04-24-2015 LETTING ITEM 112

INDEX OF SHEETS

STANDARDS: 280001–07 – EROSION CONTROL
515001–03 – NAME PLATE
630301–06 – SHOULDER WIDENING FOR TY 1 (SPL) TERMINALS
631032–08 – TRAFFIC BARRIER TERMINAL, TYPE 6A
635006–03 – REFLECTOR & TERMINAL MKR. PLACEMENT
701901–04 – TRAFFIC
BLR 21–9 – TRAFFIC

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLANS FOR PROPOSED
SURFACE TRANSPORTATION PROGRAM–BRIDGE

F.A.S. 797 (COUNTY HIGHWAY 1)
WAYNE COUNTY
SECTION 13–00126–00–BR
STRUCTURE NO. 096–3463
PROJECT NO. BRS–0797(124)
JOB NO. C–97–051–14

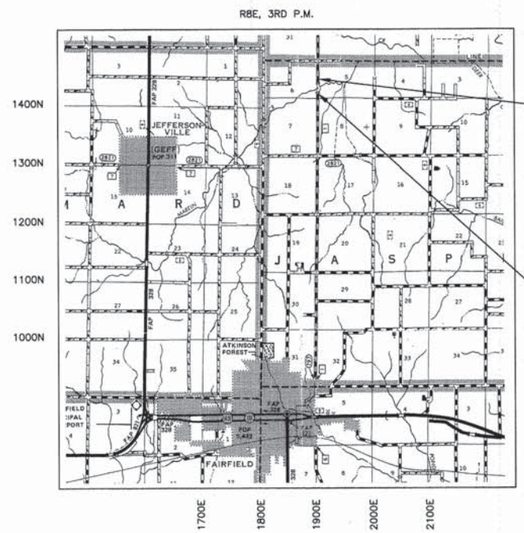
SCALES

PLAN	1 INCH = 50 FEET
PROFILE HORZ.	1 INCH = 50 FEET
PROFILE VERT.	1 INCH = 10 FEET

SUMMARY OF QUANTITIES

QUANTITY	UNIT	ITEM	CODE NO.	
0.1	ACRE	SEEDING, CLASS 2 (SPECIAL)	X2501000	
1	L SUM	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	X7010216	
302	CU YD	CHANNEL EXCAVATION	20300100	
60	FOOT	PERIMETER EROSION BARRIER	28000400	
284	TON	STONE DUMPED RIPRAP, CLASS A4	28100807	
74	SQ YD	PORTLAND CEMENT CONCRETE BASE COURSE 8"	35300300	
380	POUND	BITUMINOUS MATERIALS (PRIME COAT)	40600275	
244	SQ YD	HOT–MIX ASPHALT SURFACE REMOVAL, BUTT JOINT	40600982	
144	TON	HOT–MIX ASPHALT SURFACE COURSE, MIX "C", N70	40603315	
40	TON	AGGREGATE SHOULDERS, TYPE B	48101200	
1	EACH	REMOVAL OF EXISTING STRUCTURES	50100100	
70.6	CU YD	CONCRETE STRUCTURES	50300225	
34.6	CU YD	CONCRETE ENCASEMENT	50300280	
1,700	SQ FT	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	50400305	
1,943	SQ FT	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	50400505	
8,120	POUND	REINFORCEMENT BARS	50800105	
247	FOOT	STEEL RAILING, TYPE SM	50901050	Δ
715	FOOT	FURNISHING STEEL PILES HP 12X53	51201600	
869	FOOT	FURNISHING STEEL PILES HP 14X73	51201800	
1584	FOOT	DRIVING PILES	51202305	
1	EACH	TEST PILE STEEL HP 12X53	51203600	
1	EACH	TEST PILE STEEL HP 14X73	51203800	
22	EACH	PILE SHOES	51204650	
1	EACH	NAME PLATES	51500100	
1096	FOOT	PORTLAND CEMENT MORTAR FAIRING COURSE	58300100	
54.7	CU YD	CONTROLLED LOW–STRENGTH MATERIAL	59300100	
4	EACH	TRAFFIC BARRIER TERMINAL, TYPE 6A	63100087	Δ
4	EACH	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	63100167	Δ
1	L SUM	MOBILIZATION	67100100	
4	EACH	TERMINAL MARKER – DIRECT APPLIED	78201000	Δ

Δ SPECIALTY ITEMS



SECTION 13–00126–00–BR
ENDS STA. 5+00

STA. 3+47.50 – SPECIAL BRIDGE DESIGN
PROPOSED PRECAST PRESTRESSED
CONCRETE DECK BEAM BRIDGE.
3 SPAN @ 28'–4", 64'–9", 28'–4", 30' RDWY., SKEW = 30° R.F.
PROP. STR. NO. 096–3463
EXIST. STR. NO. 096–3301

SECTION 13–00126–00–BR
BEGINS STA. 2+00

FUNCTIONAL CLASS: MAJOR COLLECTOR
ADT = 1250
DESIGN SPEED = 50 MPH

LOCATION MAP
APPROXIMATE SCALE: 1 INCH = 1 MILE
NET LENGTH = 300.00 L.F. = 0.057 MILES

TOLL FREE JOINT UTILITY LOCATING
INFORMATION FOR EXCAVATORS (J.U.L.I.E.)
TELEPHONE NO. 1–800–892–0123 OR 811

JOHN A. STONE
062-060012
LICENSED
PROFESSIONAL
ENGINEER
STATE OF ILLINOIS

02/04/2015
ILLINOIS REGISTERED PROFESSIONAL ENGINEER #55012
LICENSE EXPIRES NOVEMBER 30, 2015
PROFESSIONAL DESIGN FIRM #184–000832

ILLINOIS DEPARTMENT OF TRANSPORTATION

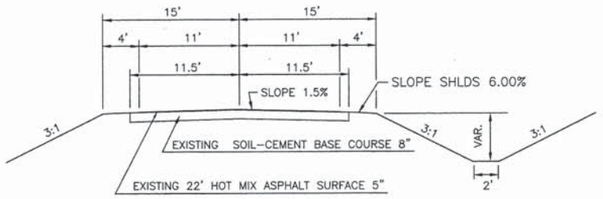
APPROVED Feb. 5, 2015
WAYNE COUNTY ENGINEER

PASSED 2-11, 2015
DISTRICT SEVEN ENGINEER
OF LOCAL ROADS & STREETS

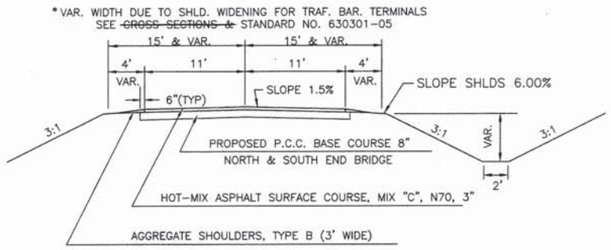
RELEASING FOR BID BASED ON LIMITED REVIEW
2-11, 2015
DEPUTY DIRECTOR OF HIGHWAYS
REGION FOUR ENGINEER

CONTRACT 95755

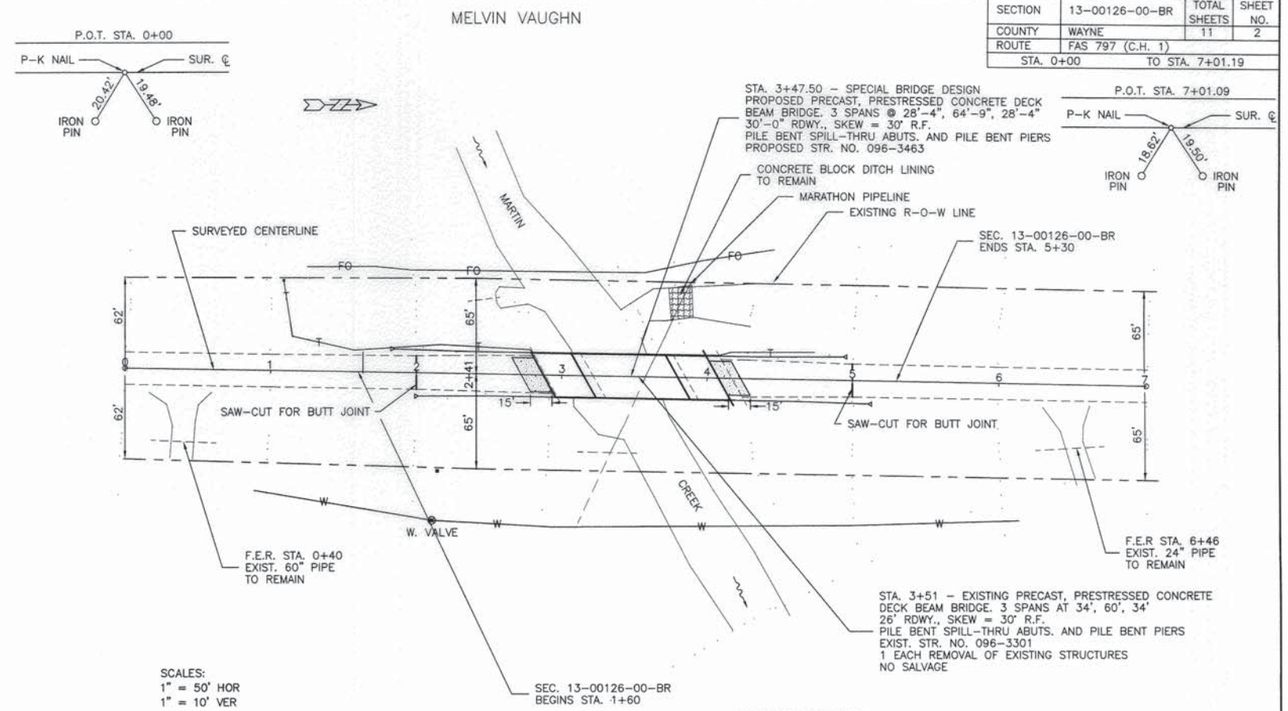
SECTION	13-00126-00-BR	TOTAL SHEETS	SHEET NO.
COUNTY	WAYNE	11	2
ROUTE	FAS 797 (C.H. 1)		
STA. 0+00	TO STA. 7+01.19		



TYPICAL CROSS SECTION OF EXISTING ROADWAY



TYPICAL CROSS SECTION OF PROPOSED ROADWAY



PCC BASE COURSE 8"

SOUTH END BRIDGE = 37 SQ YD
NORTH END BRIDGE = 37 SQ YD
TOTAL = 74 SQ YD
(SEE SPECIAL PROVISIONS)

HOT-MIX ASPHALT SURFACE COURSE, MIC "C", N70

SOUTH END BRIDGE = 37 TON
NORTH END BRIDGE = 37 TON
OVER BRIDGE = 70 TON
TOTAL = 144 TON

BITUMINOUS MATERIALS (PRIME COAT)

SOUTH END BRIDGE = 190 POUND
NORTH END BRIDGE = 190 POUND
TOTAL = 380 POUND

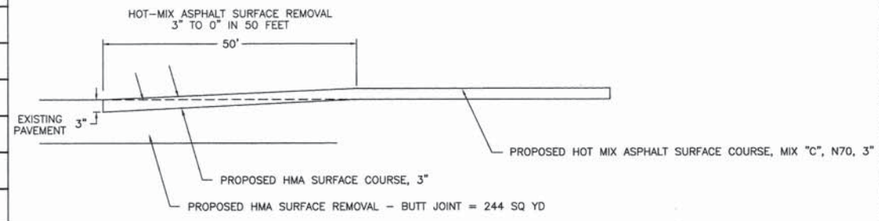
UTILITIES

PIPELINE: MARATHON PIPELINE LLC
PATOKA, IL
618-432-7223

WATER: JASPER WATERWORKS
FAIRFIELD, IL
618-842-2918

TELEPHONE: FRONTIER COMMUNICATIONS
225 E. CHESTNUT ST.
OLNEY, IL
618-395-6189

When the plans or special provisions include information pertaining to the location of underground utility facilities, such information represents only the opinion of the Wayne County Highway Department as to the location of such utilities and is only included for the convenience of the bidder.



