

## 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	1.04	--	1.75	0.774	1.04	B	I	0.00	0.977	1.53	B	I	0.00	1.30	0.774	1.14	B	I	0.00		
	HL-93 (OPERATING)	N/A		1.35	--	1.35	0.774	1.35	B	I	0.00	0.977	1.98	B	I	0.00	1.00	0.774	1.49	B	I	0.00		
	HS-20 (INVENTORY)	36.00	②	2.10	75.60	1.75	0.774	2.15	B	I	0.00	0.977	2.10	B	I	0.00	1.30	0.756	3.39	B	I	54.89		
	HS-20 (OPERATING)	36.00		2.72	97.92	1.35	0.774	2.79	B	I	0.00	0.977	2.72	B	I	0.00	1.00	0.756	4.41	B	I	54.89		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13,500		5.94	80.19	1.40	0.774	6.82	B	I	0.00	0.977	5.94	B	I	0.00	1.30	0.756	7.80	B	I	54.89	
		SNARBS2	20,000		4.33	86.60	1.40	0.774	4.78	B	I	0.00	0.977	4.33	B	I	0.00	1.30	0.756	5.71	B	I	54.89	
		SNAGRIS2	22,000		4.01	88.22	1.40	0.774	4.41	B	I	0.00	0.977	4.01	B	I	0.00	1.30	0.756	5.37	B	I	54.89	
		SNCOTTS3	27,250		3.23	88.02	1.40	0.774	3.32	B	I	0.00	0.977	3.23	B	I	0.00	1.30	0.756	3.91	B	I	54.89	
		SNAGGRS4	34,925		2.61	91.15	1.40	0.774	2.61	B	I	0.00	0.977	2.64	B	I	0.00	1.30	0.756	3.23	B	I	54.89	
		SNS5A	35,550		2.57	91.36	1.40	0.774	2.57	B	I	0.00	0.977	2.63	B	I	0.00	1.30	0.756	3.18	B	I	54.89	
		SNS6A	39,950		2.30	91.89	1.40	0.774	2.30	B	I	0.00	0.977	2.38	B	I	0.00	1.30	0.756	2.90	B	I	54.89	
	SNS7B	42,000		2.19	91.98	1.40	0.774	2.19	B	I	0.00	0.977	2.30	B	I	0.00	1.30	0.756	2.77	B	I	54.89		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33,000		2.80	92.40	1.40	0.774	2.80	B	I	0.00	0.977	2.82	B	I	0.00	1.30	0.756	3.56	B	I	54.89	
		TNT4A	33,075		2.79	92.28	1.40	0.774	2.79	B	I	0.00	0.977	2.80	B	I	0.00	1.30	0.756	3.52	B	I	54.89	
		TNT6A	41,600		2.24	93.18	1.40	0.774	2.24	B	I	0.00	0.977	2.38	B	I	0.00	1.30	0.756	2.89	B	I	54.89	
		TNT7A	42,000		2.22	93.24	1.40	0.774	2.22	B	I	0.00	0.977	2.35	B	I	0.00	1.30	0.756	2.89	B	I	54.89	
		TNT7B	42,000		2.25	94.50	1.40	0.774	2.25	B	I	0.00	0.977	2.29	B	I	0.00	1.30	0.756	2.93	B	I	54.89	
		TNAGRIT4	43,000		2.16	92.88	1.40	0.774	2.16	B	I	0.00	0.977	2.23	B	I	0.00	1.30	0.756	2.83	B	I	54.89	
TNAGT5A		45,000		2.07	93.15	1.40	0.774	2.07	B	I	0.00	0.977	2.17	B	I	0.00	1.30	0.756	2.70	B	I	54.89		
TNAGT5B	45,000		③	2.05	92.25	1.40	0.774	2.05	B	I	0.00	0.977	2.13	B	I	0.00	1.30	0.756	2.66	B	I	54.89		
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.

# CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93) \*\*

② DESIGN LOAD RATING (HS-20) \*\*

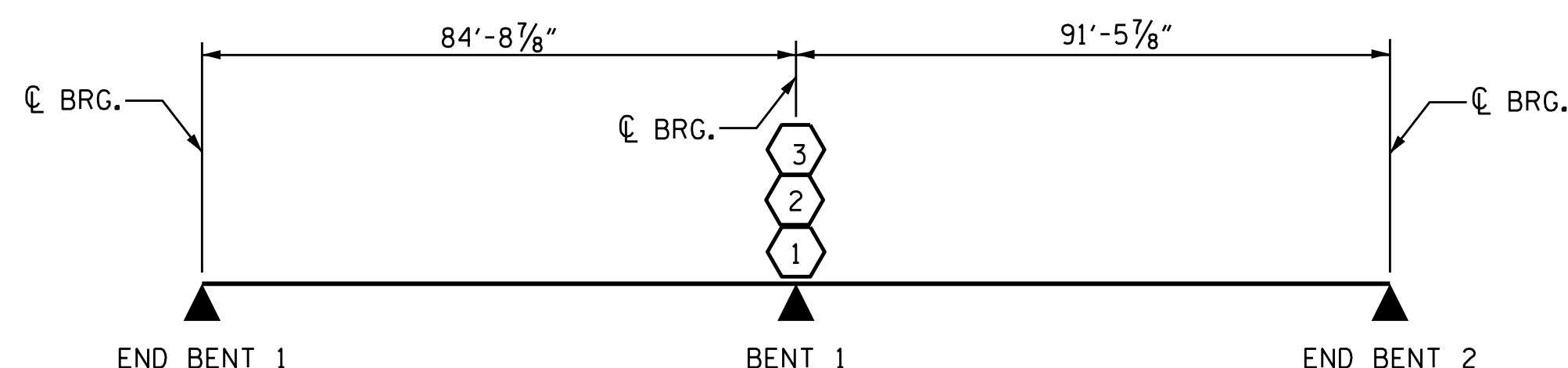
③ LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

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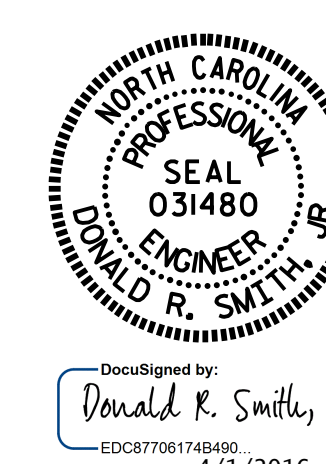
GIRDER LOCATION

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



### LRFR SUMMARY

PROJECT NO. U-3308  
DURHAM COUNTY  
 STATION: 16+42.70-LALT-



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

ASSEMBLED BY : P.S. ADKINS	DATE : 6/2/14
CHECKED BY : J.D. HAWK	DATE : 9/15/14
DRAWN BY : MAA	1/08
CHECKED BY : GM/DI	2/08
REV. 11/12/08RR	MAA/GM
REV. 10/17/11	MAA/GM
DESIGN ENGINEER OF RECORD:	
D.R. SMITH DATE : 11/22/14	

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-4
1			3			TOTAL SHEETS
2			4			47