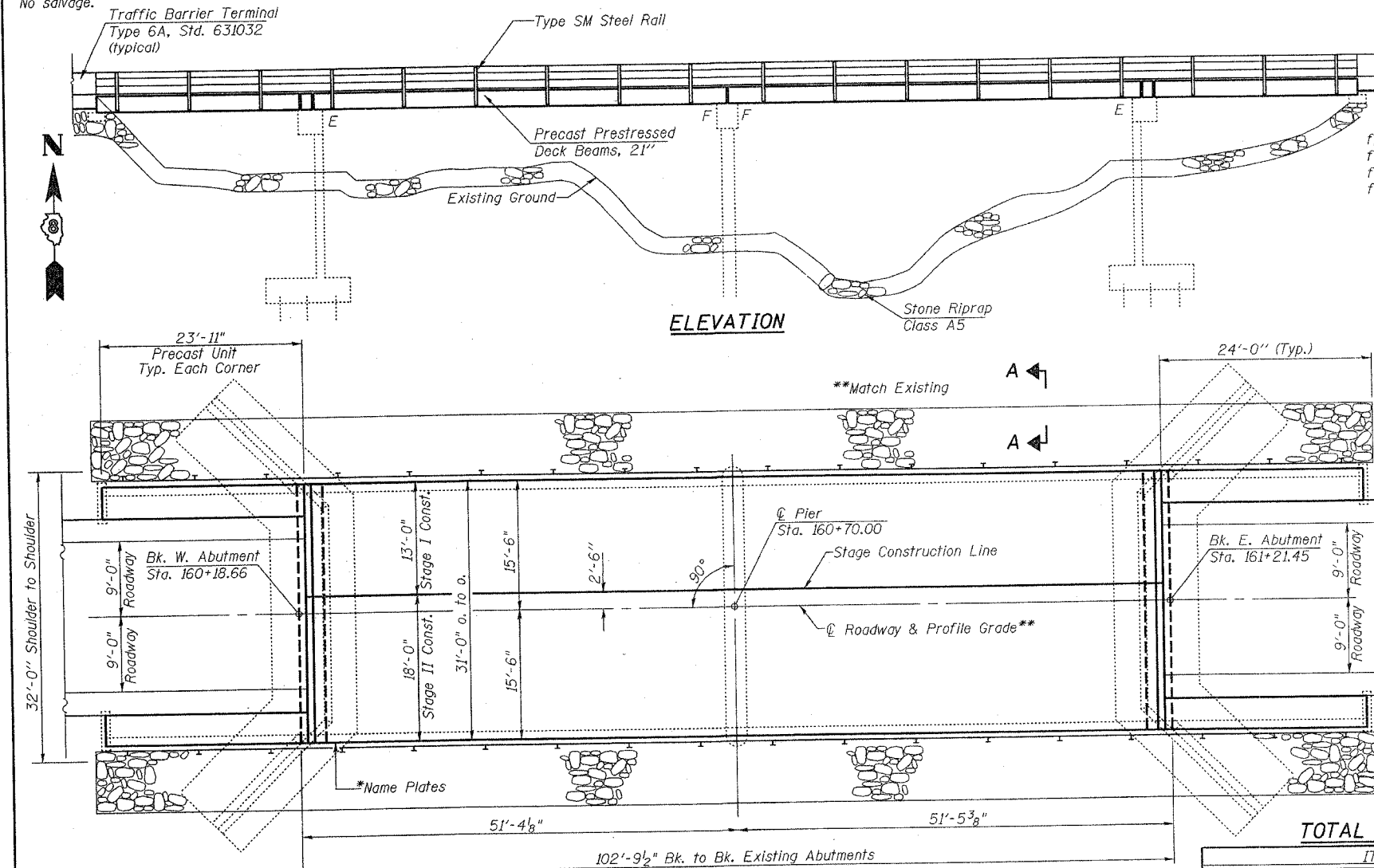


Bench Mark: RR Spike approximate 1' above ground in S. side of power pole on N. side of Il. Route 177 approximate 40' E. of bridge SN 095-0021 Elev. 472.10

Existing Structure: SN 095-0021 originally built in 1928 as S.B.I. Route 153, Sec. 101 B. The original single span truss was removed in 1978 and replaced with a two span PPC Deck beam superstructure. The superstructure is supported by closed abutments on untreated timber piles with cantilevered caps and a pile bent pier supported by steel piles added at the center of the original structure. The existing 21" PPC deck beams are to be removed and replaced with new deck beams and Class I wearing surface. The structure is 31'-0" out to out of deck and 102'-9 1/2" back to back of abutments. Staged construction will be utilized allowing one lane of traffic during construction.

No salvage.



\*The existing name plate shall be removed cleaned and relocated next to the new name plate at the backside of the 8" Rail element. Cost included in Name Plates.

