

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			
						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	1.49	--	1.75	0.827	1.58	A	E	41.1	0.939	1.72	A	I	16.4	0.80	0.827	1.49	A	E	41.1		
	HL-93 (OPERATING)	N/A		2.05	--	1.35	0.827	2.05	A	E	41.1	0.939	2.27	A	I	16.4	N/A	--	--	--	--	--		
	HS-20 (INVENTORY)	36.00	2	2.00	72.00	1.75	0.827	2.13	A	E	41.1	0.939	2.20	A	I	16.4	0.80	0.827	2.00	A	E	41.1		
	HS-20 (OPERATING)	36.00		2.76	99.36	1.35	0.827	2.76	A	E	41.1	0.939	2.89	A	I	16.4	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.50		4.65	62.78	1.40	0.827	6.18	A	E	41.1	0.939	6.83	A	I	16.4	0.80	0.827	4.65	A	E	41.1	
		SNGARBS2	20.00		3.41	68.20	1.40	0.827	4.52	A	E	41.1	0.939	4.81	A	I	16.4	0.80	0.827	3.41	A	E	41.1	
		SNAGRIS2	22.00		3.19	70.18	1.40	0.827	4.24	A	E	41.1	0.939	4.45	A	I	16.4	0.80	0.827	3.19	A	E	41.1	
		SNCOTTS3	27.25		2.30	62.68	1.40	0.827	3.05	A	E	41.1	0.939	3.34	A	I	16.4	0.80	0.827	2.30	A	E	41.1	
		SNAGGRS4	34.93		1.90	66.36	1.40	0.827	2.53	A	E	41.1	0.939	2.72	A	I	16.4	0.80	0.827	1.90	A	E	41.1	
		SNS5A	35.55		1.86	66.12	1.40	0.827	2.47	A	E	41.1	0.939	2.78	A	I	16.4	0.80	0.827	1.86	A	E	41.1	
		SNS6A	39.95		1.70	67.92	1.40	0.827	2.25	A	E	41.1	0.939	2.52	A	I	16.4	0.80	0.827	1.70	A	E	41.1	
	SNS7B	42.00		1.62	68.04	1.40	0.827	2.15	A	E	41.1	0.939	2.47	A	I	16.4	0.80	0.827	1.62	A	E	41.1		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.00		2.07	68.31	1.40	0.827	2.75	A	E	41.1	0.939	3.03	A	I	16.4	0.80	0.827	2.07	A	E	41.1	
		TNT4A	33.08		2.08	68.80	1.40	0.827	2.76	A	E	41.1	0.939	2.95	A	I	16.4	0.80	0.827	2.08	A	E	41.1	
		TNT6A	41.60		1.69	70.30	1.40	0.827	2.25	A	E	41.1	0.939	2.62	A	I	16.4	0.80	0.827	1.69	A	E	41.1	
		TNT7A	42.00		1.69	70.98	1.40	0.827	2.25	A	E	41.1	0.939	2.56	A	I	16.4	0.80	0.827	1.69	A	E	41.1	
		TNT7B	42.00		1.74	73.08	1.40	0.827	2.31	A	E	41.1	0.939	2.41	A	I	16.4	0.80	0.827	1.74	A	E	41.1	
		TNAGRIT4	43.00		1.67	71.81	1.40	0.827	2.21	A	E	41.1	0.939	2.33	A	I	16.4	0.80	0.827	1.67	A	E	41.1	
TNAGRT5A		45.00		1.58	71.10	1.40	0.827	2.09	A	E	41.1	0.939	2.31	A	I	16.4	0.80	0.827	1.58	A	E	41.1		
TNAGRT5B	45.00		3	1.56	70.20	1.40	0.827	2.07	A	E	41.1	0.939	2.19	A	I	16.4	0.80	0.827	1.56	A	E	41.1		

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.

