06-10-2016 LETTING ITEM 178

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 89	12-02117-00-BR	CLAY	11	1
		CONTRACT NO. 95781		
RAAI JOB NO. 51814				

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED STP–BRIDGE

TR 89 (FINCH LANE) OVER PANTHER CREEK
SECTION 12–02117–00–BR
PROJECT NO. BROS–0025(082)
BLAIR ROAD DISTRICT
CLAY COUNTY
JOB NO. C–97–034–14

INDEX OF SHEETS

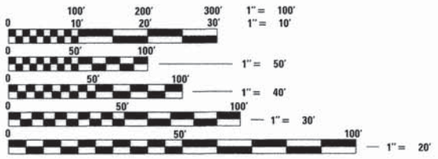
HIGHWAY STANDARDS (SEE SPECIFICATIONS)

000001-06	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
515001-03	NAME PLATE FOR BRIDGES
701901-05	TRAFFIC CONTROL DEVICES
720001-01	SIGN PANEL MOUNTING DETAILS
720006-04	SIGN PANEL ERECTION DETAILS
725001	OBJECT AND TERMINAL MARKERS
728001-01	TELESCOPING STEEL SIGN SUPPORT
BLR 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

SOIL BORINGS (SEE SPECIFICATIONS)

DESIGN CLASSIFICATION: RURAL LOCAL ROAD
ADT_{2015} : <50

DESIGN SPEED: 30 MPH



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 or 811 Website: http://www.illinois1call.com

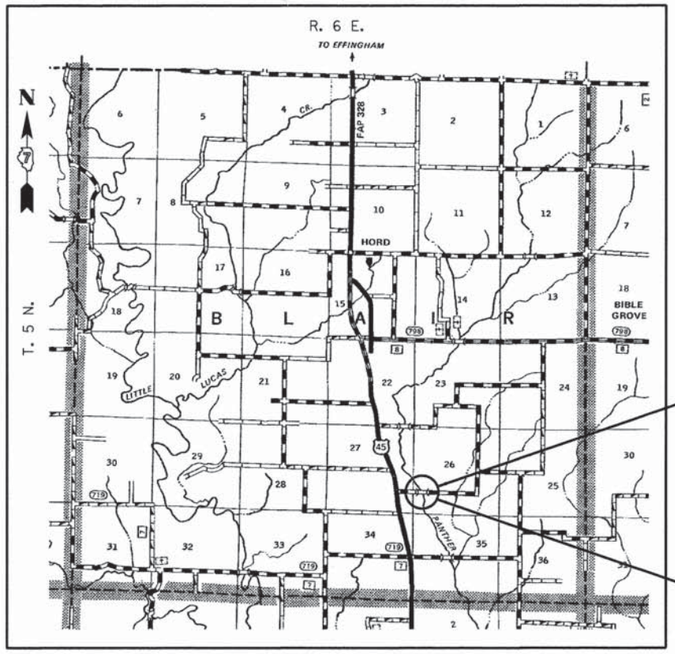
BRENT L. TAYLOR
062-066114
LICENSED PROFESSIONAL ENGINEER
STATE OF ILLINOIS

02/15/2016

BRENT L. TAYLOR
CENTRALIA, ILLINOIS
ILLINOIS LICENSED PROFESSIONAL
ENGINEER NO. 062-066114
EXPIRES NOV. 30, 2017

02/15/2016

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



LOCATION: NEAR THE SW CORNER OF THE NW 1/4 OF THE SW 1/4, SECTION 26, T5N, R6E, 3RD P.M.
NET LENGTH OF PROJECT: 650.00 FT. = 0.123 MI.

LOCATION OF SECTION INDICATED THUS: –■–

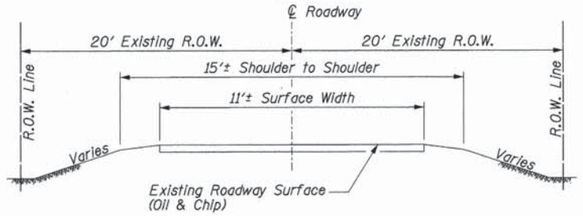
CLAY COUNTY
HIGHWAY DEPARTMENT

APPROVED 2/16, 2016
Michael R Quandt
CLAY COUNTY, COUNTY ENGINEER

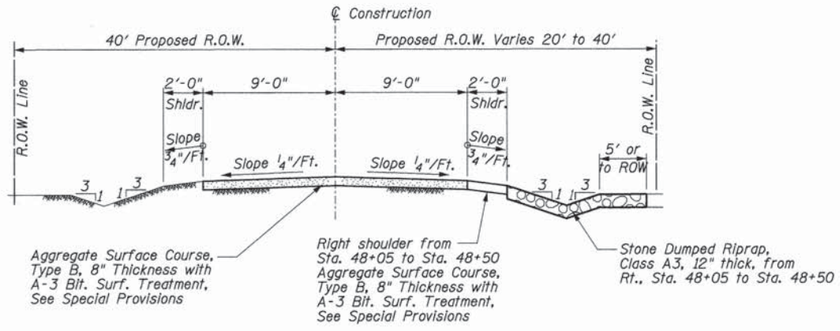
PASSED 4-8, 2016
Maureen Castle
DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS

RELEASING FOR BID BASED ON LIMITED REVIEW 4-8, 2016
Jeffrey M Smith
REGION FOUR ENGINEER

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

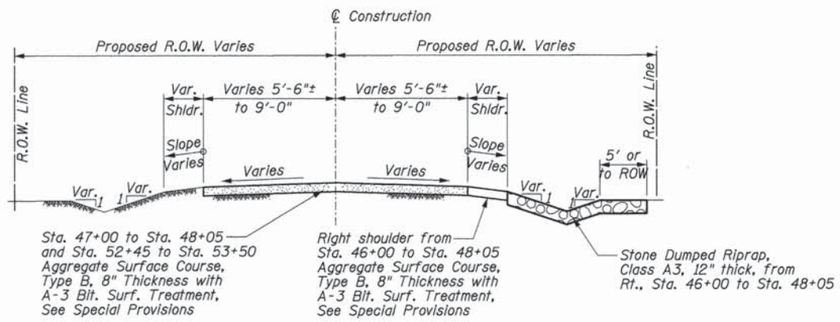


TYPICAL SECTION
EXISTING APPROACH ROADWAY



TYPICAL SECTION
PROPOSED APPROACH ROADWAY

Sta. 48+05.00 to Sta. 49+75.79
Sta. 50+44.21 to Sta. 52+45.00



TYPICAL TRANSITION SECTION
PROPOSED APPROACH ROADWAY

Sta. 46+00.00 to Sta. 48+05.00
Sta. 52+45.00 to Sta. 53+50.00

PAVEMENT SCHEDULE

STATION	LOCATION	AGG. SURF. CSE, TY. B TON	BIT. MAT'L COVER COAT TON (GAL)	BIT. MAT'L SEAL COAT TON (GAL)	COVER COAT AGGREGATE TON	SEAL COAT AGGREGATE TON
STA. 46+00.00 TO STA. 48+50.00	RT. SHLDR	26	0.2 (36)	0.1 (14)	2	1
STA. 47+00.00 TO STA. 49+75.79	ROADWAY	238	1.4 (332)	0.5 (128)	13	6
STA. 49+75.79 TO STA. 50+44.21	BRIDGE	-	0.1 (34)	0.1 (34)	2	2
STA. 50+44.21 TO STA. 53+50.00	ROADWAY	267	1.5 (371)	0.6 (143)	14	7
TOTAL		531	3.2 (773)	1.3 (319)	31	16

EARTHWORK SCHEDULE

LOCATION	EARTH EXCAVATION CU. YD.	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE• CU. YD.	EMBANKMENT CU. YD.	EARTHWORK BALANCE•• WASTE (+) OR SHORTAGE (-) CU. YD.
STA. 46+00.00 TO STA. 49+75.79	175	132	533	-401
STA. 50+44.21 TO STA. 53+50.00	191	143	498	-355
TOTAL	366	275	1031	-756

•25% SHRINKAGE

••FURNISHED EXCAVATION

UTILITIES

J.U.L.I.E. Dig No. X1102021

Telephone: Wabash Telephone Co-op, Inc.
210 South Church Street
P.O. Box 299
Louisville, IL 62858
Phone: 618-665-3311