### PLAN

### INDEX OF SHEETS

- 1) General Plan
- 2) Staged Construction
- 3) Temporary Concrete Barrier For Stage Construction
- 4) Approach Beam Details
- 5) Superstructure
- 6) Superstructure Details
- 7) 21"x36" PPC Deck Beam Details
- 8) 21"x48" PPC Deck Beam Details
- 9) Type SM Steel Bridge Rail Side Mounted
- 10) Expansion Joint Details
- 11) Abutments
- 12) Pier
- 13) Abutment Concrete Removal and Repair Details
- 14) Pier Repair Details
- 15) Bar Splicer Assembly Details

### WATERWAY INFORMATION

| Drainage Area = 13.4 Sq. Mi. Low Grade Elev. 477.44 @ Sta. 156+00 |           |          |                 |             |                   |                  |                      |                     |        |
|---|-----------|----------|-----------------|-------------|-------------------|------------------|----------------------|---------------------|--------|
| Flood   | Freq. Yr. | Q C.F.S. | Opening Sq. Ft. | Nat. H.W.E. | Head - Ft. Exist. | Head - Ft. Prop. | Headwater El. Exist. | Headwater El. Prop. |        |
| Design  | 50        | 4,219    | 786             | 786         | 473.97            | 2.27             | 2.27                 | 476.24              | 476.24 |
| Base  | 100       | 4,868    | 815             | 815         | 474.28            | 2.78             | 2.78                 | 477.06              | 477.06 |
| Overlapping   | 120       | 5,145    | 826             | 826         | 474.40            | 3.04             | 3.04                 | 477.44              | 477.44 |
| Max. Calc.  | 500       |          |                 |             |                   |                  |                      |                     |        |

### LOADING HS20-44

No Allowance for Future Wearing Surface

### DESIGN SPECIFICATIONS

2002 AASHTO

### DESIGN STRESSES

#### FIELD UNITS

$f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (reinforcement)

#### PRECAST PRESTRESSED UNITS

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

#### PRECAST UNITS

$f'_c = 4,500$  psi  
 $f_y = 60,000$  psi (Reinforcement)

### GENERAL NOTES

Plan dimensions and details relative to the 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. 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.

The top surface of the beams shall be finished according to Article 504.06 of the Standard Specification except that the surface shall not be roughened by brooming. The finished surface shall be free of depressions or high spots with sharp corners and the top edge of keys shall be rounded or chamfered a minimum of 1/4".

Layout of Slope Protection System may be varied in the field to suit ground conditions as directed by the Engineer.

Any damage done to the bridge during beam removal shall be repaired by the Contractor. Cost to be included in the cost of Removal of Existing Superstructures.

The minimum thickness of the Bituminous overlay shall be 1 1/2" and varies as required to adjust for the new profile grade and actual 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 to the exterior face and 9" in on the underside of the fascia beams. 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.

Repair of the pier caps shall be completed prior to placement of the new deck beams.

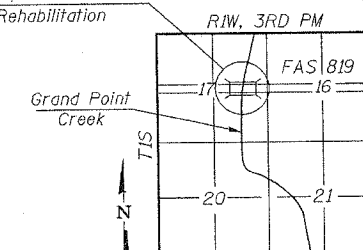
The Contractor is advised that the existing PPC Deck Beams are in a deteriorated condition with reduced load carrying capacity. It is the Contractor's responsibility to account for the condition of the beams when developing construction procedures for removal and replacement of the superstructure.

If the Contractor's procedure for existing beam removal or 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.

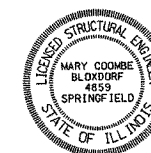
### TOTAL BILL OF MATERIAL

| ITEM   | UNIT    | SUPER |
|--|---------|-------|
| Removal of Existing Superstructures                            | Each    | 1     |
| Concrete Removal   | Cu. Yd. | 3.5   |
| Concrete Structures  | Cu. Yd. | 4.9   |
| Precast Prestressed Concrete Deck Beams (21" Depth)            | Sq. Ft. | 3074  |
| Reinforcement Bars, Epoxy Coated                               | Pound   | 470   |
| Steel Bridge Rail, Type SM                                     | Foot    | 300   |
| Bituminous Concrete Surface Course Superpave, Mix "C", N70     | Ton     | 44    |
| Waterproofing Membrane System                                  | Sq. Yd. | 349   |
| Preformed Joint Strip Seal                                     | Foot    | 62    |
| Name Plates  | Each    | 1     |
| Bar Splicers   | Each    | 12    |
| Precast Concrete Bridge Slab                                   | Sq. Ft. | 359   |
| Structural Repair of Concrete (Depth Equal to or Less Than 5") | Sq. Ft. | 41    |
| Structural Repair of Concrete (Depth Greater Than 5")          | Sq. Ft. | 4     |
| Removal of Existing Precast Concrete Unit                      | Sq. Ft. | 359   |
| Stone Riprap Class A5  | Sq. Yd. | 754   |
| Filter Fabric  | Sq. Yd. | 754   |
| Portland Cement Mortar Fairing Course                          | Foot    | 893   |
| Asbestos Bearing Pad Removal                                   | Each    | 22    |

Proposed Structure Rehabilitation



### LOCATION SKETCH



ILLINOIS STRUCTURAL NO. 4859  
EXPIRES: 11/30/06  
DATE: 5-9-06

| ILLINOIS DEPARTMENT OF TRANSPORTATION |                                 |             |            |
|---------------------------------------|---------------------------------|-------------|------------|
| GENERAL PLAN & ELEVATION              |                                 |             |            |
| PROJECT                               | IL RTE 177 OVER GRAND POINT CRK | PROJECT NO. | 095-0021-4 |
| LOCATION                              | FAS ROUTE 819 SECTION 101BR-3   | DATE        | 05/09/06   |
| COUNTY                                | WASHINGTON COUNTY               | DESIGNED BY | TFG        |
| STATION                               | STATION 160+70.00               | CHECKED BY  | CMC/MCB    |
| STRUCTURE NUMBER                      | 095-0021                        | DESIGNED BY |            |
| COOMBE-BLOXDORF P.C.                  |                                 | 1           |            |
| Engineers / Land Surveyors            |                                 | OF 15 SHTS  |            |
| Springfield, Illinois                 |                                 |             |            |
| Design Firm License No. 184-002703    |                                 |             |            |