72945

F.A.P. RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FAP 315 (US 136)	D-6 BRIDGE PAINTING 2006	HANCOCK	40	1

1-20-06 Letting, Item 49

INDEX OF SHEETS
SEE SHEET 2 FOR INDEX OF SHEETS

LIST OF STANDARDS
SEE SHEET 2 FOR LIST OF STANDARDS

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROPOSED
HIGHWAY PLANS

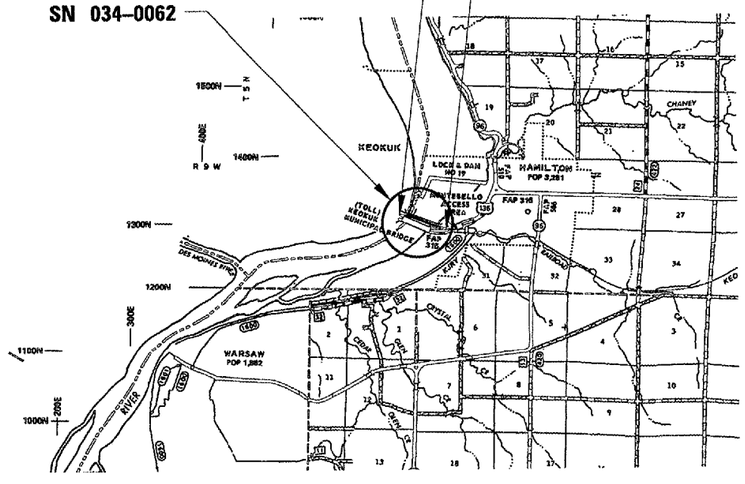
FAP 315 (US 136)
D-6 BRIDGE PAINTING 2006
HANCOCK COUNTY
D-96-006-05
C-96-009-06

LOCATION OF SECTION INDICATED THUS:-

PROJECT BEGIN STA. 63+70

PROJECT BEGIN STA. 63+70

SN 034-0062



NET AND GROSS LENGTH = 0.63 mi

OTHER PRINCIPAL ARTERIAL
ADT 12,500 (2003)

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED November 1 20 05
Chris M Reed
DISTRICT ENGINEER

December 9, 20 05
Mike Hine
ENGINEER OF DESIGN AND ENVIRONMENT

December 9 20 05
Eric Harm
DEPUTY DIRECTOR, DIVISION OF HIGHWAYS

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

100' 200' 300' — 1"= 100'
10' 20' 30' — 1"= 10'
50' 100' — 1"= 50'
50' 100' — 1"= 40'
50' 100' — 1"= 30'
50' 100' — 1"= 20'

FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123

CONTRACT NO. 72945

DESIGN AND PLANNING ENGINEER CECIL DOWNING
217-785-4036
BRIDGE PAINTING TECHNICIAN LARRY HOPKINS
217-785-9290

INDEX OF SHEETS

STANDARDS

701601-04
701701-04
701801-03
702001-05

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
DISTRICT 6

EXAMINED October 31 2005
ENGINEER OF OPERATIONS

EXAMINED Sept. 27 2005
ENGINEER OF PROGRAM IMPLEMENTATION

EXAMINED OCTOBER 7 2005
ENGINEER OF PROGRAM DEVELOPMENT

GENERAL NOTES

CLEANING AND PAINTING OF THE EXISTING STRUCTURAL STEEL SHALL BE AS SPECIFIED IN THE SPECIAL PROVISION FOR "CLEANING AND PAINTING EXISTING STEEL STRUCTURES".
ALL BEAMS, BEARINGS AND OTHER STRUCTURAL STEEL WITHIN 10 FT (MEASURED ALONG THE BEAM) OF EITHER SIDE OF DECK JOINTS AND THE EXTERIOR SURFACES AND BOTTOM OF THE BOTTOM FLANGE OF THE FASCIA BEAMS SHALL BE CLEANED PER NEAR WHITE BLAST CLEANING SSPC - SP10.
THE DESIGNATED AREAS CLEANED PER NEAR WHITE BLAST CLEANING - SSPC SP10 SHALL BE PAINTED ACCORDING TO THE REQUIREMENTS OF PAINT SYSTEM 1 - OZ/E/U. THE COLOR OF THE FINAL FINISH COAT SHALL BE INTERSTATE GREEN, MUNSELL NO 7.5G 4/8.
CONTAINMENT OF CLEANING RESIDUE IS REQUIRED TO CONTROL NUSIANCE DUST SEE SPECIAL PROVISIONS.

SSPC QP1 & QP2 PAINTING CONTRACTOR CERTIFICATION IS NOT REQUIRED FOR THIS PROJECT.

GENERAL INFORMATION
FAP 315 (US 136)
D-6 BRIDGE PAINTING 2006
HANCOCK COUNTY

Rev.

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	SFTY-2A 50% IL/50% IA QUANTITY
50600300	CLEANING AND PAINTING STEEL BRIDGE	LUMP SUM	1
50606600	CONTAINMENT AND DISPOSAL OF NON-LEAD PAINT CLEANING RESIDUES	LUMP SUM	1
67100100	MOBILIZATION	LUMP SUM	1
67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	7
70102630	TRAFFIC CONTROL AND PROTECTION, STANDARD 701601	LUMP SUM	1
70102635	TRAFFIC CONTROL AND PROTECTION, STANDARD 701701	LUMP SUM	1
70102640	TRAFFIC CONTROL AND PROTECTION, STANDARD 701801	LUMP SUM	1
Z0048665	RAILROAD PROTECTIVE LIABILITY INSURANCE	LUMP SUM	1

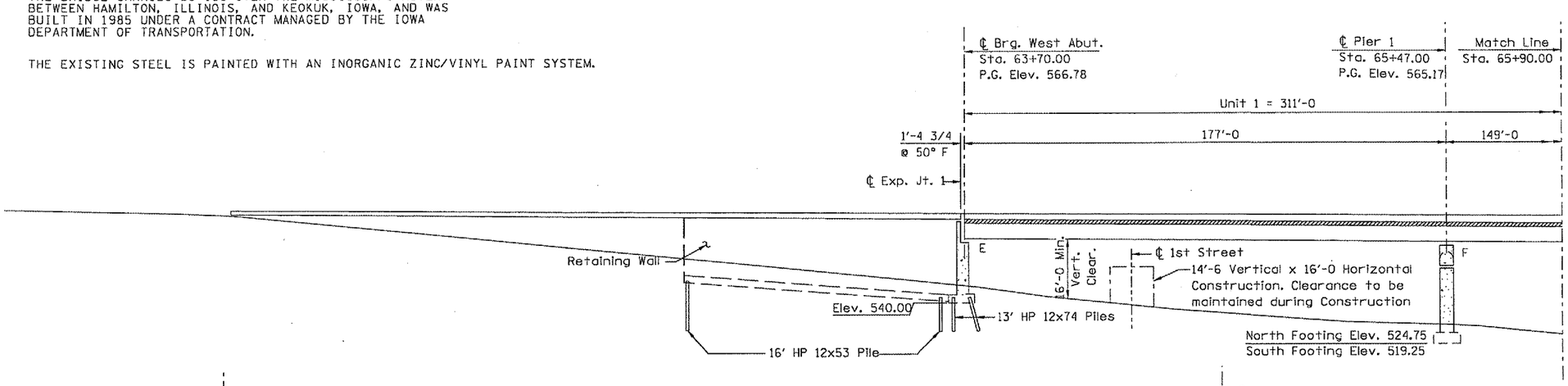
SUMMARY OF QUANTITIES
FAP 315 (US 136)
D-6 BRIDGE PAINTING 2006
HANCOCK COUNTY

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
315	•	HANCOCK	40	4
• D-6 BRIDGE PAINTING 2006				

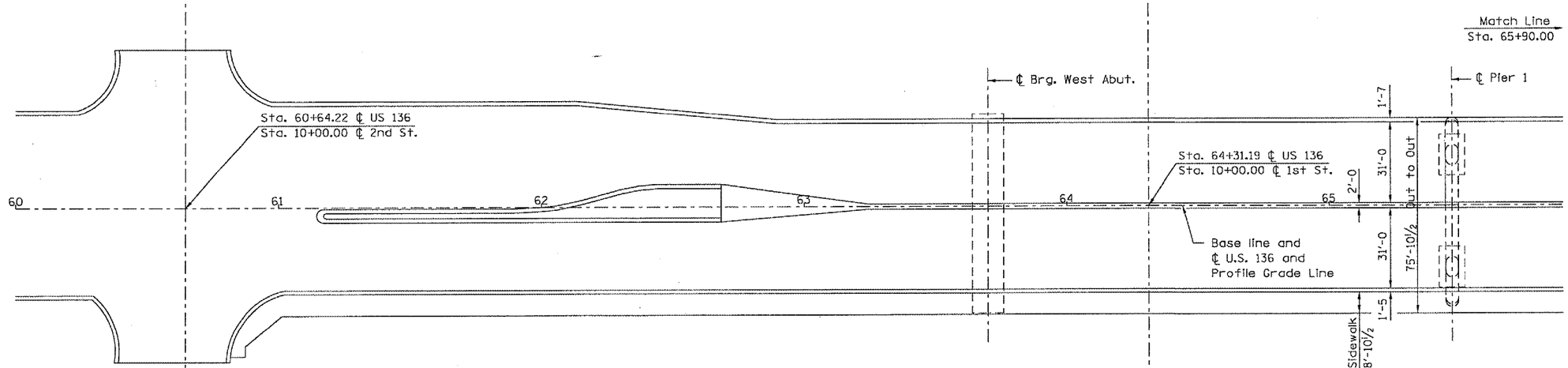
EXISTING STRUCTURE:

SN 034-0062 CONSISTS OF 15 STEEL MULTI-BEAM WELDED PLATE GIRDER SPANS, WITH AN OVERALL LENGTH OF 3,340 FT MEASURED FROM BACK-TO-BACK OF ABUTMENTS, AND A TOTAL DECK WIDTH OF 75' 10•". THE BRIDGE ROADWAY, COMPRISED OF TWO LANES IN EACH DIRECTION DIVIDED BY A BARRIER WALL, HAS A TOTAL COMBINED WIDTH OF 62' 0". THERE IS AN 8' 10•" WIDE SIDEWALK ON THE SOUTH SIDE OF THE BRIDGE. THE BRIDGE CARRIES US 136 OVER THE MISSISSIPPI RIVER BETWEEN HAMILTON, ILLINOIS, AND KEOKUK, IOWA, AND WAS BUILT IN 1985 UNDER A CONTRACT MANAGED BY THE IOWA DEPARTMENT OF TRANSPORTATION.

THE EXISTING STEEL IS PAINTED WITH AN INORGANIC ZINC/VINYL PAINT SYSTEM.



LONGITUDINAL SECTION ALONG ℄ U.S. 136



PLAN

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

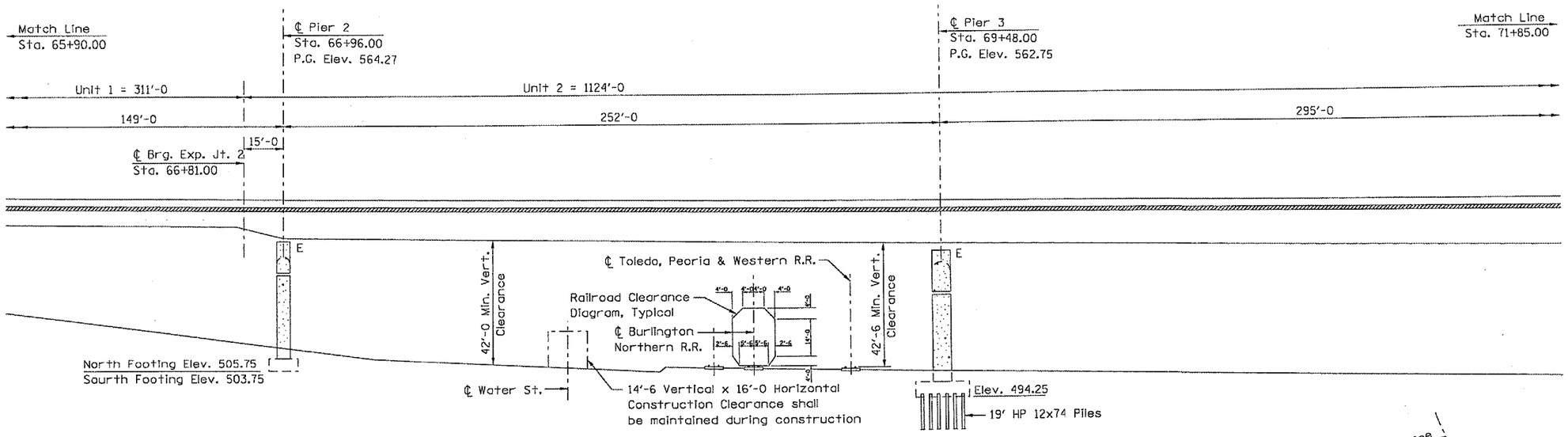
PLAN AND PROFILE

FAP 315 (US 136)
D-6 BRIDGE PAINTING 2006I
HANCOCK COUNTY

•DGN-SPEC•
•DATE-TIME•
•REF@1

D6 PROJECT: d656902 FILE: psheets .dgn

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
315	•	HANCOCK	40	5
• D-6 BRIDGE PAINTING 2006				



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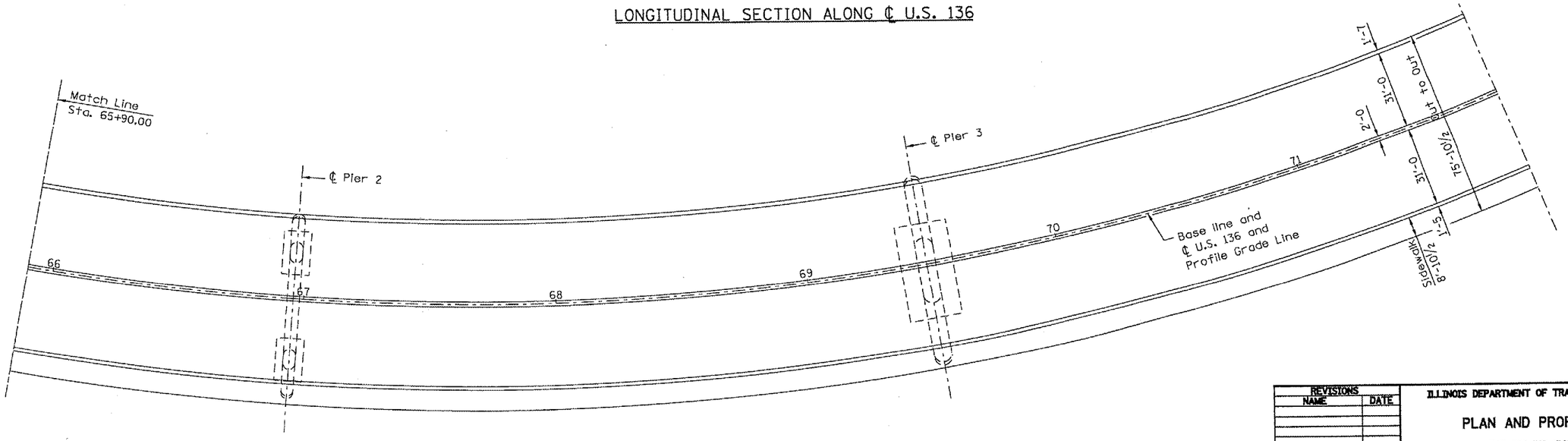


PLAN

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

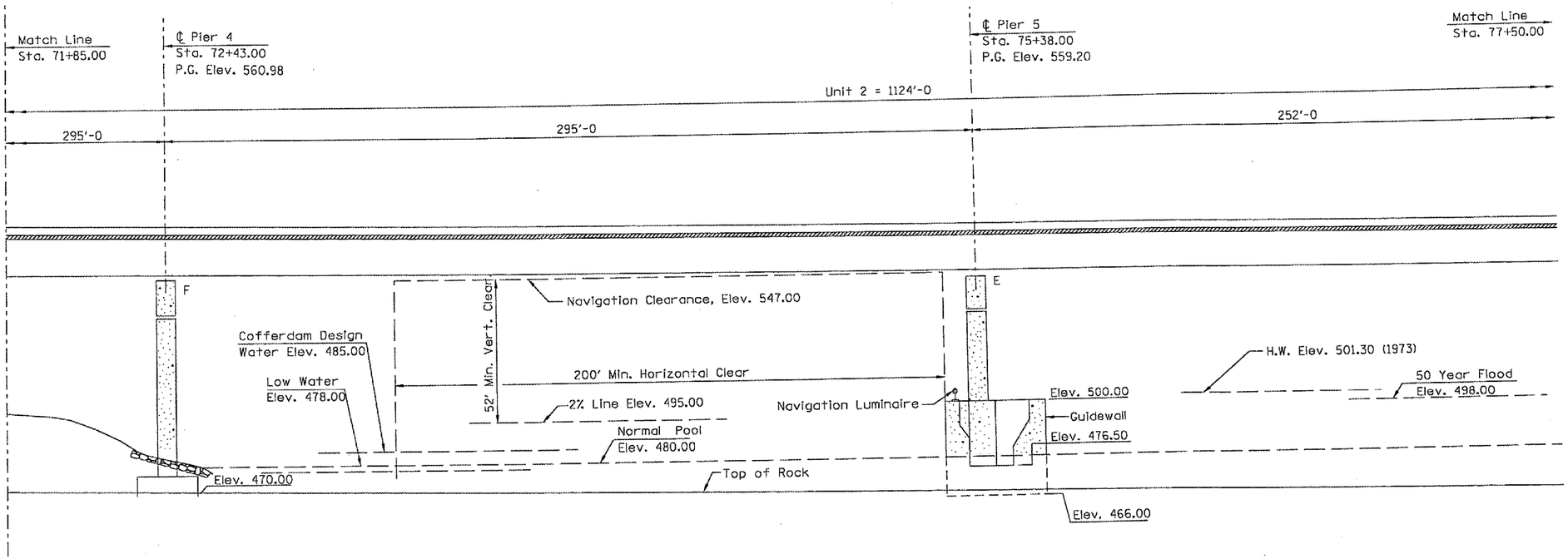
PLAN AND PROFILE

FAP 315 (US 136)
SECTION D-6 BRIDGE PAINTING 2006
HANCOCK COUNTY

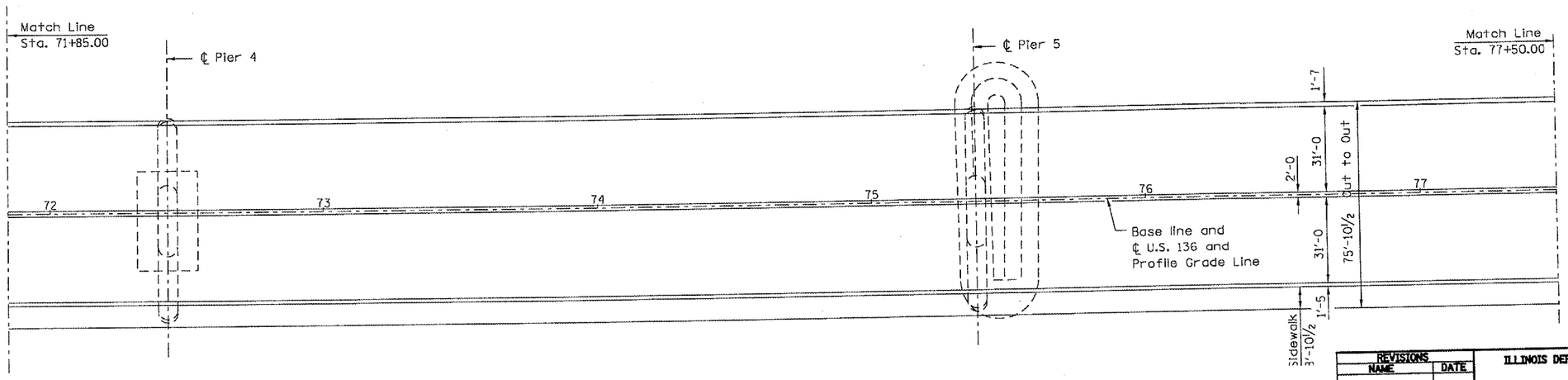
•DGN-SPEC•
•DATE-TIME•
•REF01

06 PROJECT: d6556902 FILE: psheets .dgn

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
315	(22B)1	HANCOCK	40	6
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



LONGITUDINAL SECTION ALONG ℄ U.S. 136



PLAN

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

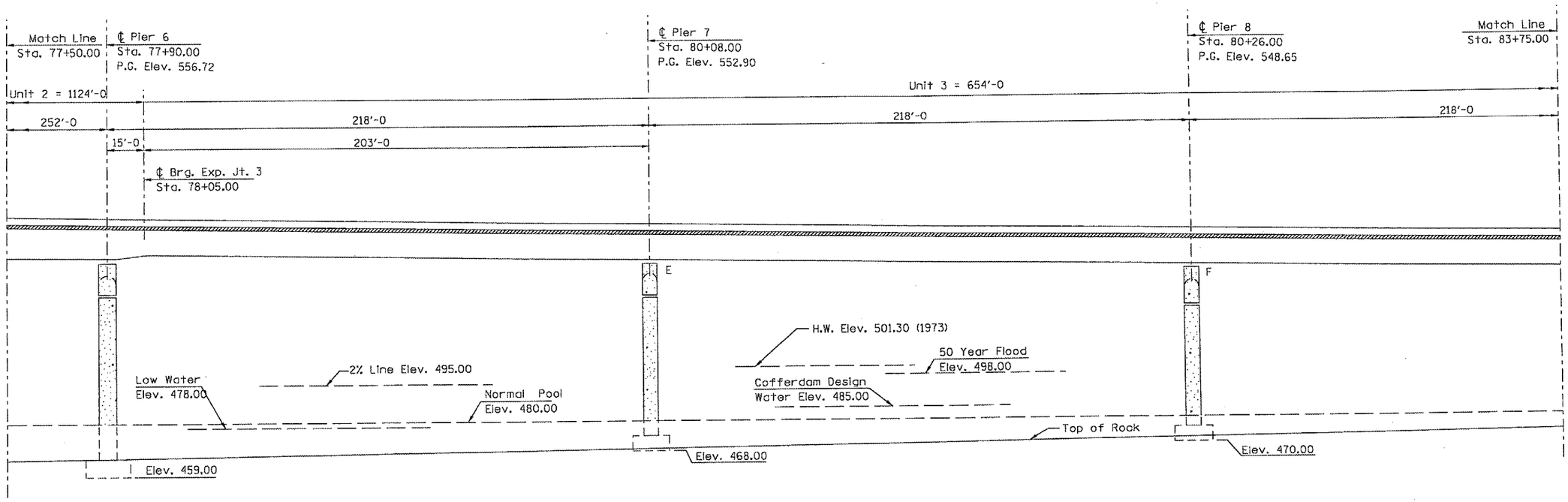
PLAN AND PROFILE

FAP 315 (US 136)
SECTION D-6 BRIDGE PAINTING 2006
HANCOCK COUNTY

•DGN-SPEC•
•DATE-TIME•
•REF01

DB PROJECT: d6556902 FILE: psheets .dgn

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
315	*	HANCOCK	40	7
*D-6 BRIDGE PAINTING 2006				



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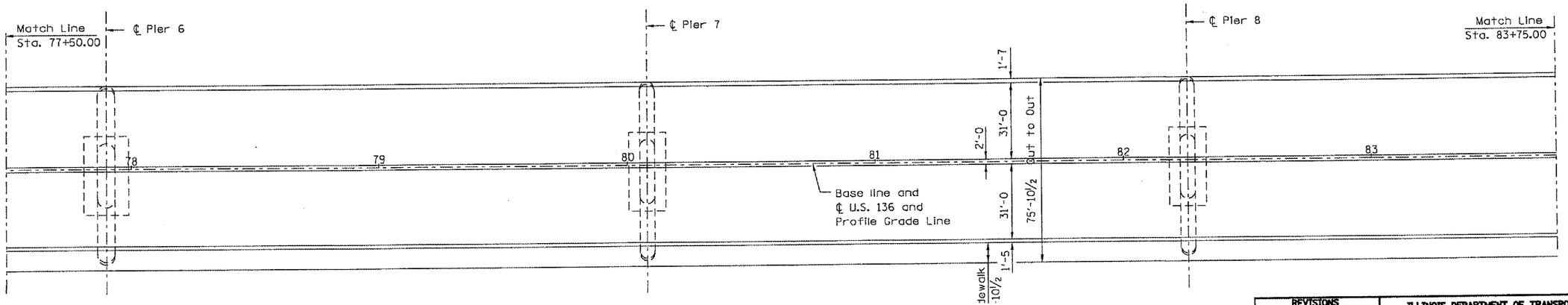

PLAN

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

PLAN AND PROFILE

FAP 315 (US 136)
SECTION D-6 BRIDGE PAINTING 2006
HANCOCK COUNTY

•DGN-SPEC•
•DATE-TIME•
•REF#01

D6 PROJECT: d656902 FILE: psheets .dgn

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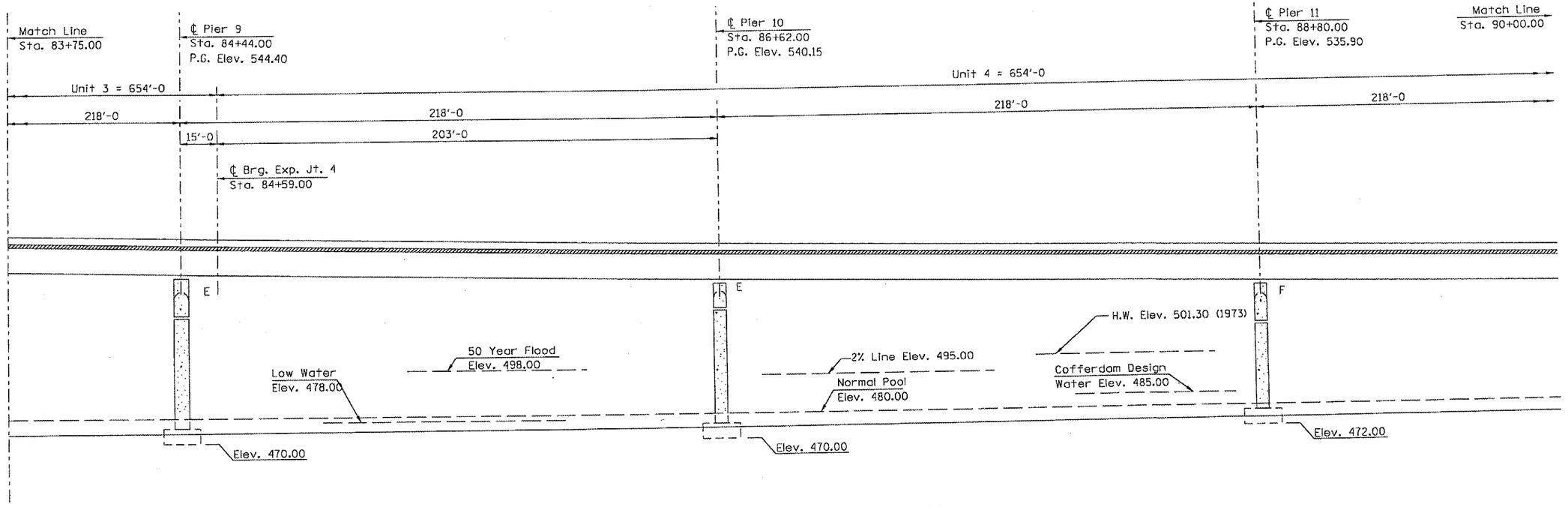
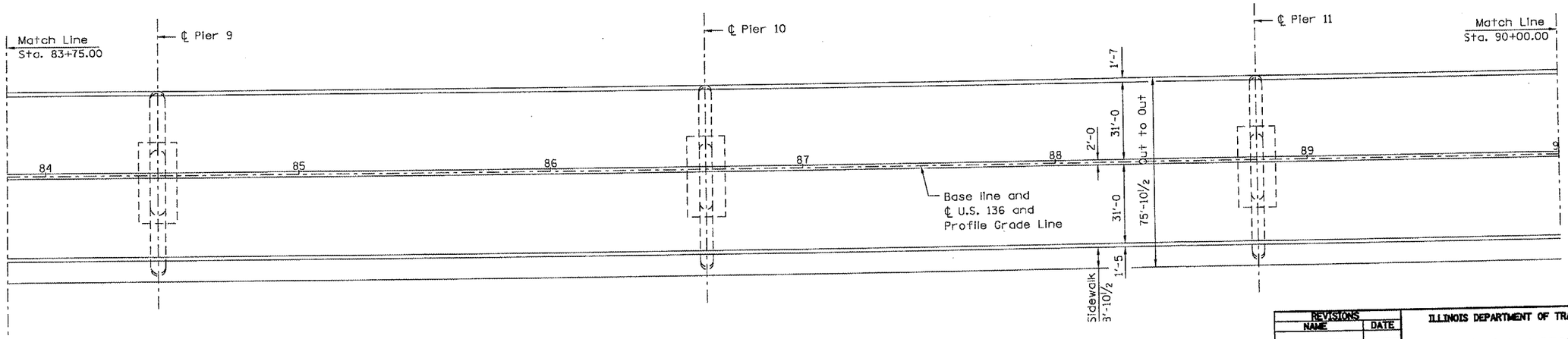
315	*	HANCOCK	40	8
*D-6 BRIDGE PAINTING 2006				



LONGITUDINAL SECTION ALONG ℄ U.S. 136



PLAN

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

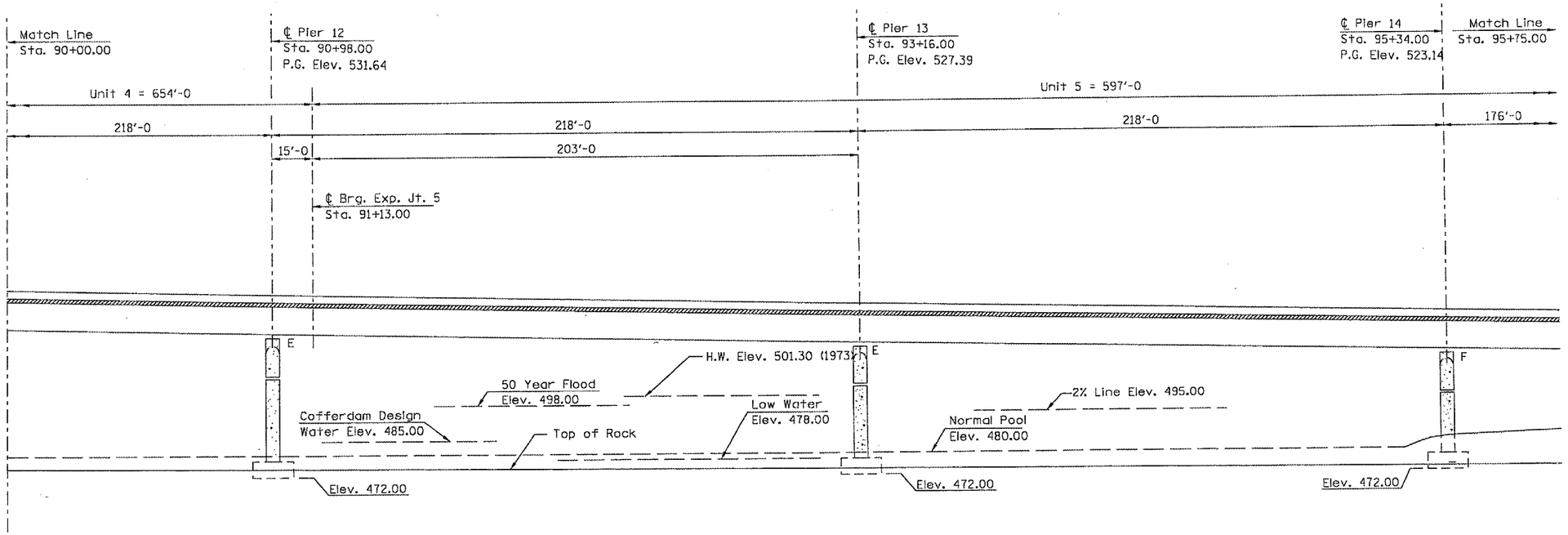
PLAN AND PROFILE

FAP 315 (US 136)
SECTION D-6 BRIDGE PAINTING 2006
HANCOCK COUNTY

DGN-SPEC
DATE-TIME
REF

D6 PROJECT: d656902 FILE: psheets .dgn

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
315	*	HANCOCK	40	9
*D6 BRIDGE PAINTING 2006				



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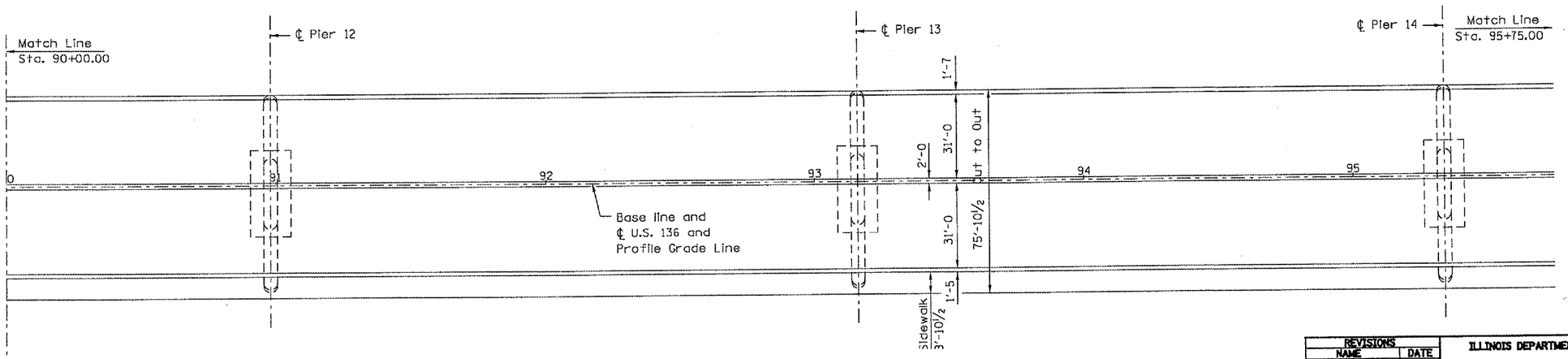


PLAN

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

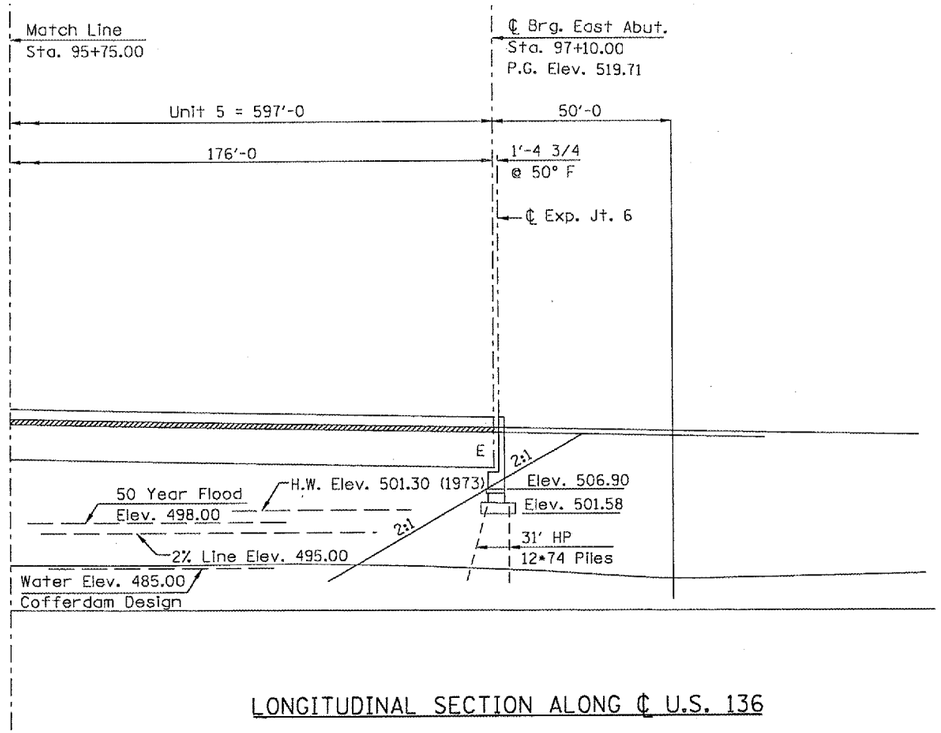
PLAN AND PROFILE

FAP 315 (US 136)
SECTION D-6 BRIDGE PAINTING 2006
HANCOCK COUNTY

DGN-SPEC
DATE-TIME
*REF01

D6 PROJECT: d656902 FILE: psheets .dgn

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
315	*	HANCOCK	40	10
*D-6 BRIDGE PAINTING 2006				



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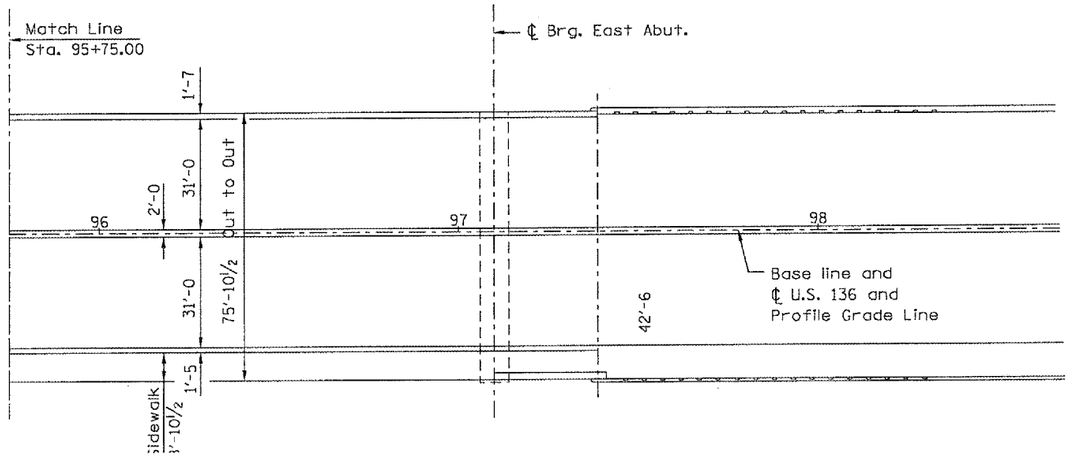


PLAN

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

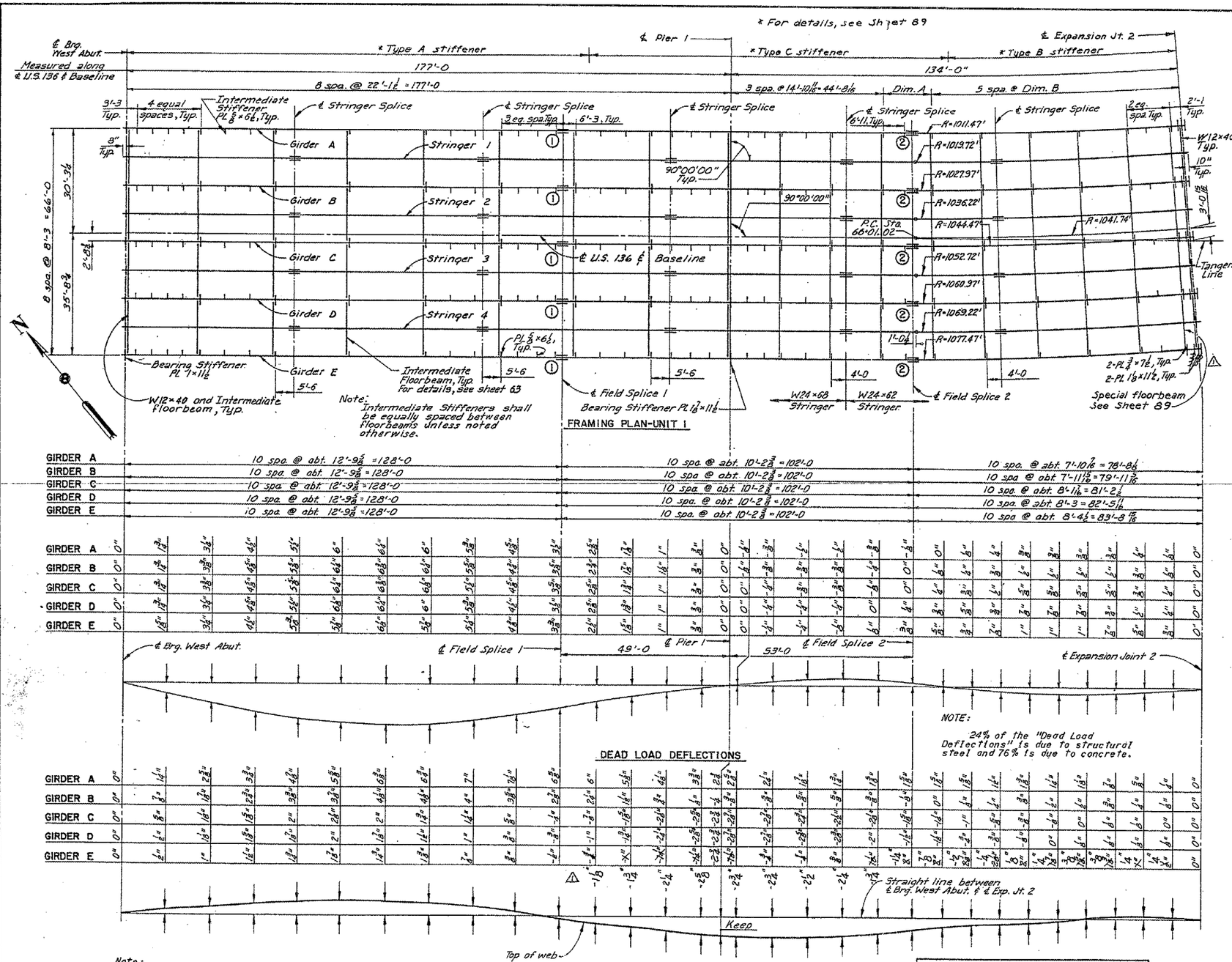
PLAN AND PROFILE

FAP 315 (US 136)
SECTION D-6 BRIDGE PAINTING 2006
HANCOCK COUNTY

DGN-SPEC
DATE-TIME
*REF@1

D6 PROJECT: d656902 FILE: psheets .dgn

FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			11	40
	ILLINOIS				



GIRDER A	10 spa. @ abt. 12'-9⅝ = 128'-0	10 spa. @ abt. 10'-2⅜ = 102'-0	10 spa. @ abt. 7'-10⅛ = 78'-8½
GIRDER B	10 spa. @ abt. 12'-9⅝ = 128'-0	10 spa. @ abt. 10'-2⅜ = 102'-0	10 spa. @ abt. 7'-11⅞ = 79'-11⅞
GIRDER C	10 spa. @ abt. 12'-9⅝ = 128'-0	10 spa. @ abt. 10'-2⅜ = 102'-0	10 spa. @ abt. 8'-1⅛ = 81'-2½
GIRDER D	10 spa. @ abt. 12'-9⅝ = 128'-0	10 spa. @ abt. 10'-2⅜ = 102'-0	10 spa. @ abt. 8'-3 = 82'-5⅛
GIRDER E	10 spa. @ abt. 12'-9⅝ = 128'-0	10 spa. @ abt. 10'-2⅜ = 102'-0	10 spa. @ abt. 8'-4½ = 83'-8 15/16

Note:
Offsets are given at 1/10 points between ℄ brg. West Abutment and Field Splice 1, between Field Splice 1 and 2, and between Field Splice 2 and ℄ Brg. Exp. Jt. 2.

