

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION
 PLANS FOR
 PROPOSED LOCAL AGENCY IMPROVEMENT
 FEDERAL AID BRRP PROJECT
 HENRY COUNTY
 FAS RTE 236 (Galva/Atkinson Blacktop)
 HENRY COUNTY SECTION 10-00150-00-BR
 PROJECT ARA-RS-0236(104) JOB C-92-163-10
 CONTRACT 85520

FAS RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
236	10-00150-00-BR	HENRY	6	1
F.H.W.A. REG.		ILLINOIS	PROJECT	

INDEX OF SHEETS

Sheet No. 1	Cover Sheet
Sheet No. 2	Plan View (Guardrail)
Sheet No. 3	General Plan & Elevation
Sheet No. 4	P.P.C. Deck Beam Superstructure
Sheet No. 5	P.P.C. Deck Beam Superstructure
Sheet No. 6	Type SM Railing

STANDARDS

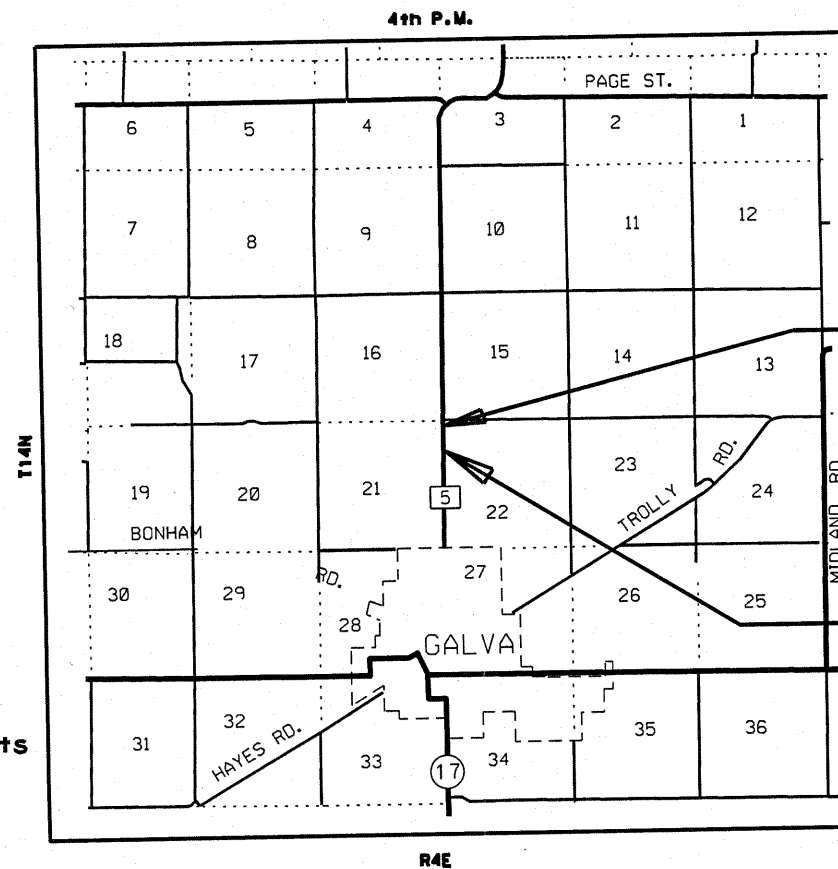
BLR 21-8	515001-03
BLR 22-6	701006-03
BLR 23-3	701201-03
BLR 26-2	701301-03
BLR 27-1	701901-01
	720011-01
	728001-01
	729001-01

CONSTRUCTION TYPE CODE 0014
 SCHEDULE OF QUANTITIES

CODE QUANT UNIT DESCRIPTION

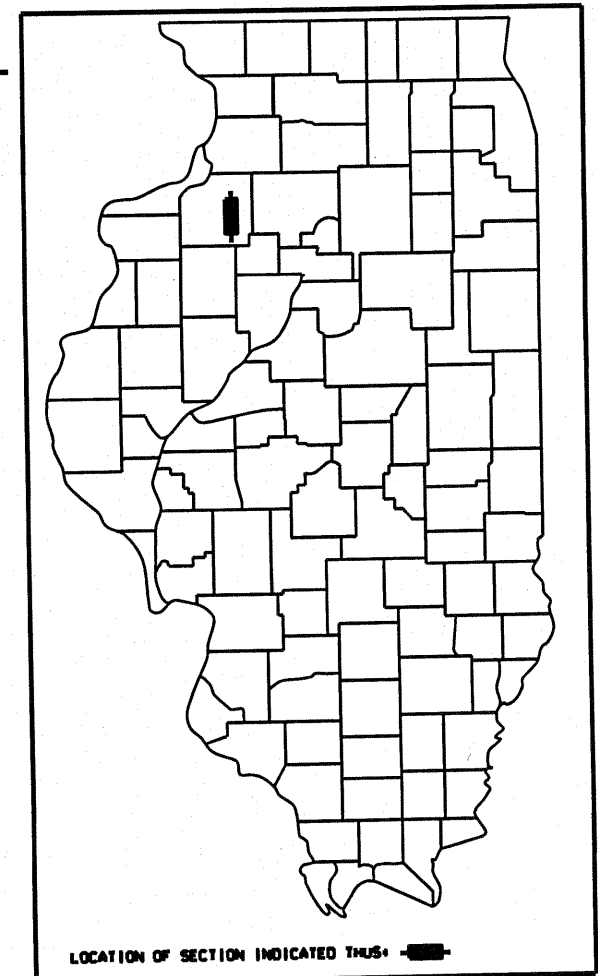
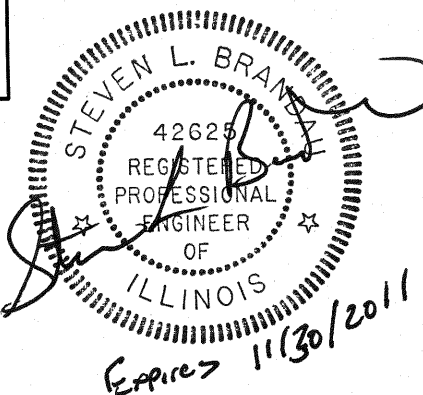
20400800	150	Cu.Yd.	Furnished Excavation
50100100	1	Each	Removal of Existing Structure
50400605	2310	Sq.Ft.	PPC Deck Beams 33 Deep
* 50901050	154	Foot	Steel Railing, Type SM
51500100	1	Each	Name Plate
542A0223	80	Foot	Pipe Culverts, Class A, Type 1, 18"
58100200	257	Sq.Yd.	WaterPrf Membrane System
* 63000001	200	Foot	Steel Plate Beam Guardrail, Type A, 6' Posts
* 63100075	2	Each	Traffic Barrier Terminal, Type 5A
* LR631020	2	Each	Traffic Barrier Terminal, Type 1
63200310	400	Foot	Guardrail Removal
67100100	1	LS	Mobilization
70103700	1	LS	Traffic Control Complete

