

# LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LOAD FACTORS:

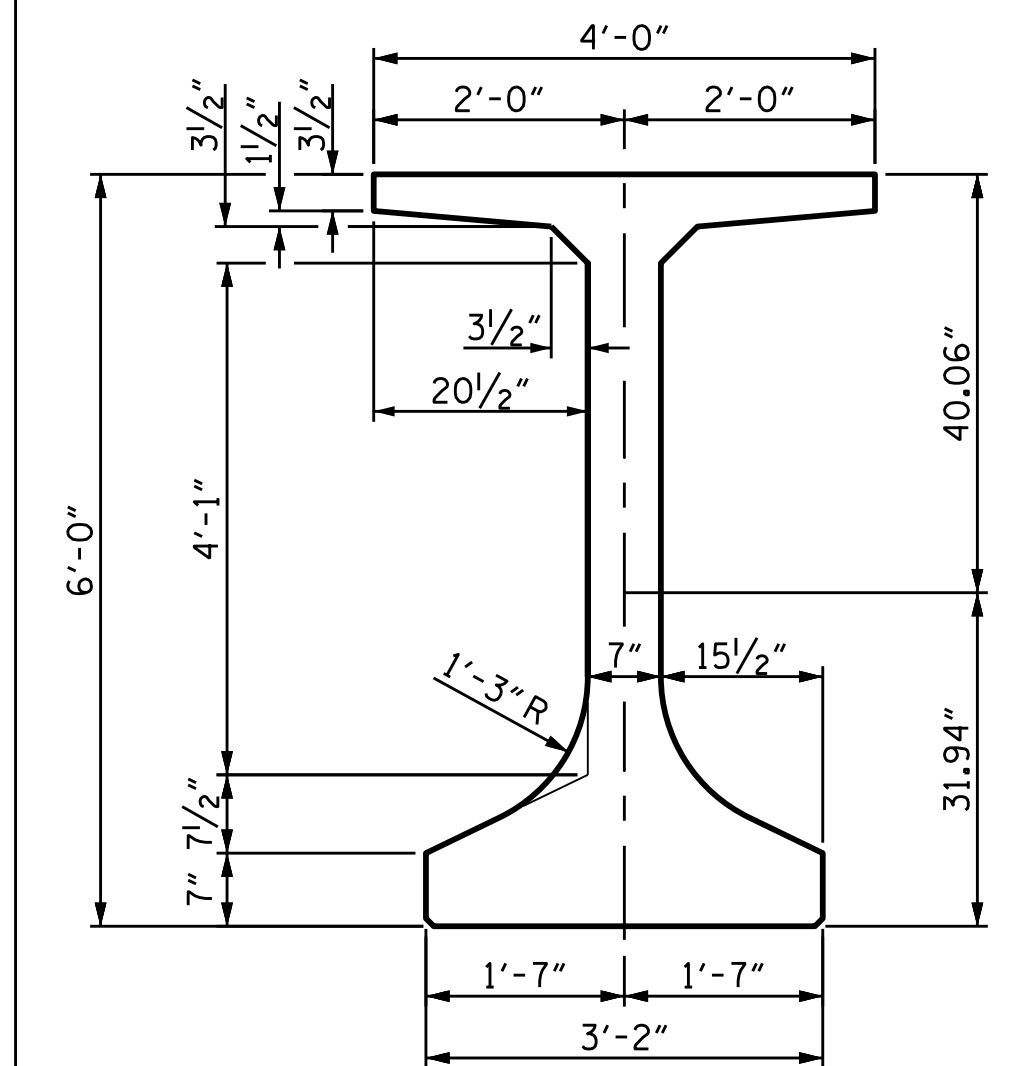
DESIGN LOAD RATING FACTORS	LIMIT STATE	$\gamma_{DC}$	$\gamma_{DW}$
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

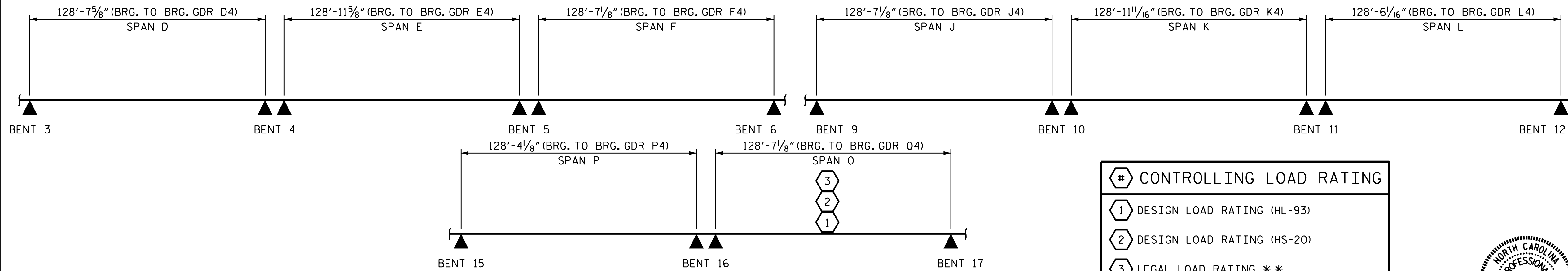
MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.  
ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

