

## LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR STEEL GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE II LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVE-LOAD FACTORS (γ <sub>LL</sub> )	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	LIVE-LOAD FACTORS (γ <sub>LL</sub> )	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FT)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.66	--	1.75	0.649	1.91	A	EL	45.97	0.926	2.24	A	I	0.00	1.30	0.649	1.66	A	EL	20.00		
	HL-93 (OPERATING)	N/A		2.16	--	1.35	0.649	2.48	A	EL	45.97	0.926	2.90	A	I	0.00	1.00	0.649	2.16	A	EL	20.00		
	HS-20 (INVENTORY)	36.00	②	2.26	81.36	1.75	0.649	2.62	A	EL	45.97	0.926	3.00	A	I	0.00	1.30	0.649	2.26	A	EL	20.00		
	HS-20 (OPERATING)	36.00		2.93	105.48	1.35	0.649	3.40	A	EL	45.97	0.926	3.88	A	I	0.00	1.00	0.649	2.93	A	EL	20.00		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SH		5.89	73.63	1.40	0.649	8.45	A	EL	45.97	0.926	9.99	A	I	0.00	1.30	0.649	5.89	A	EL	20.00		
		S3C		3.45	74.18	1.40	0.649	4.88	A	EL	45.97	0.926	5.85	A	I	0.00	1.30	0.649	3.45	A	EL	20.00		
		S3A		3.27	74.39	1.40	0.649	4.63	A	EL	45.97	0.926	5.55	A	I	0.00	1.30	0.649	3.27	A	EL	20.00		
		S4A		2.85	76.24	1.40	0.649	4.08	A	EL	45.97	0.926	4.82	A	I	0.00	1.30	0.649	2.85	A	EL	20.00		
		S5A		2.54	77.47	1.40	0.649	3.60	A	EL	45.97	0.926	4.35	A	I	0.00	1.30	0.649	2.54	A	EL	20.00		
		S6A		2.29	79.01	1.40	0.649	3.25	A	EL	45.97	0.926	3.93	A	I	0.00	1.30	0.649	2.29	A	EL	20.00		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	S7B		2.10	80.85	1.40	0.649	2.96	A	EL	45.97	0.926	3.65	A	I	0.00	1.30	0.649	2.10	A	EL	20.00		
		S7A		③	2.09	83.60	1.40	0.649	2.91	A	EL	45.97	0.926	3.70	A	I	0.00	1.30	0.649	2.09	A	EL	45.97	
		T4A		2.76	77.97	1.40	0.649	3.99	A	EL	45.97	0.926	4.66	A	I	0.00	1.30	0.649	2.76	A	EL	20.00		
		T5B		2.50	80.00	1.40	0.649	3.51	A	EL	45.97	0.926	4.37	A	I	0.00	1.30	0.649	2.50	A	EL	20.00		
		T6A		2.30	82.80	1.40	0.649	3.21	A	EL	45.97	0.926	3.99	A	I	0.00	1.30	0.649	2.30	A	EL	45.97		
		T7A		2.13	85.20	1.40	0.649	2.97	A	EL	45.97	0.926	3.69	A	I	0.00	1.30	0.649	2.13	A	EL	45.97		
T7B		2.11	84.40	1.40	0.649	3.15	A	EL	45.97	0.926	3.51	A	I	0.00	1.30	0.649	2.11	A	EL	20.00				
FATIGUE	HL-93 (INVENTORY)	γ <sub>LL</sub> =0.75		--																				

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ <sub>DC</sub>	γ <sub>DW</sub>
	STRENGTH I	1.25	1.50
	SERVICE II	1.00	1.00

NOTES:  
 MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE II LIMIT STATES.  
 ALLOWABLE STRESS FOR SERVICE II LIMIT STATE ARE AS REQUIRED FOR DESIGN.

③ CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93) \*\*

② DESIGN LOAD RATING (HS-20) \*\*

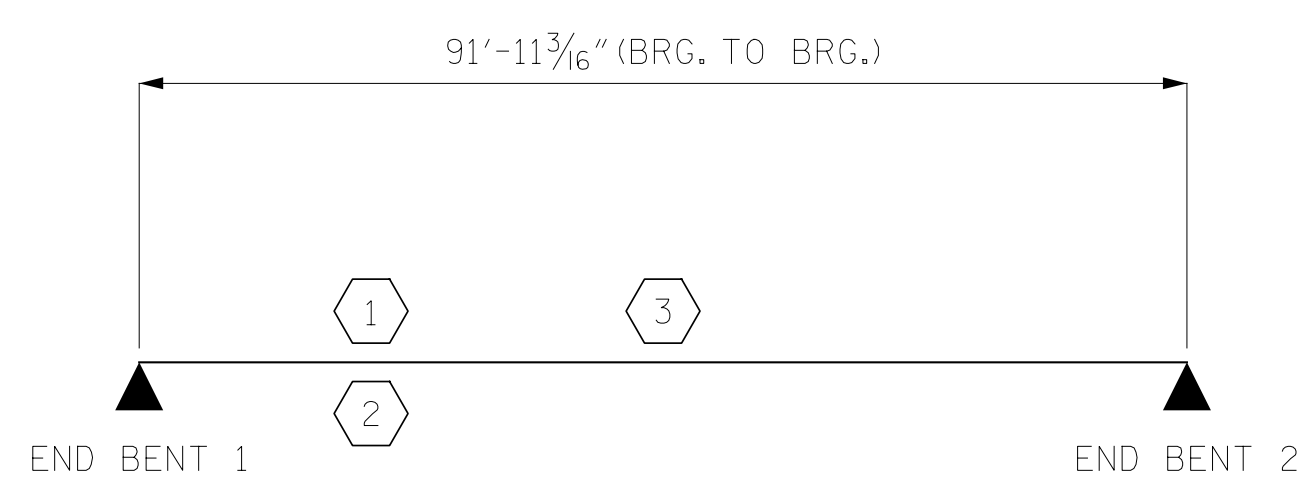
③ LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

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GIRDER LOCATION

I - INTERIOR GIRDER  
 EL - EXTERIOR LEFT GIRDER  
 ER - EXTERIOR RIGHT GIRDER



### LRFR SUMMARY

PROJECT NO. 41665.7A  
CUMBERLAND COUNTY  
 STATION: 107+16.84 -L2-  
13+69.76 -Y-

ASSEMBLED BY : B.A. WHITE      DATE : 10/13/17  
 CHECKED BY : R.F. WERTMAN      DATE : 10/16/17

DRAWN BY : MAA 1/08      REV. 11/12/08RR      MAA/GM  
 CHECKED BY : GM/DI 2/08      REV. 10/1/11      MAA/GM

PLANS PREPARED BY:  
**Gannett Fleming**  
 Excellence Delivered As Promised

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 NC Lic. No. F-0270

DocuSigned by:  
*Richard F. WERTMAN*  
 08001A8E9EF470  
 11/7/2017

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 LRFR SUMMARY FOR  
 STEEL GIRDERS  
 (INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S03-4
1			3			TOTAL SHEETS
2			4			24