*Specialty Items



LOCATION MAP

NET LENGTH OF SECTION = 450 FEET = 0.08 MILES



Section 10-00150-00-BR Ends at Station 75+50

Section includes removal of existing concrete deck beams (33" deep) and replacing them with new concrete deck beams (33" deep)

SECTION 10-00150-00-BR Begins at Station 71+00

THESE PLANS WERE PREPARED BY ME OR BY THE FULL TIME MEMBERS OF MY STAFF.

Steven L. Brandau
 STEVEN L. BRANDAU
 P.E. 42625

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS

APPROVED 8/12 2010 *Steven L. Brandau*
 HENRY COUNTY ENGINEER

PASSED 8-24-2010 2010 *[Signature]*
 DISTRICT #2 ENGINEER OF LOCAL ROADS & STREETS

RELEASING FOR BID 8-24 2010
 BASED ON LIMITED REVIEW *[Signature]*
 DEPUTY DIRECTOR OF HIGHWAYS REGION #2 ENGINEER

CALL J.U.L.I.E.
 BEFORE YOU DIG
 800-892-0123

Major Collector: ADT 1250 (2010); 10% Trucks

FAS RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
236	10-00150-00-BR	Henry	6	2
F.H.W.A. REG.		ILLINOIS PROJECT		



STEEL PLATE BEAM GUARDRAIL, TYPE A, 6' POSTS

Sta. 71+88 to 72+88 Rt	100 feet
Sta. 73+67 to 74+67 Lt	100 feet
Total	200 feet

Sta. 75+05
18" x 40' T-1 Culvert
to match existing ditch

Traffic Barrier Terminal Type 5A

Sta. 72+88 Rt.	1 Each
Sta. 73+67 Lt.	1 Each

Traffic Barrier Terminal Type 1

Sta. 71+88 Rt.	1 Each
Sta. 74+67 Lt.	1 Each

Existing Shoulder

Existing Shoulder

BOP Sta = 71+00

EOP Sta = 75+50

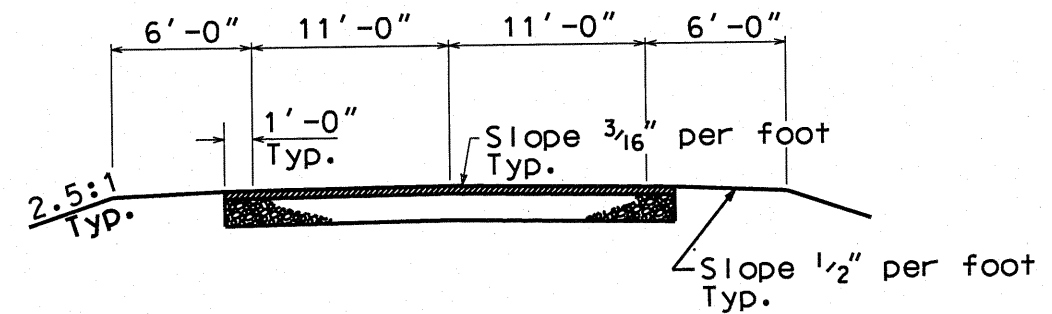
Sta. 71+50
18" x 40' T-1 Culvert
to match existing ditch

Estimated Embankment 150 cu yds
(for 2 Guardrail cones)

Proposed Guardrail

Existing Guardrail to be removed

PLAN VIEW (Showing Guardrail Details)

