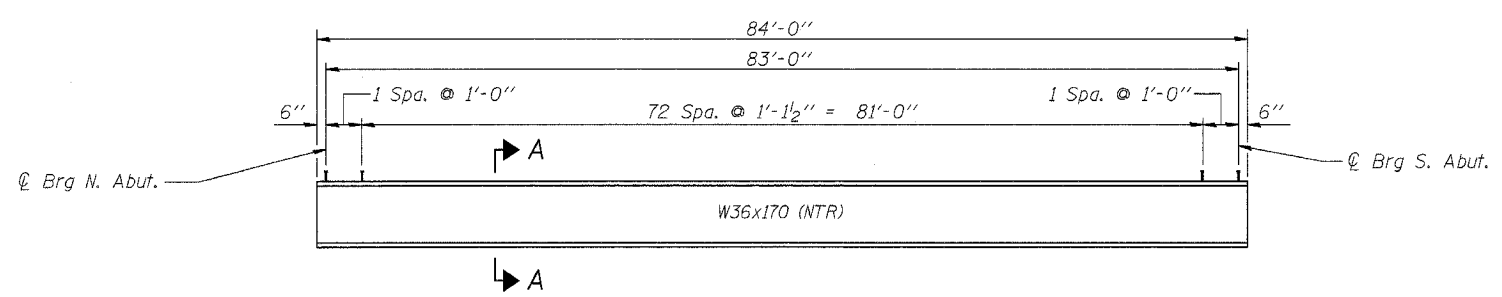
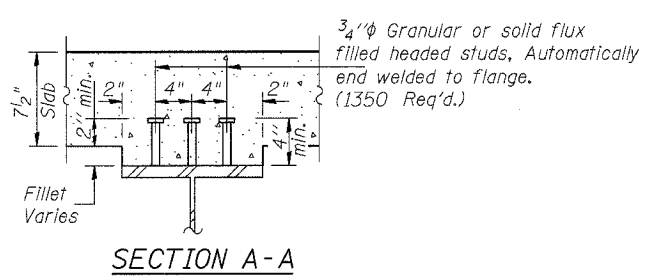


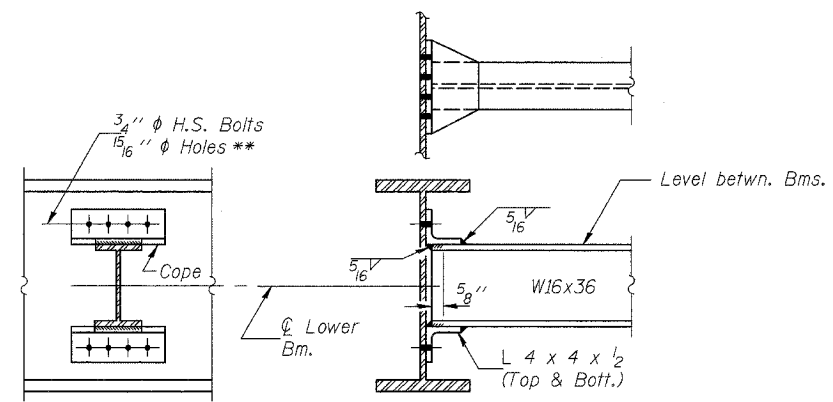
**FRAMING PLAN**



**BEAM ELEVATION**  
(Showing Shear Connector Spacing)



**SECTION A-A**



**DIAPHRAGM D**  
(15 Required)

\*\*Use 1 3/16" wide x 1 1/2" long slotted holes in L's for diaphragm connections between beams 3 & 4. Bolts shall be finger tightened prior to deck pour for stage 2 construction and then fully tightened after completion of deck pour for stage 2 construction.

