06-15-12 LETTING ITEM 066

INDEX OF SHEETS

DESIGN CLASSIFICATION: RURAL LOCAL ROAD
ADT$_{2012}$: 75
ADT$_{2032}$: 125
DESIGN SPEED - 30 MPH

0 100' 200' 300' 1"= 100'
0 10' 20' 30' 1"= 10'
0 50' 100' 1"= 50'
0 50' 100' 1"= 40'
0 50' 100' 1"= 30'
0 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 LOCATING INFORMATION FOR EXCAVATORS
1-800-892-0123 Website: http://www.illinois1call.com

GARY L. HAHN 62-42606 LICENSED PROFESSIONAL ENGINEER STATE OF ILLINOIS

Gary L. Hahn 04-06-12
GARY L. HAHN
CENTRALIA, ILLINOIS
ILLINOIS LICENSED PROFESSIONAL
ENGINEER NO. 62-42606
EXPIRES NOV. 30, 2013

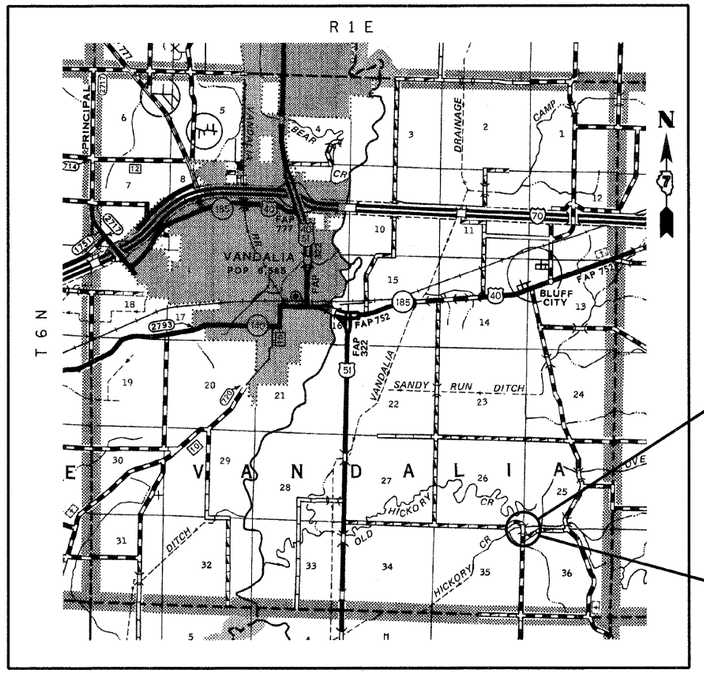
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

04/06/2012 RAAI #50811

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED HIGHWAY BRIDGE PROGRAM

TR 429
HICKORY CREEK
SECTION 10-18121-00-BR
PROJECT NO. BROS-051(090)
VANDALIA ROAD DISTRICT
FAYETTE COUNTY
JOB NO. C-97-056-12

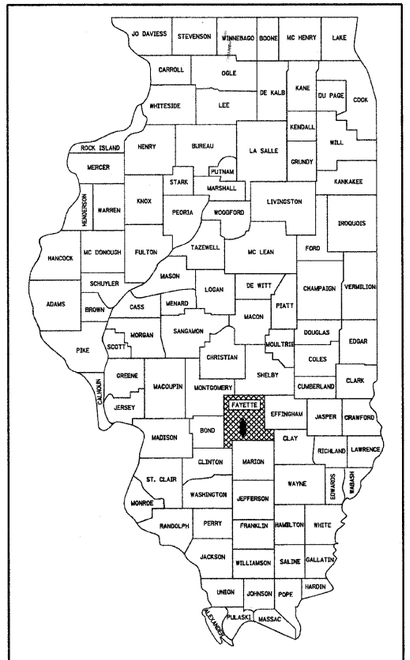


SECTION BEGINS
STA. 8+97.08

SECTION 10-18121-00-BR INCLUDES THE CONSTRUCTION OF A THREE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE CARRYING TR 429 OVER HICKORY CREEK, 122'-2" BK. TO BK. ABUTMENTS X 24' WIDE. NO SKEW.
EXISTING STRUCTURE NO. 026-3280
PROPOSED STRUCTURE NO. 026-3455

SECTION ENDS
STA. 11+19.24

LOCATION: NEAR THE NE CORNER OF SECTION 35, T 6 N, R 1 E, 3rd P.M.
NET LENGTH OF PROJECT: 222.16 FT = 0.042 MI



LOCATION OF SECTION INDICATED THUS: -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

APPROVED 4-9, 20 12
FAYETTE COUNTY, COUNTY ENGINEER

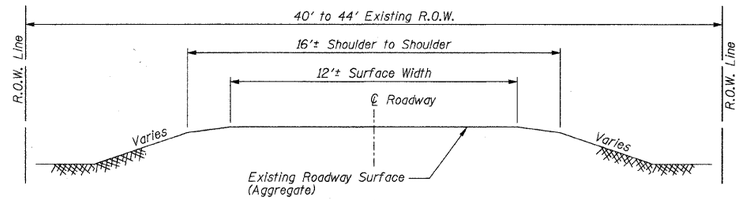
PASSED 4-11, 20 12
DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS

RELEASING FOR BID BASED ON LIMITED REVIEW 4-11, 20 12
DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER

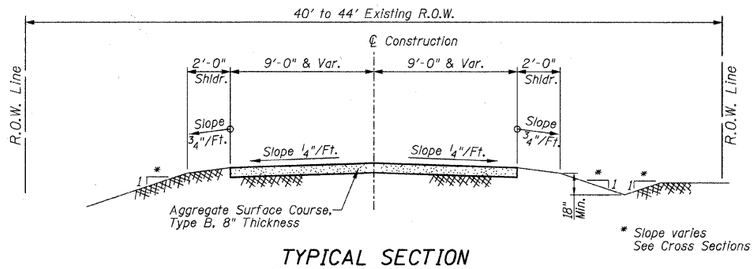
PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

CONTRACT NO. 95677

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 429	10-18121-00-BR	FAYETTE	15	1
		CONTRACT NO. 95677		
RAAI JOB NO. 50811	ILLINOIS	FED. AID PROJECT		



TYPICAL SECTION
EXISTING APPROACH ROADWAY



TYPICAL SECTION
PROPOSED APPROACH ROADWAY

Sta. 8+97.08 to Sta. 9+47.08
Sta. 10+69.24 to Sta. 11+19.24

GENERAL NOTES

1. This section shall be constructed according to the plans, the Special Provisions, and the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2012.

2. If Ash trees are removed on the Project, the Contractor shall become familiar with and comply with measures specified by the IllinoisDepartment of Agriculture (IDOA) to prevent the spread of the Emerald Ash Borer. The IDOA information for Ash tree removal can be found on the IDOA website at www.agr.state.il.us/eab .

3. Roadway Centerline profiles refer to the finished surface.

4. Existing utilities shown are located from surface observations or information provided by the respective utilities and must be considered approximate. There may be others, the exact location of which are unknown and not shown. The Contractor will be responsible for notifying the respective utilities before work is begun. Field marking of underground utilities may be obtained by providing a minimum of 48 hours advance notice through the J.U.L.I.E. system by calling 1-800-892-0123, or by direct contact with non-members of J.U.L.I.E.

5. The Aggregate Surface Course, Type B gradation shall be CA 6 or CA 10. Only crushed stone will be approved for use on this project.

6. The nominal thickness for surface course is shown on the Typical Sections, Standards, Schedules, or Special Details. The constructed thickness of the above item shall not be less than 90 percent of the nominal thickness at any location.

7. Factors used for quantity calculations are as follows:
   - Porous Granular Embankment 2.1 tons/cu. yd.
   - Stone Dumped Riprap 130 pounds/cu. ft.
   - Aggregate Surface Course 2.1 tons/cu. yd.

8. Commitments: None of as February 1, 2012.

SUMMARY OF QUANTITIES

	Location			
	Code No.	Item	Unit	Quantity
	20300100	CHANNEL EXCAVATION	CU YD	377
	20700110	POROUS GRANULAR EMBANKMENT	TON	108
	28100807	STONE DUMPED RIPRAP, CLASS A4	TON	299
	40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	127
	50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
	50300225	CONCRETE STRUCTURES	CU YD	44.8
	50300280	CONCRETE ENCASEMENT	CU YD	45.4
	50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	2892
	50800105	REINFORCEMENT BARS	POUND	6220
*	50900205	STEEL RAILING, TYPE S1	FOOT	244
	51201600	FURNISHING STEEL PILES HP12X53	FOOT	372
	51201800	FURNISHING STEEL PILES HP14X73	FOOT	528
	51202305	DRIVING PILES	FOOT	900
	51203800	TEST PILE STEEL HP14X73	EACH	1
	51204650	PILE SHOES	EACH	10
	51500100	NAME PLATES	EACH	1
*	63000009	STEEL PLATE BEAM GUARDRAIL, TYPE B, 9 FOOT POSTS	FOOT	200
	67100100	MOBILIZATION	L SUM	1
*	78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
	X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.1

* Specialty Item

UTILITIES

Telephone:
AT&T
Phone: 630-573-5450

Electric:
Ameren IP - (South)
Martin Fuller
Phone: 618-236-6281

Water:
Fayette Water Company
Mike Casey
Phone: 618-347-2430

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 - GLH	REVISED -	
DATE - 04/06/2012	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES, GENERAL NOTES, AND TYPICAL SECTIONS
STRUCTURE NO. 026-3455

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 429	10-18121-00-BR	FAYETTE	15	2
		CONTRACT NO. 95677		
RAAI JOB NO. 50811	ILLINOIS	FED. AID PROJECT		

SCALES:

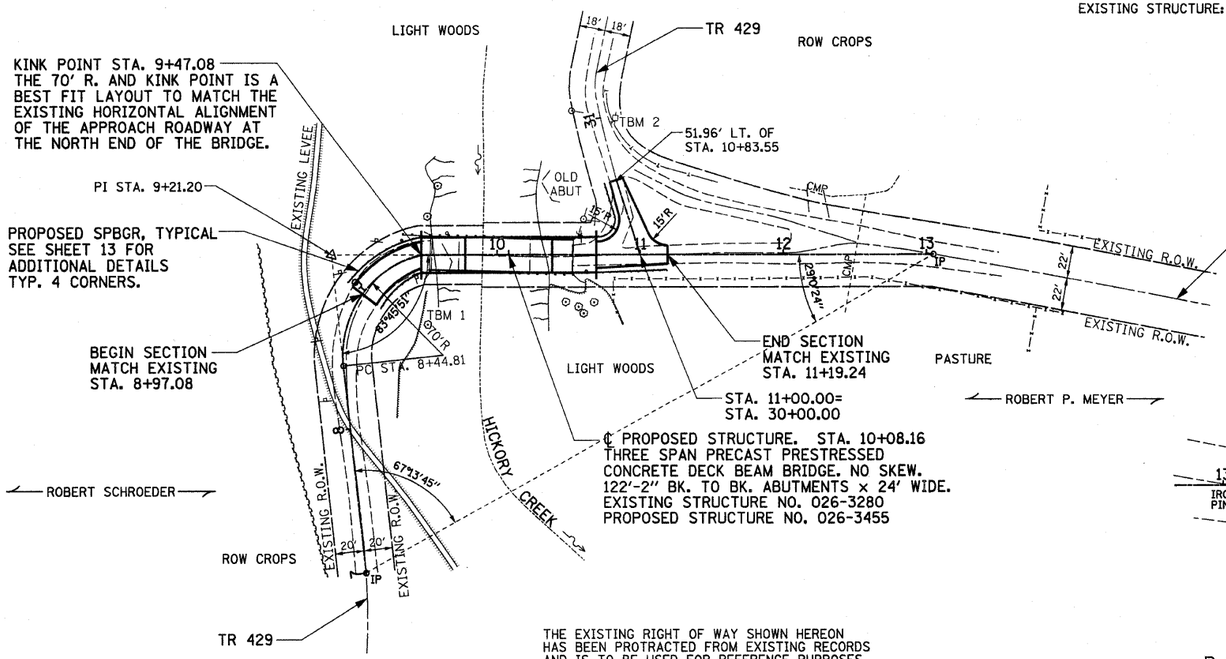
HORZ.- 0 50 100

VERT.- 0 5 10

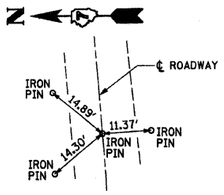
ANY NECESSARY TREE REMOVAL WITHIN THE EXISTING RIGHT OF WAY SHALL BE INCLUDED IN THE UNIT PRICE FOR REMOVAL OF EXISTING STRUCTURES AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

ALL EARTHWORK SHALL BE INCLUDED IN THE UNIT PRICE FOR AGGREGATE SURFACE COURSE, TYPE B, AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

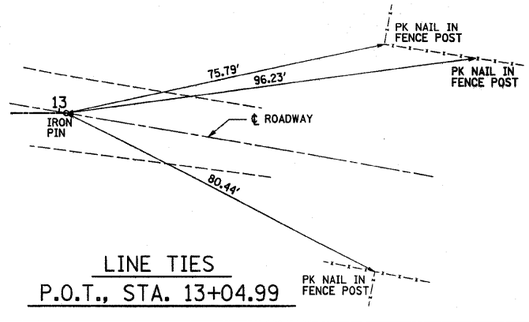
EXISTING STRUCTURE: THREE SPAN BRIDGE WITH PRECAST CONCRETE CHANNEL BEAMS (END SPANS) AND CONCRETE SLAB ON STEEL STRINGERS (CENTER SPAN) ON CLOSED TIMBER ABUTMENTS AND TIMBER PILE BENT PIERS, TO BE REMOVED. 100'L. x 23'W. NO SKEW. SEE SPECIAL PROVISIONS FOR SALVAGE REQUIREMENTS.