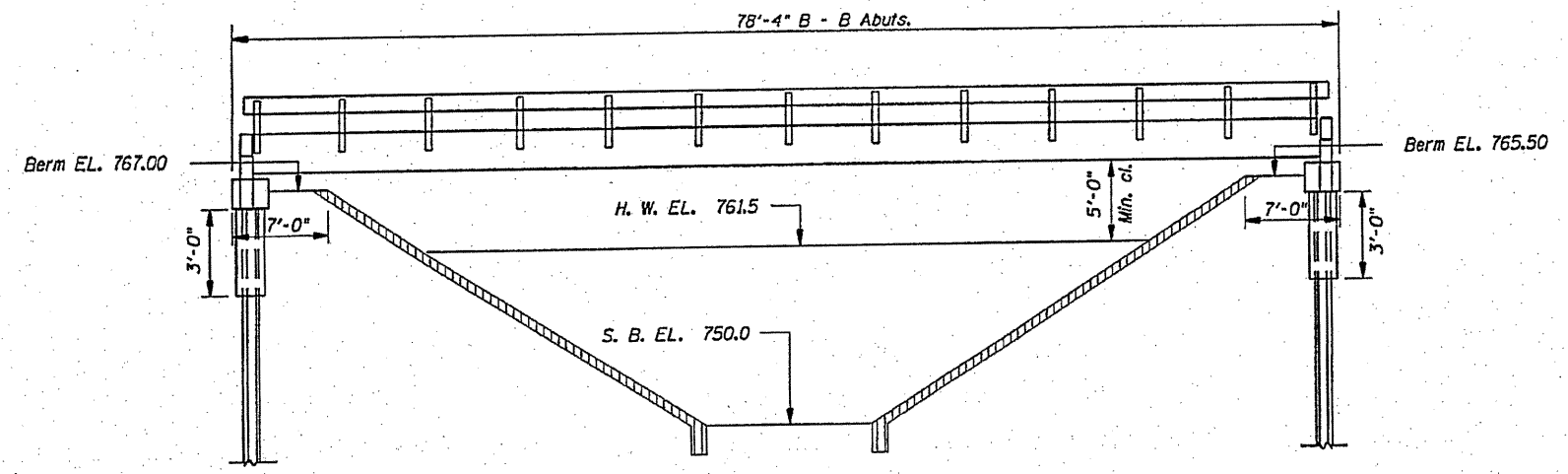


EXISTING CROSS SECTION

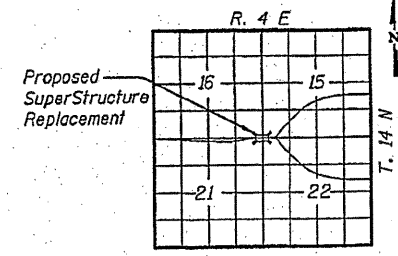
SCALES:
1" = 30' HOR
1" = 5' VER

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 5	10-00150-00-BR	HENRY	6	3
STA.		TO STA.		
F.H.W.A. REG.		ILLINOIS PROJECT		

Benchmark
Existing Structure - Single span, precast, prestressed concrete deck beam superstructure, on open concrete abutments on steel "H" piles. No superstructure salvage. Substructure to remain.



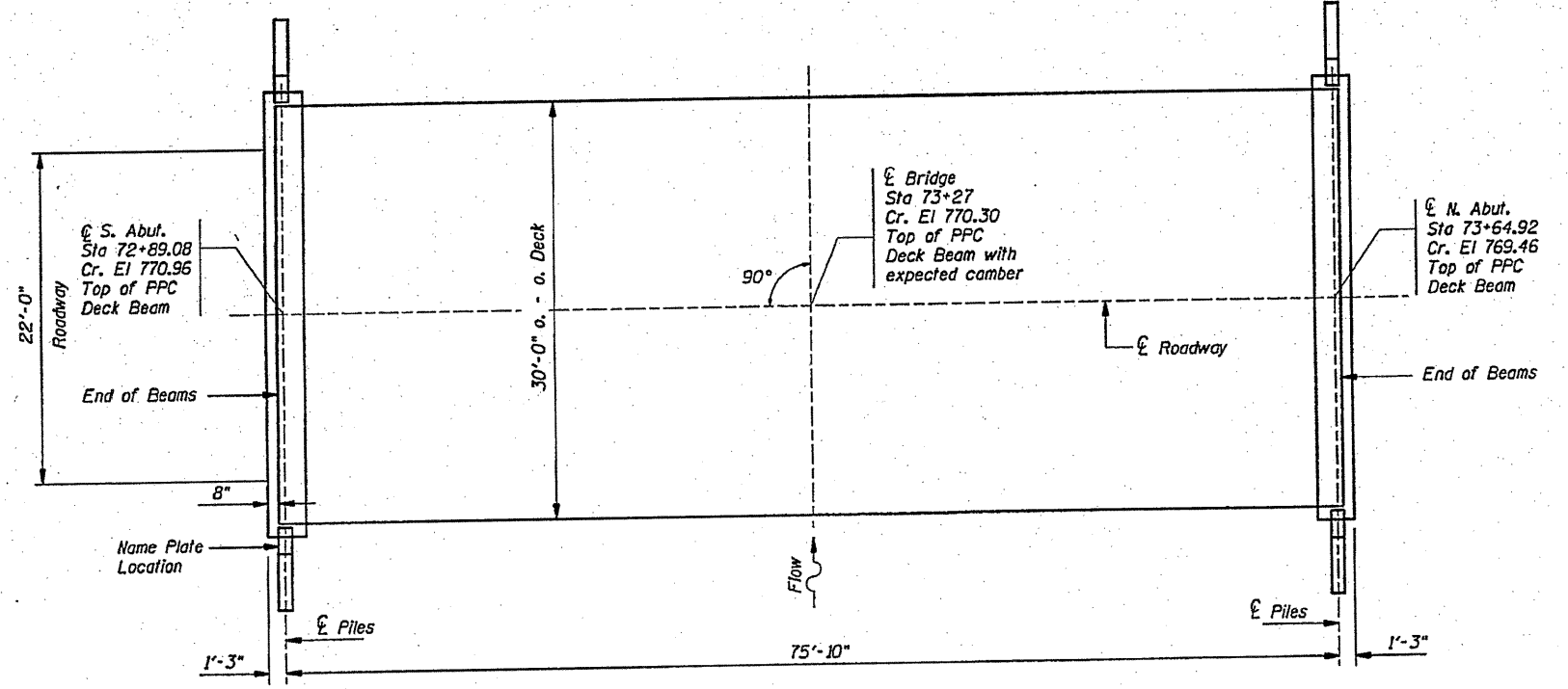
STATION 73+27
SOUTH EDWARDS RIVER BRIDGE
SEC. 10-00150-00-BR
SUPERSTRUCTURE REBUILT 2010
HENRY COUNTY
LOADING HL-93
STR. NO. 037-3228
NAME PLATE
See Std. 515001



LOCATION SKETCH

DATE	BY	REVISION

DATE	BY	REVISION



DESIGN SPECIFICATIONS
2007 AASHTO LRFD and applicable Interims
DESIGN LOADING - SUPERSTRUCTURE
HL-93 and Allowance for
25 P.S.F. Future Wearing Surface

DESIGN STRESSES
 $f_c' = 3,500$ psi (Concrete)
 $f_y = 60,000$ psi (Reinforcement)

NOTE:
BITUMINOUS OVERLAY
BY OTHERS

TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub.	Total
Removal of Existing Superstructure	Each	1		1
Steel Bridge Rail Type SM	Foot	154		154
Name Plates	Each		1	1
Precast Prestressed Concrete Deck Beams (33" Depth)	Sq. Ft.	2310		2310
Waterproofing Membrane System	Sq. Yd.	257		257

"This superstructure has been designed to be stable for scour conditions in accordance with the FHWA Technical Advisory - T-5140.23, "Evaluating Scour at Bridges" and Hydraulic Engineering Circular 18 - Evaluating Scour at Bridges.

