

Bench Mark: Square cut on S.E. corner of headwall of East Bound Lane bridge S.N. 039-0014 Sta. 242+45.00 Elevation 380.74

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

Existing Structure: S.N. 039-0014 (EB) built in 1954 under F.A. Route 14, section 12-1B-1. Reconstructed in 1980 under F.A. Route 107, section 12-1BY-1. S.N. 039-0050 (WB) built in 1974. The existing EB superstructure consists of a three span continuous steel wide flange beam, supporting a concrete deck and the substructure consists of pile bent abutments and solid wall piers. The back to back of abutments length is 173'-11" and the out to out width of the deck is 33'-8". The existing EB structure is to be replaced. During construction, traffic will be detoured to the WB structure using temporary median cross-overs.

No salvage

GENERAL NOTES

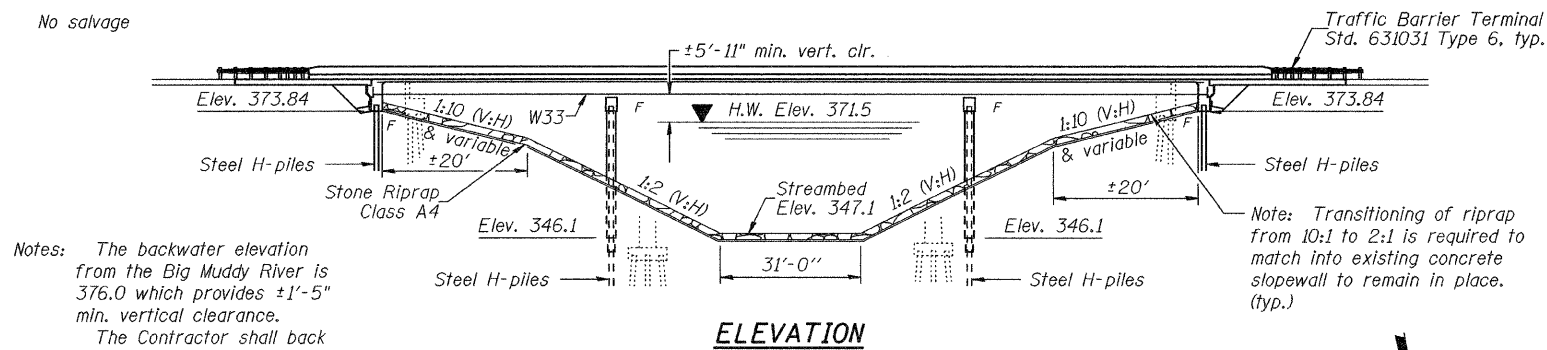
Calculated weight of Structural Steel
= 151430 LB (AASHTO M270, Gr. 50)
= 14740 LB (AASHTO M270, Gr. 36)

No field welding is permitted except as specified in the contract documents.
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 in the field to suit ground conditions as directed by the Engineer. Slope channel to match channel under WB structure.
Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8 inch. Adjustment shall be made either by grinding the surface or by shimming the bearing.
Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts. Bolts 7/8" ϕ , open holes 1 1/16" ϕ , unless otherwise noted.
The inorganic zinc rich primer/ Acrylic/ Acrylic Paint System shall be used for shop and field painting of new structural steel except where otherwise noted. The color of the final finish coat for all interior steel surfaces shall be gray, Munsell No. 5B 7/1. The color of the final finish coat for all exterior and bottom flange of the fascia beams shall be Interstate Green, Munsell No. 7.5G4/8. See Special Provision for "Cleaning and Painting New Metal Structures."
If the Contractor elects to use cantilever forming brackets on the exterior beams, the brackets shall be placed at the same locations as required for the hardwood blocks in Article 503.06 (b) of the Standard Specifications. If additional cantilever forming brackets are required, hardwood blocking shall be wedged between the exterior and first interior beam at each of these additional bracket locations.
The Contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at the west abutment or approved by the Engineer before ordering the remainder of piles.
In lieu of the hammer selection criteria and use of the FHWA Modified Gates formula specified in Section 512 of the Standard Specifications, the Contractor shall conduct a wave equation analysis to establish the driving criteria at all pile foundations which specify a nominal required bearing above 600 kips. The analysis and calculations shall be submitted to the Engineer for approval.
The existing structural steel coating contains lead. The contractor shall take appropriate precautions to deal with the presence of lead on this project.