DETAIL OF BUTT-JOINT STA. 2+00 AND STA. 5+00

B.M. #1 - ELEV. 400.41
P-K NAIL IN TELE. PED. POST
61.5' LT. STA. 1+09

TRAFFIC BARRIER TERMINALS, TYPE 6A
EACH CORNER OF BRIDGE = 4 EACH

TRAFFIC BARRIER TERMINALS, TYPE 1 (SPECIAL) TANGENT
EACH CORNER OF BRIDGE = 4 EACH

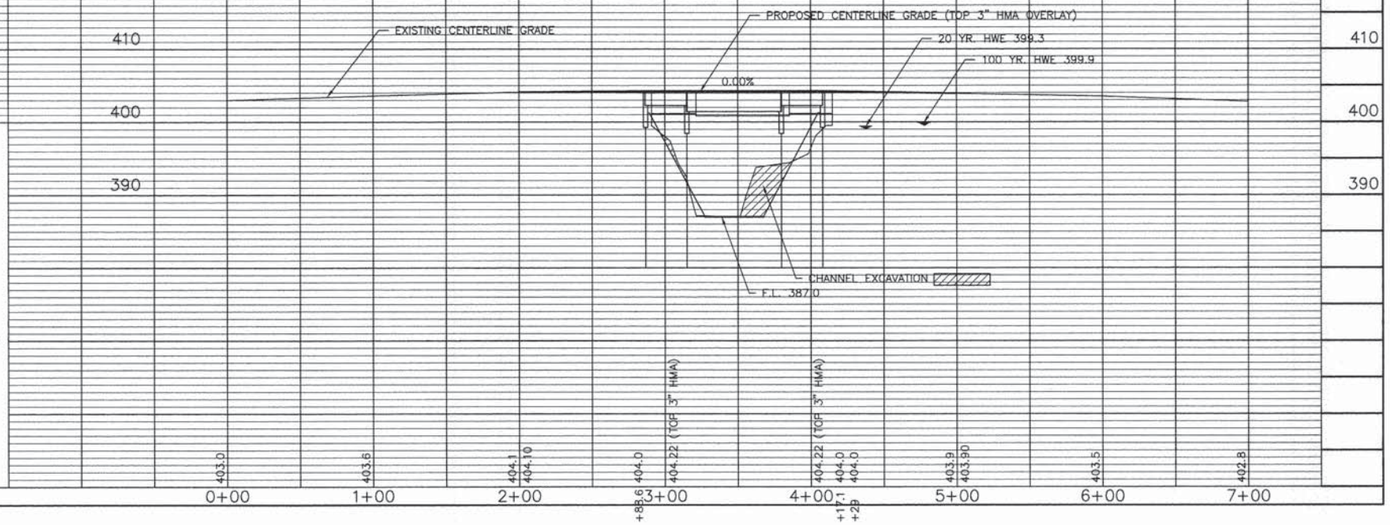
TERMINAL MARKER - DIRECT APPLIED
EACH CORNER OF BRIDGE = 4 EACH

PERIMETER EROSION BARRIER
15 FT. @ EACH CORNER OF BRIDGE = 60 EACH

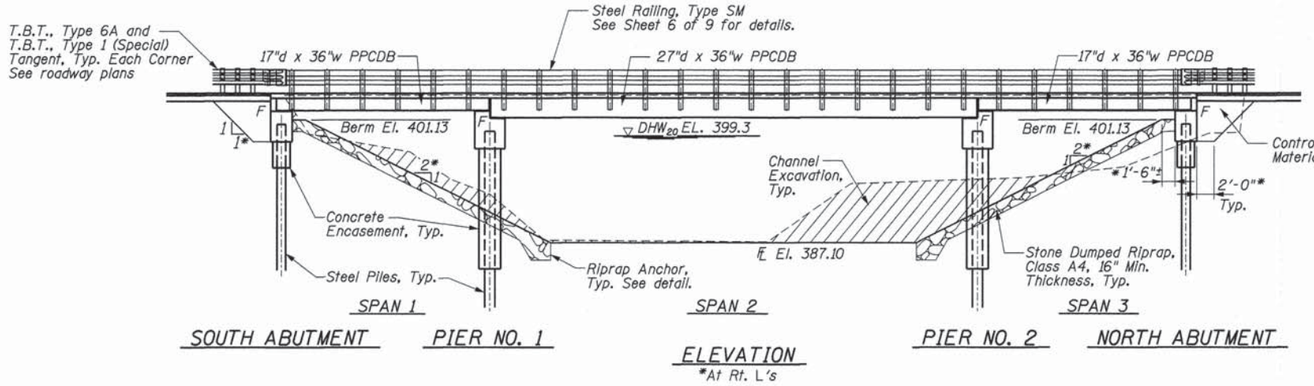
SEEDING, CLASS 2 (SPECIAL)
SHLD WIDENING = 0.1 ACRE

EARTHWORK QUANTITIES

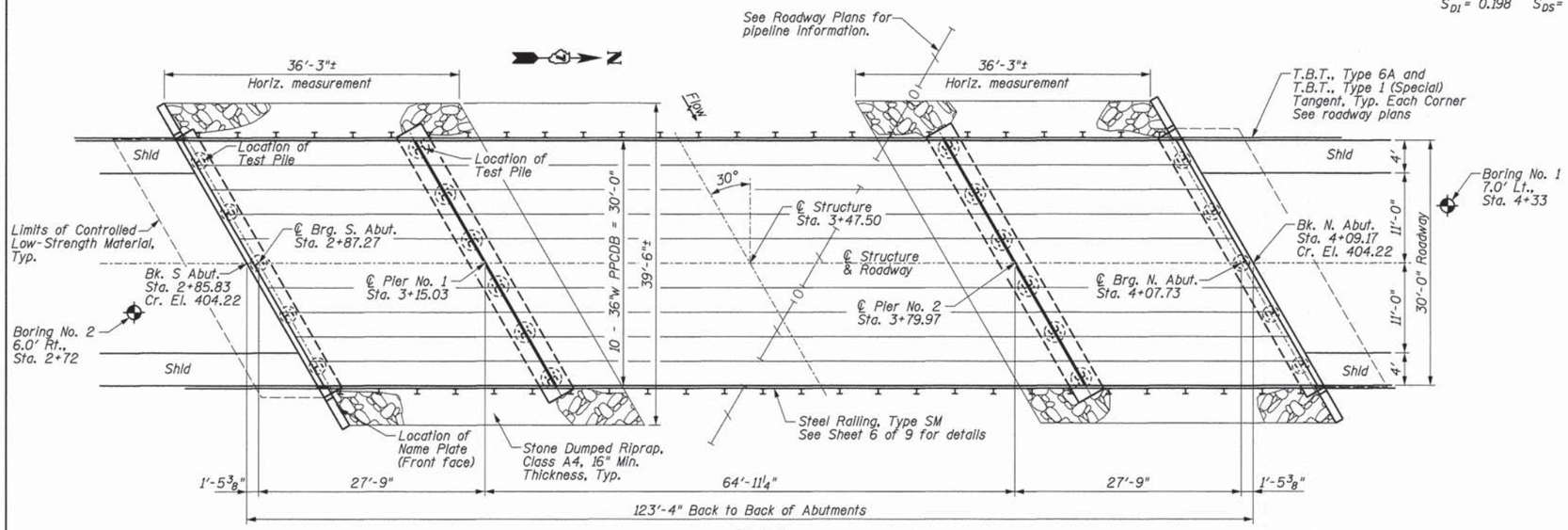
CHANNEL EXCAVATION = 302 CU YD
CHANNEL EXC. (ADJ. 25%) = 227 CU YD
EMBANKMENT (SHLD WIDENING) = 53 CU YD
EXCESS EXCAVATION = 174 CU YD



B.M. #1 - Elev. 400.41
Mag nail in tel. ped.
61.5' Lt., Sta. 1+09



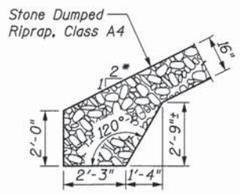
ELEVATION
*At Rt. L's



PLAN

DESIGN SCOUR TABLE

Location	Design Scour Elevation
S. Abut.	398.6
Pier 1	383.6
Pier 2	383.6
N. Abut.	398.6



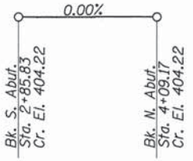
RIPRAP ANCHOR DETAIL

WATERWAY INFORMATION

Drainage Area = 22.2 sq. mi. Low Grade Elev. 402.8 @ Sta. 7+00

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	20	3117	642	752	399.3	0.7	0.4	400.0	399.7
Base	100	4680	686	790	399.9	1.3	0.8	401.2	400.7
Base	500	6240	837	813	400.4	1.9	1.4	402.3	401.8

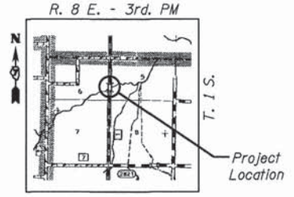
Waterway Information as calculated by Connor & Connor, Inc.



