

## GENERAL NOTES

- The contractor shall drive (4) test piles of the nominal required bearing specified in production locations at substructures specified or approved by the engineer before ordering the remainder of the piles.
- Boring data is shown in the special provisions only as a guide to the bidders in estimating soil conditions that may be encountered.
- Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60 (II Modified).
- Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the engineer.
- Reinforcement bars designated (E) shall be epoxy coated.

This structure 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 the 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.



MARTIN J. SILVESTER  
STRUCTURAL ENGINEER  
LICENSE EXP. DATE 11-30-14

## TOTAL BILL OF MATERIAL

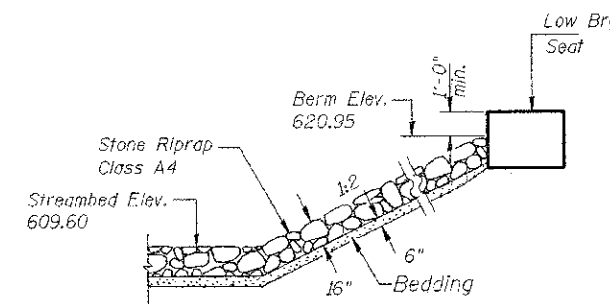
| ITEM                            | UNIT    | SUPER | SUB  | TOTAL |
|---------------------------------|---------|-------|------|-------|
| Stone Riprap, Class A4          | Ton     |       | 857  | 857   |
| Filter Fabric                   | Sy. Yd. |       | 940  | 940   |
| Removal of Existing Structures  | Each    |       | 1    | 1     |
| Structure Excavation            | Cu. Yd. |       | 72   | 72    |
| Cofferdam Excavation            | Cu. Yd. |       | 59   | 59    |
| Concrete Structures             | Cu. Yd. |       | 84.4 | 84.4  |
| Concrete Encasement             | Cu. Yd. |       | 7.7  | 7.7   |
| Precast Prestressed Concrete    | Sq. Ft. | 2520  |      | 2520  |
| Deck Beam (17" Depth)           |         |       |      |       |
| Reinforcement Bars              | Pounds  |       | 6607 | 6607  |
| Mechanical Splicers             | Each    |       | 32   | 32    |
| Steel Railing, Type S-1         | Foot    | 214   |      | 214   |
| Furnishing Steel Piles HP 10X42 | Foot    |       | 420  | 420   |
| Driving Piles                   | Foot    |       | 420  | 420   |
| Test Pile Steel HP 10X42        | Each    |       | 4    | 4     |
| Name Plate                      | Each    |       | 1    | 1     |
| Cofferdam (Type2) (Location-1)  | Each    |       | 1    | 1     |
| Cofferdam (Type2) (Location-2)  | Each    |       | 1    | 1     |

## GENERAL PLAN & ELEVATION TR 217 OVER SEXSON CREEK SECTION 07-01125-00-BR STATION 15+00 SHELBY COUNTY STRUCTURE NO. 087-3565

| RTE.               | SECTION        | COUNTY | TOTAL SHEETS | SHEET NO. |
|--------------------|----------------|--------|--------------|-----------|
| TR217              | 07-01125-00-BR | SHELBY | 15           | 4         |
| CONTRACT NO. 95655 |                |        |              |           |

FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT

THE UPCHURCH GROUP, INC.



## STONE RIPRAP DETAIL

Not to Scale

Note:

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

## DESIGN STRESSES:

### SUBSTRUCTURE

$f_y = 60,000$  p.s.i. (Reinforcement)

$f'_c = 3,500$  p.s.i.

### P.P.C. SUPERSTRUCTURE

$f_y = 60,000$  p.s.i. (Reinforcement)

$f'_c = 6,000$  p.s.i.

$f'_{ci} = 5,000$  p.s.i.

