LOAD AND RESISTANCE FACTOR RATING (LRFD) 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					
							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	1.155	--	1.75	0.273	1.72	A	EL	39.25	0.502	1.51	A	EL	7.85	0.80	0.273	**1.15**	A	EL	**39.25**	
		HL-93(Opr)	N/A	--	1.958	--	1.35	0.273	2.23	A	EL	39.25	0.502	1.96	A	EL	7.85	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.533	55.181	1.75	0.273	2.28	A	EL	39.25	0.502	1.91	A	EL	7.85	0.80	0.273	**1.53**	A	EL	**39.25**	
		HS-20(Opr)	36.000	--	2.473	89.021	1.35	0.273	2.96	A	EL	39.25	0.502	2.47	A	EL	7.85	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	3.509	47.376	1.4	0.273	6.53	A	EL	39.25	0.502	5.73	A	EL	7.85	0.80	0.273	3.51	A	EL	39.25	
		SNGARBS2	20.000	--	2.594	51.88	1.4	0.273	4.82	A	EL	39.25	0.502	4.06	A	EL	7.85	0.80	0.273	2.59	A	EL	39.25	
		SNAGRIS2	22.000	--	2.448	53.85	1.4	0.273	4.55	A	EL	39.25	0.502	3.76	A	EL	7.85	0.80	0.273	2.45	A	EL	39.25	
		SNCOTTS3	27.250	--	1.746	47.571	1.4	0.273	3.25	A	EL	39.25	0.502	2.86	A	EL	7.85	0.80	0.273	1.75	A	EL	39.25	
		SNAGGRS4	34.925	--	1.451	50.667	1.4	0.273	2.7	A	EL	39.25	0.502	2.36	A	EL	7.85	0.80	0.273	1.45	A	EL	39.25	
		SNS5A	35.550	--	1.419	50.453	1.4	0.273	2.64	A	EL	39.25	0.502	2.38	A	EL	7.85	0.80	0.273	1.42	A	EL	39.25	
		SNS6A	39.950	--	1.299	51.885	1.4	0.273	2.42	A	EL	39.25	0.502	2.17	A	EL	7.85	0.80	0.273	1.30	A	EL	39.25	
		SNS7B	42.000	--	1.237	51.941	1.4	0.273	2.3	A	EL	39.25	0.502	2.13	A	EL	7.85	0.80	0.273	1.24	A	EL	39.25	
	TTST	TNAGRIT3	33.000	--	1.583	52.231	1.4	0.273	2.94	A	EL	39.25	0.502	2.59	A	EL	7.85	0.80	0.273	1.58	A	EL	39.25	
		TNT4A	33.075	--	1.589	52.55	1.4	0.273	2.96	A	EL	39.25	0.502	2.53	A	EL	7.85	0.80	0.273	1.59	A	EL	39.25	
		TNT6A	41.600	--	1.296	53.907	1.4	0.273	2.41	A	EL	39.25	0.502	2.25	A	EL	7.85	0.80	0.273	1.30	A	EL	39.25	
		TNT7A	42.000	--	1.301	54.625	1.4	0.273	2.42	A	EL	39.25	0.502	2.21	A	EL	7.85	0.80	0.273	1.30	A	EL	39.25	
		TNT7B	42.000	--	1.341	56.333	1.4	0.273	2.49	A	EL	39.25	0.502	2.08	A	EL	7.85	0.80	0.273	1.34	A	EL	39.25	
		TNAGRIT4	43.000	--	1.279	55.001	1.4	0.273	2.38	A	EL	39.25	0.502	2.02	A	EL	7.85	0.80	0.273	1.28	A	EL	39.25	
		TNAGT5A	45.000	--	1.207	54.337	1.4	0.273	2.25	A	EL	39.25	0.502	2	A	EL	7.85	0.80	0.273	1.21	A	EL	39.25	
		TNAGT5B	45.000	3	1.194	53.739	1.4	0.273	2.22	A	EL	39.25	0.502	1.92	A	EL	7.85	0.80	0.273	**1.19**	A	EL	**39.25**	

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.

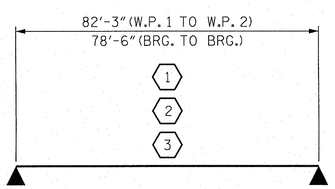
ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

1.
2.
3.
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

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



LRFR SUMMARY

PROJECT NO. 17BP.8.R.77
RANDOLPH COUNTY
STATION: 13+00.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR 80' BOX BEAM UNIT 90° SKEW
(NON-INTERSTATE TRAFFIC)

NORTH CAROLINA PROFESSIONAL SEAL 24939 ENGINEER BRIAN E. ATKINSON
11/12/14

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

REVISIONS								
NO.	BY:	DATE:	NO.	BY:	DATE:			
1			3					
2			4					

SHEET NO. S-3
TOTAL SHEETS 15

ASSEMBLED BY: B.E. LANNING DATE: 10/14
CHECKED BY : B.E. ATKINSON DATE: 10/14
DESIGN ENGINEER OF RECORD: B.E. ATKINSON DATE: 10/14
DRAWN BY : TMG II/II
CHECKED BY : AAC II/II

12/2/2014
12:09:43 PM
User: blanning
Filename: P:\NC Bridges\MI3012 - Div 08 Bridge Replacements_Summit\MI3012.03_Randolph 232\17BP8R77\Structures\17BP8R77_SD_LRFR1.dgn

STD. NO. 33LRFR1_90S_80L