	11	3300	14	4200	19	140	4110	3090	10030	25	140	4110	10	140	1260	2460	25	300	5770	52	60	
4.26	2.43	565	565	200	13	3900	13	3900	6	1800	13	125	4570	1940	8310	25	125	4570	--	--	--	--	--	13	300	3480	60	28	
4.26	3.04	570	570	200	13	3900	13	3900	8	2400	13	125	4570	2250	8920	25	125	4570	10	125	1310	2570	13	165	4110	60	36	44	
4.26	3.65	570	570	207	13	3900	13	3900	10	3000	16	115	4580	2560	9500	25	115	4570	--	--	--	--	19	225	4720	60	44	52	
4.26	4.26	570	570	240	13	3900	13	3900	12	3600	16	125	4650	2860	10190	25	125	4650	10	125	1350	2640	16	140	5330	60	52	52	
4.26	4.87	570	570	275	13	3900	13	3900	14	4200	19	115	4720	3170	10820	25	115	4720	--	--	--	--	22	240	5940	60	60	52	60

SPAN	HIGHT	REINFORCING (kg/LONG. FT)		QUAN./m		HEADWALLS		HEADWALLS		HEADWALLS		HEADWALLS				
		STEEL	CONCRETE	CLASS A4	FR 3/m	REINFORCING	STEEL	CONCRETE	CLASS A4	FR 3/m	INLET REINFORCING	STEEL (kg)	CONCRETE (m <sup>3</sup> )	OUTLET REINFORCING	STEEL (kg)	
3.65	4.26	28.02	6.156	702.16	4520	19	4420	2.372	39.51	2.396	39.51	Y	39.51	Y	39.51	Y
3.65	4.87	29.30	6.790	830.99	4520	19	4420	2.443	39.51	2.466	39.51	CC	39.51	CC	39.51	CC
4.26	2.43	27.21	6.273	521.05	5130	19	5030	2.005	44.97	2.035	44.97	N	44.97	N	44.97	N
4.26	3.04	28.49	6.552	607.74	5130	19	5030	2.193	44.97	2.223	44.97	R	44.97	R	44.97	R
4.26	3.65	29.77	6.845	750.24	5130	19	5030	2.365	44.97	2.395	44.97	V	44.97	V	44.97	V
4.26	4.26	31.05	7.447	802.87	5130	19	5030	2.449	44.97	2.478	44.97	Z	44.97	Z	44.97	Z
4.26	4.87	32.33	8.137	990.52	5130	19	5030	2.501	44.97	2.529	44.97	DD	44.97	DD	44.97	DD

For Typical Section, notes and other details, refer to Standard BB-DT

OVERSIZE BOX CULVERTS  
7.5 TO 9.0 m FILLS  
VIRGINIA DEPARTMENT OF TRANSPORTATION

DIMENSIONS										REINFORCING STEEL																	
SPAN (m)	HGT (m)	T1	T2	T3	A	B	C	D	E	F	BHI			BH2			BH3			BVI			NO. BL1 BARS	NO. BL2 BARS			
		TOP SLAB (mm)	BOTTOM SLAB (mm)	WALL (mm)							SIZE	SPACING	a	b	LENGTH	SIZE	SPACING	a	b	LENGTH	SIZE	SPACING			a	b	LENGTH
3.65	4.26	545	545	265	11	3300	11	3300	12	3600	16	140	4090	2840	9580	25	140	4090	13	140	1250	2410	22	265	5260	52	
3.65	4.87	545	545	300	11	3300	11	3300	14	4200	19	125	4170	3140	10210	25	125	4170	10	125	1290	2510	25	300	5870	52	
4.26	2.43	620	620	207	13	3900	13	3900	6	1800	13	125	4580	2000	8430	25	125	4570	--	--	--	--	--	13	300	3580	60
4.26	3.04	620	620	200	13	3900	13	3900	8	2400	13	115	4570	2310	9020	25	115	4570	--	--	--	--	--	19	290	4190	60
4.26	3.65	620	620	230	13	3900	13	3900	10	3000	16	115	4640	2600	510	25	115	4650	--	--	--	--	--	19	240	4800	60
4.26	4.26	615	615	265	13	3900	13	3900	12	3600	19	115	4700	2910	10260	25	115	4700	--	--	--	--	--	19	200	5410	60
4.26	4.87	615	615	300	13	3900	13	3900	14	4200	16	115	4780	3210	11000	25	115	4780	13	115	1410	2740	19	175	6020	60	

