

LOAD FACTORS:

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

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 ( $\gamma_{LL}$ )	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	1.43	--	1.75	0.951	1.46	B	EL	0.00	0.951	1.43	B	EL	22.00	1.30	0.951	2.26	B	EL	0.00		
	HL-93 (OPERATING)	N/A		1.86	--	1.35	0.951	1.90	B	EL	0.00	0.951	1.86	B	EL	22.00	1.00	0.951	2.93	B	EL	0.00		
	HS-20 (INVENTORY)	36.00	②	2.08	74.8	1.75	0.951	2.08	B	EL	0.00	0.951	2.10	B	EL	147.05	1.30	0.951	3.21	B	EL	0.00		
	HS-20 (OPERATING)	36.00		2.70	97.2	1.35	0.951	2.70	B	EL	0.00	0.951	2.72	B	EL	147.05	1.00	0.951	4.18	B	EL	0.00		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		6.39	86.2	1.40	0.951	7.54	B	EL	85.06	0.951	6.39	B	EL	147.05	1.30	0.951	8.41	A	EL	41.64	
		SNGARBS2	20.000		4.50	90.0	1.40	0.951	5.42	B	EL	85.06	0.951	4.50	B	EL	147.05	1.30	0.951	6.07	A	EL	41.64	
		SNAGRIS2	22.000		4.16	91.5	1.40	0.951	5.04	B	EL	81.15	0.951	4.16	B	EL	147.05	1.30	0.951	5.67	A	EL	41.64	
		SNCOTTS3	27.250		3.19	86.9	1.40	0.951	3.79	B	EL	88.95	0.951	3.19	B	EL	147.05	1.30	0.951	4.24	A	EL	41.64	
		SNAGGRS4	34.925		2.61	91.1	1.40	0.951	3.08	B	EL	85.06	0.951	2.61	B	EL	147.05	1.30	0.951	3.48	A	EL	41.64	
		SNS5A	35.550		2.63	93.4	1.40	0.951	3.04	B	EL	88.95	0.951	2.63	B	EL	147.05	1.30	0.951	3.43	A	EL	41.64	
		SNS6A	39.950		2.38	95.0	1.40	0.951	2.75	B	EL	85.06	0.951	2.38	B	EL	147.05	1.30	0.951	3.12	A	EL	41.64	
	SNS7B	42.000		2.28	95.7	1.40	0.951	2.61	B	EL	85.06	0.951	2.28	B	EL	22.00	1.30	0.951	2.96	A	EL	41.64		
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		2.85	94.0	1.40	0.951	3.38	B	EL	85.06	0.951	2.85	B	EL	147.05	1.30	0.951	3.83	A	EL	41.64	
		TNT4A	33.075		2.79	92.2	1.40	0.951	3.34	B	EL	85.06	0.951	2.79	B	EL	147.05	1.30	0.951	3.75	A	EL	41.64	
		TNT6A	41.600		2.31	96.0	1.40	0.951	2.70	B	EL	81.15	0.951	2.31	B	EL	22.00	1.30	0.951	3.08	B	EL	81.15	
		TNT7A	42.000		2.30	96.6	1.40	0.951	2.70	B	EL	85.06	0.951	2.30	B	EL	22.00	1.30	0.951	3.07	A	EL	41.64	
		TNT7B	42.000		2.28	95.7	1.40	0.951	2.74	B	EL	85.06	0.951	2.28	B	EL	147.05	1.30	0.951	3.09	A	EL	41.64	
		TNAGRIT4	43.000		2.21	95.0	1.40	0.951	2.66	B	EL	85.06	0.951	2.21	B	EL	147.05	1.30	0.951	2.98	A	EL	41.64	
TNAGT5A		45.000		2.15	96.7	1.40	0.951	2.52	B	EL	81.15	0.951	2.15	B	EL	22.00	1.30	0.951	2.87	B	EL	81.15		
TNAGT5B	45.000	③	2.11	94.9	1.40	0.951	2.49	B	EL	85.06	0.951	2.11	B	EL	147.05	1.30	0.951	2.83	A	EL	41.64			
FATIGUE	HL-93 (INVENTORY)	$\gamma_{LL}=0.75$		5.67																				