For girders as fabricated and erected diagram, negative values are below the line and positive values are above the line.

GIRDERS AS FABRICATED AND ERECTED DIAGRAM

Notes:
For floorbeam details see Sheet 63.
① denotes type of field splice to be used.
For girder field splice details, see Sheet 63.
For stringer field splice details, see Sheet 66.

TABLE OF DIMENSIONS		
GIRDER	DIM. A	DIM. B
A	14'-8⅞	14'-5½
B	14'-9⅛	14'-6⅝
C	14'-10⅜	14'-11⅛
D	14'-11⅝	15'-1⅝
E	15'-0⅞	15'-4 13/16

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB
MADE JMH DATE 6-82 CHECKED JEL DATE 7-82

6787-25-00

SPECIFICATIONS:

Design stresses for the following materials are in accordance with AASHTO Standard Specifications for Highway Bridges, Series of 1977, and Interim Specifications for 1978, 1979, 1980, 1981 and 1982.

Structural steel in accordance with Section 1.7.52, ASTM A36, f_y = 36,000 psi, ASTM A572 and A588, f_y = 50,000 psi.

Reinforcing steel in accordance with Section 1.5.30, f_y = 60,000 psi.

Concrete in accordance with Section 1.5.30, f'_c = 3,500 psi.

Construction: Standard Specifications of the Iowa Dept. of Transportation Series of 1977, plus current Special Provisions and current Supplemental Specifications.

Welding shall be in accordance with Art. 2408.15.

SUPERSTRUCTURE NOTES:

This bridge is designed HS20-44 and alternate military loading with allowance of 15 lbs. per sq. ft. of future wearing surface.

See Special Provisions for Charpy V-notch (CVN) impact test and preheating for flame cutting requirements.

Girder splices shall be sub-punched or sub-drilled and reamed. Before reaming, all girders shall be assembled for inspection. After inspection, holes shall be reamed and all parts match marked.

All field connections are to be bolted with "High Tensile Strength Bolts" conforming with ASTM A325. The estimated structural steel weight for these connections is based on "High Tensile Strength Bolts." Unless otherwise noted, all open holes are to be $\frac{81}{64}$" ϕ and all bolts are to be ⅞" ϕ.

Bearing surfaces of rockers shall be faced in accordance with Article 2408.24 of Standard Specifications. Masonry plates shall be set on ⅛" lead sheet.

Bearing surfaces of unfinished plates shall be flat and true.

Forms for slab and curbs to be supported by the girders.

Shop painting shall be in accordance with Article 2408.33 of the Standard Specifications.

For shear stud spacing on girders, see Girder Elevation Sheets. Stringers are non-composite.

Stud shear connectors shall be welded in the shop or in the field at the locations shown on the design plans or on approved shop drawings. Weight of shear connectors is included in the structural steel quantities. There shall be no shear connector groups located at the ℄ Bearing Abutments, at the ℄ of piers or at ℄ Expansion Joints.

The design drawings indicate AWS pre-qualified welded joints, shop splices and web-to-flange welds shall be welded by submerged arc process. Alternate joint details may be submitted for approval.

Fill thickness shown on plans are based on the nominal girder dimensions. These thicknesses are to be verified or adjusted during fabrication to secure a close fit. Each fill plate shall fit to the nearest ¼-inch in thickness and single plates are required at any fill location. Girders are to be truly square at splice points and reaction points with flanges perpendicular to webs.

Magnetic particle inspection of welds, in accordance with Article 2408.15 of the Standard Specifications will be required for the bearing stiffener welds of the girders and for the web-to-flange welds of the girder.

An "IRT" shown on the girder elevations indicates the location of a welded flange butt splice in a tension or reversal stress area. All welded flange or web butt splices, in tension or reversal stress areas, shall be inspected according to Art. 6.7.1.1 of the Supplemental Specification No. 888. All other unmarked welded flange or web butt splices shall be tested according to Art. 6.7.1.2. At the contractor's option negative moment girder flange plates may be extended to eliminate intervening butt welds. Pay weight in any case will be based upon materials shown in these design plans.

For intermediate and bearing stiffener details see sheet 89.
Shop laydown for stringers is not required.

Unless otherwise noted, all structural steel shall be A36. The bid weight for A36 shall include all material not specified to be bid as A588 or A572.

Slab top transverse reinforcing steel shall be parallel to and 2½" clear below top of slab. Slab bottom transverse reinforcing steel shall be parallel to and 1" clear above bottom of slab. Top and bottom reinforcing steel is to be supported by individual metal bar chairs spaced no more than 3'-0" centers longitudinally and transversely or continuous type bar chairs at 4'-0" centers.

Minimum clear distance, from edge of reinforcing bar to face of concrete shall be 2" unless otherwise noted or shown.

CURVE DATA
P. I. Sta. 69+14.85
Δ = 33°31'48.3"
D = 5°30'00.0"
T = 313.83
L = 609.64
E = 46.24
R = 1041.74

Note:
All stringers shall be heat curved.

Revised (12-8-83) Camber diagram for Girder E & bearing stiffeners @ Exp. Jt 2 corrected as marked by ⚠.

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE
FRAMING PLAN AND DEFLECTIONS
UNIT 1

STA. 80+40.00
RIVER MILE 383.5
LEE COUNTY, IOWA
PROJECT NO. BRF-19-1(3)--38-56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 62 OF

FOR INFORMATION ONLY

FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			12	40
	ILLINOIS				

SPAN LENGTHS

	℄ Brg. West Abutment → ℄ Pier 1	℄ Pier 1 → ℄ Brg. Exp. Joint 2
GIRDER A	177'-0	1311-8 1/4
GIRDER B	177'-0	1321-11 15/16
GIRDER C	177'-0	1341-2 1/2
GIRDER D	177'-0	1351-5 11/16
GIRDER E	177'-0	1361-8 15/16

FIELD SPLICES

	℄ Brg. West Abutment → ℄ Field Splice 1	℄ Field Splice 1 → ℄ Pier 1	℄ Pier 1 → ℄ Field Splice 2	℄ Field Splice 2 → ℄ Brg. Exp. Joint 2
GIRDER A	128'-0	491'-0	531'-0	781-8 1/4
GIRDER B	128'-0	491'-0	531'-0	791-11 5/16
GIRDER C	128'-0	491'-0	531'-0	811-2 1/2
GIRDER D	128'-0	491'-0	531'-0	821-5 11/16
GIRDER E	128'-0	491'-0	531'-0	831-8 15/16

SHEAR CONNECTOR SPACING

	℄ Brg. West Abutment → ℄ Field Splice 1	℄ Field Splice 1 → ℄ Pier 1	℄ Pier 1 → ℄ Field Splice 2	℄ Field Splice 2 → ℄ Brg. Exp. Joint 2
GIRDER A	1'-10 28 spa. @ 13"=30'-4, 36 spa. @ 1'-6=54'-0	37 spa. @ 13"=40'-1, 1'-9, 1'-9 20 spa. @ 2'-0=40'-0, 7'-3	7'-3, 22 spa. @ 2'-0=44'-0, 1'-9, 1'-9	42 spa. @ 14"=49'-0, 25 spa. @ 12"=25'-0, 2'-11
GIRDER B	1'-10 28 spa. @ 13"=30'-4, 36 spa. @ 1'-6=54'-0	37 spa. @ 13"=40'-1, 1'-9, 1'-9 20 spa. @ 2'-0=40'-0, 7'-3	7'-3, 22 spa. @ 2'-0=44'-0, 1'-9, 1'-9	43 spa. @ 14"=50'-2, 25 spa. @ 12"=25'-0, 3'-0 1/2
GIRDER C	1'-10 28 spa. @ 13"=30'-4, 36 spa. @ 1'-6=54'-0	37 spa. @ 13"=40'-1, 1'-9, 1'-9 20 spa. @ 2'-0=40'-0, 7'-3	7'-3, 22 spa. @ 2'-0=44'-0, 1'-9, 1'-9	44 spa. @ 14"=51'-4, 25 spa. @ 12"=25'-0, 3'-1 1/2
GIRDER D	1'-10 28 spa. @ 13"=30'-4, 36 spa. @ 1'-6=54'-0	37 spa. @ 13"=40'-1, 1'-9, 1'-9 20 spa. @ 2'-0=40'-0, 7'-3	7'-3, 22 spa. @ 2'-0=44'-0, 1'-9, 1'-9	45 spa. @ 14"=52'-6, 25 spa. @ 12"=25'-0, 3'-2 1/16
GIRDER E	1'-10 28 spa. @ 13"=30'-4, 36 spa. @ 1'-6=54'-0	37 spa. @ 13"=40'-1, 1'-9, 1'-9 20 spa. @ 2'-0=40'-0, 7'-3	7'-3, 22 spa. @ 2'-0=44'-0, 1'-9, 1'-9	44 spa. @ 14"=51'-4, 28 spa. @ 12"=28'-0, 2'-7 15/16

TOP FLANGE PLATE

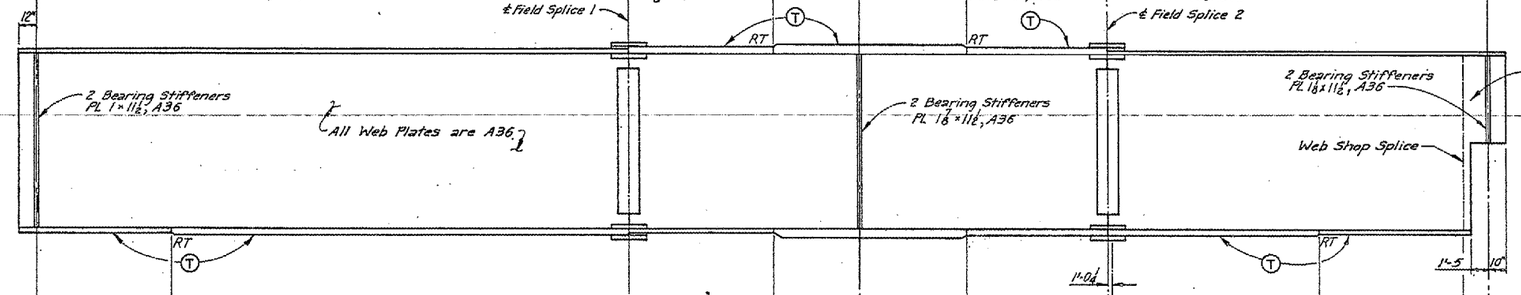
	℄ Brg. West Abutment → ℄ Field Splice 1	℄ Field Splice 1 → ℄ Pier 1	℄ Pier 1 → ℄ Field Splice 2	℄ Field Splice 2 → ℄ Brg. Exp. Joint 2
GIRDER A	128'-0 PL 1 1/4 × 18, A572	31'-0 PL 1 1/8 × 24, A572; 18'-0 PL 2 × 36, A572	23'-0 PL 2 × 36, A572; 30'-0 PL 1 1/8 × 24, A572	78'-8 1/4 PL 1 × 18, A572
GIRDER B	128'-0 PL 1 1/4 × 18, A572	31'-0 PL 1 1/8 × 24, A572; 18'-0 PL 2 × 36, A572	23'-0 PL 2 × 36, A572; 30'-0 PL 1 1/8 × 24, A572	79'-11 5/16 PL 1 × 18, A572
GIRDER C	128'-0 PL 1 1/4 × 18, A572	31'-0 PL 1 1/8 × 24, A572; 18'-0 PL 2 × 36, A572	23'-0 PL 2 × 36, A572; 30'-0 PL 1 1/8 × 24, A572	81'-2 1/2 PL 1 × 18, A572
GIRDER D	128'-0 PL 1 1/4 × 18, A572	31'-0 PL 1 1/8 × 24, A572; 18'-0 PL 2 × 36, A572	23'-0 PL 2 × 36, A572; 30'-0 PL 1 1/8 × 24, A572	82'-5 11/16 PL 1 × 18, A572
GIRDER E	128'-0 PL 1 1/4 × 18, A572	31'-0 PL 1 1/8 × 24, A572; 18'-0 PL 2 × 36, A572	23'-0 PL 2 × 36, A572; 30'-0 PL 1 1/8 × 24, A572	83'-8 15/16 PL 1 × 18, A572

BOTTOM FLANGE PLATE

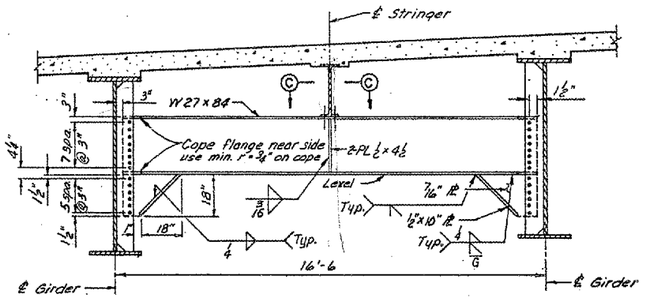
	℄ Brg. West Abutment → ℄ Field Splice 1	℄ Field Splice 1 → ℄ Pier 1	℄ Pier 1 → ℄ Field Splice 2	℄ Field Splice 2 → ℄ Brg. Exp. Joint 2
GIRDER A	29'-0 PL 1 1/4 × 24, A572; 99'-0 PL 1 1/8 × 24, A572	31'-0 PL 1 1/8 × 24, A572; 18'-0 PL 2 1/8 × 24, A588; 23'-0 PL 2 1/8 × 24, A588	30'-0 PL 1 1/8 × 24, A572; 43'-8 5/8 PL 1 1/8 × 24, A572	34'-11 1/2 PL 1 1/8 × 24, A572
GIRDER B	29'-0 PL 1 1/4 × 24, A572; 99'-0 PL 1 1/8 × 24, A572	31'-0 PL 1 1/8 × 24, A572; 18'-0 PL 2 1/8 × 24, A588; 23'-0 PL 2 1/8 × 24, A588	30'-0 PL 1 1/4 × 24, A572; 44'-4 15/16 PL 1 1/8 × 24, A572	35'-6 3/8 PL 1 1/8 × 24, A572
GIRDER C	29'-0 PL 1 1/4 × 24, A572; 99'-0 PL 1 1/8 × 24, A572	31'-0 PL 1 1/8 × 24, A572; 18'-0 PL 2 1/8 × 24, A588; 23'-0 PL 2 1/8 × 24, A588	30'-0 PL 1 1/4 × 24, A572; 45'-1 1/16 PL 1 1/8 × 24, A572	36'-1 5/16 PL 1 1/8 × 24, A572
GIRDER D	29'-0 PL 1 1/4 × 24, A572; 99'-0 PL 1 1/8 × 24, A572	31'-0 PL 1 1/8 × 24, A572; 18'-0 PL 2 1/8 × 24, A588; 23'-0 PL 2 1/8 × 24, A588	30'-0 PL 1 1/4 × 24, A572; 45'-1 9/16 PL 1 1/8 × 24, A572	36'-7 3/8 PL 1 1/8 × 24, A572
GIRDER E	29'-0 PL 1 1/4 × 24, A572; 99'-0 PL 1 1/8 × 24, A572	31'-0 PL 1 1/8 × 24, A572; 18'-0 PL 2 1/8 × 24, A588; 23'-0 PL 2 1/8 × 24, A588	30'-0 PL 1 1/4 × 24, A572; 46'-6 1/4 PL 1 1/8 × 24, A572	37'-2 11/16 PL 1 1/8 × 24, A572

WEB PLATE

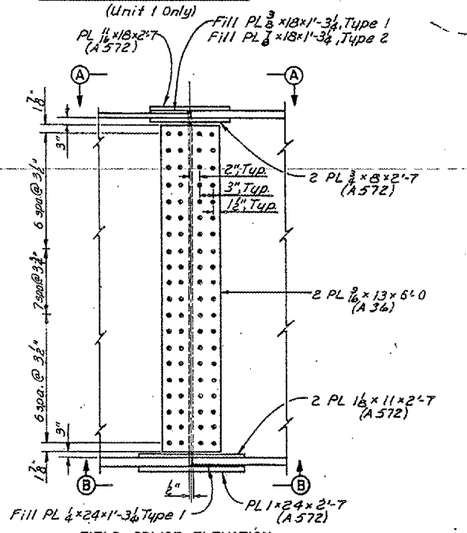
	℄ Brg. West Abutment → ℄ Field Splice 1	℄ Field Splice 1 → ℄ Pier 1	℄ Pier 1 → ℄ Field Splice 2	℄ Field Splice 2 → ℄ Brg. Exp. Joint 2	
GIRDER A	128'-0 PL 3/8 × 78	491'-0 PL 3/4 × 78	531'-0 PL 3/4 × 78	73'-11 1/8 PL 3/8 × 78	41-9
GIRDER B	128'-0 PL 5/8 × 78	491'-0 PL 3/4 × 78	531'-0 PL 3/4 × 78	75'-2 5/8 PL 5/8 × 78	41-9
GIRDER C	128'-0 PL 5/8 × 78	491'-0 PL 3/4 × 78	531'-0 PL 3/4 × 78	76'-5 1/2 PL 3/8 × 78	41-9
GIRDER D	128'-0 PL 5/8 × 78	491'-0 PL 3/4 × 78	531'-0 PL 3/4 × 78	77'-8 11/16 PL 3/8 × 78	41-9
GIRDER E	128'-0 PL 3/8 × 78	491'-0 PL 3/4 × 78	531'-0 PL 3/4 × 78	78'-11 15/16 PL 3/8 × 78	41-9



GIRDER ELEVATION



INTERMEDIATE FLOORBEAM
(Unit 1 Only)



FIELD SPLICE ELEVATION
(TYPES 1 & 2)

Note:

Two fill plates 15 gage x 6 x 6'-3 are required for web splices, Types 1 and 2.

(T) denotes tension flange plate.

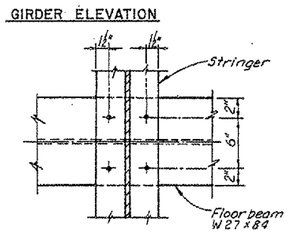
NOTES:

For "Shear Connector Detail" see Sheet 84

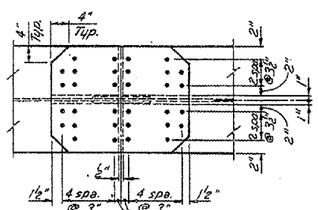
The weight of shear connectors are included in the Structural Steel Quantities.

There shall be no shear connector groups located at the ℄ of piers nor at ℄ Brg. Exp. Jt. and at field splices.

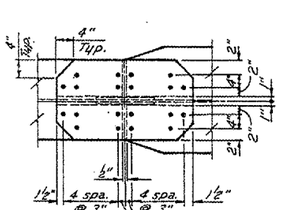
For girder end details see Sheet 88.



SECTION C-C



VIEW B-B



VIEW A-A

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE RCC DATE 6-82 | CHECKED LCY DATE 7-82

6767-25-00

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

GIRDER ELEVATION — UNIT 1

STA. 80+40.00
RIVER MILE 363.9
LEE COUNTY, IOWA

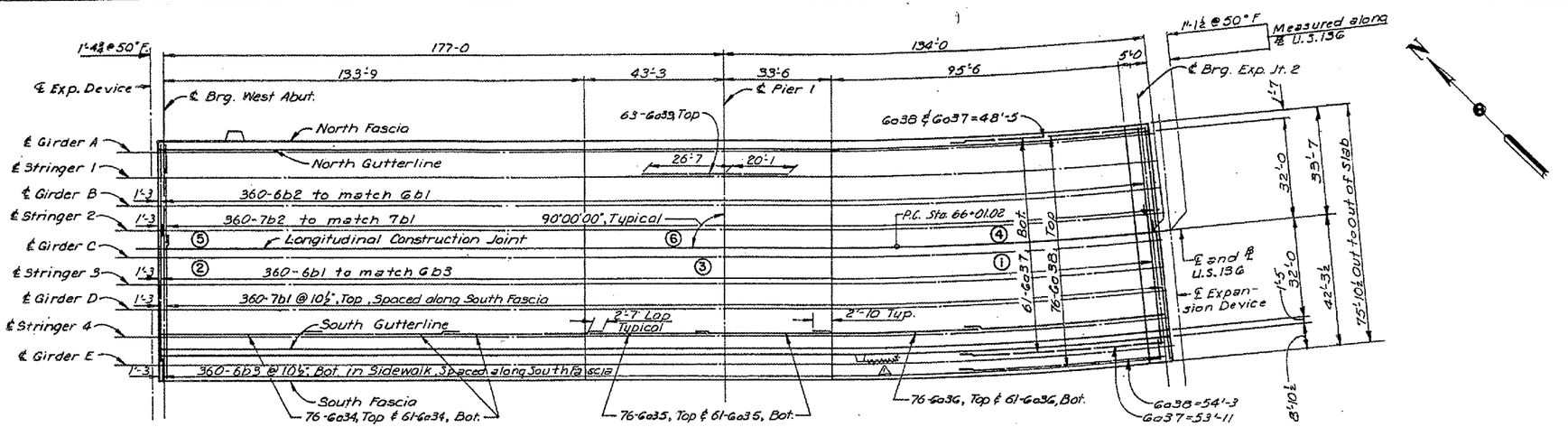
PROJECT NO. BRF-19-1(3)--38-56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 63 OF

DESIGN NO. [illegible] LEE COUNTY FILE 26723 SHEET 69 OF 227

FOR INFORMATION ONLY

FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			13	40
	ILLINOIS				



CONCRETE PLACEMENT AND SLAB REINFORCEMENT PLAN – UNIT 1

TOP OF CONCRETE PAVEMENT ELEVATIONS UNIT 1

LOCATION	W. Abut.	.10	.20	.30	.40	.50	.60	.70	.80	.90	FS 1	.10	.20	.30	.40	.50	.60	.70	.80	.90	FS 2	.10	.20
Girder A	566.17	565.97	565.79	565.62	565.47	565.33	565.21	565.11	565.01	564.92	564.81	564.70	564.57	564.43	564.29	564.14	564.00	563.86	563.71	563.57	563.42	563.31	563.19
Stringer 1	566.34	566.14	565.96	565.79	565.64	565.50	565.38	565.27	565.18	565.09	564.99	564.89	564.78	564.66	564.54	564.42	564.30	564.18	564.05	563.93	563.81	563.71	563.62
Girder B	566.50	566.30	566.12	565.95	565.80	565.67	565.54	565.44	565.34	565.26	565.17	565.08	564.99	564.89	564.79	564.70	564.60	564.50	564.40	564.30	564.20	564.12	564.04
Stringer 2	566.67	566.47	566.29	566.12	565.97	565.83	565.71	565.60	565.51	565.43	565.34	565.27	565.20	565.12	565.05	564.97	564.90	564.82	564.74	564.67	564.59	564.53	564.47
Girder C	566.74	566.55	566.38	566.22	566.07	565.95	565.83	565.74	565.65	565.58	565.52	565.46	565.41	565.36	565.30	565.25	565.19	565.14	565.09	565.03	564.98	564.94	564.89
Stringer 3	566.62	566.46	566.31	566.18	566.07	565.97	565.88	565.81	565.76	565.72	565.68	565.65	565.62	565.59	565.55	565.52	565.49	565.46	565.43	565.40	565.37	565.34	565.32
Girder D	566.50	566.36	566.25	566.15	566.06	565.99	565.93	565.89	565.87	565.85	565.84	565.83	565.83	565.82	565.81	565.80	565.79	565.78	565.77	565.76	565.76	565.75	565.74
Stringer 4	566.38	566.27	566.18	566.11	566.05	566.01	565.98	565.97	565.97	565.99	566.01	566.02	566.03	566.05	566.06	566.08	566.09	566.10	566.12	566.13	566.14	566.16	566.17
Girder E	566.26	566.18	566.12	566.08	566.05	566.03	566.03	566.05	566.08	566.12	566.17	566.21	566.24	566.28	566.31	566.35	566.39	566.42	566.46	566.50	566.53	566.56	566.59

TOP OF CONCRETE PAVEMENT ELEVATIONS UNIT 1

LOCATION	.30	.40	.50	.60	.70	.80	.90	Exp. Jt.
Girder A	563.08	562.96	562.85	562.74	562.62	562.51	562.39	562.28
Stringer 1	563.52	563.42	563.33	563.23	563.13	563.04	562.94	562.85
Girder B	563.96	563.89	563.81	563.73	563.65	563.57	563.49	563.41
Stringer 2	564.41	564.35	564.29	564.22	564.16	564.10	564.04	~~564.38~~
Girder C	564.85	564.81	564.76	564.72	564.68	564.64	564.59	564.55
Stringer 3	565.29	565.27	565.24	565.22	565.19	565.17	565.14	565.12
Girder D	565.74	565.73	565.72	565.71	565.71	565.70	565.69	~~565.79~~
Stringer 4	566.18	566.19	566.20	566.21	566.22	566.23	566.24	566.25
Girder E	566.62	566.65	566.68	566.71	566.74	566.77	566.79	566.82

5G3.98 ⚠ 5G5.69 ⚠

BENCH MARKS

PMB No. 2 Found chiseled "□" in T/Conc. @ east end of retaining wall, south side of Highway 136, east end of Keokuk-Hamilton River Bridge. Elev. 505.06

PMB No. 6 S.E. corner of light base on the N.W. corner of the intersection of Water and Main Street in Keokuk. Elev. 509.32

PMB No. 7 S.E. corner — base of traffic light — N.E. corner of 3rd and Main in Keokuk. Elev. 579.17 ⚠ preferably

CURVE DATA

P. I. Sta. 69+14.85
Δ = 33°31'48.3"
D = 5°30'00.0"
T = 313.83
L = 609.64
E = 46.24
R = 1041.74

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Structural Concrete (Class D)	Cu. Yds.	648.7
Reinforcing Steel - Non Epoxy Coated	Lbs.	73,378
Reinforcing Steel - Epoxy Coated*	Lbs.	120,029
Structural Steel - A36	Lbs.	550,143
Structural Steel - A572	Lbs.	358,661
Structural Steel - A588	Lbs.	48,093
N. and S. Barrier Rail	Lin. Ft.	626.4
Median Barrier Rail	Lin. Ft.	313.2

*Includes 240 lbs. of reinforcing steel in light blisters, and 400 lbs. of reinforcing steel at drainage inlets.

Notes:
Roadway slab shall be placed in sections and in the sequence indicated by circled numbers at intervals not exceeding 24 hours.
Alternate pocedures for placing concrete may be submitted for approval together with a statement of the proposed method and evidence that the contractor possesses the necessary equipment and facilities to accomplish the required results.
The transverse construction joints shall be placed parallel to the adjacent ℄ pier.
For detail of slab construction joint, see Sheet 65
For detail of longitudinal bar spacing, see Sheet 65
For "Light Pole Base Details", see Sheet 106
For "Drain Details", see Sheet 98 and 99
For location of drains see Sheet 24 and 25
"Top of Concrete Pavement Elevations" are shown at 1/10 points between Exp. Jt. 1 and F.S. 1 at 1/10 points between Exp. Jts. and at 1/10 points between F.S. 2 and Exp. Jt. 2.
F.S. denotes Field Splice.
Exp. Jt. denotes Expansion Joint.
5'-0 each side of Joint 2 shall be poured after both Unit 1 and 2 are completed and expansion joint is in place.

CONCRETE PLACEMENT QUANTITIES

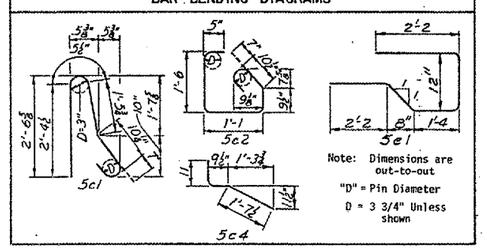
UNIT 1

POUR	CU. YDS.
1	116.4
2	151.4
3	87.6
4	94.2
5	126.1
6	72.7
Light Blister	.3
Total	648.7

BILL OF REINFORCEMENT

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
		NON-EPOXY COATED BARS			
6a34	Longitudinal	——	183	47'-7	13,079
6a35	Longitudinal	——	122	39'-6	7,238
6a36	Longitudinal	——	61	55'-4	5,070
6a37	Longitudinal	——	61	Varies	4,688
6b1	Transverse	——	360	44'-5	24,017
6b2	Transverse	——	360	29'-3	15,816
6b3	Transverse	——	360	6'-5	3,470
		TOTAL			73,378
		EPOXY COATED BARS			
6a34	Longitudinal	——	228	47'-7	16,295
6a35	Longitudinal	——	152	39'-6	9,018
6a36	Longitudinal	——	76	55'-4	6,316
6a38	Longitudinal	——	76	Varies	5,960
6a39	Long. over Piers	——	63	46'-8	4,416
7b1	Transverse	——	360	45'-3	33,297
7b2	Transverse	——	360	33'-9	24,835
5c1	Curb, Transverse	⌐	625	5'-9	3,748
5c2	Curb, Transverse	⌐	625	5'-3	3,422
5c3	Curb, Transverse	——	626	2'-7	1,687
5c4	Curb, Transverse	⌐	626	3'-4	2,176
5d6	Curb, Longitudinal	——	49	45'-11	2,347
5d7	Curb, Longitudinal	——	49	46'-4	2,368
5d8	Curb, Longitudinal	——	49	45'-7	2,330
5e1	End Beam	⌐	112	7'-7	886
5e2	End Beam	——	48	7'-9	388
		TOTAL			119,389

BAR BENDING DIAGRAMS



MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE
SLAB PLAN - UNIT 1

STA. 80+40.00
RIVER MILE 363.9
LEE COUNTY, IOWA

PROJECT NO. BRF-19-1(3)--38-56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 64 OF

DESIGN NO. 282 LEE COUNTY FILE 25723 SHEET 70 OF 227

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE RCC DATE 6-82 CHECKED DLM DATE 7-82

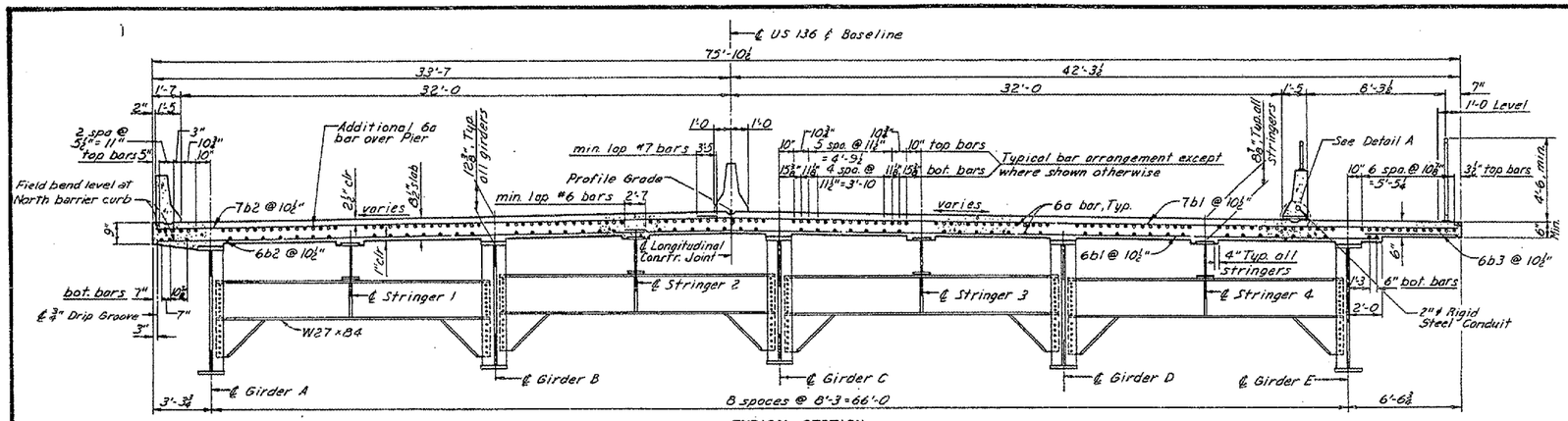
Revised (12-8-83) Top of concrete pavement elevations corrected as marked by ⚠

Revision (5-31-83) Telephone conduit base deleted & 1st paragraph of Notes revised as marked by ⚠.