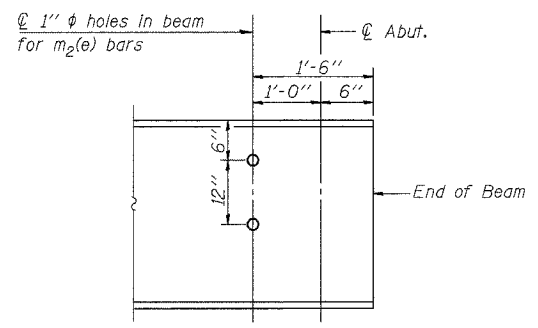
$I_s$  and  $S_s$  are the moment of inertia and section modulus of the steel section used in computing  $f_s$  (Overload).  
 $I_{c(n)}$  and  $S_{c(n)}$  are the moment of inertia and section modulus of the composite section used in computing stresses due to Live Load.  
 $I_{c(3n)}$  and  $S_{c(3n)}$  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 in span.

The Plastic Moment capacity ( $M_u$ ) is computed according to AASHTO 10.48.1 and 10.50.1.1.  
 $f_s$  (Overload) is the sum of the stresses due to  $M_D + M_{SD} + 5_3(M_L + M(Imp))$ .  
 $M_D$  - Moment due to dead loads on non-composite section.  
 $M_{SD}$  - Moment due to dead loads on composite section.  
 $M_L$  - Moment due to live loads on composite section.  
 $M(Imp)$  - Moment due to live load impact on composite section.  
 $M_a$  (Applied Moment) =  $1.3[M_D + M_{SD} + 5_3(M_L + M(Imp))]$ .

		Abutts.
$R_D$	(k)	54.3
$R_L$	(k)	39.3
Imp.	(k)	9.4
$R$ (Total)	(k)	103.0

		0.5 Span
$I_s$	(in <sup>4</sup> )	10500
$I_{c(n)}$	(in <sup>4</sup> )	24511
$I_{c(3n)}$	(in <sup>4</sup> )	18004
$S_s$	(in <sup>3</sup> )	580
$S_{c(n)}$	(in <sup>3</sup> )	800
$S_{c(3n)}$	(in <sup>3</sup> )	724
$\bar{D}$	(k/ft.)	0.850
$M_D$	(k)	732
$s_D$	(k/ft.)	0.458
$M_{SD}$	(k)	394
$M_L$	(k)	748
$M(Imp)$	(k)	180
$5_3[M_L + M(Imp)]$	(k)	1547
$M_a$	(k)	3474
$M_u$	(k)	3846
$f_s$ non-comp	(k.s.i.)	15.1
$f_s$ comp	(k.s.i.)	6.5
$f_s 5_3(L + Imp)$	(k.s.i.)	23.2
$f_s$ (Overload)	(k.s.i.)	44.8
VR	(k)	48.7

\*Compact, Braced Section



**TYP. END OF BEAM ELEVATION**

Notes:  
 All steel for beams, diaphragms and connection L's shall be AASHTO M270, Grade 50.  
 Two hardened washers shall be required over all 1 5/16" diameter holes and two 1 1/2" x 1 1/2" x 5/16" flat washers shall be required over all slotted holes for diaphragms.  
 "NTR" denotes members to which Notch Toughness Requirements, Zone 2 are applicable.

**TOP OF BEAM ELEVATIONS**  
(For Fabrication Only)

Location	© Brg. N. Abut.	© Brg. S. Abut.
Beam 1	430.39	429.39
Beam 2	429.97	428.97
Beam 3	429.55	428.55
Beam 4	429.13	428.13
Beam 5	428.71	427.71
Beam 6	428.29	427.29

DESIGNED	Ruben V. Boehler
CHECKED	Tim S. Howard
DRAWN	Nicole L. Darling
CHECKED	Michael D. Cummins

**STRUCTURAL STEEL**

IL ROUTE 127 OVER TRIBUTARY TO CROOKED CREEK  
 F.A.P. ROUTE 42 SECTION 2BR  
 WASHINGTON COUNTY  
 STA. 487+25  
 S.N. 095-0076

CUMMINS ENGINEERING CORPORATION	JOB #: 2158
	FILE: 2158SS
	DATE: 2/10/05