

DATE: 2/27/2020
TIME: 3:46:57 PM

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 _{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 (γ _{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	1.25	--	1.75	FEM	1.25	B	I	258.18	FEM	4.26	B	I	0.000	1.30	FEM	2.85	B	I	104.16		
	HL-93 (OPERATING)	N/A		1.62	--	1.35	FEM	1.62	B	I	258.18	FEM	5.52	C	I	387.958	1.00	FEM	3.71	B	I	104.16		
	HS-20 (INVENTORY)	36.000	②	3.51	126.252	1.75	FEM	3.51	B	I	205.98	FEM	7.66	B	I	0.250	1.30	FEM	5.31	B	I	104.16		
	HS-20 (OPERATING)	36.000		4.55	163.820	1.35	FEM	4.55	B	I	205.98	FEM	9.93	B	I	0.250	1.00	FEM	6.90	B	I	104.16		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SH		4.79	59.834	1.40	FEM	4.79	B	I	258.18	FEM	16.00	C	I	387.958	1.30	FEM	8.48	B	I	104.16		
		S3C	21.500		3.67	78.964	1.40	FEM	3.67	B	I	258.18	FEM	11.08	C	I	493.288	1.30	FEM	5.75	B	I	104.16	
		S3A	22.750		3.78	86.058	1.40	FEM	3.78	B	I	258.18	FEM	11.52	C	I	493.288	1.30	FEM	5.99	B	I	104.16	
		S4A	26.750		3.37	90.058	1.40	FEM	3.37	B	I	258.18	FEM	9.95	C	I	493.288	1.30	FEM	5.17	B	I	104.16	
		S5A	30.500		3.13	109.208	1.40	FEM	3.13	B	I	258.18	FEM	9.05	B	I	0.250	1.30	FEM	4.68	B	I	104.16	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	S6A	34.500		2.90	103.177	1.40	FEM	2.90	B	I	258.18	FEM	8.26	B	I	0.250	1.30	FEM	4.28	B	I	104.16	
		S7B	38.500		2.65	105.904	1.40	FEM	2.65	B	I	258.18	FEM	7.60	C	I	493.288	1.30	FEM	3.85	B	I	104.16	
		S7A	40.000		2.71	113.727	1.40	FEM	2.71	B	I	258.18	FEM	7.64	B	I	0.250	1.30	FEM	3.94	B	I	104.16	
		T4A	28.250		3.27	107.864	1.40	FEM	3.27	B	I	258.18	FEM	9.68	C	I	493.288	1.30	FEM	5.00	B	I	104.16	
		T5B	32.000		3.04	100.620	1.40	FEM	3.04	B	I	258.18	FEM	8.86	C	I	493.288	1.30	FEM	4.54	B	I	104.16	
	T6A	36.000		2.83	117.692	1.40	FEM	2.83	B	I	258.18	FEM	8.19	C	I	493.288	1.30	FEM	4.18	B	I	104.16		
	T7A	40.000		2.65	106.037	1.40	FEM	2.65	B	I	258.18	FEM	7.64	C	I	493.288	1.30	FEM	3.87	B	I	104.16		
	T7B	40.000		2.66	106.316	1.40	FEM	2.66	B	I	258.18	FEM	7.61	C	I	493.288	1.30	FEM	3.92	B	I	104.16		
FATIGUE	HL-93 (INVENTORY)	γ _{LL} =0.80	③	2.18																				

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ _{DC}	γ _{DW}
	STRENGTH I	1.25	1.50
	SERVICE II	1.00	1.00

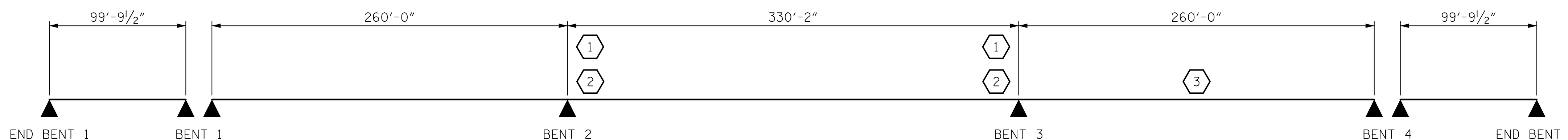
NOTES:

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. LOAD RATING INCLUDES 1" PPC OVERLAY.
- 2.
- 3.
- 4.

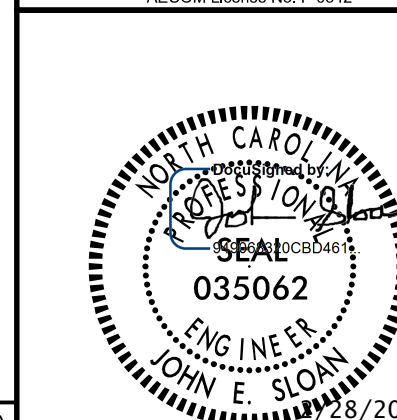
<p>① CONTROLLING LOAD RATING</p> <p>② DESIGN LOAD RATING (HL-93)</p> <p>③ DESIGN LOAD RATING (HS-20)</p> <p>④ LEGAL LOAD RATING **</p> <p>** SEE CHART FOR VEHICLE TYPE</p>	<p style="text-align: center;">GIRDER LOCATION</p> <p>I - INTERIOR GIRDER EL - EXTERIOR LEFT GIRDER ER - EXTERIOR RIGHT GIRDER</p>
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LRFR SUMMARY

PROJECT NO. 15BPR.20
HENDERSON COUNTY
 STATION: 35+30.22 -L-

SHEET 1 OF 3



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

ASSEMBLED BY : N. BROWN	DATE : 04/2019
CHECKED BY : J. LIU/J. SLOAN	DATE : 04/2019
DRAWN BY : MAA 1/08	REV. 11/12/08RRR MAA/GM
CHECKED BY : GM/DI 2/08	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			129

USER: Merch Research; DGN: R:\Structures\04 Drawings\01_015_15BPR20_SML_LRFR1.dgn