SPAN (m)	HGT (m)	QUAN./m		HEADWALLS												
		CONCRETE CLASS A4 (m <sup>3</sup> /m)	REINFORCING STEEL (kg/m)	C	HWI		CONCRETE CLASS A4 (m <sup>3</sup> )		REINFORCING STEEL (kg)		OUTLET CONCRETE CLASS A4 (m <sup>3</sup> )		OUTLET REINFORCING STEEL (kg)		WINGWALL	
		REINFORCING STEEL (kg/LONG. FT)	CONCRETE CLASS A4 (m <sup>3</sup> /m)	REINFORCING STEEL (kg/m)	HEADWALL LENGTH	SIZE	LENGTH	INLET CONCRETE CLASS A4 (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE CLASS A4 (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)	CONCRETE CLASS A4 (m <sup>3</sup> )	REINFORCING STEEL (kg)	CONCRETE CLASS A4 (m <sup>3</sup> )	REINFORCING STEEL (kg)	
3.65	4.26	28.20	6.824	714.55	4520	19	4420	2.302	39.51	2.325	39.51	2.325	39.51	2.325	39.51	Z
3.65	4.87	29.30	7.539	915.93	4520	19	4420	2.346	39.51	2.369	39.51	2.369	39.51	2.369	39.51	DD
4.26	2.43	27.21	6.836	523.62	5130	19	5030	1.949	44.97	1.979	44.97	1.979	44.97	1.979	44.97	N
4.26	3.04	28.49	7.017	616.08	5130	19	5030	2.156	44.97	2.186	44.97	2.186	44.97	2.186	44.97	R
4.26	3.65	29.77	7.568	508.74	5130	19	5030	2.261	44.97	2.290	44.97	2.290	44.97	2.290	44.97	V
4.26	4.26	31.05	8.132	933.22	5130	19	5030	2.332	44.97	2.360	44.97	2.360	44.97	2.360	44.97	Z
4.26	4.87	32.33	8.878	968.92	5130	19	5030	2.373	44.97	2.400	44.97	2.400	44.97	2.400	44.97	DD

For Typical Section, notes and other details, refer to Standard BB-DT

STRUCTURE AND BRIDGE DIVISION

## OVERSIZE BOX CULVERTS

9.0 TO 10.5 m FILLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

1001.10

BB12.0

DIMENSIONS										REINFORCING STEEL																		
SPAN	HIGHT	T1	T2	T3	TOP SLAB (mm)			BOTTOM SLAB (mm)			WALL (mm)			BHI			BH2			BH3			BV1			NO. BLS	NO. BLS	
		A	B	C	D	E	F	SIZE	SPACING	LENGTH	a	b	LENGTH	SIZE	SPACING	LENGTH	a	LENGTH	SIZE	SPACING	LENGTH	a	LENGTH	SIZE	SPACING			LENGTH
3.65	4.26	570	570	280	11	3300	11	3300	12	3600	16	125	4130	2860	9650	25	125	4110	13	125	1270	2460	22	265	5330	52	52	
3.65	4.87	570	570	320	11	3300	11	3300	14	4200	19	125	4200	3170	10290	25	125	4190	10	125	1310	2570	19	165	5940	52	60	
4.26	2.43	695	695	225	13	3900	13	3900	6	1800	13	115	4620	2080	8610	25	115	4620	--	--	--	--	--	13	300	3810	60	28
4.26	3.04	695	695	215	13	3900	13	3900	8	2400	13	115	4600	2380	9190	25	115	4600	--	--	--	--	--	19	240	4340	60	36
4.26	3.65	690	690	250	13	3900	13	3900	10	3000	16	115	4670	2680	9830	29	115	4670	--	--	--	--	--	13	100	4950	60	44
4.26	4.26	690	690	280	13	3900	13	3900	12	3600	19	115	4740	2980	10460	25	115	4720	--	--	--	--	--	16	125	5560	60	52
4.26	4.87	695	695	320	13	3900	13	3900	14	4200	16	115	4810	3300	11200	25	115	4800	13	115	1430	2790	22	215	6170	60	60	