Water: EJ Water Corp.
P.O. Box 8
Dieterich, IL 62424
Phone: 217-925-5566

SUMMARY OF QUANTITIES

	Code No.	Item	Unit	Quantity
	20200100	Earth Excavation	Cu Yd	366
	20300100	Channel Excavation	Cu Yd	496
	20400800	Furnished Excavation	Cu Yd	756
	28100805	Stone Dumped Riprap, Class A3	Ton	351
	28100807	Stone Dumped Riprap, Class A4	Ton	227
	40200800	Aggregate Surface Course, Type B	Ton	531
	40300400	Bituminous Materials (Cover and Seal Coats)	Ton	4.5
	40300500	Cover Coat Aggregate	Ton	31
	40300600	Seal Coat Aggregate	Ton	16
	50100100	Removal of Existing Structures	Each	1
	50300225	Concrete Structures	Cu Yd	25.0
	50300280	Concrete Encasement	Cu Yd	2.8
	50400505	Precast Prestressed Concrete Deck Beams (27" Depth)	Sq Ft	1608
	50800105	Reinforcement Bars	Pound	3940
*	50900205	Steel Railing, Type S1	Foot	138
	51201600	Furnishing Steel Piles HP12x53	Foot	182
	51202305	Driving Piles	Foot	182
	51203600	Test Pile Steel HP12x53	Each	1
	51500100	Name Plates	Each	1
	59300100	Controlled Low-Strength Material	Cu Yd	47.4
	67100100	Mobilization	L Sum	1
	72000100	Sign Panel - Type 1	Sq Ft	18
	72800100	Telescoping Steel Sign Support	Foot	28
*	72501000	Terminal Marker - Direct Applied	Each	4
	X2501000	Seeding, Class 2 (Special)	Acre	0.5

* Specialty Item

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 April 1, 2016.
2. Roadway Centerline profiles refer to the finished surface.
3. Existing utilities shown are located from surface observations or information provided by the respective utilities and must be considered approximate and are only included for the convenience of the bidder. 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, 811, or by direct contact with non-members of J.U.L.I.E.
4. The Aggregate Surface Course, Type B gradation shall be CA 6. Only crushed stone will be approved for use on this project.
5. Factors used for quantity calculations are as follows:

Porous Granular Embankment	2.1 tons/cu yd
Stone Dumped Riprap	130 pounds/cu ft
All Aggregates	2.1 tons/cu yd
Bitminous Materials (First Cover Coat)	See Spec. Provisions
Bitminous Materials (Second Cover & Seal Coats)	See Spec. Provisions
Bituminous Materials	8.3 lbs/gal
Cover and Seal Coat Aggregate	See Spec. Provisions

6. Commitments:
Existing fence removal and replacement within the limits of construction will be done by others and will be coordinated by Blair Road District. The removal will be completed prior to the start of construction.

No tree clearing will be allowed or performed from April 1 through September 30 as part of the effort to conserve the Indiana and Northern long-eared bat. See Special Provisions.

If bald eagle nests are observed within, or in the vicinity of the project area, the USFWS, Marion IL Sub-Office, and the Corps of Engineers will be contacted and the National Bald Eagle Management Guidelines to avoid and/or minimize impacts to the bald eagle will be implemented.

Public Service Providers will be notified prior to closing of the road.

As of February 15, 2016, no other commitments have been made.

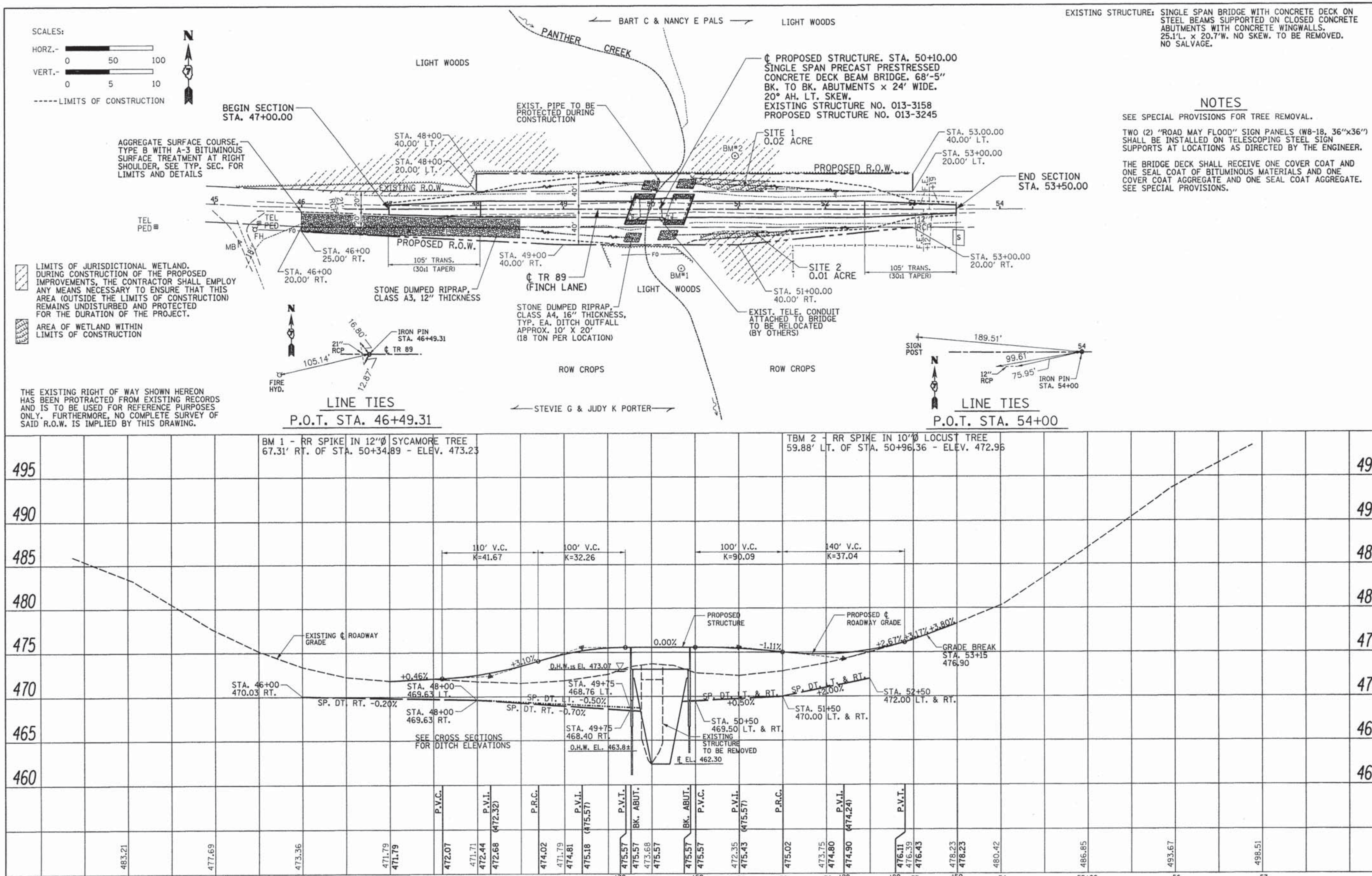
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT	REVISED -	
DRAWN - JN	REVISED -	
CHECKED - WDL	REVISED -	
DATE - 02/15/2016	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES, TYPICAL SECTIONS, AND GENERAL NOTES

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 89	12-02117-00-BR	CLAY	11	2
		CONTRACT NO. 95781		
RAAI JOB NO. 51814				