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 ( $\gamma_{LL}$ )	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 ( $\gamma_{LL}$ )	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)				
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.06	--	1.75	0.937	1.06	0	ER	64.49	0.937	1.43	0	ER	51.59	0.80	0.937	1.15	0	ER	64.49				
	HL-93 (OPERATING)	N/A		1.37	--	1.35	0.937	1.37	0	ER	64.49	0.937	1.86	0	ER	51.59	N/A	--	--	--	--	--				
	HS-20 (INVENTORY)	36.000	②	1.58	56.71	1.75	0.937	1.58	0	ER	64.49	0.937	1.85	0	ER	51.59	0.80	0.937	1.71	0	ER	64.49				
	HS-20 (OPERATING)	36.000		2.04	75.51	1.35	0.937	2.04	0	ER	64.49	0.937	2.40	0	ER	51.59	N/A	--	--	--	--	--				
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		4.18	56.46	1.40	0.937	4.81	0	ER	64.49	0.937	5.50	0	ER	51.59	0.80	0.937	4.18	0	ER	64.49			
		SNGARBS2	20.000		2.97	59.41	1.40	0.937	3.41	0	ER	64.49	0.937	4.00	0	ER	51.59	0.80	0.937	2.97	0	ER	64.49			
		SNAGRIS2	22.000		2.76	60.61	1.40	0.937	3.17	0	ER	64.49	0.937	3.67	0	ER	51.59	0.80	0.937	2.76	0	ER	64.49			
		SNCOTTS3	27.250		2.08	56.62	1.40	0.937	2.39	0	ER	64.49	0.937	2.93	0	ER	51.59	0.80	0.937	2.08	0	ER	64.49			
		SNAGGRS4	34.925		1.68	58.71	1.40	0.937	1.93	0	ER	64.49	0.937	2.38	0	ER	51.59	0.80	0.939	1.68	0	ER	64.49			
		SNS5A	35.550		1.65	58.60	1.40	0.937	1.89	0	ER	64.49	0.937	2.44	0	ER	51.59	0.80	0.937	1.65	0	ER	64.49			
		SNS6A	39.950		1.49	59.53	1.40	0.937	1.71	0	ER	64.49	0.937	2.15	0	ER	51.59	0.80	0.937	1.49	0	ER	64.49			
		SNS7B	42.000		1.42	59.58	1.40	0.937	1.63	0	ER	64.49	0.937	2.15	0	ER	51.59	0.80	0.937	1.42	0	ER	64.49			
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.81	59.76	1.40	0.937	2.08	0	ER	64.49	0.937	2.51	0	ER	51.59	0.80	0.937	1.81	0	ER	64.49			
		TNT4A	33.075		1.81	59.93	1.40	0.937	2.08	0	ER	64.49	0.937	2.59	0	ER	51.59	0.80	0.937	1.81	0	ER	64.49			
		TNT6A	41.600		1.46	60.84	1.40	0.937	1.68	0	ER	64.49	0.937	2.20	0	ER	51.59	0.80	0.937	1.46	0	ER	64.49			
		TNT7A	42.000		1.46	61.26	1.40	0.937	1.68	0	ER	64.49	0.937	2.26	0	ER	51.59	0.80	0.937	1.46	0	ER	64.49			
		TNT7B	42.000		1.48	62.18	1.40	0.937	1.70	0	ER	64.49	0.937	2.15	0	ER	51.59	0.80	0.937	1.48	0	ER	64.49			
		TNAGRIT4	43.000		1.43	61.50	1.40	0.937	1.64	0	ER	64.49	0.937	2.00	0	ER	51.59	0.80	0.937	1.43	0	ER	64.49			
TNAGT5A	45.000		1.36	61.12	1.40	0.937	1.56	0	ER	64.49	0.937	1.91	0	ER	51.59	0.80	0.937	1.36	0	ER	64.49					
TNAGT5B	45.000		③	1.35	60.70	1.40	0.937	1.55	0	ER	64.49	0.937	1.91	0	ER	51.59	0.80	0.937	1.35	0	ER	64.49				

## SECTION PROPERTIES 72" CFRP F.I.B.

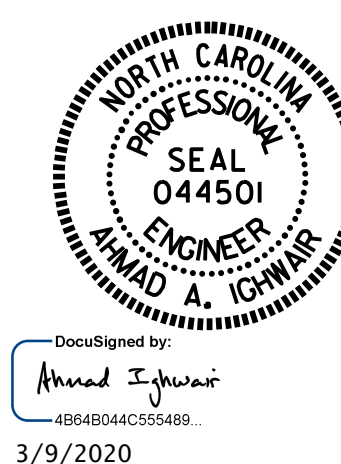


AREA = 1058.6 SQ. IN. = 7.3512 SQ. FT.  
WEIGHT = 7.3512 x 150 = 1102.7 LBS./FT.  
 $I_{XX} = 740,416 \text{ IN.}^4$      $I_{YY} = 82,099 \text{ IN.}^4$   
 $C_T = 40.06 \text{ IN.}$      $C_B = 31.94 \text{ IN.}$   
 $S_T = 18,483 \text{ IN.}^3$      $S_B = 23,182 \text{ IN.}^3$



### LRFR SUMMARY

# 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



PROJECT NO. B-4863  
CARTERET COUNTY  
STATION: 34+75.00 -L-

SHEET 2 OF 5  
STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
LRFR SUMMARY  
72" CFRP F.I.B.  
PRESTRESSED CONCRETE GIRDERS  
(CFRP STIRRUP OPTION)  
SPANS D, E, F, J, K, L, P & Q

ASSEMBLED BY : S. M. MATTA	DATE : 12/19
CHECKED BY : A. A. ICHWAIR	DATE : 12/19
DRAWN BY : MAA 1/08	REV. 11/12/08RR 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	NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
	1			3			S1-020
	2			4			TOTAL SHEETS 194