

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 12 23 SHEETS
S.B.I. F.A. 5	19B-2-D	STEPHENSON	57	28	
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-			

		0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.6 Sp. 3	
<i>I_s</i>	(in ⁴)	6710	6710	6710	6710	6710	
<i>I_c(n)</i>	(in ⁴)	16845		16845		16845	
<i>I_c(3n)</i>	(in ⁴)	12745		12745		12745	
<i>S_s</i>	(in ³)	406	406	406	406	406	
<i>S_c(n)</i>	(in ³)	578		578		578	
<i>S_c(3n)</i>	(in ³)	528		528		528	
Service Loads	<i>W</i>	(K/ft.)	0.69	1.05	0.69	1.05	0.69
	<i>M_l</i>	(K)	155	359	114	359	155
	<i>s_l</i>	(K/ft.)	0.36		0.36		0.36
	<i>M_sl</i>	(K)	87		77		87
	<i>M_t</i>	(K)	325	184	330	184	325
	<i>M (Imp)</i>	(K)	91	49	86	49	91
	<i>M₃(M_t+I)</i>	(K)	693	388	693	388	693
	<i>M_a</i>	(K)	1216	971	1149	971	1216
	<i>M_u</i>	(K)	2117		2117		2117
	<i>f_sl non-comp (k.s.i.)</i>		4.6	10.6	3.4	10.6	4.6
<i>f_sl (comp) (k.s.i.)</i>		2.0		1.8		2.0	
<i>f_s M₃(M_t+I) (k.s.i.)</i>		14.5	11.5	14.5	11.5	14.5	
<i>f_s (Overload) (k.s.i.)</i>		21.1	22.1	19.7	22.1	21.1	
<i>f_s (Total) (k.s.i.)</i>			28.7		28.7		
<i>VR</i>	(K)	43		45		43	

		N. Abut.	Pier 1	Pier 2	S. Abut.
<i>R_l</i>	(K)	46	71	71	46
<i>R_t</i>	(K)	30	37	37	30
<i>Imp.</i>	(K)	9	10	10	9
<i>R (Total)</i>	(K)	85	118	118	85

I_s and *S_s* are the moment of inertia and section modulus of the steel section used in computing *f_s* (Total & Overload).
I_c and *S_c* are the moment of inertia and section modulus of the composite section used in computing *f_s* (Total & Overload).
VR is the maximum live Load + Impact shear range in span.
M_a (Applied Moment) = 1.3EM_l + M_sl + 5/8(M_t + I).
M_u is the Full Plastic Moment Capacity for Compact, Braced section.
f_s (Overload) is the sum of the stresses due to *M_l* + *M_sl* + 5/8(M_t + I).
f_s (Total) is the sum of the stresses due to 1.3EM_l + M_sl + 5/8(M_t + I).
 Dead Load Reaction includes 23 kips due to diaphragm and approach pavement.

DESIGNED	L.C.M.
CHECKED	S.D.K.
DRAWN	T.L.N.
CHECKED	S.D.K.

EXAMINED	20	ENGINEER OF BRIDGE DESIGN
PASSED		ENGINEER OF BRIDGES AND STRUCTURES

STRUCTURAL STEEL
 U.S. 20 B.R. OVER YELLOW CREEK
 F.A. RT. 5 SEC. 19B-2-D
 STEPHENSON COUNTY
 STATION 56+25.00
 STRUCTURE NUMBER 089-0008

