

Benchmark: Chiseled "□" on northeast wingwall of S.N. 010-0236  
Elevation 676.73.

Existing Structure: Structure Number 010-0236 was built in 1977 per existing name plate as FA-836, Section 118 BR. The two span structure consists PPC-deck beams on pile bent open abutments and a solid pier. The bk. to bk. abutments is 76'-0" and the 0.-0. width is 33'-0". The existing superstructure shall be replaced with PPC deck beams. Road closure shall be used during construction.

No salvage.

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET	SHEET NO. 1
836	118BR	CHAMPAIGN	29	8	9 SHEETS
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT-			

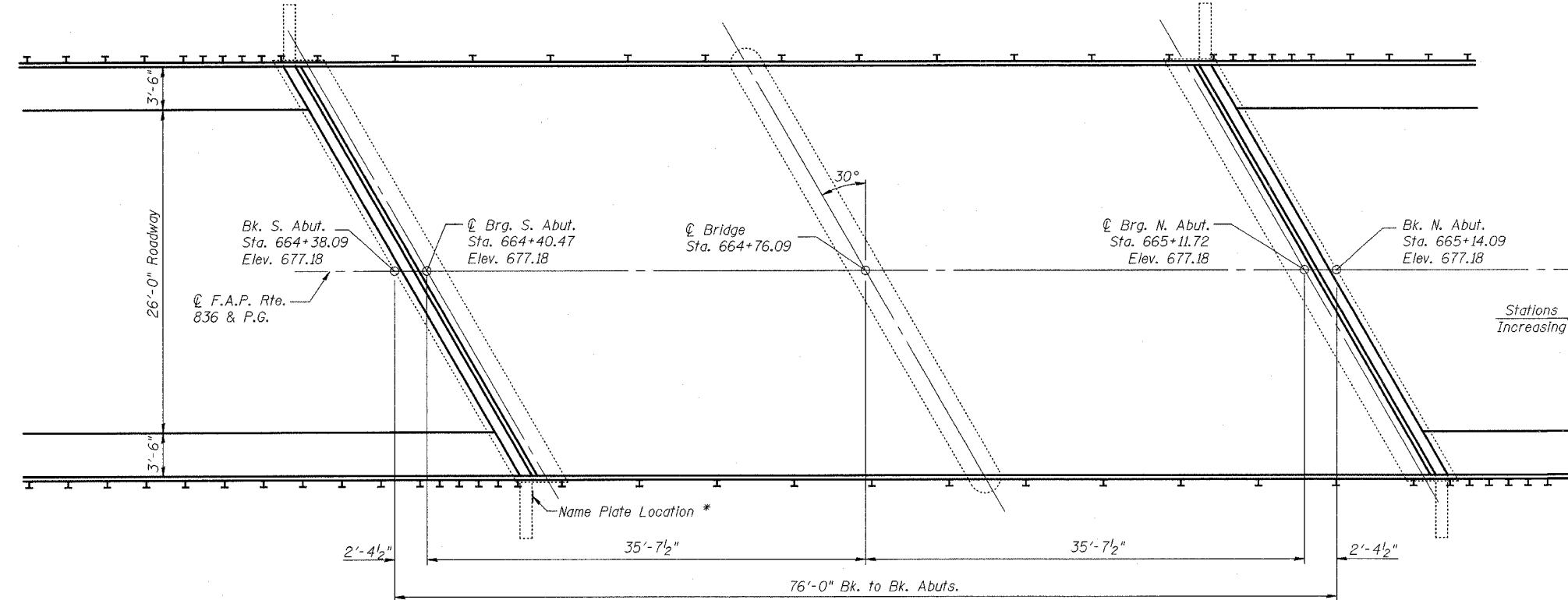
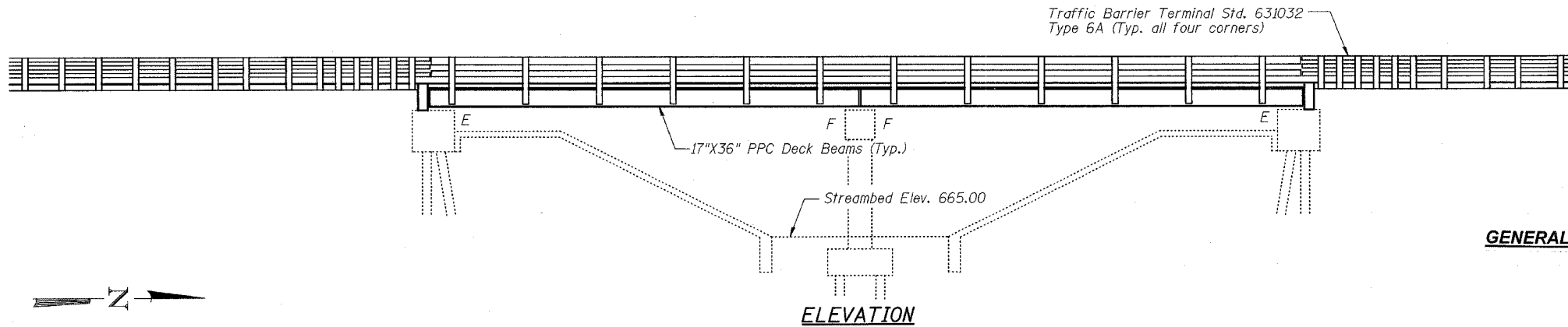
Contract #70390

