

LOAD FACTORS:

DESIGN LOAD RATING FACTORS

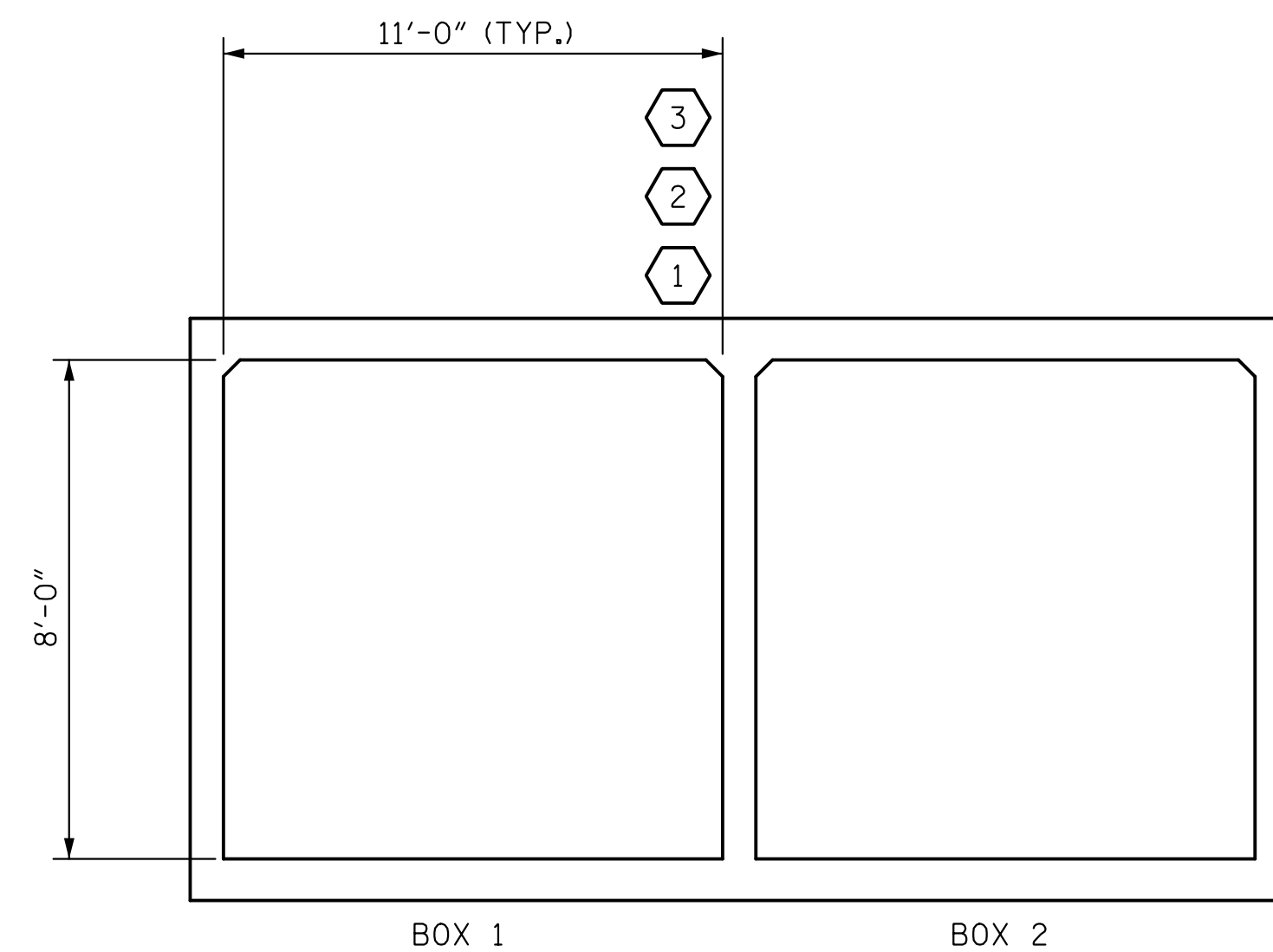
LOAD TYPE	MAX FACTOR	MIN FACTOR
DC	1.25	0.90
DW	1.50	0.65
EV	1.30	0.90
EH	1.35	0.90
ES	1.35	0.90
LS	1.75	--
WA	1.00	--

