

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

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 (FF)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (FF)	LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION		DISTANCE FROM LEFT END OF SPAN (FF)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.01	- -	1.75	0.8	1.23	B	E	48.88	0.8	1.73	A	E	38.76	0.80	0.72	1.01	B	I	48.88	1	
	HL-93 (OPERATING)	N/A		1.59	- -	1.35	0.8	1.59	B	E	48.88	0.9	2.95	A	I	28.89	N/A	- -	- -	- -	- -	- -		
	HS-20 (INVENTORY)	36.000	②	1.41	50.760	1.75	0.8	1.71	B	E	48.88	0.9	2.71	D	I	58.49	0.80	0.72	1.41	B	I	48.88		
	HS-20 (OPERATING)	36.000		2.22	79.920	1.35	0.8	2.22	B	E	48.88	0.9	3.78	A	I	28.89	N/A	- -	- -	- -	- -	- -		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13,500		3.34	45.090	1.40	0.8	5.09	B	E	48.88	0.9	9.00	A	I	28.89	0.80	0.72	3.34	C	I	48.88	
		SNGARBS2	20,000		2.42	48,400	1.40	0.8	3.68	B	E	48.63	0.9	6.32	A	I	28.89	0.80	0.72	2.42	C	I	48.88	
		SNAGRIS2	22,000		2.26	49,720	1.40	0.8	3.44	B	E	48.88	0.9	5.85	A	I	28.89	0.80	0.72	2.26	C	I	48.88	
		SNCOTTS3	27,250		1.66	45,235	1.40	0.8	2.53	B	E	48.88	0.9	4.39	A	I	28.89	0.80	0.72	1.66	C	I	48.88	
		SNAGGRS4	34,925		1.36	47,498	1.40	0.8	2.07	B	E	48.88	0.9	3.60	A	I	28.89	0.80	0.72	1.36	C	I	48.88	
		SNS5A	35,550		1.33	47,282	1.40	0.8	2.03	B	E	48.88	0.9	3.64	A	I	28.89	0.80	0.72	1.33	C	I	48.88	
		SNS6A	39,950		1.21	48,340	1.40	0.8	1.84	B	E	48.88	0.9	3.30	A	I	28.89	0.80	0.72	1.21	C	I	48.88	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33,000		1.47	48,510	1.40	0.8	2.24	B	E	48.88	0.9	3.97	A	I	28.89	0.80	0.72	1.47	C	I	48.88	
		TNT4A	33,075		1.48	48,951	1.40	0.8	2.25	B	E	48.88	0.9	3.87	A	I	28.89	0.80	0.72	1.48	B	I	48.88	
		TNT6A	41,600		1.20	49,920	1.40	0.8	1.82	B	E	48.88	0.9	3.41	A	I	28.89	0.80	0.72	1.20	B	I	48.88	
		TNT7A	42,000		1.20	50,400	1.40	0.8	1.82	B	E	48.88	0.9	3.37	A	I	28.89	0.80	0.72	1.20	B	I	48.88	
		TNT7B	42,000		1.22	51,240	1.40	0.8	1.87	B	E	48.88	0.9	3.16	A	I	28.89	0.80	0.72	1.22	C	I	48.88	
		TNAGRIT4	43,000		1.17	50,310	1.40	0.8	1.79	B	E	48.88	0.9	3.05	A	I	28.89	0.80	0.72	1.17	C	I	48.88	
		TNAGT5A	45,000		1.11	49,950	1.40	0.8	1.70	B	E	48.88	0.9	2.99	B	I	38.96	0.80	0.72	1.11	C	I	48.88	
TNAGT5B	45,000		③	49,500	1.40	0.8	1.68	B	E	48.88	0.9	2.75	D	I	58.49	0.80	0.72	1.10	C	I	48.88			