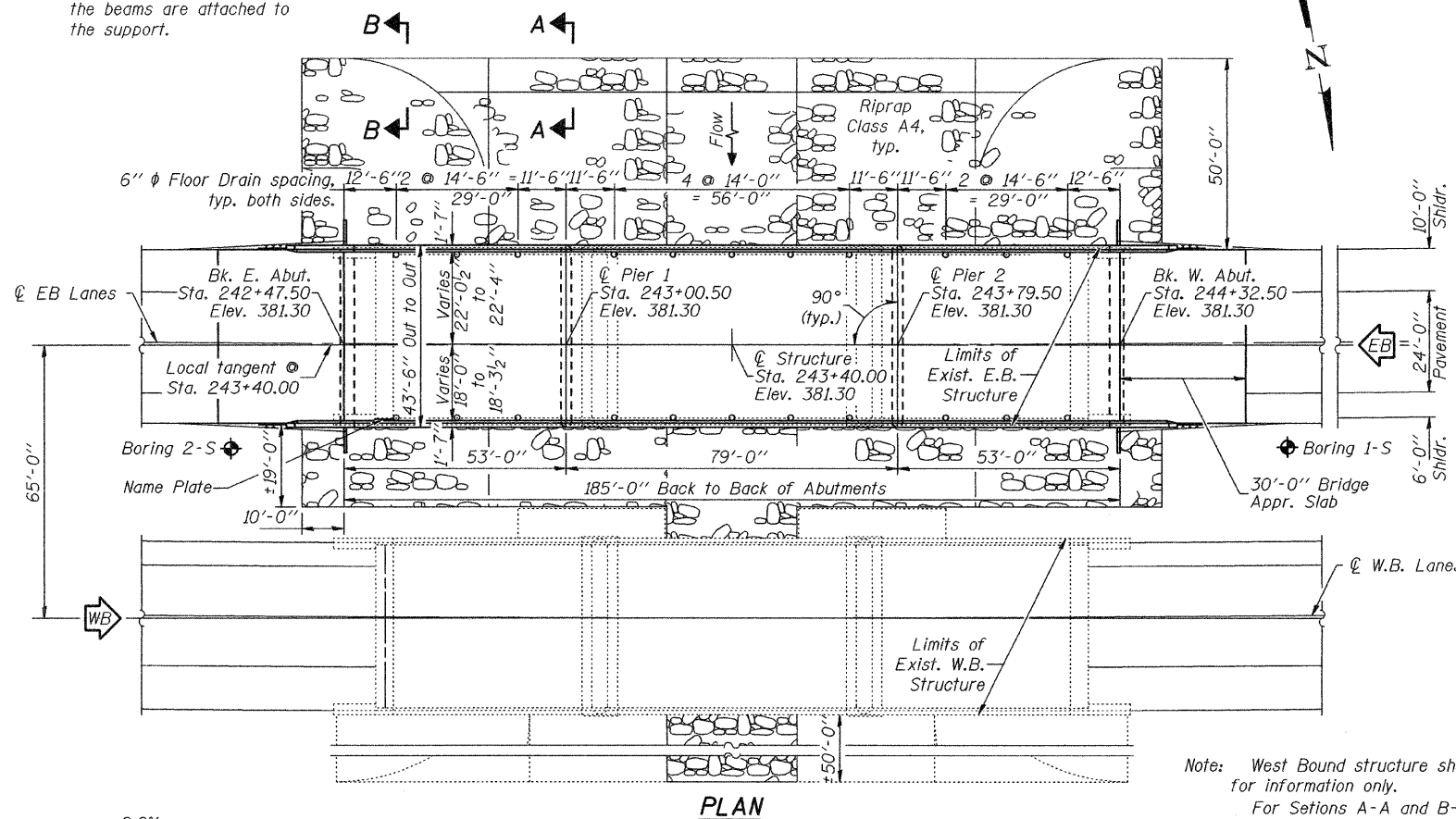
TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Concrete Structures	Cu. Yd.		261.2	261.2
Reinforcement Bars, Epoxy Coated	Pound	88390	27420	115810
Name Plates	Each	1		1
Concrete Superstructure	Cu. Yd.	399		399
Furnishing and Erecting Structural Steel	L. Sum	1		1
Furnishing Steel Piles HP12x53	Foot		715	715
Furnishing Steel Piles HP12x84	Foot		792	792
Driving Piles	Foot		1507	1507
Test Pile Steel HP12x53	Each		1	1
Stone Riprap, Class A4	Sq. Yd.	2555.9		2555.9
Filter Fabric	Sq. Yd.	2555.9		2555.9
Protective Coat	Sq. Yd.	1283		1283
Removal of Existing Structures	Each		1	1
Structure Excavation	Cu. Yd.		354.8	354.8
Bridge Deck Grooving	Sq. Yd.	1048		1048
Stud Shear Connectors	Each	4086		4086
Pile Shoes	Each		24	24
Floor Drains	Each	22		22
Porous Granular Embankment (Special)	Cu. Yd.		131.6	131.6
Bar Splicers	Each	92		92
Underwater Structure Excavation Protection, Location 1	Each		1	1
Underwater Structure Excavation Protection, Location 2	Each		1	1
Concrete Encasement	Cu. Yd.		8.4	8.4
Mechanical Splicers	Each		96	96
Geocomposite Wall Drain	Sq. Yd.		90	90
Pipe Underdrains for Structures, 4"	Foot		147	147
Anchor Bolts, 1"	Each		48	48

*Reinforcement bars in approach footing included with superstructure quantity.