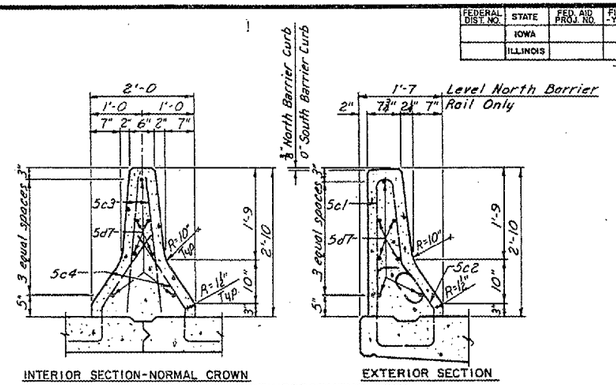
6767-25-00

FOR INFORMATION ONLY

FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			14	40
	ILLINOIS				



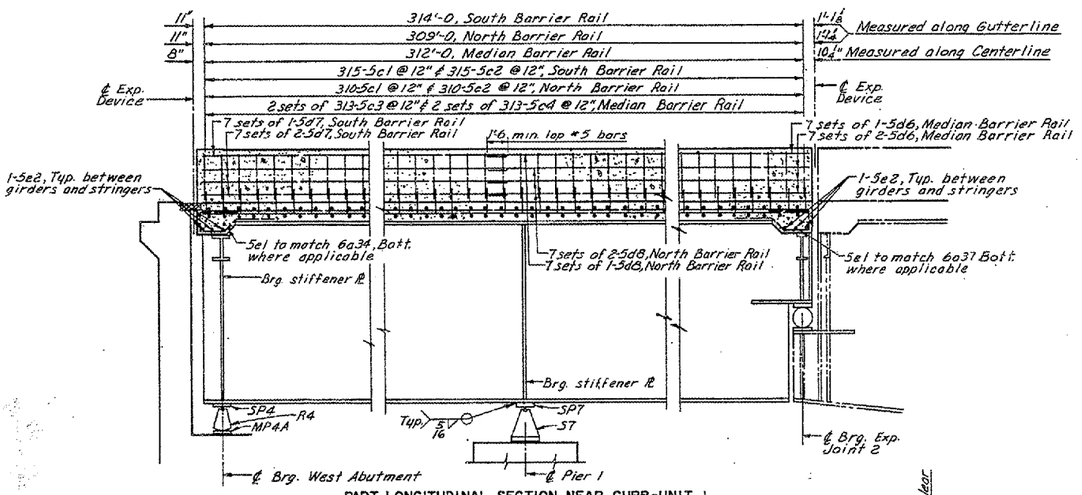
TYPICAL SECTION
(Normal Crown Shown)



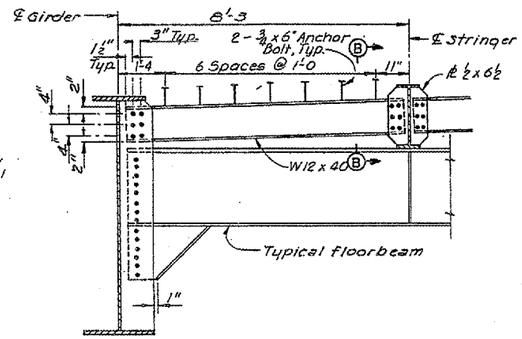
INTERIOR SECTION-NORMAL CROWN

EXTERIOR SECTION

BARRIER RAIL REINFORCEMENT DETAILS

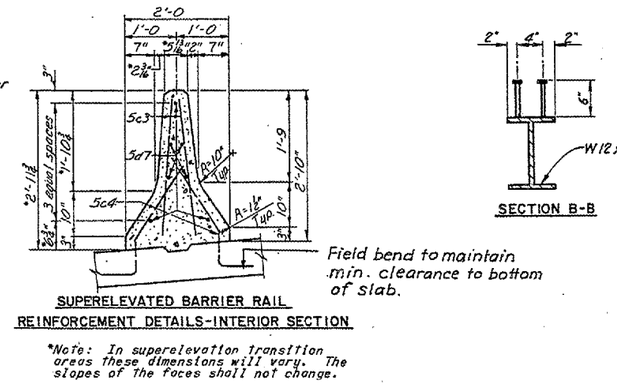


PART LONGITUDINAL SECTION NEAR CURB-UNIT I



END DIAPHRAGM AT WEST ABUTMENT
(East Abutment similar)

For floorbeam details see Sheet 63.



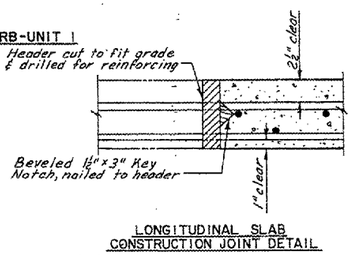
Field bend to maintain min. clearance to bottom of slab.

SUPERELEVATED BARRIER RAIL REINFORCEMENT DETAILS-INTERIOR SECTION

*Note: In superelevation transition areas these dimensions will vary. The slopes of the faces shall not change.

SECTION B-B

MEDIAN CURB CONCRETE QUANTITIES		
CONCRETE	313.2 ft X .1055 Cu.Yd/ft	33.0 Cu.Yd.



LONGITUDINAL SLAB CONSTRUCTION JOINT DETAIL
(Transverse slab construction joint similar except for bar detail)

TYPICAL ROCKER SETTINGS UNIT I					
	WEST ABUTMENT		PIER I	EXPANSION JOINT	
Temperature at Time of Setting					
90° F	1⅝"	+3/16"	0"	+1 1/16"	7 3/16"
50° F	2⅜"	0"	0"	0"	9 1/16"
10° F	3⅛"	-3/16"	0"	-1 1/16"	11 1/16"

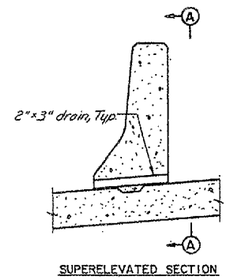
NOTES:

Rockers are to be set vertically at 50° F.

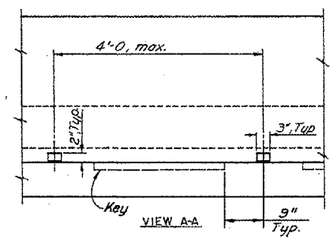
For temperatures above 50° F set masonry plate toward fixed shoe (+).

For temperatures below 50° F set masonry plate away from fixed shoe (-).

Settings for other temperatures are proportional to those shown for a 40° temperature change.



SUPERELEVATED SECTION



DETAIL A
(Sta. 64+50.00 thru Sta. 73+50.00)

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE JMH DATE 5-82 CHECKED DLM DATE 7-82

6767-25-00

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' x 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

SLAB DETAILS-UNIT I

STA. 80+30.00
RIVER MILE 363.9
LEE COUNTY, IOWA

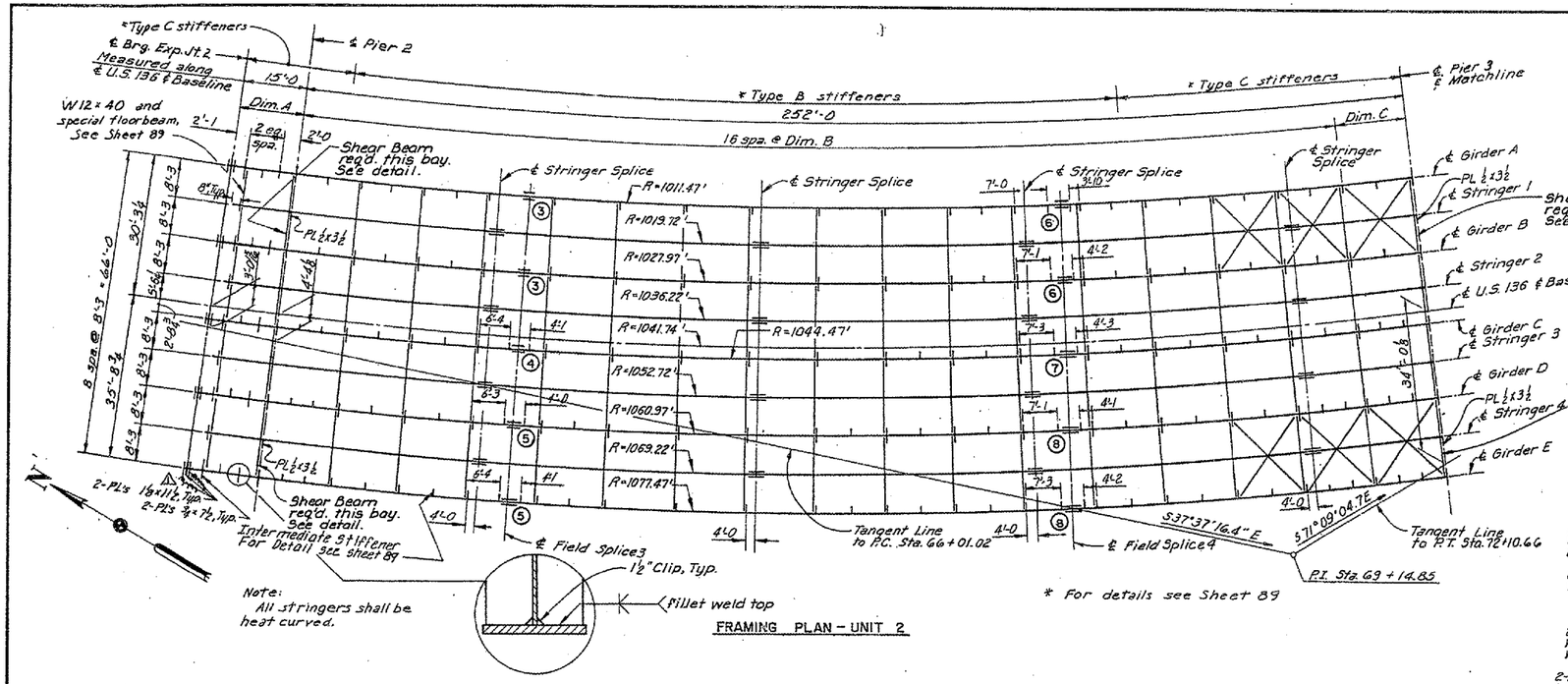
PROJECT NO. BRF-19-1(3)--38--56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 65 OF

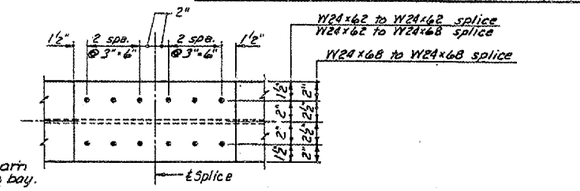
DESIGN NO. 282 LEE COUNTY FILE 26723 SHEET 71 OF 227

FOR INFORMATION ONLY

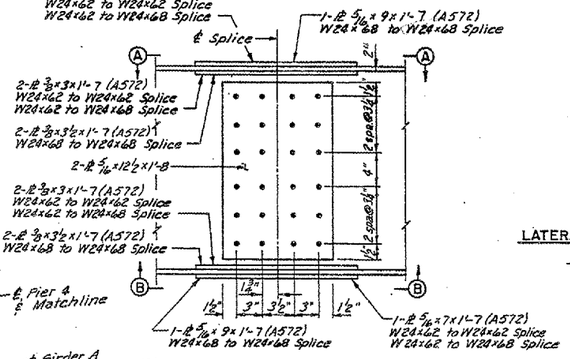
FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			15	40
	ILLINOIS				

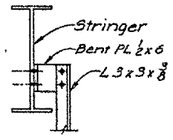


GIRDER	DIM. A	DIM. B	DIM. C	DIM. D	DIM. E
A	14'-6⅜	14'-4 11/16	14'-5⅛	14'-3⅞	14'-6⅜
B	14'-9⅛	14'-7 11/16	14'-7	14'-6 11/16	14'-6⅜
C	15'-0 1/16	14'-10⅛	14'-9 13/16	14'-9 11/16	14'-9⅛
D	15'-3 5/16	15'-1 13/16	15'-0 13/16	15'-0¼	14'-11⅝
E	15'-6⅜	15'-4	15'-3⅞	15'-3 1/16	15'-2 1/16



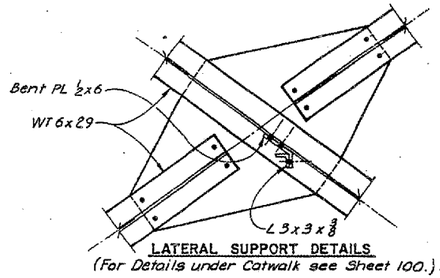
VIEW A-A & B-B



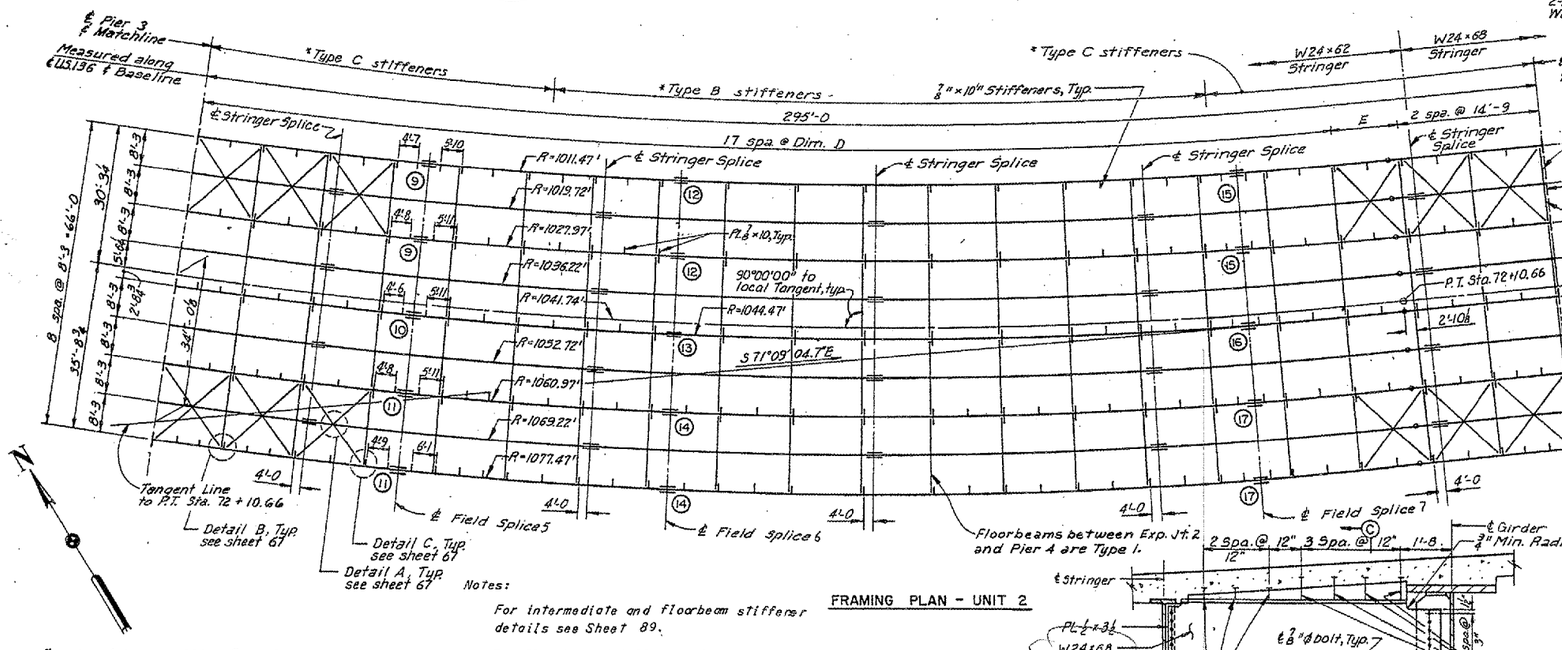


LATERAL SUPPORT DETAILS AT STRINGER

STRINGER SPLICE



LATERAL SUPPORT DETAILS
(For Details under Catwalk see Sheet 100.)

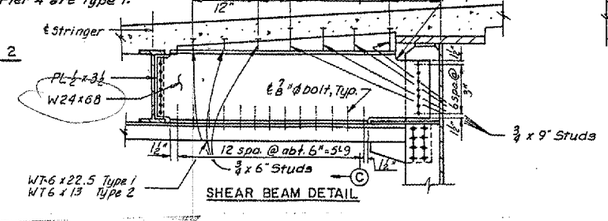


Revised (12-8-83) Bearing stiffeners @ Exp Jt #2 corrected as marked by △.

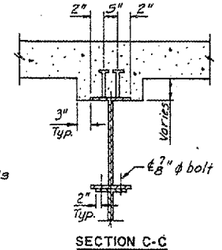
Notes:
For intermediate and floorbeam stiffener details see Sheet 89.
For floorbeam details see Sheet 67
⑫ denotes type of field splice to be used.
For girder field splice details see Sheet 73
Intermediate stiffeners shall be equally spaced between floorbeams unless noted otherwise.

FRAMING PLAN – UNIT 2

CURVE DATA
P. I. Sta. 69+14.85
Δ = 33°31'48.3"
D = 5°30'00.0"
T = 313.83'
L = 609.64'
E = 46.24'
R = 1041.74'



SHEAR BEAM DETAIL



SECTION C-C

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB
MADE LCY DATE 7-82 CHECKED JMH DATE 8-82

6767-25-00

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA – HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE
FRAMING PLAN–UNIT 2

STA. 80+40.00
RIVER MILE 383.9
LEE COUNTY, IOWA
PROJECT NO. BRF-19-1(3)--38-56
HANCOCK COUNTY, ILLINOIS

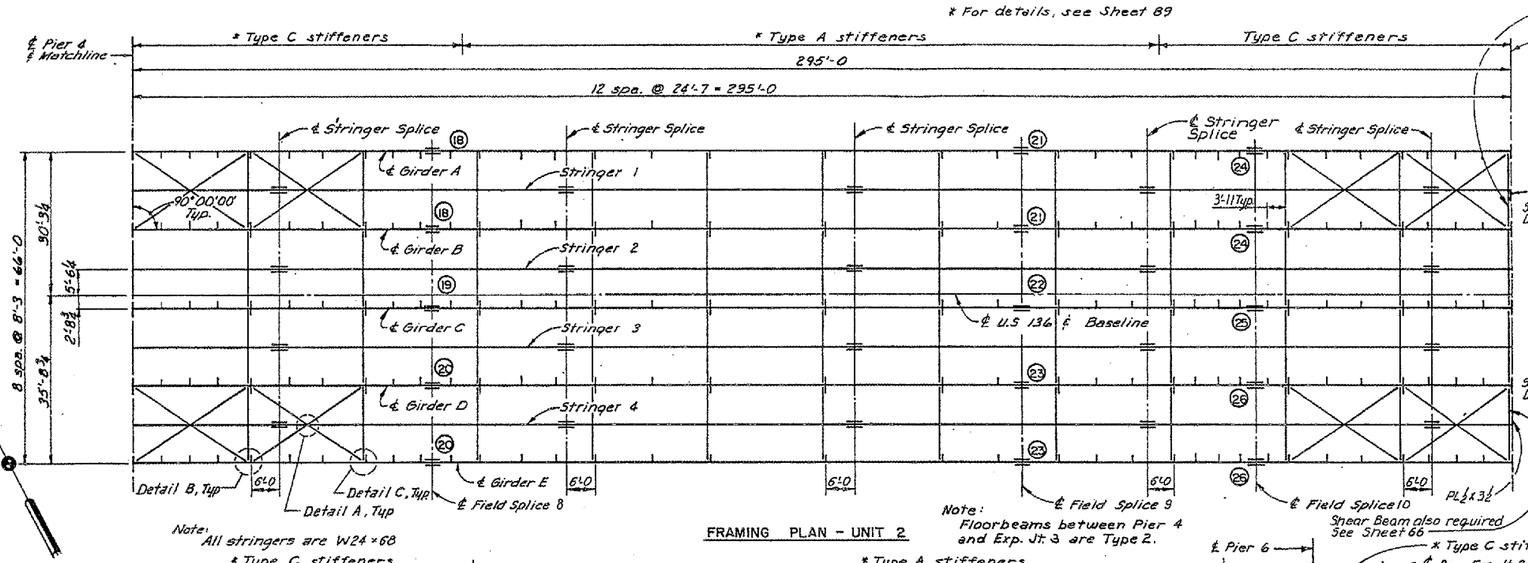
DESIGN SHEET 66 OF

DESIGN NO. 282 LEE COUNTY FILE 26723 SHEET 72 OF 277

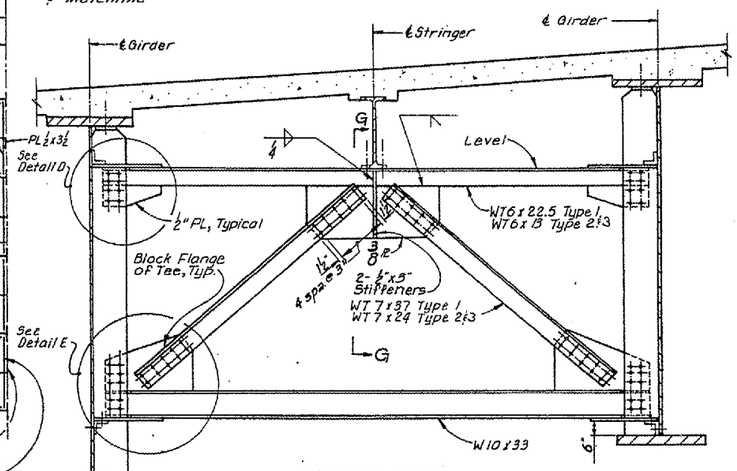
FOR INFORMATION ONLY

FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			16	40
	ILLINOIS				

* For details, see Sheet 89

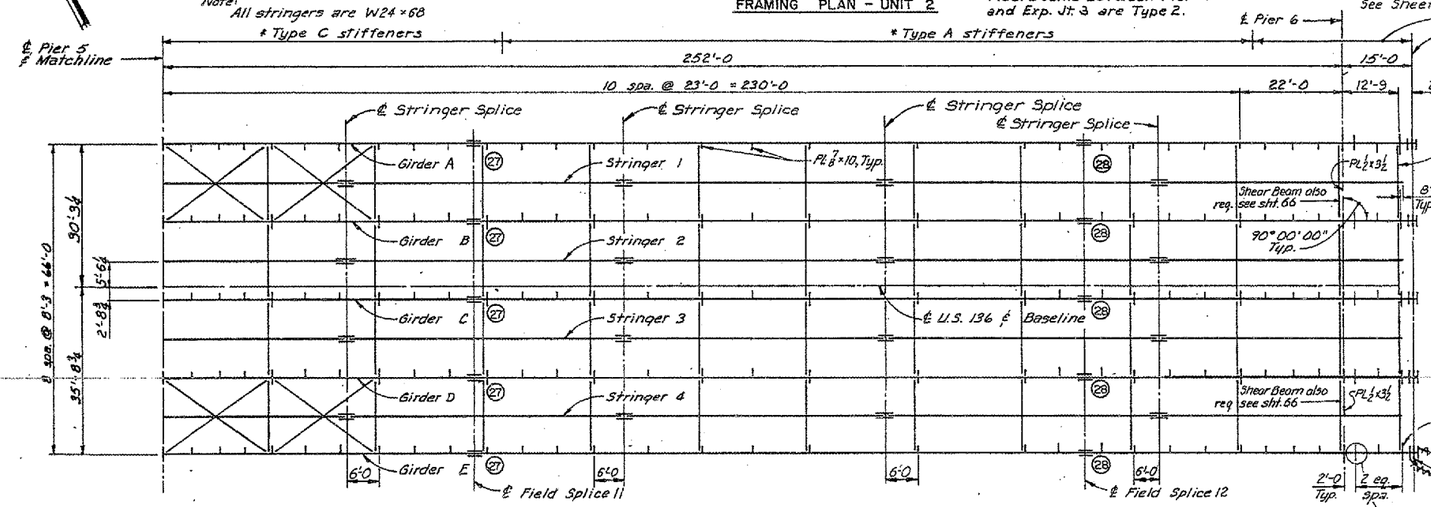


FRAMING PLAN – UNIT 2

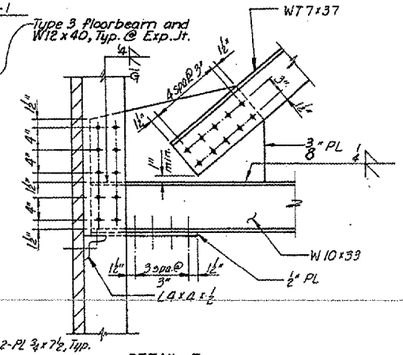


FLOORBEAM UNIT 2
(Types 1, 2 ℄ 3)

See Section G-G on Sh. 75

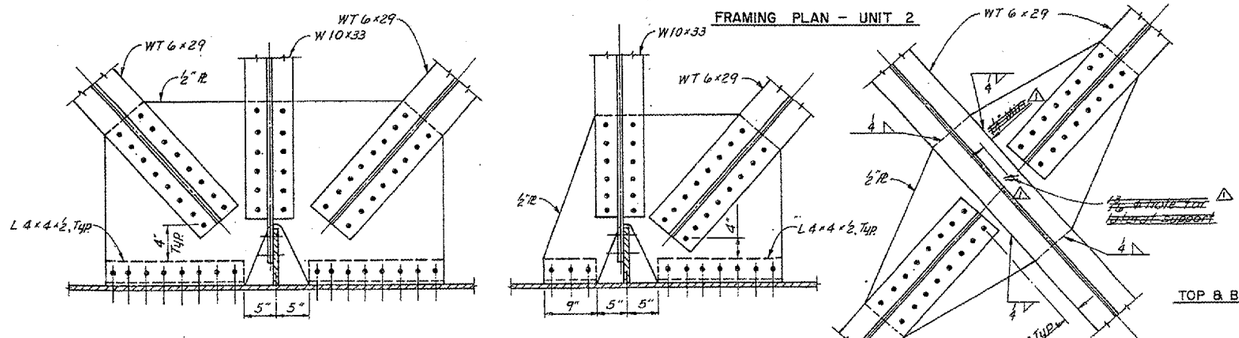


FRAMING PLAN – UNIT 2



DETAIL E
(Type 1)

DETAIL E
(Types 2 ℄ 3)



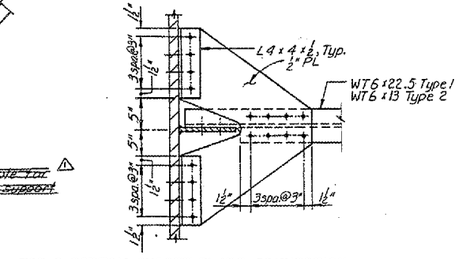
DETAIL B

Note: Radius of cope is 1½".

DETAIL C

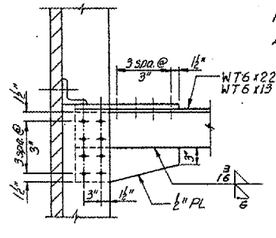
DETAIL A

Revised (12-8-83) Items revised are marked by ⚠.



TOP & BOTTOM GUSSET PLATE CONNECTION
(Type 1 ℄ 2)

Note: For Lateral Support detail see sheet 66.



DETAIL D

Notes: For details of Top and Bottom Gusset Plate Connection for Type 3 see Sheet 68.

Note: Intermediate stiffeners shall be equally spaced between floorbeams unless noted otherwise.

(23) denotes type of girder field splice
For girder field splice details see sheet 73
For stringer field splice details see sheet 66
All re-entrant cuts shall have a ¾" min. radius.

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA – HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' x 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

FRAMING PLAN – UNIT 2

STA. 80+40.00
RIVER MILE 363.9
LEE COUNTY, IOWA

PROJECT NO. BRF-19-1(3)–38–56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 67 OF

DESIGN NO. 282 LEE COUNTY FILE 26723 SHEET 73 OF 227

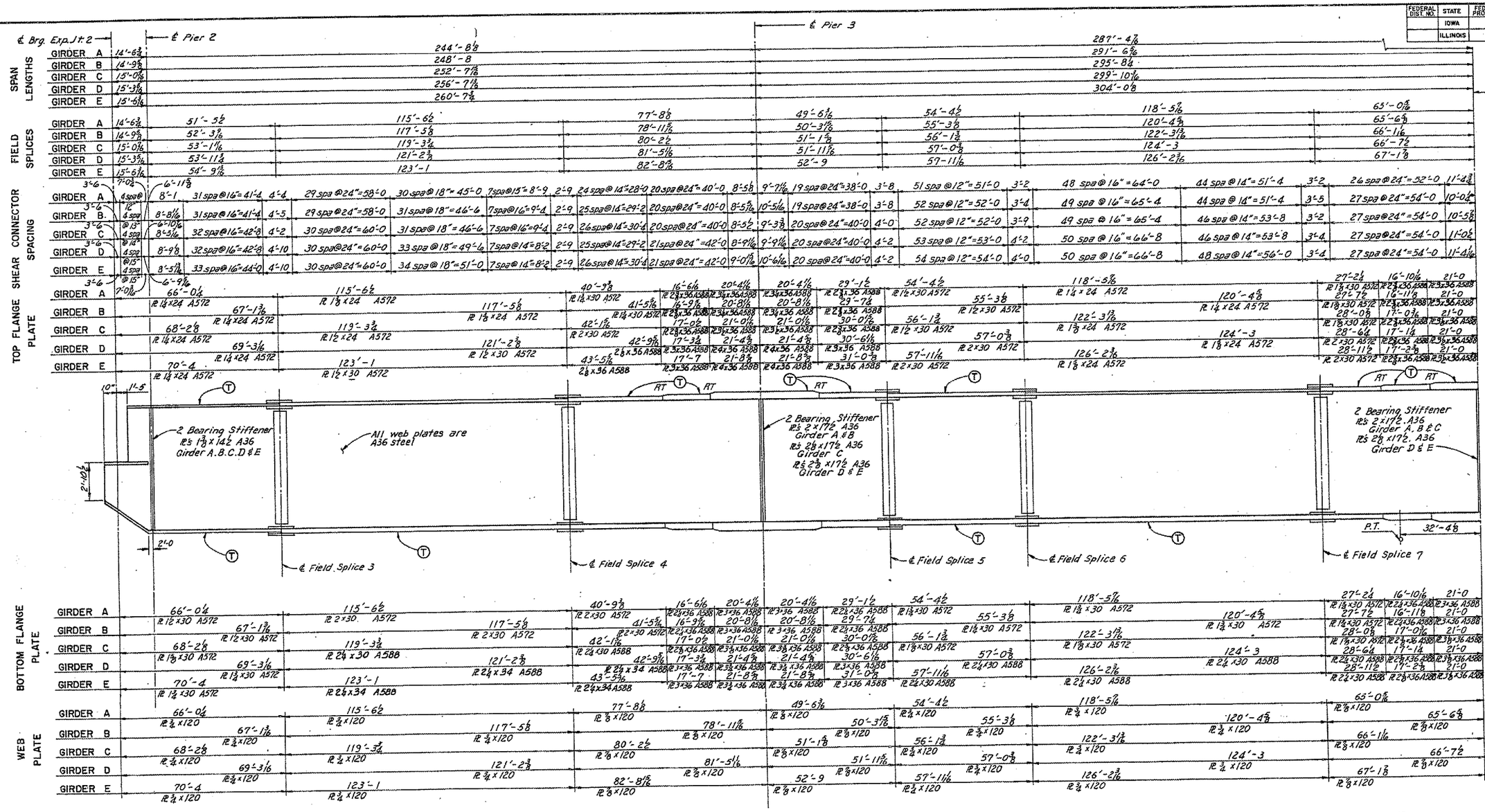
6787-25-00

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE LCY DATE 7-82 CHECKED JMH DATE 8-82

FOR INFORMATION ONLY

FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			17	40
	ILLINOIS				



Notes:

For field splice details see Sheet 73

For "Shear Connector Details" see Sheet 69.

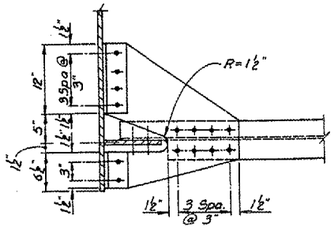
The weight of the shear connectors are included in the Structural Steel Quantities.

There shall be no shear connector groups located at the ℄ of pier or at ℄ Brg. Exp. Joints and field splices.

RT denotes location of splices that require radiographic inspection.

For girder end details see Sheet 88.

Ⓣ denotes tension flange plate



TOP & BOTTOM GUSSET PLATE CONNECTION
(Type 3 - Unit 2, Type 2 - Units 3, 4, & 5)

GIRDER ELEVATION

The Contractor shall furnish Iowa D.O.T. with one test coupon taken from each of two 36" x 4" top flange plates at Pier #3. The test coupons shall be 6" x 8" with 8" in the longitudinal rolling direction. Both coupons shall be properly marked with rolling direction and heat number. The Contractor shall deliver the coupons to Iowa D.O.T. Material Laboratory in Ames. The cost of furnishing these two test coupons shall be included in the price bid for Structural Steel.

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Structural Concrete (Class D)	Cu. Yds.	2382.6
Reinforcing Steel - Non Epoxy Coated	Lbs.	266,493
Reinforcing Steel - Epoxy Coated*	Lbs.	449,226
Structural Steel - A36	Lbs.	3,634,044
Structural Steel - A572	Lbs.	1,122,329
Structural Steel - A588	Lbs.	1,167,434
N. and S. Barrier Rail	Lin. Ft.	2242.0
Median Barrier Rail	Lin. Ft.	1121.0

*Includes 720 lbs. of reinforcing steel in light blisters, and 600 lbs. of reinforcing steel at drainage inlets.

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

GIRDER ELEVATION - UNIT 2

STA. 50+40.00
RIVER MILE 363.9
LEE COUNTY, IOWA

PROJECT NO. BRF-19-1(3)--38-56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 68 OF

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE LCY DATE 6-82 CHECKED DLM DATE 7-82

6787-25-00

FOR INFORMATION ONLY

FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			18	40
	ILLINOIS				

℄ Pier 4 & Matchline — ℄ Pier 5 — ℄ Pier 6 — ℄ Brg. Exp. Jt. 3

SPAN LENGTHS

GIRDER A	295'-0	252'-0	15'-0
GIRDER B	295'-0	252'-0	15'-0
GIRDER C	295'-0	252'-0	15'-0
GIRDER D	295'-0	252'-0	15'-0
GIRDER E	295'-0	252'-0	15'-0

FIELD SPLICES

GIRDER A	64'-0	126'-0	50'-0	55'-0	66'-0	130'-0	56'-0	15'-0
GIRDER B	64'-0	126'-0	50'-0	55'-0	66'-0	130'-0	56'-0	15'-0
GIRDER C	64'-0	126'-0	50'-0	55'-0	66'-0	130'-0	56'-0	15'-0
GIRDER D	64'-0	126'-0	50'-0	55'-0	66'-0	130'-0	56'-0	15'-0
GIRDER E	64'-0	126'-0	50'-0	55'-0	66'-0	130'-0	56'-0	15'-0

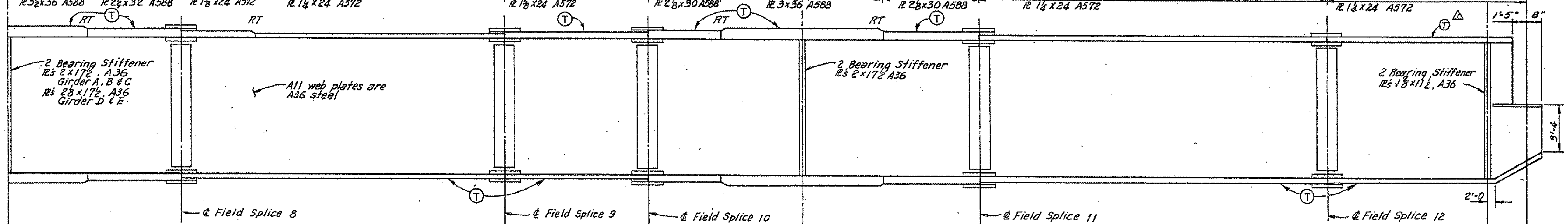
SHEAR CONNECTOR SPACING

GIRDER A	10'-6	26spa@24"=52'-0	3'-3	43spa@15"=53'-9	46spa@18"=69'-0	3'-3	37spa@15"=46'-3	4'-0	22spa@24"=44'-0	9'-0	8'-6	28spa@24"=56'-0	3'-0	26spa@15"=32'-6	30spa@20"=50'-0	22spa@24"=44'-0	4'-0	34spa@16"=45'-4	8'-8	6'-2	3'-10
GIRDER B	10'-6	26spa@24"=52'-0	3'-3	43spa@15"=53'-9	46spa@18"=69'-0	3'-3	37spa@15"=46'-3	4'-0	22spa@24"=44'-0	9'-0	8'-6	28spa@24"=56'-0	3'-0	26spa@15"=32'-6	30spa@20"=50'-0	22spa@24"=44'-0	4'-0	34spa@16"=45'-4	8'-8	6'-2	3'-10
GIRDER C	10'-6	26spa@24"=52'-0	3'-3	43spa@15"=53'-9	46spa@18"=69'-0	3'-3	37spa@15"=46'-3	4'-0	22spa@24"=44'-0	9'-0	8'-6	28spa@24"=56'-0	3'-0	26spa@15"=32'-6	30spa@20"=50'-0	22spa@24"=44'-0	4'-0	34spa@16"=45'-4	8'-8	6'-2	3'-10
GIRDER D	10'-6	26spa@24"=52'-0	3'-3	43spa@15"=53'-9	46spa@18=69'-0	3'-3	37spa@15"=46'-3	4'-0	22spa@24"=44'-0	9'-0	8'-6	28spa@24"=56'-0	3'-0	26spa@15"=32'-6	30spa@20"=50'-0	22spa@24"=44'-0	4'-0	34spa@16"=45'-4	8'-8	6'-2	3'-10
GIRDER E	10'-6	26spa@24"=52'-0	3'-3	43spa@15"=53'-9	46spa@18"=69'-0	3'-3	37spa@15"=46'-3	4'-0	22spa@24"=44'-0	9'-0	8'-6	28spa@24"=56'-0	3'-0	26spa@15"=32'-6	30spa@20"=50'-0	22spa@24"=44'-0	4'-0	34spa@16"=45'-4	8'-8	6'-2	3'-10

4 spa@15"=5'-0 (at end, girders A–B, C–D, E)

TOP FLANGE PLATE

GIRDER A	30'-0 PL 3x36 A588	34'-0 PL 2¼x30 A588	24'-0 PL 1¼x24 A572	102'-0 PL 1¼x24 A572	50'-0 PL 1⅜x24 A572	25'-0 PL 2⅞x30 A588	30'-0	30'-0 PL 3x36 A588	36'-0 PL 2⅞x30 A588	130'-0 PL 1¼x24 A572	71'-0 PL 1¼x24 A572
GIRDER B	30'-0 PL 3x36 A588	34'-0 PL 2¼x30 A588	24'-0 PL 1¼x24 A572	102'-0 PL 1¼x24 A572	50'-0 PL 1⅜x24 A572	25'-0 PL 2⅞x30 A588	30'-0	30'-0 PL 3x36 A588	36'-0 PL 2⅞x30 A588	130'-0 PL 1¼x24 A572	71'-0 PL 1¼x24 A572
GIRDER C	30'-0 PL 3⅛x36 A588	34'-0 PL 2¼x30 A588	24'-0 PL 1¼x24 A572	102'-0 PL 1¼x24 A572	50'-0 PL 1⅜x24 A572	25'-0 PL 2⅞x30 A588	30'-0	30'-0 PL 3x36 A588	36'-0 PL 2⅞x30 A588	130'-0 PL 1¼x24 A572	71'-0 PL 1¼x24 A572
GIRDER D	30'-0 PL 3½x36 A588	34'-0 PL 2¼x32 A588	24'-0 PL 1⅜x24 A572	102'-0 PL 1¼x24 A572	50'-0 PL 1⅜x24 A572	25'-0 PL 2⅞x30 A588	30'-0	30'-0 PL 3x36 A588	36'-0 PL 2⅞x30 A588	130'-0 PL 1¼x24 A572	71'-0 PL 1¼x24 A572
GIRDER E	30'-0 PL 3½x36 A588	34'-0 PL 2¼x32 A588	24'-0 PL 1⅜x24 A572	102'-0 PL 1¼x24 A572	50'-0 PL 1⅜x24 A572	25'-0 PL 2⅞x30 A588	30'-0	30'-0 PL 3x36 A588	36'-0 PL 2⅞x30 A588	130'-0 PL 1¼x24 A572	71'-0 PL 1¼x24 A572



BOTTOM FLANGE PLATE

GIRDER A	30'-0 PL 3x36 A588	34'-0 PL 1⅞x36 A572	126'-0 PL 1⅝x30 A572	50'-0 PL 1⅝x30 A572	25'-0 PL 1¾x36 A572	30'-0 PL 3x36 A588	30'-0 PL 3x36 A588	36'-0 PL 1¾x36 A572	130'-0 PL 1⅞x30 A572	71'-0 PL 1¾x24 A572
GIRDER B	30'-0 PL 3x36 A588	34'-0 PL 1⅞x36 A572	126'-0 PL 1⅝x30 A572	50'-0 PL 1⅝x30 A572	25'-0 PL 1¾x36 A572	30'-0 PL 3x36 A588	30'-0 PL 3x36 A588	36'-0 PL 1¾x36 A572	130'-0 PL 1⅞x30 A572	71'-0 PL 1¾x24 A572
GIRDER C	30'-0 PL 3⅜x36 A588	34'-0 PL 1⅞x36 A572	126'-0 PL 1½x30 A572	50'-0 PL 1½x30 A572	25'-0 PL 1¾x36 A572	30'-0 PL 3x36 A588	30'-0 PL 3x36 A588	36'-0 PL 1¾x36 A572	130'-0 PL 1⅞x30 A572	71'-0 PL 1¾x24 A572
GIRDER D	30'-0 PL 3⅜x36 A588	34'-0 PL 2⅛x36 A588	126'-0 PL 1½x30 A572	50'-0 PL 1½x30 A572	25'-0 PL 1¾x36 A572	30'-0 PL 3x36 A588	30'-0 PL 3x36 A588	36'-0 PL 1¾x36 A572	130'-0 PL 1⅞x30 A572	71'-0 PL 1¾x24 A572
GIRDER E	30'-0 PL 3⅜x36 A588	34'-0 PL 2⅛x36 A588	126'-0 PL 1½x30 A572	50'-0 PL 1½x30 A572	25'-0 PL 1¾x36 A572	30'-0 PL 3x36 A588	30'-0 PL 3x36 A588	36'-0 PL 1¾x36 A572	130'-0 PL 1⅞x30 A572	71'-0 PL 1¾x24 A572

WEB PLATE

GIRDER A	64'-0 PL ⅞x120	126'-0 PL ¾x120	50'-0 PL ¾x120	55'-0 PL ⅞x120	66'-0 PL ⅞x120	130'-0 PL ¾x120	71'-0 PL ¾x120
GIRDER B	64'-0 PL ⅞x120	126'-0 PL ¾x120	50'-0 PL ¾x120	55'-0 PL ⅞x120	66'-0 PL ⅞x120	130'-0 PL ¾x120	71'-0 PL ¾x120
GIRDER C	64'-0 PL ⅞x120	126'-0 PL ¾x120	50'-0 PL ¾x120	55'-0 PL ⅞x120	66'-0 PL ⅞x120	130'-0 PL ¾x120	71'-0 PL ¾x120
GIRDER D	64'-0 PL ⅞x120	126'-0 PL ¾x120	50'-0 PL ¾x120	55'-0 PL ⅞x120	66'-0 PL ⅞x120	130'-0 PL ¾x120	71'-0 PL ¾x120
GIRDER E	64'-0 PL ⅞x120	126'-0 PL ¾x120	50'-0 PL ¾x120	55'-0 PL ⅞x120	66'-0 PL ⅞x120	130'-0 PL ¾x120	71'-0 PL ¾x120

GIRDER ELEVATION

NOTES:

For field splice details see Sheet 73

For "Shear Connector Details" for 18" and 24" flange see Sheet 84

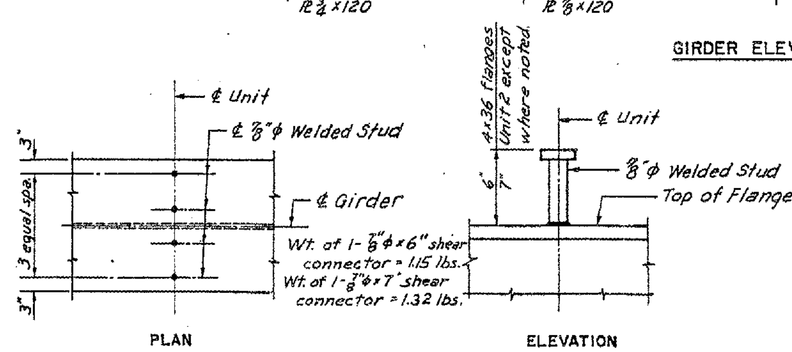
The weight of the shear connectors are included in the Structural Steel Quantities.

