

DATE: 2/9/2023
TIME: 12:34:41 PM

USER: c:\pwworkspace\pwworkspace\AECOM\DS21.NA.2020\Documents\60609754-U-5748 Ligon Mill\900-CAD GIS\910-CAD\70-NCDDOT-TIP\Structures\04 Drawings\401.011.U-5748_SMU_LRFR-S1-05.911021

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 x 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	1.17	--	1.75	0.930	1.18	B	ER	44.9	0.930	1.26	B	ER	26.7	0.80	0.930	1.17	A	ER	44.4				
	HL-93 (OPERATING)	N/A		1.53	--	1.35	0.930	1.53	B	ER	44.9	0.930	2.13	B	ER	81.4	N/A	--	--	--	--	--				
	HS-20 (INVENTORY)	36.000	②	1.35	48.60	1.75	0.930	1.53	D	ER	27.2	0.930	1.91	D	ER	38.3	0.80	0.930	1.35	B	ER	44.9				
	HS-20 (OPERATING)	36.000		1.99	71.64	1.35	0.930	1.99	D	ER	27.2	0.930	2.79	D	ER	43.9	N/A	--	--	--	--	--				
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		3.18	42.93	1.40	0.930	4.13	D	ER	27.2	0.930	6.60	D	ER	43.9	0.80	0.930	3.18	B	ER	44.9			
		SNGARBS2	20.000		2.31	46.20	1.40	0.930	3.15	D	ER	27.2	0.930	4.80	D	ER	43.9	0.80	0.930	2.31	B	ER	44.9			
		SNAGRIS2	22.000		2.17	47.74	1.40	0.930	3.00	D	ER	27.2	0.930	4.50	D	ER	43.9	0.80	0.930	2.17	B	ER	44.9			
		SNCOTTS3	27.250		1.63	44.42	1.40	0.930	2.03	D	ER	27.2	0.930	3.12	D	ER	43.9	0.80	0.930	1.63	D	ER	27.2			
		SNAGGRS4	34.925		1.30	45.40	1.40	0.930	1.74	D	ER	27.2	0.930	2.54	D	ER	43.9	0.80	0.930	1.30	B	ER	44.9			
		SNS5A	35.550		1.30	46.22	1.40	0.930	1.70	D	ER	27.2	0.930	2.67	B	ER	17.5	0.80	0.930	1.30	B	ER	44.9			
		SNS6A	39.950		1.27	50.74	1.40	0.930	1.57	D	ER	27.2	0.930	2.49	D	ER	43.9	0.80	0.930	1.27	D	ER	27.2			
		SNS7B	42.000		1.20	50.40	1.40	0.930	1.49	D	ER	27.2	0.930	2.49	D	ER	43.9	0.80	0.930	1.20	D	ER	27.2			
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.41	46.53	1.40	0.930	1.93	D	ER	27.2	0.930	2.90	B	ER	72.3	0.80	0.930	1.41	B	ER	44.9			
		TNT4A	33.075		1.41	46.64	1.40	0.930	1.93	D	ER	27.2	0.930	2.82	D	ER	43.9	0.80	0.930	1.41	B	ER	44.9			
		TNT6A	41.600		1.15	47.84	1.40	0.930	1.59	D	ER	27.2	0.930	2.51	B	ER	81.4	0.80	0.930	1.15	B	ER	44.9			
		TNT7A	42.000		1.15	48.30	1.40	0.930	1.61	D	ER	27.2	0.930	2.46	B	ER	8.4	0.80	0.930	1.15	B	ER	44.9			
		TNT7B	42.000		1.18	49.56	1.40	0.930	1.68	D	ER	27.2	0.930	2.33	B	ER	17.5	0.80	0.930	1.18	B	ER	44.9			
		TNAGRIT4	43.000		1.13	48.59	1.40	0.930	1.59	D	ER	27.2	0.930	2.23	D	ER	38.3	0.80	0.930	1.13	B	ER	44.9			
TNAGT5A	45.000		1.07	48.15	1.40	0.930	1.49	D	ER	27.2	0.930	2.18	B	ER	72.3	0.80	0.930	1.07	B	ER	44.9					
TNAGT5B	45.000		③	1.06	47.70	1.40	0.930	1.47	D	ER	27.2	0.930	1.96	D	ER	38.3	0.80	0.930	1.06	B	ER	44.9	1			

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.
 EXISTING GIRDERS ARE NOT INCLUDED IN THIS LRFR SUMMARY.

COMMENTS:
 1. THE CONTROLLING RATING FACTOR OCCURS AT SPAN B, EXTERIOR GIRDER.

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

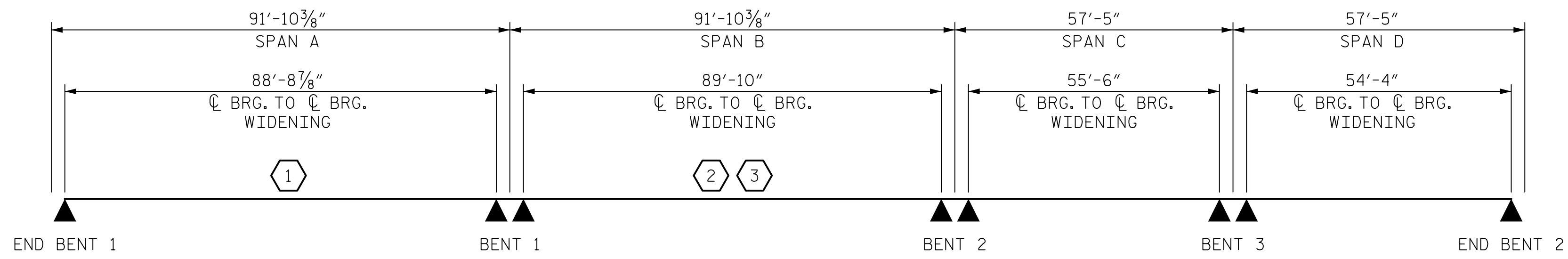
② DESIGN LOAD RATING (HS-20)

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-5748
 WAKE COUNTY
 STATION: 24+88.00 -L-

ASSEMBLED BY : D.R. DRUM DATE : 05/2021
 CHECKED BY : J.C. MORRISON DATE : 05/2021
 DRAWN BY : MAA 1/08 REV. 11/12/08RRR MAA/GM
 CHECKED BY : GM/DI 2/08 REV. 10/1/11 MAA/GM
 REV. 12/17 MAA/THC

DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

AECOM

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JOHN C. MORRISON
 ENGINEER
 2/10/2023

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:	S1-05
1			3			TOTAL SHEETS
2			4			119