SCALES:
HORZ.- 0 50 100
VERT.- 0 5 10
-----LIMITS OF CONSTRUCTION
EXISTING STRUCTURE: SINGLE SPAN BRIDGE WITH CONCRETE DECK ON STEEL BEAMS SUPPORTED ON CLOSED CONCRETE ABUTMENTS WITH CONCRETE WINGWALLS. 25.1'L. x 20.7'W. NO SKEW. TO BE REMOVED. NO SALVAGE.
NOTES
SEE SPECIAL PROVISIONS FOR TREE REMOVAL.
TWO (2) "ROAD MAY FLOOD" SIGN PANELS (W8-18, 36"x36") SHALL BE INSTALLED ON TELESCOPING STEEL SIGN SUPPORTS AT LOCATIONS AS DIRECTED BY THE ENGINEER.
THE BRIDGE DECK SHALL RECEIVE ONE COVER COAT AND ONE SEAL COAT OF BITUMINOUS MATERIALS AND ONE COVER COAT AGGREGATE AND ONE SEAL COAT AGGREGATE. SEE SPECIAL PROVISIONS.
BART C & NANCY E PALS
LIGHT WOODS
PANTHER CREEK
℄ PROPOSED STRUCTURE. STA. 50+10.00 SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE. 68'-5" BK. TO BK. ABUTMENTS x 24' WIDE. 20° AH. LT. SKEW. EXISTING STRUCTURE NO. 013-3158 PROPOSED STRUCTURE NO. 013-3245
BEGIN SECTION STA. 47+00.00
EXIST. PIPE TO BE PROTECTED DURING CONSTRUCTION
AGGREGATE SURFACE COURSE, TYPE B WITH A-3 BITUMINOUS SURFACE TREATMENT AT RIGHT SHOULDER. SEE TYP. SEC. FOR LIMITS AND DETAILS
STA. 48+00 40.00' LT.
STA. 48+00 20.00' LT.
SITE 1 0.02 ACRE
STA. 53+00.00 40.00' LT.
STA. 53+00.00 20.00' LT.
PROPOSED R.O.W.
EXISTING R.O.W.
END SECTION STA. 53+50.00
TEL PED
STA. 46+00 25.00' RT.
STA. 46+00 20.00' RT.
105' TRANS. (30:1 TAPER)
STA. 49+00 40.00' RT.
℄ TR 89 (FINCH LANE)
SITE 2 0.01 ACRE
STA. 53+00.00 20.00' RT.
STA. 51+00.00 40.00' RT.
LIMITS OF JURISDICTIONAL WETLAND. DURING CONSTRUCTION OF THE PROPOSED IMPROVEMENTS, THE CONTRACTOR SHALL EMPLOY ANY MEANS NECESSARY TO ENSURE THAT THIS AREA (OUTSIDE THE LIMITS OF CONSTRUCTION) REMAINS UNDISTURBED AND PROTECTED FOR THE DURATION OF THE PROJECT.
AREA OF WETLAND WITHIN LIMITS OF CONSTRUCTION
STONE DUMPED RIPRAP, CLASS A3, 12" THICKNESS
STONE DUMPED RIPRAP, CLASS A4, 16" THICKNESS, TYP. EA. DITCH OUTFALL APPROX. 10' X 20' (18 TON PER LOCATION)
EXIST. TELE. CONDUIT ATTACHED TO BRIDGE TO BE RELOCATED (BY OTHERS)
IRON PIN STA. 46+49.31
℄ TR 89
FIRE HYD.
LINE TIES P.O.T. STA. 46+49.31
ROW CROPS
STEVIE G & JUDY K PORTER
SIGN POST
IRON PIN STA. 54+00
LINE TIES P.O.T. STA. 54+00
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.
BM 1 - RR SPIKE IN 12"Ø SYCAMORE TREE 67.31' RT. OF STA. 50+34.89 - ELEV. 473.23
TBM 2 - RR SPIKE IN 10"Ø LOCUST TREE 59.88' LT. OF STA. 50+96.36 - ELEV. 472.96
110' V.C. K=41.67
100' V.C. K=32.26
100' V.C. K=90.09
140' V.C. K=37.04
EXISTING ℄ ROADWAY GRADE
PROPOSED STRUCTURE
PROPOSED ℄ ROADWAY GRADE
GRADE BREAK STA. 53+15 476.90
STA. 46+00 470.03 RT.
SP. DT. RT. -0.20%
STA. 48+00 469.63 LT.
STA. 48+00 469.63 RT.
SEE CROSS SECTIONS FOR DITCH ELEVATIONS
STA. 49+75 468.76 LT.
STA. 49+75 468.40 RT.
O.H.W. EL. 463.8±
O.H.W. EL. 473.07
STA. 50+50 469.50 LT. & RT.
EXISTING STRUCTURE TO BE REMOVED
℄ EL. 462.30
STA. 51+50 470.00 LT. & RT.
STA. 52+50 472.00 LT. & RT.

DESIGNED - BLT	REVISED -
DRAWN - JN	REVISED -
CHECKED - WDL	REVISED -
DATE - 02/15/2016	REVISED -

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

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLAN AND PROFILE OF ROADWAY

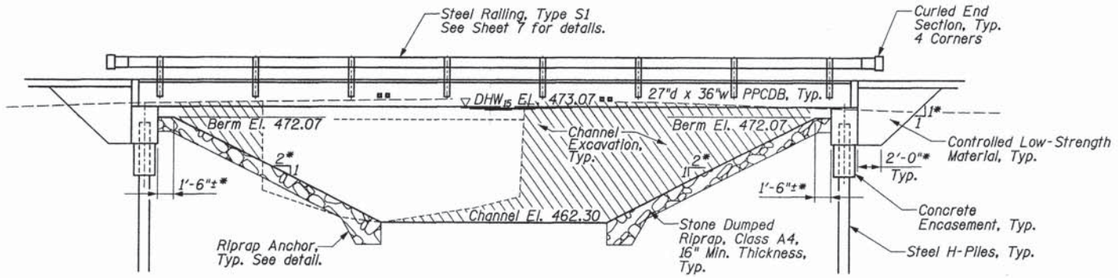
STA. 44+00 TO STA. 57+00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 89	12-02117-00-BR	CLAY	11	3
RAAI JOB NO. 51814		CONTRACT NO. 95781		

BM #1: RR Spike in 12"ϕ Sycamore tree
67.31'± Rt. of Sta. 50+34.89 - Elev. 473.23

TBM #2: RR Spike 10"ϕ Locust tree
59.88'± Lt. of Sta. 50+96.36 - Elev. 472.96

Existing Structure: Structure No.: 013-3158. Single span bridge with concrete deck on steel stringers supported on closed concrete abutments with concrete wingwalls. 25.1'L. x 20.7'W. No skew. To be removed. No Salvage.

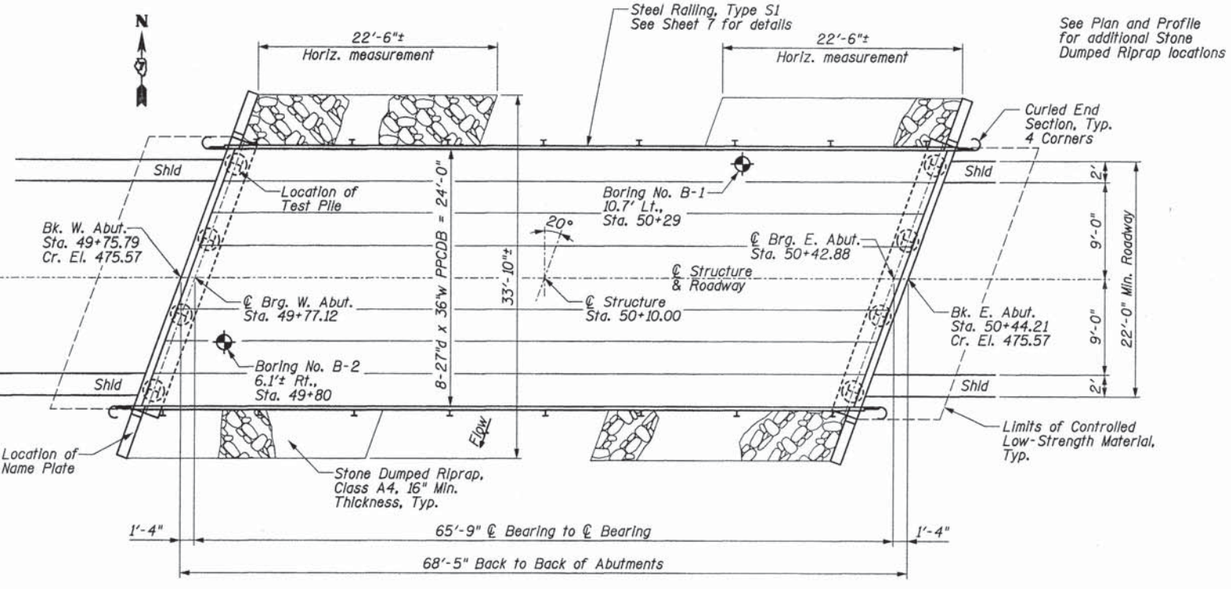


WEST ABUTMENT

EAST ABUTMENT

ELEVATION

* Normal to Channel



PLAN

LOADING HL-93

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

DESIGN SPECIFICATIONS

2012 (6th 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} = 0.172 S_{DS} = 0.447

BILL OF MATERIALS (BRIDGE ONLY)

	ITEM	UNIT	TOTAL
	Channel Excavation	Cu Yd	496
*	Stone Dumped Riprap, Class A4	Ton	227
	Removal of Existing Structures	Each	1
	Concrete Structures	Cu Yd	25.0
	Concrete Encasement	Cu Yd	2.8
	PPCDB (27" Depth)	Sq Ft	1608
	Reinforcement Bars	Pound	3940
	Steel Railing, Type S1	Foot	138
	Furnishing Steel Piles HP12x53	Foot	182
	Driving Piles	Foot	182
	Test Pile Steel HP12x53	Each	1
	Name Plates	Each	1
	Controlled Low-Strength Material	Cu Yd	47.4

* 155 Ton under bridge
72 Ton at ditch outfalls - see Plan and Profile

GENERAL NOTES

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

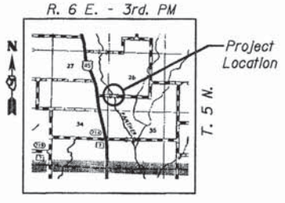
Channel excavation shall be excavated as shown within the limits of the proposed bridge, then tapered to the Right-of-Way line. If the Engineer deems the material satisfactory, it may be used to construct the roadway embankment.

See Section 502 of the Standard Specifications for Structural Excavation.

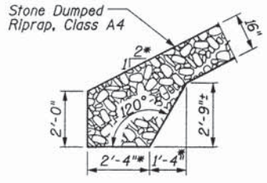
See Special Provisions for Soil Borings.

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.