I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on plans. The design is an economical one for the style of structure and complies with the requirements of the current "AASHTO Standard Specifications for Highway Bridges".

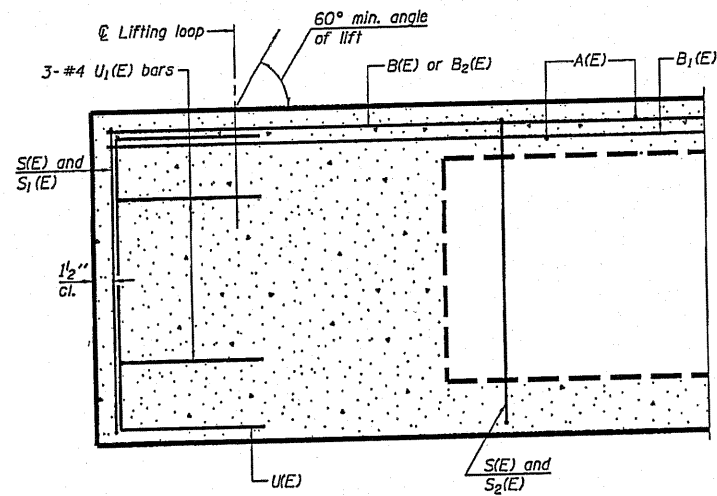


Keith E. Brandau 8/4/10
Date
KEITH E. BRANDAU
Illinois Licensed Structural Engineer Number 4905
License Expires 11/30/10

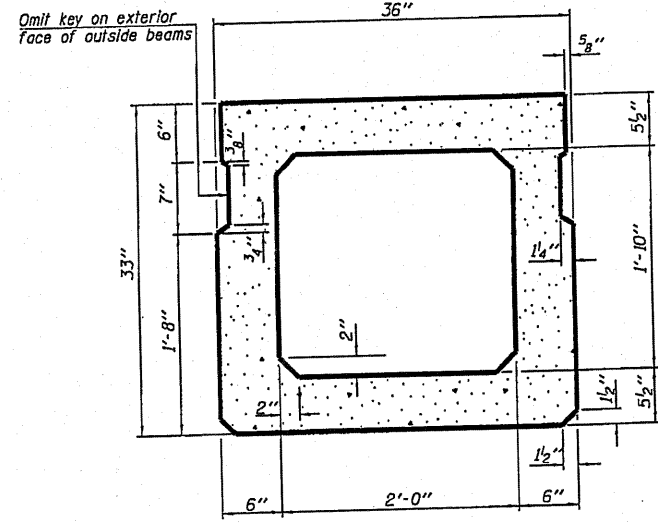
GENERAL PLAN & ELEVATION
SECTION: 10-00150-00-BR
HENRY COUNTY
STATION 73+27

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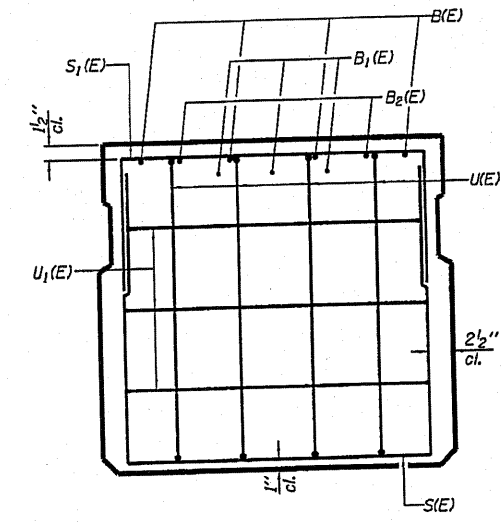
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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STA.		TO STA.		
F.H.W.A. REG.		ILLINOIS PROJECT		



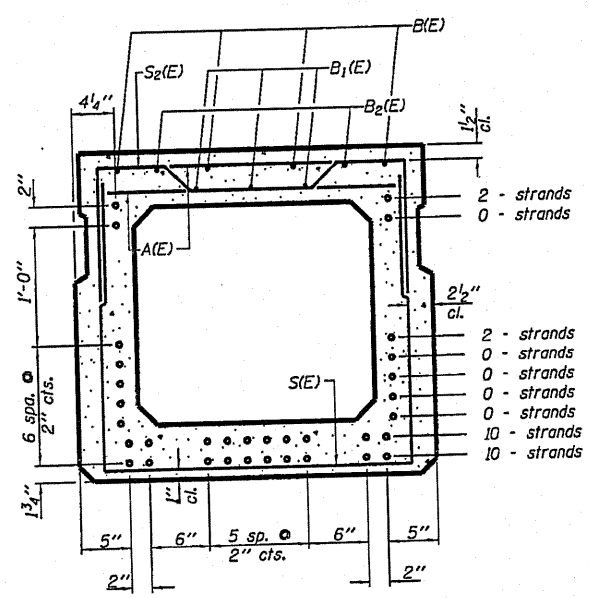
SECTION C-C



SECTION A-A
(Showing dimensions)



