

**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 (VLL)	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	1.36	--	1.75	2.71	1	TOP SLAB	3.00	1.36	1	TOP SLAB	5.85		
	HL-93 (OPERATING)	N/A		1.76	--	1.35	3.51	1	TOP SLAB	3.00	1.76	1	TOP SLAB	5.85		
	HS-20 (INVENTORY)	36.000	②	2.05	73.88	1.75	3.97	1	TOP SLAB	3.00	2.05	1	TOP SLAB	5.85		
	HS-20 (OPERATING)	36.000		2.66	95.77	1.35	5.15	1	TOP SLAB	3.00	2.66	1	TOP SLAB	5.85		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.77	50.86	1.40	6.29	1	BOTTOM SLAB	0.33	3.77	1	TOP SLAB	5.85	
		SNGARBS2	20.000		3.53	70.64	1.40	6.29	1	BOTTOM SLAB	0.33	3.53	1	TOP SLAB	5.85	
		SNAGRIS2	22.000		3.77	82.89	1.40	6.29	1	BOTTOM SLAB	0.33	3.77	1	TOP SLAB	5.85	
		SNCOTTS3	27.250		1.70	46.24	1.40	3.39	1	TOP SLAB	3.00	1.70	1	TOP SLAB	5.85	
		SNAGGRS4	34.925	③	1.63	57.07	1.40	3.38	1	TOP SLAB	3.00	1.63	1	TOP SLAB	5.85	
		SNS5A	35.550		1.66	58.86	1.40	3.49	1	TOP SLAB	3.00	1.66	1	TOP SLAB	5.85	
		SNS6A	39.950		1.65	65.72	1.40	3.49	1	TOP SLAB	3.00	1.65	1	TOP SLAB	5.85	
		SNS7B	42.000		1.65	69.09	1.40	3.54	1	TOP SLAB	3.00	1.65	1	TOP SLAB	5.85	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.21	72.84	1.40	4.85	1	TOP SLAB	3.00	2.21	1	TOP SLAB	5.85	
		TNT4A	33.075		2.03	67.10	1.40	4.06	1	TOP SLAB	3.00	2.03	1	TOP SLAB	5.85	
		TNT6A	41.600		1.68	69.75	1.40	3.60	1	TOP SLAB	3.00	1.68	1	TOP SLAB	5.85	
		TNT7A	42.000		1.89	79.52	1.40	4.06	1	TOP SLAB	3.00	1.89	1	TOP SLAB	5.85	
		TNT7B	42.000		1.73	72.49	1.40	3.72	1	TOP SLAB	3.00	1.73	1	TOP SLAB	5.85	
		TNAGRIT4	43.000		1.93	82.81	1.40	3.85	1	TOP SLAB	3.00	1.93	1	TOP SLAB	5.85	
TNAGT5A	45.000		1.96	88.14	1.40	3.99	1	TOP SLAB	3.00	1.96	1	TOP SLAB	5.85			
TNAGT5B	45.000		1.99	89.34	1.40	4.06	1	TOP SLAB	3.00	1.99	1	TOP SLAB	5.85			

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	0.50 OR 0.90
ES	1.35	0.50 OR 0.90
LS	1.75	--
WA	1.00	--