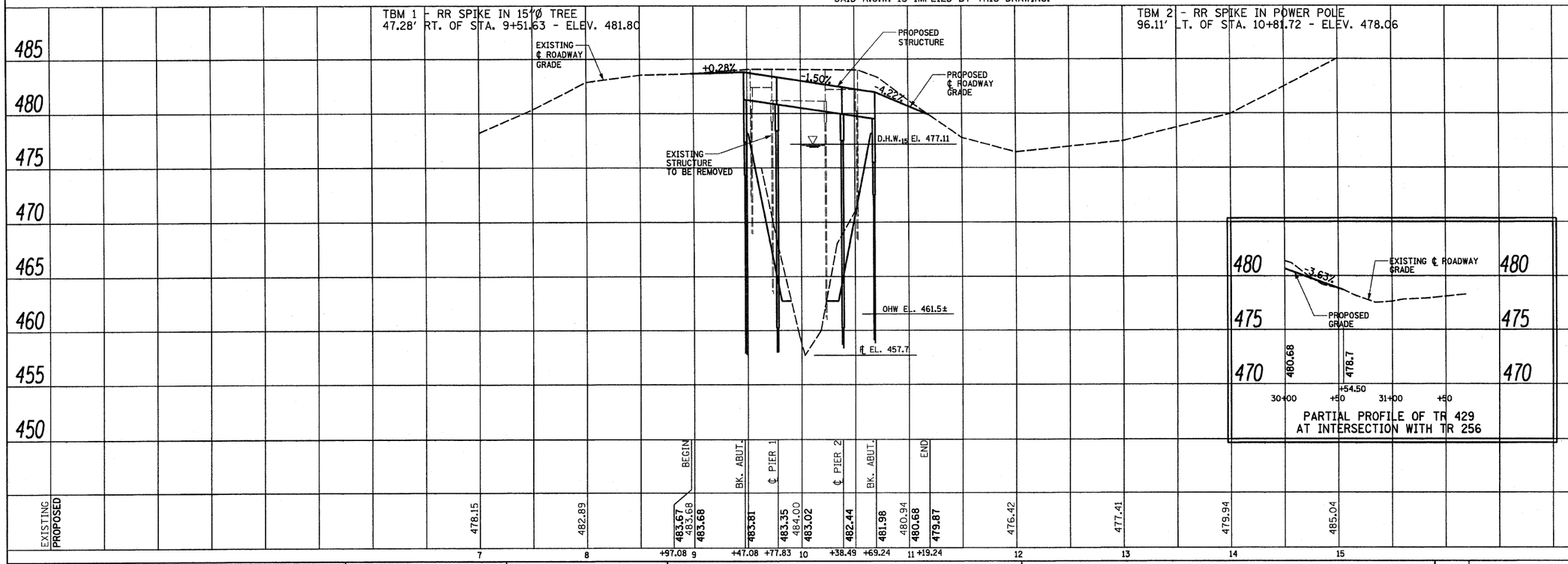
THE EXISTING RIGHT OF WAY SHOWN HEREON HAS BEEN PROTRACTED FROM EXISTING RECORDS AND IS TO BE USED FOR REFERENCE PURPOSES ONLY. FURTHERMORE, NO COMPLETE SURVEY OF SAID R.O.W. IS IMPLIED BY THIS DRAWING.



LINE TIES
P.O.T., STA. 7+00.00



LINE TIES
P.O.T., STA. 13+04.99



PLAN: SURVEYED, PLOTTED, ALIGNMENT CHECKED, GRADES CHECKED, STRUCTURE NO'S CHKD, NOTE BOOK, NO., CADD FILE NAME, BY, DATE

PROFILE: SURVEYED, PLOTTED, GRADES CHECKED, STRUCTURE NO'S CHKD, NOTE BOOK, NO., BY, DATE

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

DESIGNED	- GLH	REVISED	-
DRAWN	- JN	REVISED	-
CHECKED	- GLH	REVISED	-
DATE	- 04/06/2012	REVISED	-

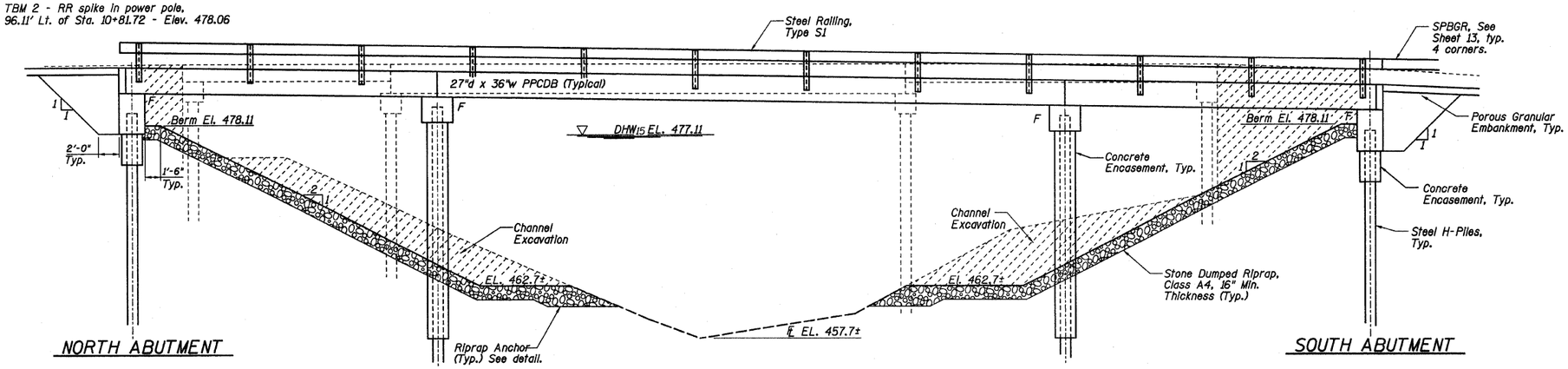
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLAN AND PROFILE OF ROADWAY
STRUCTURE NO. 026-3455
STA. 7+00.00 TO STA. 15+00.00

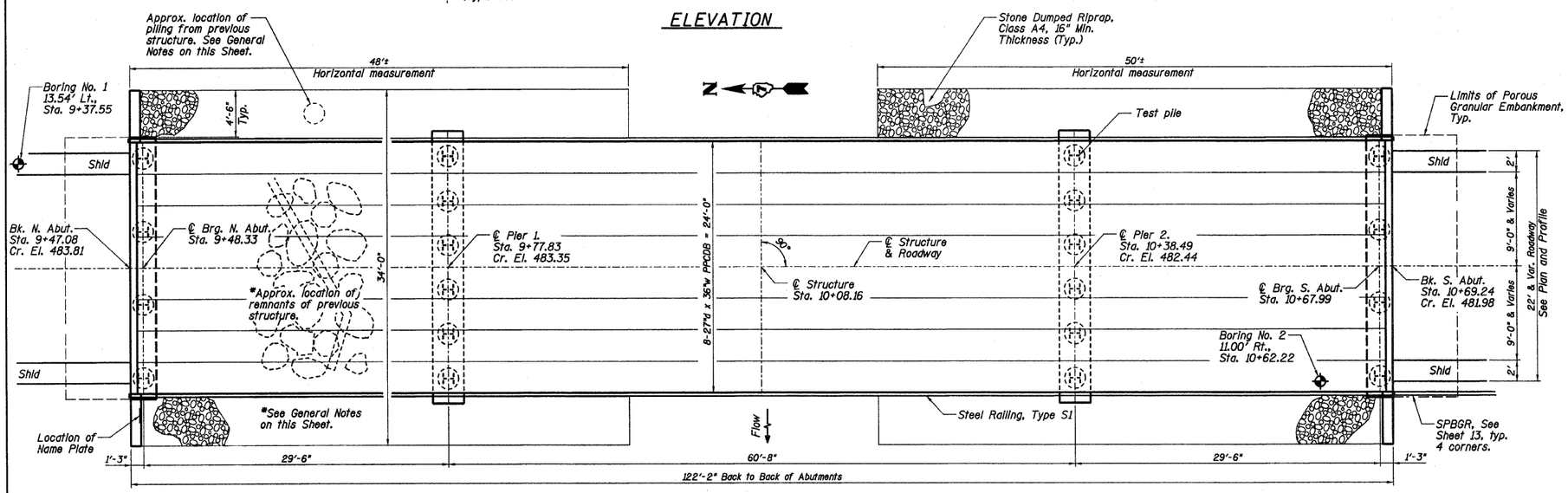
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 429	10-18121-00-BR	FAYETTE	15	3
		CONTRACT NO. 95677		
RAAI JOB NO. 50811	ILLINOIS FED. AID PROJECT			

TBM 1 - RR spike in 15"ϕ tree,
47.28' Rt. of Sta. 9+51.63 - Elev. 481.80

TBM 2 - RR spike in power pole,
96.11' Lt. of Sta. 10+81.72 - Elev. 478.06



ELEVATION



PLAN

Existing Structure: Three span bridge with precast concrete channel beams (end spans) and concrete slab on steel stringers (center span) on closed timber abutments and timber pile bent piers, to be removed. 100'L. x 23'W. No skew. See Special Provisions for salvage requirements.

BILL OF MATERIALS (BRIDGE ONLY)

ITEM	UNIT	TOTAL
Channel Excavation	Cu Yd	377
Porous Granular Embankment	Ton	108
Stone Dumped Riprap, Class A4	Ton	299
Removal of Existing Structures	Each	1
Concrete Structures	Cu Yd	44.8
Concrete Encasement	Cu Yd	45.4
PPCDB (27" Depth)	Sq Ft	2892
Reinforcement Bars	Pound	6220
Steel Railing, Type S1	Foot	244
Furnishing Steel Piles HP12x53	Foot	372
Furnishing Steel Piles HP14x73	Foot	528
Driving Piles	Foot	900
Test Pile Steel HP14x73	Each	1
Pile Shoes	Each	10
Name Plates	Each	1

GENERAL NOTES

Remnants of a former bridge abutment exists between the existing bridge's north abutment and north pier. The remnants consist of a cast-in-place concrete wall and a steel pipe support column. These remnants shall be removed to facilitate the construction of the proposed bridge. The cost of this work shall be included in the cost per Each for Removal of Existing Structures and no additional compensation will be allowed.

The Contractor's attention is also called to the existence of numerous pieces broken concrete on the north bank of the existing stream. Removal or redistribution of this material shall be done at the Engineer's direction to facilitate the construction / reshaping of the stream bank for the proposed bridge. The cost of this work shall be included in the cost per Each for Removal of Existing Structures and no additional compensation will be allowed.

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.

Channel excavation shall be excavated as shown within the limits of the proposed bridge, then tapered to the existing channel at the ROW line. If the Engineer deems the material satisfactory, it may be used to construct the roadway embankment.

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

See Specifications for Soil Borings.

Do not scale these drawings.

The bearing seat surfaces for the precast prestressed concrete deck beams shall be adjusted by shimming to assure firm and even bearing. As required, ½" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing.

DESIGN SCOUR TABLE

Location	N. Abut.	Pier 1	Pier 2	S. Abut.
Design Scour Elevation	477.2	458.7	458.7	475.4

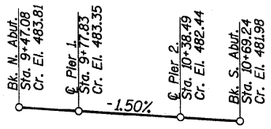
I certify that to the best of knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current AASHTO Standard Specifications for Highway Bridges.