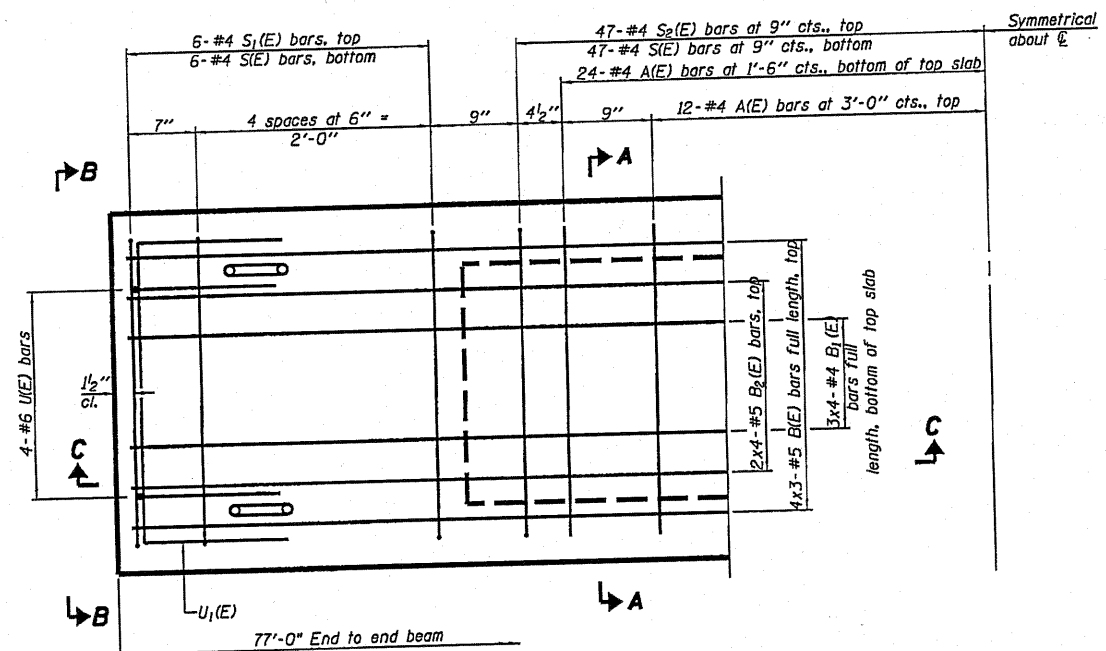
VIEW B-B



SECTION A-A

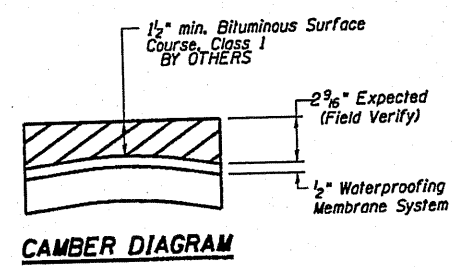
(Showing reinforcement and permissible strand locations)
 Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.
 Strand Pattern 24SS (10@1 3/4", 10@3 3/4", 2@13 3/4", 2@27 3/4")

NOTE
 The existing beams were previously grouted at the beam bearings at the existing abutments.
 The existing abutment caps shall be cleaned of all materials which would interfere with setting the new Precast Prestressed Concrete Deck Beams, prior to setting. This work shall not be paid for separately and is included with the cost of Precast Prestressed Concrete Deck Beams (33" depth).



PLAN VIEW

Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.



CAMBER DIAGRAM

BAR LIST
ONE BEAM ONLY
 (For information only)

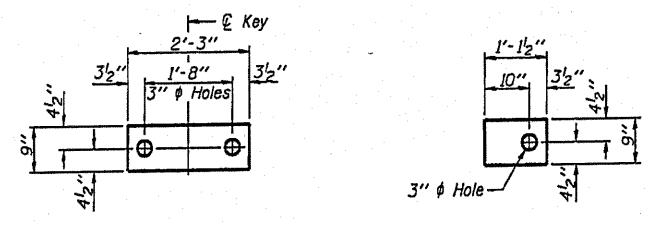
Bar	No.	Size	Length	Shape
A(E)	72	#4	2'-7"	—
B(E)	12	#5	27'-3"	—
B1(E)	12	#4	20'-10"	—
B2(E)	8	#5	21'-2"	—
S(E)	106	#4	7'-5"	—
S1(E)	12	#4	6'-3"	—
S2(E)	94	#4	6'-6"	—
U(E)	8	#6	5'-0"	—
U1(E)	6	#4	5'-0"	—

Note: See other superstructure sheet for additional details and Bill of Material.

33" x 36" PPC DECK BEAM

SUPER STRUCTURE	
SECTION: 10-00150-00-BR	
HENRY COUNTY	
CENTRAL STATION 73+27	

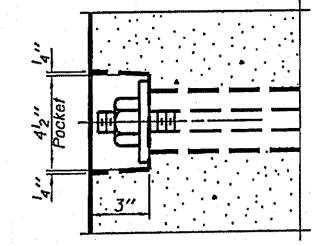
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS	PROJECT		



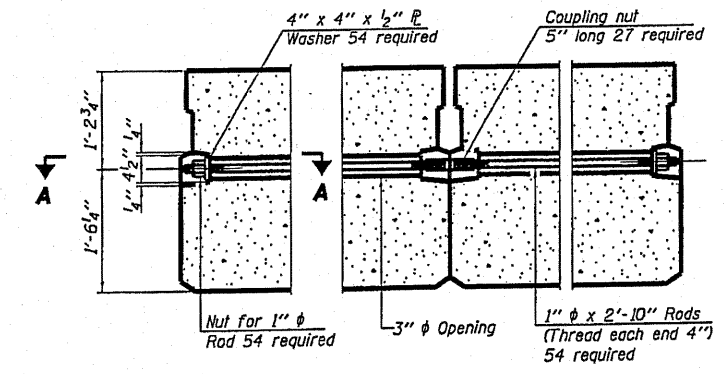
FABRIC BEARING PAD (Interior)
FABRIC BEARING PAD (Exterior)

FIXED

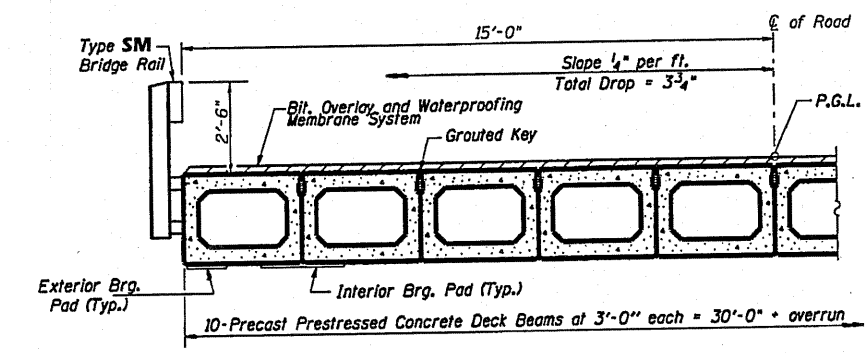
Note: Omit holes when using expansion bearings.