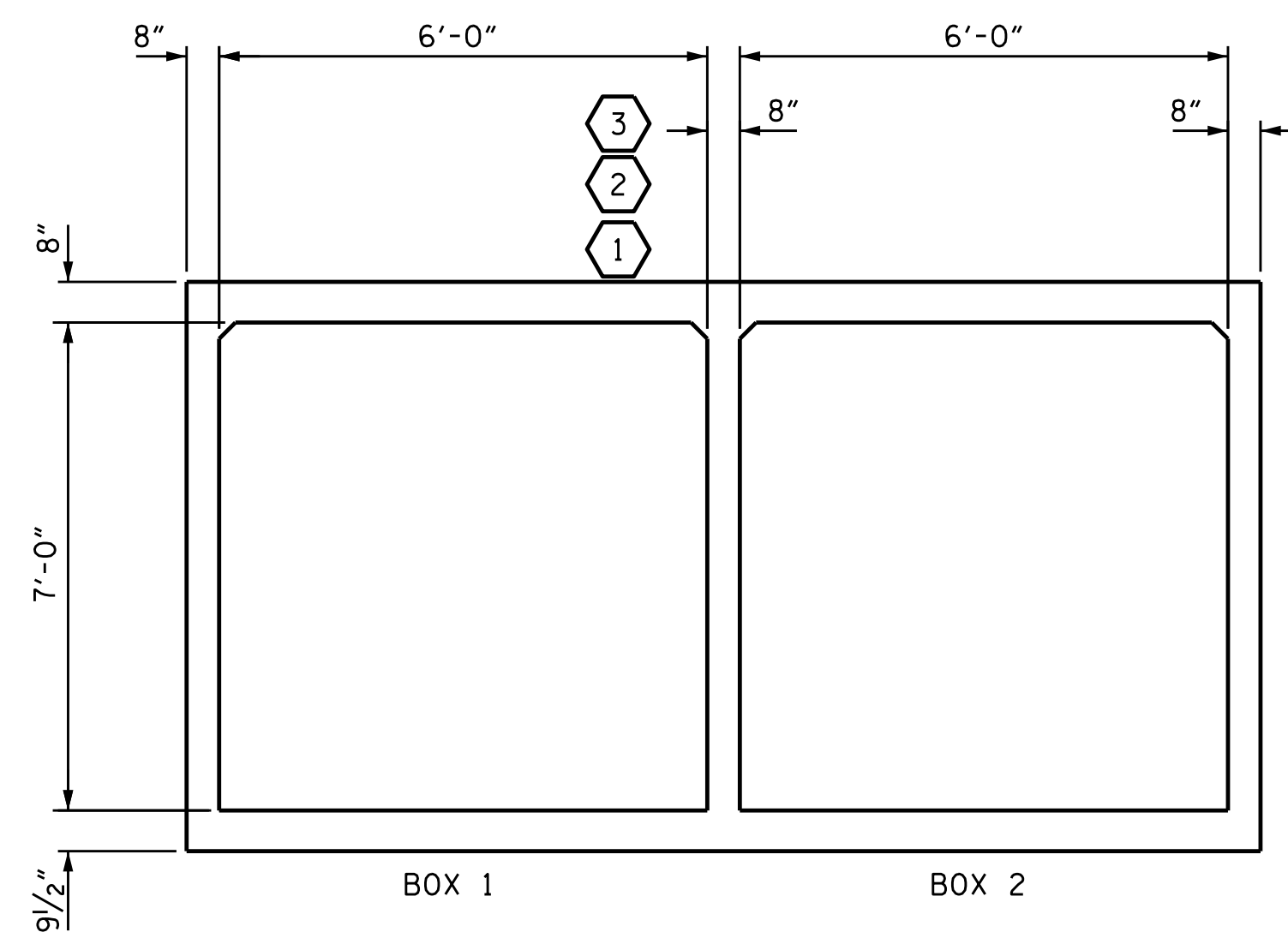
NOTE:

RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

COMMENTS:

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

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

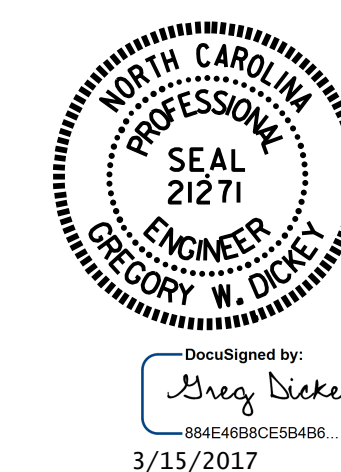


LRFR SUMMARY

(LOOKING DOWNSTREAM)

PROJECT NO. U-3330
NASH COUNTY
 STATION: 113+48.00 -L-

SHEET 11 OF 11



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**STANDARD
 LRFR SUMMARY FOR
 REINFORCED CONCRETE
 BOX CULVERTS
 (NON-INTERSTATE TRAFFIC)**

ASSEMBLED BY :	A. K. PATEL	DATE :	02/2017
CHECKED BY :	P. K. NEWTON	DATE :	02/2017
DRAWN BY :	WMC	7/II	REV. 10/1/II
CHECKED BY :	GM	7/II	MAA/GM

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-11
1			3			TOTAL SHEETS
2			4			11