There shall be no shear connector groups located at the ℄ of pier or at ℄ Brg. Exp. Joints and field splices.

RT denotes location of splices that require radiographic inspection.

For girder end details see Sheet 88.

(T) denotes tension flange plate.



SHEAR CONNECTOR DETAIL

Revised (7-26-83) Designation (T) for tension flange plate added to top flange plate over Pier 6 as marked by △.

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

GIRDER ELEVATION - UNIT 2

STA. 80+40.00
RIVER MILE 363.9
LEE COUNTY, IOWA

PROJECT NO. BRF-19-1(3)--38-56
HANCOCK COUNTY, ILLINOIS

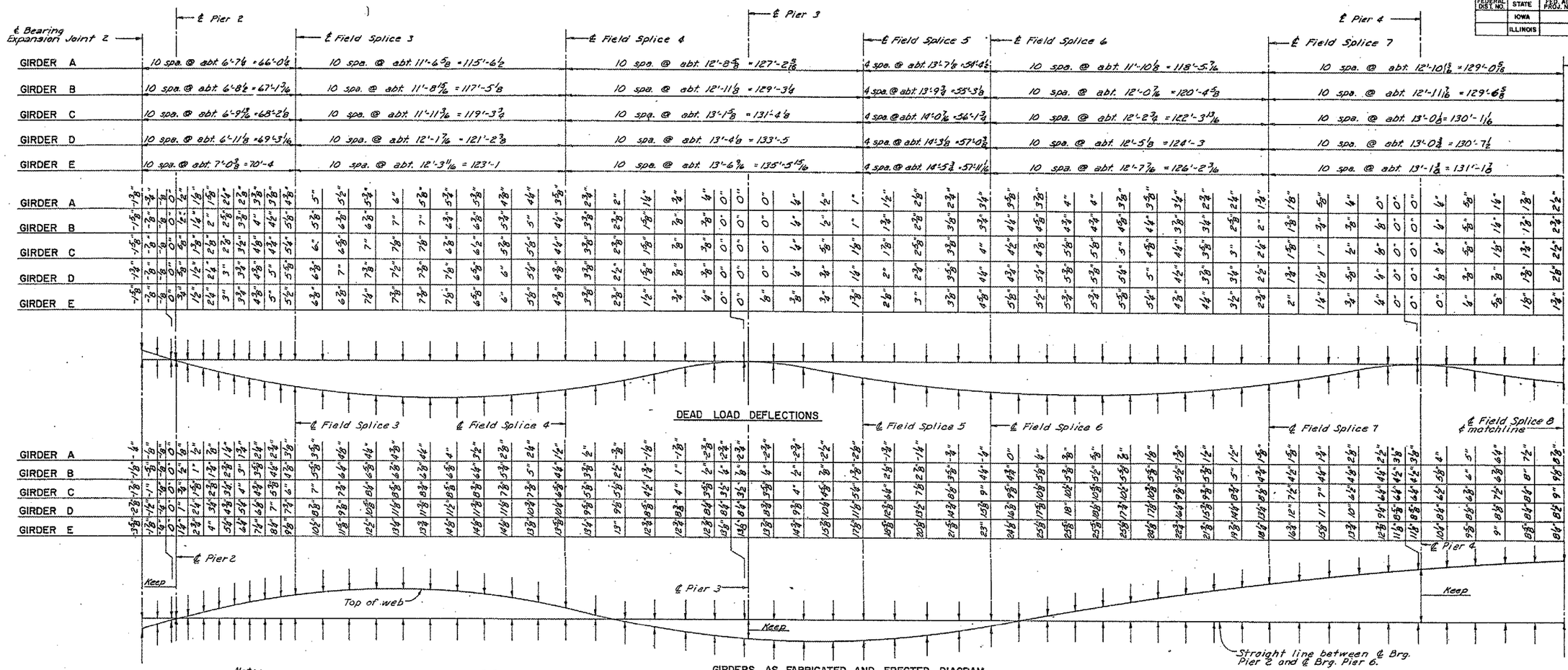
DESIGN SHEET 69 OF

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE LCY DATE 6-82 CHECKED DLM DATE 7-82

6767-25-00

FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			19	40
	ILLINOIS				



Note: Offsets are given at ¼ points between F.S. 5 and F.S. 6; at ¼ points between F.S. 9 and F.S. 10; at 1/10 points between Exp. Jt. 2 and F.S. 3; at 1/10 points between Exp. Jt. 3 and F.S. 12 and at 1/10 points between all other field splices.

GIRDERS AS FABRICATED AND ERECTED DIAGRAM

Legend
F.S. denotes field splice
Exp. Jt. denotes expansion joint

NOTE:
35% of the "Dead Load Deflections" is due to structural steel and 65% is due to concrete.

BENCH MARKS

PMB No. 2 Found chiseled "□" in T/Conc. @ east end of retaining wall, south side of Highway 136, east end of Keokuk-Hamilton River Bridge. Elev. 505.06

PMB No. 6 S.E. corner of light base on the N.W. corner of the intersection of Water and Main Street in Keokuk. Elev. 509.32

PMB No. 7 S.E. corner -- base of traffic light -- N.E. corner of 3rd and Main in Keokuk. Elev. 579.17

△ 562.85 562.77 562.71 562.64 562.58 562.53 562.49 562.45 562.41 562.36

TOP OF CONCRETE PAVEMENT ELEVATIONS UNIT 2

LOCATION	Exp. Jt.	.10	.20	.30	.40	.50	.60	.70	.80	.90	F.S.3	.10	.20	.30	.40	.50	.60	.70	.80	.90	F.S.4	.10	.20	.30	.40	.50	.60
Girder A	562.28	562.19	562.12	562.04	561.98	561.93	561.88	561.84	561.79	561.75	561.71	561.64	561.57	561.50	561.43	561.35	561.28	561.21	561.14	561.07	561.00	560.92	560.84	560.76	560.68	560.60	560.52
Stringer 1 △	~~583.05~~	~~562.98~~	~~562.88~~	~~562.78~~	~~562.69~~	~~562.61~~	~~562.54~~	~~562.48~~	~~562.43~~	~~562.38~~	562.32	562.25	562.18	562.11	562.04	561.97	561.89	561.82	561.75	561.68	561.61	561.53	561.45	561.37	561.29	561.21	561.13
Girder B	563.41	563.35	563.30	563.24	563.19	563.14	563.10	563.06	563.02	562.97	562.93	562.86	562.79	562.72	562.65	562.58	562.50	562.43	562.36	562.29	562.22	562.14	562.06	561.98	561.90	561.82	561.75
Stringer 2	563.98	563.93	563.89	563.84	563.79	563.75	563.71	563.67	563.63	563.59	563.54	563.47	563.40	563.33	563.26	563.19	563.11	563.04	562.97	562.90	562.83	562.75	562.67	562.59	562.51	562.43	562.36
Girder C	564.55	564.51	564.48	564.44	564.40	564.36	564.32	564.28	564.24	564.20	564.15	564.08	564.01	563.94	563.87	563.80	563.73	563.65	563.58	563.51	563.44	563.36	563.28	563.20	563.12	563.04	562.97
Stringer 3	565.12	565.09	565.07	565.04	565.00	564.97	564.93	564.89	564.85	564.81	564.77	564.69	564.62	564.55	564.48	564.41	564.34	564.26	564.19	564.12	564.05	563.97	563.89	563.81	563.73	563.66	563.58
Girder D	565.69	565.67	565.66	565.63	565.61	565.58	565.54	565.50	565.46	565.42	565.38	565.30	565.23	565.16	565.09	565.02	564.95	564.87	564.80	564.73	564.66	564.58	564.50	564.42	564.34	564.26	564.19
Stringer 4	566.25	566.25	566.25	566.23	566.21	566.18	566.15	566.11	566.07	566.03	565.99	565.91	565.84	565.77	565.70	565.63	565.56	565.49	565.41	565.34	565.27	565.19	565.11	565.03	564.96	564.88	564.80
Girder E	566.82	566.83	566.84	566.83	566.82	566.79	566.76	566.72	566.68	566.64	566.60	566.53	566.45	566.38	566.31	566.24	566.17	566.10	566.02	565.95	565.88	565.80	565.72	565.64	565.57	565.49	565.41
LOCATION	.70	.80	.90	F.S.5	.25	.50	.75	F.S.6	.10	.20	.30	.40	.50	.60	.70	.80	.90	F.S.7	.10	.20	.30	.40	.50	.60	.70	.80	.90
Girder A	560.45	560.37	560.29	560.21	560.12	560.04	559.96	559.87	559.80	559.73	559.66	559.62	559.58	559.56	559.55	559.53	559.51	559.50	559.48	559.46	559.44	559.43	559.41	559.39	559.37	559.36	559.34
Stringer 1	561.06	560.98	560.90	560.82	560.74	560.65	560.57	560.48	560.41	560.34	560.27	560.22	560.17	560.14	560.11	560.07	560.04	560.01	559.98	559.94	559.91	559.87	559.84	559.80	559.77	559.74	559.70
Girder B	561.67	561.59	561.51	561.43	561.35	561.26	561.18	561.09	561.02	560.95	560.88	560.82	560.76	560.71	560.66	560.62	560.57	560.52	560.47	560.42	560.37	560.32	560.27	560.22	560.17	560.12	560.07
Stringer 2	562.28	562.20	562.12	562.04	561.96	561.87	561.79	561.70	561.63	561.56	561.49	561.42	561.35	561.29	561.22	561.16	561.10	561.03	560.97	560.90	560.83	560.77	560.70	560.63	560.56	560.50	560.43
Girder C	562.89	562.81	562.73	562.65	562.57	562.48	562.40	562.31	562.24	562.17	562.09	562.01	561.93	561.85	561.77	561.69	561.61	561.52	561.44	561.35	561.26	561.17	561.09	561.00	560.91	560.82	560.73
Stringer 3	563.50	563.42	563.34	563.26	563.18	563.09	563.01	562.92	562.85	562.78	562.70	562.61	562.51	562.40	562.29	562.18	562.07	561.96	561.85	561.73	561.62	561.50	561.38	561.27	561.15	561.03	560.91
Girder D	564.11	564.03	563.95	563.87	563.79	563.70	563.62	563.53	563.46	563.39	563.30	563.20	563.08	562.95	562.81	562.68	562.54	562.40	562.26	562.12	561.97	561.83	561.68	561.53	561.39	561.24	561.10
Stringer 4	564.72	564.64	564.56	564.48	564.40	564.31	564.23	564.15	564.07	564.00	563.90	563.79	563.65	563.50	563.33	563.17	563.01	562.84	562.67	562.50	562.33	562.15	561.98	561.80	561.63	561.45	561.28
Girder E	565.33	565.25	565.17	565.09	565.01	564.92	564.84	564.76	564.68	564.61	564.51	564.38	564.23	564.04	563.85	563.66	563.47	563.28	563.09	562.89	562.69	562.48	562.28	562.07	561.87	561.66	561.46

Revised (12-8-83) Concrete pavement elev. over Stringer 1 corrected as marked by △.

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE JEL DATE 7-82 | CHECKED JMH DATE 7-82

6767-25-00

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

DEAD LOAD DEFLECTIONS-UNIT 2

STA. 50+40.00
RIVER MILE 363.9
LEE COUNTY, IOWA

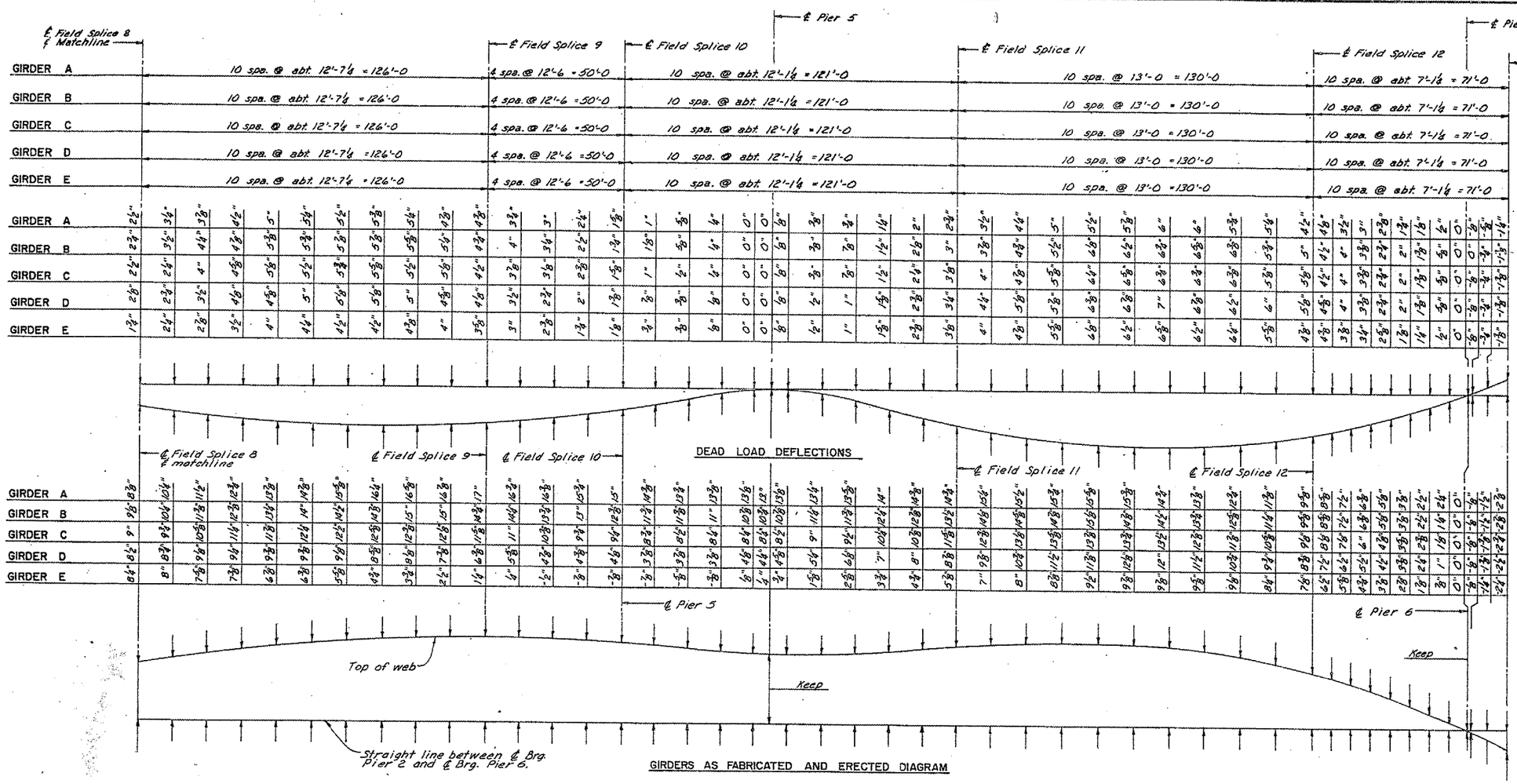
PROJECT NO. BRF-19-1(3)--38-56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 70 OF

DESIGN NO. 252 LEE COUNTY FILE 26723 SHEET 76 OF 227

FOR INFORMATION ONLY

FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			20	40
	ILLINOIS				



GIRDERS AS FABRICATED AND ERECTED DIAGRAM

NOTE:

35% of the "Dead Load Deflections" is due to structural steel and 65% is due to concrete.

TOP OF CONCRETE PAVEMENT ELEVATIONS UNIT 2

LOCATION	F.S. 8	.10	.20	.30	.40	.50	.60	.70	.80	.90	F.S. 9	.25	.50	.75	F.S.10	.10	.20	.30	.40	.50	.60	.70	.80
Girder A	559.32	559.31	559.29	559.27	559.25	559.24	559.22	559.20	559.19	559.17	559.15	559.12	559.07	559.01	558.93	558.86	558.79	558.71	558.64	558.57	558.49	558.42	558.33
Stringer 1	559.67	559.64	559.60	559.57	559.54	559.50	559.47	559.44	559.41	559.37	559.34	559.29	559.24	559.17	559.10	559.02	558.95	558.88	558.81	558.73	558.66	558.58	558.50
Girder B	550.02	559.97	559.92	559.87	559.82	559.77	559.72	559.67	559.62	559.58	559.52	559.47	559.41	559.34	559.26	559.19	559.12	559.04	558.97	558.90	558.82	558.75	558.66
Stringer 2	560.36	560.30	560.23	560.17	560.10	560.04	559.97	559.91	559.84	559.78	559.71	559.64	559.57	559.50	559.43	559.35	559.28	559.21	559.14	559.06	558.99	558.91	558.83
Girder C	560.65	560.56	560.48	560.39	560.31	560.22	560.14	560.05	559.97	559.88	559.80	559.71	559.63	559.56	559.48	559.41	559.34	559.26	559.19	559.12	559.04	558.97	558.88
Stringer 3	560.80	560.68	560.57	560.46	560.35	560.23	560.12	560.01	559.89	559.78	559.67	559.57	559.48	559.39	559.32	559.24	559.17	559.10	559.03	558.95	558.88	558.80	558.72
Girder D	560.95	560.81	560.67	560.53	560.39	560.25	560.10	559.96	559.82	559.68	559.54	559.42	559.32	559.23	559.15	559.08	559.01	558.93	558.86	558.79	558.71	558.64	558.55
Stringer 4	561.10	560.93	560.76	560.60	560.43	560.26	560.09	559.92	559.75	559.58	559.42	559.28	559.16	559.06	558.99	558.91	558.84	558.77	558.70	558.62	558.55	558.47	558.39
Girder E	561.25	561.06	560.86	560.66	560.47	560.27	560.07	559.88	559.68	559.48	559.29	559.13	559.00	558.90	558.82	558.75	558.68	558.60	558.53	558.46	558.39	558.31	558.22
LOCATION	.90	F.S.11	.10	.20	.30	.40	.50	.60	.70	.80	.90	FS12	.10	.20	.30	.40	.50	.60	.70	.80	.90	Exp.Jt.	
Girder A	558.25	558.15	558.05	557.94	557.82	557.70	557.57	557.44	557.30	557.16	557.01	556.85	556.76	556.67	556.58	556.49	556.40	556.30	556.20	556.10	556.00	555.90	
Stringer 1	558.41	558.32	558.21	558.10	557.99	557.87	557.74	557.60	557.47	557.32	557.17	557.01	556.93	556.84	556.75	556.65	556.56	556.46	556.37	556.27	556.17	556.06	
Girder B	558.58	558.48	558.38	558.27	558.15	558.03	557.90	557.77	557.63	557.49	557.34	557.18	557.09	557.00	556.91	556.82	556.73	556.63	556.53	556.43	556.33	556.23	
Stringer 2	558.74	558.65	558.54	558.43	558.32	558.20	558.07	557.94	557.80	557.65	557.50	557.35	557.26	557.17	557.08	556.99	556.89	556.79	556.70	556.60	556.50	556.39	
Girder C	558.80	558.71	558.60	558.49	558.37	558.25	558.12	557.99	557.85	557.71	557.56	557.40	557.31	557.22	557.13	557.04	556.95	556.85	556.75	556.65	556.55	556.45	
Stringer 3	558.63	558.54	558.43	558.32	558.21	558.09	557.96	557.83	557.69	557.54	557.39	557.24	557.15	557.06	556.97	556.88	556.78	556.69	556.59	556.49	556.39	556.28	
Girder D	558.47	558.38	558.27	558.16	558.04	557.92	557.79	557.66	557.52	557.38	557.23	557.07	556.98	556.89	556.80	556.71	556.62	556.52	556.42	556.32	556.22	556.12	
Stringer 4	558.30	558.21	558.10	557.99	557.88	557.76	557.63	557.50	557.36	557.21	557.06	557.91	556.82	556.73	556.64	556.55	556.45	556.36	556.26	556.16	556.06	555.95	
Girder E	558.14	558.05	557.94	557.83	557.71	557.59	557.46	557.33	557.19	557.05	556.90	556.74	556.65	556.56	556.47	556.38	556.29	556.19	556.09	555.99	555.89	555.79	

Note: Offsets are given at ¼ points between F.S. 5 and F.S. 6; at ¼ points between F.S. 9 and F.S. 10; at 1/10 points between Exp. Jt. 2 and F.S. 3; at 1/10 points between Exp. Jt. 3 and F.S. 12 and at 1/10 points between all other field splices.

Legend:
F.S. denotes field splice
Exp. Jt. denotes expansion joint

BENCH MARKS

PMB No. 2 Found chiseled "□" in T/Conc. @ east end of retaining wall, south side of Highway 136, east end of Keokuk-Hamilton River Bridge. Elev. 505.06

PMB No. 6 S.E. corner of light base on the N.W. corner of the intersection of Water and Main Street in Keokuk. Elev. 509.32

PMB No. 7 S.E. corner -- base of traffic light -- N.E. corner of 3rd and Main in Keokuk. Elev. 579.17

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE JEL DATE 7-82 CHECKED JMH DATE 7-82

6767-25-00

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE

DESIGN FOR 0° SKEW

3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

DEAD LOAD DEFLECTIONS-UNIT 2

STA. 80+40.00
RIVER MILE 363.9
LEE COUNTY, IOWA

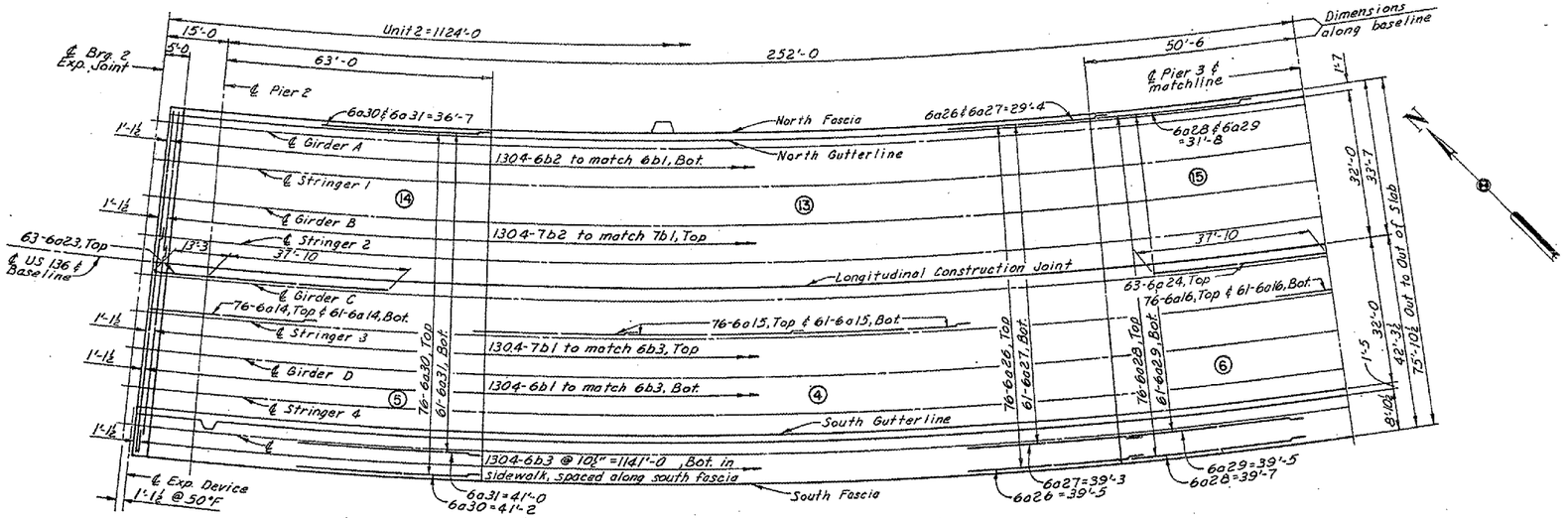
PROJECT NO. BRF-19-1(3)--38-56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 71 OF

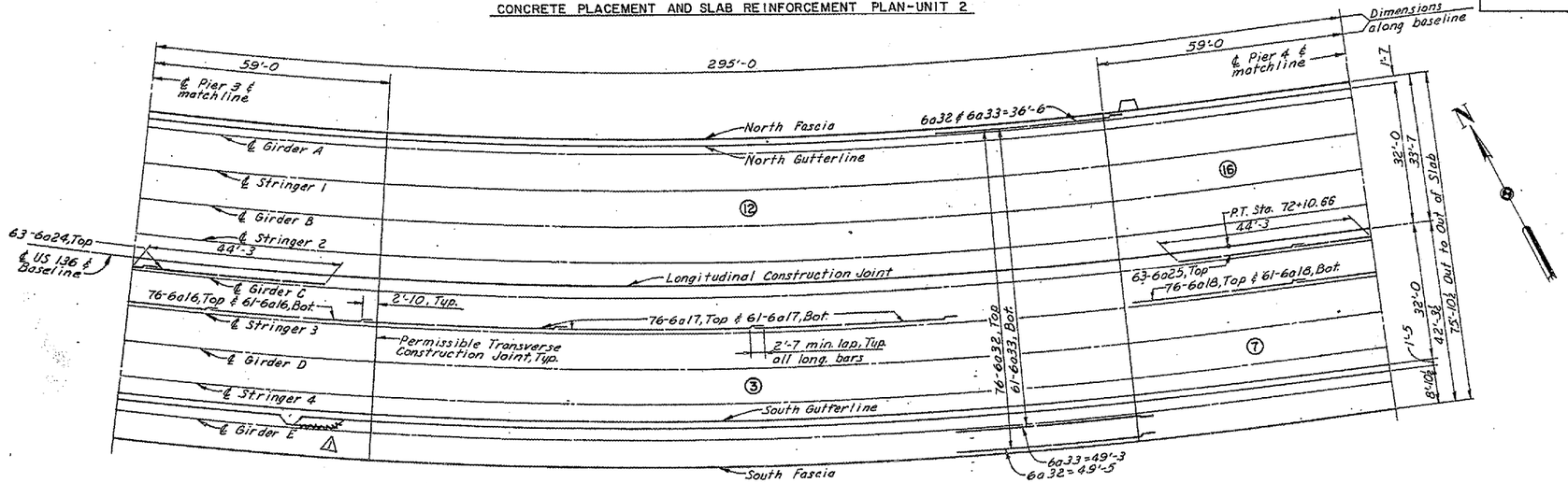
DESIGN NO. 282 LEE COUNTY FILE 26723 SHEET 77 OF 227

FOR INFORMATION ONLY

FEDERAL DIST NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			21	40
	ILLINOIS				



CONCRETE PLACEMENT AND SLAB REINFORCEMENT PLAN-UNIT 2



CONCRETE PLACEMENT QUANTITIES

UNIT 2

POUR	CU. YDS.
1	160.1
2	204.2
3	208.2
4	164.3
5	93.2
6	127.5
7	136.0
8	125.9
9	92.4
10	132.7
11	169.5
12	167.1
13	130.4
14	74.7
15	102.7
16	112.0
17	104.1
18	76.8
Light Blisters	.8
Total	2382.6

BILL OF REINFORCEMENT

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
	NON-EPOXY COATED				
6a14	Longitudinal	——	61	41'-2	3772
6a15	Longitudinal	——	183	39'-5	10834
6a16	Longitudinal	——	122	39'-7	7253
6a17	Longitudinal	——	183	49'-5	13583
6a18	Longitudinal	——	183	41'-3	11338
6a19	Longitudinal	——	244	47'-7	17439
6a20	Longitudinal	——	183	38'-1	10468
6a21	Longitudinal	——	244	38'-0	13927
6a22	Longitudinal	——	122	39'-0	7147
6a27	Longitudinal	——	61	Varies	3142
6a29	Longitudinal	——	61	Varies	3256
6a31	Longitudinal	——	61	Varies	3554
6a33	Longitudinal	——	61	Varies	3928
6b1	Transverse	——	1304	44'-5	86995
6b2	Transverse	——	1304	29'-3	57289
6b3	Transverse	——	1304	6'-5	12568
			TOTAL		266493
	EPOXY COATED				
6a14	Longitudinal	——	76	41'-2	4699
6a15	Longitudinal	——	228	39'-5	13498
6a16	Longitudinal	——	152	39'-7	9037
6a17	Longitudinal	——	228	49'-5	16923
6a18	Longitudinal	——	228	41'-3	14126
6a19	Longitudinal	——	304	47'-7	21727
6a20	Longitudinal	——	228	38'-1	13042
6a21	Longitudinal	——	304	38'-0	17351
6a22	Longitudinal	——	152	39'-0	8904
6a23	Long. over Piers	——	126	51'-1	9668
6a24	Long. over Piers	——	252	42'-4	16023
6a25	Long. over Piers	——	189	31'-3	8871
6a26	Longitudinal	——	76	Varies	3924
6a28	Longitudinal	——	76	Varies	4067
6a30	Longitudinal	——	76	Varies	4438
6a32	Longitudinal	——	76	Varies	4904
7b1	Transverse	——	1304	45'-3	120608
7b2	Transverse	——	1304	33'-9	89956
5c1	Curb, Transverse	⌐	2224	5'-9	13338
5c2	Curb, Transverse	⌐	2224	5'-3	12178
5c3	Curb, Transverse	——	2242	2'-7	6041
5c4	Curb, Transverse	⌐	2242	3'-4	7794
5d3	Curb, Longitudinal	——	196	41'-0	8382
5d4	Curb, Longitudinal	——	210	39'-5	8633
5d5	Curb, Longitudinal	——	196	41'-6	8484
5e1	End Beam	⌐	114	7'-7	902
5e2	End Beam	——	48	7'-9	388
			TOTAL		447906

NOTES:

Roadway slab shall be placed in sections and in the sequence indicated by circled numbers at intervals, preferably not exceeding 24 hours. △

Alternate procedures for placing concrete may be submitted for approval together with a statement of the proposed method and evidence that the contractor possesses the necessary equipment and facilities to accomplish the required results.

The transverse construction joints shall be placed parallel to the adjacent ℄ pier.

For detail of slab construction joint, see Sheet 74

For detail of longitudinal bar spacing, see Sheet 74

For "Light Pole Base Details", see Sheet 105 and 106
For "Drain Details", see Sheets 98 and 99
For location of drains see Sheet 25, 26 and 27

5'-0 each side of Joint 2 shall be poured after both Unit 1 and 2 are completed and expansion joint is in place.

CONCRETE PLACEMENT AND SLAB REINFORCEMENT PLAN-UNIT 2

CURVE DATA

P. I. Sta. 69+14.85
Δ = 33°31'48.3"
D = 5°30'00.0"
T = 313.83'
L = 609.64'
E = 46.24'
R = 1041.74'

BENCH MARKS

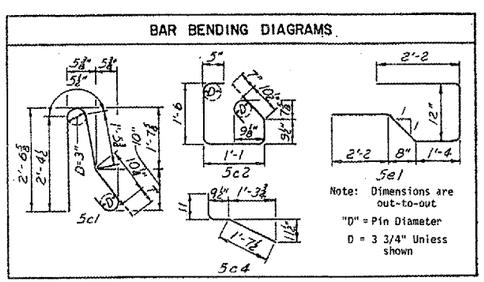
PMB No. 2 Found chiseled "□" in T/Conc. @ east end of retaining wall, south side of Highway 136, east end of Keokuk-Hamilton River Bridge. Elev. 505.06

PMB No. 6 S.E. corner of light base on the N.W. corner of the intersection of Water and Main Street in Keokuk. Elev. 509.32

PMB No. 7 S.E. corner -- base of traffic light -- N.E. corner of 3rd and Main in Keokuk. Elev. 579.17

Revision (5-31-83) Telephone conduit base deleted & 1st paragraph of Notes revised as marked by △.

BAR BENDING DIAGRAMS



MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

SLAB PLAN-UNIT 2

STA. 80+40.00
RIVER MILE 363.9
LEE COUNTY, IOWA

PROJECT NO. BRF-19-1(3)--38-56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 72 OF

DESIGN NO. 282 LEE COUNTY FILE 25723 SHEET 78 OF 227

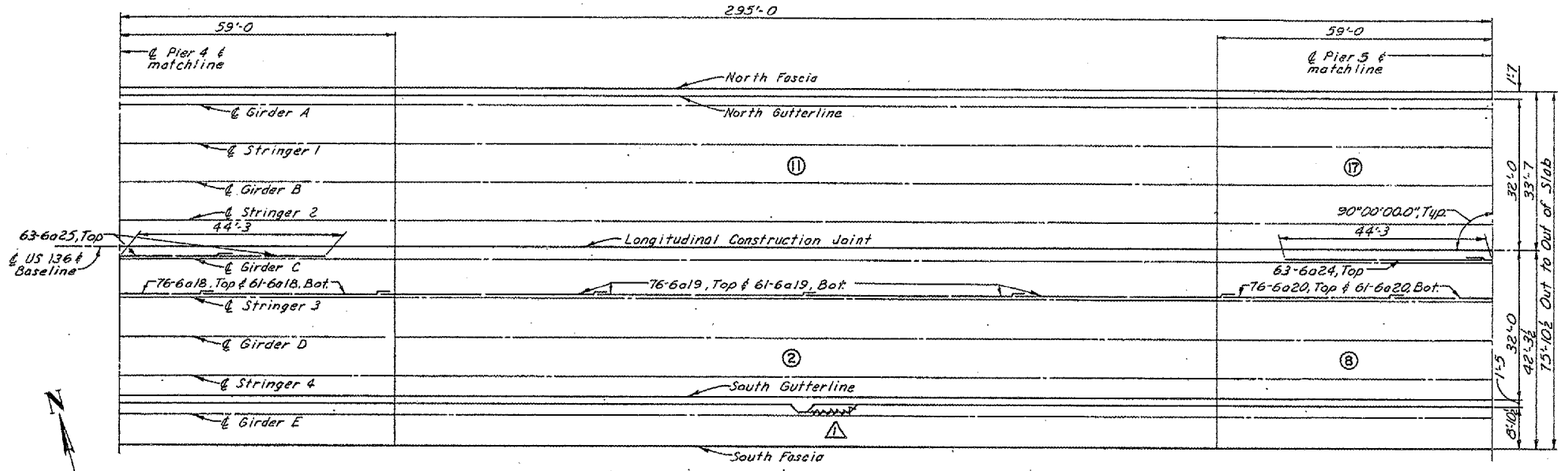
6767-25-00

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE JMH DATE 5-82 CHECKED DLM DATE 7-82

FOR INFORMATION ONLY

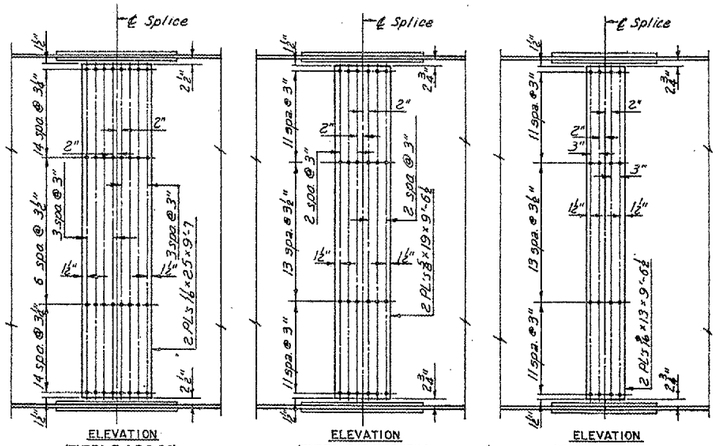
FEDERAL DIST NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			22	40
	ILLINOIS				



CONCRETE PLACEMENT AND SLAB REINFORCEMENT PLAN-UNIT 2

CONCRETE PLACEMENT AND SLAB REINFORCEMENT PLAN-UNIT 2

Note:
5'-0 each side of Joint 3 shall be poured after both Unit 2 and 3 are completed and expansion joint is in place.