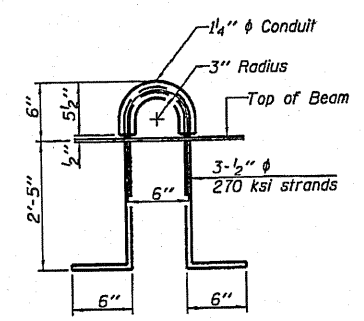
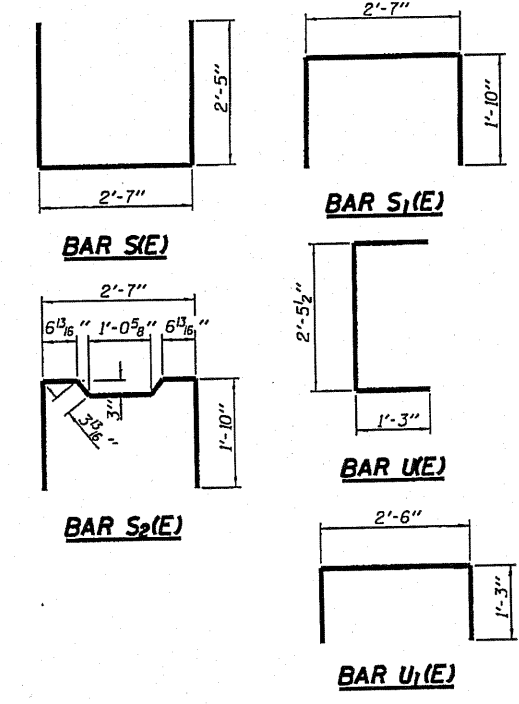
SECTION A-A



TYPICAL TRANSVERSE TIE ASSEMBLY



HALF CROSS SECTION

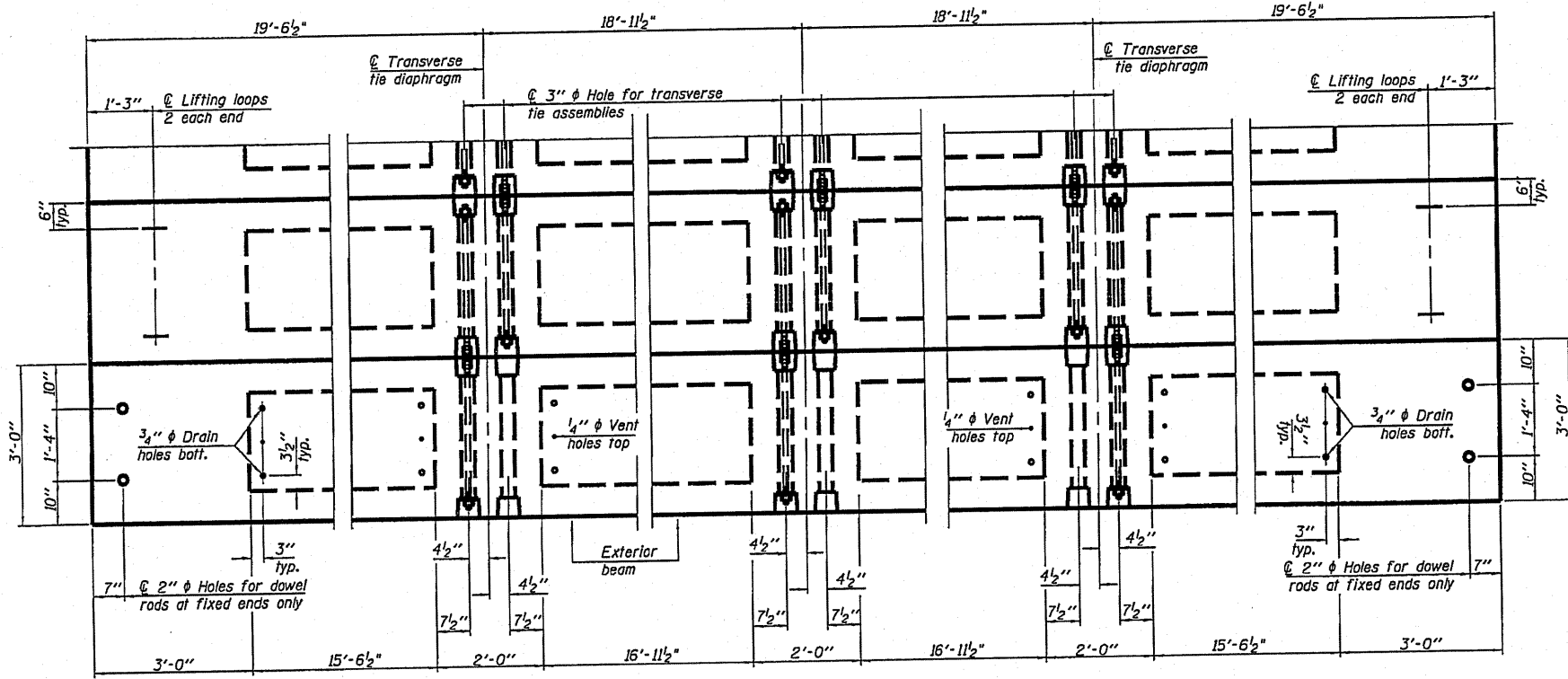


LIFTING LOOP DETAIL

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (33" depth)	Sq. Ft.	2310
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33" X 36" PPC DECK BEAM DETAILS