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Superstructure	Each	1		1
Concrete Removal	Cu. Yd.		3.4	3.4
Concrete Structures	Cu. Yd.		4.7	4.7
Bridge Deck Grooving	Sq. Yd.	249		249
Protective Coat	Sq. Yd.	273		273
Concrete Wearing Surface 5"	Sq. Yd.	266		266
Precast Prestressed Concrete Deck Beams (17" Depth)	Sq. Ft.	2393		2393
Reinforcement Bars, Epoxy Coated	Pound	3670	880	4550
Steel Bridge Rail, Type SM	Foot	145		145
Name Plates	Each	1		1
Bridge Joint System (Expansion) 1"	Foot	76.0		76.0
Asbestos Bearing Pad Removal	Each	22		22

**GENERAL NOTES**

Reinforcement bars shall conform to the requirements of AASHTO M 31 or M 322 Grade 60.  
Plan dimensions and details relative to existing structure have been taken from existing plans and are subject to nominal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in the scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price for the work.  
All construction joints shall be bonded.  
Removal of existing bridge rail included in the cost of Removal of Existing Superstructure.  
The minimum thickness of the Concrete overlay shall be 5" and varies as required to adjust for the new profile grade and beam camber.  
The cut strands at each beam end shall be given two coats of zinc dust spray or paint meeting the requirements of ASTM A 780. The zinc dust spray or paint shall be applied before corrosion appears and allowed to dry according to the manufacturer's specifications prior to another coat of zinc. A concrete sealer meeting the requirements of Section 587 of the Standard Specifications shall be applied along the entire length of fascia beams to both the exterior vertical face and 9" in on the underside. The sealer shall be applied after visible crack growth has subsided. This work shall be performed by the producer and included with the cost of the beam.  
No instream work will be allowed on this project.  
The contractor is advised that the existing PPC Deck Beams are in a deteriorated condition with reduced load carrying capacity. It is the contractor's responsibility to account for the condition of the beams when developing construction procedures for removal and replacement of the superstructure.  
If the contractor's procedure for existing beam removal and placement of new beams involves placement of cranes or other heavy equipment on new beams, a detailed procedure shall be submitted to the Engineer for approval. The procedure shall include calculations, prepared and sealed by an Illinois Licensed Structural Engineer, verifying that the equipment and procedure used will not overstress the new beams. To distribute load to multiple beams and protect the concrete, in all cases a double layer mat of heavy timbers shall be used at all times under crane tracks or wheels and any outriggers in the down position. If necessary, shims shall be used under the crane mat to ensure uniform contact with the underlying beams. Prior to placement of the timber mats, the following shall be done: placement and tightening of transverse tie assemblies, grouting and curing the dowel rods 24 hours minimum and grouting and curing the shear keys. A temporary means of lateral restraint will be required for fascia beams at expansion ends of beams to prevent movement of the beams.  
Expansion guards which are not cast in the precast unit shall be fabricated and erected according to Article 503.10(c) of the Standard Specifications.