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

William D. Luecking
William D. Luecking

04-06-2012
Date of Signing

11-30-2012
Date of License Expiration



PROFILE GRADE ACROSS STRUCTURE
Along ℄ Roadway

HICKORY CREEK
BUILT 201_ BY
FAYETTE COUNTY
SEC. 10-18121-00-BR
LOADING HL-93
STRUCTURE NO. 026-3455

NAME PLATE
(See State Standard 515001 for details)

WATERWAY DATA

Drainage Area = 80.91 Sq. Mi. Low Grade Elev. 476.42 @ Sta. 12+00

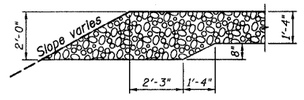
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Natural H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	15	8180	1050	1220	477.11		0.15		477.26
Base	100	13,500	1436	1574	480.81		0.37		481.18
Max. Calc.	500	18,100	1522	1581	483.43		0.33		483.76

PRECAST PRESTRESSED UNITS

f'_c = 6,000 psi
f'_{ci} = 5,000 psi
f_{pu} = 270,000 psi (½" ϕ low lax. strands)
f_{pbt} = 201,960 psi (½" ϕ low lax. strands)
f_y = 60,000 psi (reinforcement)

SEISMIC DATA

Seismic Performance Zone (SPZ) = 3
Soil Site Classification = E
S_{D1} = 0.342 S_{DS} = 0.758



RIPRAP ANCHOR DETAIL

LOADING HL-93

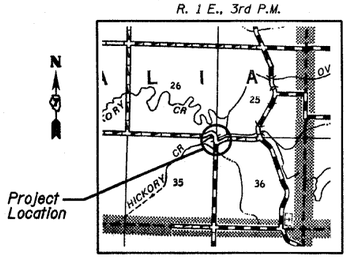
50#/sq. ft. included in dead load for future wearing surface.

DESIGN SPECIFICATIONS

2010 AASHTO LRFD
Bridge Design Specifications

DESIGN STRESSES

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

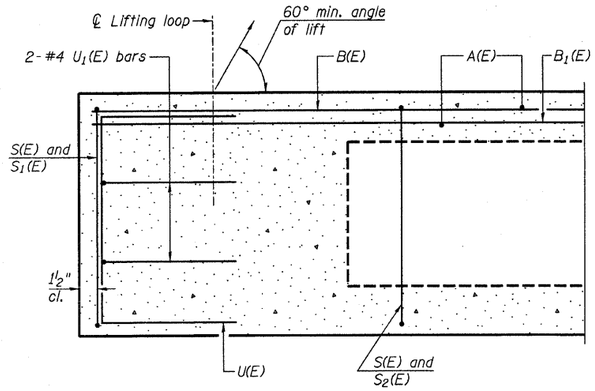


LOCATION SKETCH

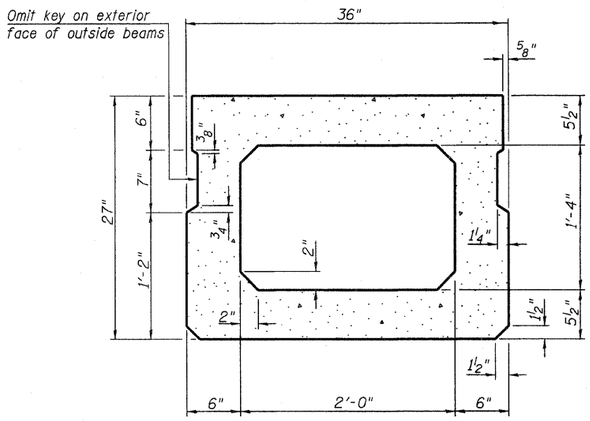
RHUTASEL and ASSOCIATES, INC. CONSULTING ENGINEERS • LAND SURVEYORS CENTRALIA, ILLINOIS FREEBURG, ILLINOIS ILLINOIS DESIGN FIRM LICENSE NO. 184-000287	DESIGNED - BLT	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
	DRAWN - JN	REVISED -	
	CHECKED - WDL	REVISED -	
	DATE - 04/06/2012	REVISED -	

GENERAL PLAN AND ELEVATION
STRUCTURE NO. 026-3455

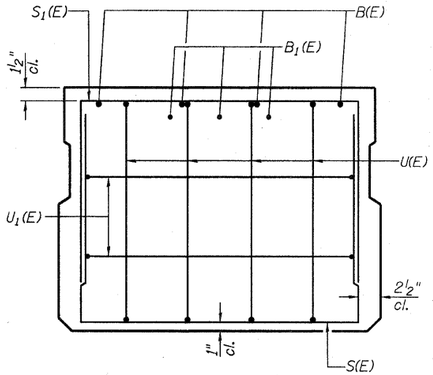
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 429	10-18121-00-BR	FAYETTE	15	4
		CONTRACT NO. 95677		
RAAI JOB NO. 50811	ILLINOIS	FED. AID PROJECT		



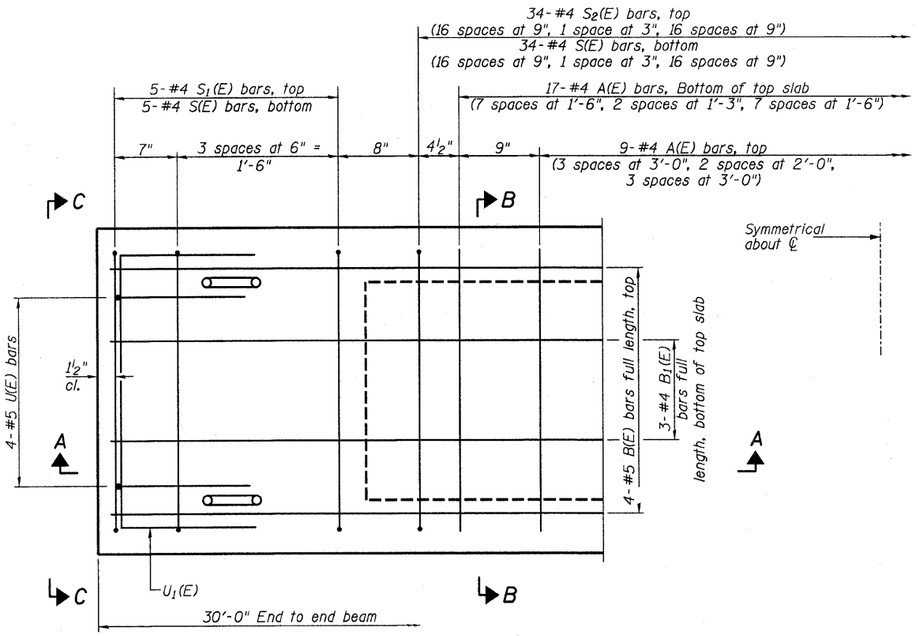
SECTION A-A



SECTION B-B
(Showing dimensions)

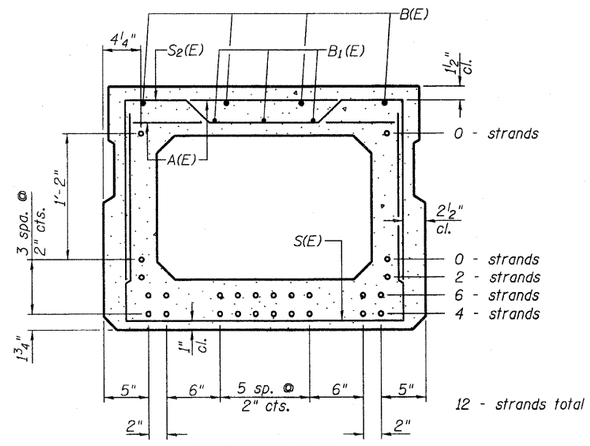


VIEW C-C



PLAN VIEW

Note: Spacing of S(E) and $S_2(E)$ 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.



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.

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	26	#4	2'-7"	—
B(E)	4	#5	29'-8"	—
$B_1(E)$	3	#4	29'-8"	—
S(E)	44	#4	6'-5"	⊔
$S_1(E)$	10	#4	5'-11"	⊓
$S_2(E)$	34	#4	6'-2"	⊓
U(E)	8	#5	4'-6"	⊏
$U_1(E)$	4	#4	5'-0"	⊓

Note: See Sheet 6 & 8 of 15 for additional details and Bill of Material.

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

SPAN 1 AND 3

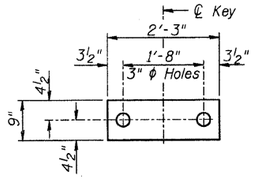
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT	REVISED -	
DRAWN - JN	REVISED -	
CHECKED - WDL	REVISED -	
DATE - 04/06/2012	REVISED -	

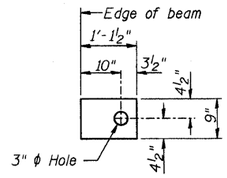
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS
STRUCTURE NO. 026-3455

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 429	10-18121-00-BR	FAYETTE	15	5
		CONTRACT NO. 95677		
RAAI JOB NO. 50811	ILLINOIS FED. AID PROJECT			



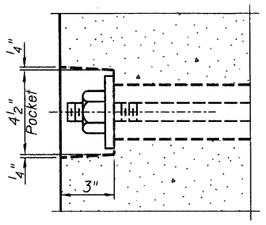
FABRIC BEARING PAD
(Interior)



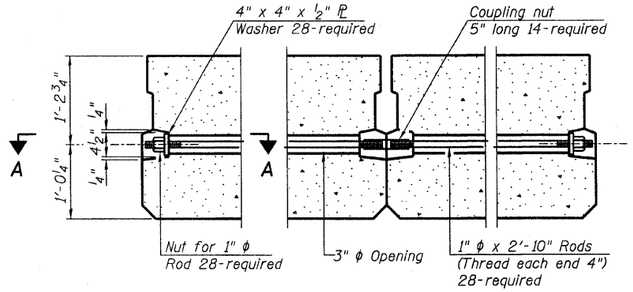
FABRIC BEARING PAD
(Exterior)

FIXED

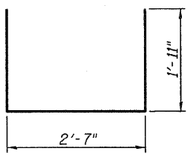
Note: All bearing pads shall be 1" thick.



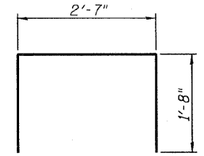
SECTION A-A



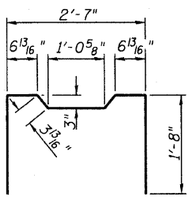
TYPICAL TRANSVERSE TIE ASSEMBLY



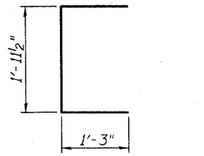
BAR S(E)



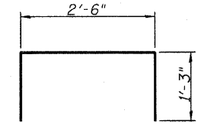
BAR S_1(E)



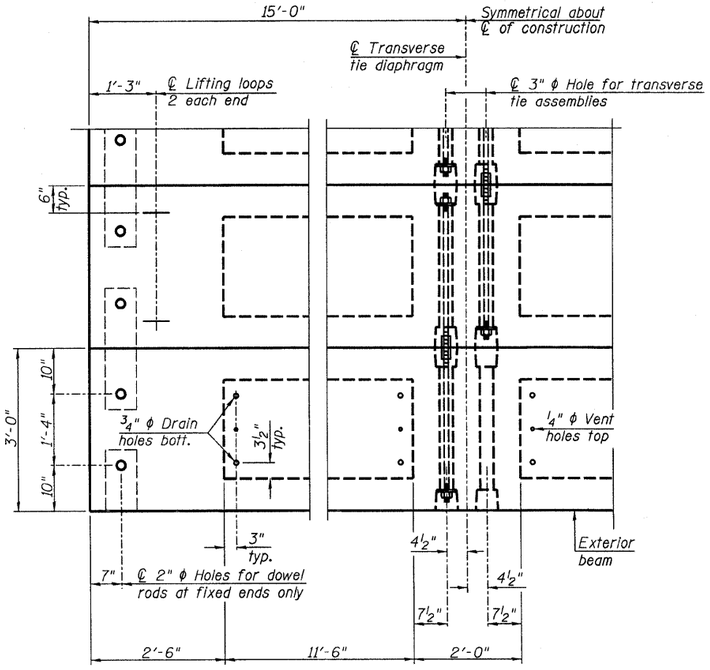
BAR S_2(E)



BAR U(E)

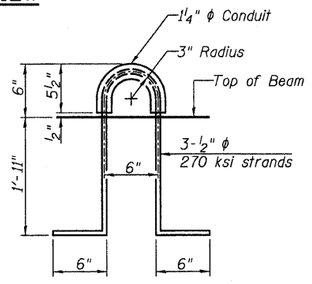


BAR U_1(E)

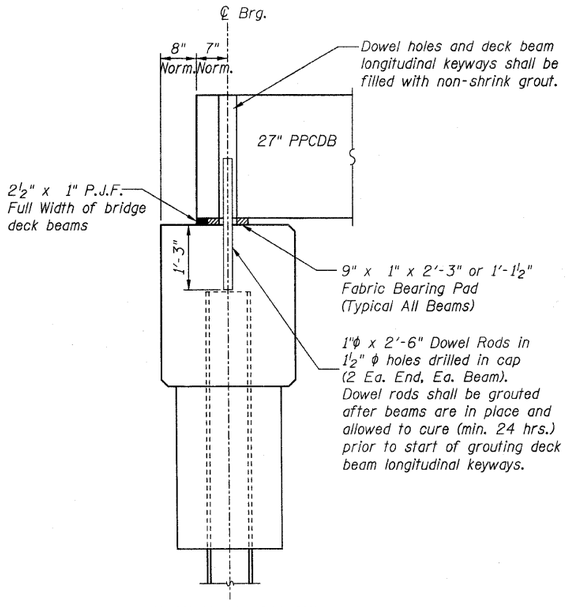


PLAN VIEW

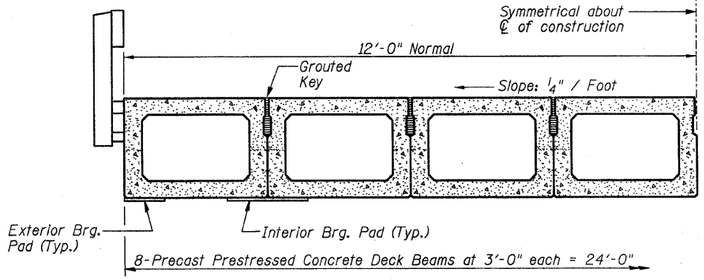
Note: Connect beams in pairs with the transverse tie configuration shown.