PLAN VIEW

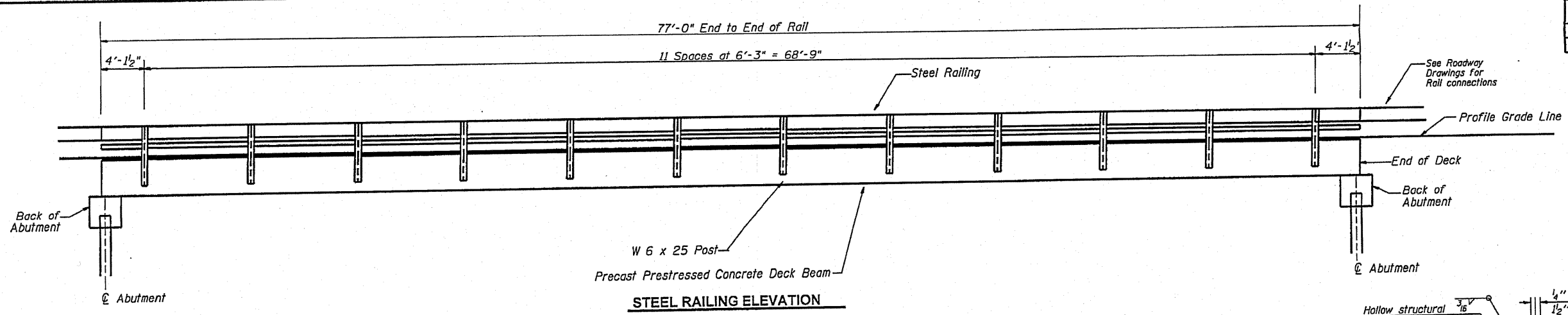
NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.
Reinforcement bars shall conform to ASTM A 706 (IL MOD), Grade 60. (See Special Provisions)
Two 5/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.
A minimum 2 1/2" diameter lifting pin shall be used to engage the lifting loops during handling.
Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.
Compressive strength of prestressed concrete, f'c, shall be 6000 psi.
Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

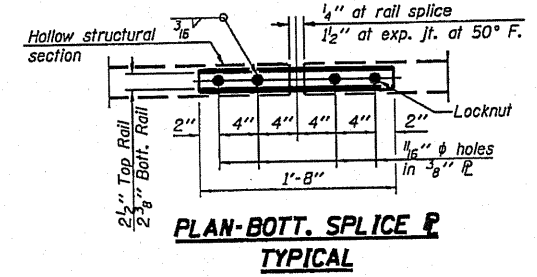
Note: Connect beams in pairs with the transverse tie configuration shown.

SUPER STRUCTURE	
SECTION: 10-00150-00-BR	
HENRY COUNTY	
STATION 73+27	

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
C.H. 5	10-00150-00-BR	HENRY	6	6
STA.	TO STA.			
F.H.W.A. REG.	ILLINOIS PROJECT			

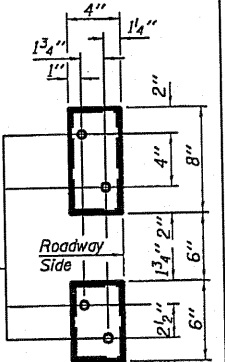


STEEL RAILING ELEVATION

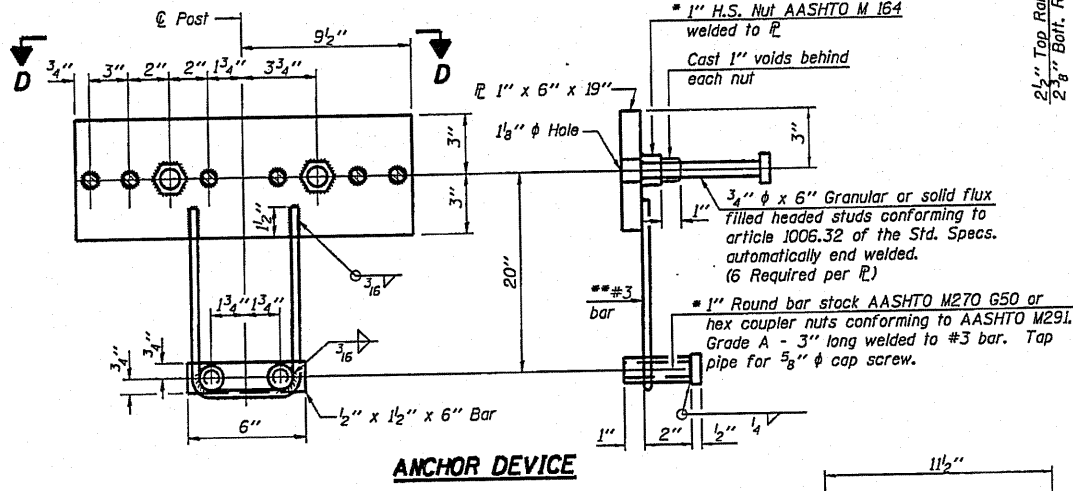


PLAN-BOTT. SPLICE P TYPICAL

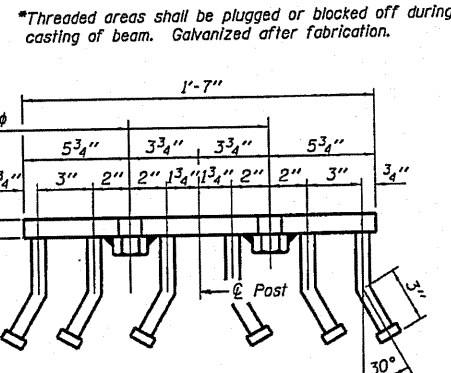
Cast 1" voids behind each nut
 1" H.S. Nut AASHTO M 164 welded to P
 3/4" x 6" Granular or solid flux filled headed studs conforming to article 1006.32 of the Std. Specs. automatically end welded. (6 Required per P.)
 1" Round bar stock AASHTO M270 G50 or hex coupler nuts conforming to AASHTO M291. Grade A - 3" long welded to #3 bar. Top pipe for 5/8" cap screw.