**DESIGN SPECIFICATIONS**

2002 AASHTO

**LOADING HS-20-44**  
No allowance for future wearing surface.

**SEISMIC DATA**

Seismic Performance Category (SPC) = A  
Bedrock Acceleration Coefficient (A) = 0.049g  
Site Coefficient (S) = 1.2

**EXISTING WATERWAY INFORMATION**

Drainage Area 10.3 Sq. Mi.  
Character : level, cultivated, loam  
Req'd opening (50 yr. fl. freq.) 320 Sq. Ft.  
Provided Opening 320 Sq. Ft.  
Ordinary Water Elev. 666.11  
Low Water Elev. 665.51  
Design H.W. Elev. 674.81  
Q<sub>50</sub> = 1500 cfs

**PLAN**

**DESIGN STRESSES**

**FIELD UNITS**  $f_c = 5,000$  p.s.i. (Concrete)  
 $f'_c = 3,500$  psi Wearing Surface  
 $f_s = 60,000$  psi (Reinforcement)

**PRECAST PRESTRESSED UNITS**

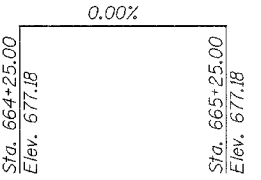
$f'_c = 5,000$  psi  
 $f'_{ci} = 4,000$  psi  
 $f'_s = 270,000$  psi ( $\frac{1}{2}$ "  $\phi$  Low Relax. strands)  
 $f_{si} = 201,960$  psi ( $\frac{1}{2}$ "  $\phi$  Low Relax. strands)

**EXISTING SUBSTRUCTURE FIELD UNITS**

$f_c = 1,400$  psi  
 $f_s = 20,000$  psi (Reinforcement)

**INDEX OF SHEETS**

- 1 General Plan
- 2 Type SM Steel Bridge Rail Side Mounted
- 3 Superstructure
- 4-5 Superstructure Details
- 6-7 Bridge Joint System Expansion
- 8 Substructure
- 9 Substructure Details



**PROFILE GRADE**  
(along  $\phi$  F.A.P. 836)

STATION 664+76.09  
REBUILT 20\_\_ BY  
STATE OF ILLINOIS  
SECTION 118BR  
F.A.P. RTE. 836  
LOADING HS20  
STR. NO. 010-0236

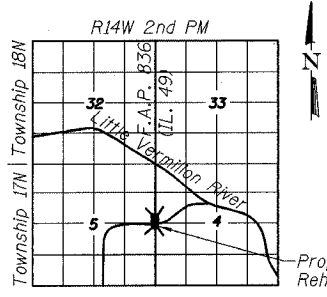
**NAME PLATE**  
See Sta. 515001

\*Proposed Name Plate shall be mounted with concrete anchors adjacent to existing Name Plate. Cost Included with Name Plates.



Sheila J. Kimlinger 10/7/05  
Sheila J. Kimlinger, S.E. Date  
Structural Engineer License No. 081-005283  
Expiration Date: 11/30/2006

ILLINOIS DEPARTMENT OF TRANSPORTATION  
**GENERAL PLAN**  
IL ROUTE 49 OVER A TRIBUTARY OF  
THE LITTLE VERMILION RIVER  
F.A.P. ROUTE 836 SECTION 118BR  
CHAMPAIGN COUNTY  
STATION 664+76.09  
STRUCTURE NO. 010-0236



**LOCATION SKETCH**