Notes: The backwater elevation from the Big Muddy River is 376.0 which provides $\pm 1'-5"$ min. vertical clearance.
The Contractor shall back fill around pier stem after the beams are attached to the support.



INDEX OF SHEETS

- 1 General Plan & Elevation
- 2 General Data
- 3-4 Top of Slab Elevations
- 5 Top of East Approach Pavement Elevations
- 6 Top of West Approach Pavement Elevations
- 7 Superstructure
- 8 Superstructure Details
- 9 Diaphragm Details
- 10-11 Bridge Approach Slab Details
- 12 Structural Steel
- 13 Structural Steel Details
- 14 Bearing Details
- 15 East Abutment
- 16 West Abutment
- 17 Pier 1
- 18 Pier 2
- 19 Steel H Pile Details
- 20 Bar Splicer Assembly Details
- 21-22 Boring Logs

CURVE DATA

P.I. Sta. = 214+91.234
 $\Delta = 59^\circ-31'-14"$
 $D = 0^\circ-23'-54"$
 $R = 14,379.082'$
 $T = 8,221.743'$
 $L = 14,937.415'$
 $E = 2,184.585'$
P.C. Sta. = 132+69.491
P.T. Sta. = 282+06.906

STATION 243+40.00
BUILT 20 BY
STATE OF ILLINOIS
F.A.P. RT. 331 SEC. (12-BY-1)-1
LOADING HS20
STR. NO. 039-0070 (E.B.)

NAME PLATE

See Std. 515001

LOADING HS20-44

Allow 50#/sq. ft. for future wearing surface.

DESIGN SPECIFICATIONS

1996 AASHTO with 1997 thru 2002 Interims

DESIGN STRESSES

FIELD UNITS

$f'_c = 3,500$ psi
 $f_y = 60,000$ psi (reinforcement)
 $f_y = 50,000$ psi (structural steel AASHTO M270, Gr. 50)
 $f_y = 36,000$ psi (structural steel AASHTO M270, Gr. 36)

SEISMIC DATA

Seismic Performance Category (SPC) = B
Bedrock Acceleration Coefficient (A) = 13%
Site Coefficient (S) = 1.2

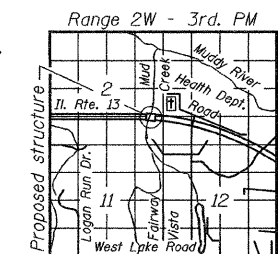
DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	E. Abut.	Pier 1	Pier 2	W. Abut.
	356.8	342.1	342.1	356.8

WATERWAY INFORMATION

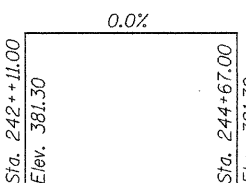
Drainage Area = 9.7 mi.² Low Grade Elev. 380.9 ft. @ Sta. 243+71.3

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. Head - Ft.		Headwater El.		
			Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	
Design	50	2820	1688	1822	371.5	0.1	0.1	371.6	371.6
Base	100	3210	1688	1822	371.5	0.1	0.1	371.6	371.6
Overtopping	-	-	-	-	-	-	-	-	-
Max. Calc.	500	4100	1688	1822	371.5	0.2	0.1	371.7	371.6



GENERAL PLAN
ILLINOIS ROUTE 13 (E.B.) OVER
MUD CREEK
F.A.P. ROUTE 331 - SEC. (12-BY-1)-1
JACKSON COUNTY
STATION 243+40.00
STRUCTURE NO. 039-0070 (E.B.)

SHEET NO. 1	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22 SHEETS	331	(12-BY-1)-1	JACKSON	67	22
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		CONTRACT NO. 98641	



DESIGNED

REBECCA MITCHELL
CHECKED: Mark Shaffer
DRAWN: Amber Seiber
CHECKED: RLM/MDS

EXAMINED: Thomas J. ...
PASSED: ...
ENGINEER OF BRIDGE DESIGN
ENGINEER OF BRIDGES AND STRUCTURES



EXPIRES 11-30-2010