LOCATION SKETCH



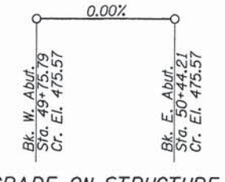
RIPRAP ANCHOR DETAIL

* Normal to Channel

WATERWAY INFORMATION

Drainage Area = 13.32 sq. mi. Existing Low Grade Elev. 471.79 @ Sta. 47+00.00
Proposed Low Grade Elev. 471.79 @ Sta. 47+00.00

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	15	2540	206	462	473.07	1.04	0.49	474.11	473.56
Base	100	4130	206	462	473.93	0.68	0.71	474.61	474.64
Base	500	5570	206	462	474.58	0.63	0.80	475.21	475.38



GRADE ON STRUCTURE

(along ℄ TR 89)

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. LUECKING
081-004341
LICENSED STRUCTURAL ENGINEER
STATE OF ILLINOIS

William D Luecking 02/15/2016

William D. Luecking
Centralia, Illinois
Illinois Licensed Structural Engineer No. 081-004341
Expires Nov. 30, 2016

PANTHER CREEK
BUILT 201_ BY
CLAY COUNTY
SEC. 12-02117-00-BR
TR 89 STA. 50+10
LOADING HL-93
STRUCTURE NO. 013-3245

NAME PLATE

See Std. 515001

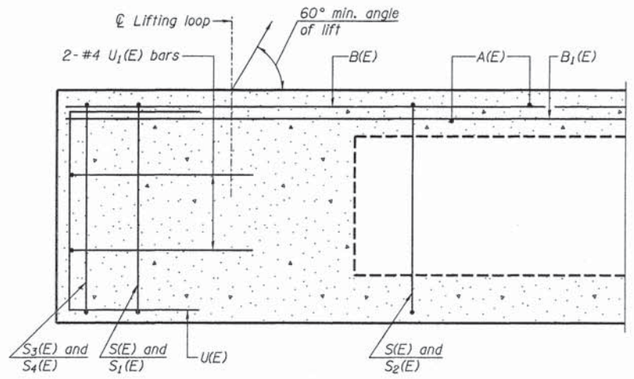
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT	REVISED -	
DRAWN - JN	REVISED -	
CHECKED - WDL	REVISED -	
DATE - 02/15/2016	REVISED -	

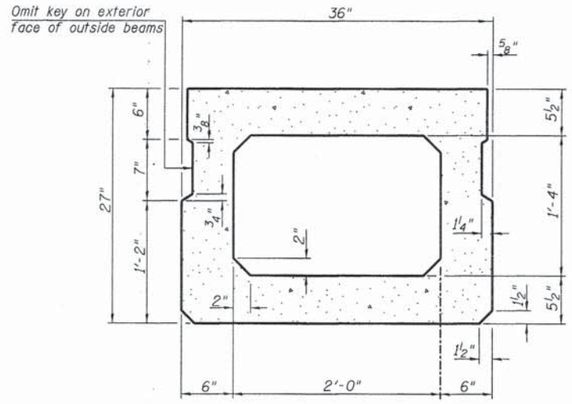
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION

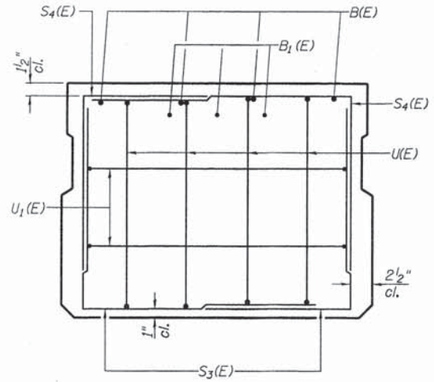
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 89	12-02117-00-BR	CLAY	11	4
		CONTRACT NO. 95781		
RAAI JOB NO. 51814				



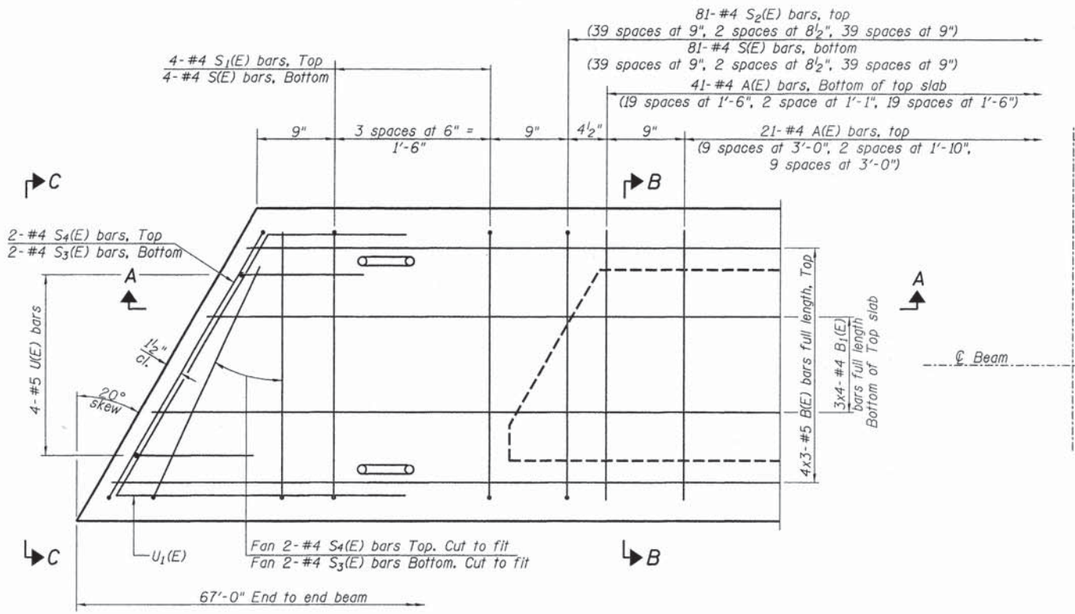
SECTION A-A



SECTION B-B
(Showing dimensions)



VIEW C-C

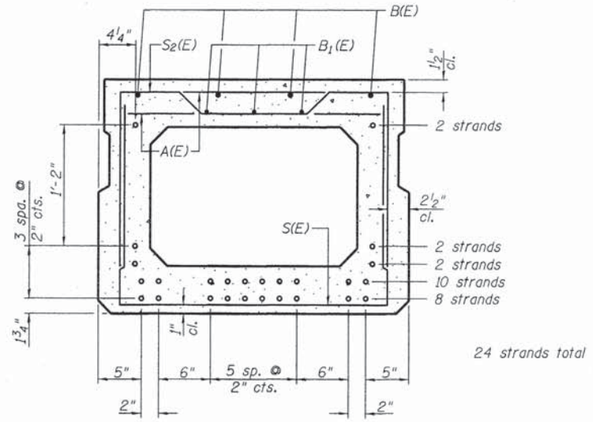


PLAN VIEW

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.

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

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



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)	62	#4	2'-7"	—
B(E)	12	#5	23'-11"	—
$B_1(E)$	12	#4	18'-2"	—
S(E)	89	#4	6'-5"	⊓
$S_1(E)$	8	#4	5'-11"	⊓
$S_2(E)$	81	#4	6'-2"	⊔
$S_3(E)$	8	#4	4'-2"	⊔
$S_4(E)$	8	#4	4'-0"	⊔
U(E)	8	#5	4'-6"	⊓
$U_1(E)$	4	#4	6'-1"	⊿

Note: See sheet 6 for additional details and Bill of Material.

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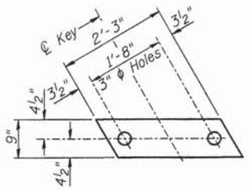
DATE - 02/15/2016	REVISED -	

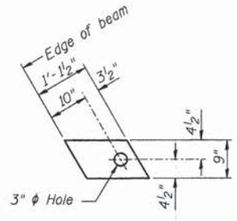
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 89	12-02117-00-BR	CLAY	11	5
		CONTRACT NO. 95781		
RAAI JOB NO. 51814				

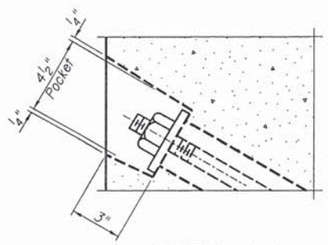


FABRIC BEARING PAD
(Interior)

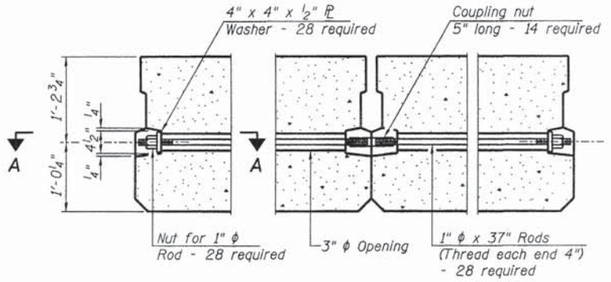


FABRIC BEARING PAD
(Exterior)

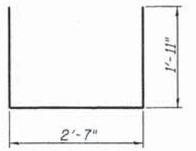
Notes:
All bearing pads shall be 1" thick.



