

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

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	2.07	--	1.75	<b>5.95</b>	1	BOT CORNER WALL	<b>6.61</b>	2.07	1	EXTERIOR WALL	1.02	
	HL-93 (OPERATING)	N/A		2.69	--	1.35	7.71	1	BOT CORNER WALL	<b>6.61</b>	2.69	1	EXTERIOR WALL	1.02	
	HS-20 (INVENTORY)	36.00	②	2.07	74.69	1.75	<b>5.95</b>	1	BOT CORNER WALL	<b>6.61</b>	2.07	1	EXTERIOR WALL	1.02	
	HS-20 (OPERATING)	36.00		2.69	96.82	1.35	7.71	1	BOT CORNER WALL	<b>6.61</b>	2.69	1	EXTERIOR WALL	1.02	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	③	2.59	35.01	1.40	<b>7.44</b>	1	BOT CORNER WALL	<b>6.61</b>	2.59	1	EXTERIOR WALL	1.02	
		SNGARBS2		2.59	51.87	1.40	7.44	1	BOT CORNER WALL	<b>6.61</b>	2.59	1	EXTERIOR WALL	1.02	
		SNAGRIS2		2.59	57.06	1.40	7.44	1	BOT CORNER WALL	<b>6.61</b>	2.59	1	EXTERIOR WALL	1.02	
		SNCOTTS3		2.59	70.67	1.40	7.44	1	BOT CORNER WALL	<b>6.61</b>	2.59	1	EXTERIOR WALL	1.02	
		SNAGGRS4		2.59	90.58	1.40	7.44	1	BOT CORNER WALL	<b>6.61</b>	2.59	1	EXTERIOR WALL	1.02	
		SNS5A		2.59	92.20	1.40	7.44	1	BOT CORNER WALL	<b>6.61</b>	2.59	1	EXTERIOR WALL	1.02	
		SNS6A		2.59	103.61	1.40	7.44	1	BOT CORNER WALL	<b>6.61</b>	2.59	1	EXTERIOR WALL	1.02	
		SNS7B		2.59	108.92	1.40	7.44	1	BOT CORNER WALL	<b>6.61</b>	2.59	1	EXTERIOR WALL	1.02	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3		2.59	85.58	1.40	7.44	1	BOT CORNER WALL	<b>6.61</b>	2.59	1	EXTERIOR WALL	1.02	
		TNT4A		2.59	85.78	1.40	7.44	1	BOT CORNER WALL	<b>6.61</b>	2.59	1	EXTERIOR WALL	1.02	
		TNT6A		2.59	107.89	1.40	7.44	1	BOT CORNER WALL	<b>6.61</b>	2.59	1	EXTERIOR WALL	1.02	
		TNT7A		2.59	108.92	1.40	7.44	1	BOT CORNER WALL	<b>6.61</b>	2.59	1	EXTERIOR WALL	1.02	
		TNT7B		2.59	108.92	1.40	7.44	1	BOT CORNER WALL	<b>6.61</b>	2.59	1	EXTERIOR WALL	1.02	
		TNAGRIT4		2.59	111.52	1.40	7.44	1	BOT CORNER WALL	<b>6.61</b>	2.59	1	EXTERIOR WALL	1.02	
		TNAGT5A		2.59	116.70	1.40	7.44	1	BOT CORNER WALL	<b>6.61</b>	2.59	1	EXTERIOR WALL	1.02	
TNAGT5B		2.59	116.70	1.40	7.44	1	BOT CORNER WALL	<b>6.61</b>	2.59	1	EXTERIOR WALL	1.02			

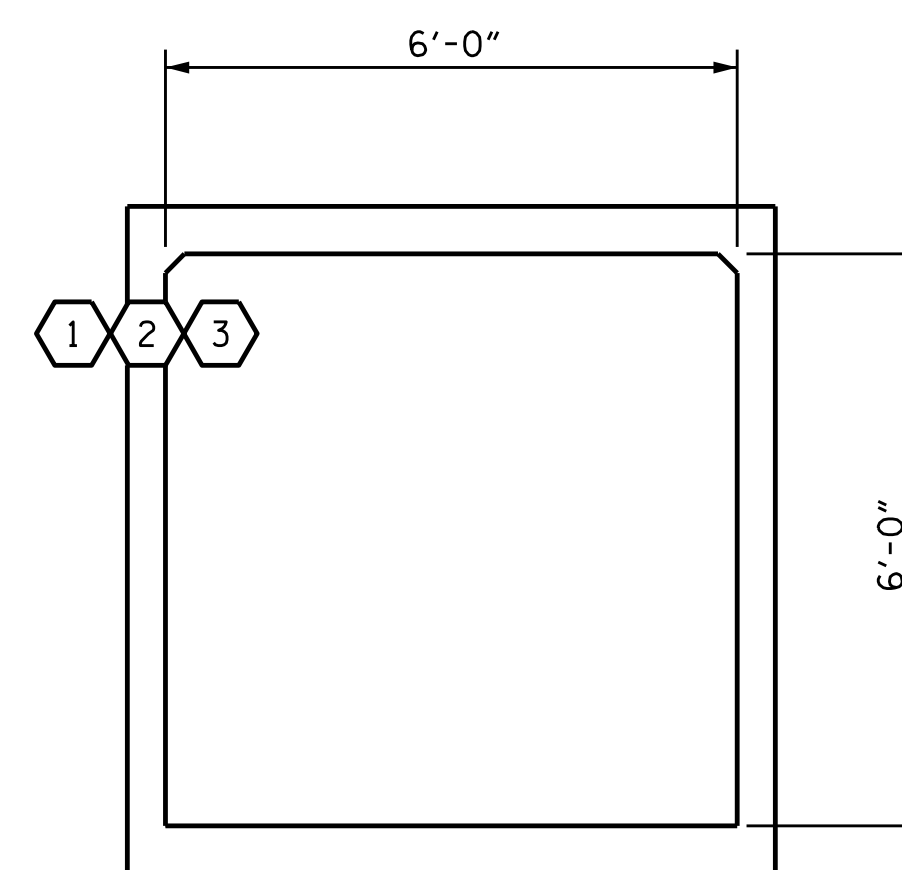
**LOAD FACTORS:**

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.

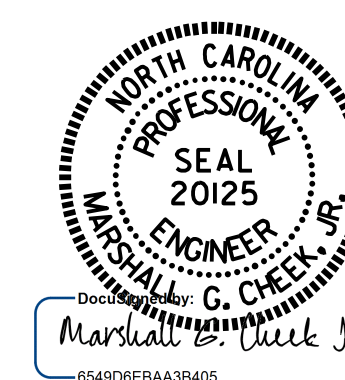
①	CONTROLLING LOAD RATING
①	DESIGN LOAD RATING (HL-93)
②	DESIGN LOAD RATING (HS-20)
③	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	



**LRFR SUMMARY**

PROJECT NO. B-4447  
BURKE COUNTY  
STATION: 24+88.00 -L-

SHEET 2 OF 6



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**LRFR SUMMARY FOR  
REINFORCED CONCRETE  
BOX CULVERTS**

(NON-INTERSTATE TRAFFIC)

ASSEMBLED BY : H. T. BARBOUR	DATE : 1-29-17
CHECKED BY : M. G. CHEEK	DATE : 2-17-17
DRAWN BY : WMC 7/11	REV. 10/11/11 MAA/GM
CHECKED BY : GM 7/11	

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-2
1			3			TOTAL SHEETS
2			4			6