GRADE ON STRUCTURE
(along ℄ FAS 797)

MARTIN CREEK
BUILT 201_ BY
WAYNE COUNTY
SEC. 13-00126-00-BR
F.A.S. RT. 797 STATION 3+47.50
STR. NO. 096-3463 LOADING HL-93

NAME PLATE
See Std. 515001



LOCATION SKETCH

Existing Structure: Sta. 3+51 - Existing precast prestressed concrete deck beam bridge. 3 Spans at 34', 60', 34' 26' Rdwy., Skew 30° R.F. Pile bent spill-thru abutments and pile bent piers. To be removed. Exist. Str. No. 096-3301. No Salvage.

LOADING HL-93

50#/sq. ft. included in dead load for future wearing surface.

DESIGN SPECIFICATIONS

2010 (5th Ed.) AASHTO LRFD Bridge Design Specifications

DESIGN STRESSES

FIELD UNITS

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

PRECAST PRESTRESSED UNITS

f'_c = 6,000 psi
f'_{ci} = 5,000 psi
f_{pu} = 270,000 psi ($\frac{1}{2}$" ϕ low lax. strands)
f_{pbt} = 201,960 psi ($\frac{1}{2}$" ϕ low lax. strands)
f_y = 60,000 psi (reinforcement)

SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
Soil Site Classification = C
S_{D1} = 0.198 S_{DS} = 0.554

BILL OF MATERIALS (BRIDGE ONLY)

ITEM	UNIT	TOTAL
Channel Excavation	Cu Yd	302
Stone Dumped Riprap, Class A4	Ton	284
Bituminous Materials (Prime Coat)	Pound	93
Hot-Mix Asphalt Surface Course, Mixture "C", N70	Ton	70
Removal of Existing Structures	Each	1
Concrete Structures	Cu Yd	70.6
Concrete Encasement	Cu Yd	34.6
PPCDB (17" Depth)	Sq Ft	1700
PPCDB (27" Depth)	Sq Ft	1943
Reinforcement Bars	Pound	8120
Steel Railing, Type SM	Foot	247
Furnishing Steel Piles HP12x53	Foot	715
Furnishing Steel Piles HP14x73	Foot	869
Driving Piles	Foot	1584
Test Pile Steel HP12x53	Each	1
Test Pile Steel HP14x73	Each	1
Pile Shoes	Each	22
Name Plates	Each	1
Portland Cement Mortar Fairing Course	Foot	1096
Controlled Low-Strength Material	Cu Yd	54.7

GENERAL NOTES

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

Channel excavation shall be excavated as shown within the limits of the proposed bridge, then tapered to the existing channel at 30'± left and right of ℄. If the Engineer deems the material satisfactory, it may be used to construct the roadway embankment.

See Section 502 of the Standard Specifications for Structural Excavation.

See Special Provisions for Soil Borings.

Do not scale these drawings.

The abutment bearing seat surfaces for the precast prestressed concrete deck beams shall be adjusted by shimming to assure firm and even bearing. As required, $\frac{1}{8}$" fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing. The top surface of the beams shall be finished according to the IDOT Manual for Fabrication of Precast Prestressed Concrete Products.

The Contractor is hereby advised that very stiff soils may be encountered prior to the location of anticipated nominal required bearing. See the soil borings for further information.

Factors used for quantity calculations are as follows:
Stone Dumped Riprap 130 pounds/cu. ft.
Hot Mix Asphalt 0.056 tons/sq. yd./inch
Bit. Materials (Prime Coat) 0.025 Pound/sq. ft. (on PPCDB)

I certify that to the best of knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current AASHTO Standard Specifications for Highway Bridges.

William D. Lueking
William D. Lueking

02/04/2015
Date of Signing

11/30/2016
Date of License Expiration

81-4341 LICENSED STRUCTURAL ENGINEER — WILLIAM D. LUEKING — STATE OF ILLINOIS

BRIDGE SHEET 1 OF 9

RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

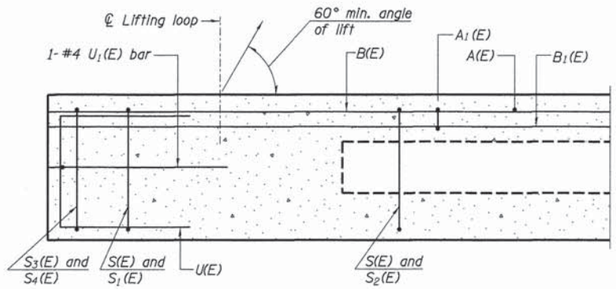
DESIGNED	- BLT	REVISED -
DRAWN	- JN	REVISED -
CHECKED	- WDL	REVISED -
DATE	- 02/04/2015	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

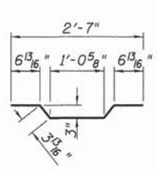
GENERAL PLAN AND ELEVATION

SCALE: NTS

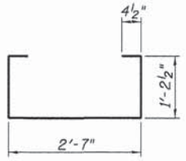
F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
797	13-00126-00-BR	WAYNE	11	3
		CONTRACT NO. 95755		
RAAI JOB NO. 53414	ILLINOIS FED. AID PROJECT			



SECTION A-A

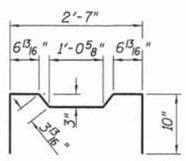


BAR $A_1(E)$

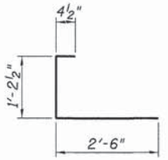


BAR S(E)

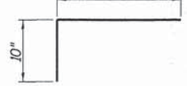
BAR $S_1(E)$



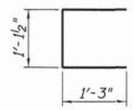
BAR $S_2(E)$



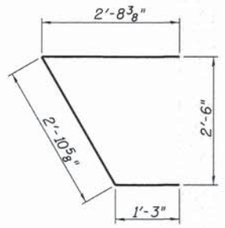
BAR $S_3(E)$



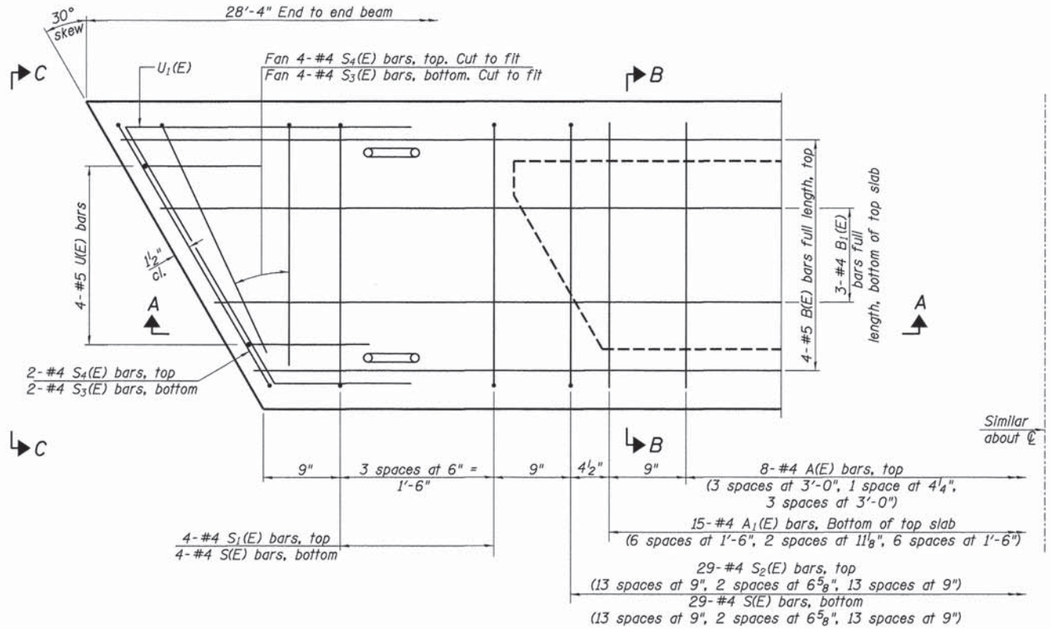
BAR $S_4(E)$



BAR U(E)



BAR $U_1(E)$



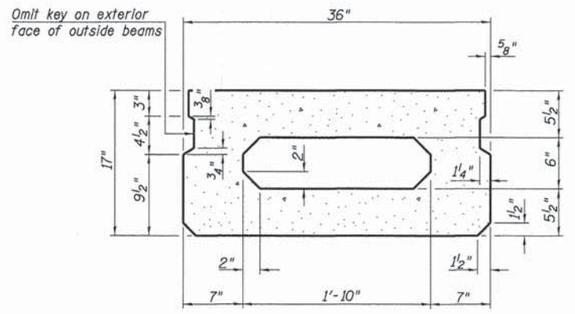
PLAN VIEW

Note: Spacing of S(E) and S (E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.

MINIMUM BAR LAP

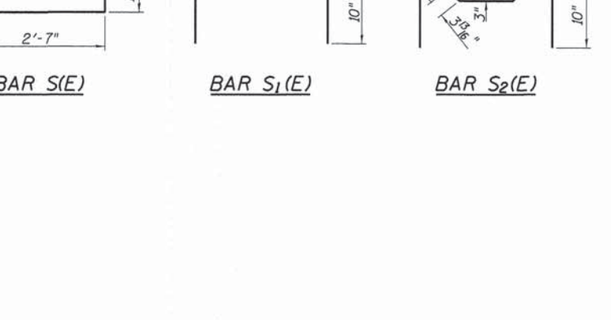
#4 bar = 2'-0"

#5 bar = 2'-6"



SECTION B-B

(Showing dimensions)

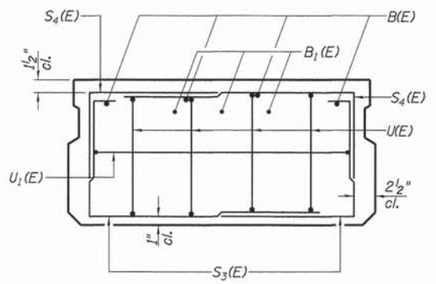


10 strands total

SECTION B-B

(Showing reinforcement and permissible strand locations)

Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.



VIEW C-C

BAR LIST

ONE BEAM ONLY

(For information only)

Bar	No.	Size	Length	Shape
A(E)	8	#4	2'-7"	—
$A_1(E)$	15	#4	2'-10"	⌇
B(E)	4	#5	28'-0"	—
$B_1(E)$	3	#4	28'-0"	—
S(E)	37	#4	5'-9"	—
$S_1(E)$	8	#4	4'-3"	⌐
$S_2(E)$	29	#4	4'-6"	⌐
$S_3(E)$	12	#4	4'-1"	⌐
$S_4(E)$	12	#4	3'-4"	⌐
U(E)	8	#5	3'-8"	⌐
$U_1(E)$	2	#4	6'-10"	⌐

Note: See Sheet 3 of 9 for additional details and Bill of Material.