NOTE:

RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

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 (LL)	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	10.07	--	1.75	13.42	1	TOP SLAB	10.75	10.07	1	TOP SLAB	9.23	.	
	HL-93 (OPERATING)	N/A		13.06	--	1.35	17.40	1	TOP SLAB	10.75	13.06	1	TOP SLAB	9.23		
	HS-20 (INVENTORY)	36,000	②	10.07	362.5	1.75	13.42	1	TOP SLAB	10.75	10.07	1	TOP SLAB	9.23		
	HS-20 (OPERATING)	36,000		13.06	470.2	1.35	17.40	1	TOP SLAB	10.75	13.06	1	TOP SLAB	9.23		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH		29.21	394.3	1.40	37.39	1	TOP SLAB	10.75	29.21	1	TOP SLAB	9.23		
		SNGARBS2	20,000		20.35	407.0	1.40	27.28	1	TOP SLAB	10.75	20.35	1	TOP SLAB	9.23	
		SNAGRIS2	22,000		18.66	410.5	1.40	25.30	1	TOP SLAB	10.75	18.66	1	TOP SLAB	9.23	
		SNCOTTS3	27,250		14.30	389.7	1.40	17.86	1	TOP SLAB	10.75	14.30	1	TOP SLAB	9.23	
		SNAGGRS4	34,925		11.48	400.9	1.40	15.02	1	TOP SLAB	10.75	11.48	1	TOP SLAB	9.23	
		SNS5A	35,550		11.33	402.8	1.40	14.68	1	TOP SLAB	10.75	11.33	1	TOP SLAB	9.23	
		SNS6A	39,950		10.64	425.1	1.40	13.68	1	TOP SLAB	10.75	10.64	1	TOP SLAB	9.23	
		SNS7B	42,000		10.45	438.9	1.40	13.28	1	TOP SLAB	10.75	10.45	1	TOP SLAB	9.23	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33,000		12.43	410.2	1.40	16.99	1	TOP SLAB	10.75	12.43	1	TOP SLAB	9.23	
		TNT4A	33,075		12.65	418.4	1.40	16.74	1	TOP SLAB	10.75	12.65	1	TOP SLAB	9.23	
		TNT6A	41,600		11.12	462.6	1.40	14.09	1	TOP SLAB	10.75	11.12	1	TOP SLAB	9.23	
		TNT7A	42,000		10.60	445.2	1.40	14.11	1	TOP SLAB	10.75	10.60	1	TOP SLAB	9.23	
		TNT7B	42,000		11.12	467.0	1.40	14.44	1	TOP SLAB	10.75	11.12	1	TOP SLAB	9.23	
		TNAGRIT4	43,000		9.75	419.3	1.40	13.34	1	TOP SLAB	10.75	9.75	1	TOP SLAB	9.23	
TNAGRIT5A	45,000		10.20	459.0	1.40	13.39	1	TOP SLAB	10.75	10.20	1	TOP SLAB	9.23			
TNAGRIT5B	45,000		③	9.55	429.8	1.40	12.74	1	TOP SLAB	10.75	9.55	1	TOP SLAB	9.23		

#	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)

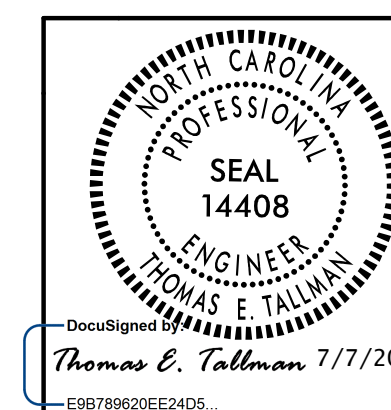
PROJECT NO. W-5516

ROWAN COUNTY

STATION: 31+84.50 -L-

SHEET 5 OF 5

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



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-5
1			3			TOTAL SHEETS 13
2			4			



5121 Kingdom Way, Suite 100 Raleigh, NC 27607  
NC License No. P-09298

ASSEMBLED BY : D. H. CARTER DATE : MAY 2015  
CHECKED BY : T. E. TALLMAN DATE : MAY 2015  
DRAWN BY : WMC 7/11  
CHECKED BY : GM 7/11  
REV. 10/1/11 MAA/GM