LIFTING LOOP DETAIL



FIXED BEARING
ABUTMENT



HALF CROSS SECTION

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

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 (IL Modified), Grade 60.

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.

SEE SHEET 8 FOR
BILL OF MATERIAL

SPAN 1 AND 3

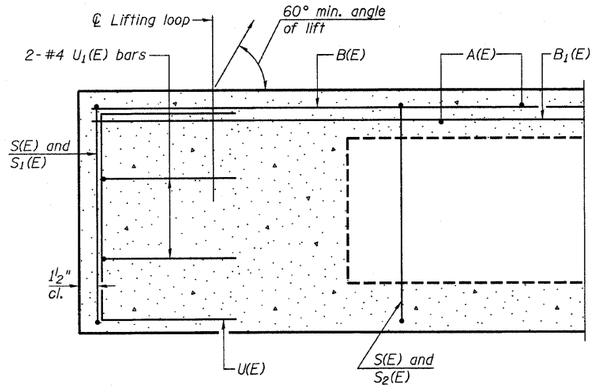
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED	BLT	REVISED	-
DRAWN	JN	REVISED	-
CHECKED	WDL	REVISED	-
DATE	04/06/2012	REVISED	-

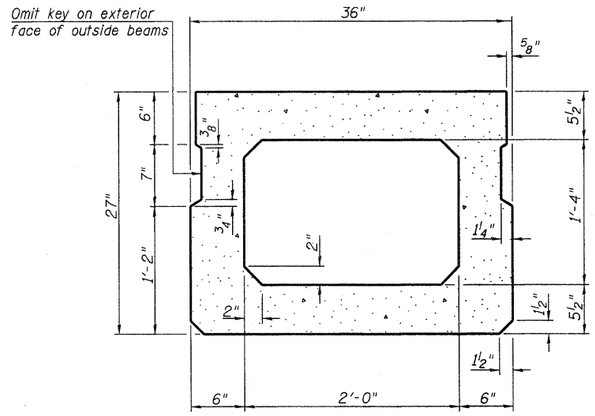
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS
STRUCTURE NO. 026-3455

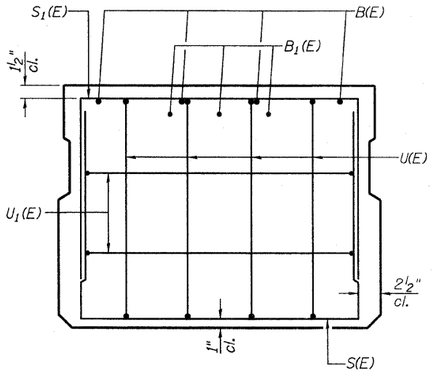
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 429	10-18121-00-BR	FAYETTE	15	6
		CONTRACT NO. 95677		
RAAI JOB NO. 50811	ILLINOIS FED. AID PROJECT			



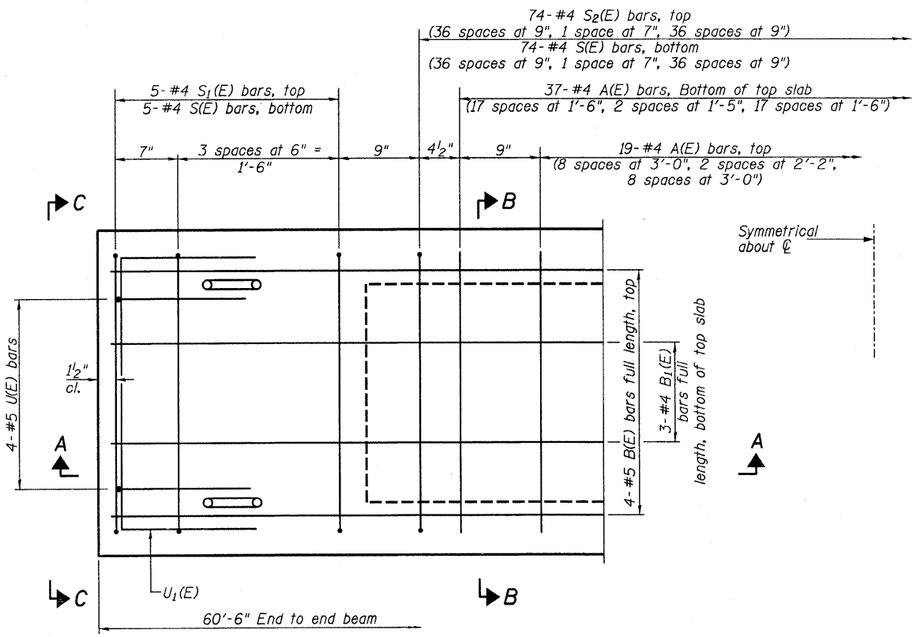
SECTION A-A



SECTION B-B
(Showing dimensions)

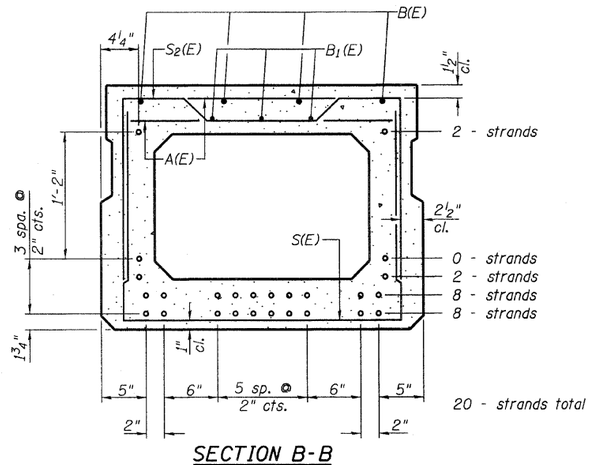


VIEW C-C



PLAN VIEW

Note: Spacing of S(E) and $S_2(E)$ 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.



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)	56	#4	2'-7"	—
B(E)	8	#5	31'-4"	—
$B_1(E)$	9	#4	21'-5"	—
S(E)	84	#4	6'-5"	⊔
$S_1(E)$	10	#4	5'-11"	⊓
$S_2(E)$	74	#4	6'-2"	⊓
U(E)	8	#5	4'-6"	⊏
$U_1(E)$	4	#4	5'-0"	⊓

Note: See Sheet 8 of 15 for additional details and Bill of Material.

SPAN 2

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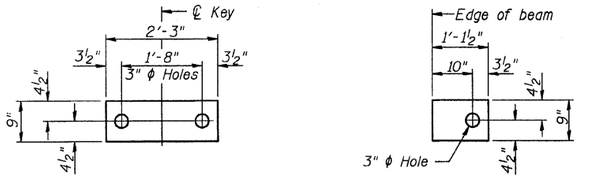
CHECKED - WDL	REVISED -	
DATE - 04/06/2012	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS
STRUCTURE NO. 026-3455

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 429	10-18121-00-BR	FAYETTE	15	7
		CONTRACT NO. 95677		
RAAI JOB NO. 50811	ILLINOIS FED. AID PROJECT			

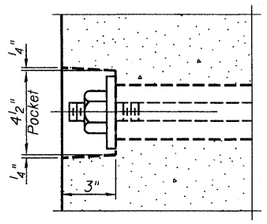


FABRIC BEARING PAD
(Interior)

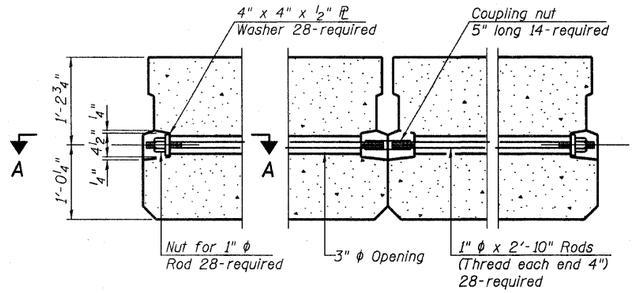
FABRIC BEARING PAD
(Exterior)

FIXED

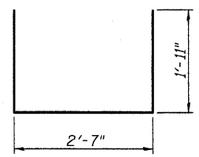
Note: All bearing pads shall be 1" thick.



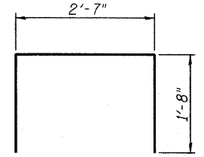
SECTION A-A



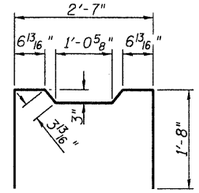
TYPICAL TRANSVERSE TIE ASSEMBLY



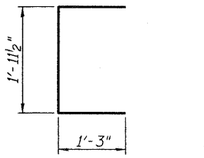
BAR S(E)



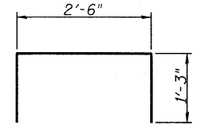
BAR S_1(E)



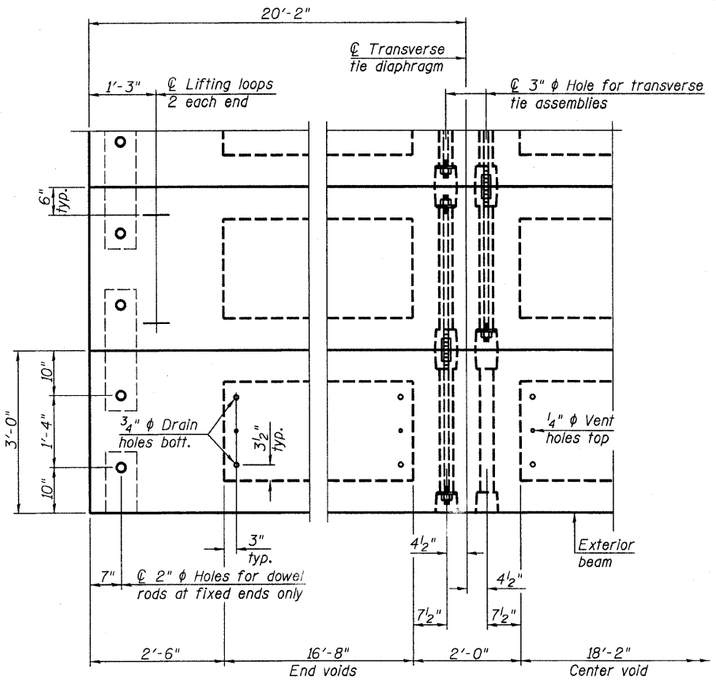
BAR S_2(E)



BAR U(E)

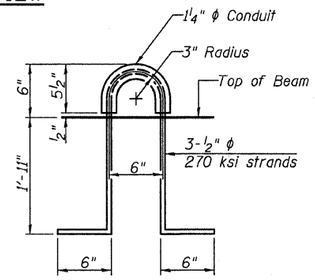


BAR U_1(E)

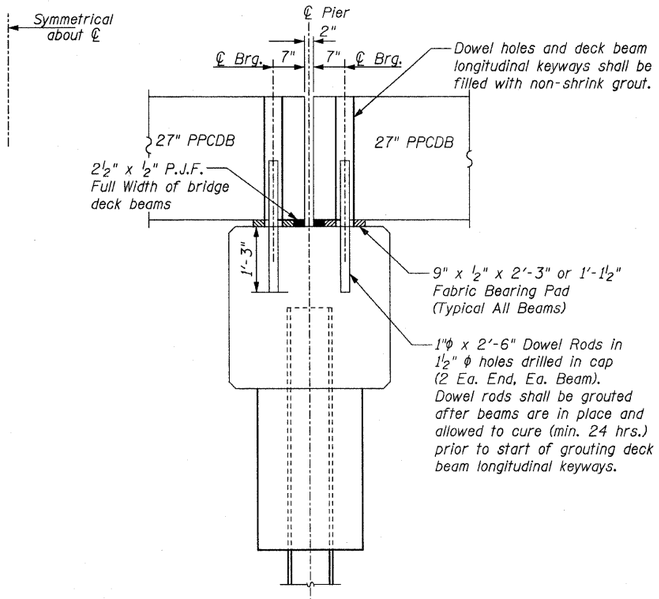


PLAN VIEW

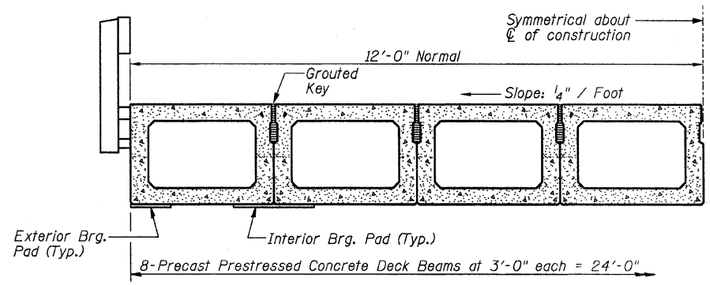
Note: Connect beams in pairs with the transverse tie configuration shown.