SPAN 1 OR 3

RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED -	BLT	REVISED -
DRAWN -	JN	REVISED -
CHECKED -	WDL	REVISED -
DATE -	02/04/2015	REVISED -

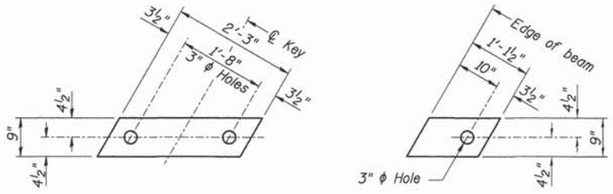
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS

SCALE: NTS

BRIDGE SHEET 2 OF 9

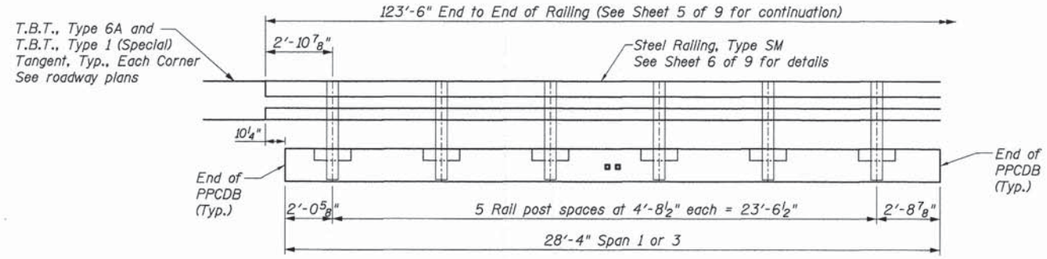
F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
797	13-00126-00-BR	WAYNE	11	4
		CONTRACT NO. 95755		
RAAI JOB NO. 53414	ILLINOIS	FED. AID PROJECT		



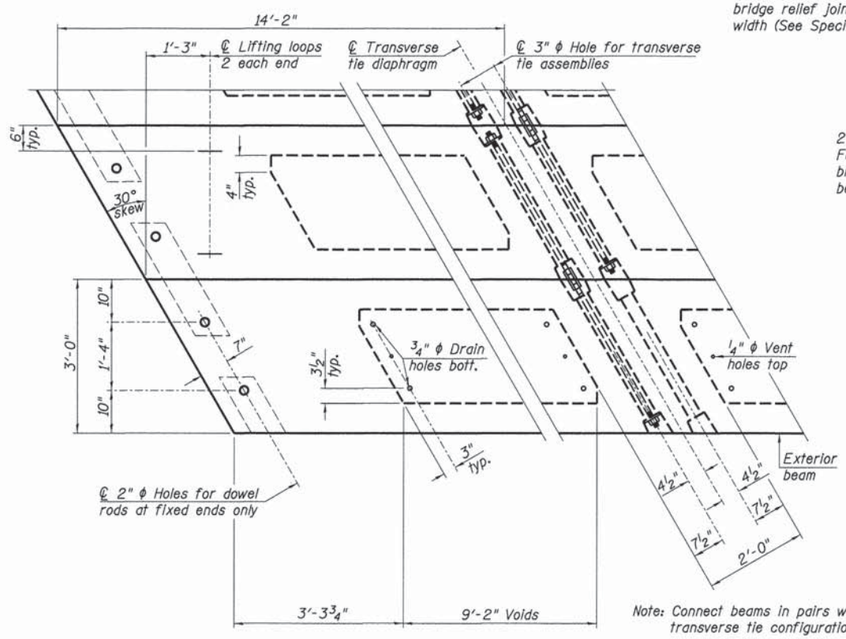
FABRIC BEARING PAD
(Interior)

FABRIC BEARING PAD
(Exterior)

All bearing pads shall be 1" thick.

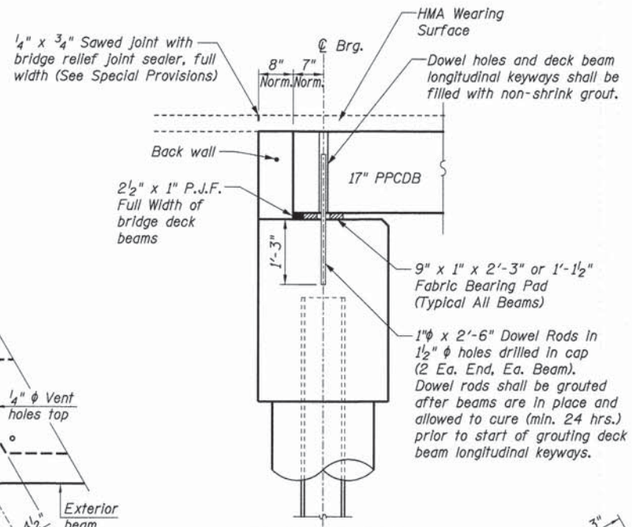


ABUTMENT — ELEVATION — PIER

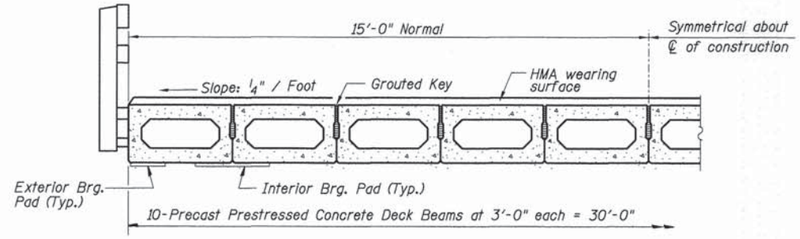


PLAN VIEW

Note: Connect beams in pairs with the transverse tie configuration shown.

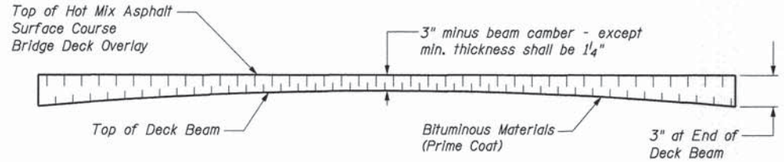


FIXED BEARING ABUTMENT
(Normal to ℄)
See Sheet 5 of 9 for Pier Bearing Detail.

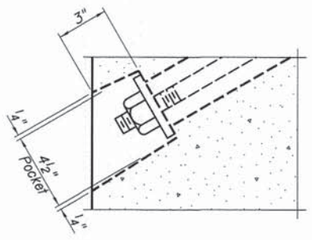


TYP. HALF CROSS SECTION

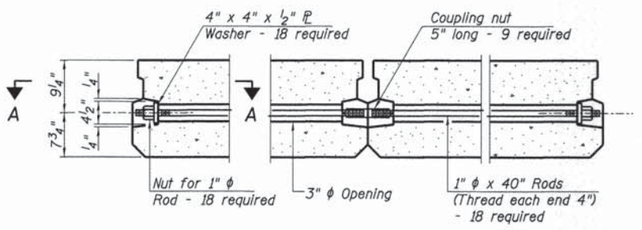
See Sheet 6 of 9 for the details showing the mounting of posts and rails to the PPCDB.



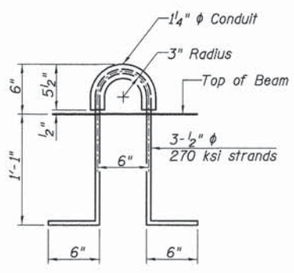
PROFILE OF OVERLAY



SECTION A-A



TYPICAL TRANSVERSE TIE ASSEMBLY



LIFTING LOOP DETAIL

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.153 sq. in.

The 1" ϕ rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.

Reinforcement bars shall conform to ASTM A 706, Grade 60 (IL Modified).

Two ⅛" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2½" ϕ lifting pin shall be used to engage the lifting loops during handling.

Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.

Compressive strength of prestressed concrete, f'c, shall be 6000 psi.

Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

BILL OF MATERIAL-ONE SPAN

Precast Prestressed Conc. Deck Bms. (17" depth)	Sq. Ft.	850

SPAN 1 OR 3

BRIDGE SHEET 3 OF 9

RHUTASEL and ASSOCIATES, INC.
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CHECKED -	WDL	REVISED -
DATE -	02/04/2015	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS

SCALE: NTS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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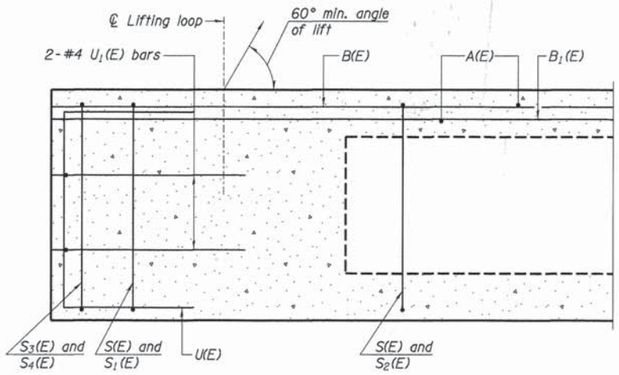
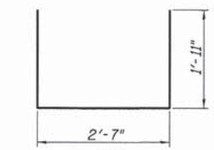
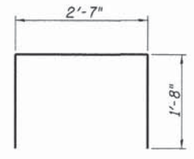
		CONTRACT NO. 95755		
RAAI JOB NO. 53414	ILLINOIS	FED. AID PROJECT		



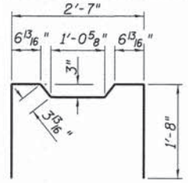
SECTION A-A



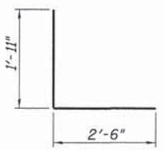
BAR S(E)



