

3/21/2023 8:15:58 AM P:\Raleigh\Projects\2019\Division 9 (Davenport)\B-5783\Structures\Drawings\NEW\Final\280168_SB\B-5783_SMU_LRFR_280168.dgn

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

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x 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	1.58	--	1.75	0.626	1.73	B	I	62.13	0.959	1.58	B	I	0	1.30	0.626	1.82	B	I	62.13		
	HL-93 (OPERATING)	N/A		2.05	--	1.35	0.626	2.24	B	I	62.13	0.959	2.05	B	I	0	1.00	0.626	2.37	B	I	62.13		
	HS-20 (INVENTORY)	36.000	②	2.50	90.0	1.75	0.626	3.21	B	I	62.13	0.959	2.50	B	I	0	1.30	0.626	2.68	B	I	62.13		
	HS-20 (OPERATING)	36.000		4.50	162.0	1.35	0.626	5.78	B	I	62.13	0.959	4.50	B	I	0	1.00	0.626	4.82	B	I	62.13		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SH		6.81	85.1	1.40	0.626	8.47	B	I	62.13	0.959	6.81	B	I	0	1.30	0.626	7.08	B	I	62.13		
		S3C	21.500		3.98	85.6	1.40	0.626	4.94	B	I	62.13	0.959	3.98	B	I	0	1.30	0.626	4.14	B	I	62.13	
		S3A	22.750		3.77	85.8	1.40	0.626	4.68	B	I	62.13	0.959	3.77	B	I	0	1.30	0.626	3.92	B	I	62.13	
		S4A	26.750		3.26	87.2	1.40	0.626	4.08	B	I	62.13	0.959	3.26	B	I	0	1.30	0.626	3.41	B	I	62.13	
		S5A	30.500		2.93	89.4	1.40	0.626	3.59	B	I	62.13	0.959	2.93	B	I	0	1.30	0.626	3.00	B	I	62.13	
		S6A	34.500		2.62	90.4	1.40	0.626	3.23	B	I	62.13	0.959	2.62	B	I	0	1.30	0.626	2.70	B	I	62.13	
		S7B	38.500		2.41	92.8	1.40	0.626	2.92	B	I	62.13	0.959	2.41	B	I	0	1.30	0.626	2.44	B	I	62.13	
		S7A	40.000		2.39	95.6	1.40	0.626	2.86	B	I	62.13	0.959	2.40	B	I	0	1.30	0.626	2.39	B	I	62.13	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	T4A	28.250		3.13	88.4	1.40	0.626	3.96	B	I	62.13	0.959	3.13	B	I	0	1.30	0.626	3.32	B	I	62.13	
		T5B	32.000		2.88	92.2	1.40	0.626	3.49	B	I	62.13	0.959	2.88	B	I	0	1.30	0.626	2.92	B	I	62.13	
		T6A	36.000		2.61	94.0	1.40	0.626	3.16	B	I	62.13	0.959	2.61	B	I	0	1.30	0.626	2.65	B	I	62.13	
		T7A	40.000		2.44	97.6	1.40	0.626	2.94	B	I	62.13	0.959	2.44	B	I	0	1.30	0.626	2.46	B	I	62.13	
		T7B	40.000	③	2.32	92.8	1.40	0.626	3.03	B	I	62.13	0.959	2.32	B	I	0	1.30	0.626	2.53	B	I	62.13	
FATIGUE	HL-93 (INVENTORY)	γ _{LL} =0.75		3.15																				

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.
 2.
 3.
 4.

⊕ CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

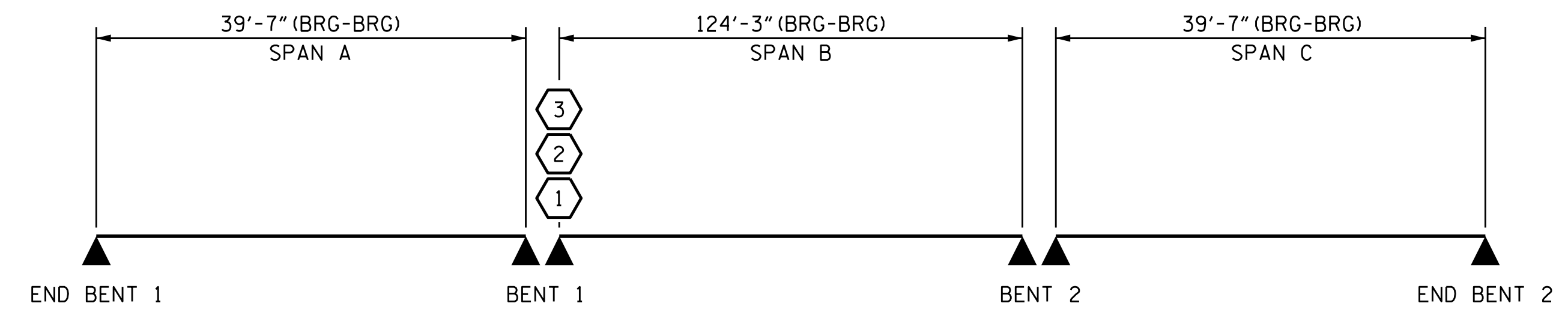
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

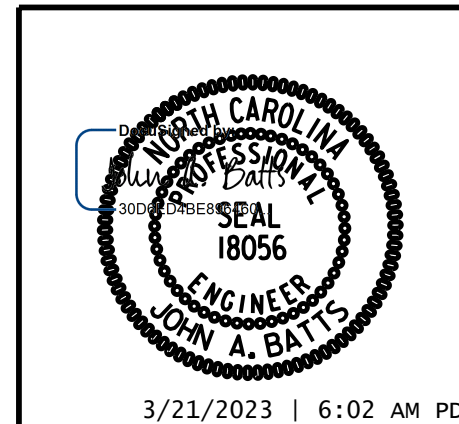
I - INTERIOR GIRDER
 EL - EXTERIOR LEFT GIRDER
 ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

PROJECT NO. B-5783
DAVIDSON COUNTY
 STATION: 21+53.61 -SBL-

DRAWN BY : S.D. COOPER DATE : 12-22
 CHECKED BY : J.A. BATTS DATE : 12-22
 DESIGN ENGINEER OF RECORD: J.A. BATTS DATE : 12-22



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**LRFR SUMMARY FOR
 STEEL GIRDERS**

(INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-05
1			3			TOTAL SHEETS
2			4			40

Licensure No. C-4434
**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**