$f'_s = 270,000$  psi ( $\frac{1}{2}$ "  $\phi$  low lax. strands)

$f_{su} = 204,960$  psi ( $\frac{1}{2}$ "  $\phi$  low lax. strands)

### DESIGN LOADING

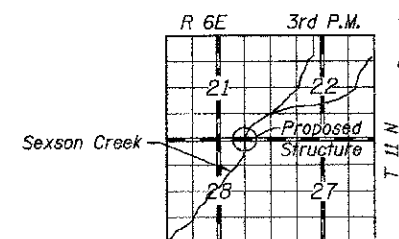
HL 93  
25 p.s.f. Future Wearing Surface

### DESIGN SPECIFICATIONS

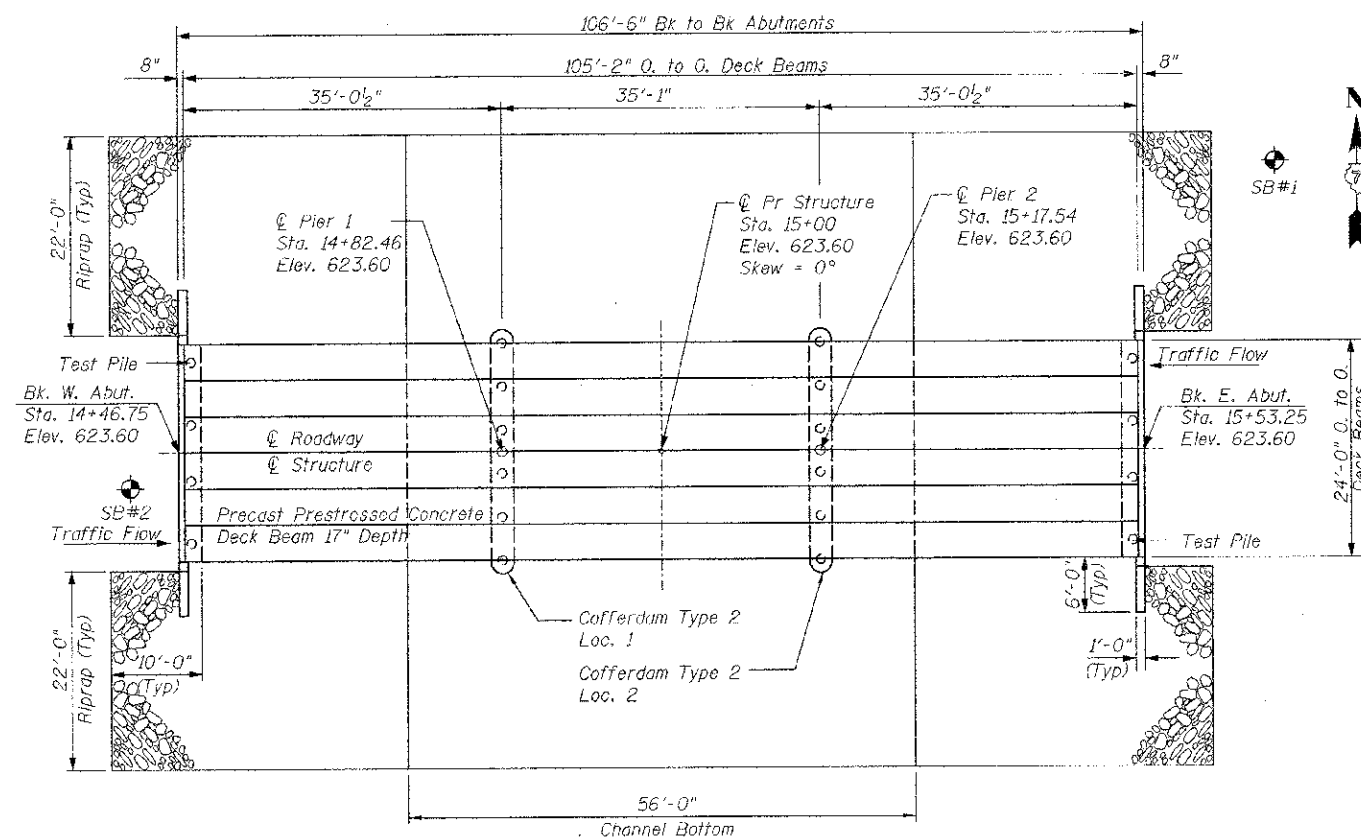
2010 AASHTO LRFD Bridge Design Specifications,  
5th Edition, with 2010 Interims

