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 (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	0.793	2.03	A	E	47.5	0.954	1.25	A	I	90.1	0.80	0.793	1.67	A	E	47.5	
		HL-93 (OPERATING)	N/A		1.65	--	1.35	0.793	2.63	A	E	47.5	0.954	1.65	A	I	90.1	N/A	--	--	--	--	--	
		HS-20 (INVENTORY)	36.000	2	1.70	61.20	1.75	0.793	2.76	A	E	47.5	0.954	1.70	A	I	92.6	0.80	0.793	2.28	A	E	47.5	
		HS-20 (OPERATING)	36.000		2.31	83.16	1.35	0.793	3.58	A	E	47.5	0.954	2.31	A	I	92.6	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		5.32	71.82	1.40	0.793	8.07	A	E	47.5	0.954	7.69	A	I	76.4	0.80	0.793	5.32	A	E	47.5	
		SNGARBS2	20.000		3.87	77.40	1.40	0.793	5.87	A	E	47.5	0.954	4.34	A	I	92.6	0.80	0.793	3.87	A	E	47.5	
		SNAGRIS2	22.000		3.62	79.64	1.40	0.793	5.50	A	E	47.5	0.954	3.93	A	I	92.6	0.80	0.793	3.62	A	E	47.5	
		SNCOTTS3	27.250		2.63	71.67	1.40	0.793	3.99	A	E	47.5	0.954	2.92	A	I	92.6	0.80	0.793	2.63	A	E	47.5	
		SNAGGRS4	34.925		2.18	76.14	1.40	0.793	3.30	A	E	47.5	0.954	2.24	A	I	92.6	0.80	0.793	2.18	A	E	47.5	
		SNS5A	35.550		2.14	76.08	1.40	0.793	3.25	A	E	37.8	0.954	2.23	A	I	92.6	0.80	0.793	2.14	A	E	47.5	
		SNS6A	39.950		1.95	77.90	1.40	0.793	2.96	A	E	37.8	0.954	1.98	A	I	92.6	0.80	0.793	1.95	A	E	47.5	
		SNS7B	42.000		1.86	78.12	1.40	0.793	2.82	A	E	47.5	0.954	1.90	A	I	92.6	0.80	0.793	1.86	A	E	47.5	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.38	78.54	1.40	0.793	3.61	A	E	47.5	0.954	2.44	A	I	92.6	0.80	0.793	2.38	A	E	47.5	
		TNT4A	33.075		2.37	78.39	1.40	0.793	3.59	A	E	47.5	0.954	2.45	A	I	92.6	0.80	0.793	2.37	A	E	47.5	
		TNT6A	41.600		1.93	80.29	1.40	0.793	2.93	A	E	47.5	0.954	1.99	A	I	92.6	0.80	0.793	1.93	A	E	47.5	
		TNT7A	42.000		1.93	81.06	1.40	0.793	2.94	A	E	47.5	0.954	1.95	A	I	92.6	0.80	0.793	1.93	A	E	47.5	
		TNT7B	42.000		1.87	78.54	1.40	0.793	2.98	A	E	37.8	0.954	1.87	A	I	92.6	0.80	0.793	1.98	A	E	47.5	
		TNAGRIT4	43.000		1.82	78.26	1.40	0.793	2.89	A	E	37.8	0.954	1.82	A	I	92.6	0.80	0.793	1.90	A	E	47.5	
		TNAGT5A	45.000		1.75	78.75	1.40	0.793	2.74	A	E	37.8	0.954	1.75	A	I	92.6	0.80	0.793	1.81	A	E	47.5	
		TNAGT5B	45.000	3	1.72	77.40	1.40	0.793	2.70	A	E	47.5	0.954	1.72	A	I	92.6	0.80	0.793	1.78	A	E	47.5	

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)

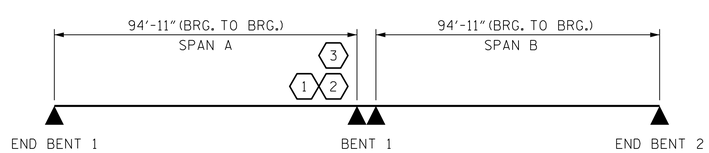
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
E - EXTERIOR GIRDER



LRFR SUMMARY

PROJECT NO. W-5107
JOHNSTON COUNTY
STATION: 115+83.99 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR PRESTRESSED CONCRETE GIRDERS
(NON-INTERSTATE TRAFFIC)

NORTH CAROLINA PROFESSIONAL SEAL 027799 ENGINEER ALLYSON K. ORR
11/26/2014

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

REVISIONS						
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			
2			4			

SHEET NO. S-44
TOTAL SHEETS 70

STD. NO. LRFR1

ASSEMBLED BY: B.E. ATKINSON DATE: 10/14
CHECKED BY : G.R. COLS DATE: 10/14
DESIGN ENGINEER OF RECORD: A.K. ORR DATE: 11/14
DRAWN BY : MAA 1/08
CHECKED BY : GM/DI 2/08
REV. 11/12/08RR MAA/GM
REV. 10/1/11 MAA/GM

11/25/2014
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Filename: P:\NC Bridges\MI2005 - W-5107 Johnston Co\MI2005.02.Site 2\Structures\402.020.S02.W5107.SMU.LRFR1.dgn