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:

- DISTRIBUTION FACTORS TAKEN FROM DESCUS
- AVERAGE GIRDER LENGTH FOR EACH SPAN SHOWN. (C BEARING TO C BEARING)
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# CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93) \*\*

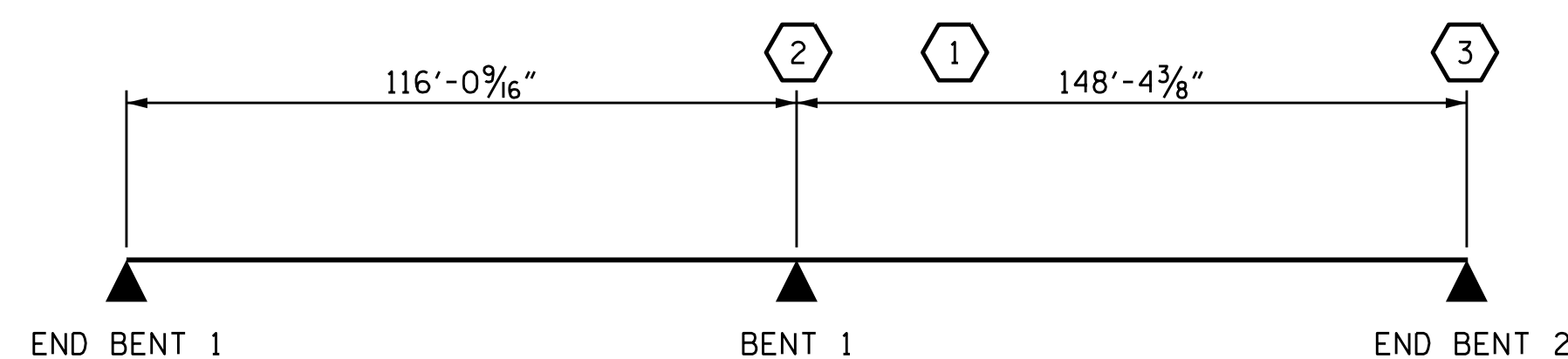
② DESIGN LOAD RATING (HS-20) \*\*

③ LEGAL LOAD RATING \*\*

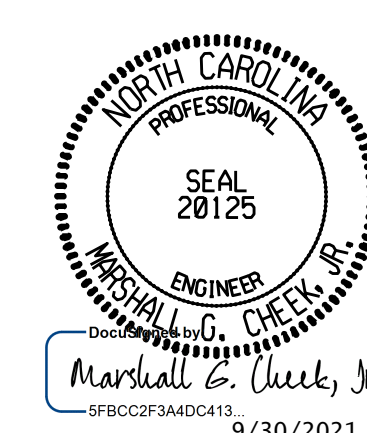
\*\* SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



PROJECT NO. R-2566BA  
WATAUGA COUNTY  
STATION: 164+30.00 -L-



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
LRFR SUMMARY FOR  
STEEL GIRDERS  
(NON-INTERSTATE TRAFFIC)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS  
706 HILLSBOROUGH STREET  
SUITE 200  
RALEIGH, NC 27603  
PH (919) 773-8887  
CORP. LICENSE NO.: C-0275

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-5
1			3			TOTAL SHEETS
2			4			79

ASSEMBLED BY: S. B. WILLIAMS DATE: 5-19  
CHECKED BY: MGC DATE: 5-19  
DESIGN ENGINEER OF RECORD: RDE DATE: 9-21

DRAWN BY: MAA 1/08 REV. 11/2/08RR MAA/GM  
CHECKED BY: GM/DI 2/08 REV. 10/1/11 MAA/GM  
REV. 12/17 MAA/THC