### SEISMIC DATA

Seismic Performance Zone (SPZ) = 1  
Design Spectral Acceleration at 1.0 sec. ( $S_{D1}$ ) = 0.132g  
Design Spectral Acceleration at 0.2 sec. ( $S_{D5}$ ) = 0.295g  
Soil Site Class = C

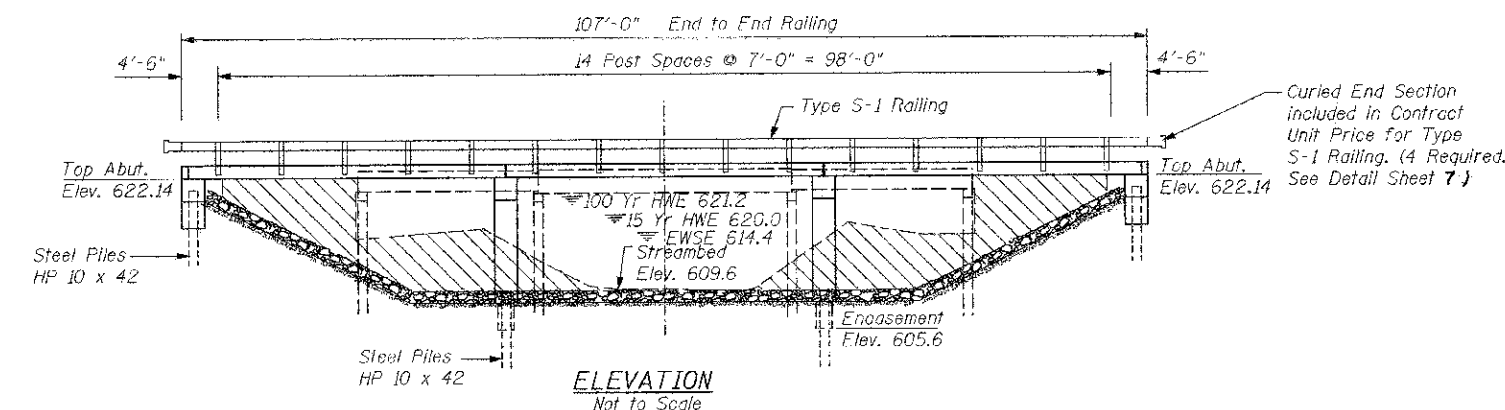


## LOCATION SKETCH



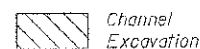
## PLAN

Not to Scale



## ELEVATION

Not to Scale



## WATERWAY INFORMATION

| Drainage Area = 15.5 Sq. Mi. - Pr. Low Grade Elev. = 621.21 @ Sta. 18+00 |           |          |                 |            |        |        |       |        |       |
|--------------------------------------------------------------------------|-----------|----------|-----------------|------------|--------|--------|-------|--------|-------|
| Flood                                                                    | Freq. Yr. | Q C.F.S. | Opening Sq. Ft. | Head - Ft. | H.W.E. | Exist. | Prop. | Exist. | Prop. |
| Design                                                                   | 15        | 2619     | 468             | 820        | 620.0  | 0.5    | 1.0   | 620.5  | 621.0 |
| Base                                                                     | 100       | 4201     | 515             | 917        | 621.2  | 0.2    | 0.7   | 621.4  | 621.9 |
| Overtopping                                                              |           |          |                 |            |        |        |       |        |       |
| Max. Calc.                                                               | 500       | 5489     | 515             | 940        | 622.1  | 0.1    | 0.5   | 622.2  | 622.6 |

SEXSON BRANCH  
BUILT 20\_\_ BY  
SHELBY COUNTY  
ASH GROVE TOWNSHIP  
SEC. 07-01125-00-BR  
STATION 15+00 PROJECI NO. BR05-173 (173)  
STR. NO. 087-3565 LOADING HL 93

## LETTERING FOR NAME PLATE

LOCATE ON THE SW WINGWALL