

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR STEEL GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W × RF	STRENGTH I LIMIT STATE										SERVICE II 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	1.07	--	1.75	0.924	1.20	A	EL	111.59	1.044	1.07	A	I	8.00	1.30	0.924	1.28	A	EL	111.59	1	
	HL-93 (OPERATING)	N/A		1.39	--	1.35	0.924	1.55	A	EL	111.59	1.044	1.39	A	I	8.00	1.00	0.924	1.66	A	EL	111.59	1	
	HS-20 (INVENTORY)	36.000	2	1.87	67.47	1.75	0.924	2.16	A	EL	111.59	1.044	1.87	A	I	8.00	1.30	0.924	2.30	A	EL	111.59	1	
	HS-20 (OPERATING)	36.000		2.43	87.46	1.35	0.924	2.80	A	EL	111.59	1.044	2.43	A	I	8.00	1.00	0.924	2.99	A	EL	111.59	1	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SH		6.32	78.97	1.40	0.924	7.41	A	EL	111.59	1.044	6.54	A	I	8.00	1.30	0.924	6.32	A	EL	111.59	1	
		S3C		3.68	79.14	1.40	0.924	4.32	A	EL	111.59	1.044	3.81	A	I	8.00	1.30	0.924	3.68	A	EL	111.59	1	
		S3A		3.48	79.22	1.40	0.924	4.09	A	EL	111.59	1.044	3.61	A	I	8.00	1.30	0.924	3.48	A	EL	111.59	1	
		S4A		3.00	80.23	1.40	0.924	3.52	A	EL	111.59	1.044	3.10	A	I	8.00	1.30	0.924	3.00	A	EL	111.59	1	
		S5A		2.64	80.42	1.40	0.924	3.09	A	EL	111.59	1.044	2.76	A	I	8.00	1.30	0.924	2.64	A	EL	111.59	1	
		S6A		2.35	81.16	1.40	0.924	2.76	A	EL	111.59	1.044	2.45	A	I	8.00	1.30	0.924	2.35	A	EL	111.59	1	
		S7B		2.12	81.61	1.40	0.924	2.49	A	EL	111.59	1.044	2.23	A	I	8.00	1.30	0.924	2.12	A	EL	111.59	1	
	S7A		2.06	82.37	1.40	0.924	2.42	A	EL	111.59	1.044	2.18	A	I	8.00	1.30	0.924	2.06	A	EL	111.59	1		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	T4A			2.88	81.39	1.40	0.924	3.38	A	EL	111.59	1.044	2.96	A	I	8.00	1.30	0.924	2.88	A	EL	111.59	1
		T5B			2.54	81.25	1.40	0.924	2.98	A	EL	111.59	1.044	2.67	A	I	8.00	1.30	0.924	2.54	A	EL	111.59	1
		T6A			2.28	82.14	1.40	0.924	2.68	A	EL	111.59	1.044	2.40	A	I	8.00	1.30	0.924	2.28	A	EL	111.59	1
T7A				2.07	82.99	1.40	0.924	2.43	A	EL	111.59	1.044	2.18	A	I	8.00	1.30	0.924	2.07	A	EL	111.59	1	
	T7B			2.12	84.80	1.40	0.924	2.49	A	EL	111.59	1.044	2.14	A	I	8.00	1.30	0.924	2.12	A	EL	111.59	1	
FATIGUE	HL-93 (INVENTORY)	γ _{LL} =0.75																						

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ _{DC}	γ _{DW}
	STRENGTH I	1.25	1.50
	SERVICE II	1.00	1.00

NOTES:
 MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE II LIMIT STATES.
 ALLOWABLE STRESS FOR SERVICE II LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:
 1. DISTANCE FROM LEFT END OF SPAN IS GIVEN WITH RESPECT TO CENTERLINE OF BEARING AND IS MEASURED ALONG THE CONTROLLING GIRDER.
 2. FATIGUE RATING IS NOT REQUIRED OR REPORTED SINCE GIRDER DOES NOT INCLUDE FATIGUE-PRONE DETAILS.

CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

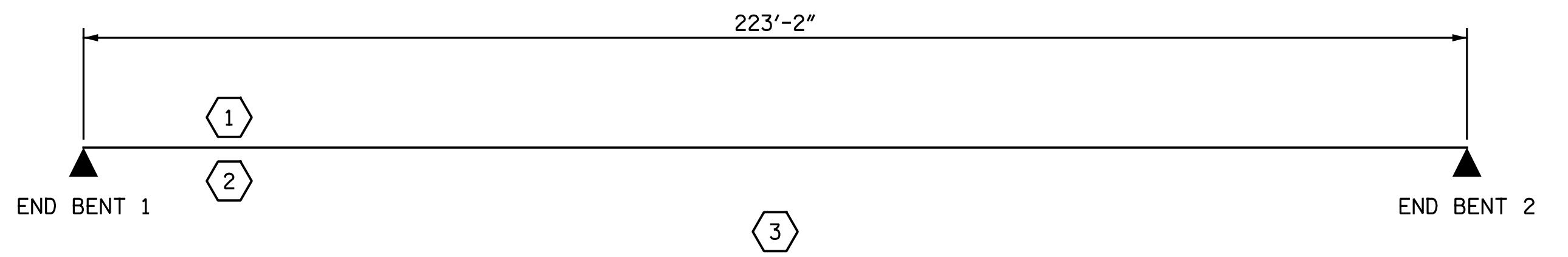
2 DESIGN LOAD RATING (HS-20)

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. U-2524D
GUILFORD COUNTY
 STATION: 495+22.00 -LREV-
18+84.00 -Y8-
 SHEET 5 OF 5

nbspeaks 7/18/2016 12:23:08 PM
 File name: Y:\Projects\NCDOT\U-2524D\Site-2\DWG\Right\Final\404_006_U2524D_SML_6005.dgn

DRAWN BY : N. B. SPEAKS DATE : 3-18-16
 CHECKED BY : B. J. BELL DATE : 3-23-16

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

7/18/2016

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING

LRFR SUMMARY
 FOR STEEL GIRDERS
 (INTERSTATE TRAFFIC)
 RIGHT LANES

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S4- 5
1			3			TOTAL SHEETS
2			4			35

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