

# LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE BOX BEAMS

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								
						LIVELOAD FACTORS	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)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	①	1.06	--	1.75	0.263	<b>1.06</b>	A	EL	<b>50.559</b>	0.574	1.19	A	EL	10.112	0.80	0.263	1.10	A	EL	50.559		
	HL-93(0pr)	N/A	--	1.37	--	1.35	0.263	1.37	A	EL	50.559	0.574	1.55	A	EL	10.112	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	②	1.48	53.393	1.75	0.263	<b>1.48</b>	A	EL	<b>50.559</b>	0.574	1.59	A	EL	10.112	0.80	0.263	1.54	A	EL	50.559		
	HS-20(0pr)	36.000	--	1.92	69.213	1.35	0.263	1.92	A	EL	50.559	0.574	2.06	A	EL	10.112	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.66	49.363	1.4	0.263	4.41	A	EL	50.559	0.574	4.90	A	EL	10.112	0.80	0.263	3.66	A	EL	50.559	
		SNGARBS2	20.000	--	2.64	52.871	1.4	0.263	3.19	A	EL	50.559	0.574	3.43	A	EL	10.112	0.80	0.263	2.64	A	EL	50.559	
		SNAGRIS2	22.000	--	2.47	54.358	1.4	0.263	2.98	A	EL	50.559	0.574	3.17	A	EL	10.112	0.80	0.263	2.47	A	EL	50.559	
		SNCOTTS3	27.250	--	1.82	49.519	1.4	0.263	2.19	A	EL	50.559	0.574	2.44	A	EL	10.112	0.80	0.263	1.82	A	EL	50.559	
		SNAGGRS4	34.925	--	1.49	51.941	1.4	0.263	1.79	A	EL	50.559	0.574	1.99	A	EL	10.112	0.80	0.263	1.49	A	EL	50.559	
		SNS5A	35.550	--	1.46	51.777	1.4	0.263	1.76	A	EL	50.559	0.574	2.00	A	EL	10.112	0.80	0.263	1.46	A	EL	50.559	
		SNS6A	39.950	--	1.32	52.875	1.4	0.263	1.60	A	EL	50.559	0.574	1.81	A	EL	10.112	0.80	0.263	1.32	A	EL	50.559	
	TTST	SNS7B	42.000	--	1.26	52.917	1.4	0.263	1.52	A	EL	50.559	0.574	1.76	A	EL	10.112	0.80	0.263	1.26	A	EL	50.559	
		TNAGRIT3	33.000	--	1.61	53.138	1.4	0.263	1.94	A	EL	50.559	0.574	2.16	A	EL	10.112	0.80	0.263	1.61	A	EL	50.559	
		TNT4A	33.075	--	1.61	53.380	1.4	0.263	1.95	A	EL	50.559	0.574	2.12	A	EL	10.112	0.80	0.263	1.61	A	EL	50.559	
		TNT6A	41.600	--	1.31	54.400	1.4	0.263	1.58	A	EL	50.559	0.574	1.84	A	EL	10.112	0.80	0.263	1.31	A	EL	50.559	
		TNT7A	42.000	--	1.31	54.934	1.4	0.263	1.58	A	EL	50.559	0.574	1.81	A	EL	10.112	0.80	0.263	1.31	A	EL	50.559	
		TNT7B	42.000	--	1.34	56.192	1.4	0.263	1.61	A	EL	50.559	0.574	1.73	A	EL	10.112	0.80	0.263	1.34	A	EL	50.559	
		TNAGRIT4	43.000	--	1.28	55.213	1.4	0.263	1.55	A	EL	50.559	0.574	1.68	A	EL	10.112	0.80	0.263	1.28	A	EL	50.559	
TNAGT5A	45.000	--	1.22	54.721	1.4	0.263	1.47	A	EL	50.559	0.574	1.65	A	EL	10.112	0.80	0.263	1.22	A	EL	50.559			
TNAGT5B	45.000	③	1.21	54.275	1.4	0.263	1.45	A	EL	50.559	0.574	1.60	A	EL	10.112	0.80	0.263	<b>1.21</b>	A	EL	<b>50.559</b>			

### 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.

### COMMENTS:

- 1.
- 2.
- 3.
- 4.

**④ CONTROLLING LOAD RATING**

① DESIGN LOAD RATING (HL-93)

② DESIGN LOAD RATING (HS-20)

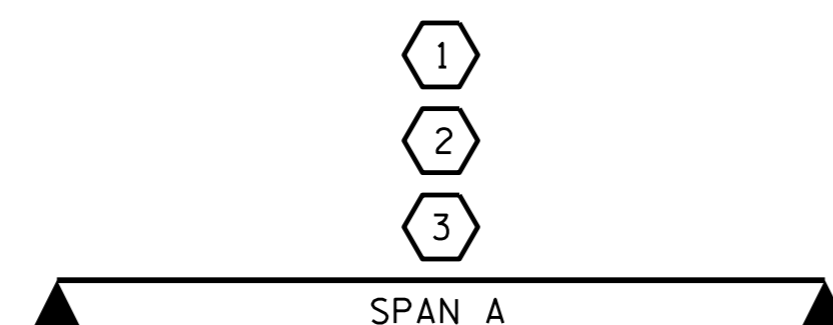
③ LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

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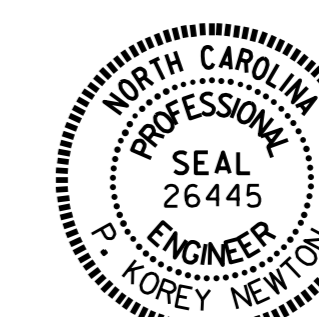
GIRDER LOCATION

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



### LRFR SUMMARY

PROJECT NO. B-5344  
GUILFORD COUNTY  
 STATION: 17+21.00 -L-



DocuSigned by:  
 3/22/2016

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 LRFR SUMMARY FOR  
 105' BOX BEAM UNIT  
 105° SKEW  
 (NON-INTERSTATE TRAFFIC)

DESIGN ENGINEER OF RECORD:	
P. K. NEWTON	DATE : 2/2/16
ASSEMBLED BY : P. K. NEWTON	DATE : 2/2/16
CHECKED BY : T. H. FANG	DATE : 2/2/16
DRAWN BY : TMG	11/11
CHECKED BY : AAC	11/11

DOCUMENT NOT CONSIDERED  
 FINAL UNLESS ALL  
 SIGNATURES COMPLETED

REVISIONS						SHEET NO. S-4
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 16
2			4			