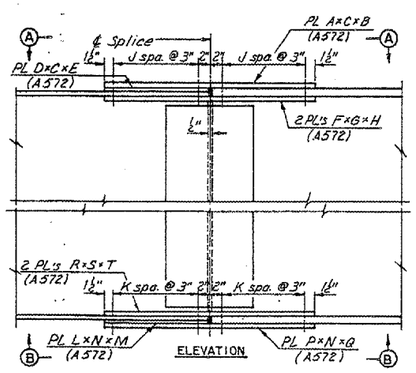
Note:
Two fill plates 15 gage x 6"x9'-9 are required for web splices, Types 6, 7, 8, 15, 16, 17, 18, 19, 20 and 27.

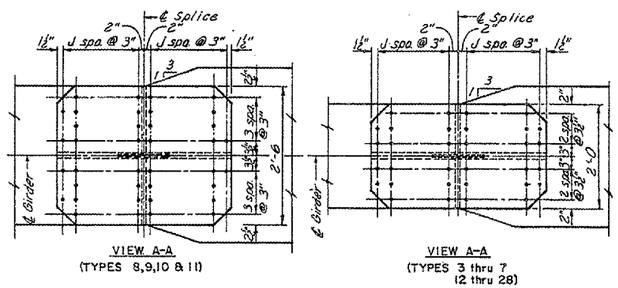
Two fill plates 15 gage x 9"x9'-9 are required for web splices, Types 9, 10, 11, 24, 25 and 26.

GIRDER WEB FIELD SPLICE DETAILS

TABLE OF FIELD SPLICE DIMENSIONS

Type	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
3	⅜	31'-7	24	¼	11'-9¼	11/16	11	31'-7	6	6	¼	11'-9¼	30	¾	31'-7	11/16	14	31'-7
4	⅜	31'-7	24	¼	11'-9¼	11/16	11	31'-7	6	7	⅜	21'-0¼	30	11/16	41'-1	¾	14	41'-1
5	⅜	41'-1	24	¼	21'-0¼	11/16	11	41'-1	7	8	¾	21'-3¼	30	¾	41'-7	¾	14	41'-7
6	11/16	21'-1	24	⅜	11'-0¼	¾	11	21'-1	3	5	-	-	30	1¼	31'-1	1¼	14	31'-1
7	11/16	21'-1	24	½	11'-0¼	¾	11	21'-1	3	5	-	-	30	1¼	31'-1	1¼	14	31'-1
8	¾	21'-1	30	⅜	11'-0¼	11/16	14	21'-1	3	6	-	-	30	1¼	31'-7	1⅜	14	31'-7
9	11/16	31'-1	30	¾	11'-6¼	¾	14	31'-1	5	6	½	11'-9¼	30	¾	31'-7	11/16	14	31'-7
10	11/16	31'-1	30	1¼	11'-6¼	¾	14	31'-1	5	7	¾	21'-0¼	30	1	41'-1	1¼	14	41'-1
11	11/16	31'-7	30	1	11'-9¼	1	14	31'-7	6	7	¾	21'-0¼	30	1¼	41'-1	1¼	14	41'-1
12	¾	21'-7	24	½	11'-3¼	11/16	11	21'-7	4	6	-	-	30	¾	31'-7	¾	14	31'-7
13	¾	31'-1	24	¾	11'-6¼	¾	11	31'-1	5	6	-	-	30	1	31'-7	1¼	14	31'-7
14	¾	31'-7	24	⅜	11'-9¼	11/16	11	31'-7	6	7	-	-	30	1¼	41'-1	1¼	14	41'-1
15	11/16	21'-7	24	½	11'-3¼	¾	11	21'-7	4	4	-	-	30	¾	21'-7	11/16	14	21'-7
16	¾	21'-7	24	¼	11'-3¼	11/16	11	21'-7	4	4	-	-	30	1	21'-7	1¼	14	21'-7
17	¾	21'-7	24	⅜	11'-3¼	11/16	11	21'-7	4	5	-	-	30	1¼	31'-1	1¼	14	31'-1
18	¾	21'-7	24	1	11'-3¼	¾	11	21'-7	4	5	¼	11'-6¼	30	¾	31'-1	11/16	14	31'-1
19	¾	21'-7	24	1	11'-3¼	¾	11	21'-7	4	5	⅜	11'-6¼	30	¾	31'-1	11/16	14	31'-1
20	¾	21'-7	24	¾	11'-3¼	¾	11	21'-7	4	5	⅜	11'-6¼	30	¾	31'-1	11/16	14	31'-1
21	⅝	21'-7	24	¼	11'-3¼	11/16	11	21'-7	4	6	-	-	30	¾	31'-7	¾	14	31'-7
22	⅝	21'-7	24	¼	11'-3¼	11/16	11	21'-7	4	6	-	-	30	¾	31'-7	¾	14	31'-7
23	⅝	21'-7	24	⅜	11'-3¼	11/16	11	21'-7	4	6	-	-	30	¾	31'-7	¾	14	31'-7
24	¾	31'-1	24	¾	11'-6¼	11/16	11	31'-1	5	5	¼	11'-6¼	30	¾	31'-1	¾	14	31'-1
25	¾	31'-1	24	¾	11'-6¼	11/16	11	31'-1	5	5	¼	11'-6¼	30	¾	31'-1	¾	14	31'-1
26	¾	31'-7	24	½	11'-9¼	11/16	11	31'-7	6	5	¼	11'-6¼	30	¾	31'-1	¾	14	31'-1
27	⅝	21'-7	24	⅜	11'-3¼	¾	11	21'-7	4	5	¼	11'-6¼	30	1	31'-1	1¼	14	31'-1
28	⅝	31'-7	24	-	-	11/16	11	31'-7	6	8	¼	21'-3¼	24	11/16	41'-7	1	11	41'-7





GIRDER FLANGE FIELD SPLICE DETAILS

Revision (5-31-83)
Telephone conduit bases deleted as marked by ⚠.

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE JMH DATE 5-82 CHECKED DLM DATE 7-82

6767-25-00

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

SLAB PLAN-UNIT 2

STA. 80+40.00
RIVER MILE 363.9
LEE COUNTY, IOWA

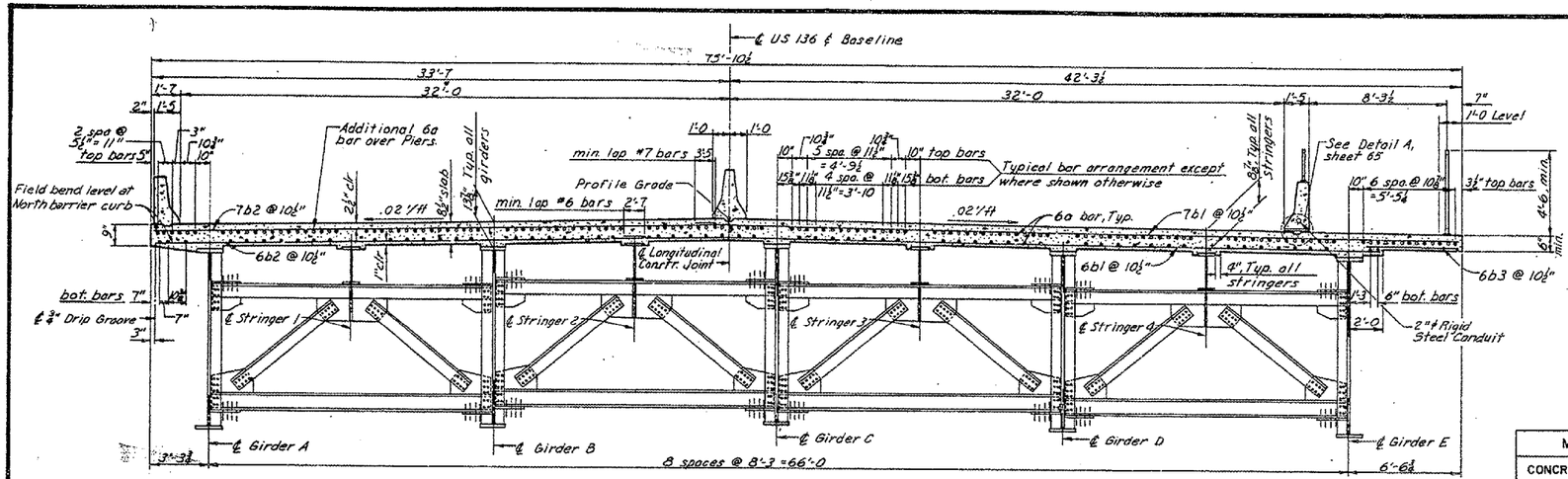
PROJECT NO. BRF-19-1(3)--38-56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 73 OF

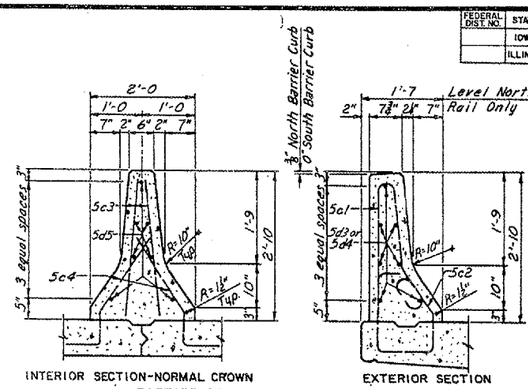
DESIGN NO. 282 LEE COUNTY FILE 25723 SHEET 79 OF 227

FOR INFORMATION ONLY

FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			23	40
	ILLINOIS				



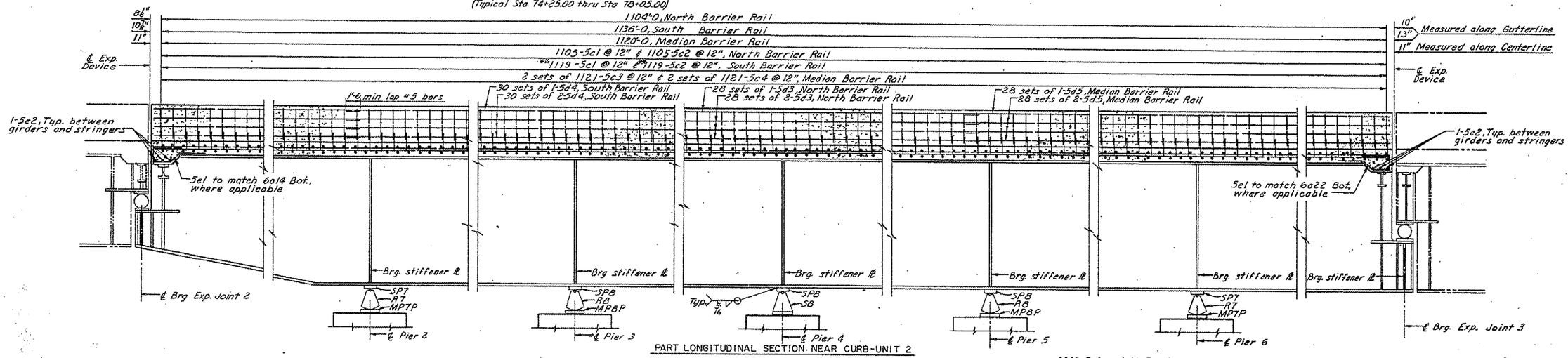
TYPICAL SECTION
(Typical Sta. 74+25.00 thru Sta. 78+05.00)



INTERIOR SECTION-NORMAL CROWN — EXTERIOR SECTION

BARRIER RAIL REINFORCEMENT DETAILS

MEDIAN CURB CONCRETE QUANTITIES		
CONCRETE	1120.98 ft X .1055 Cu.Yd/ft	118.3 Cu.Yd.



PART LONGITUDINAL SECTION NEAR CURB-UNIT 2

**18-5c1 and 18-5c2 have been deleted at the light blisters. For details see Sheet 105

TYPICAL ROCKER SETTINGS UNIT 2									
	EXPANSION JOINT		PIER 2	PIER 3	PIER 4	PIER 5	PIER 6	EXPANSION JOINT	
Temperature at Time of Setting									
90° F	7 3/16"	+1 1/16"	+1 11/16"	+5/16"	0"	+5/16"	+1 1/16"	+1 1/4"	10 5/16"
50° F	9 1/2"	0"	0"	0"	0"	0"	0"	0"	13 1/4"
10° F	11 11/16"	-1 1/16"	-1 11/16"	-5/16"	0"	-5/16"	-1 1/16"	-1 1/4"	16 3/16"

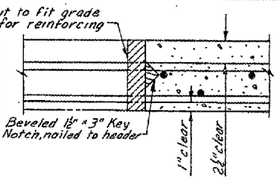
NOTES:

Rockers are to be set vertically at 50° F.

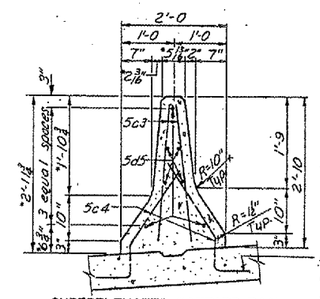
For temperatures above 50° F set masonry plate toward fixed shoe (+).

For temperatures below 50° F set masonry plate away from fixed shoe (-).

Settings for other temperatures are proportional to those shown for a 40° temperature change.



LONGITUDINAL SLAB CONSTRUCTION JOINT DETAIL
(Transverse slab construction joint similar except for bar detail)



SUPERELEVATED BARRIER RAIL REINFORCEMENT DETAILS-INTERIOR SECTION

*Note: In superelevation transition areas these dimensions will vary. The slopes of the faces shall not change.

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE JMH DATE 5-82 CHECKED DLM DATE 7-82

6767-25-00

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA-HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

SLAB DETAILS-UNIT 2

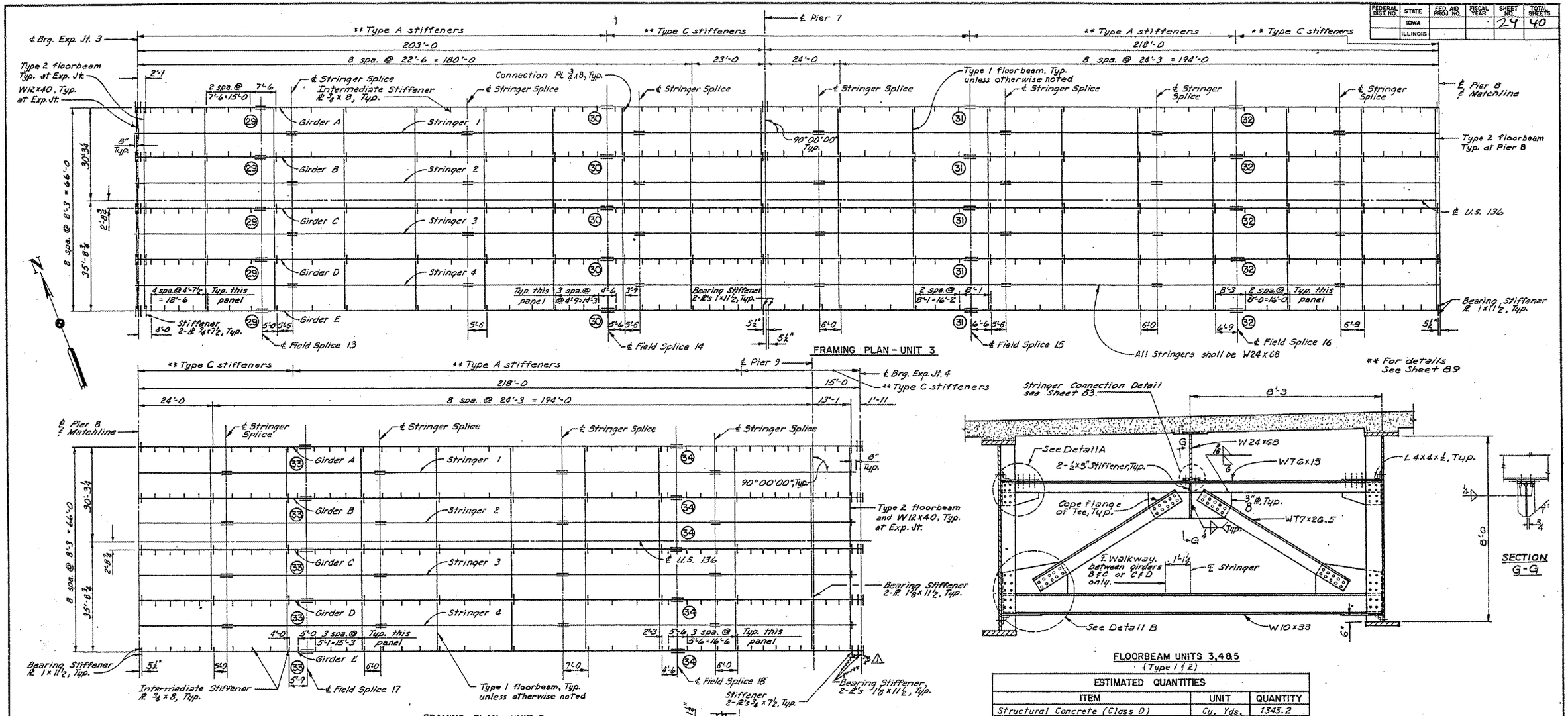
STA. 90+40.08
RIVER MILE 363.9
LEE COUNTY, IOWA
PROJECT NO. BRF-19-1(3)—38-56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 74 OF

DESIGN NO. 252 LEE COUNTY FILE 26722 SHEET 80 OF 227

FOR INFORMATION ONLY

FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			24	40
	ILLINOIS				



FLOORBEAM UNITS 3,4&5
(Type 1 & 2)

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Structural Concrete (Class D)	Cu. Yds.	1343.2
Reinforcing Steel - Non Epoxy Coated	Lbs.	153,300
Reinforcing Steel - Epoxy Coated *	Lbs.	254,516
Structural Steel - A36	Lbs.	1,489,366
Structural Steel - A572	Lbs.	466,571
Structural Steel - A588	Lbs.	524,226
N. and S. Barrier Rail	Lin. Ft.	1307.0
Median Barrier Rail	Lin. Ft.	654.0

*Includes 344 lbs. of reinforcing steel in light blisters,

Notes:

Intermediate stiffeners shall be spaced equally between intermediate floorbeams unless otherwise shown.

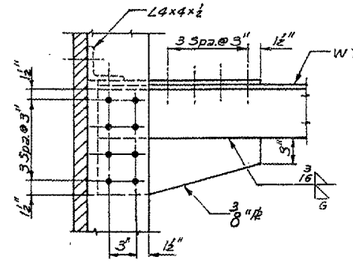
The circle near the girder field splices with a number within represents the Type of splice.

For girder field splice details see Sheet 83

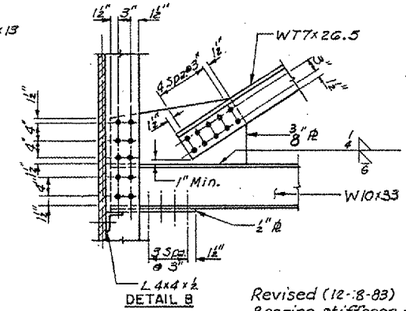
For stringer splice details, see Sheet 66

All re-entrant cuts shall have a 1" min. radius.

For intermediate and bearing stiffener details see Sheet 89.

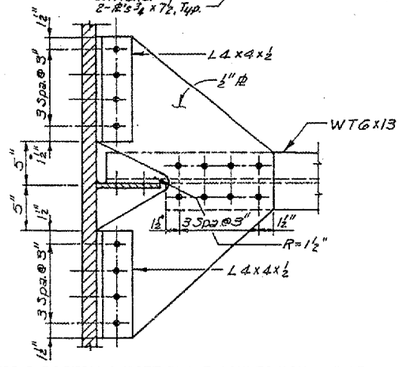


DETAIL A



DETAIL B

Revised (12-8-83)
Bearing stiffener detail @ Exp. Jt 4 corrected as marked by △



TOP & BOTTOM GUSSET PLATE CONNECTION - TYPE 1
(For Type 2 top and bottom gusset plate connection, See Sheet 68.)

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE JEL DATE 6/82 | CHECKED LCY DATE 7-82

6767-25-00

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE

DESIGN FOR 0° SKEW

3340' x 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

FRAMING PLAN-UNIT 3

STA. 50+40.00
RIVER MILE 363.9
LEE COUNTY, IOWA

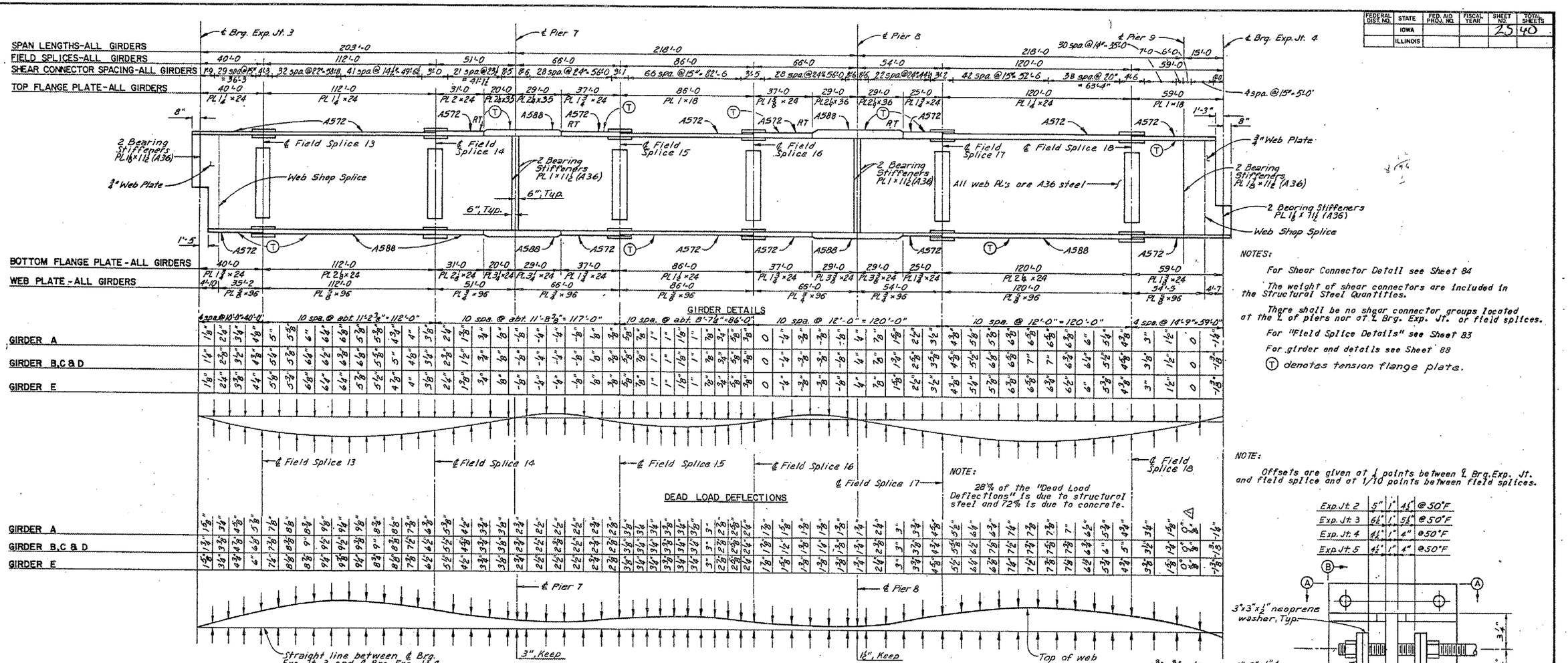
PROJECT NO. BRF-19-1(3)--38-56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 75 OF

DESIGN NO. 282 LEE COUNTY FILE 25723 SHEET 81 OF 227

FOR INFORMATION ONLY

FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			25	40
	ILLINOIS				



NOTE:
28% of the "Dead Load Deflections" is due to structural steel and 72% is due to concrete.

NOTES:
For Shear Connector Detail see Sheet 84
The weight of shear connectors are included in the Structural Steel Quantities.
There shall be no shear connector groups located at the ℄ of piers nor at ℄ Brg. Exp. Jt. or field splices.
For "Field Splice Details" see Sheet 83
For girder end details see Sheet 88
Ⓣ denotes tension flange plate.

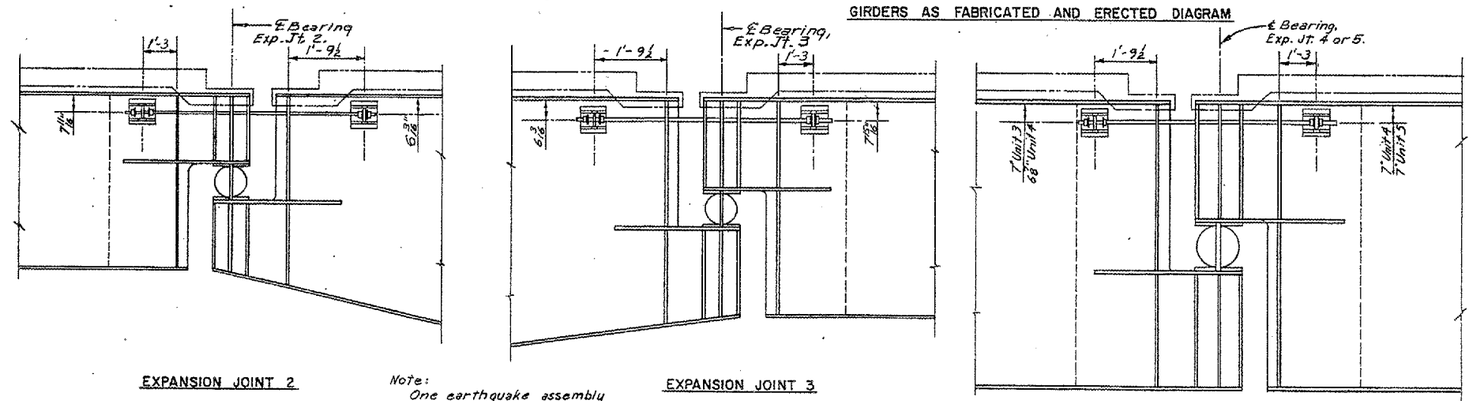
NOTE:
Offsets are given at ¼ points between ℄ Brg. Exp. Jt. and field splice and at 1/10 points between field splices.

Exp. Jt. 2	5"	1"	4½	@ 50°F
Exp. Jt. 3	6½	1"	5½	@ 50°F
Exp. Jt. 4	4½	1"	4"	@ 50°F
Exp. Jt. 5	4½	1"	4"	@ 50°F

ANCHOR DETAIL

SECTION A-A

SECTION B-B



EXPANSION JOINT 2

Note:
One earthquake assembly each side of web each girder.

EXPANSION JOINT 3

EARTHQUAKE RESTRAINER DETAILS

EXPANSION JOINT 4 & 5

GIRDERS AS FABRICATED AND ERECTED DIAGRAM

Revised (12-8-83)
Girders As Fabricated & Erected Diagram corrected as marked by ⚠.

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE
GIRDER ELEVATION AND DEFLECTIONS
UNIT 3

STA. 90+40.00
RIVER MILE 363.9
LEE COUNTY, IOWA
PROJECT NO. BRF-19-1(3)--38--56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 76 OF

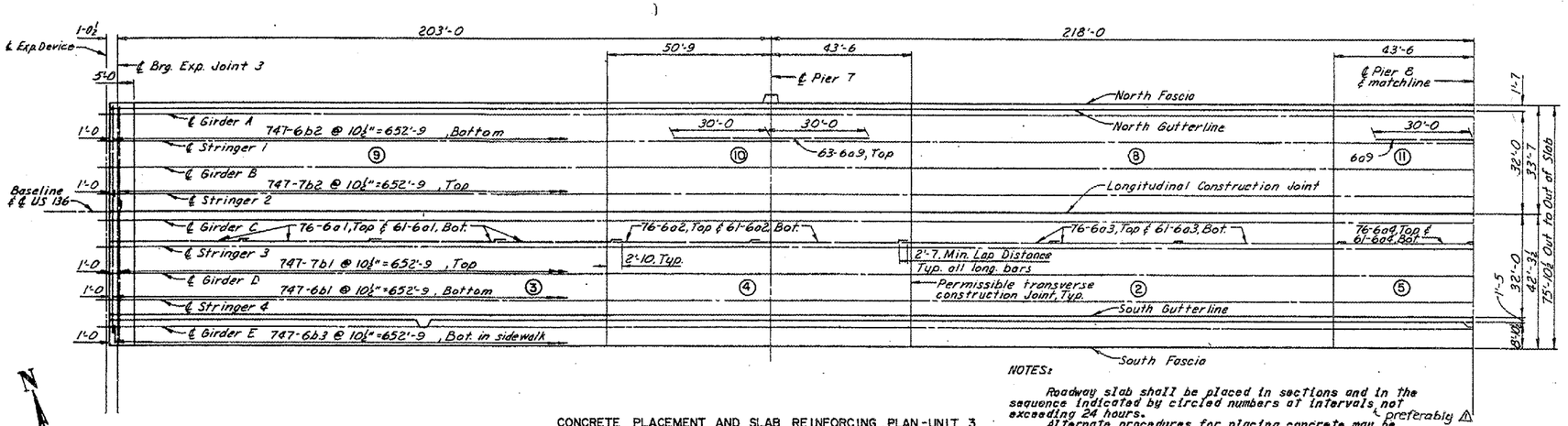
HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB
MADE JMH DATE 7-82 CHECKED DLM DATE 7-82

8787-25-00

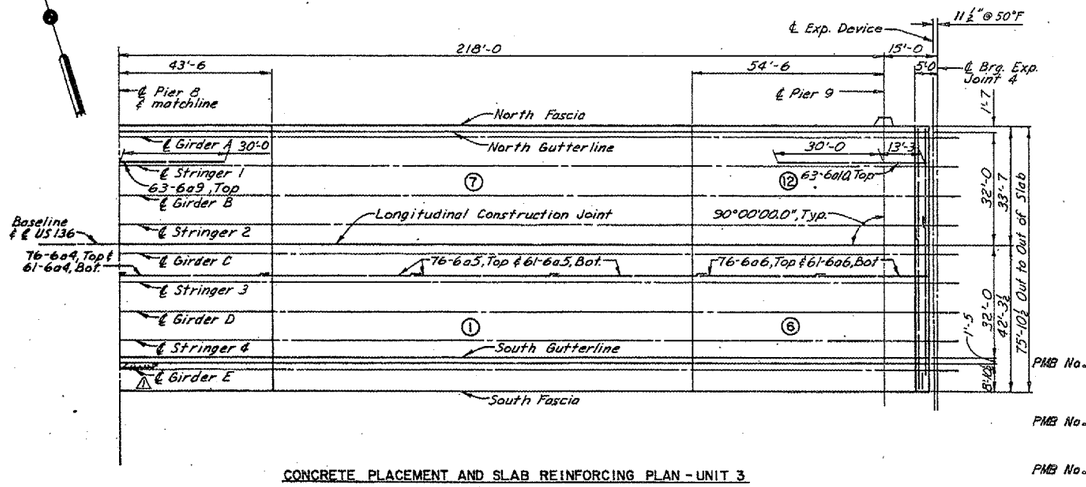
DESIGN NO. 282 LEE COUNTY FILE 26723 SHEET 82 OF 227

FOR INFORMATION ONLY

FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			26	40
	ILLINOIS				



CONCRETE PLACEMENT AND SLAB REINFORCING PLAN - UNIT 3



CONCRETE PLACEMENT AND SLAB REINFORCING PLAN - UNIT 3

NOTES:

Roadway slab shall be placed in sections and in the sequence indicated by circled numbers at intervals not exceeding 24 hours, preferably ⚠.

Alternate procedures for placing concrete may be submitted for approval together with a statement of the proposed method and evidence that the contractor possesses the necessary equipment and facilities to accomplish the required results.

The transverse construction joints shall be placed parallel to the adjacent ℄ pier.

For detail of slab construction joint, see Sheet 78

For detail of longitudinal bar spacing, see Sheet 78

For "Light Pole Base Details", see Sheet 105 and 106
For "Drain Details", see Sheets 98 and 99
For location of drains see Sheet 28 and 29
5'-0 each side of Joint 3 shall be poured after both Unit 2 and 3 are completed and expansion joint is in place.
5'-0 each side of Joint 4 shall be poured after both Unit 3 and 4 are completed and expansion joint is in place.

BENCH MARKS

PMB No. 2 Found chiseled "□" in T/Conc. @ east end of retaining wall, south side of Highway 136, east end of Keokuk-Hamilton River Bridge. Elev. 505.06

PMB No. 6 S.E. corner of light base on the N.W. corner of the intersection of Water and Main Street in Keokuk. Elev. 509.32

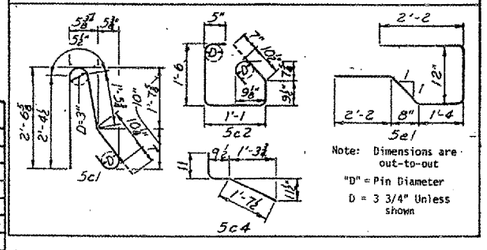
PMB No. 7 S.E. corner -- base of traffic light -- N.E. corner of 3rd and Main in Keokuk. Elev. 579.17

CONCRETE PLACEMENT QUANTITIES	
UNIT 3	
POUR	CU. YDS.
1	134.5
2	145.9
3	174.4
4	104.9
5	97.1
6	77.5
7	111.3
8	120.9
9	144.5
10	87.0
11	80.5
12	64.4
Light Blister	.3
Total	1343.2

BILL OF REINFORCEMENT

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
	NON-EPOXY COATED				
6a1	Longitudinal	——	244	40'-11	14995
6a2	Longitudinal	——	122	48'-2	8826
6a3	Longitudinal	——	183	47'-3	12987
6a4	Longitudinal	——	122	44'-7	8170
6a5	Longitudinal	——	183	43'-7	11980
6a6	Longitudinal	——	122	35'-5	6490
6b1	Transverse	——	747	44'-5	49835
6b2	Transverse	——	747	29'-3	32818
6b3	Transverse	——	747	6'-5	7199
			Total		153300
	EPOXY-COATED				
6a1	Longitudinal	——	304	40'-11	18683
6a2	Longitudinal	——	152	48'-2	10997
6a3	Longitudinal	——	228	47'-3	16181
6a4	Longitudinal	——	152	44'-7	10179
6a5	Longitudinal	——	228	43'-7	14925
6a6	Longitudinal	——	152	35'-5	8086
6a9	Long. over Pier	——	126	60'-0	11355
6a10	Long. over Pier	——	63	43'-3	4093
7b1	Transverse	——	747	45'-3	69091
7b2	Transverse	——	747	33'-9	51532
5c1	Curb, Transverse	⌐	1296	5'-9	7772
5c2	Curb, Transverse	⌐	1296	5'-3	7097
5c3	Curb, Transverse	——	1308	2'-7	3524
5c4	Curb, Transverse	/	1308	3'-4	4547
5d2	Curb, Longitudinal	——	336	42'-4	14836
5e1	End Beam	⌐	112	7'-7	886
5e2	End Beam	——	48	7'-9	388
			Total		254172

BAR BENDING DIAGRAMS



TOP OF CONCRETE PAVEMENT ELEVATIONS UNIT 3

LOCATION	EXP. JT.	.25	.50	.75	F.S. 13	.10	.20	.30	.40	.50	.60	.70	.80	.90	F.S. 14	.10	.20	.30	.40	.50	.60	.70	.80	.90	F.S. 15	.10	.20	.30	.40
GIRDER A	555.90	555.75	555.60	555.44	555.29	555.11	554.92	554.73	554.54	554.34	554.14	553.93	553.72	553.51	553.29	553.06	552.83	552.60	552.38	552.15	551.92	551.69	551.46	551.24	551.01	550.84	550.67	550.50	550.34
STRINGER 1	556.06	555.92	555.76	555.61	555.45	555.27	555.09	554.90	554.70	554.51	554.30	554.10	553.89	553.67	553.45	553.23	553.00	552.77	552.54	552.31	552.08	551.86	551.63	551.40	551.17	551.00	550.84	550.67	550.50
GIRDER B	556.23	556.08	555.93	555.77	555.62	555.44	555.25	555.06	554.87	554.67	554.47	554.26	554.05	553.84	553.62	553.39	553.16	552.93	552.71	552.48	552.25	552.02	551.79	551.57	551.34	551.17	551.00	550.83	550.67
STRINGER 2	556.39	556.25	556.09	555.94	555.78	555.60	555.42	555.23	555.03	554.84	554.63	554.43	554.22	554.00	553.78	553.56	553.33	553.10	552.87	552.64	552.41	552.19	551.96	551.73	551.50	551.33	551.17	551.00	550.83
GIRDER C	556.45	556.30	556.15	556.00	555.84	555.66	555.47	555.28	555.09	554.89	554.69	554.48	554.27	554.06	553.84	553.61	553.38	553.15	552.93	552.70	552.47	552.24	552.01	551.79	551.56	551.39	551.22	551.05	550.89
STRINGER 3	556.28	556.14	555.98	555.83	555.67	555.49	555.31	555.12	554.92	554.73	554.52	554.32	554.11	553.89	553.67	553.45	553.22	552.99	552.76	552.53	552.31	552.08	551.85	551.62	551.39	551.23	551.06	550.89	550.72
GIRDER D	556.12	555.97	555.82	555.67	555.51	555.33	555.14	554.95	554.76	554.56	554.36	554.15	553.94	553.73	553.51	553.28	553.05	552.82	552.60	552.37	552.14	551.91	551.68	551.46	551.23	551.06	550.89	550.72	550.56
STRINGER 4	555.95	555.81	555.65	555.50	555.34	555.16	554.98	554.79	554.59	554.40	554.19	553.99	553.78	553.56	553.34	553.12	552.89	552.66	552.43	552.20	551.98	551.75	551.52	551.29	551.06	550.90	550.73	550.56	550.39
GIRDER E	555.79	555.64	555.49	555.34	555.18	555.00	554.81	554.62	554.43	554.23	554.03	553.82	553.61	553.40	553.18	552.95	552.72	552.49	552.27	552.04	551.81	551.58	551.35	551.13	550.90	550.73	550.56	550.39	550.23

TOP OF CONCRETE PAVEMENT ELEVATIONS UNIT 3

LOCATION	.50	.60	.70	.80	.90	F.S. 16	.10	.20	.30	.40	.50	.60	.70	.80	.90	F.S. 17	.10	.20	.30	.40	.50	.60	.70	.80	.90	F.S. 18	.25	.50	.75	Exp. Jt.
GIRDER A	550.17	550.00	549.83	549.67	549.50	549.33	549.10	548.86	548.63	548.39	548.16	547.93	547.69	547.46	547.22	546.99	546.76	546.52	546.29	546.05	545.82	545.59	545.35	545.12	544.88	544.65	544.36	544.07	543.79	543.50
STRINGER 1	550.33	550.17	550.00	549.83	549.66	549.50	549.26	549.03	548.79	548.56	548.33	548.09	547.86	547.62	547.39	547.16	546.92	546.69	546.45	546.22	545.99	545.75	545.52	545.28	545.05	544.82	544.53	544.24	543.95	543.66
GIRDER B	550.50	550.33	550.16	550.00	549.83	549.66	549.43	549.19	548.96	548.72	548.49	548.26	548.02	547.79	547.55	547.32	547.09	546.85	546.62	546.38	546.15	545.92	545.68	545.45	545.21	544.98	544.69	544.40	544.12	543.83
STRINGER 2	550.66	550.50	550.33	550.16	549.99	549.83	549.59	549.36	549.12	548.89	548.66	548.42	548.19	547.95	547.72	547.49	547.25	547.02	546.78	546.55	546.32	546.08	545.85	545.61	545.38	545.15	544.86	544.57	544.28	543.99
GIRDER C	550.72	550.55	550.38	550.22	550.05	549.88	549.65	549.41	549.18	548.94	548.71	548.48	548.24	548.01	547.77	547.54	547.31	547.07	546.84	546.60	546.37	546.14	545.90	545.67	545.43	545.20	544.91	544.63	544.34	544.05
STRINGER 3	550.55	550.39	550.22	550.05	549.88	549.72	549.48	549.25	549.01	548.78	548.55	548.31	548.08	547.84	547.61	547.38	547.14	546.91	546.67	546.44	546.21	545.97	545.74	545.50	545.27	545.04	544.75	544.46	544.17	543.89
GIRDER D	550.39	550.22	550.05	549.89	549.72	549.55	549.32	549.08	548.85	548.61	548.38	548.15	547.91	547.68	547.44	547.21	546.98	546.74	546.51	546.27	546.04	545.81	545.57	545.34	545.10	544.87	544.58	544.30	544.01	543.72
STRINGER 4	550.22	550.06	549.89	549.72	549.55	549.39	549.15	548.92	548.68	548.45	548.22	547.98	547.75	547.51	547.28	547.05	546.81	546.58	546.34	546.11	545.88	545.64	545.41	545.17	544.94	544.71	544.42	544.13	543.84	543.56
GIRDER E	550.06	549.89	549.72	549.56	549.39	549.22	548.99	548.75	548.52	548.28	548.05	547.82	547.58	547.35	547.11	546.88	546.65	546.41	546.18	545.94	545.71	545.48	545.24	545.01	544.77	544.54	544.25	543.97	543.68	543.39

Revision (5-31-83) Telephone conduit base deleted & 1st paragraph in Notes revised as marked by ⚠.