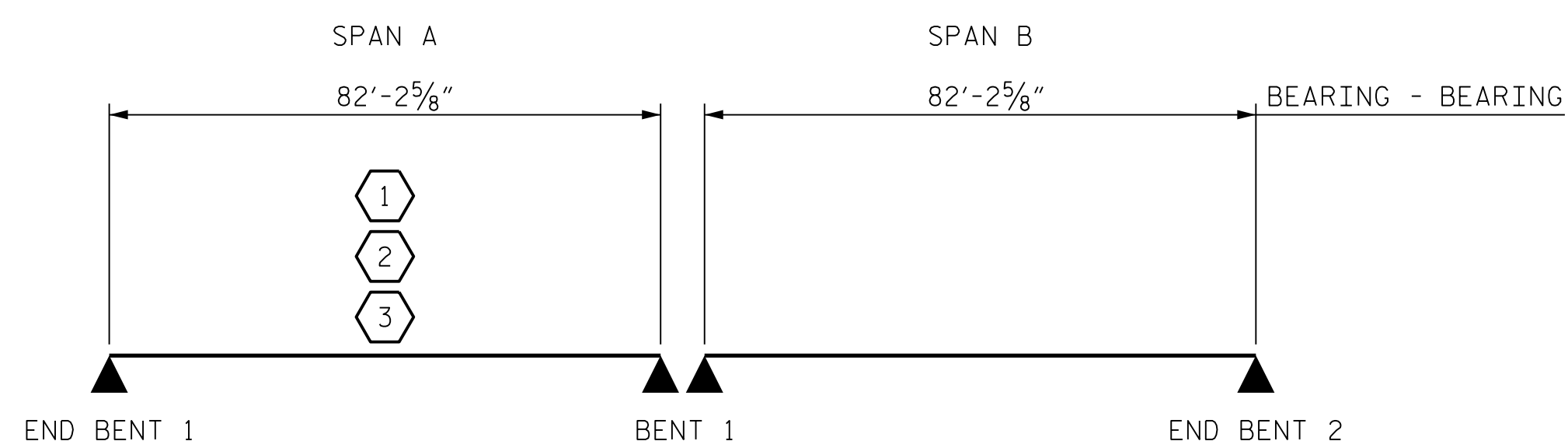
ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

DISTANCE FROM LEFT END OF SPAN IS MEASURED FROM C BEARING.

COMMENTS:

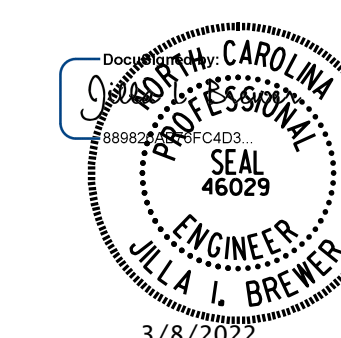
- BARRIER LOADS DISTRIBUTED ACCORDING TO NCDOT DESIGN MANUAL SECTION 2.1.2.1.
- THE GIRDERS ARE ASSUMED TO BE SIMPLY SUPPORTED. FIXITY AT INTEGRAL END BENTS IS NOT CONSIDERED.
- SPANS ARE EQUAL. RATINGS FOR SPAN B ARE SIMILAR TO SPAN A.

#	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	
E - EXTERIOR GIRDER	



LRFR SUMMARY

PROJECT NO. I-5987B
ROBESON COUNTY
 STATION: 29+70.72 -Y7-



DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

MI ENGINEERING
 1011 SCHAUB DRIVE, SUITE 100
 RALEIGH, NC 27606
 (919) 851-6606
 FIRM PE NUMBER : P-0671

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:	TOTAL SHEETS 33
1			3			
2			4			

STD. NO. LRFR1

3/8/2022 10:37:45 AM
 User: blanning
 Filename: N:\NC Bridges\W20003 I-5987A&B I-95\I5987B\Structures\410_009_I5987B_SMU_LRFR_770167.dgn

ASSEMBLED BY: D.R. BROWN	DATE: 03/2021
CHECKED BY: J.I. BREWER	DATE: 03/2021
DESIGN ENGINEER OF RECORD: J.I. BREWER	DATE: 12/2021
DRAWN BY: MAA 1/08	REV. 11/2/08RR MAA/GM
CHECKED BY: GM/DI 2/08	REV. 10/1/11 MAA/GM
	REV. 12/17 MAA/THC