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	1.18	--	1.75	0.947	1.44	A	ER	49.8	1.004	1.18	A	IR	80.1	0.80	0.947	1.21	A	ER	49.8	
		HL-93 (OPERATING)	N/A		1.55	--	1.35	0.947	1.87	A	ER	49.8	1.004	1.55	A	IR	80.1	N/A	--	--	--	--	--	
		HS-20 (INVENTORY)	36.000	2	1.63	58.68	1.75	0.947	1.98	A	ER	49.8	1.004	1.63	A	IR	80.1	0.80	0.947	1.66	A	ER	49.8	
		HS-20 (OPERATING)	36.000		2.14	77.04	1.35	0.947	2.57	A	ER	49.8	1.004	2.14	A	IR	80.1	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.13	42.25	1.40	0.947	4.53	A	ER	49.8	1.004	4.22	A	IR	80.1	0.80	0.947	3.13	A	ER	49.8	
		SNGARBS2	20.000		2.27	45.40	1.40	0.947	3.28	A	ER	49.8	1.004	2.93	A	IR	80.1	0.80	0.947	2.27	A	ER	49.8	
		SNAGRIS2	22.000		2.12	46.64	1.40	0.947	3.07	A	ER	49.8	1.004	2.69	A	IR	80.1	0.80	0.947	2.12	A	ER	49.8	
		SNCOTTS3	27.250		1.55	42.23	1.40	0.947	2.24	A	ER	49.8	1.004	2.03	A	IR	80.1	0.80	0.947	1.55	A	ER	49.8	
		SNAGGRS4	34.925		1.28	44.70	1.40	0.947	1.85	A	ER	49.8	1.004	1.57	A	IR	80.1	0.80	0.947	1.28	A	ER	49.8	
		SNS5A	35.550		1.26	44.79	1.40	0.947	1.82	A	ER	39.7	1.004	1.58	A	IR	80.1	0.80	0.947	1.26	A	ER	49.8	
		SNS6A	39.950		1.14	45.54	1.40	0.947	1.66	A	ER	39.7	1.004	1.42	A	IR	80.1	0.80	0.947	1.14	A	ER	49.8	
		SNS7B	42.000		1.09	45.78	1.40	0.947	1.58	A	ER	39.7	1.004	1.37	A	IR	80.1	0.80	0.947	1.09	A	ER	49.8	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.40	46.20	1.40	0.947	2.02	A	ER	49.8	1.004	1.70	A	IR	80.1	0.80	0.947	1.40	A	ER	49.8	
		TNT4A	33.075		1.39	45.97	1.40	0.947	2.01	A	ER	39.7	1.004	1.78	A	IR	80.1	0.80	0.947	1.39	A	ER	49.8	
		TNT6A	41.600		1.13	47.00	1.40	0.947	1.64	A	ER	49.8	1.004	1.45	A	IR	80.1	0.80	0.947	1.13	A	ER	49.8	
		TNT7A	42.000		1.13	47.46	1.40	0.947	1.64	A	ER	39.7	1.004	1.43	A	IR	80.1	0.80	0.947	1.13	A	ER	49.8	
		TNT7B	42.000		1.15	48.30	1.40	0.947	1.66	A	ER	39.7	1.004	1.36	A	IR	80.1	0.80	0.947	1.15	A	ER	49.8	
		TNAGRIT4	43.000		1.11	47.73	1.40	0.947	1.61	A	ER	39.7	1.004	1.34	A	IR	80.1	0.80	0.947	1.11	A	ER	49.8	
		TNAGT5A	45.000		1.06	47.70	1.40	0.947	1.53	A	ER	39.7	1.004	1.27	A	IR	80.1	0.80	0.947	1.06	A	ER	49.8	
		TNAGT5B	45.000	3	1.04	46.80	1.40	0.947	1.51	A	ER	39.7	1.004	1.27	A	IR	80.1	0.80	0.947	1.04	A	ER	49.8	

LOAD FACTORS:

	LIMIT STATE	γ_{DC}	γ_{DW}
DESIGN LOAD RATING FACTORS	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)

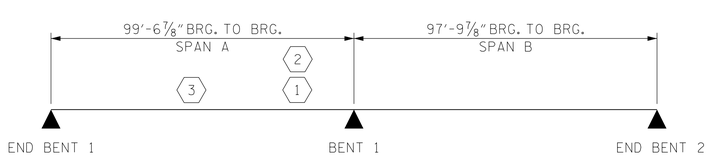
(2) DESIGN LOAD RATING (HS-20)

(3) LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

IL - GIRDERS A2, A3, B2, OR B3
IR - GIRDERS A6, A7, B6, OR B7
EL - EXTERIOR LEFT GIRDER
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

PROJECT NO. I-0914BA

VANCE COUNTY

STATION: 22+06.96 -Y1- POT

SHEET 4 OF 4

NORTH CAROLINA PROFESSIONAL SEAL 11725 ENGINEER DAVID R. RUGGLES

DocuSigned by: David Ruggles C462768DF412422... 11/17/2014

DWG. 4 OF 48

STEWART

Firm License No. C-1051
421 Fayetteville St,
Suite 400
Raleigh, NC 27601
T 919.380.8750
www.stewartinc.com

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:	S-4
1			3			TOTAL SHEETS
2			4			177

STD. NO. LRFR1

DRAWN BY:	H.ASSFOURA	DATE :	08/14
CHECKED BY:	P.JACOB	DATE :	09/14
DESIGN ENGINEER OF RECORD:	D.RUGGLES	DATE :	09/14