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

SLAB PLAN - UNIT 3

STA. 80+40.00
RIVER MILE 363.9
LEE COUNTY, IOWA

PROJECT NO. BRF-19-1(3)--38-56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 77 OF

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

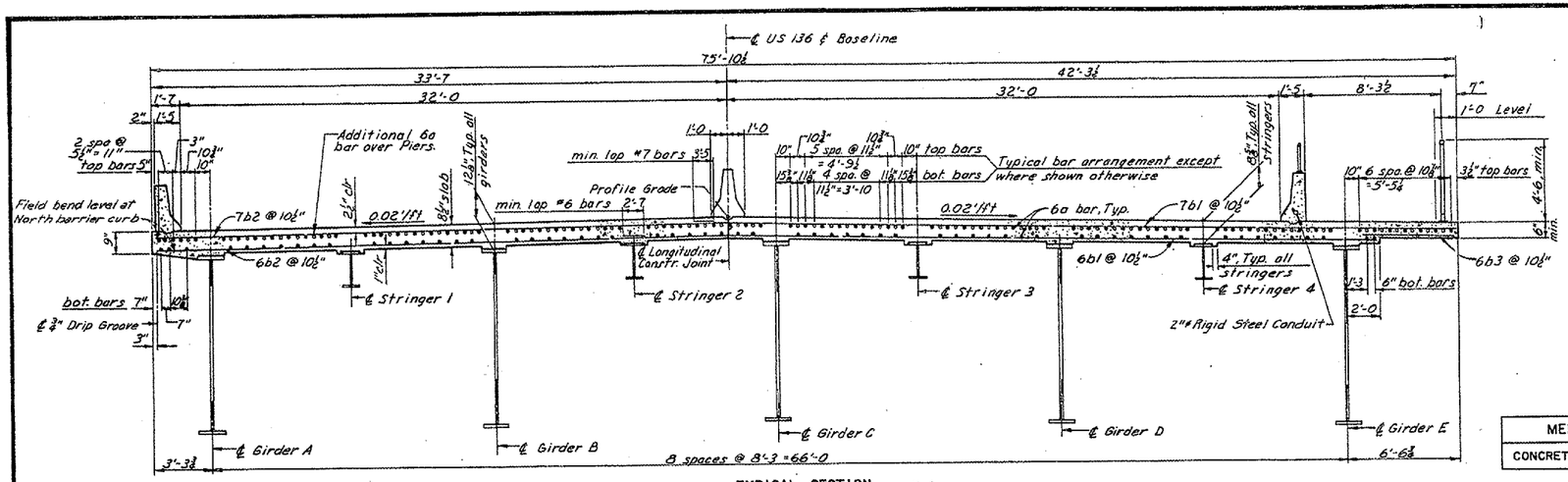
DRAFT JMH DATE 5-82 CHECKED DLM DATE 7-82

6767-25-00

DESIGN NO. 282 LEE COUNTY FILE 26723 SHEET 83 OF 227

FOR INFORMATION ONLY

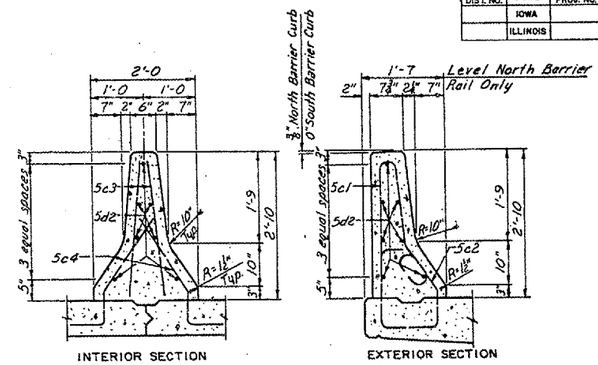
FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			77	40
	ILLINOIS				



TYPICAL SECTION

Note:

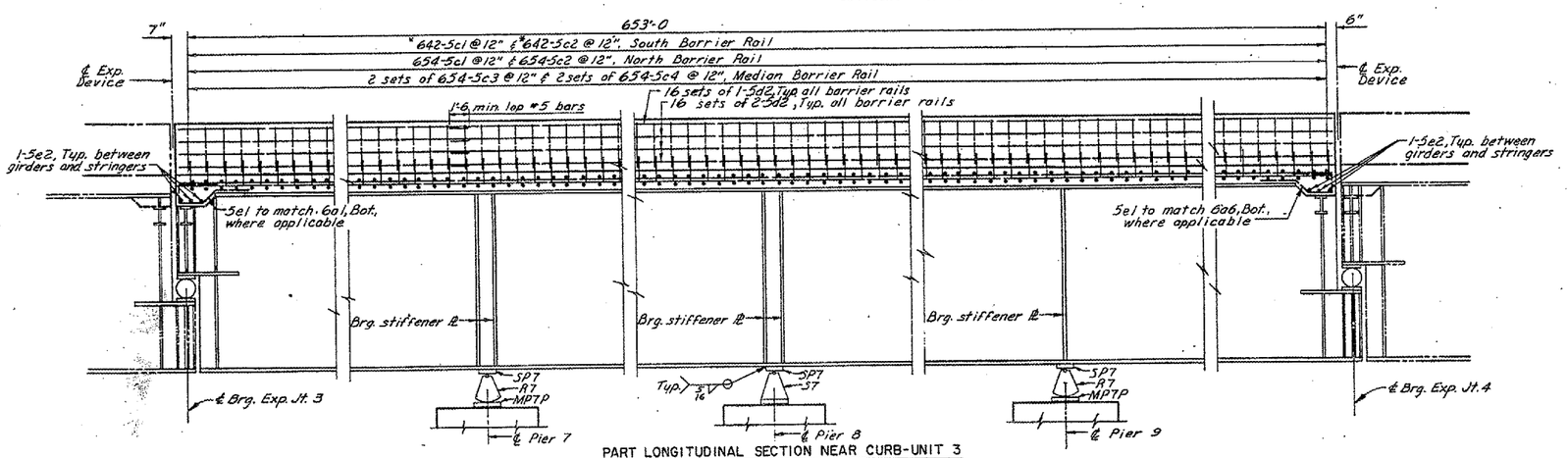
Diaphragms are not shown in typical section. For details see Sheet 75



INTERIOR SECTION EXTERIOR SECTION

BARRIER RAIL REINFORCEMENT DETAILS

MEDIAN CURB CONCRETE QUANTITIES		
CONCRETE	653.5 ft X .1055 Cu.Yd/ft	68.9 Cu.Yd.



PART LONGITUDINAL SECTION NEAR CURB-UNIT 3

*12-5c1 and 12-5c2 have been deleted at the light blisters. For details see Sheet 105

TYPICAL ROCKER SETTINGS, UNIT 3							
	EXPANSION JOINT		PIER 7	PIER 8	PIER 9	EXPANSION JOINT	
Temperature at Time of Seeting							
90° F	10 5/16"	+1 1/2"	+11/16"	0"	+11/16"	+1"	6 5/8"
50° F	13 1/4"	0"	0"	0"	0"	0"	9"
10° F	16 3/16"	-1 1/2"	-11/16"	0"	-11/16"	-1"	11 11/16"

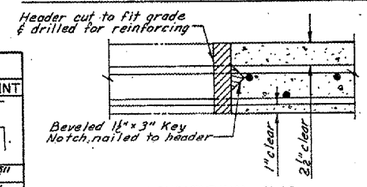
NOTES:

Rockers are to be set vertically at 50° F.

For temperatures above 50° F set masonry plate toward fixed shoe (+).

For temperatures below 50° F set masonry plate away from fixed shoe (-).

Settings for other temperatures are proportional to those shown for a 40° temperature change.



LONGITUDINAL SLAB CONSTRUCTION JOINT DETAIL

(Transverse slab construction joint similar except for bar detail)

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE JMH DATE 5-82 CHECKED DLM DATE 7-82

6767-25-00

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE

DESIGN FOR 0° SKEW

3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

SLAB DETAILS-UNIT 3

STA. 80+40.00
RIVER MILE 363.9
LEE COUNTY, IOWA

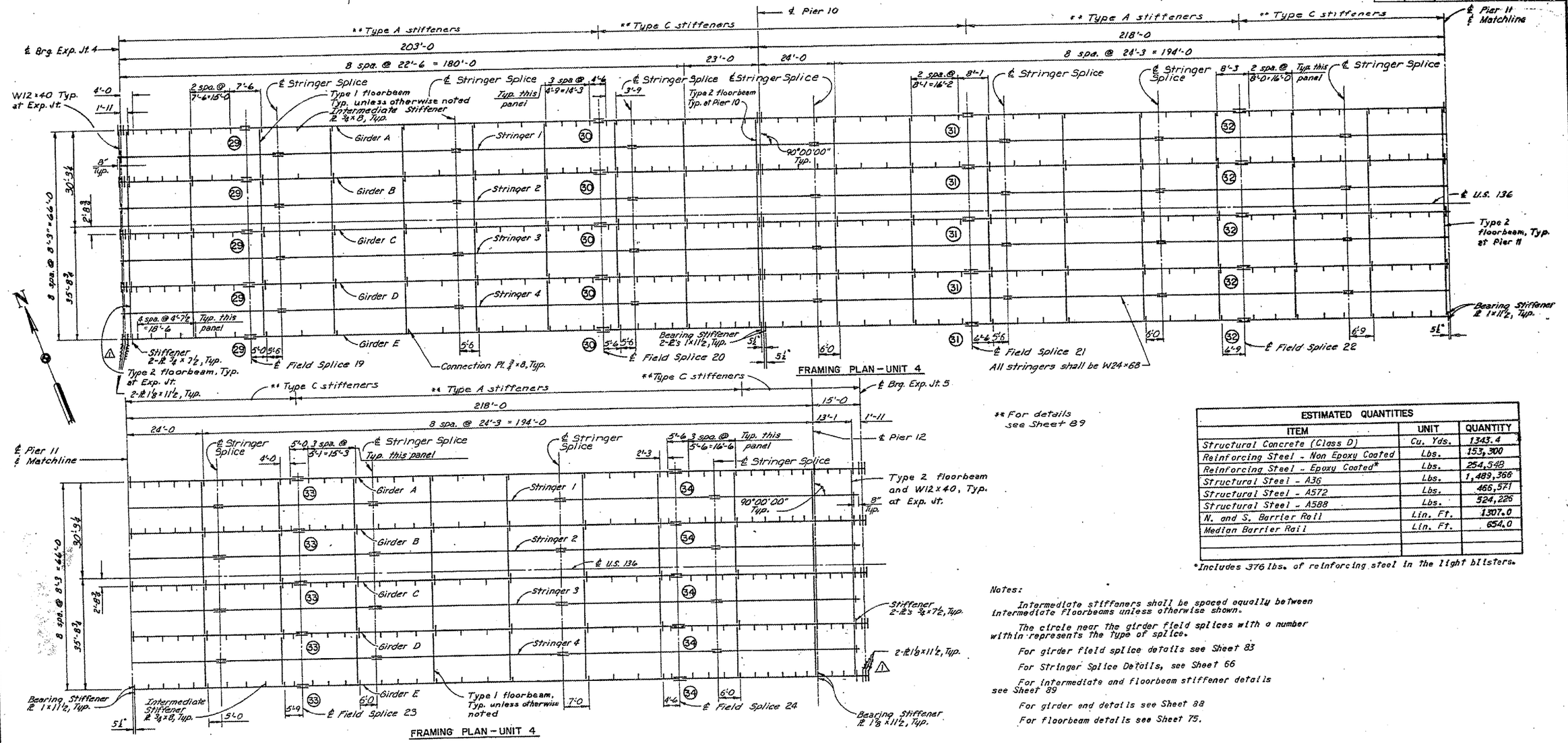
PROJECT NO. BRF-19-1(3)--38--56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 78 OF

DESIGN NO. 282 LEE COUNTY FILE 25723 SHEET 84 OF 227

FOR INFORMATION ONLY

FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			28	40
	ILLINOIS				



** For details see Sheet 89

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Structural Concrete (Class D)	Cu. Yds.	1343.4
Reinforcing Steel - Non Epoxy Coated	Lbs.	153,300
Reinforcing Steel - Epoxy Coated*	Lbs.	254,548
Structural Steel - A36	Lbs.	1,489,366
Structural Steel - A572	Lbs.	466,571
Structural Steel - A588	Lbs.	524,226
N. and S. Barrier Rail	Lin. Ft.	1307.0
Median Barrier Rail	Lin. Ft.	654.0

*Includes 376 lbs. of reinforcing steel in the light blisters.

Notes:

Intermediate stiffeners shall be spaced equally between intermediate floorbeams unless otherwise shown.

The circle near the girder field splices with a number within represents the Type of splice.

For girder field splice details see Sheet 83

For Stringer Splice Details, see Sheet 66

For intermediate and floorbeam stiffener details see Sheet 89

For girder end details see Sheet 88

For floorbeam details see Sheet 75.

FOR INFORMATION ONLY

Revised (12-8-83) Bearing stiffener details @ Exp Jt 4 & 5 corrected as marked by ⚠.

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE JEL DATE 5-82 CHECKED LCY DATE 7-82

6787-25-00

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA – HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' x 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

FRAMING PLAN – UNIT 4

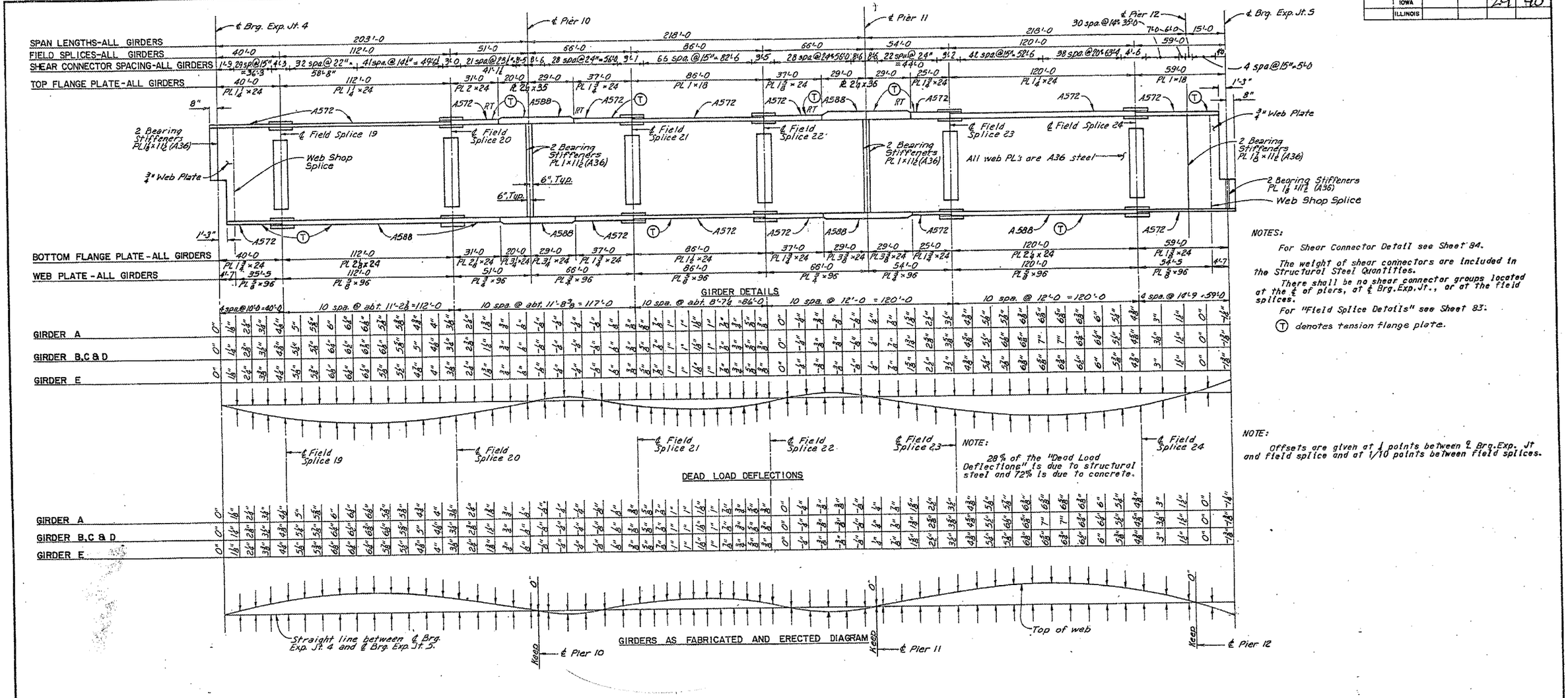
STA. 50+40.00
RIVER MILE 383.9
LEE COUNTY, IOWA

PROJECT NO. BRF-19-1(3)--38-56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 79 OF

DESIGN NO. 282 LEE COUNTY FILE 26723 SHEET 85 OF 227

FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			29	40
	ILLINOIS				



NOTES:

For Shear Connector Detail see Sheet 84.

The weight of shear connectors are included in the Structural Steel Quantities.

There shall be no shear connector groups located at the ℄ of piers, at ℄ Brg. Exp. Jt., or at the field splices.

For "Field Splice Details" see Sheet 83.

Ⓣ denotes tension flange plate.

NOTE:

Offsets are given at 1/4 points between ℄ Brg. Exp. Jt and field splice and at 1/10 points between field splices.

6767-25-00

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE JMH DATE 6-82 CHECKED DLM DATE 7-82

FOR INFORMATION ONLY

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE

DESIGN FOR 0° SKEW

3340' x 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

GIRDER ELEVATION AND DEFLECTIONS

UNIT 4

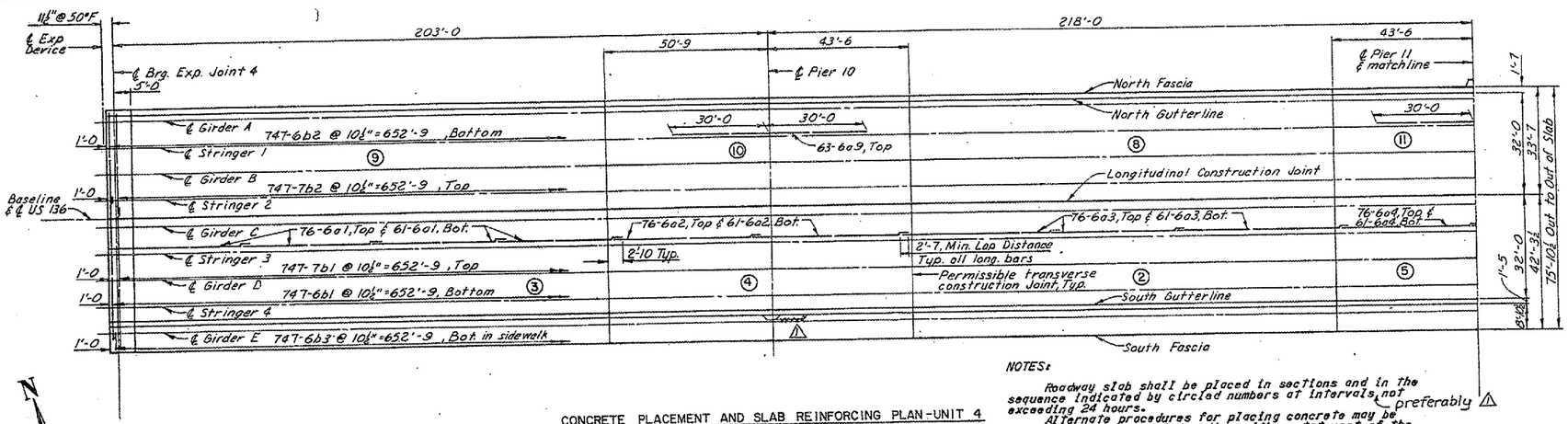
STA. 80+40.00
RIVER MILE 363.9
LEE COUNTY, IOWA

PROJECT NO. BRF-19-1(3)--38-36
HANCOCK COUNTY, ILLINOIS

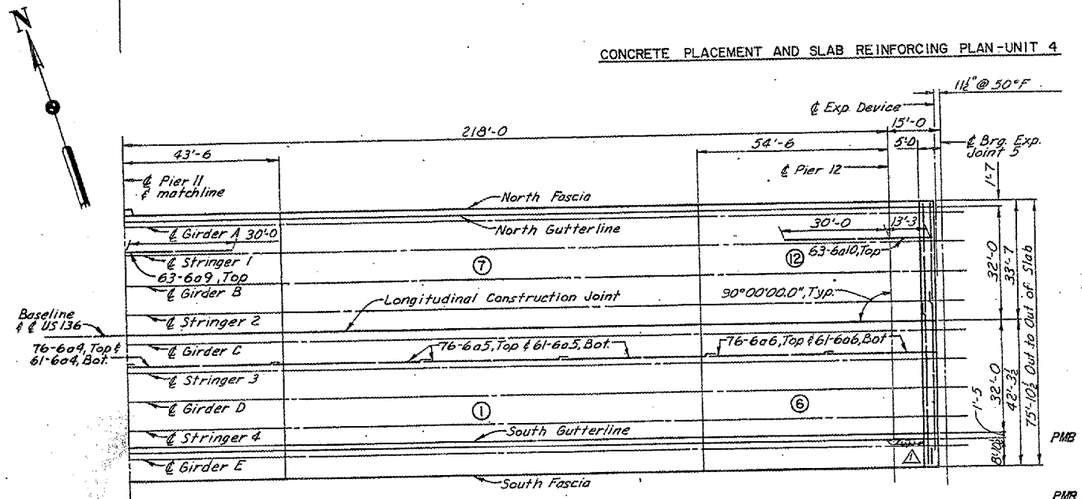
DESIGN SHEET 80 OF

DESIGN NO. 282 LEE COUNTY FILE 26723 SHEET 86 OF 227

FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			30	40
	ILLINOIS				



CONCRETE PLACEMENT AND SLAB REINFORCING PLAN - UNIT 4



CONCRETE PLACEMENT AND SLAB REINFORCING PLAN - UNIT 4

NOTES:

Roadway slab shall be placed in sections and in the sequence indicated by circled numbers at intervals, not exceeding 24 hours. preferably △

Alternate procedures for placing concrete may be submitted for approval together with a statement of the proposed method and evidence that the contractor possesses the necessary equipment and facilities to accomplish the required results.

The transverse construction joints shall be placed parallel to the adjacent ℄ pier.

For detail of slab construction joint, see Sheet 82

For detail of longitudinal bar spacing, see Sheet 82

For "Light Pole Base Details", see Sheet 105 and 106

For "Drain Details", see Sheets 98 and 99

For location of drains see Sheet 28 and 29

"Top of Concrete Pavement Elevations" are shown at ¼ points between Exp. Jt. and F.S. 19 and at 1/10 points between all field splices and at ¼ points between F.S. 24 and Exp. Jt.

F.S. denotes Field Splice.

5'-0 each side of Joint 4 shall be poured after both Unit 3 and 4 are completed and expansion joint is in place.

5'-0 each side of Joint 5 shall be poured after both Unit 4 and 5 are completed and expansion joint is in place.

BENCH MARKS

PMB No. 2 Found chiseled "□" in T/Conc. @ east end of retaining wall, south side of Highway 136, east end of Keokuk-Hamilton River Bridge. Elev. 505.06

PMB No. 6 S.E. corner of light base on the N.W. corner of the intersection of Water and Main Street in Keokuk. Elev. 509.32

PMB No. 7 S.E. corner — base of traffic light — N.E. corner of 3rd and Main in Keokuk. Elev. 579.17

CONCRETE PLACEMENT QUANTITIES

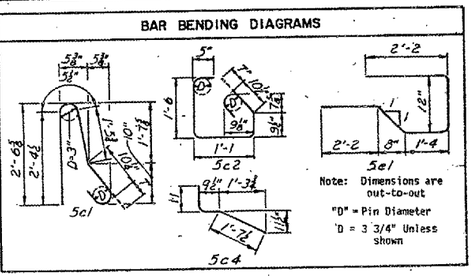
UNIT 4

POUR	CU. YDS.
1	134.5
2	145.9
3	174.4
4	104.9
5	97.1
6	77.5
7	111.3
8	120.9
9	144.5
10	87.0
11	80.5
12	64.4
Light Blisters	.5
Total	1343.4

BILL OF REINFORCEMENT

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
	NON-EPOXY COATED				
6a1	Longitudinal	—	244	40'-11	14985
6a2	Longitudinal	—	122	48'-2	8826
6a3	Longitudinal	—	183	47'-3	12987
6a4	Longitudinal	—	122	44'-7	8170
6a5	Longitudinal	—	183	43'-7	11980
6a6	Longitudinal	—	122	35'-5	6490
6b1	Transverse	—	747	44'-5	49835
6b2	Transverse	—	747	29'-3	32818
6b3	Transverse	—	747	6'-5	7199
			Total		153300
	EPOXY-COATED				
6a1	Longitudinal	—	304	40'-11	18683
6a2	Longitudinal	—	152	48'-2	10997
6a3	Longitudinal	—	228	47'-3	16181
6a4	Longitudinal	—	152	44'-7	10179
6a5	Longitudinal	—	228	43'-7	14925
6a6	Longitudinal	—	152	35'-5	8086
6a9	Long. over Pier	—	126	60'-0	11355
6a10	Long. over Pier	—	63	43'-3	4093
7b1	Transverse	—	747	45'-3	69091
7b2	Transverse	—	747	33'-9	51532
5c1	Curb, Transverse	⌐	1296	5'-9	7772
5c2	Curb, Transverse	⌐	1296	5'-3	7097
5c3	Curb, Transverse	—	1308	2'-7	3524
5c4	Curb, Transverse	⌐	1308	3'-4	4547
5d2	Curb, Longitudinal	—	336	42'-4	14836
5e1	End Beam	⌐	112	7'-7	886
5e2	End Beam	—	48	7'-9	388
			Total		254172

BAR BENDING DIAGRAMS



TOP OF CONCRETE PAVEMENT ELEVATIONS UNIT 4

LOCATION	EXP.JT.	.25	.50	.75	F.S.19	.10	.20	.30	.40	.50	.60	.70	.80	.90	F.S.20	.10	.20	.30	.40	.50	.60	.70	.80	.90	F.S.21	.10	.20	.30	.40
GIRDER A	543.50	543.30	543.11	542.91	542.72	542.50	542.28	542.06	541.85	541.63	541.41	541.19	540.97	540.75	540.54	540.31	540.08	539.85	539.62	539.39	539.17	538.94	538.71	538.48	538.25	538.09	537.92	537.75	537.58
STRINGER 1	543.66	543.47	543.27	543.08	542.88	542.67	542.45	542.23	542.01	541.79	541.57	541.36	541.14	540.92	540.70	540.47	540.24	540.02	539.79	539.56	539.33	539.10	538.88	538.65	538.42	538.25	538.08	537.92	537.75
GIRDER B	543.83	543.63	543.44	543.24	543.05	542.83	542.61	542.39	542.18	541.96	541.74	541.52	541.30	541.08	540.87	540.64	540.41	540.18	539.95	539.72	539.50	539.27	539.04	538.81	538.58	538.42	538.25	538.08	537.91
STRINGER 2	543.99	543.80	543.60	543.41	543.21	543.00	542.78	542.56	542.34	542.12	541.90	541.69	541.47	541.25	541.03	540.80	540.57	540.35	540.12	539.89	539.66	539.43	539.21	538.98	538.75	538.58	538.41	538.25	538.08
GIRDER C	544.05	543.86	543.66	543.47	543.27	543.05	542.83	542.61	542.40	542.18	541.96	541.74	541.52	541.30	541.08	540.85	540.63	540.40	540.17	530.94	539.72	539.49	539.26	539.03	538.80	538.64	538.47	538.30	538.13
STRINGER 3	543.89	543.69	543.50	543.30	543.11	542.89	542.67	542.45	542.23	542.01	541.80	541.58	541.36	541.14	540.92	540.69	540.47	540.24	540.01	539.78	539.55	539.32	539.10	538.87	538.64	538.47	538.30	538.14	537.97
GIRDER D	543.72	543.53	543.33	543.14	542.94	542.72	542.50	542.29	542.07	541.85	541.63	541.41	541.19	540.97	540.76	540.53	540.30	540.07	539.84	539.62	539.39	539.16	538.93	538.70	538.47	538.31	538.14	537.97	537.80
STRINGER 4	543.56	543.36	543.17	542.97	542.78	542.56	542.34	542.12	541.90	541.68	541.47	541.25	541.03	540.81	540.59	540.36	540.14	539.91	539.68	539.45	539.22	538.99	538.77	538.54	538.31	538.14	537.97	537.81	537.64
GIRDER E	543.39	543.20	543.00	542.81	542.61	542.39	542.17	541.96	541.74	541.52	541.30	541.08	540.86	540.64	540.43	540.20	539.97	539.74	539.51	539.29	539.06	538.83	538.60	538.37	538.14	537.98	537.81	537.64	537.47

TOP OF CONCRETE PAVEMENT ELEVATIONS UNIT 4

LOCATION	.50	.60	.70	.80	.90	F.S.22	.10	.20	.30	.40	.50	.60	.70	.80	.90	F.S. 23	.10	.20	.30	.40	.50	.60	.70	.80	.90	F.S. 24	.25	.50	.75	Exp.Jt.
GIRDER A	537.42	537.25	537.08	536.91	536.74	536.58	536.34	536.11	535.88	535.64	535.41	535.17	534.94	534.71	534.47	534.24	534.00	533.77	533.54	533.30	533.07	532.83	532.60	532.37	532.13	531.90	531.61	531.32	531.03	530.75
STRINGER 1	537.58	537.41	537.25	537.08	536.91	536.74	536.51	536.27	536.04	535.81	535.57	535.34	535.10	534.87	534.64	534.40	534.17	533.93	533.70	533.47	533.23	533.00	532.76	532.53	532.30	532.06	531.77	531.49	531.20	530.91
GIRDER B	537.75	537.58	537.41	537.24	537.07	536.91	536.67	536.44	536.21	535.97	535.74	535.50	535.27	535.04	534.80	534.57	534.33	534.10	533.87	533.63	533.40	533.16	532.93	532.70	532.46	532.23	531.94	531.65	531.36	531.08
STRINGER 2	537.91	537.74	537.58	537.41	537.24	537.07	536.84	536.60	536.37	536.14	535.90	535.67	535.43	535.20	534.97	534.73	534.50	534.26	534.03	533.80	533.56	533.33	533.09	532.86	532.63	532.39	532.10	531.82	531.53	531.24
GIRDER C	537.97	537.80	537.63	537.46	537.30	537.13	536.89	536.66	536.43	536.19	535.96	535.72	535.49	535.26	535.02	534.79	534.55	534.32	534.09	533.85	533.62	533.38	533.15	532.92	532.68	532.45	532.16	531.87	531.59	531.30
STRINGER 3	537.80	537.63	537.47	537.30	537.13	536.96	536.73	536.49	536.26	536.03	535.79	535.56	535.32	535.09	534.86	534.62	534.39	534.15	533.92	533.69	533.45	533.22	532.98	532.75	532.52	532.28	532.00	531.71	531.42	531.13
GIRDER D	537.64	537.47	537.30	537.13	536.97	536.80	536.56	536.33	536.10	535.86	535.63	535.39	535.16	534.93	534.69	534.46	534.22	533.99	533.76	533.52	533.29	533.05	532.82	532.59	532.35	532.12	531.83	531.54	531.26	530.97
STRINGER 4	537.47	537.30	537.14	536.97	536.80	536.63	536.40	536.17	535.93	535.70	535.46	535.23	535.00	534.76	534.53	534.29	534.06	533.83	533.59	533.36	533.12	532.89	532.66	532.42	532.19	531.95	531.67	531.38	531.09	530.80
GIRDER E	537.31	537.14	536.97	536.80	536.64	536.47	536.23	536.00	535.77	535.53	535.30	535.06	534.83	534.60	534.36	534.13	533.89	533.66	533.43	533.19	532.96	532.72	532.49	532.26	532.02	531.79	531.50	531.21	530.93	530.64

Revision (5-31-83) Telephone conduit bases deleted & 1st paragraph in Notes revised as marked by △.