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:
- MINIMUM RATING FACTOR FOR SPAN C INTERIOR GIRDER ALSO 1.01.
 - TRANSFORMING ALL PRESTRESSING TENDONS.
 - GIRDERS DESIGNED AS SIMPLE SPANS FOR FLEXURE.
 - GIRDERS DESIGNED AS SIMPLE-MADE-CONTINUOUS (FOR LIVE AND SUPERIMPOSED DEAD LOAD) FOR SHEAR.
 - FACTORED SHEAR AND MOMENT CAPACITIES PROVIDED FOR STRENGTH I LIMIT STATE, SECTION PROPERTIES PROVIDED FOR SERVICE III LIMIT STATE.
 - GIRDERS LOAD RATED AS SIMPLE SPANS.

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

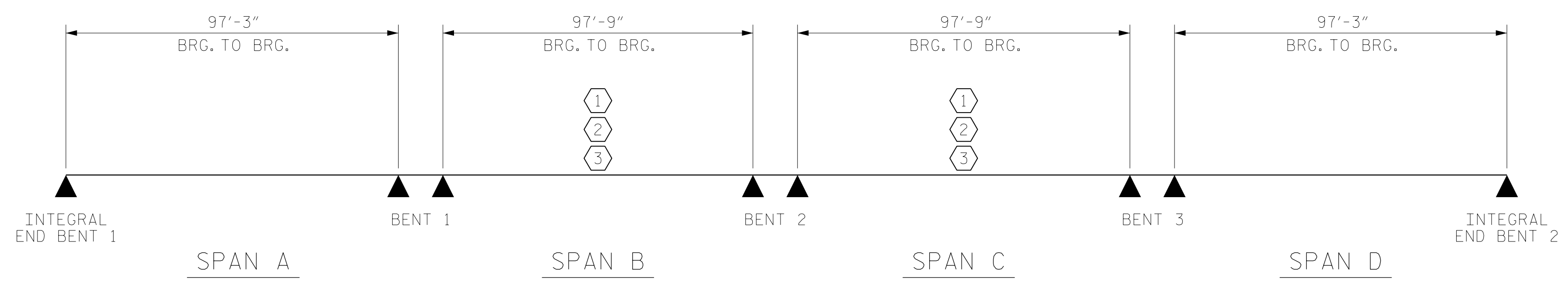
I - INTERIOR GIRDER
 E - EXTERIOR GIRDER

		CL BRG.	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	CL BRG.
EXTERIOR GIRDER (E) SPAN B	ϕV_n (KIPS)	811	566	562	365	299	298	299	365	560	567	812
	ϕM_n (KIP-FT)	----	6517	8266	8497	8497	8497	8497	8497	8266	8562	----
INTERIOR GIRDER (I) SPAN B	ϕV_n (KIPS)	814	565	562	366	301	300	300	366	561	566	814
	ϕM_n (KIP-FT)	----	6614	8382	8631	8631	8631	8631	8631	8382	6614	----

	UNITS	NON-COMPOSITE	COMPOSITE
HEIGHT	IN	54.00	62.50
AREA	IN ²	826.80	1553.00
I_{xx}	IN ⁴	269,790	724,924
Y_{cg}	IN	24.01	40.15
SELF WT.	PLF	821.90	1778.10
EFF. WIDTH	IN	---	108.00

SECTION PROPERTIES PROVIDED AT MIDSPAN

PROJECT NO. B-4484
 CRAVEN COUNTY
 STATION: 41+45.00 -L1-



LRFR SUMMARY

DRAWN BY : NSC DATE : 04/2019
 CHECKED BY : JMR DATE : 06/2019
 DESIGN ENGINEER OF RECORD: PDS DATE : 06/2019

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RS&H Architects-Engineers-Planners, Inc.
 8521 Six Forks Road, Suite 400
 919-926-4100 FAX 919-846-9080
 www.rsandh.com
 North Carolina License No. 00737-54037-C&E

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S2-4
1			3			TOTAL SHEETS
2			4			31