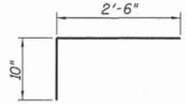
BAR $S_1(E)$



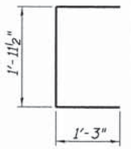
BAR $S_2(E)$



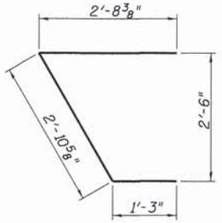
BAR $S_3(E)$



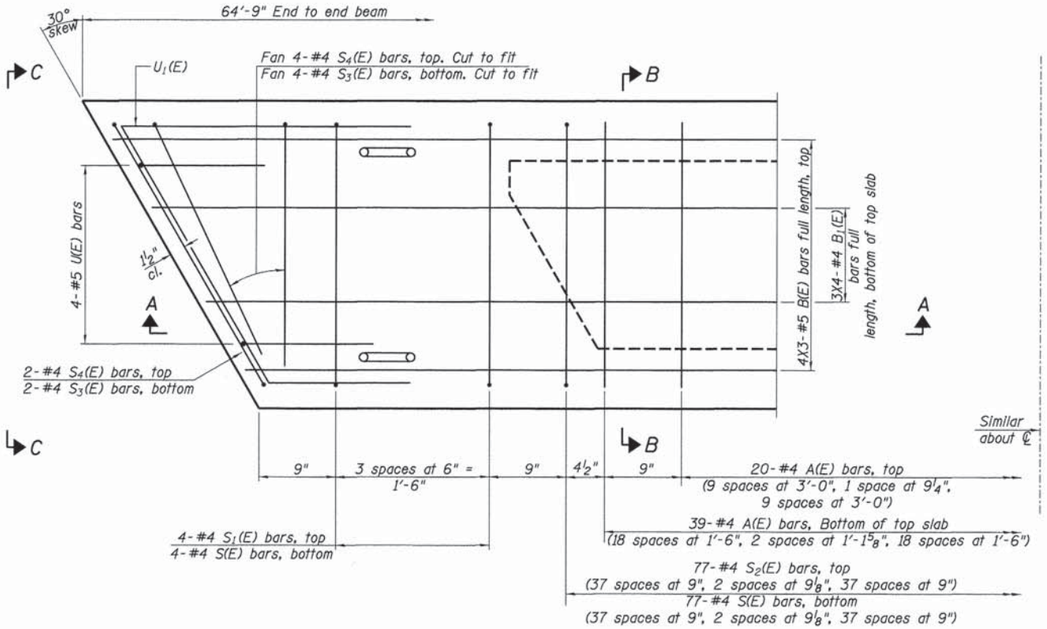
BAR $S_4(E)$



BAR U(E)



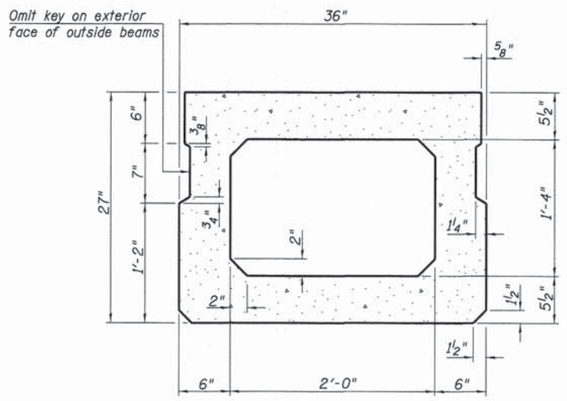
BAR $U_1(E)$



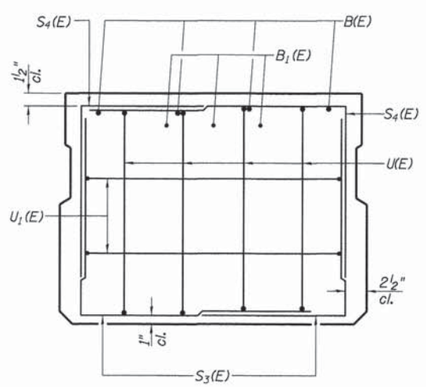
PLAN VIEW

Note: Spacing of S(E) and S (E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.

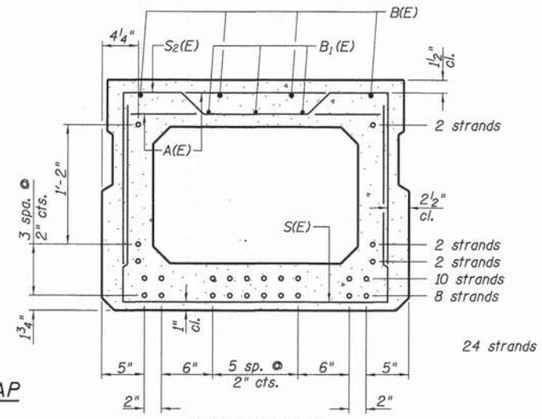
Bars indicated thus: 4x3-#5 etc. indicates 4 lines of bars with 3 lengths per line.



SECTION B-B
(Showing dimensions)



VIEW C-C



24 strands total

SECTION B-B
(Showing reinforcement and permissible strand locations)

Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

MINIMUM BAR LAP
#4 bar = 2'-0"
#5 bar = 2'-6"

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	59	#4	2'-7"	—
B(E)	12	#5	23'-2"	—
$B_1(E)$	12	#4	17'-8"	—
S(E)	85	#4	6'-5"	—
$S_1(E)$	8	#4	5'-11"	—
$S_2(E)$	77	#4	6'-2"	⌐ ¬
$S_3(E)$	12	#4	4'-5"	—
$S_4(E)$	12	#4	4'-2"	—
U(E)	8	#5	4'-6"	⌐ ¬
$U_1(E)$	4	#4	6'-10"	⌐ ¬

Note: See Sheet 5 of 9 for additional details and Bill of Material.

SPAN 2

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DRAWN - JN		REVISED -
CHECKED - WDL		REVISED -
DATE - 02/04/2015		REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS

SCALE: NTS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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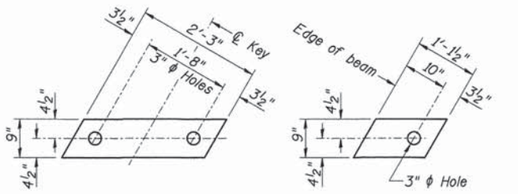
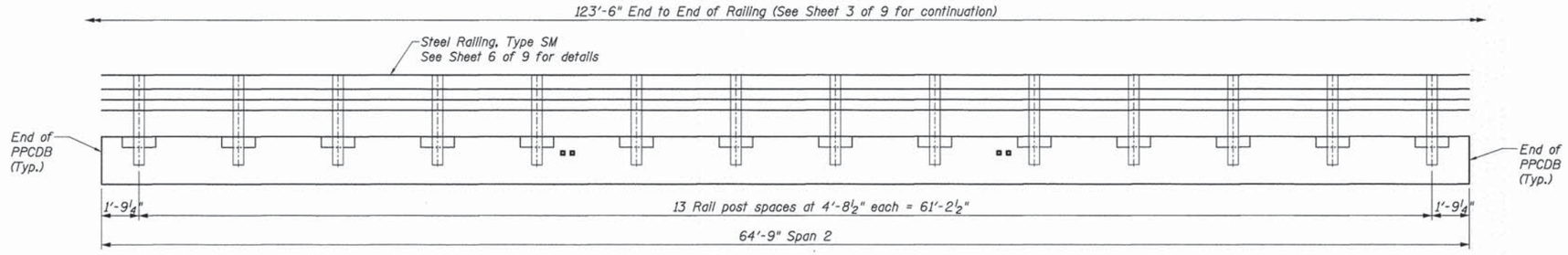
		CONTRACT NO. 95755		
RAAI JOB NO. 53414	ILLINOIS	FED. AID PROJECT		



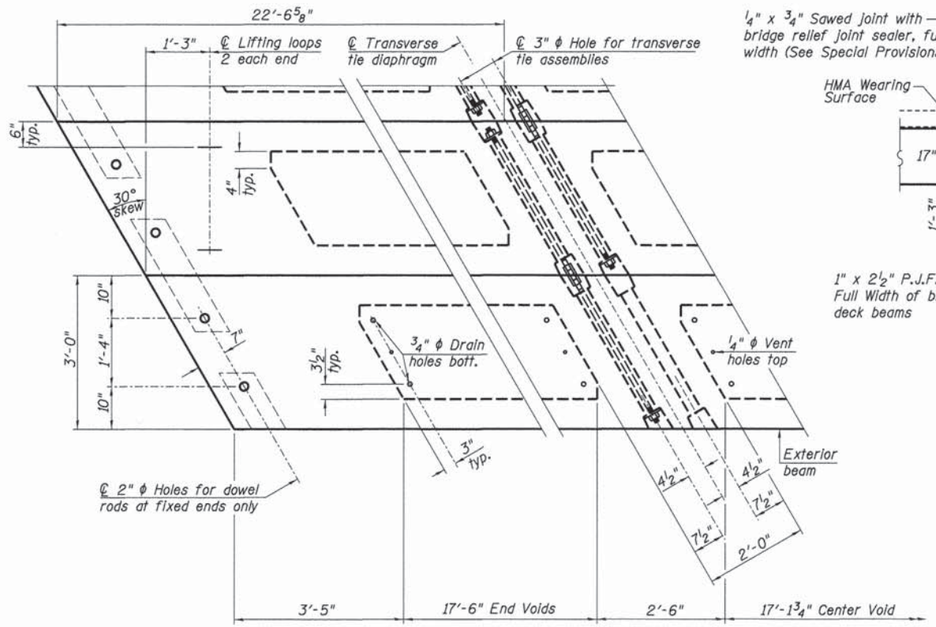
FABRIC BEARING PAD
(Interior)

FABRIC BEARING PAD
(Exterior)

All bearing pads shall be 1" thick.

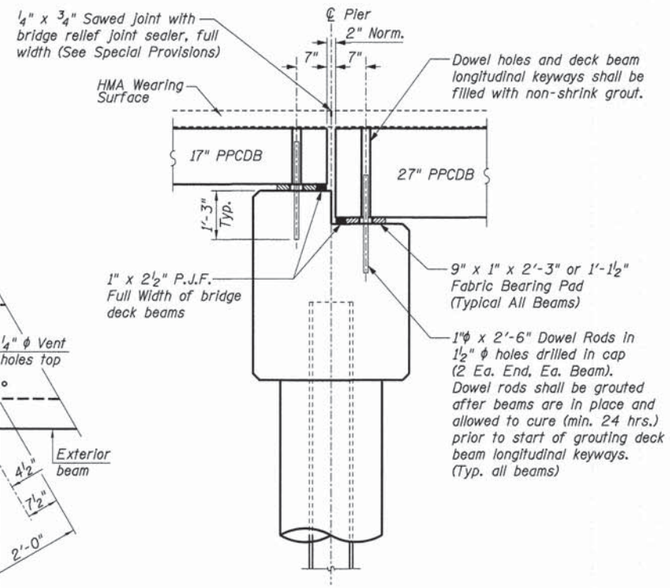


ELEVATION

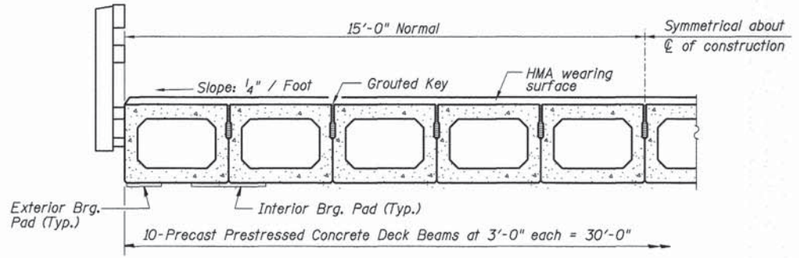


PLAN VIEW

Note: Connect beams in pairs with the transverse tie configuration shown.

