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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 × RF	STRENGTH I LIMIT STATE											SERVICE III 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	1.13	--	1.75	0.743	1.53	B	ER	38.9	1.101	1.13	B	I	7.2	0.80	0.689	1.26	B	I	38.9	
		HL-93 (OPERATING)	N/A		1.49	--	1.35	0.743	1.98	B	ER	38.9	1.101	1.49	B	I	7.2	N/A	--	--	--	--	--	
		HS-20 (INVENTORY)	36.000	2	1.46	52.560	1.75	0.743	2.03	B	ER	38.9	1.101	1.46	B	I	7.2	0.80	0.689	1.66	B	I	38.9	
		HS-20 (OPERATING)	36.000		1.92	69.120	1.35	0.743	2.63	B	ER	38.9	1.101	1.92	B	I	7.2	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SH	12.500		4.13	51.625	1.40	0.744	5.63	A&C	I	24.2	1.101	4.96	B	I	7.2	0.80	0.689	4.13	B	I	38.9	
		S3C	21.500		2.42	52.030	1.40	0.744	3.31	A&C	I	24.2	1.101	2.88	B	I	7.2	0.80	0.689	2.42	B	I	38.9	
		S3A	22.750		2.29	52.098	1.40	0.744	3.14	A&C	I	24.2	1.101	2.73	B	I	7.2	0.80	0.689	2.29	B	I	38.9	
		S4A	26.750		2.03	54.303	1.40	0.744	2.86	A&C	I	24.2	1.101	2.37	B	I	7.2	0.80	0.689	2.03	B	I	38.9	
		S5A	30.500		1.79	54.595	1.40	0.744	2.54	A&C	I	24.2	1.101	2.17	B	I	7.2	0.80	0.689	1.79	B	I	38.9	
		S6A	34.500		1.63	56.235	1.40	0.744	2.37	A&C	I	24.2	1.101	1.94	B	I	7.2	0.80	0.689	1.63	B	I	38.9	
		S7B	38.500		1.49	57.365	1.40	0.744	2.19	A&C	I	24.2	1.101	1.82	B	I	7.2	0.80	0.689	1.49	B	I	38.9	
		S7A	40.000	3	1.47	58.800	1.40	0.744	2.23	A&C	I	24.2	1.101	1.89	B	I	7.2	0.80	0.689	1.47	B	I	38.9	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	T4A	28.250		2.01	56.783	1.40	0.744	2.94	A&C	I	24.2	1.101	2.31	B	I	7.2	0.80	0.689	2.01	B	I	38.9	
		T5B	32.000		1.76	56.320	1.40	0.744	2.57	A&C	I	24.2	1.101	2.20	B	I	7.2	0.80	0.689	1.76	B	I	38.9	
		T6A	36.000		1.62	58.320	1.40	0.744	2.43	A&C	I	24.2	1.101	2.02	B	I	7.2	0.80	0.689	1.62	B	I	38.9	
		T7A	40.000		1.51	60.400	1.40	0.743	2.30	B	ER	38.9	1.101	1.88	B	I	7.2	0.80	0.689	1.51	B	I	38.9	
		T7B	40.000		1.63	65.200	1.40	0.743	2.48	B	ER	38.9	1.101	1.75	B	I	7.2	0.80	0.689	1.63	B	I	38.9	

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:

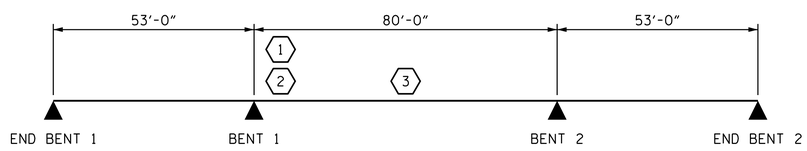
1.
2.
3.
4.

(#) 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. I-0914BB
WARREN COUNTY
STATION: 197+54.33 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS
(INTERSTATE TRAFFIC)
(NORTHBOUND LANE)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-40
1			3			TOTAL SHEETS
2			4			72

PLANS PREPARED BY:
Hatch Mott MacDonald
PO Box 700 Fuquay-Varina, NC 27526 (919) 552-2253 www.hatchmott.com
LICENSE NO. F-0669

NORTH CAROLINA PROFESSIONAL SEAL 20532 ENGINEER JOHN E. MONDOLFI
9FD29B1FC2FB4D0... 10/17/2014

DRAWN BY: J. T. WILLIAMS DATE: 4-2014
CHECKED BY: J. E. MONDOLFI DATE: 4-2014
DESIGN ENGINEER OF RECORD: J. E. MONDOLFI DATE: 4-2014

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