

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	$\gamma_{DC}$	$\gamma_{DW}$
	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.

COMMENTS:  
1. ANALYSIS METHOD: FINITE ELEMENT MODEL ON GRILLAGE.  
2.  
3.  
4.

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 ( $\gamma_{LL}$ )	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 ( $\gamma_{LL}$ )	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (ft)
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	1	1.17	--	1.75	NOTE 1	1.17	B	ER	94.11	NOTE 1	1.60	B	I	37.64	1.30	NOTE 1	1.57	B	ER	94.11	
	HL-93 (OPERATING)	N/A		1.51	--	1.35	NOTE 1	1.51	B	ER	94.11	NOTE 1	2.07	B	I	37.64	1.00	NOTE 1	2.05	B	ER	94.11	
	HS-20 (INVENTORY)	36.000	2	2.26	81.36	1.75	NOTE 1	2.26	B	ER	94.11	NOTE 1	2.69	A	I	110.77	1.30	NOTE 1	3.09	B	ER	94.11	
	HS-20 (OPERATING)	36.000		2.26	81.36	1.35	NOTE 1	2.26	B	ER	94.11	NOTE 1	2.69	A	I	110.77	1.00	NOTE 1	3.09	B	ER	94.11	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		5.58	75.33	1.40	NOTE 1	5.58	B	ER	94.11	NOTE 1	6.37	A	I	110.77	1.30	NOTE 1	7.61	B	ER	94.11
		SNGARBS2	20.000		3.95	79.00	1.40	NOTE 1	3.95	B	ER	94.11	NOTE 1	4.56	A	I	110.77	1.30	NOTE 1	5.39	B	ER	94.11
		SNAGRIS2	22.000		3.66	80.52	1.40	NOTE 1	3.66	B	ER	94.11	NOTE 1	4.23	A	I	110.77	1.30	NOTE 1	4.99	B	ER	94.11
		SNCOTTS3	27.250		2.77	75.48	1.40	NOTE 1	2.77	B	ER	94.11	NOTE 1	2.97	A	I	110.77	1.30	NOTE 1	3.78	B	ER	94.11
		SNAGGRS4	34.925		2.23	77.88	1.40	NOTE 1	2.23	B	ER	94.11	NOTE 1	2.47	A	I	110.77	1.30	NOTE 1	3.05	B	ER	94.11
		SNS5A	35.550		2.21	78.57	1.40	NOTE 1	2.21	B	ER	94.11	NOTE 1	2.51	A	I	110.77	1.30	NOTE 1	3.02	B	ER	94.11
		SNS6A	39.950		2.01	80.30	1.40	NOTE 1	2.01	B	ER	94.11	NOTE 1	2.29	A	I	110.77	1.30	NOTE 1	2.74	B	ER	94.11
	SNS7B	42.000		1.88	78.96	1.40	NOTE 1	1.88	B	ER	94.11	NOTE 1	2.16	A	I	110.77	1.30	NOTE 1	2.57	B	ER	94.11	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.40	79.20	1.40	NOTE 1	2.40	B	ER	94.11	NOTE 1	2.83	A	I	110.77	1.30	NOTE 1	3.28	B	ER	94.11
		TNT4A	33.075		2.40	79.38	1.40	NOTE 1	2.40	B	ER	94.11	NOTE 1	2.65	A	I	110.77	1.30	NOTE 1	3.28	B	ER	94.11
		TNT6A	41.600		1.93	80.29	1.40	NOTE 1	1.93	B	ER	94.11	NOTE 1	2.39	A	I	110.77	1.30	NOTE 1	2.64	B	ER	94.11
		TNT7A	42.000		1.95	81.90	1.40	NOTE 1	1.95	B	ER	94.11	NOTE 1	2.35	A	I	110.77	1.30	NOTE 1	2.66	B	ER	94.11
		TNT7B	42.000		1.96	82.32	1.40	NOTE 1	1.96	B	ER	94.11	NOTE 1	2.19	A	I	110.77	1.30	NOTE 1	2.67	B	ER	94.11
		TNAGRIT4	43.000	3	1.89	81.27	1.40	NOTE 1	1.89	B	ER	94.11	NOTE 1	2.05	A	I	110.77	1.30	NOTE 1	2.58	B	ER	94.11
TNAGT5A		45.000		1.80	81.00	1.40	NOTE 1	1.80	B	ER	94.11	NOTE 1	2.19	A	I	110.77	1.30	NOTE 1	2.46	B	ER	94.11	
TNAGT5B	45.000		1.80	81.00	1.40	NOTE 1	1.80	B	ER	94.11	NOTE 1	2.05	A	I	110.77	1.30	NOTE 1	2.45	B	ER	94.11		
FATIGUE	HL-93 (INVENTORY)	$\gamma_{LL}=0.75$																					

# CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

2 DESIGN LOAD RATING (HS-20)

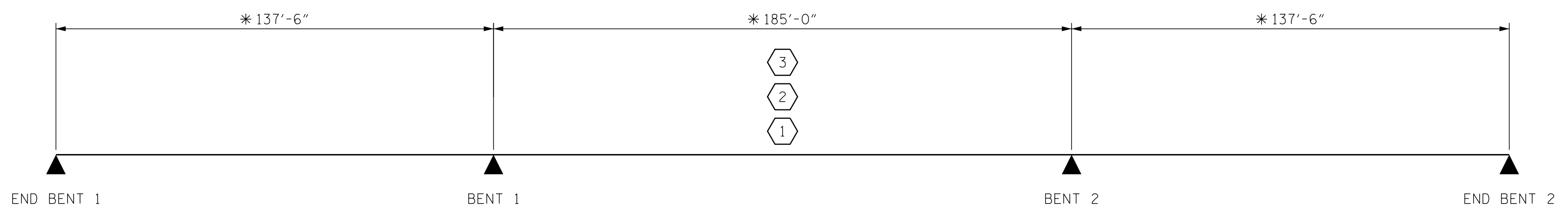
3 LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

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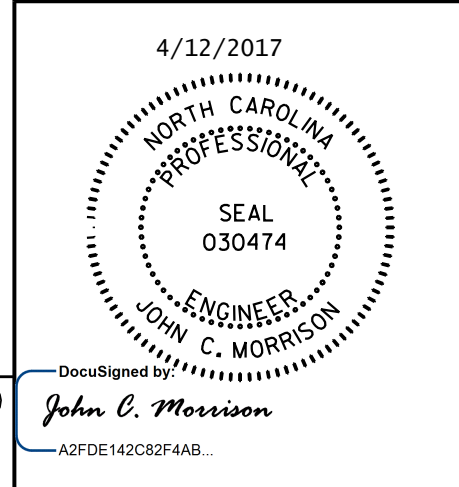
GIRDER LOCATION

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



LRFR SUMMARY  
(SPAN LENGTHS ARE BEARING TO BEARING)

PROJECT NO. R-5516  
 CRAVEN COUNTY  
 STATION: 32+25.84 -YEB01-  
 75+13.29 -L-



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD LRFR SUMMARY FOR STEEL GIRDERS (NON-INTERSTATE TRAFFIC)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-07					TOTAL SHEETS 51

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DATE: 4/7/2017 TIME: 2:41:39 PM

USER: perez@aec.com Path: \\001-Technical\008-Structure\Code\401\_035\_S07\_R5516\_SML\_LRFR.dgn

ASSEMBLED BY : N. K. BROWN	DATE : 03/16
CHECKED BY : J. C. MORRISON	DATE : 05/16
DRAWN BY : MAA	1/08
CHECKED BY : GM/DI	2/08
REV. 11/2/08RR	MAA/GM
REV. 10/1/11	MAA/GM