LIFTING LOOP DETAIL



FIXED BEARING
PIER



HALF CROSS SECTION

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

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 (IL Modified), Grade 60.

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.	2892*

* Total for 3 spans.

SPAN 2

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

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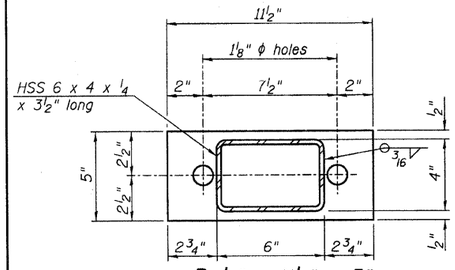
DRAWN - JN	REVISED -	
CHECKED - WDL	REVISED -	
DATE - 04/06/2012	REVISED -	

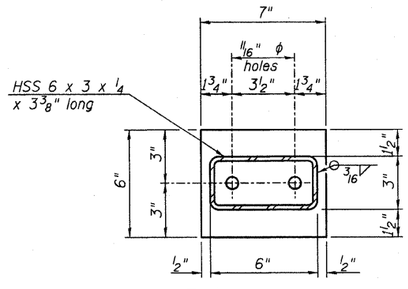
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS
STRUCTURE NO. 026-3455

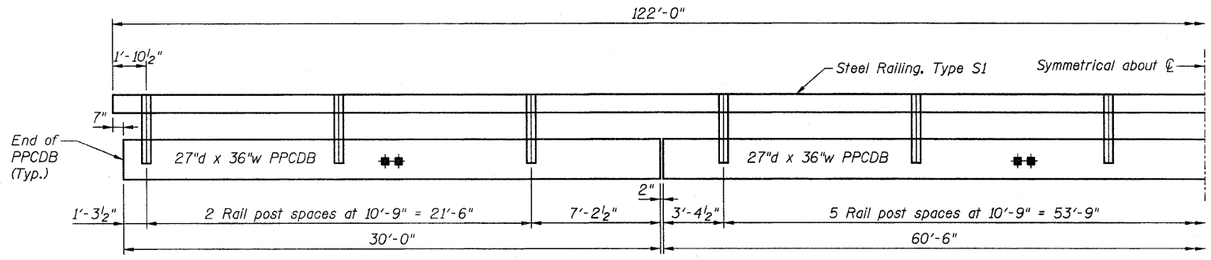
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 429	10-18121-00-BR	FAYETTE	15	8
		CONTRACT NO. 95677		
RAAI JOB NO. 50811	ILLINOIS	FED. AID PROJECT		



PL ½" x 11½" x 5"



PL ½" x 7" x 6"

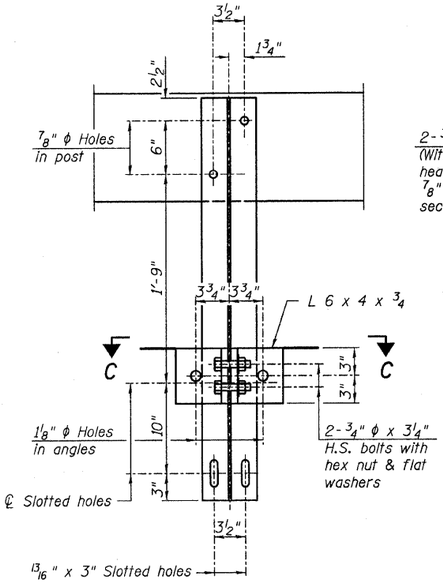


SPAN 1 OR 3

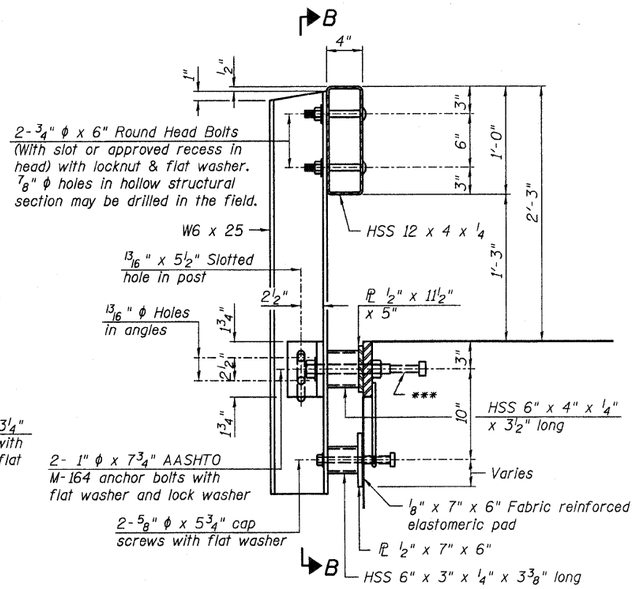
SPAN 2

RAIL POST SPACING

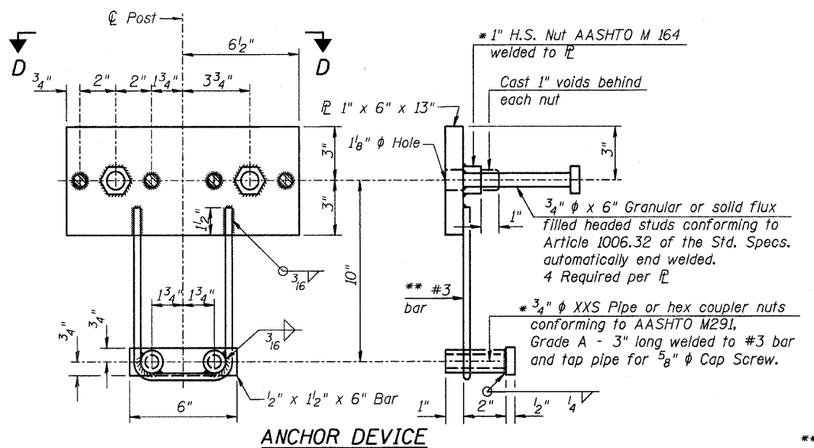
See Sheet 13 of 15 for Approach Rail Details



SECTION B-B



SECTION AT RAILING POST



ANCHOR DEVICE

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

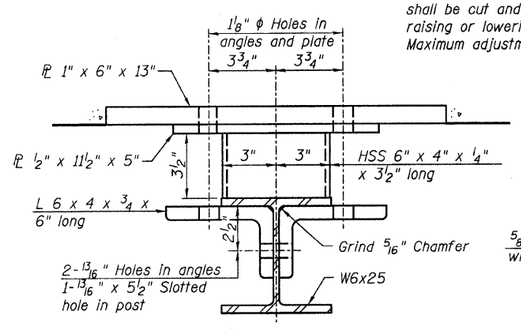
Notes:

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

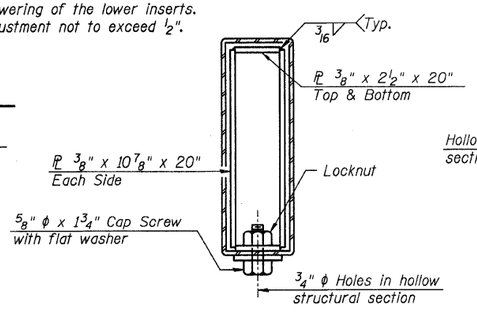
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

*** 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.

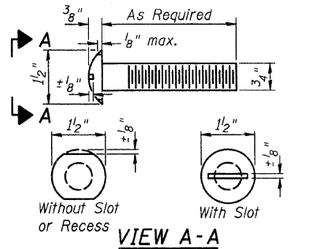
** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed ½".



SECTION C-C

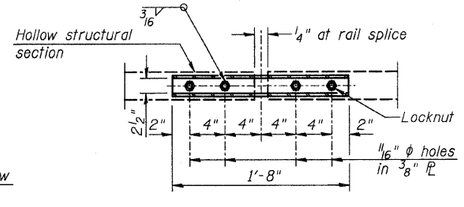


SECTIONS AT RAIL SPLICE



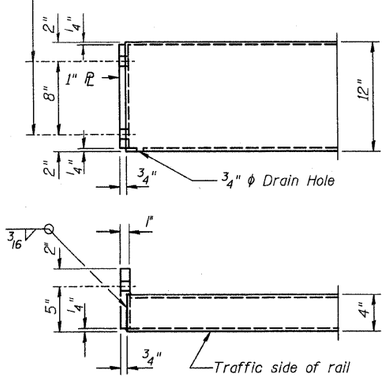
VIEW A-A

ROUND HEAD BOLT

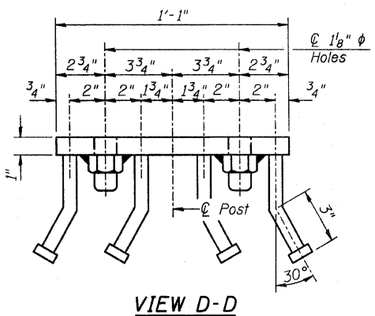


PLAN-BOTT. SPLICE PL

TYPICAL



END OF RAIL DETAILS



VIEW D-D

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S1	Foot	244

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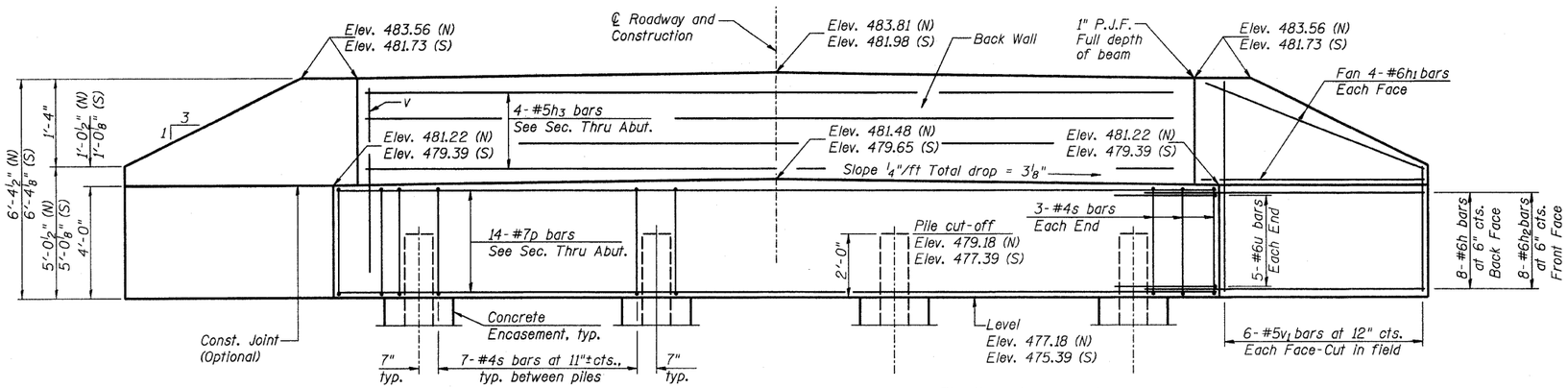
CHECKED - WDL	REVISED -	
DATE - 04/06/2012	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