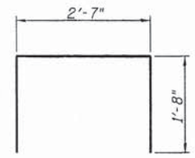
SECTION A-A



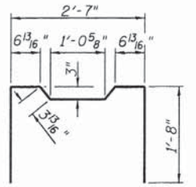
TYPICAL TRANSVERSE TIE ASSEMBLY



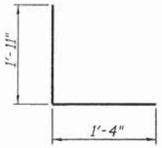
BAR S(E)



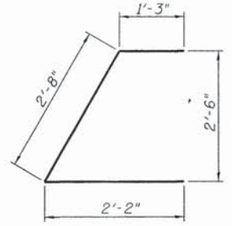
BAR S_1(E)



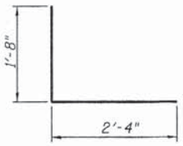
BAR S_2(E)



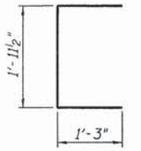
BAR S_3(E)



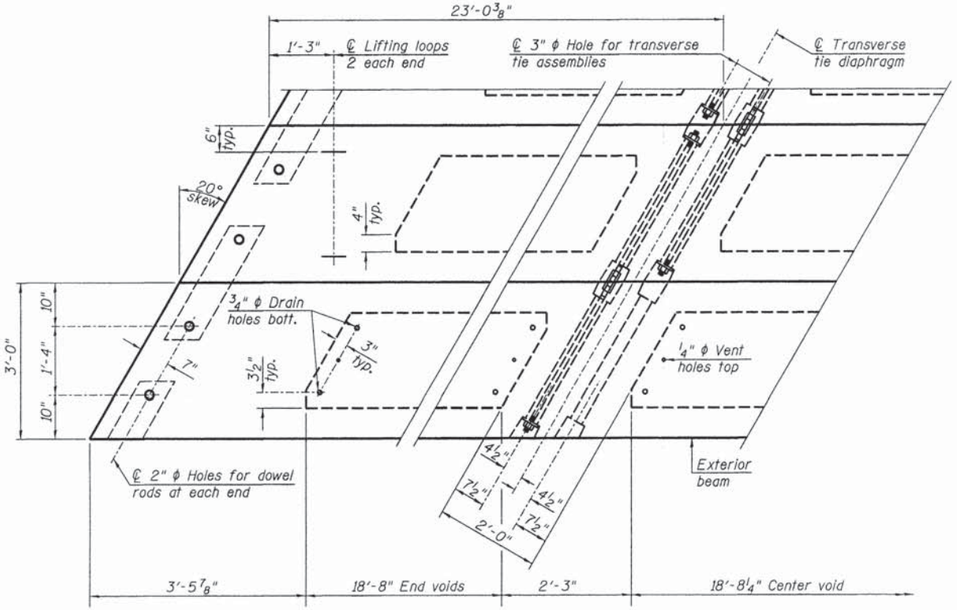
BAR U_1(E)



BAR S_4(E)

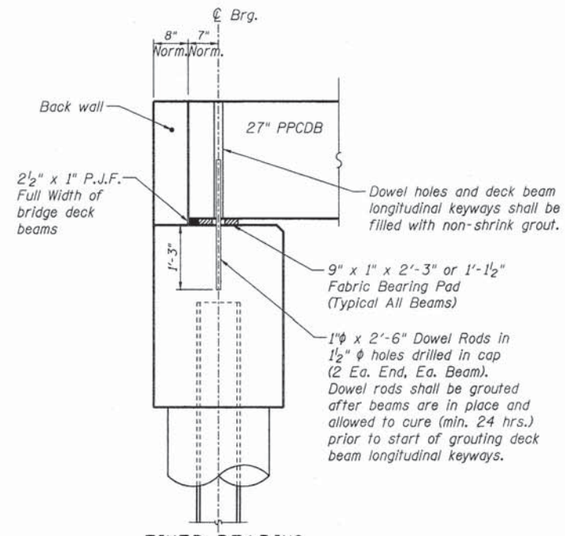


BAR U(E)

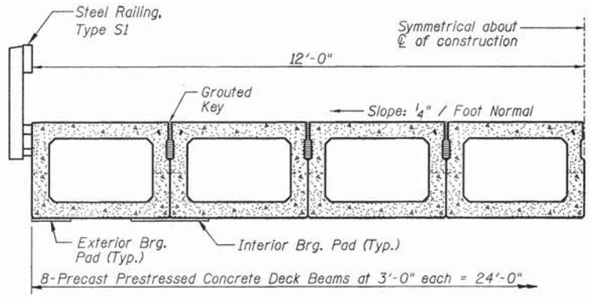


PLAN VIEW

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

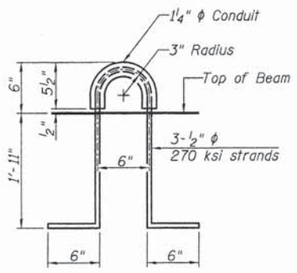


FIXED BEARING
ABUTMENT
(Normal to ℄)



HALF CROSS SECTION

See Sheet 7 for the details showing the spacing and mounting of posts and rails to the PPCDB.



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, Illinois 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.

In addition to the requirements set forth by the IDOT "Manual for Fabrication of Precast Prestressed Concrete Products", Section 3.2.5 "Features Common to Deck Beams with Void Tubes", Paragraph (4) "Air Vents" - after the vent tubes are removed or cut flush with the concrete, the holes immediately shall be filled with epoxy resin, nonshrink grout or other approved material, to a minimum depth of 2", to prevent rain water or water from subsequent curing from entering the void tubes.

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1608

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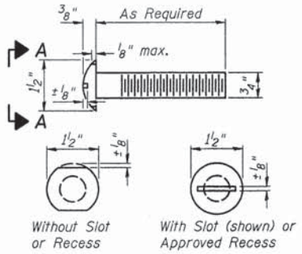
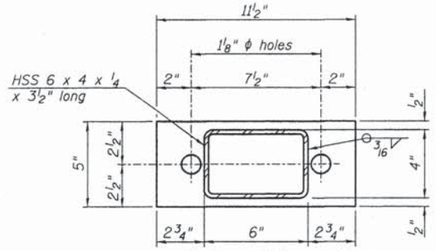
PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS

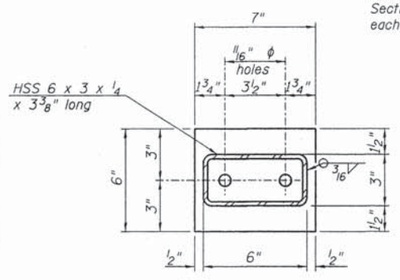
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 89	12-02117-00-BR	CLAY	11	6
		CONTRACT NO. 95781		
RAAI JOB NO. 51814				



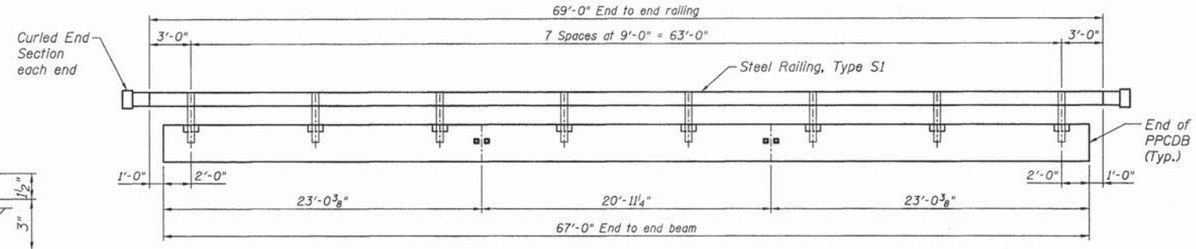
VIEW A-A
ROUND HEAD BOLT



PL 1/2" x 11 1/2" x 5"

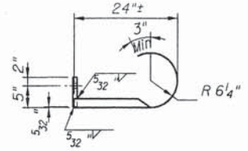


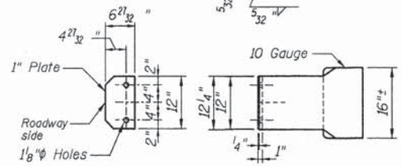
PL 1/2" x 7" x 6"



ELEVATION

Note: The cost of the Curled End Sections shall be included in the contract unit price per foot for "STEEL RAILING, TYPE S1", and no additional compensation will be allowed.