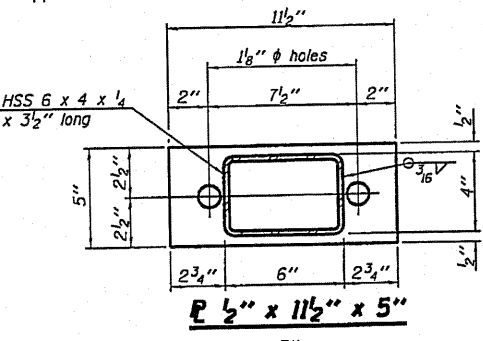
VIEW E-E



ANCHOR DEVICE



VIEW D-D



DETAIL OF 3/4" ROUND HEAD BOLT

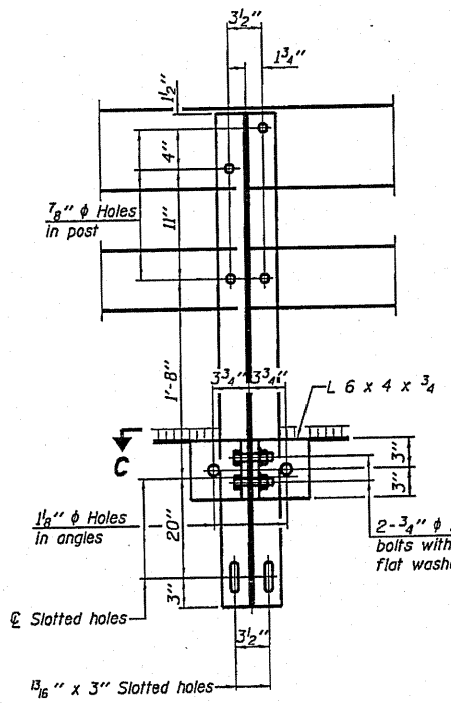
VIEW A-A

Notes:
 All field drilled holes shall be coated with an approved zinc rich paint before erection.
 For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type SM.
 All steel rail members shall be galvanized according to Article 509.05 of the Standard Specifications.
 The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.
 Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".

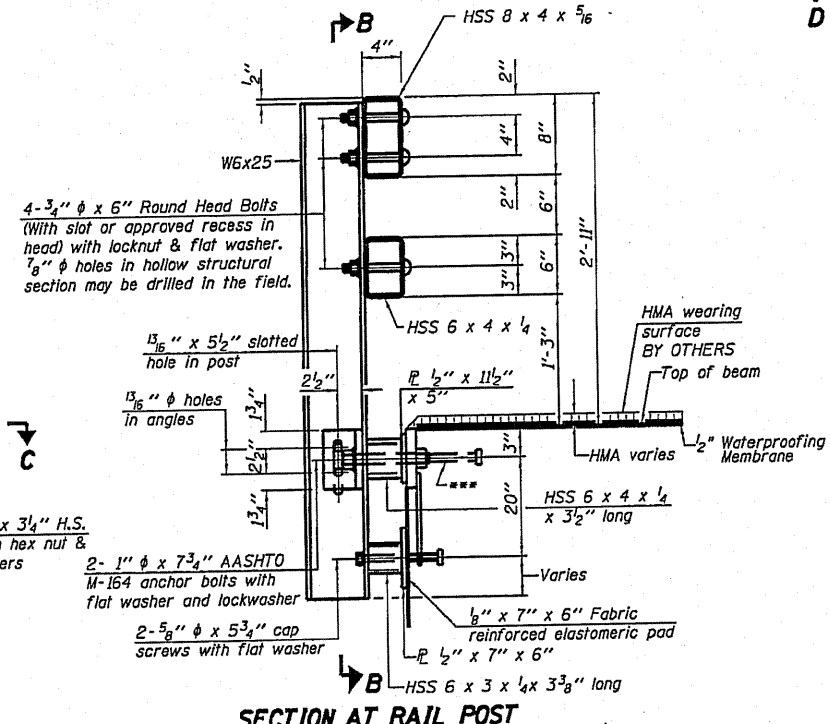
BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type SM	Foot	154

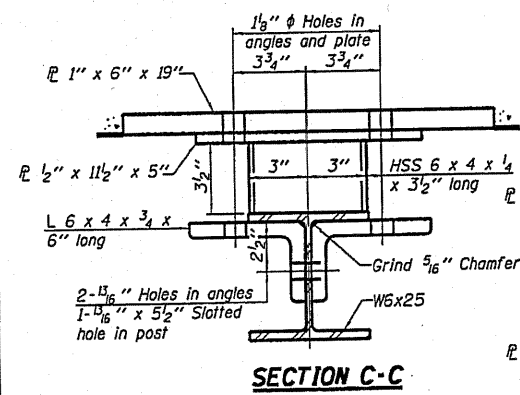
STEEL RAILING, TYPE SM
 SECTION: 10-00150-00-BR
 HENRY COUNTY
 STATION 73+27



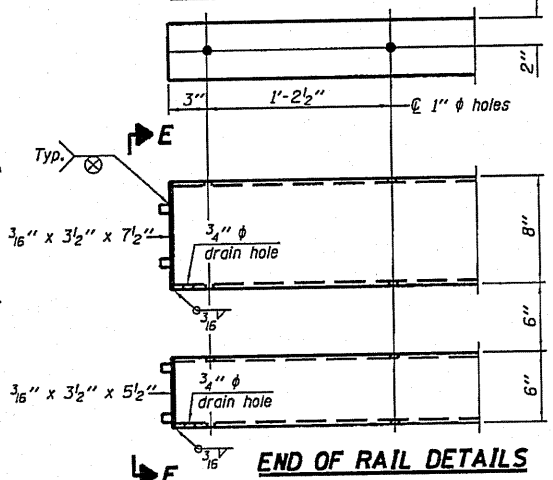
SECTION B-B



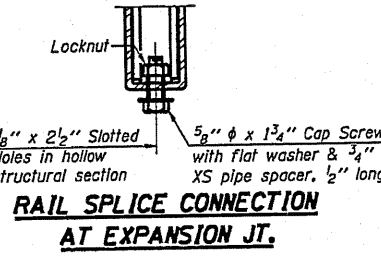
SECTION AT RAIL POST



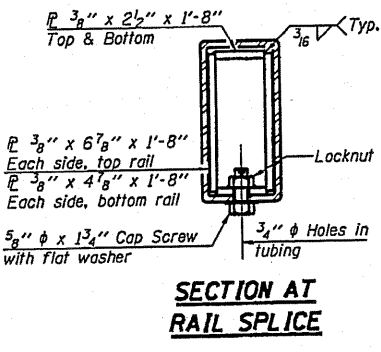
SECTION C-C



END OF RAIL DETAILS



RAIL SPLICE CONNECTION AT EXPANSION JT.



SECTION AT RAIL SPLICE

R-34HMAWS

11-1-09

(6'-3" Maximum Post Spacing) (1/4" minimum to 3/8" maximum HMA thickness)

10078 Bridge - Railing Type S-1 - R23A.dgn 8/4/2010 9:22:47 AM