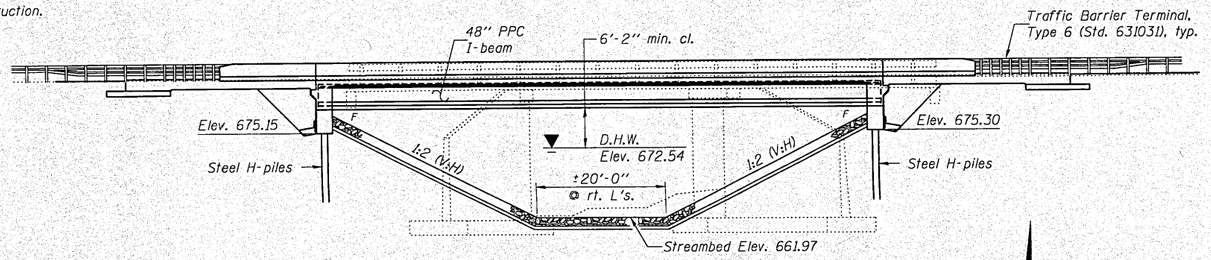
Bench Mark: Chiseled "□" on SW corner of bridge Structure No. 001-0025, top of abutment at Sta. 1246+73.90; 17.70' Rt., Elev. 681.76, NAVD "88"

Existing structure: Struct. No. 001-0025. Single-span pre-cast concrete channel beam superstructure on closed abutments. Originally constructed in 1933 as SBI 105, Section 107B and the abutment caps were replaced in 1975 as SBI 105, Section 107BR-1 at Sta. 1246+88. Overall length: 33'-4" back to back; 33'-9" out-to-out deck width. Traffic maintained utilizing stage construction.

No salvage.

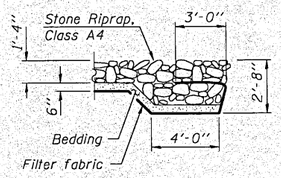
# STATE OF ILLINOIS
# DEPARTMENT OF TRANSPORTATION




## ELEVATION

STATION 1246+83.00
BUILT 20 BY
STATE OF ILLINOIS
F.A.P. RTE. 745 SEC. 107B-1
LOADING HL-93
STRUCTURE NO. 001-0507

## NAME PLATE
See Std. 515001




## RIPRAP FLANK DETAIL

## GENERAL NOTES

Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.

Reinforcement bars designated (E) shall be epoxy coated.

Layout of slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.

Excavation behind existing abutment walls shall be performed to balance front and back soil pressure before removing the existing superstructure. The Contractor shall sawcut the upper portion of the existing abutment at the stage removal line before Stage I removal to ensure the remaining portion will not be prematurely damaged.

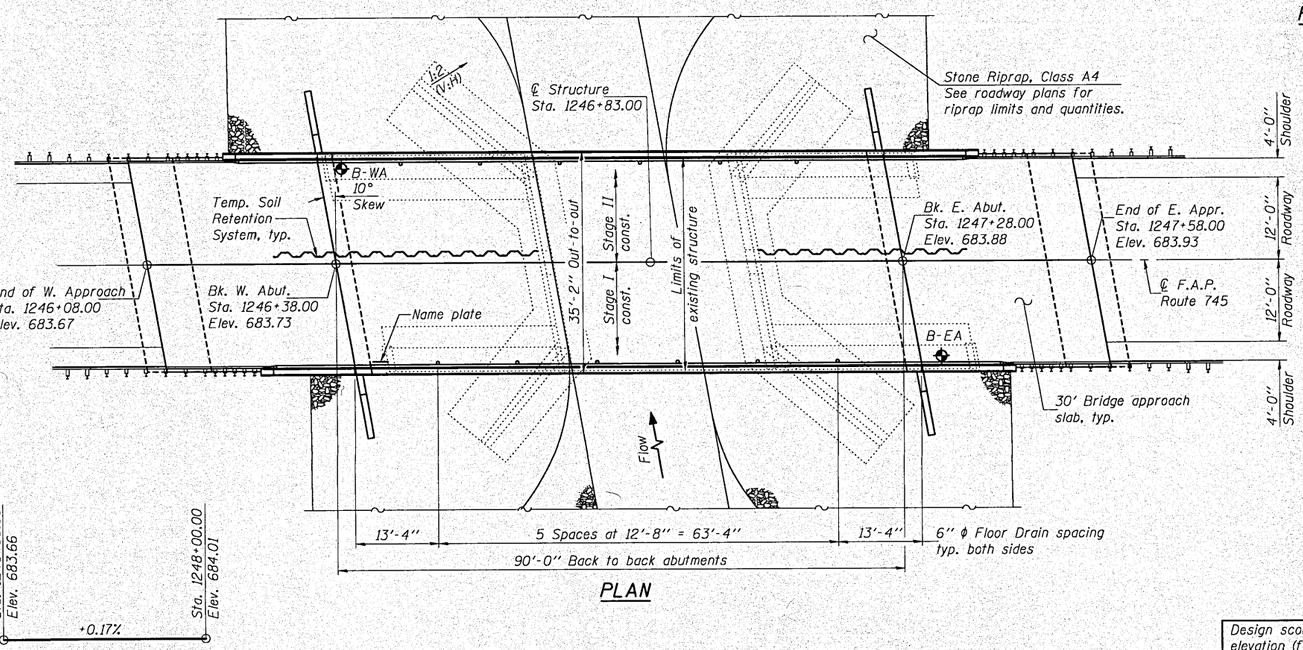
The Contractor shall submit Structural Assessment Report(s) as required for the Contractor's Means and Methods of Construction. See Special Provisions.