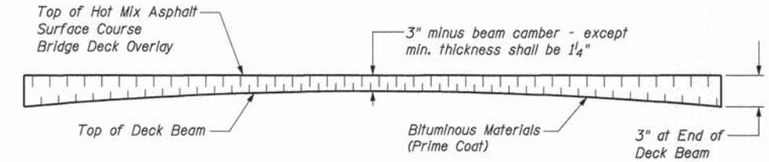


FIXED BEARING PIER
(Normal to ℄)

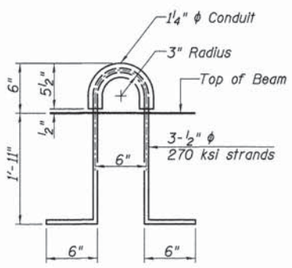


TYP. HALF CROSS SECTION

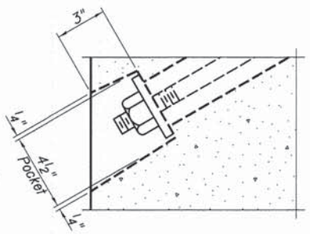
See Sheet 6 of 9 for the details showing the mounting of posts and rails to the PPCDB.



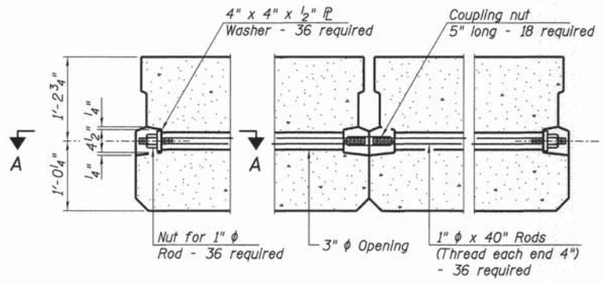
PROFILE OF OVERLAY



LIFTING LOOP DETAIL



SECTION A-A



TYPICAL TRANSVERSE TIE ASSEMBLY

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.153 sq. in.

The 1" ϕ rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.

Reinforcement bars shall conform to ASTM A 706, Grade 60 (IL Modified).

Two ⅛" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2½" ϕ lifting pin shall be used to engage the lifting loops during handling.

Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.

Compressive strength of prestressed concrete, f'c, shall be 6000 psi.

Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1943

SPAN 2

BRIDGE SHEET 5 OF 9

RHUTASEL and ASSOCIATES, INC.
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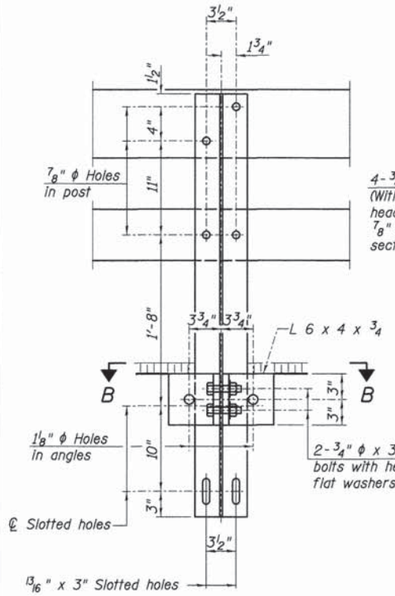
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

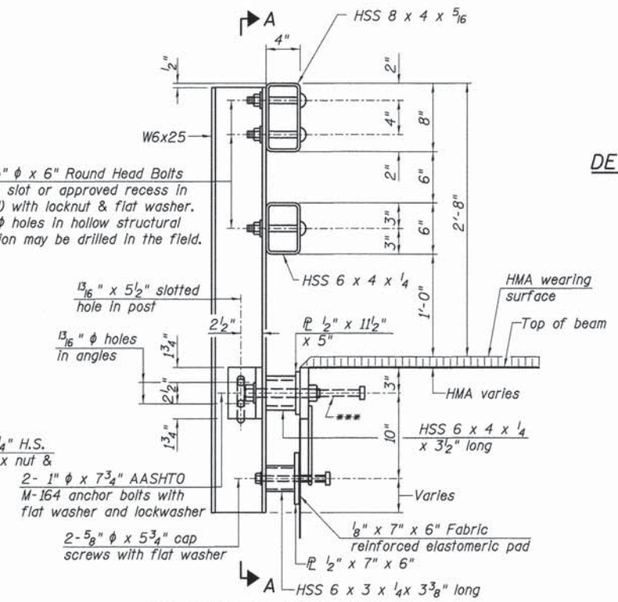
PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS

SCALE: NTS

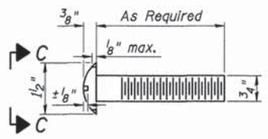
F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
797	13-00126-00-BR	WAYNE	11	7
		CONTRACT NO. 95755		
RAAI JOB NO. 53414	ILLINOIS	FED. AID PROJECT		



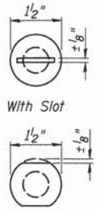
SECTION A-A



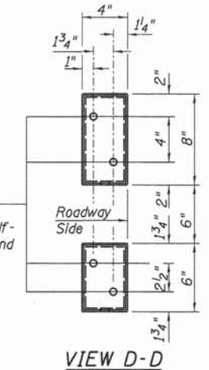
SECTION AT RAIL POST



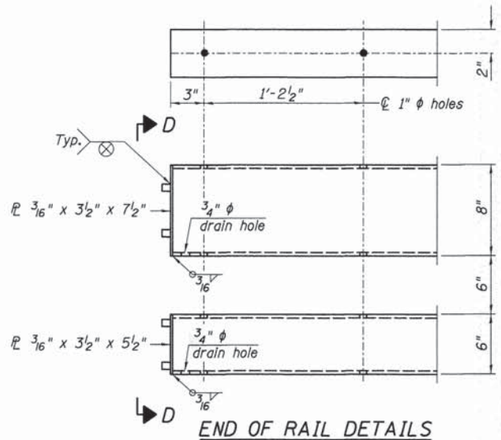
DETAIL OF ¾" ϕ ROUND HEAD BOLT



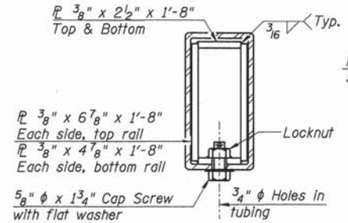
VIEW C-C



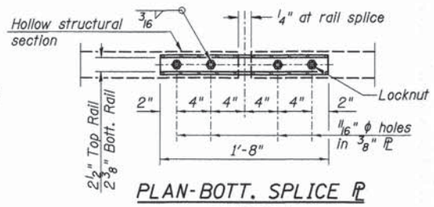
VIEW D-D



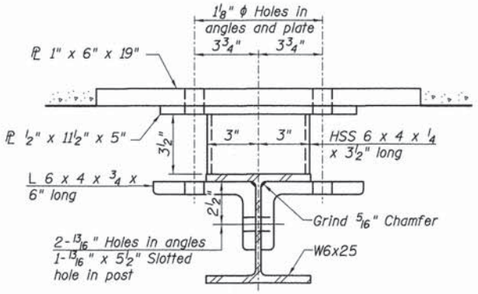
END OF RAIL DETAILS



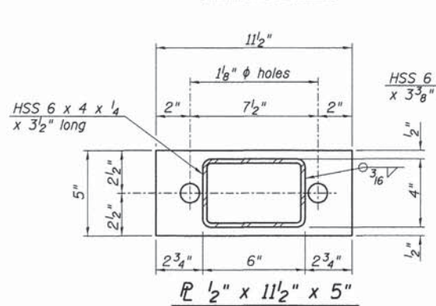
SECTION AT RAIL SPLICE



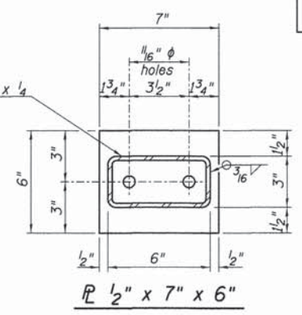
PLAN-BOTT. SPLICE PL TYPICAL



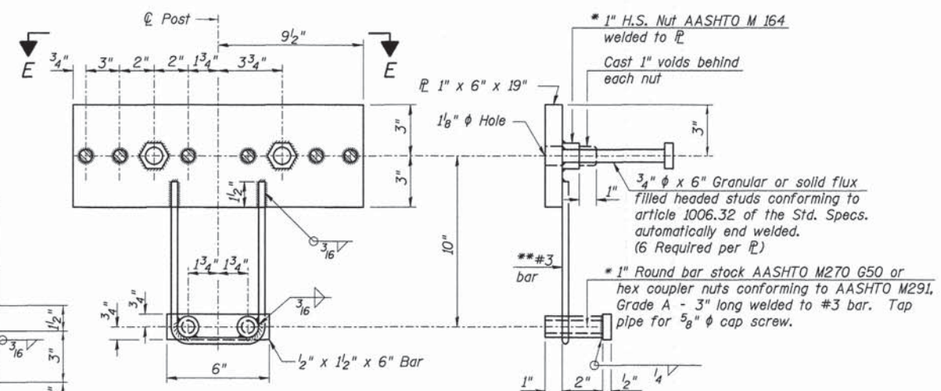
SECTION B-B



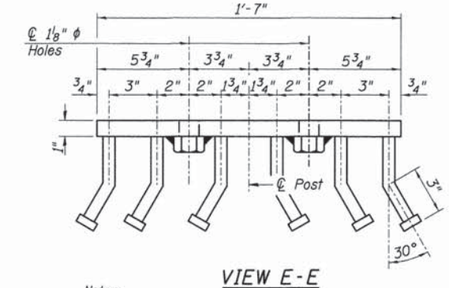
PL ½" x 11½" x 5"



PL ½" x 7" x 6"



ANCHOR DEVICE



VIEW E-E

Notes:

All field drilled holes shall be coated with an approved zinc rich paint before erection.

For multi-span bridges, sufficient ¼" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type SM.

All steel rail members shall be galvanized according to Article 509.05 of the Standard Specifications.

*** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type SM	Foot	247

See Sheets 3 and 5 of 9 for post spacing.

*Threaded areas shall be plugged or blocked off during casting of beam. Galvanized after fabrication.

** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed ½".

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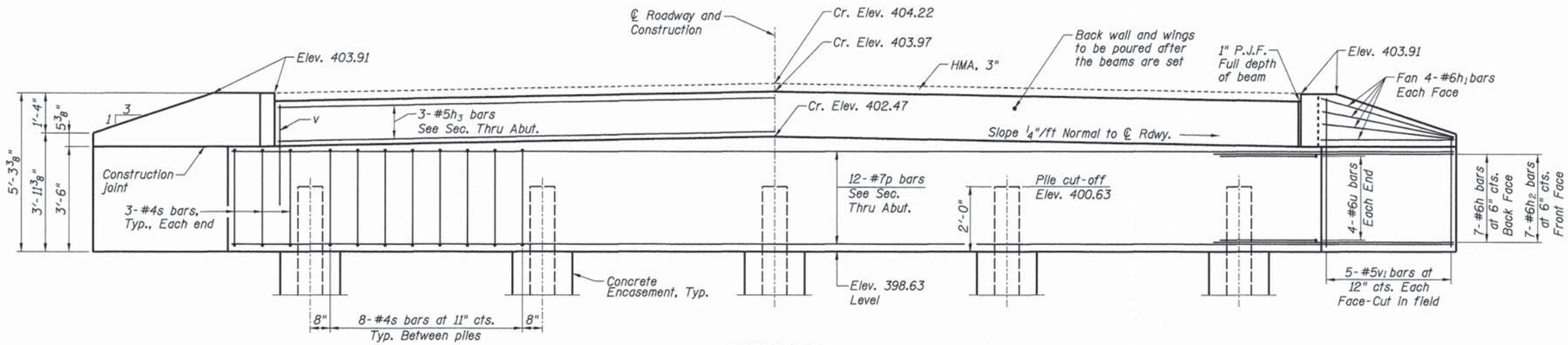
DATE -	02/04/2015	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

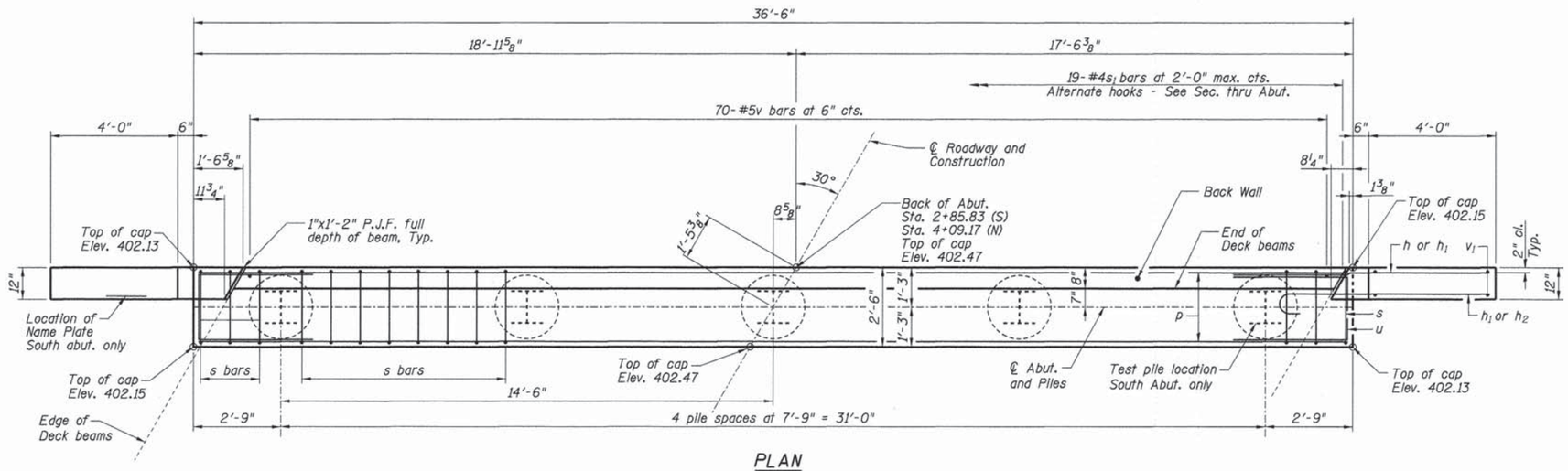
STEEL RAILING, TYPE SM DETAILS

SCALE: NTS

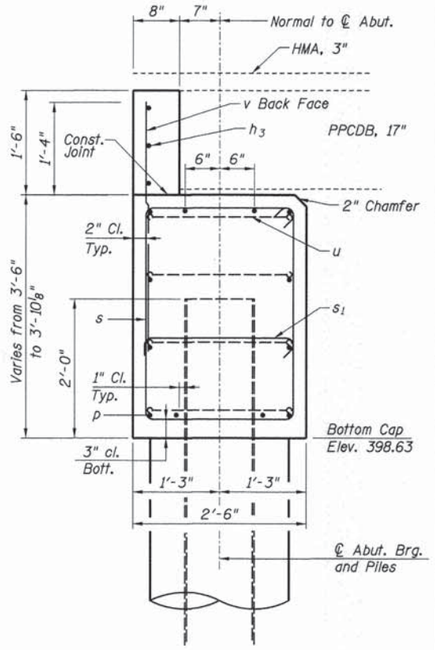
F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
797	13-00126-00-BR	WAYNE	11	8
		CONTRACT NO. 95755		
RAAI JOB NO. 53414	ILLINOIS	FED. AID PROJECT		



ELEVATION



PLAN



SEC. THRU ABUT.
(Normal to ℄)

PILE DATA SOUTH ABUTMENT

Type:	Steel HP12x53
Nominal Required Bearing:	419 kips
Factored Resistance Available:	230 kips
Estimated Length:	80'/pile
No. Production Piles w/Pile Shoes	4
No. Test Piles w/Pile Shoes	1

PILE DATA NORTH ABUTMENT

Type:	Steel HP12x53
Nominal Required Bearing:	419 kips
Factored Resistance Available:	230 kips
Estimated Length:	79'/pile
No. Production Piles w/Pile Shoes	5
No. Test Piles w/Pile Shoes	0

GENERAL NOTES

Reinforcement bars shall conform to the requirements of ASTM A 706 Grade 60 (IL Modified).

All exposed edges shall have standard 3/4" chamfer, unless otherwise noted or as directed by the Engineer.

All clearances between rebar and form surface shall be 2", unless otherwise noted.

Space reinforcement in cap to miss PPCDB dowel rods.

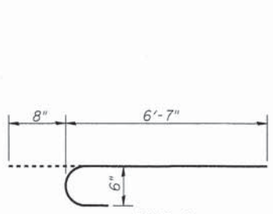
The Steel H-piles shall be according to AASHTO M270 Grade 50.

The Contractor shall drive one (1) Test Pile of the size and location indicated and as directed by the Engineer before ordering the remainder of the piles.

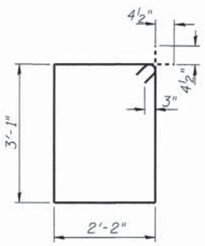
The Test Pile shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.

The position of the 90° & 135° hooked ends of the s_1 bar shall be alternated between adjacent bars.

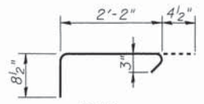
The back wall and portion of the wingwalls above the construction joint shall be cast against the in-place deck beams.



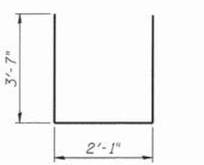
BAR h2



BAR s



BAR s1



BAR u

BILL OF MATERIAL FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape
h	14	#6	9'-0"	
h_1	16	#6	5'-6"	CUT IN FIELD
h_2	14	#6	7'-3"	
h_3	3	#5	34'-3"	
p	12	#7	36'-2"	
s	38	#4	11'-3"	
s_1	19	#4	3'-3"	
u	8	#6	9'-3"	
v	70	#5	3'-6"	
v_1	20	#5	5'-0"	CUT IN FIELD
Concrete Structures			Cu. Yd.	15.4
Concrete Encasement			Cu. Yd.	1.8
Reinforcement Bars			Pound	2270
Furnishing Steel Piles HP12x53	Foot		S. Abut.	320
			N. Abut.	395
Driving Piles	Foot		S. Abut.	320
			N. Abut.	395
Test Pile Steel HP 12x53	Each		S. Abut.	1
			N. Abut.	0
Pile Shoes	Each		S. Abut.	5
			N. Abut.	5

For details of Piles and Pile Encasement, see HP Pile Details Sheet.

BRIDGE SHEET 7 OF 9

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DRAWN	JN	REVISED -
CHECKED	WDL	REVISED -
DATE	02/04/2015	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ABUTMENT DETAILS

SCALE: NTS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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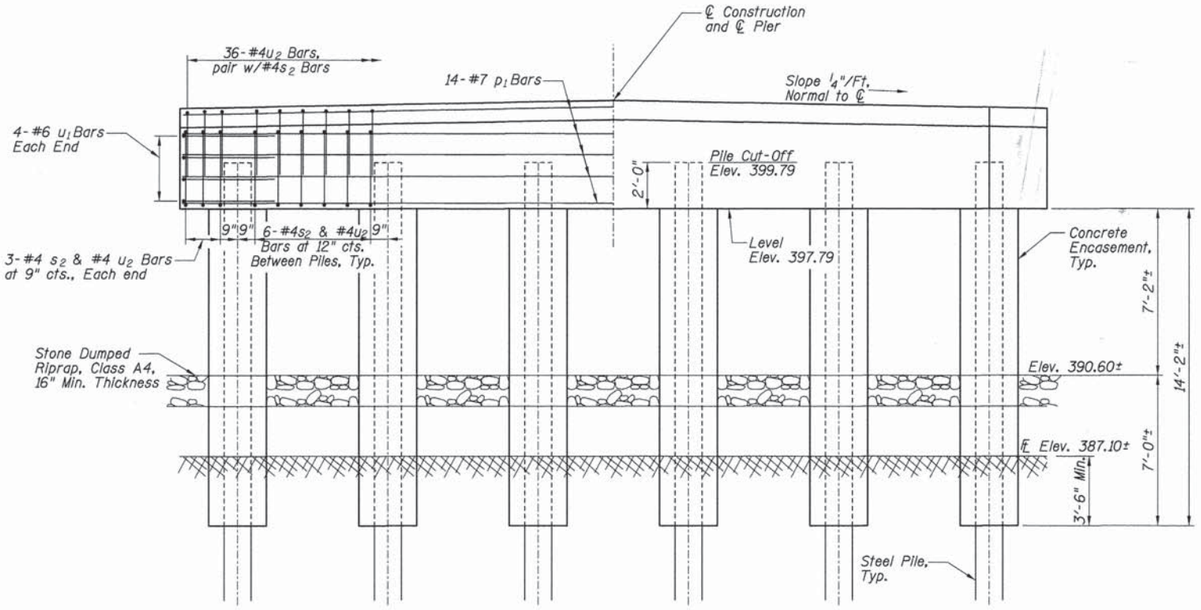
		CONTRACT NO. 95755		
RAAI JOB NO. 53414	ILLINOIS FED. AID PROJECT			