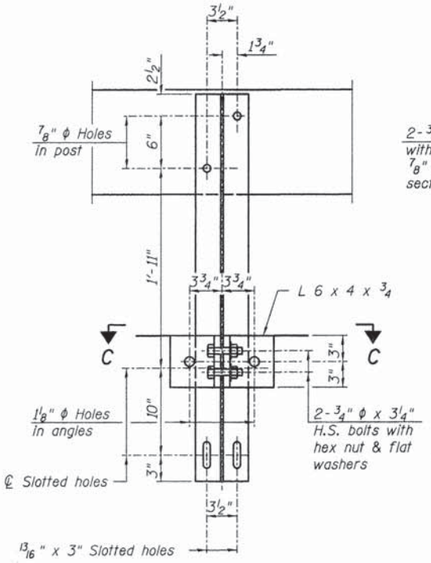


CURLED END SECTION DETAILS
4 Each Required

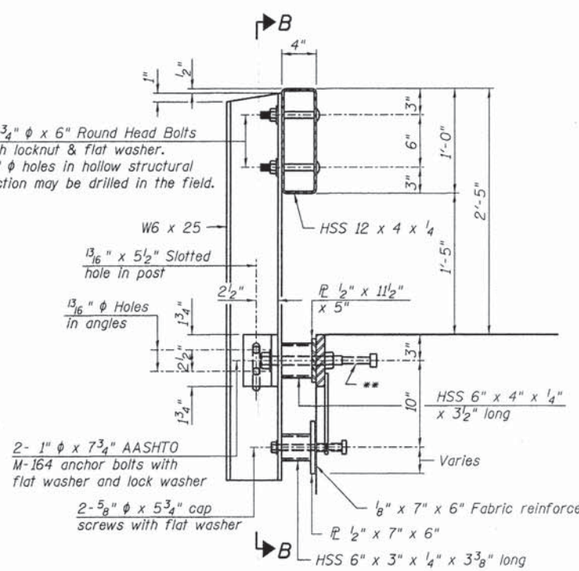
SPLICE DIMENSIONS

T	D	A	B	C	E
≤ 4"	2 1/2"	1'-8"	2"	4"	2 1/2"
> 4" ≤ 6 1/2"	3 3/4"	2'-0"	2 1/2"	5 1/2"	3 1/2"
> 6 1/2" ≤ 9"	5"	2'-4"	3 1/2"	6 1/2"	9"
> 9" ≤ 13"	7"	2'-10"	4 1/2"	8 1/2"	11"
Rail Splice	1/4"	1'-8"	2"	4"	———

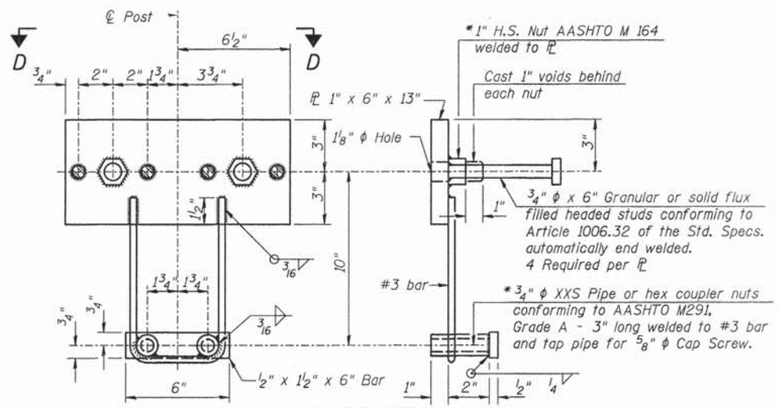
T = Total movement at expansion joint as shown on the design plans.



SECTION B-B

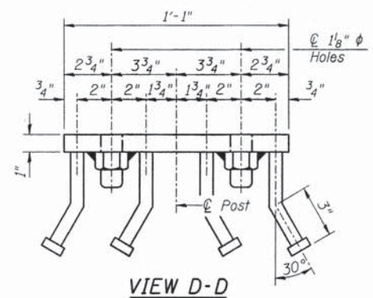


SECTION AT RAILING POST

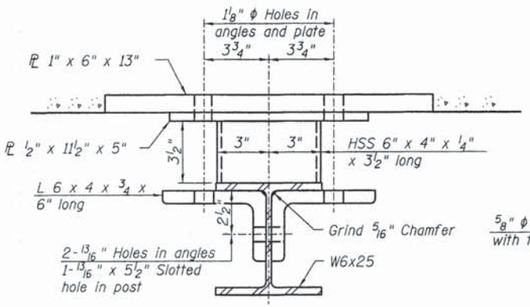


ANCHOR DEVICE
* Threaded areas shall be plugged or blocked off during casting of beam.

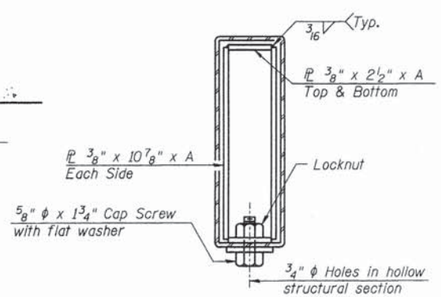
Notes:
All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.
** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.



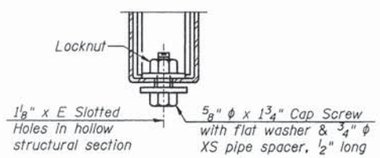
VIEW D-D



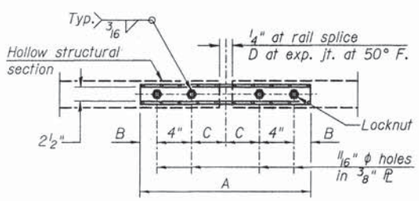
SECTION C-C



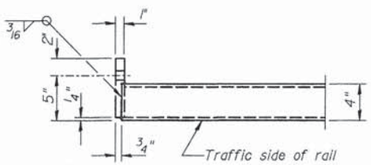
SECTIONS AT RAIL SPLICE



RAIL SPLICE CONNECTION AT EXPANSION JT.

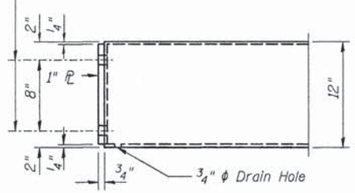


PLAN-BOTT. SPLICE PL TYPICAL



END OF RAIL DETAILS

1 1/8" ϕ Holes for 1" ϕ x 4" Round head bolts. Provide 2 flat washers & locknuts for guard rail connection shown on Hwy Std. 631026 or BLR 27-1.



BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S1	Foot	138

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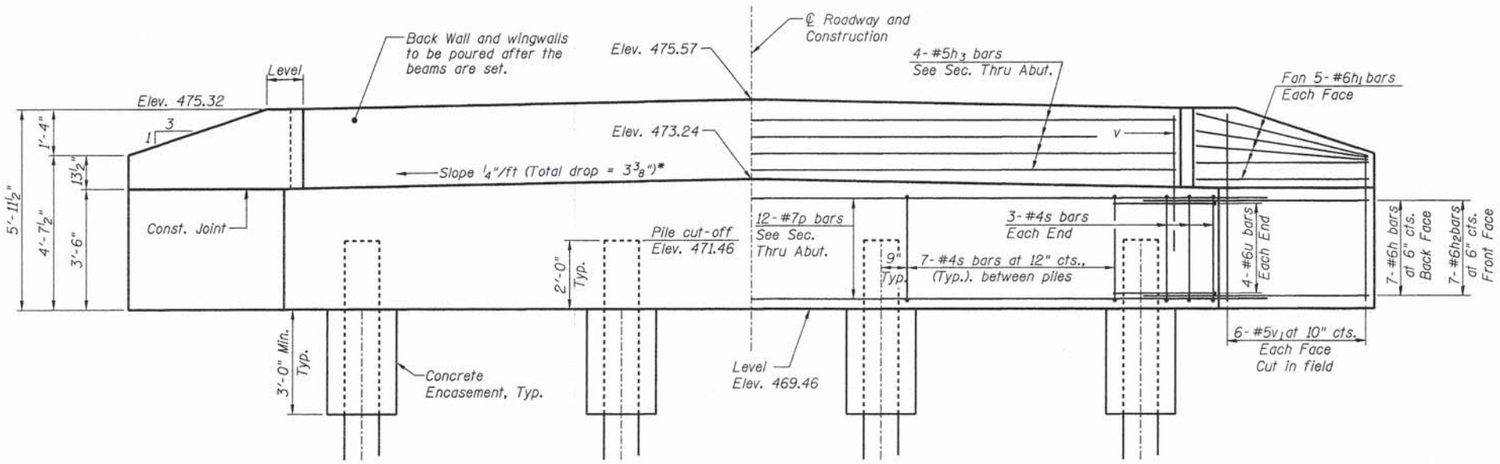
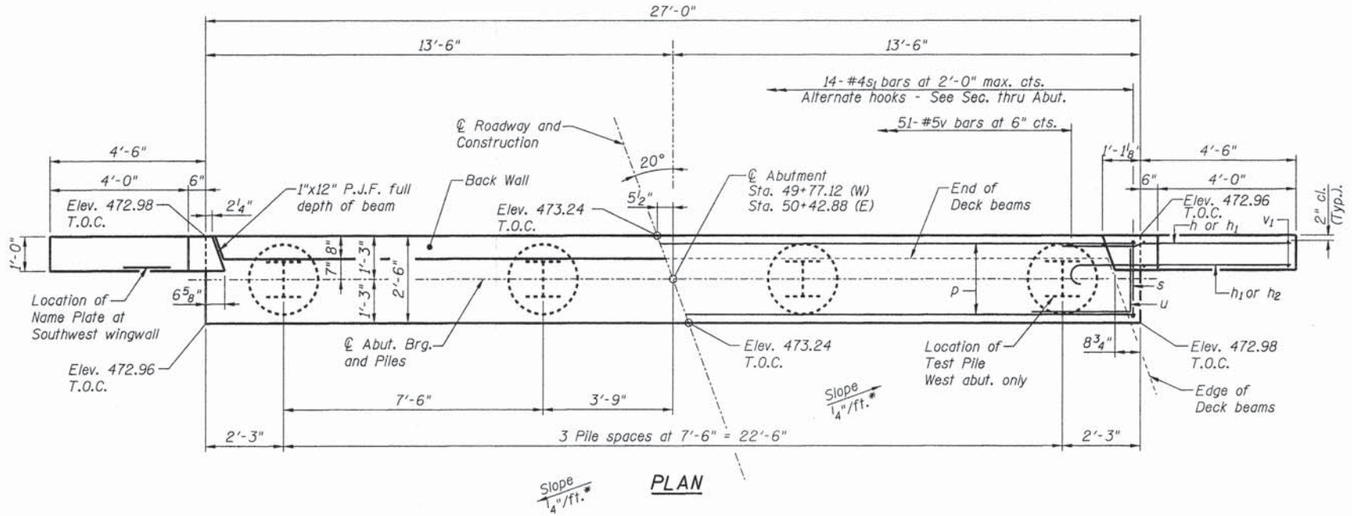
STEEL RAILING, TYPE S1 DETAILS