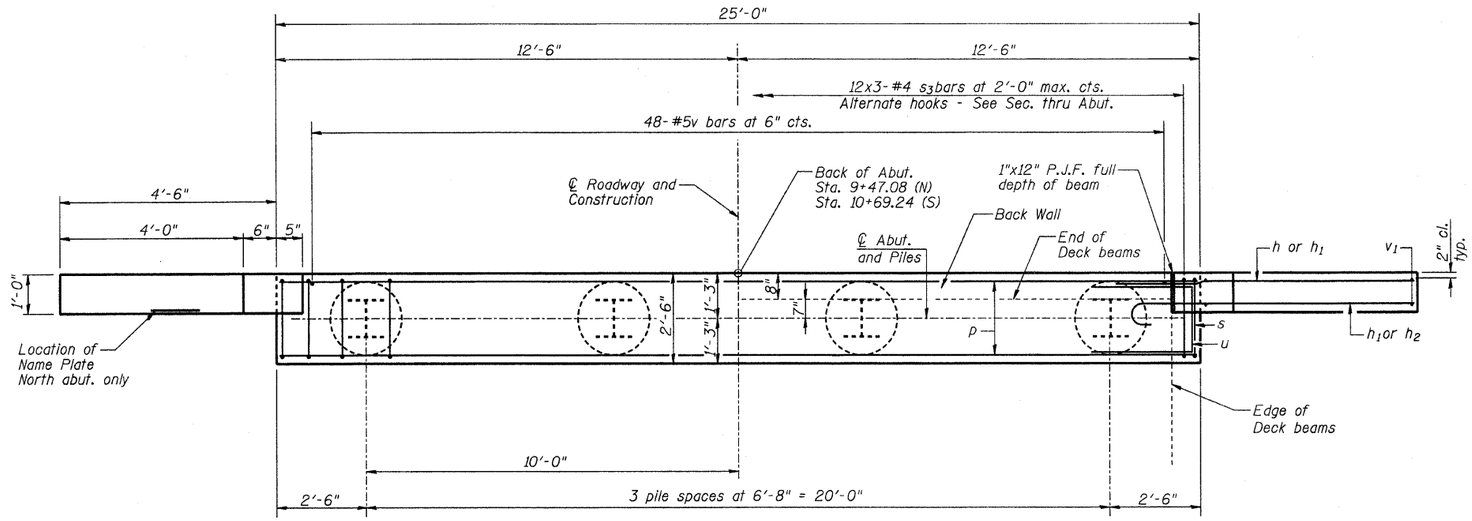
STEEL RAILING, TYPE S1 DETAILS
STRUCTURE NO. 026-3455

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 429	10-18121-00-BR	FAYETTE	15	9
		CONTRACT NO. 95677		
RAAI JOB NO. 50811	ILLINOIS	FED. AID PROJECT		

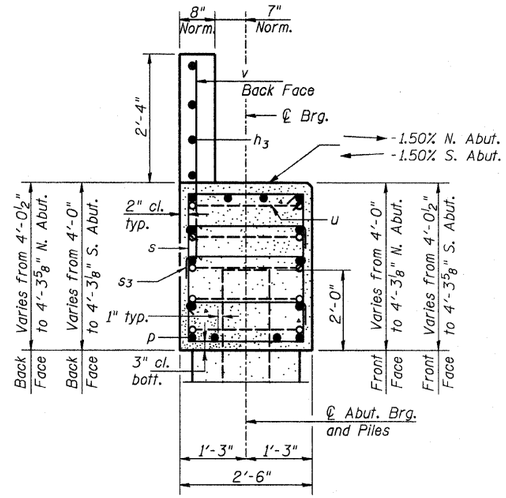


ELEVATION

Elevations shown are at back face of abutment



PLAN



SEC. THRU ABUT.

(Normal to ℄)

PILE DATA NORTH ABUTMENT

Type:	Steel HP12x53
Nominal Required Bearing:	395 kips
Factored Resistance Available:	217 kips
Estimated Length:	47'/pile
No. Production Piles:	4
No. Test Piles:	0

PILE DATA SOUTH ABUTMENT

Type:	Steel HP12x53
Nominal Required Bearing:	418 kips
Factored Resistance Available:	230 kips
Estimated Length:	46'/pile
No. Production Piles w/ Pile Shoes:	4
No. Test Piles w/ Pile Shoes:	0

GENERAL NOTES

All exposed edges shall have standard 3/4" chamfer, unless otherwise noted.

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

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.

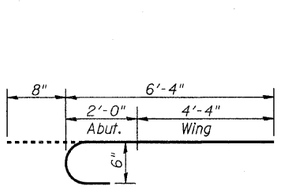
The Contractor is hereby advised that very stiff soils may be encountered prior to the location of anticipated nominal required bearing. See the soil borings for further information.

The position of the 90° & 135° hooked ends of the s_3 bar shall be alternated between adjacent bars as shown, both vertical and horizontally.

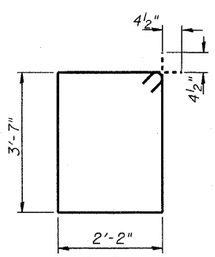
BILL OF MATERIAL FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape
h	16	#6	8'-0"	
h1	16	#6	4'-9"	
h2	16	#6	7'-0"	
h3	4	#5	23'-8"	
p	14	#7	24'-8"	
s	27	#4	12'-3"	
s3	36	#4	3'-3"	
u	10	#6	9'-3"	
v	48	#5	4'-3"	
v1	24	#5	6'-0"	CUT IN FIELD
Concrete Structures			Cu. Yd.	12.5
Concrete Encasement			Cu. Yd.	1.4
Reinforcement Bars			Pound	2080
Furnishing Steel Piles, HP12x53	Foot	S. Abut.		184
		N. Abut.		188
Driving Piles	Foot	S. Abut.		184
		N. Abut.		188
Pile Shoes	Each	S. Abut.		4
		N. Abut.		0

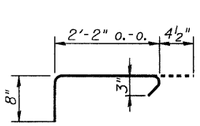
For details of piles and Concrete Encasement, see Sheet 12 of 15.



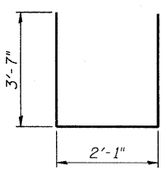
BAR h2



BAR s



BAR s3



BAR u

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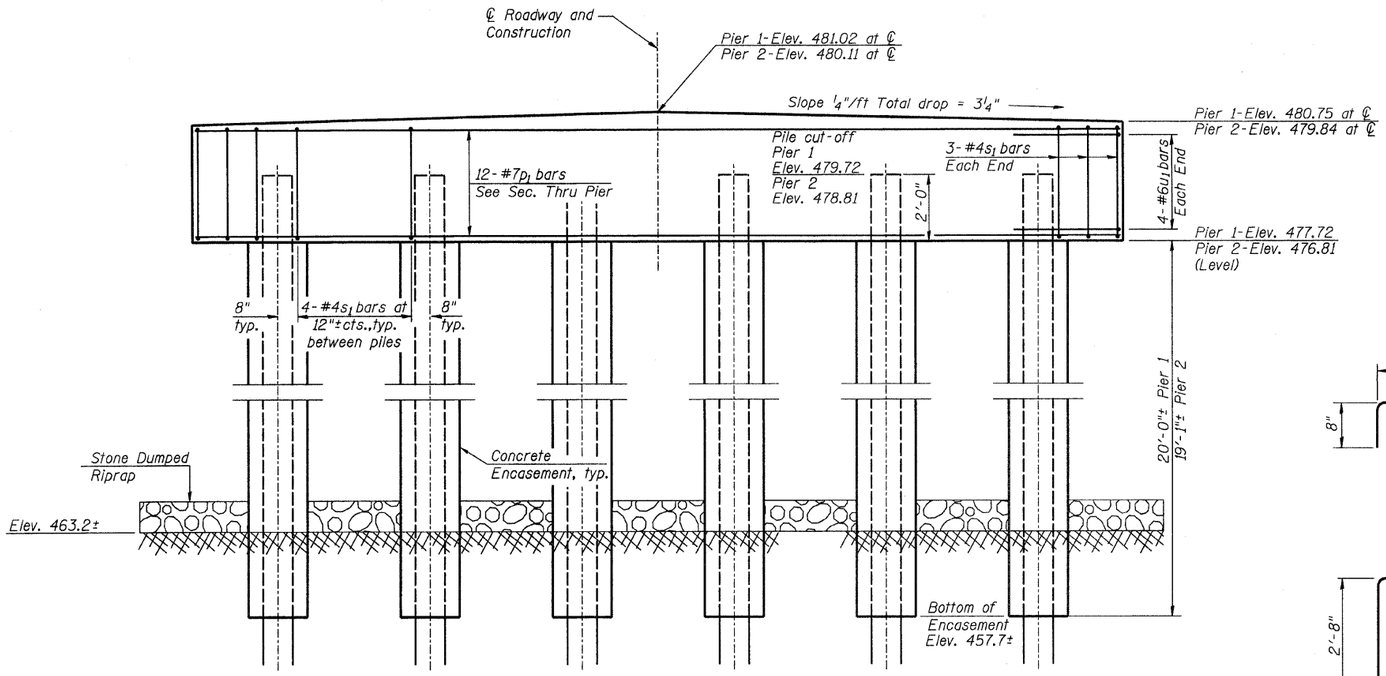
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED	BLT	REVISED	-
DRAWN	JN	REVISED	-
CHECKED	WDL	REVISED	-
DATE	04/06/2012	REVISED	-

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ABUTMENT DETAILS
STRUCTURE NO. 026-3455

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 429	10-18121-00-BR	FAYETTE	15	10
		CONTRACT NO. 95677		
RAAI JOB NO. 50911	ILLINOIS	FED. AID PROJECT		



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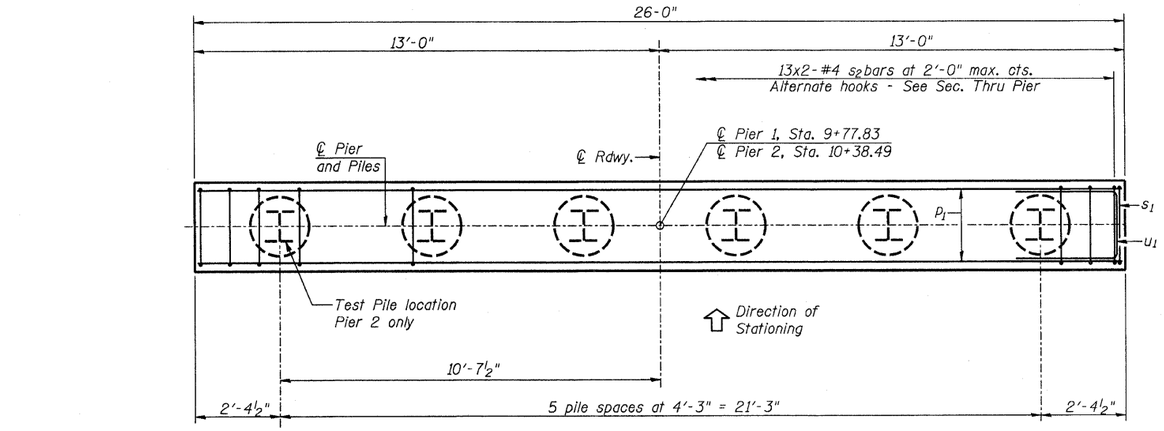


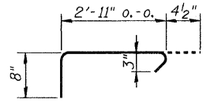
PLAN

PILE DATA PIER 1

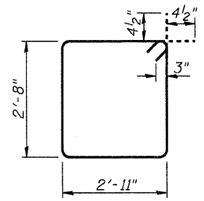
Type:	Steel HP14x73
Nominal Required Bearing:	576 kips
Factored Resistance Available:	317 kips
Est. Length:	48 foot/pile
No. Production Piles:	6
No. Test Piles:	0

PILE DATA PIER 2

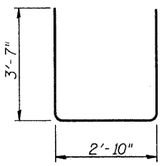
Type:	Steel HP14x73
Nominal Required Bearing:	574 kips
Factored Resistance Available:	316 kips
Est. Length:	48 foot/pile
No. Production Piles w/ Piles Shoes:	5
No. Test Piles w/ Pile Shoes:	1



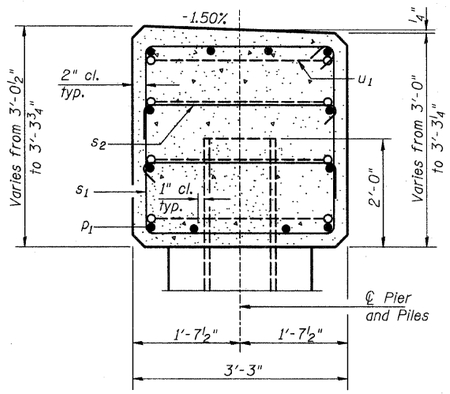
BAR s_2



BAR s_1



BAR u_1



SEC. THRU PIER

GENERAL NOTES

All exposed edges shall have standard 3/4" chamfer, unless otherwise noted.

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) Steel HP14x73 Test Pile in a permanent location at Pier 2 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_2 bar shall be alternated between adjacent bars as shown, both vertical and horizontally.