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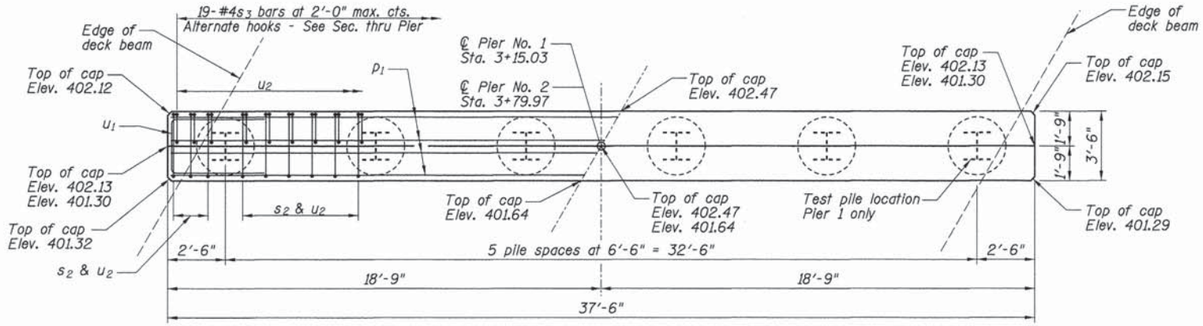
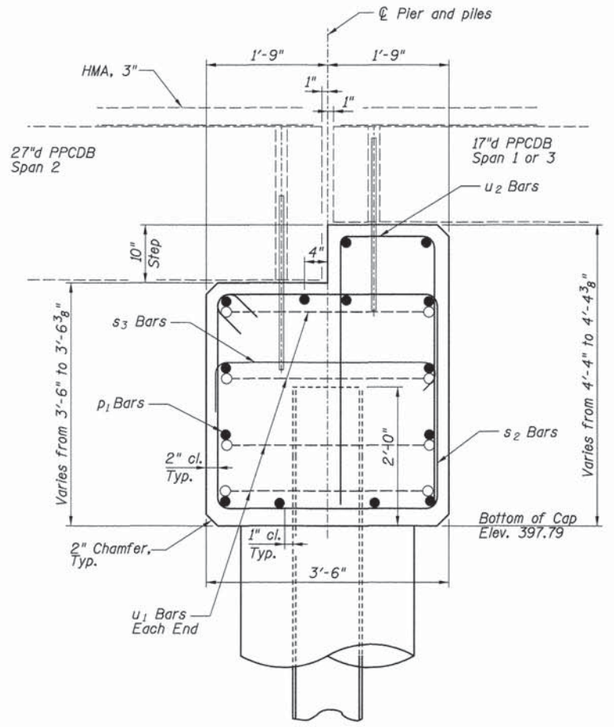
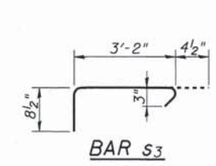


PLAN

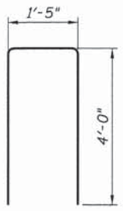


SECTION THRU PIER

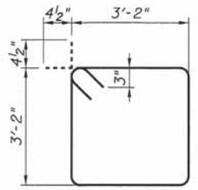
(Normal to ℄)



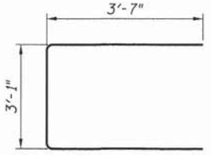
BAR s3



BAR u2



BAR s2



BAR u1

BILL OF MATERIAL FOR ONE PIER

Bar	No.	Size	Length	Shape
p_1	14	#7	37'-2"	
s_2	36	#4	13'-5"	
s_3	19	#4	4'-3"	
u_1	8	#6	10'-3"	
u_2	36	#4	9'-5"	
Concrete Structures			Cu. Yd.	19.9
Concrete Encasement			Cu. Yd.	15.5
Reinforcement Bars			Pound	1790
Furnishing Steel Piles, HP14x73	Foot		Pier 1	395
			Pier 2	474
Driving Piles	Foot		Pier 1	395
			Pier 2	474
Test Pile Steel HP14x73	Each		Pier 1	1
			Pier 2	0
Pile Shoes	Each		Pier 1	6
			Pier 2	6

For details of Piles and Pile Encasement, see HP Pile Details Sheet.

PILE DATA PIER NO. 1

Type:	Steel HP14x73
Nominal Required Bearing:	419 kips
Factored Resistance Available:	173 kips
Estimated Length:	79'/pile
No. Production Piles w/Pile Shoes	5
No. Test Piles w/Pile Shoes	1

PILE DATA PIER NO. 2

Type:	Steel HP14x73
Nominal Required Bearing:	419 kips
Factored Resistance Available:	173 kips
Estimated Length:	79'/pile
No. Production Piles w/Pile Shoes	6
No. Test Piles w/Pile Shoes	0

GENERAL NOTES

Reinforcement bars shall conform to the requirements of ASTM A 706 Grade 60 (IL Modified).

All exposed edges shall have standard 3/4" chamfer, unless otherwise noted or as directed by the Engineer.

All clearances between rebar and form surface shall be 2", unless otherwise noted.

Space reinforcement in cap to miss PPCDB dowel rods.

The Steel H-piles shall be according to AASHTO M270 Grade 50.

The Contractor shall drive one (1) Test Pile of the size and location indicated and as directed by the Engineer before ordering the remainder of the piles.

The Test Pile shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.

The position of the 90° & 135° hooked ends of the s_3 bar shall be alternated between adjacent bars.

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PIER DETAILS

SCALE: NTS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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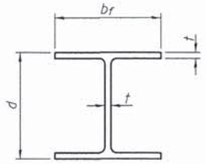
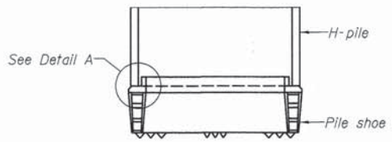
		CONTRACT NO. 95755		
RAAI JOB NO. 53414	ILLINOIS FED. AID PROJECT			

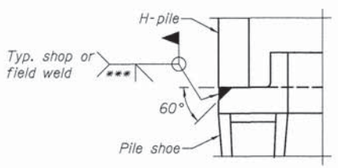


STEEL PILE TABLE

Designation	Depth d	Flange width b_f	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	11/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	11/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11 3/4"	12"	7/16"	24"
HP 10x57	10"	10 1/4"	9/16"	24"
x42	9 3/4"	10 1/8"	7/16"	24"
HP 8x36	8"	8 1/8"	7/16"	18"

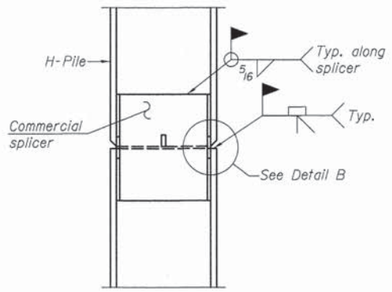


ELEVATION



DETAIL A

H-PILE SHOE ATTACHMENT



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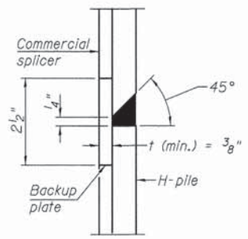
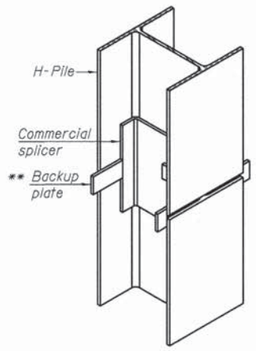
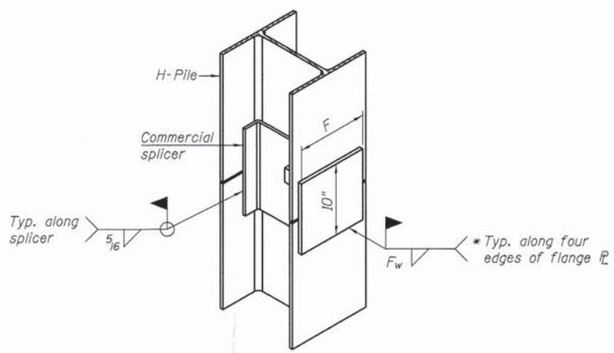


DETAIL "B"



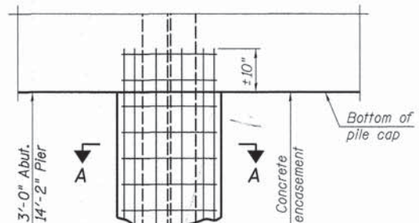
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE



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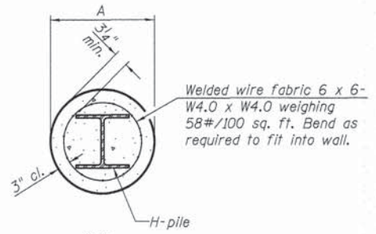
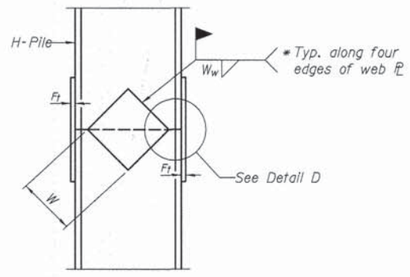


Note:
Forms for encasement may be omitted when soil conditions permit.

SECTION A-A

PILE ENCASEMENT



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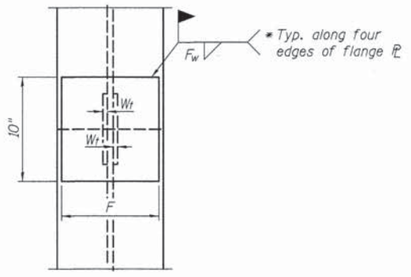
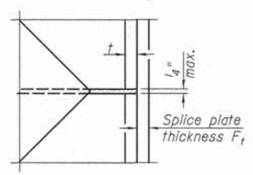


END VIEW



DETAIL D

Designation	F	F_t	F_w	W	W_t	W_w
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5/8"	1/2"
x89	12 1/2"	3/4"	11/16"	7 3/4"	5/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5/8"	1/2"
HP 12x84	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	11/16"	6 1/2"	5/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

WELDED PLATE FIELD SPLICE

* Interrupt welds 1/4" from end of web and/or each flange.

** Remove portions of backup plates that extend outside the flanges.

*** Weld size per pile shoe manufacturer (5/16" min.).

Note:
The steel H-piles shall be according to AASHTO M270 Grade 50.

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HP PILE DETAILS

SCALE: NTS

F.A.S RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
797	13-00126-00-BR	WAYNE	11	11
		CONTRACT NO. 95755		
RAAI JOB NO. 53414	ILLINOIS FED. AID PROJECT			