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 89	12-02117-00-BR	CLAY	11	7
		CONTRACT NO. 95781		
RAAI JOB NO. 51814				

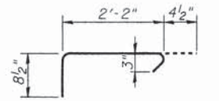


ELEVATION

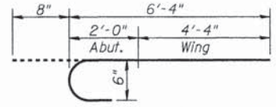
*Normal to ℄ Roadway



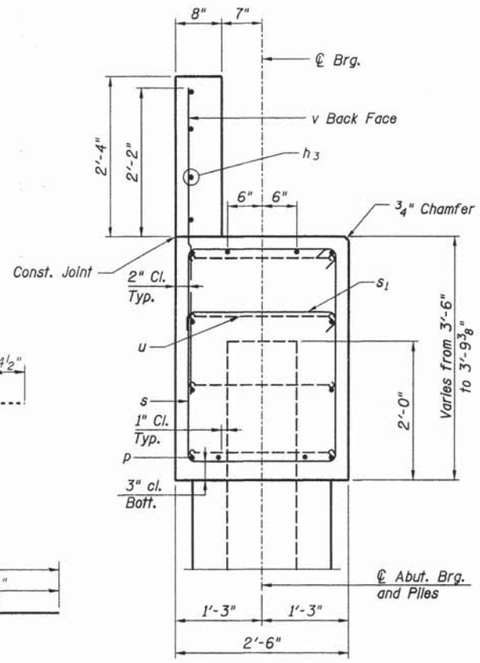
PLAN



BAR s_1

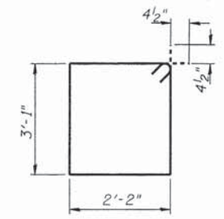


BAR h_2

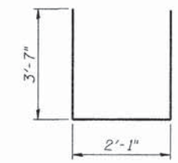


SEC. THRU ABUT.

(Normal to ℄)



BAR s



BAR u

BILL OF MATERIAL FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape
h	14	#6	8'-0"	
h_1	20	#6	5'-3"	CUT IN FIELD
h_2	14	#6	7'-0"	
h_3	4	#5	25'-3"	
p	12	#7	26'-8"	
s	27	#4	11'-3"	
s_1	14	#4	3'-3"	
u	8	#6	9'-3"	
v	51	#5	4'-9"	
v_1	24	#5	5'-7"	CUT IN FIELD
Concrete Structures			Cu Yd	12.5
Concrete Encasement			Cu Yd	1.4
Reinforcement Bars			Pound	1970
Furnishing Steel Piles, HP12x53	Foot	W. Abut.		78
		E. Abut.		104
Driving Piles	Foot	W. Abut.		78
		E. Abut.		104
Test Pile, Steel HP12x53	Each	W. Abut.		1
		E. Abut.		0

For details of piles and Concrete Encasement, see HP Pile Details sheet.

PILE DATA WEST ABUTMENT

Type:	Steel HP 12x53
Nominal Required Bearing:	418kips
Factored Resistance Available:	230 kips
Estimated Length:	26'/pile
No. Production Piles:	3
No. Test Piles:	1

PILE DATA EAST ABUTMENT

Type:	Steel HP 12x53
Nominal Required Bearing:	418 kips
Factored Resistance Available:	230 kips
Estimated Length:	26'/pile
No. Production Piles:	4
No. Test Piles:	0

GENERAL NOTES

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

All exposed edges shall have standard ¾" 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 Test Pile(s) of the size and location as indicated on the plans 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.

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STATE OF ILLINOIS
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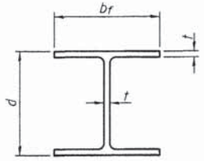
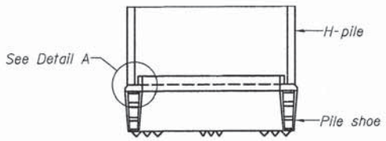
ABUTMENT DETAILS

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 89	12-02117-00-BR	CLAY	11	8
		CONTRACT NO. 95781		
RAAI JOB NO. 51814				

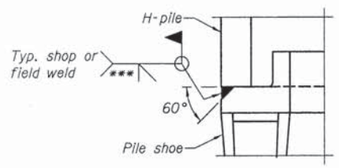


STEEL PILE TABLE

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

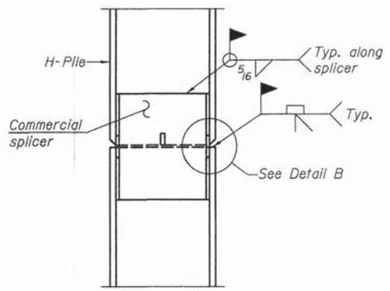


ELEVATION

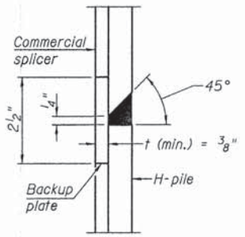


DETAIL A

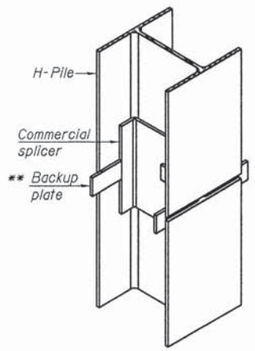
H-PILE SHOE ATTACHMENT



ELEVATION

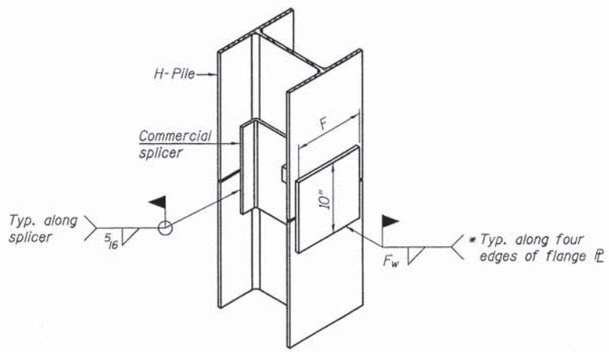


DETAIL "B"



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



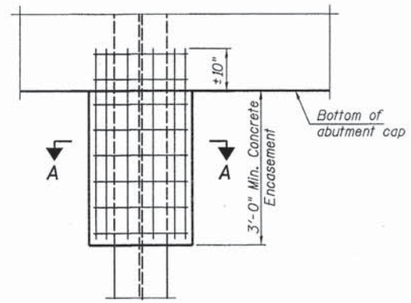
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

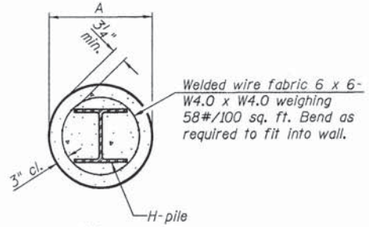
* Interrupt welds ¼" from end of web and/or each flange.

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

*** Weld size per pile shoe manufacturer ($\frac{5}{16}$" min.).



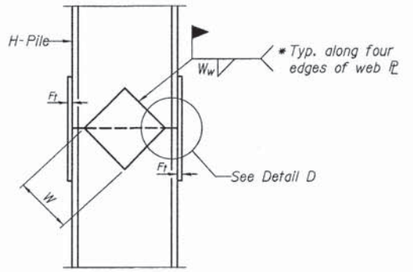
ELEVATION



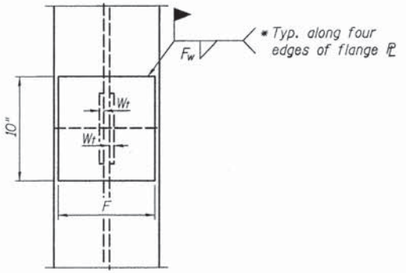
Note:
Forms for encasement may be omitted when soil conditions permit.

