

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE								COMMENT NUMBER		
						LIVE-LOAD FACTORS (γ _{L1})	MOMENT				SHEAR					
							RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (FT)	RATING FACTOR	BOX NO.	ELEMENT TYPE		DISTANCE FROM LEFT END OF ELEMENT (FT)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.19	--	1.75	2.31	1	TOP SLAB	4.60	1.19	1	TOP SLAB	9.65		
	HL-93 (OPERATING)	N/A		1.54	--	1.35	3.00	1	TOP SLAB	4.60	1.54	1	TOP SLAB	9.65		
	HS-20 (INVENTORY)	36,000	②	1.67	60.12	1.75	2.45	1	TOP SLAB	4.60	1.67	1	TOP SLAB	9.65		
	HS-20 (OPERATING)	36,000		2.16	77.76	1.35	3.18	1	TOP SLAB	4.60	2.16	1	TOP SLAB	9.65		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13,500		3.58	48.33	1.40	4.46	1	TOP SLAB	4.60	3.58	1	TOP SLAB	9.65	
		SNGARBS2	20,000		3.22	64.40	1.40	4.18	1	TOP SLAB	4.60	3.22	1	TOP SLAB	9.65	
		SNAGRIS2	22,000		3.05	67.10	1.40	4.46	1	TOP SLAB	4.60	3.05	1	BOTTOM SLAB	9.83	
		SNCOTTS3	27,250	③	1.61	43.87	1.40	3.08	1	TOP SLAB	4.60	1.61	1	TOP SLAB	9.65	
		SNAGGRS4	34,925		1.93	67.40	1.40	3.83	1	TOP SLAB	4.60	1.93	1	BOTTOM SLAB	9.83	
		SNS5A	35,550		1.87	66.48	1.40	3.66	1	TOP SLAB	4.60	1.87	1	TOP SLAB	9.65	
		SNS6A	39,950		1.77	70.71	1.40	3.66	1	TOP SLAB	4.60	1.77	1	TOP SLAB	9.65	
		SNS7B	42,000		1.77	74.34	1.40	3.85	1	TOP SLAB	4.60	1.77	1	TOP SLAB	9.65	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33,000		2.06	67.98	1.40	4.46	1	TOP SLAB	4.60	2.06	1	BOTTOM SLAB	9.83	
		TNT4A	33,075		1.90	62.84	1.40	3.67	1	TOP SLAB	4.60	1.90	1	TOP SLAB	9.65	
		TNT6A	41,600		1.83	76.13	1.40	3.76	1	TOP SLAB	4.60	1.83	1	TOP SLAB	9.65	
		TNT7A	42,000		1.79	75.18	1.40	3.72	1	TOP SLAB	4.60	1.79	1	BOTTOM SLAB	9.83	
		TNT7B	42,000		1.86	78.12	1.40	3.60	1	TOP SLAB	4.60	1.86	1	TOP SLAB	9.65	
		TNAGRIT4	43,000		1.81	77.83	1.40	3.67	1	TOP SLAB	4.60	1.81	1	TOP SLAB	9.65	
TNAGT5A	45,000		1.81	81.45	1.40	3.90	1	TOP SLAB	4.60	1.81	1	TOP SLAB	9.65			
TNAGT5B	45,000		1.61	72.45	1.40	3.58	1	BOTTOM SLAB	10.67	1.61	1	BOTTOM SLAB	9.83			

LOAD FACTORS:

DESIGN LOAD RATING FACTORS

LOAD TYPE	MAX FACTOR	MIN FACTOR
DC	1.25	0.90
DW	1.50	0.65
EV	1.30	0.90
EH	1.35	0.90
ES	1.35	0.90
LS	1.75	--
WA	1.00	--

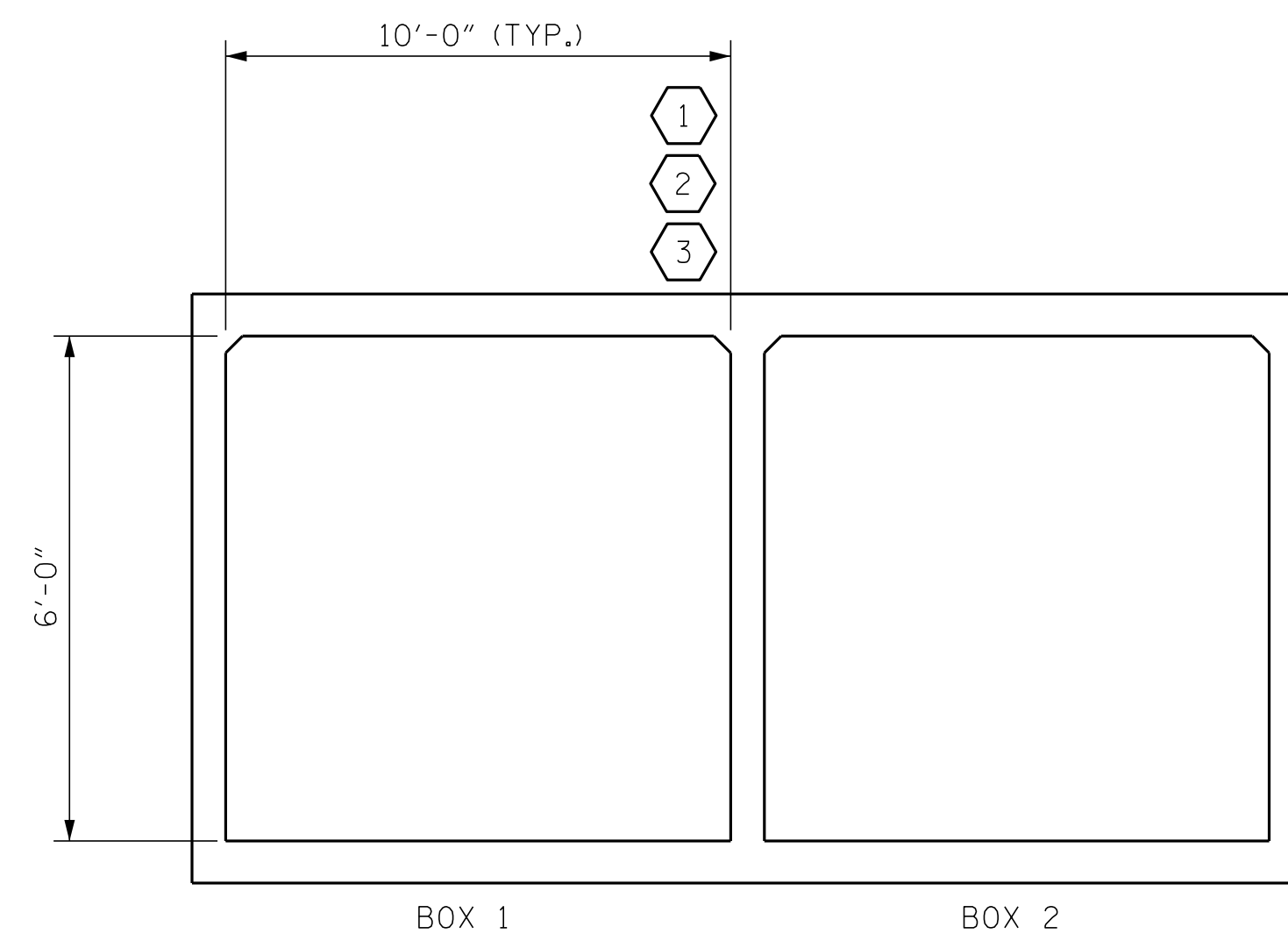
NOTE:

RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

COMMENTS:

- 1.
- 2.
- 3.
- 4.

#	CONTROLLING LOAD RATING
①	DESIGN LOAD RATING (HL-93)
②	DESIGN LOAD RATING (HS-20)
③	LEGAL LOAD RATING **
	** SEE CHART FOR VEHICLE TYPE



LRFR SUMMARY
(LOOKING DOWNSTREAM)

PROJECT NO. W-5600
JOHNSTON COUNTY
 STATION: 155+03.40 -L-

SHEET 2 OF 7

ENGINEER OF RECORD: 3/25/2019 RICK CHARLES HUNT ENGINEER	STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH STANDARD LRFR SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS (NON-INTERSTATE TRAFFIC)																												
1223 Jones Franklin Rd. Raleigh, N.C. 27606 Bus: 919 851 8077 Fax: 919 851 8107 LICENSE NO. F-0377	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="6">REVISIONS</th> <th>SHEET NO.</th> </tr> <tr> <th>NO.</th> <th>BY:</th> <th>DATE:</th> <th>NO.</th> <th>BY:</th> <th>DATE:</th> <th>C2-2</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td>3</td> <td></td> <td></td> <td>TOTAL SHEETS</td> </tr> <tr> <td>2</td> <td></td> <td></td> <td>4</td> <td></td> <td></td> <td>7</td> </tr> </tbody> </table>	REVISIONS						SHEET NO.	NO.	BY:	DATE:	NO.	BY:	DATE:	C2-2	1			3			TOTAL SHEETS	2			4			7
REVISIONS						SHEET NO.																							
NO.	BY:	DATE:	NO.	BY:	DATE:	C2-2																							
1			3			TOTAL SHEETS																							
2			4			7																							

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

STD. NO. LRFR5