SPAN	HIGHT	REINFORCING (kg/LONG. FT)		QUAN./m		HEADWALLS		HEADWALLS		INLET CONCRETE (m <sup>3</sup> )		INLET REINFORCING STEEL (kg)		OUTLET CONCRETE (m <sup>3</sup> )		OUTLET REINFORCING STEEL (kg)	
		STEEL	CONCRETE	CONCRETE CLASS A4	REINFORCING STEEL (kg/m)	HEADWALL G	HEADWALL H	INLET CONCRETE (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)	OUTLET CONCRETE (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)				
3.65	4.26	28.02	7.187	782.32	4520	19	4420	2.238	39.51	2.261	39.51	Z	39.51	2.261	39.51	Z	39.51
3.65	4.87	29.30	7.307	926.58	4520	19	4420	3.332	39.51	3.361	39.51	DD	39.51	3.361	39.51	DD	39.51
4.26	2.43	27.21	7.669	568.63	5130	19	5030	1.880	44.97	1.909	44.97	O	44.97	1.909	44.97	O	44.97
4.26	3.04	28.49	7.846	637.34	5130	19	5030	2.089	44.97	2.119	44.97	S	44.97	2.119	44.97	S	44.97
4.26	3.65	29.77	8.386	858.97	5130	19	5030	2.175	44.97	2.203	44.97	W	44.97	2.203	44.97	W	44.97
4.26	4.26	31.05	9.016	959.53	5130	19	5030	2.247	44.97	2.276	44.97	AA	44.97	2.276	44.97	AA	44.97
4.26	4.87	32.33	9.068	998.26	5130	19	5030	3.377	44.97	3.411	44.97	EE	44.97	3.411	44.97	EE	44.97

For Typical Section, notes and other details, refer to Standard BB-DT

Sheet 1 of 1

OVERSIZE BOX CULVERTS  
10.5 TO 12.0 m FILLS  
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

1001.11

DIMENSIONS										REINFORCING STEEL																	
SPAN (m)	HGT (m)	T1	T2	T3	A	B	C	D	E	F	BH1			BH2			BH3			BVI			NO. BL1 BARS	NO. BL2 BARS			
		TOP SLAB (mm)	BOTTOM SLAB (mm)	WALL (mm)							SIZE	SPACING	a	b	LENGTH	SIZE	SPACING	a	LENGTH	SIZE	SPACING	a			LENGTH	SIZE	SPACING
3.65	4.26	630	630	300	11	3300	11	3300	12	3600	16	125	4170	2930	9830	25	125	4170	13	125	1290	2490	16	125	5460	52	52
3.65	4.87	630	630	345	11	3300	11	3300	14	4200	19	115	4250	10460	29	115	4270	10	115	1330	2620	22	115	6070	52	60	
4.26	2.43	720	720	265	13	3900	13	3900	6	1800	13	115	4700	2100	8740	25	115	4700	--	--	--	--	13	300	3780	60	28
4.26	3.04	715	715	245	13	3900	13	3900	8	2400	13	115	4660	2400	9300	25	115	4650	10	115	1360	2640	19	290	4390	60	36
4.26	3.65	715	715	265	13	3900	13	3900	10	3000	13	115	4700	2710	9960	25	115	4700	13	115	1370	2670	16	150	5000	60	44
4.26	4.26	715	715	305	13	3900	13	3900	12	3600	16	115	4790	3010	10620	29	115	4780	10	115	1420	2770	22	265	5610	60	52
4.26	4.87	715	715	345	13	3900	13	3900	14	4200	19	115	4860	3310	11250	29	115	4850	10	115	1460	2840	19	165	6220	60	60

SPAN (m)	HGT (m)	QUAN./m			HEADWALLS																									
		REINFORCING STEEL (kg/m)	CONCRETE CLASS A4 (m <sup>3</sup> /m)	REINFORCING STEEL (kg/m)	INLET CONCRETE CLASS A4 (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE CLASS A4 (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)	WINGWALL	INLET CONCRETE CLASS A4 (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE CLASS A4 (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)	WINGWALL																
3.65	4.26	28.20	7.910	804.77	4520	19	4420	2.133	39.51	2.156	39.51	Z																		
3.65	4.87	29.30	8.035	1090.42	4520	19	4420	3.221	39.51	3.249	39.51	DD																		
4.26	2.43	27.21	8.213	576.21	5130	19	5030	1.769	44.97	1.797	44.97	O																		
4.26	3.04	28.49	8.297	680.95	5130	19	5030	1.994	44.97	2.023	44.97	S																		
4.26	3.65	29.77	8.786	776.99	5130	19	5030	2.109	44.97	2.138	44.97	W																		
4.26	4.26	31.05	8.681	978.80	5130	19	5030	3.159	44.97	3.194	44.97	AA																		
4.26	4.87	32.33	9.532	1181.15	5130	19	5030	3.272	44.97	3.306	44.97	EE																		