The Contractor is advised that the existing structure contains members that are in a deteriorated condition with reduced load carrying capacity. It is the Contractor's responsibility to account for the condition of the existing structure when developing construction procedures for the complete or partial removal, or replacement of the structure. An Existing Structure Information Package is available upon request as noted in the special provisions.

Current Ratings Factor on File for Existing Structure

Inventory: HS 10.2
Operating: HS 17.1
Live Load Restrictions: No

Inventory and Operating Ratings and Live Load Restrictions are provide for information only. Inventory and Operating Ratings are based on HS loading and configuration. Live Load Restrictions are based on Illinois legal loads and configurations. The Ratings and Live Load Restrictions are not necessarily representative of capacities to support the Contractor's equipment.




## PLAN




## PROFILE GRADE
(Along ℄ roadway)

## INDEX OF SHEETS


| | |
|---|---|
| 1 | General Plan & Elevation |
| 2 | General Data & Stage Construction Details |
| 3 | Temporary Concrete Barrier for Stage Construction |
| 4-5 | Top of Slab Elevations |
| 6 | Top of West Approach Slab Elevations |
| 7 | Top of East Approach Slab Elevations |
| 8 | Superstructure |
| 9 | Superstructure details |
| 10 | Diaphragm Details |
| 11-12 | Bridge Approach Slab Details |
| 13 | Framing Plan |
| 14-15 | Beam Details |
| 16 | West Abutment |
| 17 | East Abutment |
| 18 | Bar Splicer Assembly Details |
| 19 | HP Pile Details |
| 20 | Concrete Parapet Slipforming Option |
| 21 | Boring Logs |


## DESIGN SPECIFICATIONS
2007 AASHTO LRFD Bridge Design Specifications with 2009 Interims

## LOADING HL-93
Allow 50#/sq. ft. for future wearing surface.

## SEISMIC DATA
Seismic Performance Zone (SPZ) = 2
Design Spectral Acceleration at 1.0 sec. ($S_{D1}$) = 0.186 g
Design Spectral Acceleration at 0.2 sec. ($S_{DS}$) = 0.324 g
Soil Site Class = E

## DESIGN STRESSES

**FIELD UNITS**

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

**PRECAST PRESTRESSED UNITS**

$f'_c$ = 7,000 psi
$f'_{ci}$ = 6,000 psi
$f_{pu}$ = 270,000 psi (½" ϕ low lax strands)
$f_{pbt}$ = 201,960 psi (½" ϕ low lax strands)

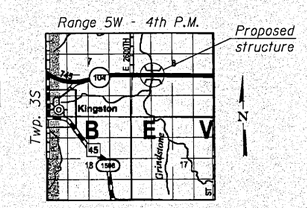
| Design scour elevation (ft.) | W. Abut. | E. Abut. |
|---|---|---|
| | 675.15 | 675.30 |

## WATERWAY INFORMATION

Drainage Area = 3.27 mi.² Low Grade Elev. 683.30 @ Sta. 1246+88

| Flood | Freq. Yr. | Q C.F.S. | Opening Sq. Ft. Exist. | Opening Sq. Ft. Prop. | Nat. H.W.E. | Head - Ft. Exist. | Head - Ft. Prop. | Headwater El. Exist. | Headwater El. Prop. |
|---|---|---|---|---|---|---|---|---|---|
| | 10 | 1340 | 160 | 360 | 670.89 | 1.1 | 0 | 672.01 | 670.70 |
| Design | 50 | 2260 | 200 | 470 | 672.34 | 2.1 | 0 | 674.43 | 672.27 |
| Base | 100 | 2700 | 220 | 510 | 672.83 | 2.7 | 0 | 675.53 | 672.80 |
| Overtopping | | | | | | | | | |
| Max. Calc. | 500 | 3780 | 250 | 580 | 673.70 | 4.3 | 0.2 | 677.96 | 673.88 |

10 year velocity through existing bridge = 9 ft/s
10 year velocity through proposed bridge = 4 ft/s




## LOCATION SKETCH

## GENERAL PLAN & ELEVATION
## ILLINOIS ROUTE 104 OVER GRINDSTONE CREEK
## F.A.P. ROUTE 745 SEC. 107B-1
## ADAMS COUNTY
## STATION 1246+83.00
## STRUCTURE NO. 001-0507

| | |
|---|---|
| DESIGNED | Philip E. Copnell |
| CHECKED | Justin T. Belue |
| DRAWN | h.t. duong |
| CHECKED | PEC/JTB |

December 6, 2010
EXAMINED Thomas J. Ostrowski
ENGINEER OF BRIDGE DESIGN
PASSED Robert L. Anderson
ENGINEER OF BRIDGES AND STRUCTURES

STATE OF ILLINOIS ROBERT L. ANDERSON 081-004625 SPRINGFIELD LICENSED STRUCTURAL ENGINEER

EXPIRES 11-30-2012

| SHEET NO. 1 | F.A.P. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|---|
| 21 SHEETS | 745 | 107B-1 | ADAMS | 86 | 35 |
| | | | CONTRACT NO. 72B98 | | |
| | FED. ROAD DIST. NO. _ | ILLINOIS | FED. AID PROJECT | | |

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