

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

LOAD TYPE	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 _{LL})	MOMENT			SHEAR			LIVE-LOAD FACTORS (γ _{LL})	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	HL-93 (INVENTORY)	N/A	①	1.06	--	1.75	0.750	1.360	A	3	37.750	0.950	1.060	A	3	53.130	0.80	0.750	1.080	A	3	37.750	1	
	HL-93 (OPERATING)	N/A		1.50	--	1.35	0.750	1.770	A	3	37.750	0.950	1.500	A	3	60.830	N/A	--	--	--	--	--	--	1
	HS-20 (INVENTORY)	36.000	②	1.43	51.480	1.75	0.750	1.800	A	3	37.750	0.950	1.430	A	3	60.830	0.80	0.750	1.430	A	3	37.750	1	
	HS-20 (OPERATING)	36.000		1.88	67.680	1.35	0.750	2.330	A	3	37.750	0.950	1.880	A	3	60.830	N/A	--	--	--	--	--	--	1
LEGAL LOAD	SINGLE VEHICLE (SV)	SH		3.53	44.125	1.40	0.750	5.550	A	3	37.750	0.950	4.810	A	3	60.830	0.80	0.750	3.530	A	3	37.750	1	
		S3C		2.06	44.290	1.40	0.750	3.250	A	3	37.750	0.950	2.780	A	3	60.830	0.80	0.750	2.060	A	3	37.750	1	
		S3A		1.96	44.590	1.40	0.750	3.080	A	3	37.750	0.950	2.640	A	3	60.830	0.80	0.750	1.960	A	3	37.750	1	
		S4A		1.73	46.278	1.40	0.750	2.730	A	3	37.750	0.950	2.300	A	3	60.830	0.80	0.750	1.730	A	3	37.750	1	
		S5A		1.53	46.665	1.40	0.750	2.410	A	3	37.750	0.950	2.130	A	3	60.830	0.80	0.750	1.530	A	3	37.750	1	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	S6A		1.40	48.300	1.40	0.750	2.190	A	3	37.750	0.950	1.920	A	3	60.830	0.80	0.750	1.400	A	3	37.750	1	
		S7B		1.27	48.895	1.40	0.750	2.000	A	3	37.750	0.950	1.810	A	3	60.830	0.80	0.750	1.270	A	3	37.750	1	
		S7A		③	1.26	50.400	1.40	0.750	1.990	A	3	37.750	0.950	1.900	A	3	60.830	0.80	0.750	1.260	A	3	37.750	1
		T4A		1.72	48.590	1.40	0.750	2.710	A	3	37.750	0.950	2.250	A	3	60.830	0.80	0.750	1.720	A	3	37.750	1	
		T5B		1.51	48.320	1.40	0.750	2.370	A	3	37.750	0.950	2.170	A	3	60.830	0.80	0.750	1.510	A	3	37.750	1	
EMERGENCY VEHICLE (EV)	T6A		1.39	50.040	1.40	0.750	2.190	A	3	37.750	0.950	2.010	A	3	60.830	0.80	0.750	1.390	A	3	37.750	1		
	T7A		1.30	52.000	1.40	0.750	2.040	A	3	37.750	0.950	1.890	A	3	60.830	0.80	0.750	1.300	A	3	37.750	1		
	T7B		1.40	56.000	1.40	0.750	2.210	A	3	37.750	0.950	1.740	A	3	60.830	0.80	0.750	1.400	A	3	37.750	1		
	EV2		④	1.70	48.875	1.30	0.750	2.880	A	3	37.750	0.950	2.340	A	3	60.800	0.80	0.750	1.700	A	3	37.750	1	
	EV3		④	1.12	48.160	1.30	0.750	1.890	A	3	37.750	0.950	1.540	A	3	60.800	0.80	0.750	1.120	A	3	37.750	1	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ _{DC}	γ _{DW}
	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. GIRDER 3 CONTROLS, SAME AS GIRDER 5
 2.
 3.
 4.

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

② DESIGN LOAD RATING (HS-20)

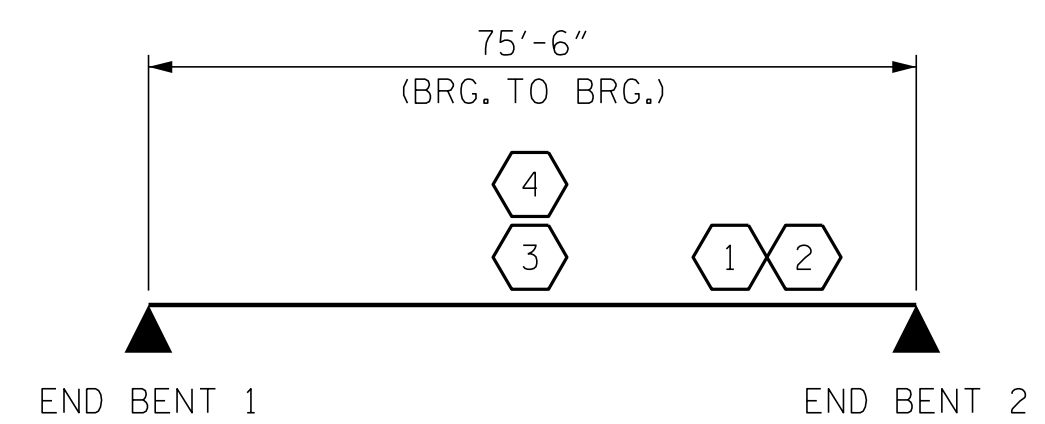
③ LEGAL LOAD RATING **

④ EMERGENCY VEHICLE LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

PROJECT NO. HB-0004
HAYWOOD COUNTY
 STATION: 254+73.75 -L-

P:\2023\2312401_LHB-0004\Structures\03\HB-0004 (LEFT LANE)\HB0004-LEFT-LRFR.dgn
 1/18/2024 4:37:05 PM

ASSEMBLED BY : D. HODGE	DATE : 9/23
CHECKED BY : J. DILWORTH	DATE : 9/23
DRAWN BY : MAA 1/08	REV. 11/12/08RR MAA/GM
CHECKED BY : GM/DI 2/08	REV. 10/1/11 MAA/GM
	REV. 04/23 BNB/AAI

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

ENGINEER OF RECORD
 1/19/2024

DESIGNED BY
 Gregory M. Gilliland
 WETHERILL ENGINEERING

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 Fax: 919 851 8107
 LICENSE NO. F-0377

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS (INTERSTATE TRAFFIC) (LEFT LANE)					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S1-06
					TOTAL SHEETS 58