BILL OF MATERIAL FOR ONE PIER

Bar	No.	Size	Length	Shape
p_1	12	#7	25'-8"	
s_1	26	#4	11'-11	
s_2	26	#4	4'-0"	
u_1	8	#6	10'-0"	
Concrete Structures			Cu Yd	9.9
Concrete Encasement	Cu Yd		Pier 1	21.8
			Pier 2	20.8
Reinforcement Bars			Pound	1030
Furnishing Steel Piles, HP14x73	Foot		Pier 1	288
			Pier 2	240
Driving Piles	Foot		Pier 1	288
			Pier 2	240
Test Pile, Steel HP14x73	Each		Pier 1	0
			Pier 2	1
Pile Shoes	Each		Pier 1	0
			Pier 2	6

For details of piles and Concrete Encasement, see Sheet 12 of 15.

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CHECKED - WDL	REVISED -	
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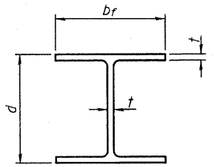
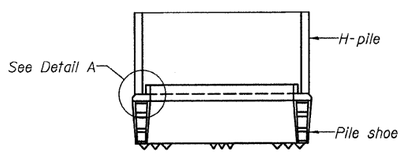
PIER DETAILS
STRUCTURE NO. 026-3455

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 429	10-18121-00-BR	FAYETTE	15	11
		CONTRACT NO. 95677		
RAAI JOB NO. 50811	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"



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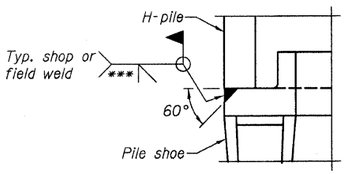
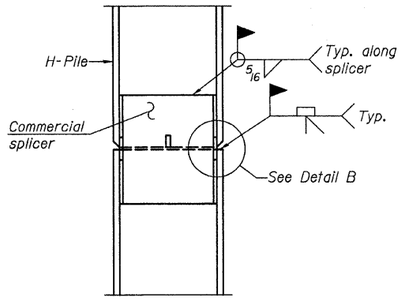


DETAIL A

H-PILE SHOE ATTACHMENT



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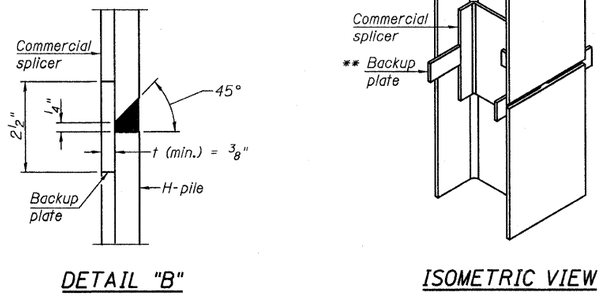
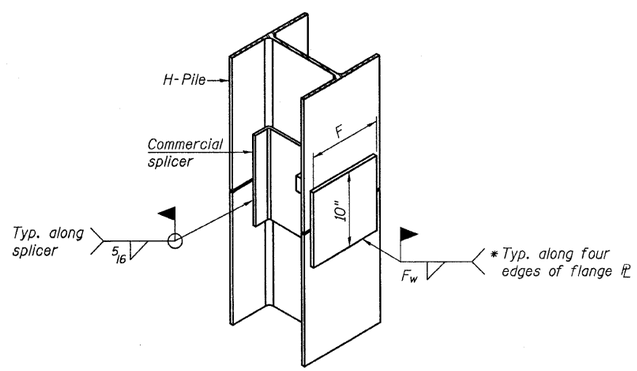


DETAIL "B"

ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



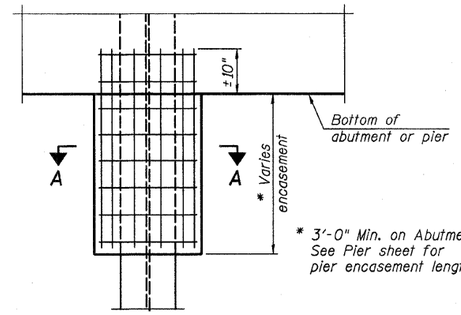
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

* 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.).



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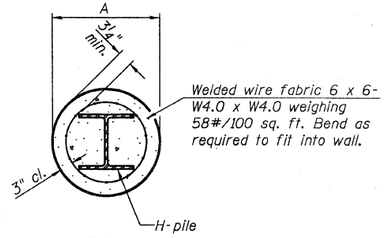
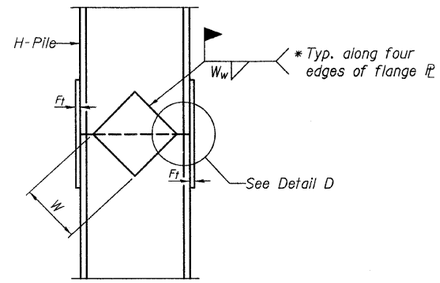


Note:
Forms for encasement may be omitted when soil conditions permit.

SECTION A-A

PILE ENCASEMENT



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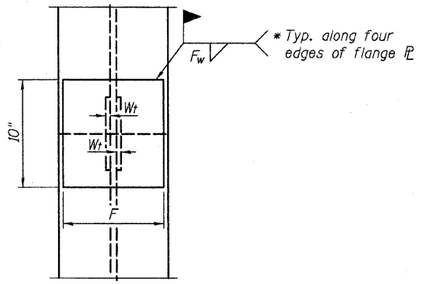
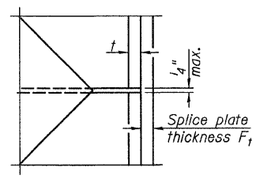


END VIEW



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

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

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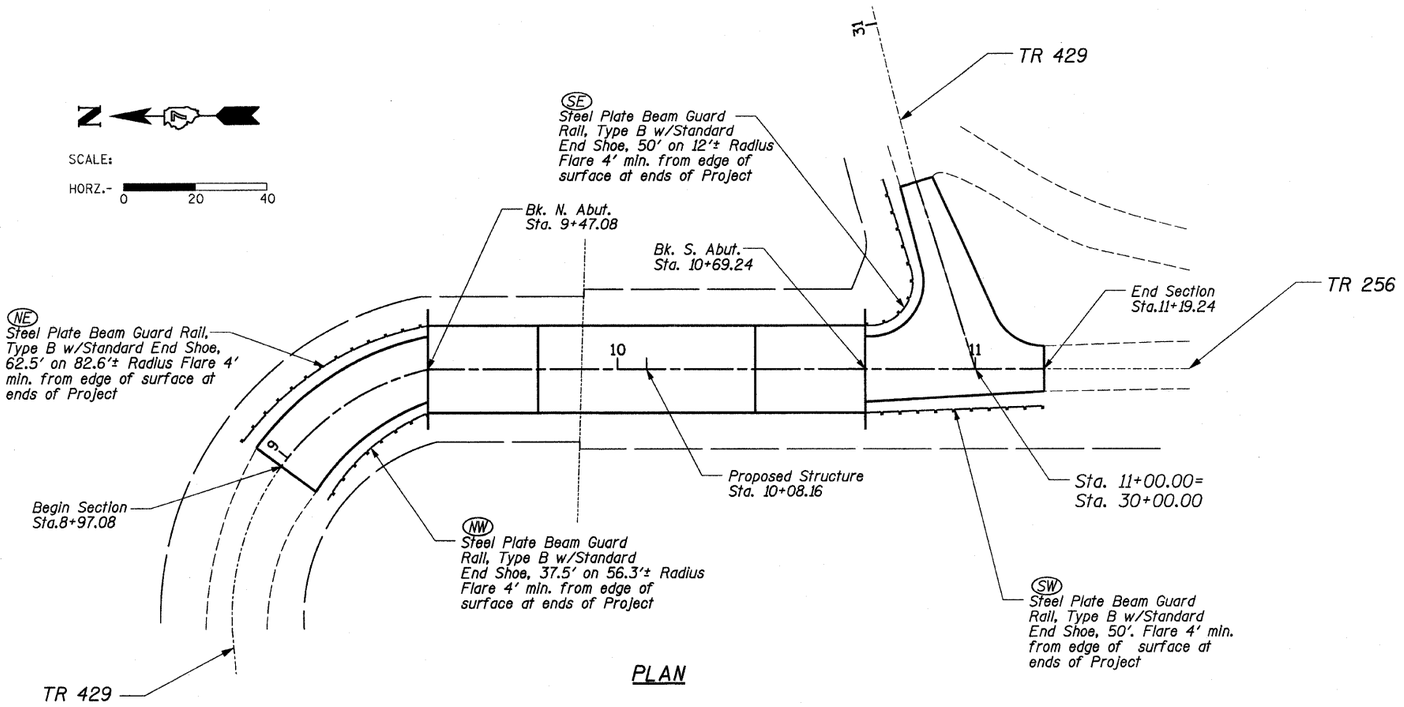
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

HP PILE DETAILS
STRUCTURE NO. 026-3455

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 429	10-18121-00-BR	FAYETTE	15	12
		CONTRACT NO. 95677		
RAAI JOB NO. 50811	ILLINOIS	FED. AID PROJECT		

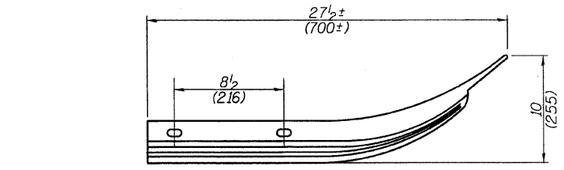


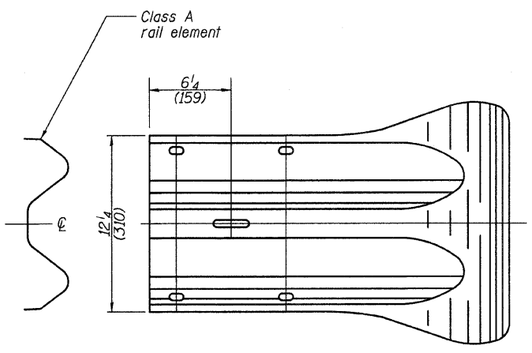
PLAN

BILL OF MATERIAL

ITEM	QUADRANT	QUANTITY (FOOT)
SPBGR	NW	37.5
SPBGR	NE	62.5
SPBGR	SW	50.0
SPBGR	SE	50.0
	Total	200.0

Cost of End Shoes shall be included in the unit price for Steel Plate Beam Guardrail, Type B, 9 Foot Posts and no additional compensation will be allowed.





END SHOE

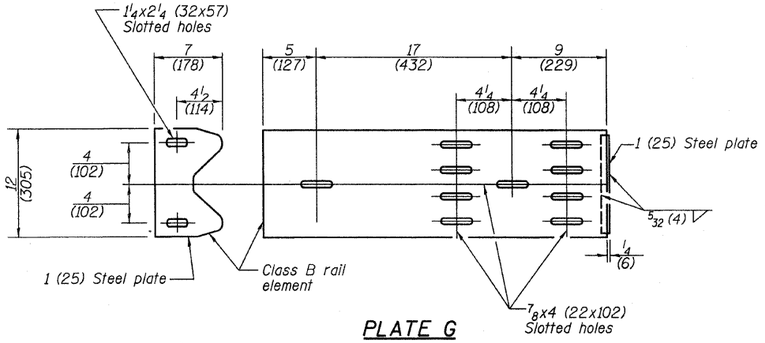


PLATE G

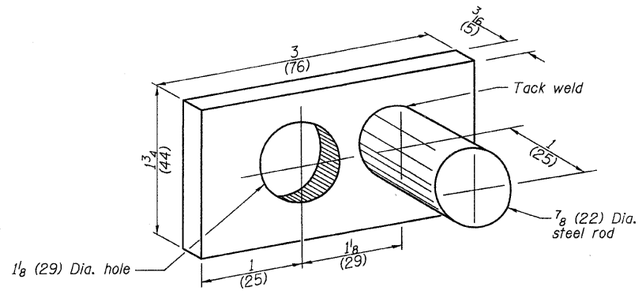
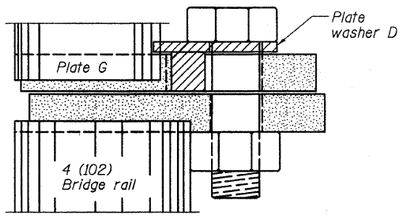


PLATE WASHER D



PLACEMENT OF PLATE WASHER D
(PLAN)