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

SLAB PLAN - UNIT 4

STA. 80+40.00
RIVER MILE 363.8
LEE COUNTY, IOWA

PROJECT NO. BRF-18-1(3)--38-56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 81 OF

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

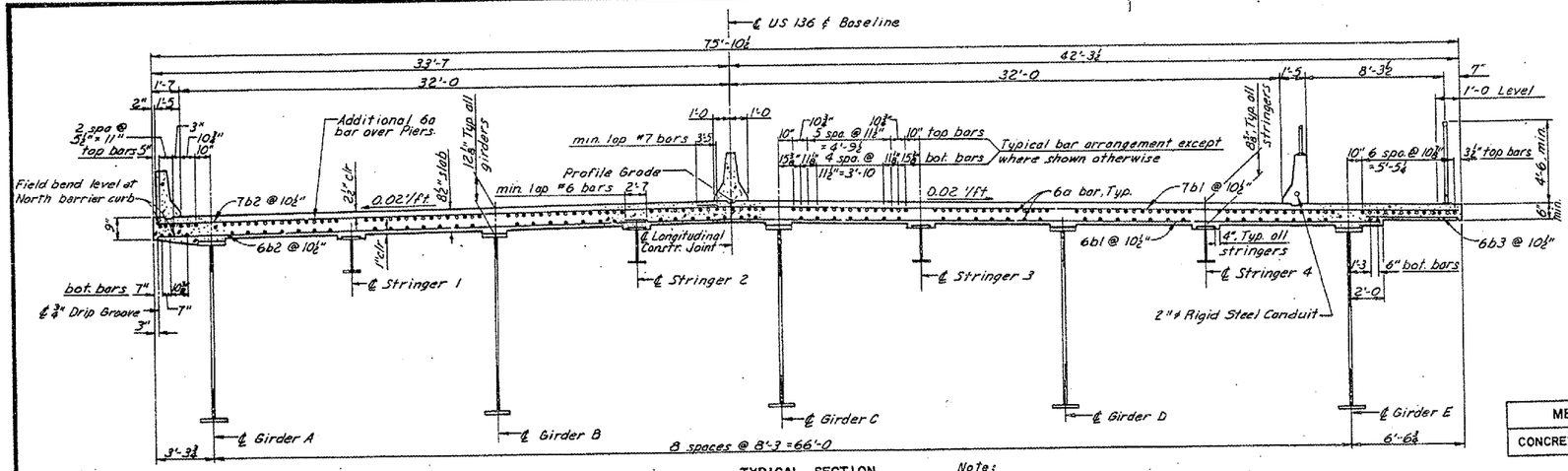
MADE JMH DATE 5-82 CHECKED DLM DATE 7-82

6767-25-00

DESIGN NO. 282 LEE COUNTY FILE 26723 SHEET 87 OF 227

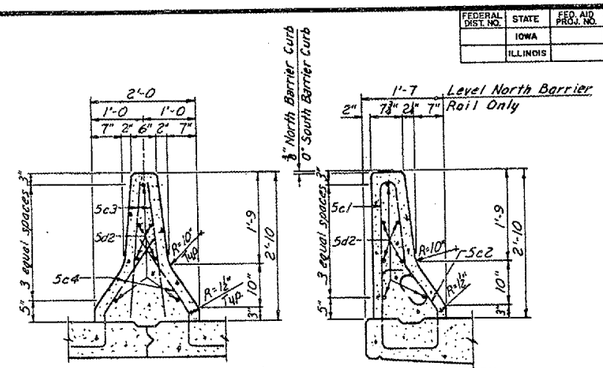
FOR INFORMATION ONLY

FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			31	40
	ILLINOIS				



TYPICAL SECTION

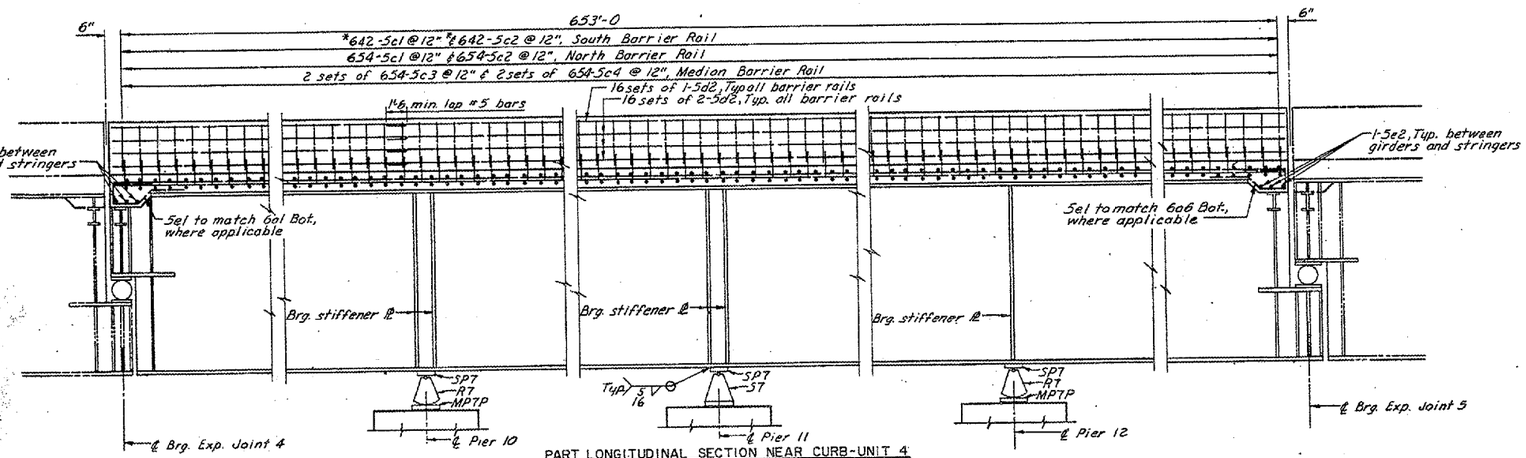
Note:
Diaphragms are not shown in typical section. For details see Sheet 75



INTERIOR SECTION EXTERIOR SECTION

BARRIER RAIL REINFORCEMENT DETAILS

MEDIAN CURB CONCRETE QUANTITIES		
CONCRETE	653.5 ft X .1055 Cu.Yd/ft*	68.9 Cu.Yd.

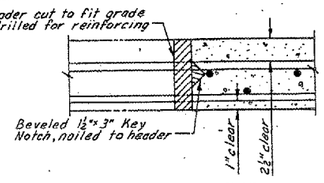


PART LONGITUDINAL SECTION NEAR CURB-UNIT 4

*12-5c1 and 12-5c2 have been deleted at the light blisters. For details see Sheet 105

TYPICAL ROCKER SETTINGS UNIT 4							
	EXPANSION JOINT	PIER 10	PIER 11	PIER 12	EXPANSION JOINT	
Temperature at Time of Setting							
90° F	6⅝"	+1"	+⅛"	0"	+⅛"	+1"	6⅝"
50° F	9"	0"		0"	0"	0"	9"
10° F	11⅜"	-1"	-⅛"	0"	-⅛"	-1"	11⅜"

NOTES:
Rockers are to be set vertically at 50° F.
For temperatures above 50° F set masonry plate toward fixed shoe (+).
For temperatures below 50° F set masonry plate away from fixed shoe (-).
Settings for other temperatures are proportional to those shown for a 40° temperature change.



LONGITUDINAL SLAB CONSTRUCTION JOINT DETAIL

(Transverse slab construction joint similar except for bar detail)

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE JMH DATE 5-82 CHECKED DLM DATE 7-82

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

SLAB DETAILS-UNIT 4

STA. 90+40.09
RIVER MILE 363.8
LEE COUNTY, IOWA

PROJECT NO. BRF-19-1(3)--38-56
HANCOCK COUNTY, ILLINOIS

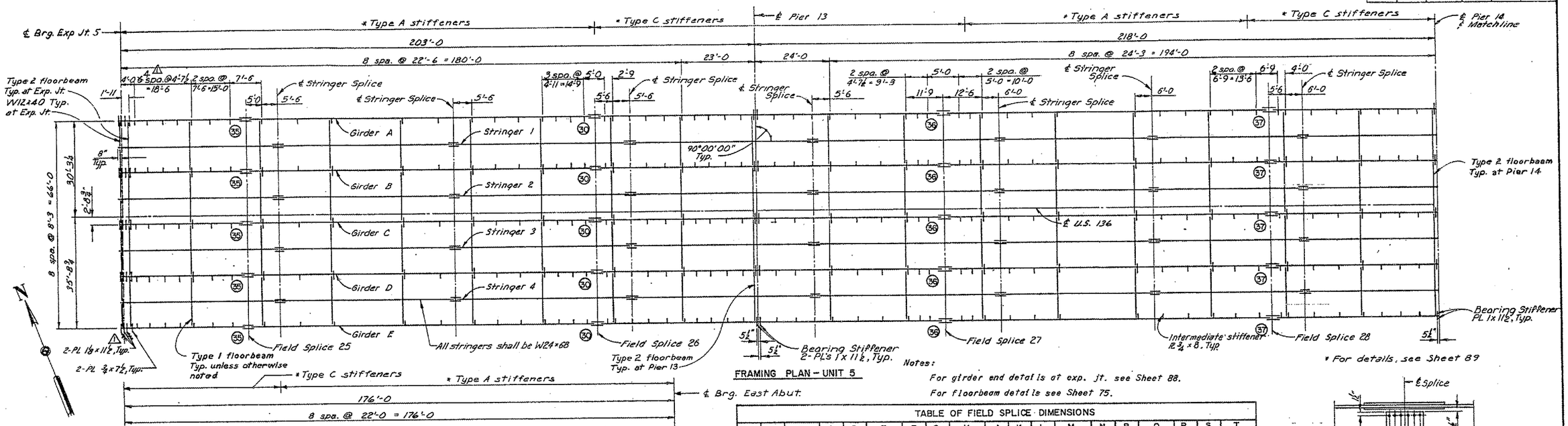
DESIGN SHEET 82 OF

DESIGN NO. 282 LEE COUNTY FILE 28722 SHEET 88 OF 227

6767-25-00

FOR INFORMATION ONLY

FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			32	40
	ILLINOIS				

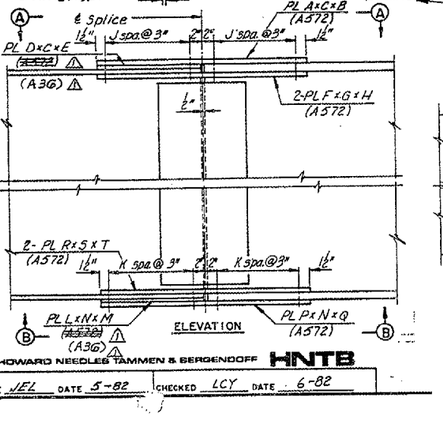


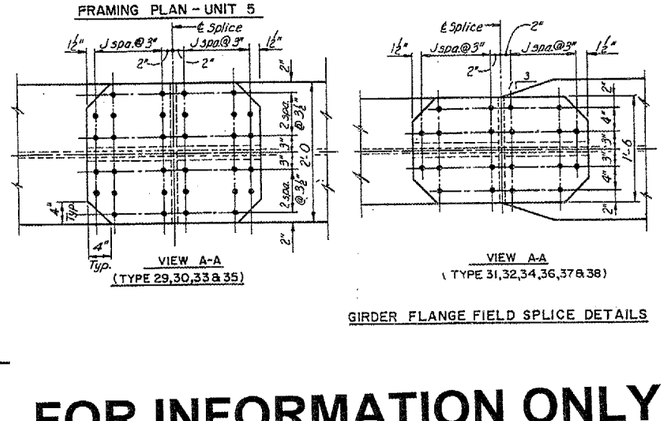
Notes:
For girder end details at exp. jt. see Sheet 88.
For floorbeam details see Sheet 75.

TABLE OF FIELD SPLICE DIMENSIONS

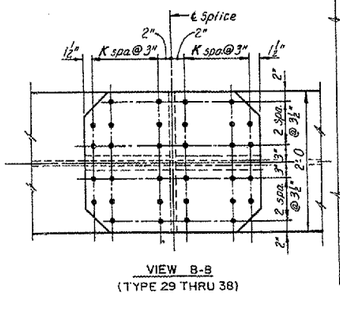
TYPE	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
29	5/8"	3'-7	24"	—	——	11/16"	11"	3'-7	6	8	3/8"	2'-3¼	24"	15/16"	4'-7	1"	11"	4'-7
30	5/8"	2'-1	24"	3/4"	1'-0¼	11/16"	11"	2'-1	3	5	——	——	24"	1 1/16"	3'-1	1¼"	11"	3'-1
31	1/2"	2'-1	18"	3/4"	1'-0¼	3/8"	8"	2'-1	3	4	1/4"	1'-3¼	24"	13/16"	2'-7	7/8"	11"	2'-7
32	1/2"	2'-7	18"	3/4"	1'-3¼	3/8"	8"	2'-7	4	4	1/4"	1'-3¼	24"	13/16"	2'-7	7/8"	11"	2'-7
33	5/8"	2'-1	24"	1/2"	1'-0¼	11/16"	11"	2'-1	3	5	1/4"	1'-6¼	24"	15/16"	3'-1	1"	11"	3'-1
34	1/2"	3'-7	18"	1/4"	1'-9¼	3/8"	8"	3'-7	6	7	1/4"	2'-0¼	24"	1/4"	4'-1	3/4"	11"	4'-1
35	5/8"	3'-7	24"	—	——	11/16"	11"	3'-7	6	8	3/8"	2'-3¼	24"	7/16"	4'-7	15/16"	11"	4'-7
36	1/2"	2'-7	18"	3/4"	1'-3¼	3/8"	8"	2'-7	4	4	3/8"	1'-3¼	24"	1/4"	2'-7	3/4"	11"	2'-7
37	1/2"	2'-1	18"	3/4"	1'-0¼	3/8"	8"	2'-1	3	4	——	——	24"	1/4"	2'-7	3/4"	11"	2'-7
38	1/2"	2'-1	18"	3/4"	1'-0¼	3/8"	8"	2'-1	3	5	——	——	24"	13/16"	3'-1	1"	11"	3'-1

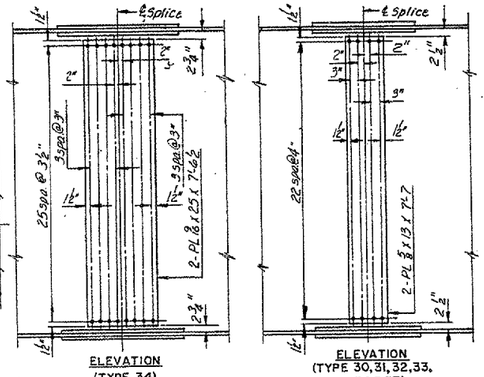
Notes:
For intermediate and bearing stiffener details see Sheet 89.
The intermediate stiffeners shall be spaced equally between floorbeams, unless otherwise noted.
The circle near the girder field splices, with a number within, represents the type of splice.
For Stringer Splice Details, see Sheet 66.



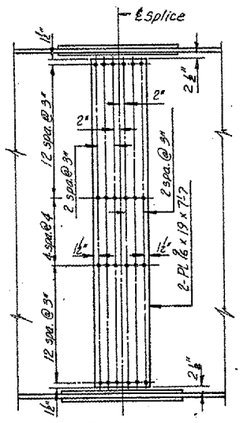


GIRDER FLANGE FIELD SPLICE DETAILS





GIRDER WEB FIELD SPLICE DETAILS



Note:
Two fill plates, 15 gage x 6'-7, are required for the web splice, Type 30, 31, 32, 33, 34, 37 & 38.

Revised (12-8-83) Items revised are marked by ⚠.

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' x 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

FRAMING PLAN – UNIT 5

STA. 90+40.06
RIVER MILE 363.8
LEE COUNTY, IOWA

PROJECT NO. BRF-18-1(3)-39-56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 83 OF

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

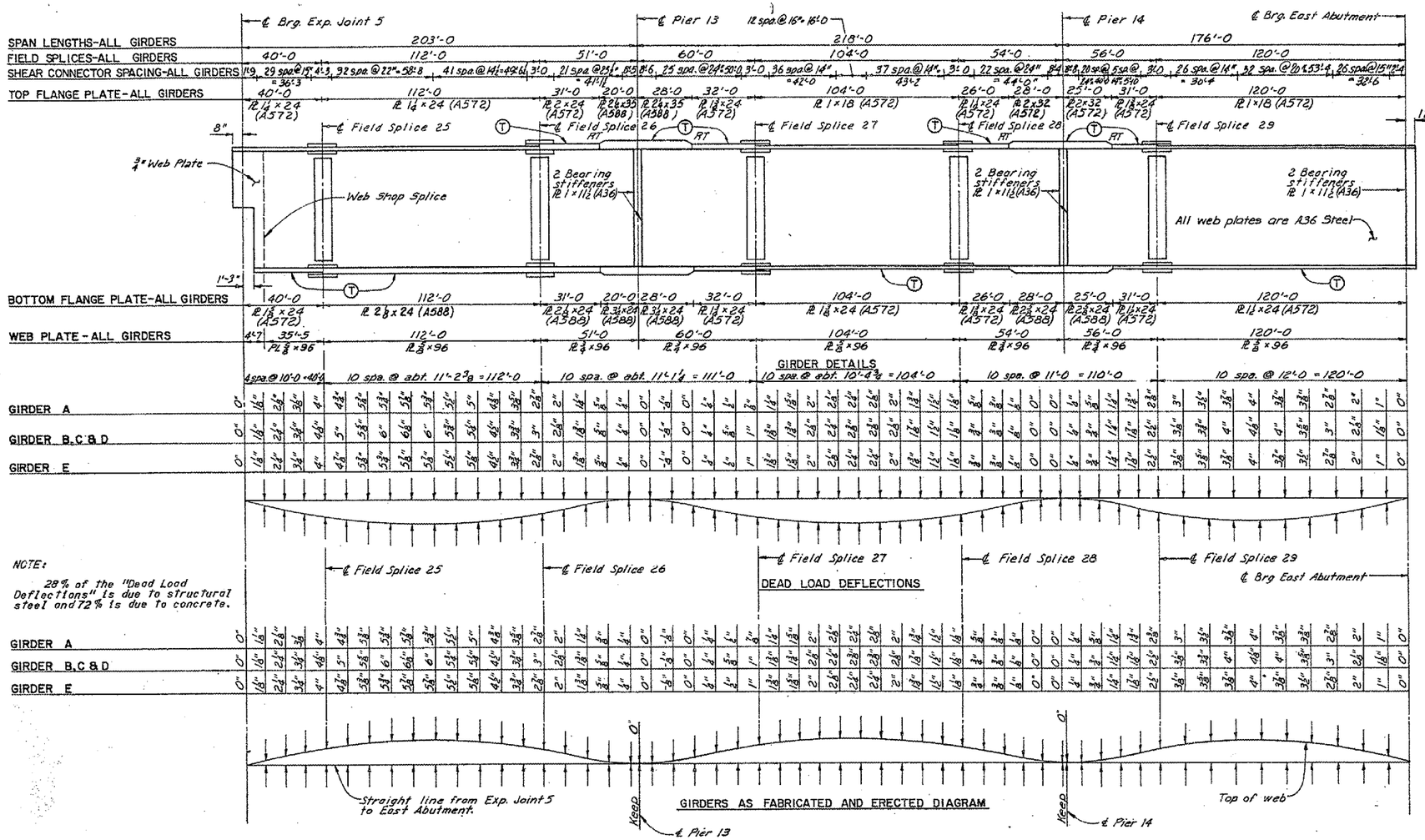
MADE JEL DATE 5-82 CHECKED LCY DATE 6-82

6767-25-00

DESIGN NO. 282 LEE COUNTY FILE 26723 SHEET 89 OF 287

FOR INFORMATION ONLY

FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			33	40
	ILLINOIS				



NOTE:

28% of the "Dead Load Deflections" is due to structural steel and 72% is due to concrete.

Ⓣ denotes tension flange plate

NOTES:

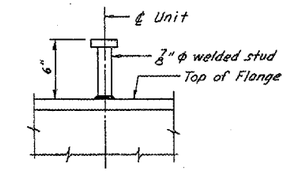
The weight of shear connectors are included in the Structural Steel Quantities.

There shall be no shear connector groups located at the ℄ of piers nor at ℄ Brg. Exp. Jt.

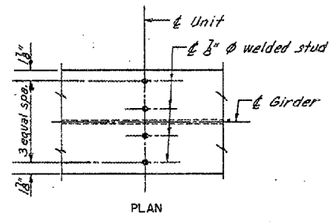
For "Field Splice Details" see Sheet 83

Note:

Offsets are given at ¼ points between ℄ Brg. Exp. Jt. and the field splice and at 1/10 points between field splices and between ℄ Brg. East Abutment and field splice.



ELEVATION



PLAN

SHEAR CONNECTOR DETAIL

(Wt. of one Shear Connector = 1.15 lbs.)

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Structural Concrete (Class D)	Cu. Yds.	1232.4
Reinforcing Steel - Non Epoxy Coated	Lbs.	140,217
Reinforcing Steel - Epoxy Coated*	Lbs.	229,905
Structural Steel - A36	Lbs.	1,361,250
Structural Steel - A572	Lbs.	442,586
Structural Steel - A588	Lbs.	366,434
N. and S. Barrier Rail	Lin. Ft.	1198.0
Median Barrier Rail	Lin. Ft.	559.0

*Includes 344 lbs. of reinforcing steel in light blisters.

FOR INFORMATION ONLY

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE JMH DATE 5-82 | CHECKED LCY DATE 6-82

6767-25-00

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE

DESIGN FOR 0° SKEW

3340' x 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

GIRDER ELEVATION AND DEFLECTIONS

UNIT 5

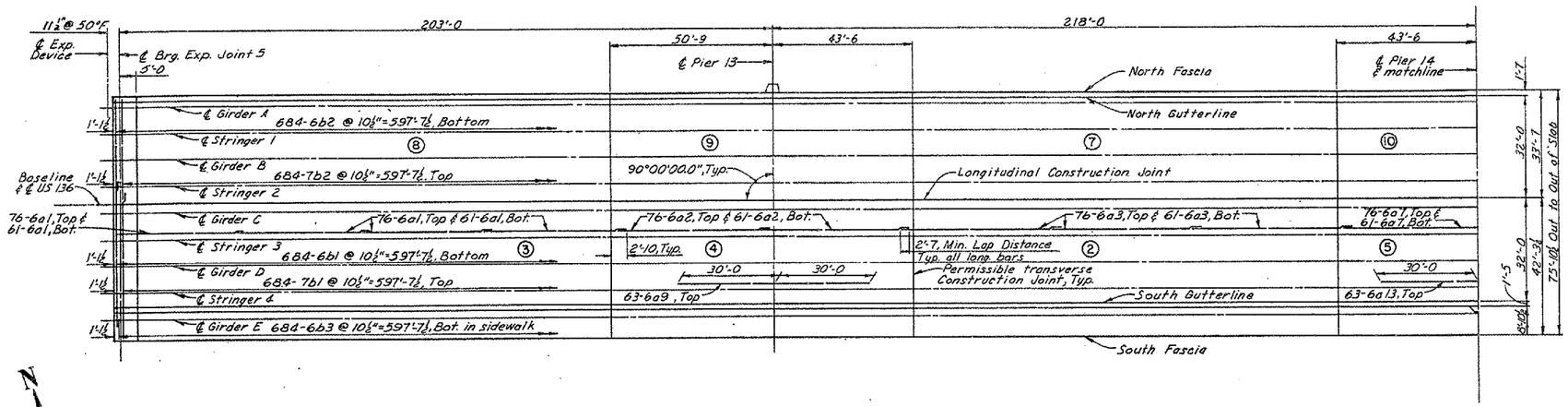
STA. 80+40.00
RIVER MILE 383.9
LEE COUNTY, IOWA

PROJECT NO. BRF-18-1(3)--38-56
HANCOCK COUNTY, ILLINOIS

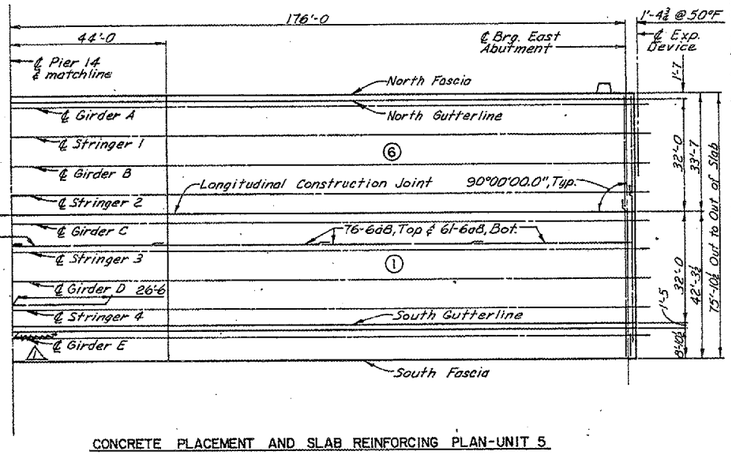
DESIGN SHEET 84 OF

DESIGN NO. 282 LEE COUNTY FILE 25723 SHEET 90 OF 227

FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			39	40
	ILLINOIS				



CONCRETE PLACEMENT AND SLAB REINFORCING PLAN-UNIT 5



CONCRETE PLACEMENT AND SLAB REINFORCING PLAN-UNIT 5

NOTES:

Roadway slab shall be placed in sections and in the sequence indicated by circled numbers of intervals, not exceeding 24 hours.

Alternate procedures for placing concrete may be submitted for approval together with a statement of the proposed method and evidence that the contractor possesses the necessary equipment and facilities to accomplish the required results. preferably ⚠

The transverse construction joints shall be placed parallel to the adjacent ℄ pier.

For detail of slab construction joint, see Sheet 86

For detail of longitudinal bar spacing, see Sheet 86

For "Light Pole Base Details", see Sheet 105 and 106
For "Drain Details", see Sheets 98 and 99
For location of drains see Sheet 28 and 29
"Top of Concrete Pavement Elevations" are shown at 4 points between Exp. Jt. and F.S. 25 and at 1/10 points between all field splices and at 1/10 points between F.S. 29 and East Abutment.
F.S. denotes Field Splice.
5'-0 each side of Joint shall be poured after both Unit 4 and 5 are completed and expansion joint is in place.

BENCH MARKS

PMB No. 2 Found chiseled "□" in T/Conc. @ east end of retaining wall, south side of Highway 136, east end of Keokuk-Hamilton River Bridge. Elev. 505.06

PMB No. 6 S.E. corner of light base on the N.W. corner of the intersection of Water and Main Street in Keokuk. Elev. 509.32

PMB No. 7 S.E. corner -- base of traffic light -- N.E. corner of 3rd and Main in Keokuk. Elev. 579.17

TOP OF CONCRETE PAVEMENT ELEVATIONS UNIT 5

LOCATION	EXP. JT.	.25	.50	.75	F.S. 25	.10	.20	.30	.40	.50	.60	.70	.80	.90	F.S. 26	.10	.20	.30	.40	.50	.60	.70	.80	.90	F.S. 27	.10	.20	.30	.40
GIRDER A	530.75	530.55	530.36	530.16	529.97	529.75	529.53	529.31	529.09	528.87	528.66	528.44	528.22	528.00	527.78	527.57	527.35	527.13	526.92	526.70	526.48	526.27	526.05	525.83	252.62	525.42	525.21	525.01	524.81
STRINGER 1	530.91	530.72	530.52	530.33	530.13	529.91	529.69	529.48	529.26	529.04	528.82	528.60	528.38	528.17	527.95	527.73	527.51	527.30	527.08	526.87	526.65	526.43	526.22	526.00	525.78	525.58	525.38	525.17	524.97
GIRDER B	531.08	530.88	530.69	530.49	530.30	530.08	529.86	529.64	529.42	529.20	528.99	528.77	528.55	528.33	528.11	527.90	527.68	527.46	527.25	527.03	526.81	526.60	526.38	526.16	525.95	525.75	525.54	525.34	525.14
STRINGER 2	531.24	531.05	530.85	530.66	530.46	530.24	530.02	529.81	529.59	529.37	529.15	528.93	528.71	528.50	528.28	528.06	527.84	527.63	527.41	527.20	526.98	526.76	526.55	526.33	526.11	525.91	525.71	525.50	525.30
GIRDER C	531.30	531.10	530.91	530.71	530.52	530.30	530.08	529.86	529.64	529.43	529.21	528.99	528.77	528.55	528.33	528.12	527.90	527.68	527.47	527.25	527.03	526.82	526.60	526.39	526.17	525.97	525.76	525.56	525.36
STRINGER 3	531.13	530.94	530.74	530.55	530.35	530.13	529.92	529.70	529.48	529.26	529.04	528.82	528.61	528.39	528.17	527.95	527.74	527.52	527.30	527.09	526.87	526.65	526.44	526.22	526.00	525.80	525.60	525.40	525.19
GIRDER D	530.97	530.77	530.58	530.38	530.19	529.97	529.75	529.53	529.31	529.10	528.88	528.66	528.44	528.22	528.00	527.79	527.57	527.35	527.14	526.92	526.70	526.49	526.27	526.06	525.84	525.64	525.43	525.23	525.03
STRINGER 4	530.80	530.61	530.41	530.22	530.02	529.80	529.59	529.37	529.15	528.93	528.71	528.49	528.28	528.06	527.84	527.62	527.41	527.19	526.97	526.76	526.54	526.32	526.11	525.89	525.67	525.47	525.27	525.07	524.86
GIRDER E	530.64	530.44	530.25	530.05	529.86	529.64	529.42	529.20	528.98	528.77	528.55	528.33	528.11	527.89	527.67	527.46	527.24	527.02	526.81	526.59	526.37	526.16	525.94	525.73	525.51	525.31	525.10	524.90	524.70

TOP OF CONCRETE PAVEMENT ELEVATIONS UNIT 5

LOCATION	.50	.60	.70	.80	.90	F.S. 28	.10	.20	.30	.40	.50	.60	.70	.80	.90	F.S. 29	.10	.20	.30	.40	.50	.60	.70	.80	.90	E.Abut.
GIRDER A	524.60	524.40	524.20	524.00	523.79	523.59	523.38	523.16	522.95	522.73	522.52	522.30	522.09	521.87	521.66	521.45	521.21	520.98	520.74	520.51	520.28	520.04	519.81	519.57	519.34	519.11
STRINGER 1	524.77	524.57	524.36	524.16	523.96	523.76	523.54	523.33	523.11	522.90	522.68	522.47	522.25	522.04	521.82	521.61	521.38	521.14	520.91	520.67	520.44	520.21	519.97	519.74	519.50	519.27
GIRDER B	524.93	524.73	524.53	524.33	524.12	523.92	523.71	523.49	523.28	523.06	522.85	522.63	522.42	522.20	521.99	521.78	521.54	521.31	521.07	520.84	520.61	520.37	520.14	519.90	519.67	519.44
STRINGER 2	525.10	524.90	524.69	524.49	524.29	524.09	523.87	523.66	523.44	523.23	523.01	522.80	522.58	522.37	522.15	521.94	521.71	521.47	521.24	521.00	520.77	520.54	520.30	520.07	519.83	519.60
GIRDER C	525.15	524.95	524.75	524.55	524.34	524.14	523.93	523.71	523.50	523.28	523.07	522.85	522.64	522.42	522.21	522.00	521.76	521.53	521.29	521.06	520.83	520.59	520.36	520.12	519.89	519.66
STRINGER 3	524.99	524.79	524.58	524.38	524.18	523.98	523.76	523.55	523.33	523.12	522.90	522.69	522.47	522.26	522.05	521.83	521.60	521.36	521.13	520.89	520.66	520.43	520.19	519.96	519.72	519.49
GIRDER D	524.82	524.62	524.42	524.22	524.01	523.81	523.60	523.38	523.17	522.95	522.74	522.52	522.31	522.09	521.88	521.67	521.43	521.20	520.96	520.73	520.50	520.26	520.03	519.79	519.56	519.33
STRINGER 4	524.66	524.46	524.25	524.05	523.85	523.65	523.43	523.22	523.00	522.79	522.57	522.36	522.14	521.93	521.72	521.50	521.27	521.03	520.80	520.57	520.33	520.10	519.86	519.63	519.40	519.16
GIRDER E	524.49	524.29	524.09	523.89	523.68	523.48	523.27	523.05	522.84	522.62	522.41	522.19	521.98	521.76	521.55	521.34	521.10	520.87	520.63	520.40	520.17	519.93	519.70	519.46	519.23	519.00

CONCRETE PLACEMENT QUANTITIES

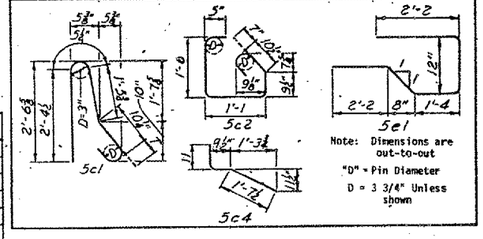
UNIT 5

POUR	CU. YDS.
1	150.4
2	146.0
3	174.4
4	104.9
5	97.9
6	124.8
7	121.0
8	144.5
9	86.9
10	81.1
Light Blisters	.5
Total	1232.4

BILL OF REINFORCEMENT

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
	NON-EPOXY COATED				
6a1	Longitudinal	——	244	40'-11	14995
6a2	Longitudinal	——	122	48'-2	8826
6a3	Longitudinal	——	183	47'-3	12987
6a7	Longitudinal	——	122	44'-10	8215
6a8	Longitudinal	——	183	47'-0	12919
6b1	Transverse	——	684	44'-5	45632
6b2	Transverse	——	684	29'-3	30051
6b3	Transverse	——	684	6'-5	6592
			Total		140217
	EPOXY-COATED				
6a1	Longitudinal	——	304	40'-11	18683
6a2	Longitudinal	——	152	48'-2	10997
6a3	Longitudinal	——	228	47'-3	16181
6a7	Longitudinal	——	152	44'-10	10236
6a8	Longitudinal	——	228	47'-0	16095
6a9	Long. over Pier	——	63	60'-0	5678
6a13	Long. over Pier	——	63	56'-6	5346
7b1	Transverse	——	684	45'-3	63264
7b2	Transverse	——	684	33'-9	47186
5c1	Curb, Transverse		1192	5'-9	7149
5c2	Curb, Transverse		1192	5'-3	6527
5c3	Curb, Transverse	——	1198	2'-7	3228
5c4	Curb, Transverse		1198	3'-4	4165
5d1	Curb, Longitudinal	——	315	41'-3	13552
5e1	End Beam		112	7'-7	886
5e2	End Beam	——	48	7'-9	388
			Total		229,561

BAR BENDING DIAGRAMS



Note: Dimensions are out-to-out
"D" = Pin Diameter
D = 3 3/4" Unless shown

Revision (5-31-83) Telephone conduit base deleted & 1st paragraph of Notes revised as marked by ⚠.

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

DRAWN JMH DATE 5-82 CHECKED DLM DATE 7-82

6767-25-00

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE

DESIGN FOR 0° SKEW
3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

SLAB PLAN - UNIT 5

STA. 80+40.00
RIVER MILE 363.8
LEE COUNTY, IOWA

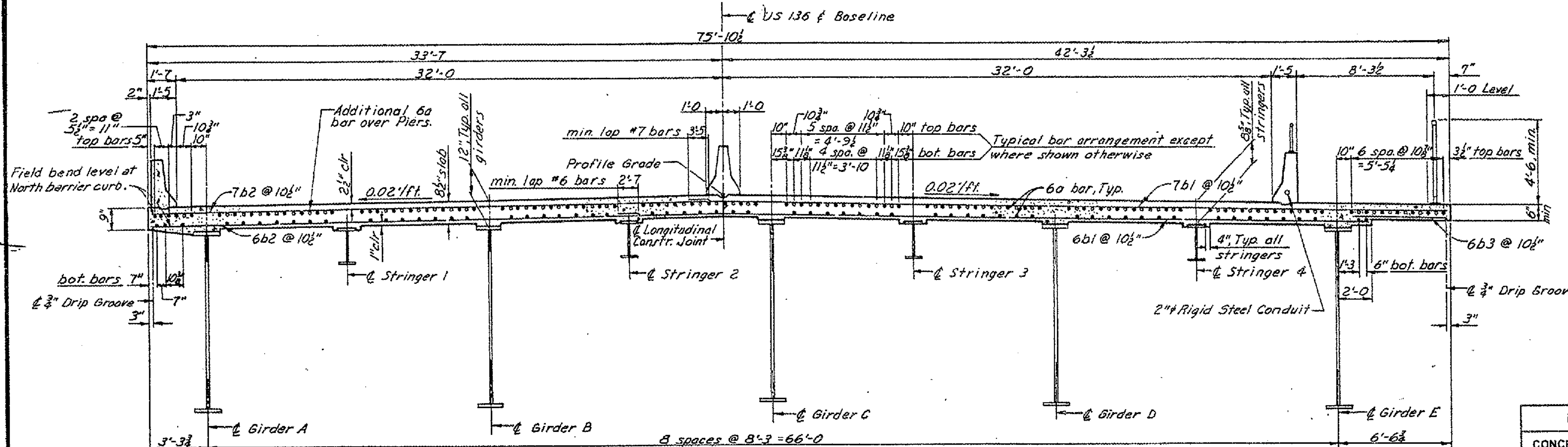
PROJECT NO. BRF-19-1(3)--38-56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 85 OF

DESIGN NO. 282 LEE COUNTY FILE 26723 SHEET 91 OF 227

FOR INFORMATION ONLY

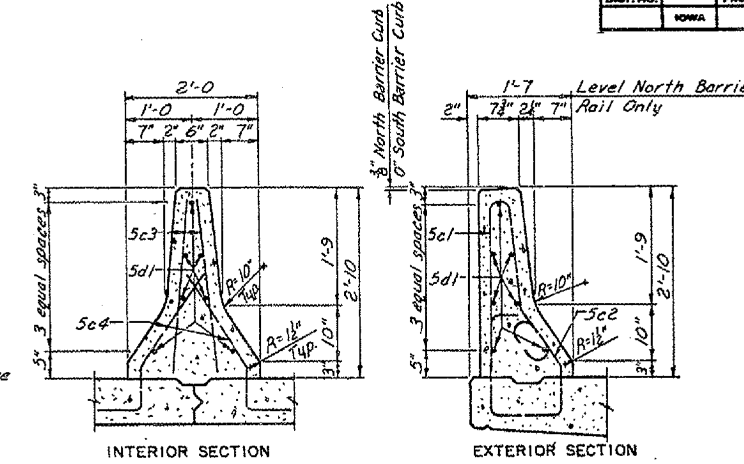
FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			35	40



TYPICAL SECTION

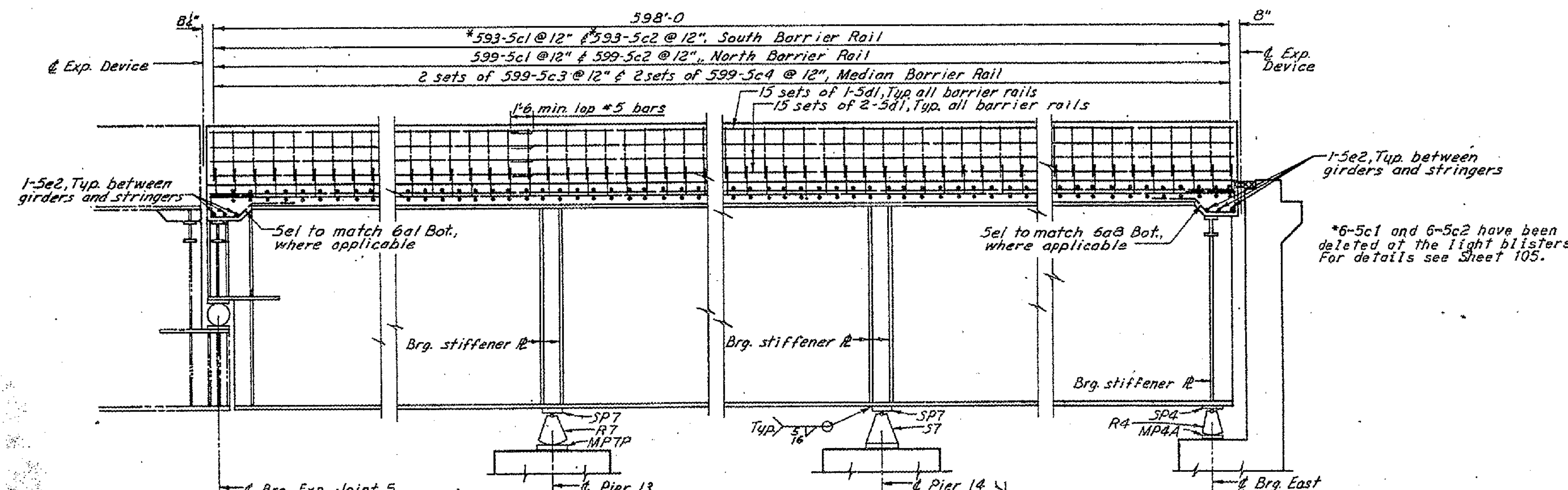
Note:

Diaphragms are not shown in typical section. For details see Sheet 75.



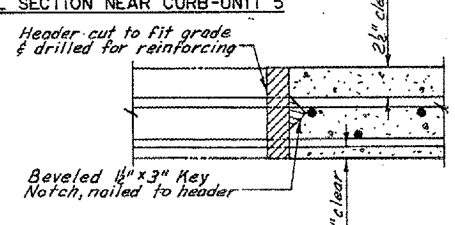
BARRIER RAIL REINFORCEMENT DETAILS

MEDIAN CURB CONCRETE QUANTITIES		
CONCRETE	599.0 ft X .1055 Cu.Yd/ft	63.2 Cu.Yd.



