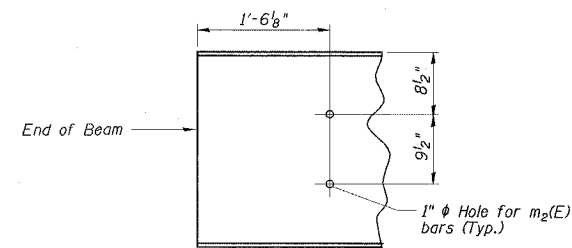
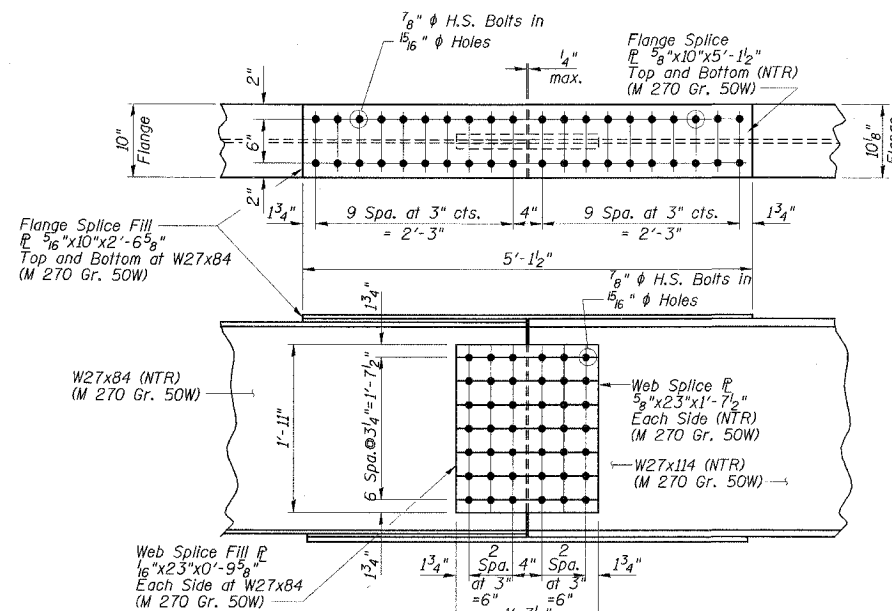


STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	STA. WET.	SHEET NO.	SHEET NO. 17 26 SHEETS
FAP 328	*	CLAY	61	34	
FED. ROAD DIST. NO.	SUB. NO.	FED. AID PROJECT	ADD.	CONTRACT NO. 74037 *16BR-21B-1	



HOLE LOCATIONS FOR  $m_2(E)$  BARS



FIELD SPLICE DETAIL  
(6 Required)

Note:  
All splices are symmetrical about  $\phi$  splice except for fills.

	0.4 Sp. 1	Pier	0.6 Sp. 2
$I_s$ (in <sup>4</sup> )	2850	4080	4080
$I_c(n)$ (in <sup>4</sup> )	8979	---	11858
$I_c(3n)$ (in <sup>4</sup> )	6863	---	8845
$S_s$ (in <sup>3</sup> )	213	299	299
$S_c(n)$ (in <sup>3</sup> )	338	---	454
$S_c(3n)$ (in <sup>3</sup> )	307	---	412
$Z$ (in <sup>3</sup> )	---	343	---
$\phi$ (k/')	0.869	1.389	0.899
$M\phi$ (k)	106.3	543.3	285.6
$s\phi$ (k/')	0.490	---	0.490
$M_s\phi$ (k)	81.1	---	174.5
$M\phi$ (k)	358.3	225.3	512.3
$M_{Imp}$ (k)	102.4	62.0	135.7
$\phi_3[M\phi + M_{Imp}]$ (k)	767.9	478.8	1079.9
$M_a$ (k)	1241.8	1328.6	2002.0
$M_u$ (k)	1880.6	1429.2	2351.5
$f_s$ non-comp (ksi)	6.0	21.8	11.5
$f_s$ comp (ksi)	3.2	---	5.1
$f_s \phi_3 [M\phi + M_{Imp}]$ (ksi)	27.3	19.2	28.5
$f_s$ (Overload) (ksi)	36.5	41.0	45.1
$f_s$ (Total) (ksi)	---	---	---
VR (k)	54.4	---	51.5

\* Compact, braced section

$I_s$  and  $S_s$  are the moment of inertia and section modulus of the steel section used in computing  $f_s$  (Total & Overload).  
 $I_c(n)$  and  $S_c(n)$  are the moment of inertia and section modulus of the composite section used in computing stresses due to Live Load.  
 $I_c(3n)$  and  $S_c(3n)$  are the moment of inertia and section modulus of the composite section used in computing stresses due to superimposed dead loads. (See AASHTO 10.38)  
 $VR$  is the maximum Live Load + Impact shear range within the composite portion of the span.  
 $Z$  is the plastic section modulus used to determine the Fully Plastic Moments in the non-composite areas.  
The Plastic Moment capacity ( $M_u$ ) is computed according to AASHTO 10.48.1 & 10.50.1.1.  
 $M_a$  (Applied Moment) =  $1.3[M\phi + M_s\phi + \phi_3(M\phi + M_{Imp})]$ .  
 $f_s$  (Overload) is the sum of the stresses due to  $M\phi + M_s\phi + \phi_3(M\phi + M_{Imp})$ .  
 $f_s$  (Total) (Non-compact section) is the sum of the stresses due to  $1.3[M\phi + M_s\phi + \phi_3(M\phi + M_{Imp})]$ .

	N. Abut.	Pier	S. Abut.
$R\phi$ (k)	22.9	97.9	35.8
$R\phi$ (k)	38.5	48.1	40.9
$Imp$ (k)	11.0	13.2	10.8
$R$ (Total) (k)	72.4	159.2	87.5

STRUCTURAL STEEL DETAILS  
US ROUTE 45 OVER  
BUCK CREEK  
FAP RTE 328-SECTION (6BR-2)B-1  
CLAY COUNTY  
STATION 1510+13.00  
STRUCTURE NO. 013-0041

**ESCA**  
CONSULTANTS, INC.

DESIGNED BY: ELH 02/07  
DRAWN BY: CJ 02/07  
CHECKED BY: ELH 03/07  
APPROVED BY: RDP 03/07