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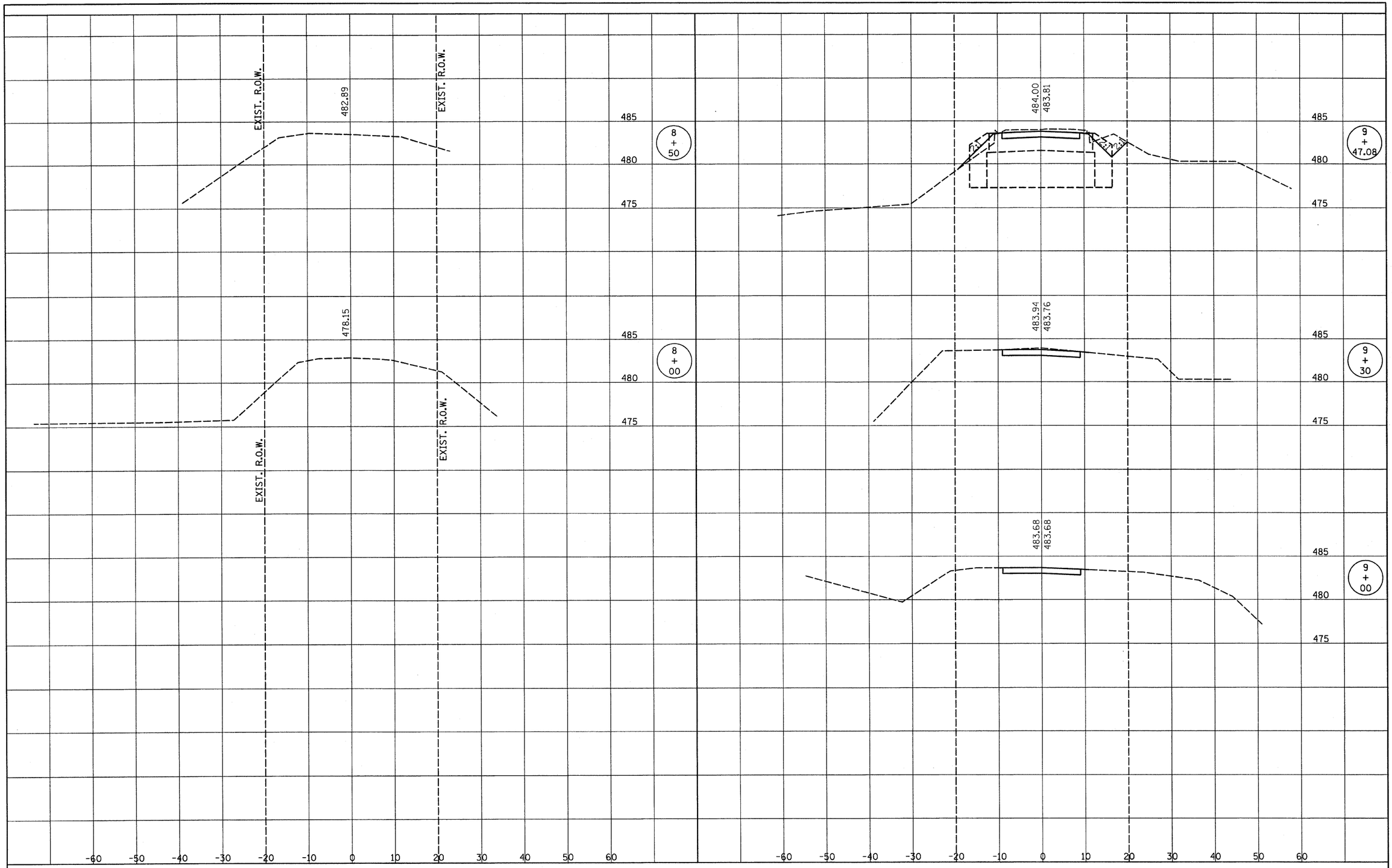
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

APPROACH RAIL LAYOUT
STRUCTURE NO. 026-3455

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 429	10-18121-00-BR	FAYETTE	15	13
		CONTRACT NO. 95677		
RAAI JOB NO. 50811	ILLINOIS FED. AID PROJECT			



FINAL SURVEY — SURVEYED — PLOTTED — ESTIMATE — AREAS CHECKED — NOTE BOOK — NO. — BY — DATE

ORIGINAL SURVEY — SURVEYED — PLOTTED — ESTIMATE — AREAS CHECKED — NOTE BOOK — NO. — BY — DATE

RHUTASEL and ASSOCIATES, INC.
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CENTRALIA, ILLINOIS — FREEBURG, ILLINOIS

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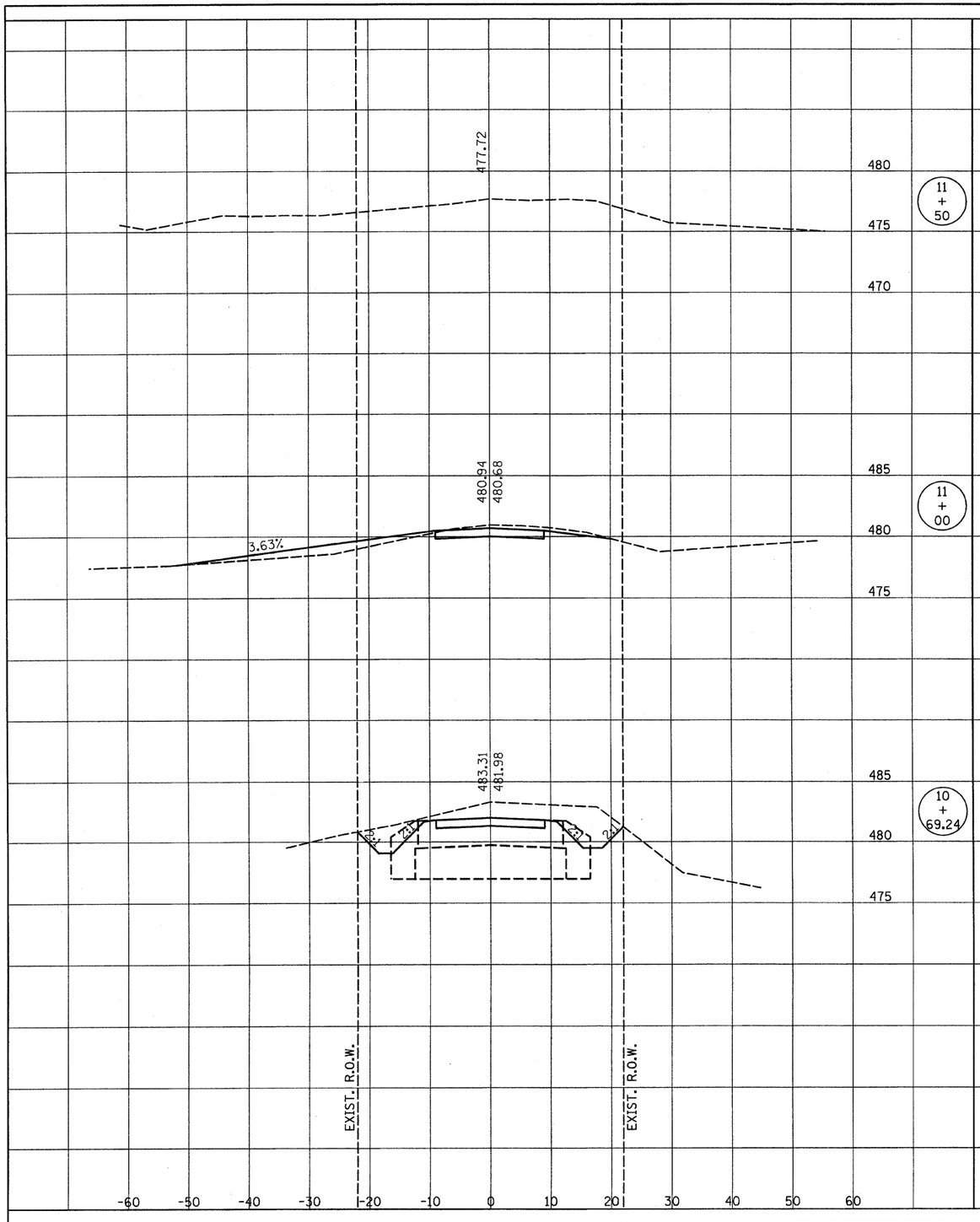
CHECKED - BLT	REVISED -	
DATE - 04/06/2012	REVISED -	

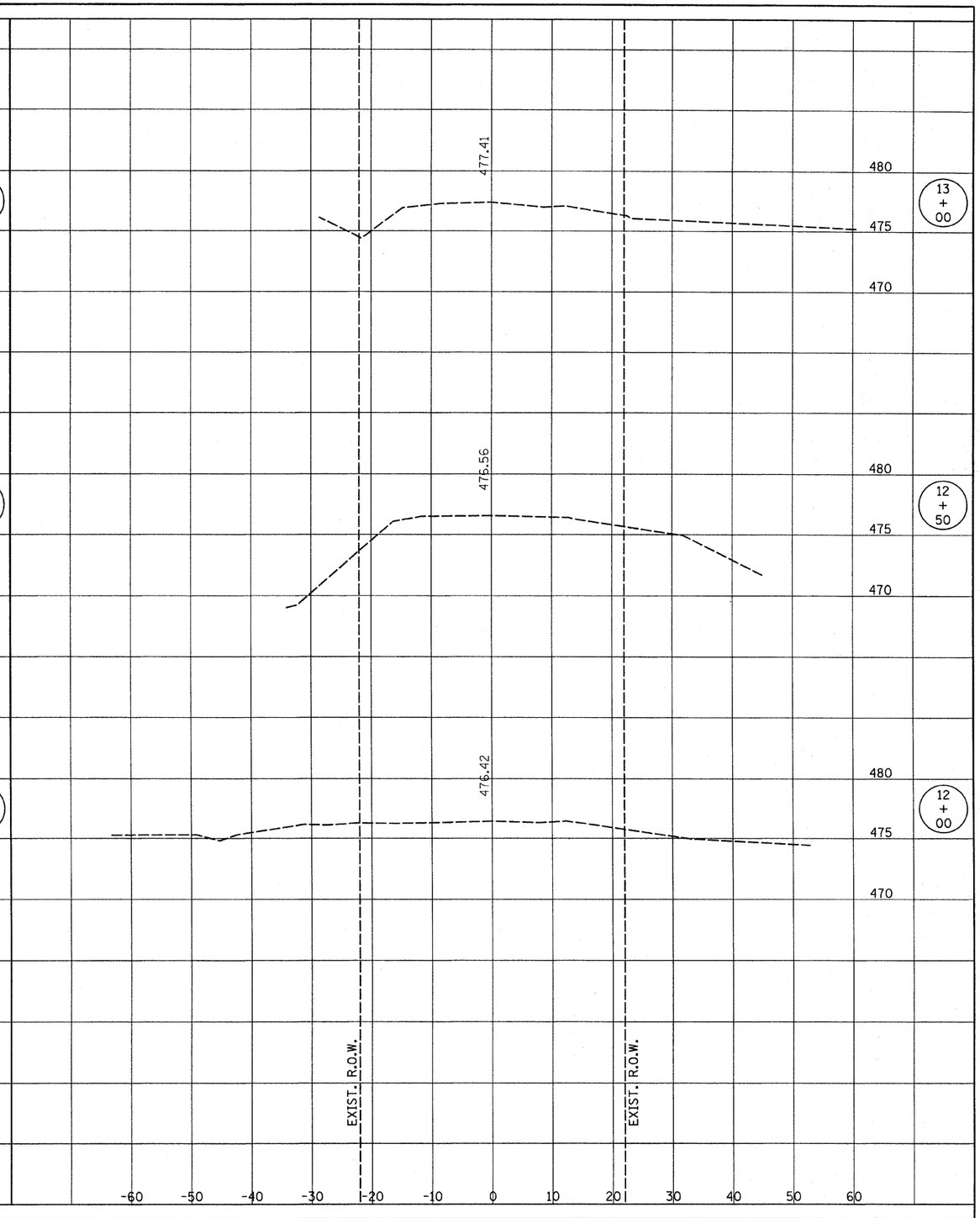
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS OF ROADWAY
STRUCTURE NO. 026-3455
STA. 7+00 TO STA. 9+47.08

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 429	10-18121-00-BR	FAYETTE	15	14
		CONTRACT NO. 95677		
RAAI JOB NO. 50811	ILLINOIS FED. AID PROJECT			

FINAL SURVEY	SURVEYED	BY	DATE
	PLOTTED		
NOTE BOOK	TEMPLATE		
NO.	AREAS		
	AREAS CHECKED		





ORIGINAL SURVEY	SURVEYED	BY	DATE
	PLOTTED		
NOTE BOOK	TEMPLATE		
NO.	AREAS		
	AREAS CHECKED		

RHUTASEL and ASSOCIATES, INC.
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CENTRALIA, ILLINOIS FREEBURG, ILLINOIS

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DRAWN - JN	REVISED -	
CHECKED - BLT	REVISED -	
DATE - 04/06/2012	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS OF ROADWAY
STRUCTURE NO. 026-3455
STA. 10+69.24 TO STA. 13+00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 429	10-18121-00-BR	FAYETTE	15	15
		CONTRACT NO. 95677		
RAAI JOB NO. 50811	ILLINOIS FED. AID PROJECT			