*6-5c1 and 6-5c2 have been deleted at the light blisters. For details see Sheet 105.

PART LONGITUDINAL SECTION NEAR CURB-UNIT 5



LONGITUDINAL SLAB CONSTRUCTION JOINT DETAIL

(Transverse slab construction joint similar except for bar detail)

TYPICAL ROCKER SETTINGS UNIT 5					
Temperature at Time of Setting	EXPANSION JOINT		PIER 13	PIER 14	EAST ABUTMENT
90° F	6⅝"	+1"	+⅜"	0"	+⅜"	1⅞"
50° F	9"	0"	0"	0"	0"	2¼"
10° F	11⅛"	-1"	-⅜"	0"	-⅜"	3⅛"

NOTES:

Rockers are to be set vertically at 50° F.

For temperatures above 50° F set masonry plate toward fixed shoe (+).

For temperatures below 50° F set masonry plate away from fixed shoe (−).

Settings for other temperatures are proportional to those shown for a 40° temperature change.

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA-HAMILTON, ILLINOIS

STEEL ALTERNATE

DESIGN FOR 0° SKEW
3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

SLAB DETAILS-UNIT 5

STA. 60+40.00
RIVER MILE 363.9
LEE COUNTY, IOWA

PROJECT NO. BRF-19-1(3)--39-56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 86 OF

6767-25-00

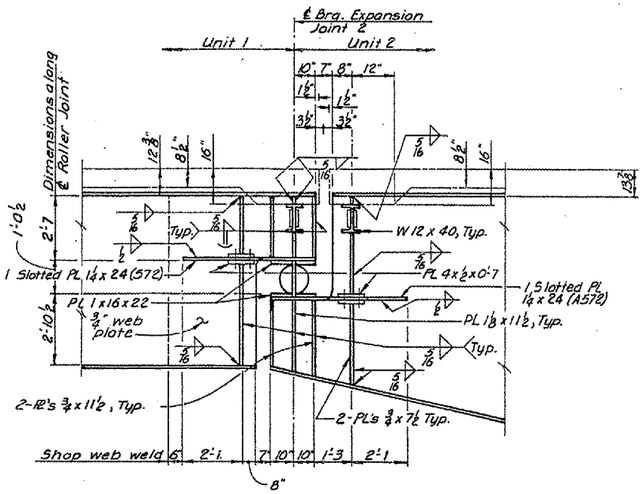
HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE JMH DATE 5-82 CHECKED DLM DATE 7-82

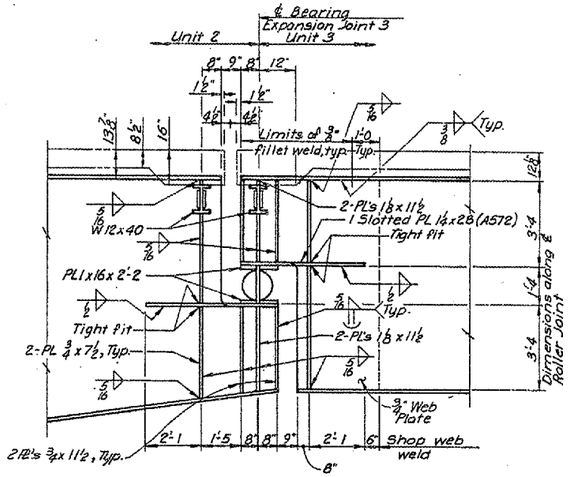
FOR INFORMATION ONLY

DESIGN NO. 282 LEE COUNTY FILE 26723 SHEET 92 OF 227

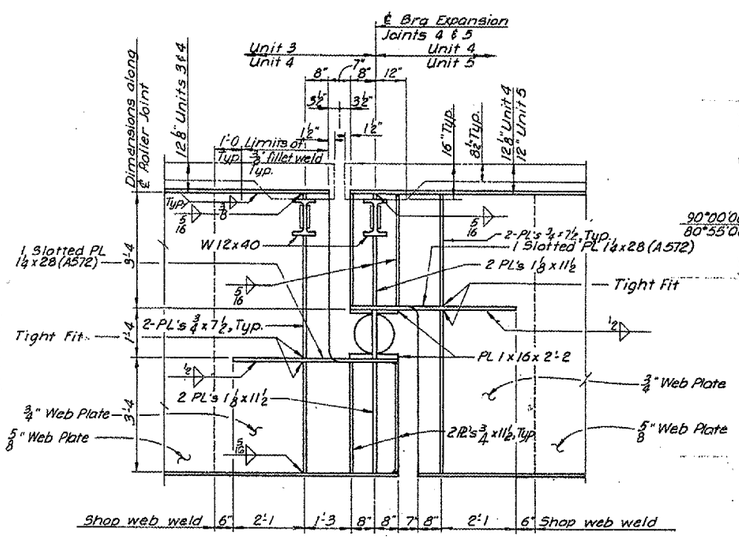
FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			36	40
	ILLINOIS				



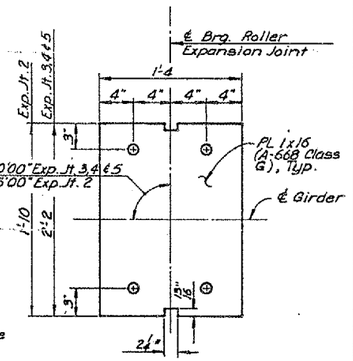
EXPANSION JOINT 2



EXPANSION JOINT 3

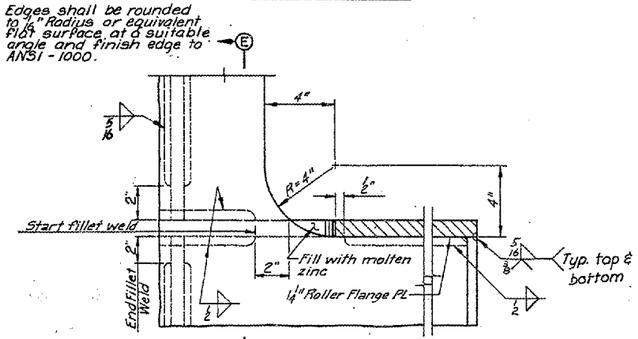


EXPANSION JOINTS 4 & 5

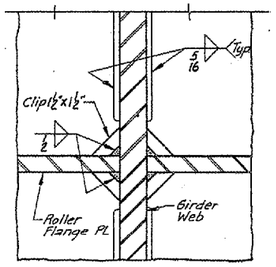


SECTION B-B

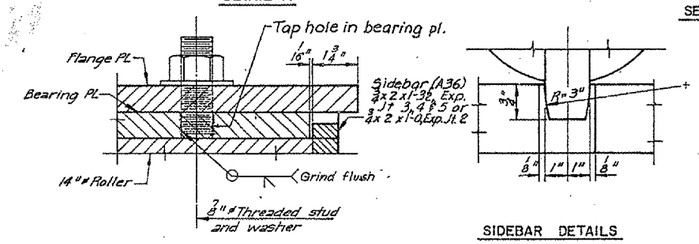
Edges shall be rounded to ¼" Radius or equivalent flat surface at a suitable angle and finish edge to ANSI - 1000.



DETAIL A



SECTION E-E



SECTION A-A

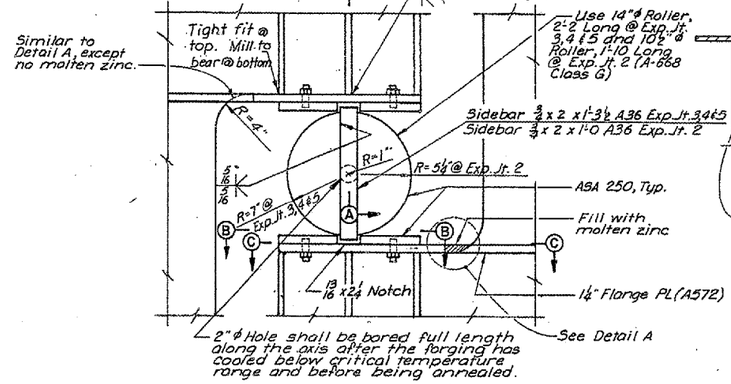
SIDEBAR DETAILS

Note:

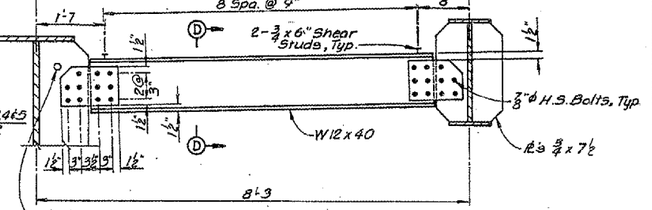
Roller and Roller Bearing Plate shall be A-668. Class G steel.

Steel shall be A36 unless noted otherwise.

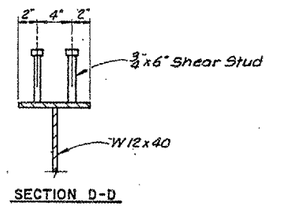
A-668 steel shall be included in the price bid for "Structural Steel -- A36."



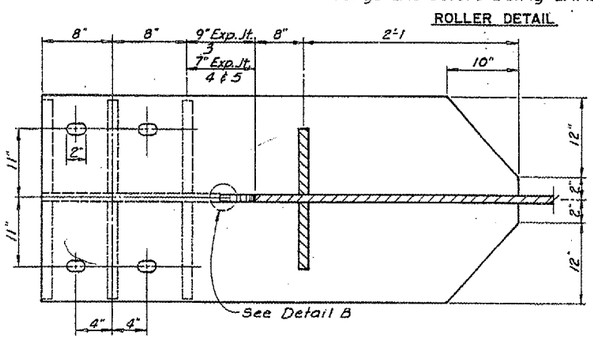
ROLLER DETAIL



END BEAM

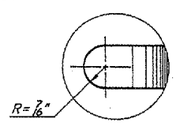


SECTION D-D



SECTION C-C

(Exp. Jt. 3,4 & 5. For Exp. Jt. 2, see Sheet 89.)



DETAIL B

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE TKT DATE 2-18-83 CHECKED DLM DATE 3-83

6767-25-00

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE

DESIGN FOR 0° SKEW
3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

GIRDER EXPANSION JOINTS

STA. 03+40.00
RIVER MILE 363.9
LEE COUNTY, IOWA

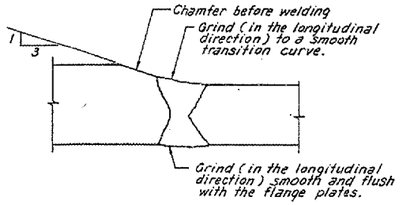
PROJECT NO. BRF-19-1(3)--38-56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 88 OF

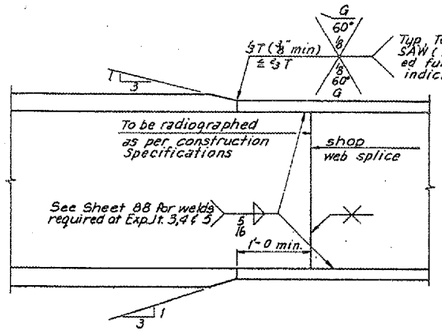
DESIGN NO. 282 LEE COUNTY FILE 28723 SHEET 94 OF 227

FOR INFORMATION ONLY

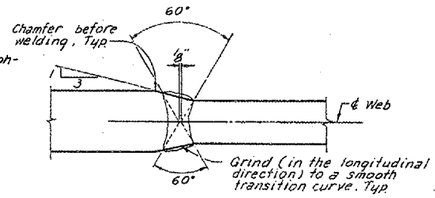
FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			37	40
	ILLINOIS				



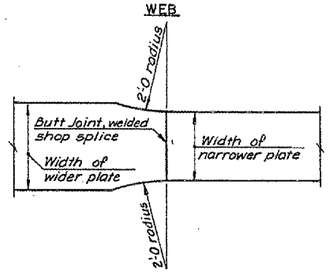
Note:
Flange plates of equal thickness similar, chamfer not required.



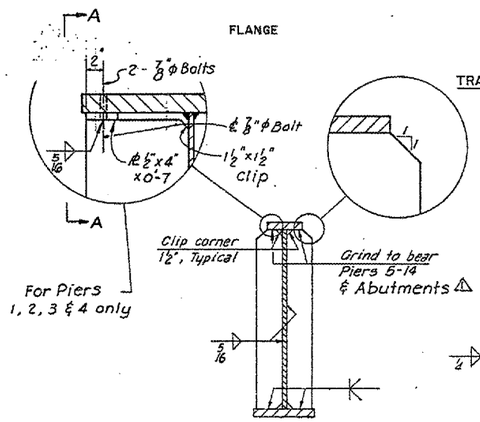
ELEVATION

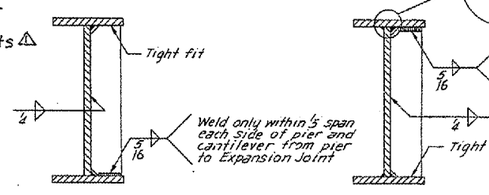


WEB

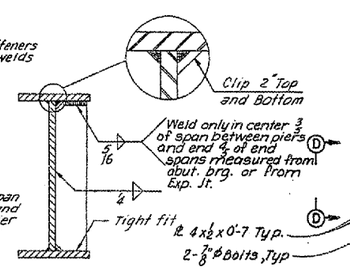


TRANSITION OF THICKNESS TYPICAL WELDED SHOP SPLICE DETAILS

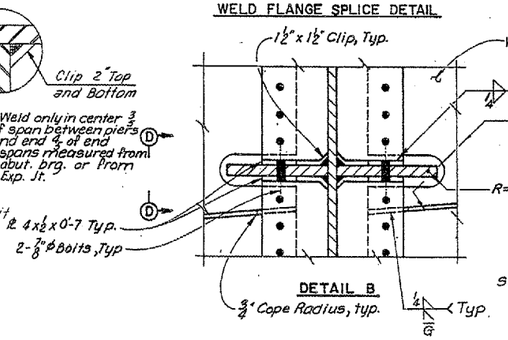


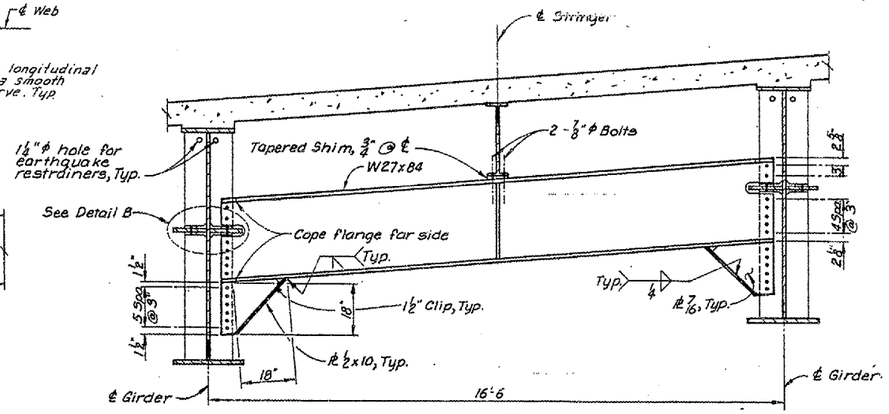


NEGATIVE MOMENT REGION

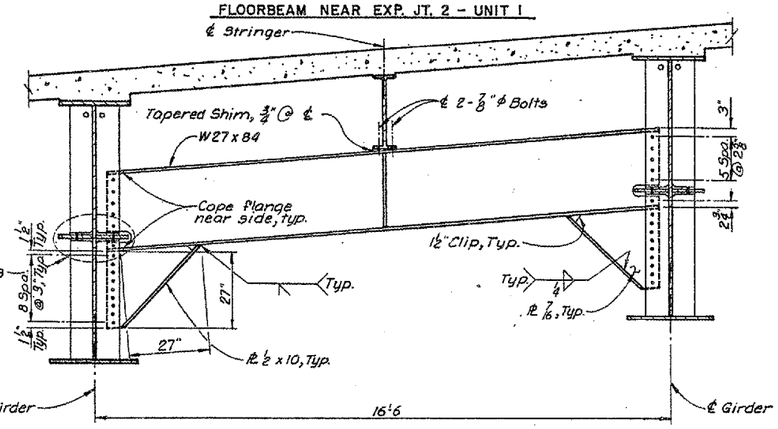


POSITIVE MOMENT REGION

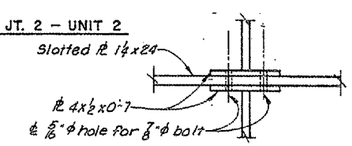




FLOORBEAM NEAR EXP. JT. 2 – UNIT 1

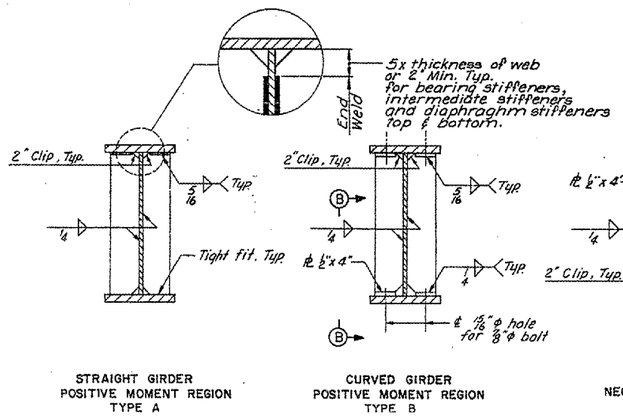


FLOORBEAM NEAR EXP. JT. 2 – UNIT 2



SECTION D-D

TYPICAL BEARING STIFFENER DETAIL



STRAIGHT GIRDER
POSITIVE MOMENT REGION
TYPE A

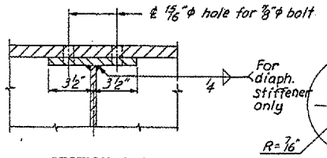
TYPICAL INTERMEDIATE STIFFENER DETAIL

CURVED GIRDER
POSITIVE MOMENT REGION
TYPE B

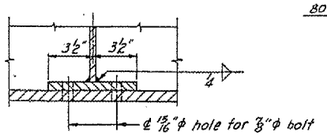
NEGATIVE MOMENT REGION
TYPE C

TYPICAL DIAPHRAGM STIFFENER DETAIL

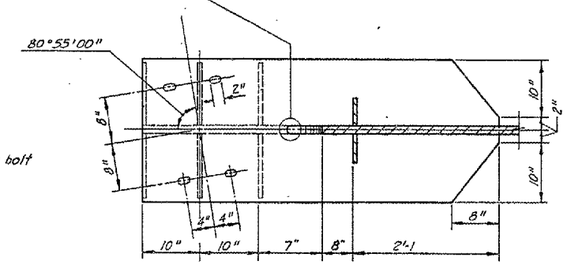
Note:
See Framing Plan Sheet for location of Type A, B and C stiffeners.



SECTION A-A



SECTION B-B



SECTION C-C
(Exp. Jt. 2)
For location of Section C-C, see Sheet 88.

Revised (12-8-83) Item added is marked by ⚠

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE LCY DATE 7-82 CHECKED DLM DATE 8-82

6767-25-00

FOR INFORMATION ONLY

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

STIFFENER DETAILS

STA. 80+40.00
RIVER MILE 363.9
LEE COUNTY, IOWA

PROJECT NO. BRF-19-1(3)--38-56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 89 OF

DESIGN NO. 282 LEE COUNTY FILE 26723 SHEET 95 OF 227

FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			38	40
	ILLINOIS				

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

INSTALLATION NOTES

Use anchor blocks and continuous seal as anchor bolt location templates.

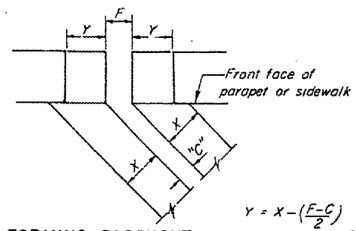
1. Install sponge mandrels into positions shown to form flap convolution.
2. Install parapet or sidewalk piece (trim roadway flap to fit before applying epoxy).
3. Install continuous seal in roadway.
4. Install anchor blocks as indicated.

NOTE A - Maximum spacing of anchor bolts shall be 12" centers

SKEW LIMITATIONS

The details of the anchor blocks and the elastomeric membrane in the parapet, as shown, are for up to 50° skews.

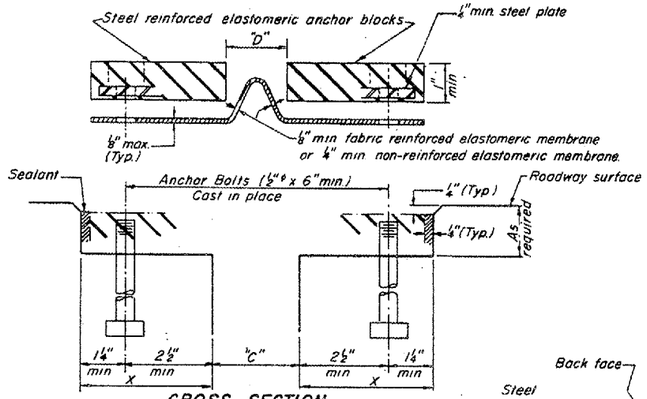
For skews greater than 50°, the anchor blocks and the elastomeric membrane, installed in accordance with dimension "D", might require modifications to insure a minimum clearance of 1½" from centerline of anchor studs to edge of parapet opening. The anchor blocks and the elastomeric membrane shall also be installed to the top of the parapet with the anchor studs spaced at ±12" cts.



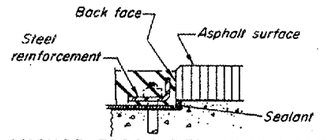
FORMING BLOCKOUT SKETCH

$Y = X - \left(\frac{F-C}{2}\right)$

For dimension "F" see sheet #



CROSS SECTION



ANCHOR BLOCK REINFORCEMENT with ASPHALT SURFACE

GENERAL NOTES

Continuous Seal Neoprene Expansion Joint shall consist of molded anchor blocks of elastomer and steel, field assembled over continuous lengths of elastomeric membrane. See Special Provisions.

The elastomeric membrane shall be premolded with a single or a double upward convolution that will have a "memory" to return to its molded position upon joint closure.

The steel reinforcement must extend up the back face of anchor blocks when asphalt surfaces are used but is optional in concrete Blockout.

The convolution length shall be such that the extended length will not be greater than the manufactured length when the joint is fully expanded in its design range and will not protrude above the anchor blocks when the joint is fully compressed.

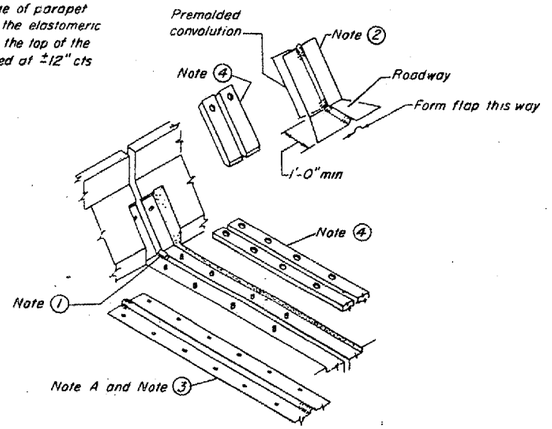
Joint openings shall be adjusted in accordance with Article 503.07(c) of the Standard Illinois Specifications when the deck is poured at an ambient temperature other than 50°F.

The parapet and sidewalk flaps may be furnished factory vulcanized to the roadway membrane provided the centerline of the convolution is maintained and the process and method meet the approval of the Engineer.

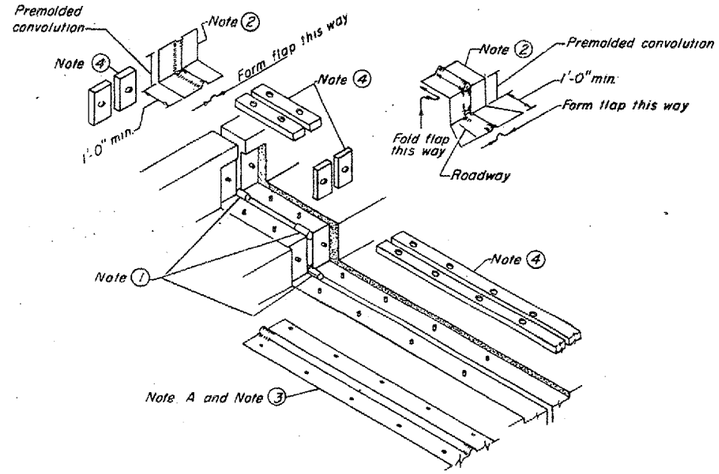
Joint shall be continuous through median curb.

Payment shall be Lin. Foot measured gutterline to gutterline.

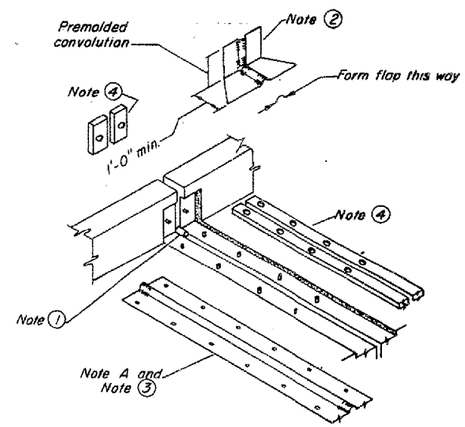
Joint Size	"C" at 50°F	"D" at 50°F
4	3"	22½" Min.



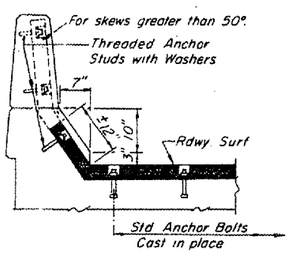
AT PARAPET



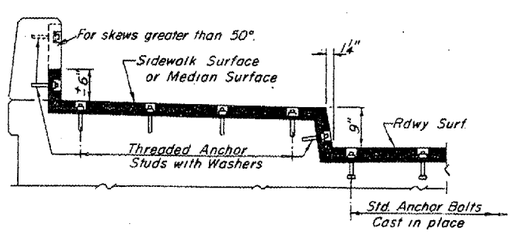
AT SIDEWALK or MEDIAN



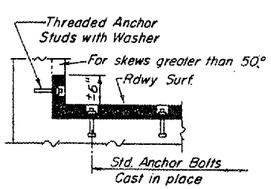
AT WALL



AT PARAPET



AT SIDEWALK or MEDIAN



AT WALL

TYPICAL END TREATMENTS

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

ABUTMENT EXPANSION JOINT DETAILS

STA. 80+40.00
RIVER MILE 363.9
LEE COUNTY, IOWA

PROJECT NO. BRF-18-1(3)—38-56
HANCOCK COUNTY, ILLINOIS

Sheet provided by Illinois DOT, Standard Sheet EJ-CS 2-1-83

DESIGN SHEET 92 OF

DESIGN NO. 282 LEE COUNTY FILE 28723 SHEET 98 OF 227

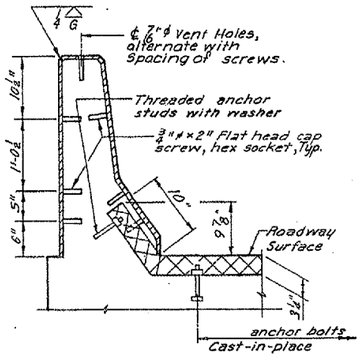
HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE CTE DATE 3-22-83 CHECKED OLM DATE 3-83

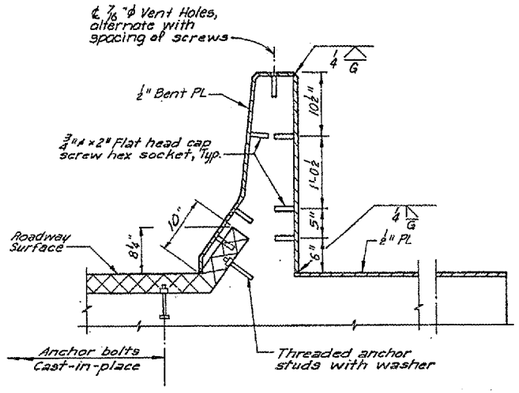
6767-25-00

FOR INFORMATION ONLY

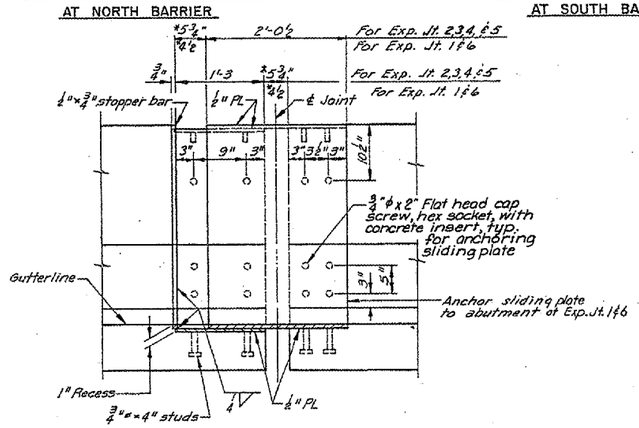
FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			99	140
	ILLINOIS				



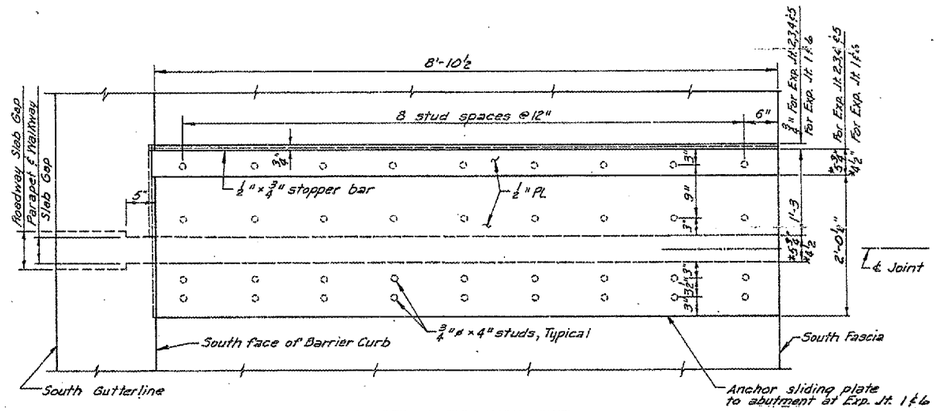
EXPANSION JOINT TREATMENT AT NORTH BARRIER



EXPANSION JOINT TREATMENT AT SOUTH BARRIER



ELEVATION OF SOUTH BARRIER AT EXPANSION JOINT
* At 50° F
(North Barrier and Median Barrier similar)



PLAN OF SIDEWALK EXPANSION JOINT
* At 50° F
(Expansion Joints 1, 2, 3, 4 & 5. Expansion Joint 6 is similar)

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE JEL	DATE 6-82	CHECKED LCY	DATE 7-82

6767-25-00

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' × 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

ABUTMENT EXPANSION JOINT DETAILS

STA. 80+40.00
RIVER MILE 363.9
LEE COUNTY, IOWA

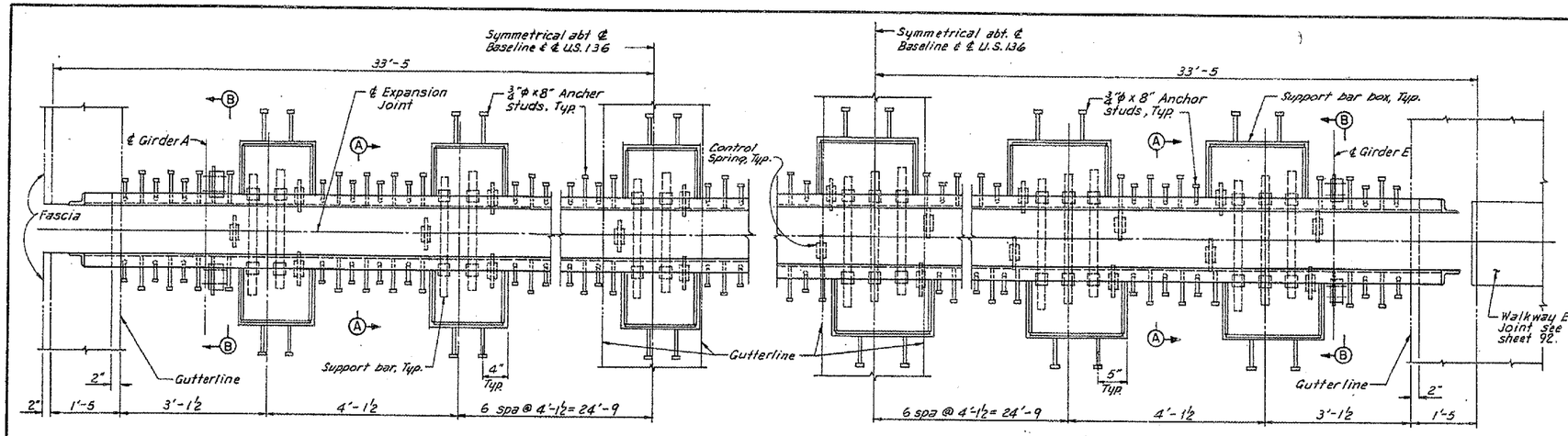
PROJECT NO. BRF-19-1(2)--38-56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 92 A OF

DESIGN NO. 283 LEE COUNTY FILE 26723 SHEET 99 OF 227

FOR INFORMATION ONLY

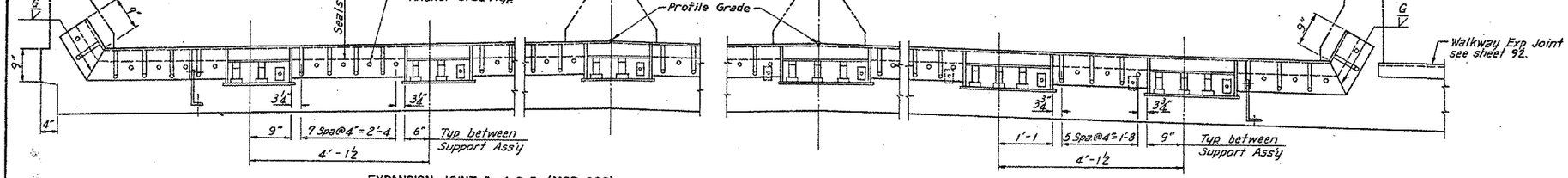
FEDERAL DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA			40	40
	ILLINOIS				



EXPANSION JOINT 2, 4 & 5 (MSB-900)

EXPANSION JOINT 3 (MSB-1200)

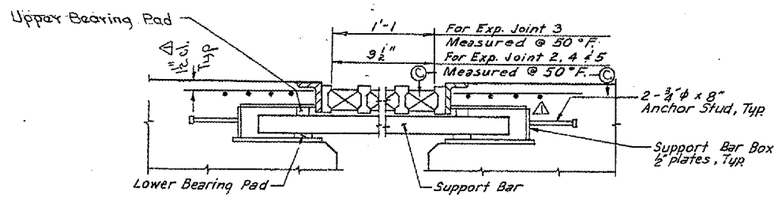
PLAN



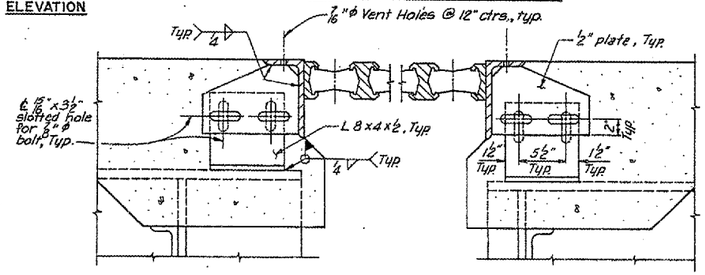
EXPANSION JOINT 2, 4 & 5 (MSB-900)

EXPANSION JOINT 3 (MSB-1200)

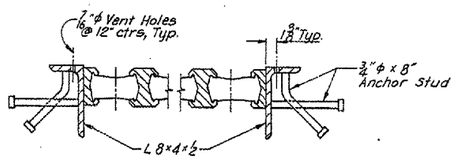
ELEVATION



SECTION THRU MODULAR UNIT

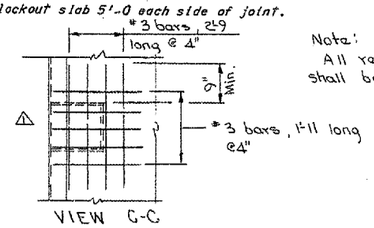


SECTION B-B



SECTION A-A

Note:
Blockout slab 5'-0 each side of joint.



VIEW C-C

Note:
All reinforcing steel shall be epoxy coated.

FOR INFORMATION ONLY

Revised (4-25-85) Reinforcing bar mats added over support bar slide boxes as marked by ⚠.

GENERAL NOTES:

The expansion joint seal shall be installed in accordance with the manufacturer's instructions shown on the shop drawings and in accordance with Special Provisions.

Approved No. 5 bars or deformed bar anchors (ASTM A496) may be used in lieu of stud welded anchors shown.

See Special Provisions for painting.

Plan dimensions are based on installation at 50°F. The expansion gap and other dimensions shall be adjusted during installation for compliance with any temperature change.

Furnishing painting and installing the modular joints will be paid for at the contract unit price per linear foot.

Use Acme Highway Products, MSB-900 and MSB-1200 expansion joint or Waba Maurer D-1040 and D1300 or approved equal.

Structural steel for expansion joint to be ASTM A36, unless noted.

Steel extrusions shall be ASTM A-588.

All metal surfaces not embedded in concrete or not in direct contact with sealer shall be painted with zinc-rich epoxy primer.

For Expansion Joint 2, 4 and 5, expansion gap shall be increased ¼" for each 10° fall in temperature and decreased ¼" for each 10° rise in temperature.

For Expansion Joint 3, expansion gap shall be increased ¾" for each 10° fall in temperature and decrease ¾" for each 10° rise in temperature.

Five feet of slab each side of joint will be poured after joint is in place and after both spans each side of joint has been poured.

MISSISSIPPI RIVER BRIDGE
KEOKUK, IOWA - HAMILTON, ILLINOIS

STEEL ALTERNATE
DESIGN FOR 0° SKEW
3340' x 64' CONTINUOUS WELDED PLATE GIRDER BRIDGE

EXPANSION JOINTS 2,3,4 & 5

STA. 80+40.00
RIVER MILE 363.9
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PROJECT NO. BRF-19-1(3)--38-56
HANCOCK COUNTY, ILLINOIS

DESIGN SHEET 93 OF

DESIGN NO. 282 LEE COUNTY FILE 26723 SHEET 100 OF 227

HOWARD NEEDLES TAMMEN & BERGENDOFF HNTB

MADE LCY DATE 6-82 CHECKED JEL DATE 7-82

8787.25-00