SECTION A-A

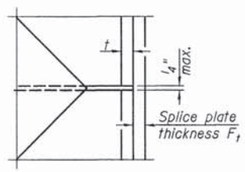
PILE ENCASEMENT



ELEVATION



END VIEW



DETAIL D

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

WELDED PLATE FIELD SPLICE

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

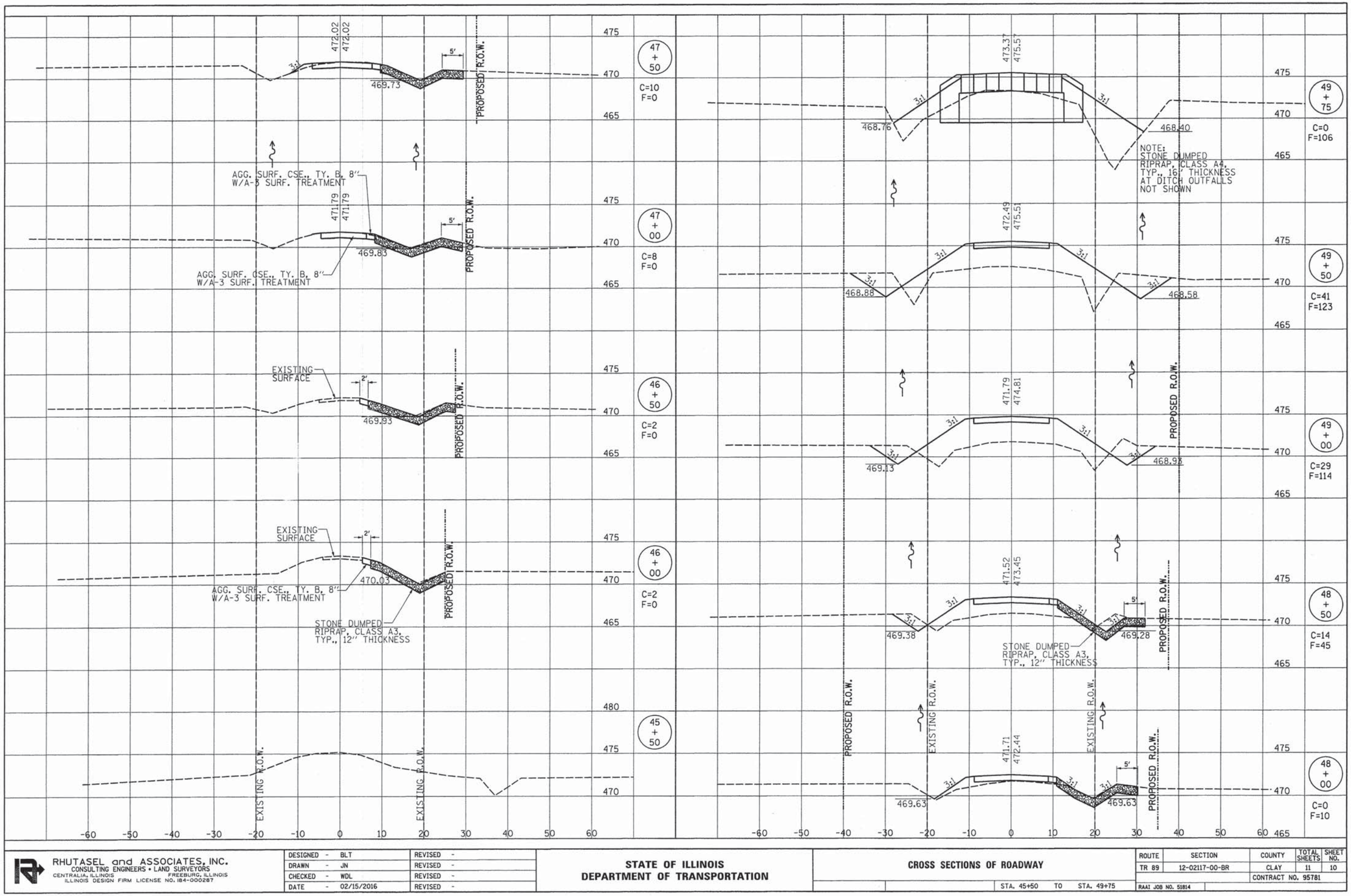
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT	REVISED -	
DRAWN - JN	REVISED -	
CHECKED - WDL	REVISED -	
DATE - 02/15/2016	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

HP PILE DETAILS

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 89	12-02117-00-BR	CLAY	11	9
		CONTRACT NO. 95781		
RAAI JOB NO. 51814				



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

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

DESIGNED - BLT	REVISED -	
DRAWN - JN	REVISED -	
CHECKED - WDL	REVISED -	
DATE - 02/15/2016	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

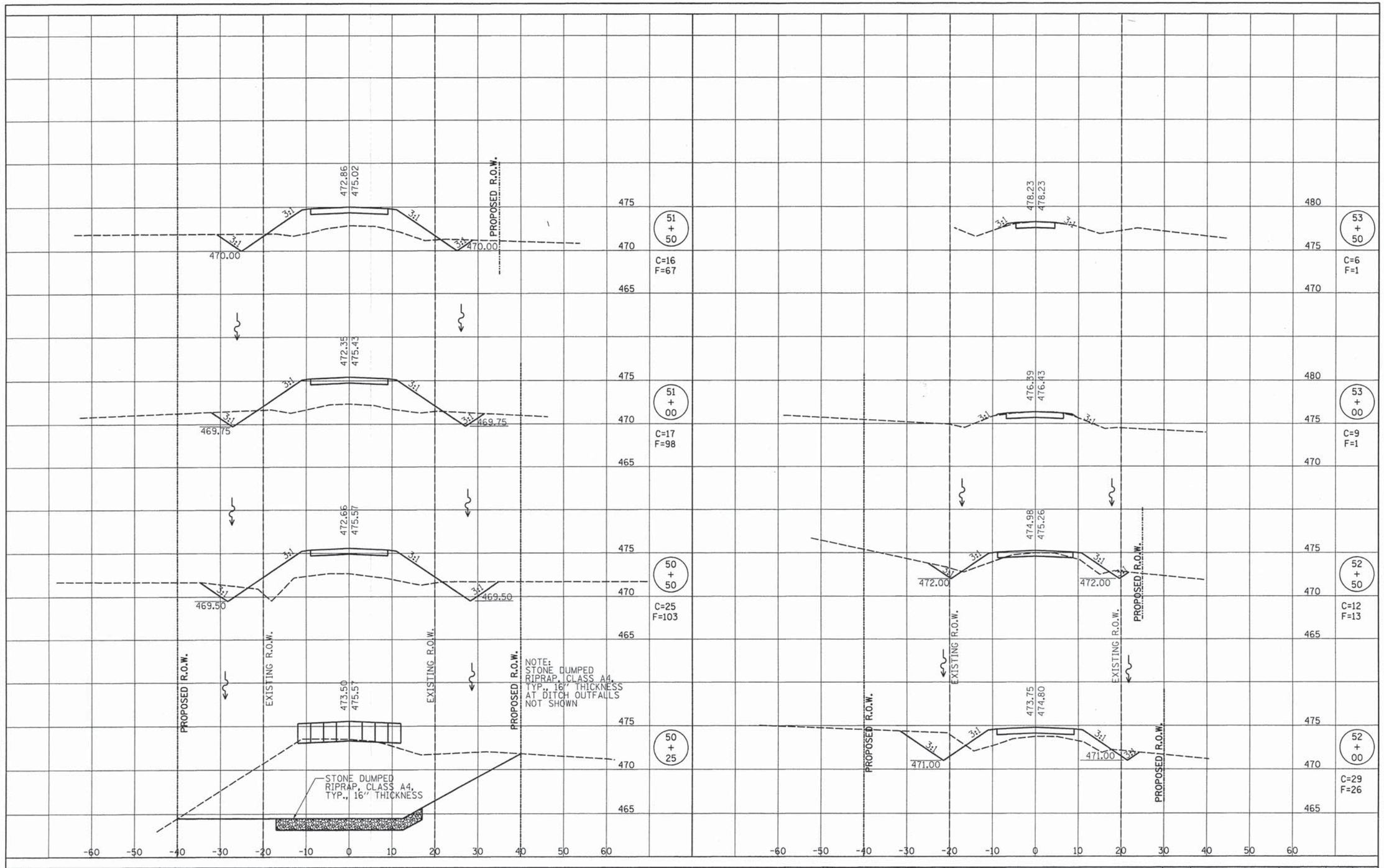
CROSS SECTIONS OF ROADWAY

STA. 45+50 TO STA. 49+75

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 89	12-02117-00-BR	CLAY	11	10
		CONTRACT NO. 95781		
RAAI JOB NO. 51814				

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		



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DESIGNED	BLT	REVISED -
DRAWN	JN	REVISED -
CHECKED	WDL	REVISED -
DATE	02/15/2016	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS OF ROADWAY

STA. 50+25 TO STA. 53+50

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 89	12-02117-00-BR	CLAY	11	11
		CONTRACT NO. 95781		
RAAI JOB NO. 51814				