

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING (#)	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE						SERVICE III LIMIT STATE						COMMENT NUMBER						
						LIVE-LOAD FACTORS (γ <sub>LL</sub> )	MOMENT			SHEAR			LIVE-LOAD FACTORS (γ <sub>LL</sub> )	MOMENT										
							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)							
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.27	--	1.75	0.782	1.52	B	I	32.00	1.111	1.31	B	I	25.50	0.80	0.782	1.27	B	I	32.00		
	HL-93 (OPERATING)	N/A		1.87	--	1.35	0.782	1.97	B	I	32.00	1.111	1.87	B	I	12.40	N/A	--	--	--	I	--		
	HS-20 (INVENTORY)	36.000	②	1.63	58.68	1.75	0.782	1.95	B	I	32.00	1.111	1.74	B	I	12.40	0.80	0.782	1.63	B	I	32.00		
	HS-20 (OPERATING)	36.000		2.28	82.08	1.35	0.782	2.52	B	I	32.00	1.111	2.28	B	I	12.40	N/A	--	--	--	I	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.58	48.33	1.40	0.782	5.34	B	I	32.00	1.111	5.16	B	I	12.40	0.80	0.782	3.58	B	I	32.00	
		SNGARBS2	20.000		2.71	54.20	1.40	0.782	4.04	B	I	32.00	1.111	3.70	B	I	12.40	0.80	0.782	2.71	B	I	32.00	
		SNAGRIS2	22.000		2.59	56.98	1.40	0.782	3.86	B	I	32.00	1.111	3.45	B	I	12.40	0.80	0.782	2.59	B	I	32.00	
		SNCOTTS3	27.250		1.78	48.51	1.40	0.782	2.66	B	I	32.00	1.111	2.53	B	I	12.40	0.80	0.782	1.78	B	I	32.00	
		SNAGGRS4	34.925		1.51	52.74	1.40	0.782	2.25	B	I	32.00	1.111	2.13	B	I	12.40	0.80	0.782	1.51	B	I	32.00	
		SNS5A	35.550		1.47	52.26	1.40	0.782	2.20	B	I	32.00	1.111	2.18	B	I	12.40	0.80	0.782	1.47	B	I	32.00	
		SNS6A	39.950		1.36	54.33	1.40	0.782	2.02	B	I	32.00	1.111	2.00	B	I	12.40	0.80	0.782	1.36	B	I	32.00	
		SNS7B	42.000		1.29	54.18	1.40	0.782	1.93	B	I	32.00	1.111	1.98	B	I	12.40	0.80	0.782	1.29	B	I	32.00	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.29	42.57	1.40	0.782	1.92	B	I	32.00	1.111	1.93	B	I	12.40	0.80	0.782	1.29	B	I	32.00	
		TNT4A	33.075		1.29	42.67	1.40	0.782	1.93	B	I	32.00	1.111	1.86	B	I	12.40	0.80	0.782	1.29	B	I	32.00	
		TNT6A	41.600		1.11	46.18	1.40	0.782	1.65	B	I	32.00	1.111	1.77	B	I	12.40	0.80	0.782	1.11	B	I	32.00	
		TNT7A	42.000		1.11	46.62	1.40	0.782	1.66	B	I	32.00	1.111	1.69	B	I	12.40	0.80	0.782	1.11	B	I	32.00	
		TNT7B	42.000		1.15	48.30	1.40	0.782	1.72	B	I	32.00	1.111	1.61	B	I	12.40	0.80	0.782	1.15	B	I	32.00	
		TNAGRIT4	43.000		1.10	47.30	1.40	0.782	1.64	B	I	32.00	1.111	1.55	B	I	12.40	0.80	0.782	1.10	B	I	32.00	
TNAGT5A	45.000		1.05	47.25	1.40	0.782	1.56	B	I	32.00	1.111	1.55	B	I	12.40	0.80	0.782	1.05	B	I	32.00			
TNAGT5B	45.000		③	1.04	46.80	1.40	0.782	1.54	B	I	32.00	1.111	1.47	B	I	12.40	0.80	0.782	1.04	B	I	32.00		

LOAD FACTORS:

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

**NOTES:**

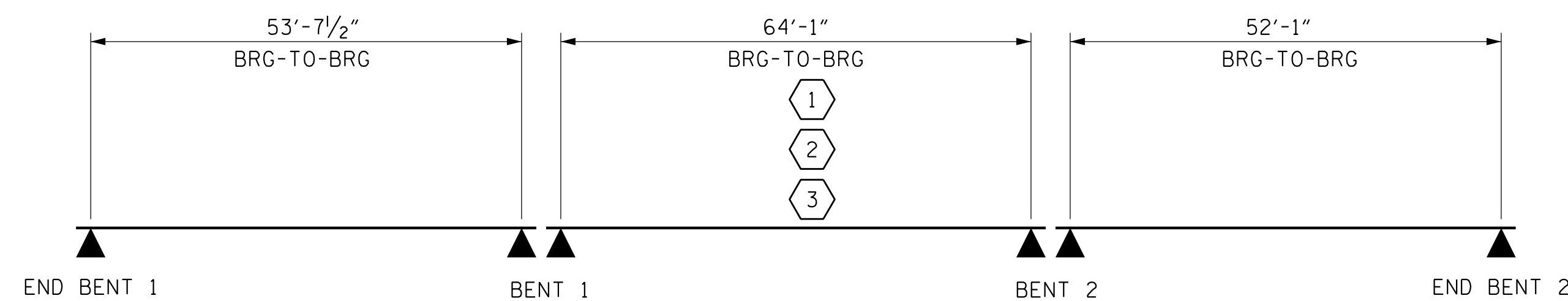
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

**COMMENTS:**

- 1.
- 2.
- 3.
- 4.

# CONTROLLING LOAD RATING
① DESIGN LOAD RATING (HL-93)
② DESIGN LOAD RATING (HS-20)
③ LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE
GIRDER LOCATION
I - INTERIOR GIRDER EL - EXTERIOR LEFT GIRDER ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

PROJECT NO. U-5839  
HAYWOOD COUNTY  
 STATION: 24+64.13 -L- POC

SHEET 5 OF 5

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S1-5
1			3			TOTAL SHEETS
2			4			63

PLANS PREPARED BY:

NV5

NV5 ENGINEERS & CONSULTANTS, INC.  
 3300 REGENCY PARKWAY, SUITE 100  
 CARY, NC 27518  
 P: 919.851.1912 www.NV5.com  
 NC License # F-1333

THIS STANDARD DRAWING REVIEWED & ADOPTED FOR USE AT THE REFERENCED LOCATION BY THE UNDERSIGNED:

DocuSigned by:  
 NORTH CAROLINA PROFESSIONAL ENGINEER  
 BEB2388D92204701  
 ROBERT C. LARSON  
 5/18/2023

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

STD. NO. LRFR1

5/17/2023 7:04:49 PM RA:\Structures\3 span Bridge cover BRV05 US819\_SML\_G04\_43084.dgn

DESIGN ENGINEER OF RECORD: <b>R. C. LARSON</b> 4/23	
ASSEMBLED BY : <b>C. D. ROBINSON</b> DATE : 12/19	CHECKED BY : <b>Z. H. BROWN</b> DATE : 1/20
DRAWN BY : <b>MAA</b> 1/08	REV. 11/12/08RR <b>MAA/GM</b>
CHECKED BY : <b>GM/DI</b> 2/08	REV. 10/1/11 <b>MAA/GM</b>
	REV. 12/17 <b>MAA/THC</b>

DocuSigned by:  
 BEB2398092204701