DocuSign Envelope ID: F20DA70D-AC83-4BF5-AE9D-2BD4C4EF895E

4/3/2018 2:03:50 PM G:\Projects\2016\Division 5 (Mott Macdonald)\B-5687 Warren #43 (60 212421CS VCBR)\Structures\Drawings\Final\401_B5687_SMU_lrfr.dgn

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**	1.142	--	1.75	0.254	1.5	35′	EL	16.923	0.653	**1.14**	35′	EL	**1.692**	0.80	0.254	1.16	35′	EL	16.923	
		HL-93(Opr)	N/A	--	1.48	--	1.35	0.254	1.95	35′	EL	16.923	0.653	1.48	35′	EL	1.692	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	**2**	1.318	47.43	1.75	0.254	1.99	35′	EL	13.538	0.653	**1.32**	35′	EL	**1.692**	0.80	0.254	1.54	35′	EL	16.923	
		HS-20(Opr)	36.000	--	1.708	61.484	1.35	0.254	2.57	35′	EL	13.538	0.653	1.71	35′	EL	1.692	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.649	35.758	1.4	0.254	4.3	35′	EL	16.923	0.653	3.39	35′	EL	1.692	0.80	0.254	2.65	35′	EL	16.923	
		SNGARBS2	20.000	--	2.276	45.521	1.4	0.254	3.64	35′	EL	13.538	0.653	2.56	35′	EL	1.692	0.80	0.254	2.28	35′	EL	13.538	
		SNAGRIS2	22.000	--	2.27	49.949	1.4	0.254	3.61	35′	EL	13.538	0.653	2.44	35′	EL	1.692	0.80	0.254	2.27	35′	EL	13.538	
		SNCOTTS3	27.250	--	1.326	36.138	1.4	0.254	2.15	35′	EL	16.923	0.653	1.71	35′	EL	1.692	0.80	0.254	1.33	35′	EL	16.923	
		SNAGGRS4	34.925	--	1.228	42.883	1.4	0.254	1.99	35′	EL	16.923	0.653	1.53	35′	EL	1.692	0.80	0.254	1.23	35′	EL	16.923	
		SNS5A	35.550	--	1.192	42.369	1.4	0.254	1.93	35′	EL	16.923	0.653	1.61	35′	EL	1.692	0.80	0.254	1.19	35′	EL	16.923	
		SNS6A	39.950	--	1.15	45.932	1.4	0.254	1.87	35′	EL	16.923	0.653	1.52	35′	EL	1.692	0.80	0.254	1.15	35′	EL	16.923	
		SNS7B	42.000	**3**	1.098	46.1	1.4	0.254	1.78	35′	EL	16.923	0.653	1.55	35′	EL	1.692	0.80	0.254	**1.10**	35′	EL	**16.923**	
	TTST	TNAGRIT3	33.000	--	1.422	46.913	1.4	0.254	2.31	35′	EL	16.923	0.653	1.77	35′	EL	1.692	0.80	0.254	1.42	35′	EL	16.923	
		TNT4A	33.075	--	1.419	46.934	1.4	0.254	2.3	35′	EL	16.923	0.653	1.67	35′	EL	1.692	0.80	0.254	1.42	35′	EL	16.923	
		TNT6A	41.600	--	1.244	51.758	1.4	0.254	2.02	35′	EL	16.923	0.653	1.64	35′	EL	1.692	0.80	0.254	1.24	35′	EL	16.923	
		TNT7A	42.000	--	1.286	54.015	1.4	0.254	2.09	35′	EL	16.923	0.653	1.52	35′	EL	1.692	0.80	0.254	1.29	35′	EL	16.923	
		TNT7B	42.000	--	1.263	53.051	1.4	0.254	2.05	35′	EL	16.923	0.653	1.48	35′	EL	1.692	0.80	0.254	1.26	35′	EL	16.923	
		TNAGRIT4	43.000	--	1.279	55.012	1.4	0.254	2.06	35′	EL	13.538	0.653	1.42	35′	EL	1.692	0.80	0.254	1.28	35′	EL	16.923	
		TNAGT5A	45.000	--	1.182	53.19	1.4	0.254	1.92	35′	EL	16.923	0.653	1.5	35′	EL	1.692	0.80	0.254	1.18	35′	EL	16.923	
		TNAGT5B	45.000	--	1.14	51.296	1.4	0.254	1.85	35′	EL	16.923	0.653	1.34	35′	EL	1.692	0.80	0.254	1.14	35′	EL	16.923	

LOAD FACTORS:

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

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.

DISTANCE FROM LEFT END OF SPAN IS MEASURED FROM ℄ BEARING.

⟨#⟩ CONTROLLING LOAD RATING

⟨1⟩ DESIGN LOAD RATING (HL-93)

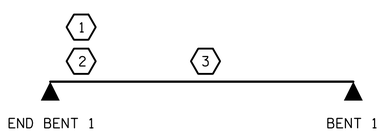
⟨2⟩ DESIGN LOAD RATING (HS-20)

⟨3⟩ LEGAL LOAD RATING ✱✱

✱✱ SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

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



LRFR SUMMARY

SPAN A

PROJECT NO. B-5687

WARREN COUNTY

STATION: 14+96.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

LRFR SUMMARY FOR 35′ CORED SLAB UNITS 60° SKEW

(NON-INTERSTATE TRAFFIC)

PLANS PREPARED BY:

SIMPSON ENGINEERS & ASSOCIATES
5640 Dillard Drive
Suite 200
Cary, NC 27518
(919) 852-0468
(919) 852-0598 (Fax)
www.simpsonengr.com
LICENSURE NO. C-2521

NORTH CAROLINA PROFESSIONAL SEAL 11268 ENGINEER BETSY S. COX
4/3/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1			3			TOTAL SHEETS
2			4			24

DRAWN BY: S.D. COOPER DATE: 4-18
CHECKED BY: B.S. COX DATE: 4-18
DESIGN ENGINEER OF RECORD: B.S. COX DATE: 4-18