For Typical Section, notes and other details, refer to Standard BB-DT

**STRUCTURE AND BRIDGE DIVISION**  
**OVERSIZE BOX CULVERTS**  
 12.0 TO 13.5 m FILLS  
 VIRGINIA DEPARTMENT OF TRANSPORTATION  
 1001.12

BB15.0

DIMENSIONS					REINFORCING STEEL																						
SPAN	HGHT	T1	T2	T3							BH1			BH2			BH3			BV1							
(m)	(m)	TOP SLAB (mm)	BOTTOM SLAB (mm)	WALL (mm)	A	B	C	D	E	F	SIZE	SPACING C-C	a	b	LENGTH	SIZE	SPACING C-C	LENGTH	SIZE	SPACING C-C	a	LENGTH	SIZE	SPACING C-C	LENGTH	NO. BL1 BARS	NO. BL2 BARS
3.65	4.26	690	690	320	11	3300	11	3300	12	3600	16	125	4200	2980	9980	25	125	4190	13	125	1310	2540	25	300	5560	52	52
3.65	4.87	695	695	365	11	3300	11	3300	14	4200	19	115	4290	3300	10640	29	115	4290	10	115	1350	2640	22	200	6170	52	60
4.26	2.43	790	790	295	13	3900	13	3900	6	1800	13	115	4760	2170	8940	29	115	4750	--	--	--	--	13	300	3940	60	28
4.26	3.04	790	790	270	13	3900	13	3900	8	2400	13	115	4710	2480	9500	29	115	4720	--	--	--	--	16	190	4550	60	36
4.26	3.65	780	780	280	13	3900	13	3900	10	3000	13	115	4740	2770	10130	25	115	4720	13	115	1390	2720	19	200	5160	60	44
4.26	4.26	780	780	325	13	3900	13	3900	12	3600	16	115	4830	3080	10800	29	115	4830	10	115	1440	2820	19	175	5770	60	52
4.26	4.87	780	780	365	13	3900	13	3900	14	4200	19	115	4900	3380	11430	29	115	4900	10	115	1480	2900	19	150	6380	60	60

SPAN	HGHT	REINFORCING STEEL (kg/LONG. JT)	QUAN./m		HEADWALLS							
			CONCRETE CLASS A4 (m <sup>3</sup> /m)	REINFORCING STEEL (kg/m)	G HEADWALL LENGTH	HW I SIZE	HW I LENGTH	INLET CONCRETE CL. A4 (m <sup>3</sup> )	INLET REINFORCING STEEL (kg)	OUTLET CONCRETE CL. A4 (m <sup>3</sup> )	OUTLET REINFORCING STEEL (kg)	WINDWALL
3.65	4.26	28.02	7.815	823.04	4520	19	4420	3.061	39.51	3.090	39.51	AA
3.65	4.87	29.30	8.768	1115.49	4520	19	4420	3.149	39.51	3.177	39.51	EE
4.26	2.43	27.21	9.112	673.97	5130	19	5030	1.640	44.97	1.668	44.97	O
4.26	3.04	28.49	9.233	733.72	5130	19	5030	1.866	44.97	1.894	44.97	S
4.26	3.65	29.77	9.563	794.90	5130	19	5030	2.010	44.97	2.038	44.97	W
4.26	4.26	31.05	9.465	1007.62	5130	19	5030	3.057	44.97	3.091	44.97	AA
4.26	4.87	32.33	10.350	1215.33	5130	19	5030	3.160	44.97	3.193	44.97	EE

For Typical Section, notes and other details, refer to Standard BB-DT

OVERSIZE BOX CULVERTS  
13.5 TO 15.0 m FILLS  
VIRGINIA DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION