04-24-2015 LETTING ITEM 111

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED STP–BRIDGE

TR 476 OVER TRIBUTARY TO LONE GROVE BRANCH
SECTION 12–07130–00–BR
PROJECT NO. BROS–0051(096)
LONE GROVE ROAD DISTRICT
FAYETTE COUNTY
JOB NO. C–97–021–15

INDEX OF SHEETS

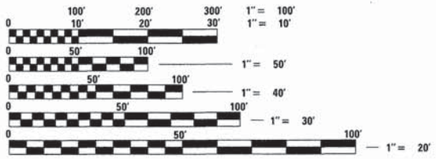
HIGHWAY STANDARDS (SEE SPECIFICATIONS)

000001-06	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
515001-03	NAME PLATE FOR BRIDGES
635006-03	REFLECTOR AND TERMINAL MARKER PLACEMENT
701901-04	TRAFFIC CONTROL DEVICES
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_{2014} : 175

DESIGN SPEED: 30 MPH



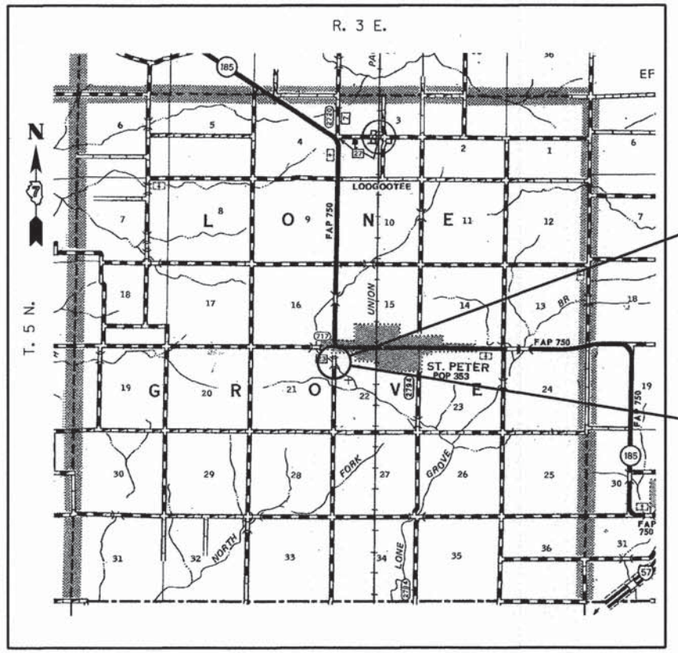
FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES, REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES, IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
JOINT UTILITY LOCATING INFORMATION FOR EXCAVATORS
1–800–892–0123 or 811 Website: http://www.illinois1call.com

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

Gary L. Hahn 12-29-2014

GARY L. HAHN
CENTRALIA, ILLINOIS
ILLINOIS LICENSED PROFESSIONAL
ENGINEER NO. 62-42606
EXPIRES NOV. 30, 2015



LOCATION: NEAR THE SW CORNER OF THE NW ¼ OF THE NW ¼, SECTION 22, T5N, R3E, 3RD P.M.
NET LENGTH OF PROJECT: 450.00 FT. = 0.085 MI.

LOCATION OF SECTION INDICATED THUS: –

FAYETTE COUNTY
HIGHWAY DEPARTMENT

APPROVED 12-30, 2014
FAYETTE COUNTY, COUNTY ENGINEER

PASSED 1-7, 2015
DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS

RELEASING FOR BID BASED ON LIMITED REVIEW 1-7, 2015
DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER

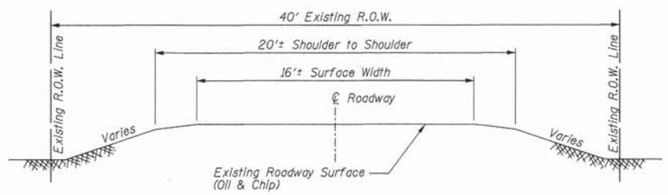
PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

CONTRACT NO. 95753

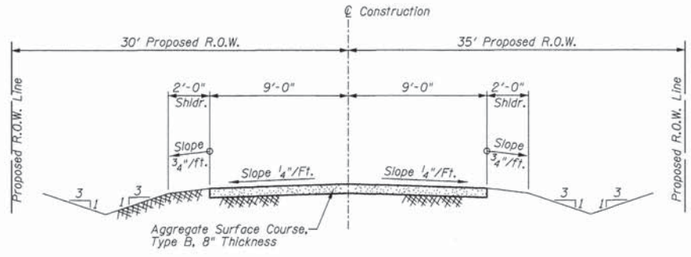
12/29/2014

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

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 476	12-07130-00-BR	FAYETTE	10	1
		CONTRACT NO. 95753		
RAAI JOB NO. 52013	ILLINOIS	FED. AID PROJECT		

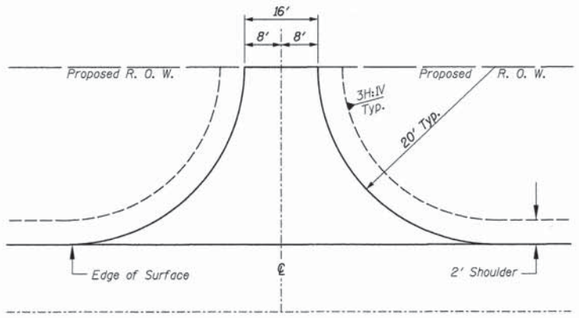


TYPICAL SECTION
EXISTING APPROACH ROADWAY



TYPICAL SECTION
PROPOSED APPROACH ROADWAY

Looking North (Upstation)
See Sheet 3 for limits of Proposed R.O.W.



TYPICAL PRIVATE ENTRANCE

Aggregate Surface Course, Type B, 6" Depth
Lt., Sta. 49+27 - 20 Ton
(Included in Summary of Quantities)

UTILITIES

J.U.L.I.E.: Design Phase Locate
Dig No.: X0650336

Electric / Gas: Ameren CIPS-(South)
Attn: Jon Tipton
1800 Ford Avenue
Effingham, IL 62401
Phone: 217-347-3141

Telephone: AT&T/Distribution
Attn: Dean Litzenburg
Called 09/08/14 Left Message
City,
Phone: 618-346-6422

Water: Fayette Water Company
Attn: Denny Buchanan
2371 E 1350 St
Brownstown, IL 62418
Phone: 618-347-2430

Telephone: Frontier Communications
Attn: Mr. Rod Eller
801 West Jackson Street
Altamont, IL 62411
Phone: 618-483-6205

Pipeline: Vandalia Liberty Utilities
Attn: Mike Beatty
224 South 6th Street
Vandalia, IL 62471
Phone: 573-979-0220

Electric: Southwestern Electric Co-Op
Attn: Ms. Kim Jackson
525 U.S. Route 40
Greenville, IL 62246
Phone: 618-664-5922

Municipal: Village of St. Peter
Attn: Michael L. Butts
PO Box 28
St. Peter, IL 62880
Phone: 618-553-4540

SUMMARY OF QUANTITIES

	Code No.	Item	Unit	Quantity
	20100210	TREE REMOVAL (OVER 15 UNITS DIAMETER)	UNIT	27
	20200100	EARTH EXCAVATION	CU YD	72
	20300100	CHANNEL EXCAVATION	CU YD	342
	20400800	FURNISHED EXCAVATION	CU YD	373
	20700110	POROUS GRANULAR EMBANKMENT	TON	110
	28100807	STONE DUMPED RIPRAP, CLASS A4	TON	163
	40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	375
	50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
	50105220	PIPE CULVERT REMOVAL	FOOT	78
	50300225	CONCRETE STRUCTURES	CU YD	27.2
	50300280	CONCRETE ENCASEMENT	CU YD	3.4
	50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1584
	50800105	REINFORCEMENT BARS	POUND	4060
*	50900205	STEEL RAILING, TYPE S1	FOOT	136
	51200958	FURNISHING METAL SHELL PILES 14" X 0.250"	FOOT	259
	51202305	DRIVING PILES	FOOT	259
	51203200	TEST PILE METAL SHELLS	EACH	1
	51500100	NAME PLATES	EACH	1
	542C0229	PIPE CULVERTS, CLASS C, TYPE 1 24"	FOOT	90
	67100100	MOBILIZATION	L SUM	1
*	78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
	X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.3

* 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 January 1, 2012.
2. Any reference to a Standard in these plans shall be interpreted to mean the edition as indicated by the sub-number listed in the Index of Sheets or the copy of the Standard included in these plans.
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, 811, 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: Existing fence removal and replacement with the limits of construction (SE quadrant of the proposed project) will be done by others and will be coordinated by the Lone Grove Road Commissioner. The removal will be completed prior to the start of construction. As of August 31, 2014, no other commitments have been made.

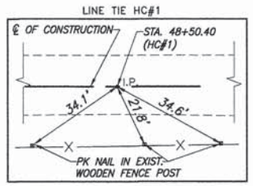
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

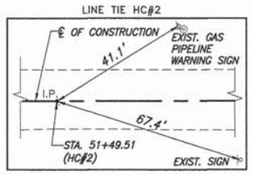
DESIGNED - BLT	REVISED -	
DRAWN - JN	REVISED -	
CHECKED - GLH	REVISED -	
DATE - 12/29/2014	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES, GENERAL NOTES, AND TYPICAL SECTIONS
STRUCTURE NO. 026-3462

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 476	12-07130-00-BR	FAYETTE	10	2
		CONTRACT NO. 95753		
RAAI JOB NO. 52013	ILLINOIS	FED. AID PROJECT		





TREE REMOVAL (OVER 15 UNITS DIAMETER)

LOCATION	UNIT
17' RT., STA. 50+04	27

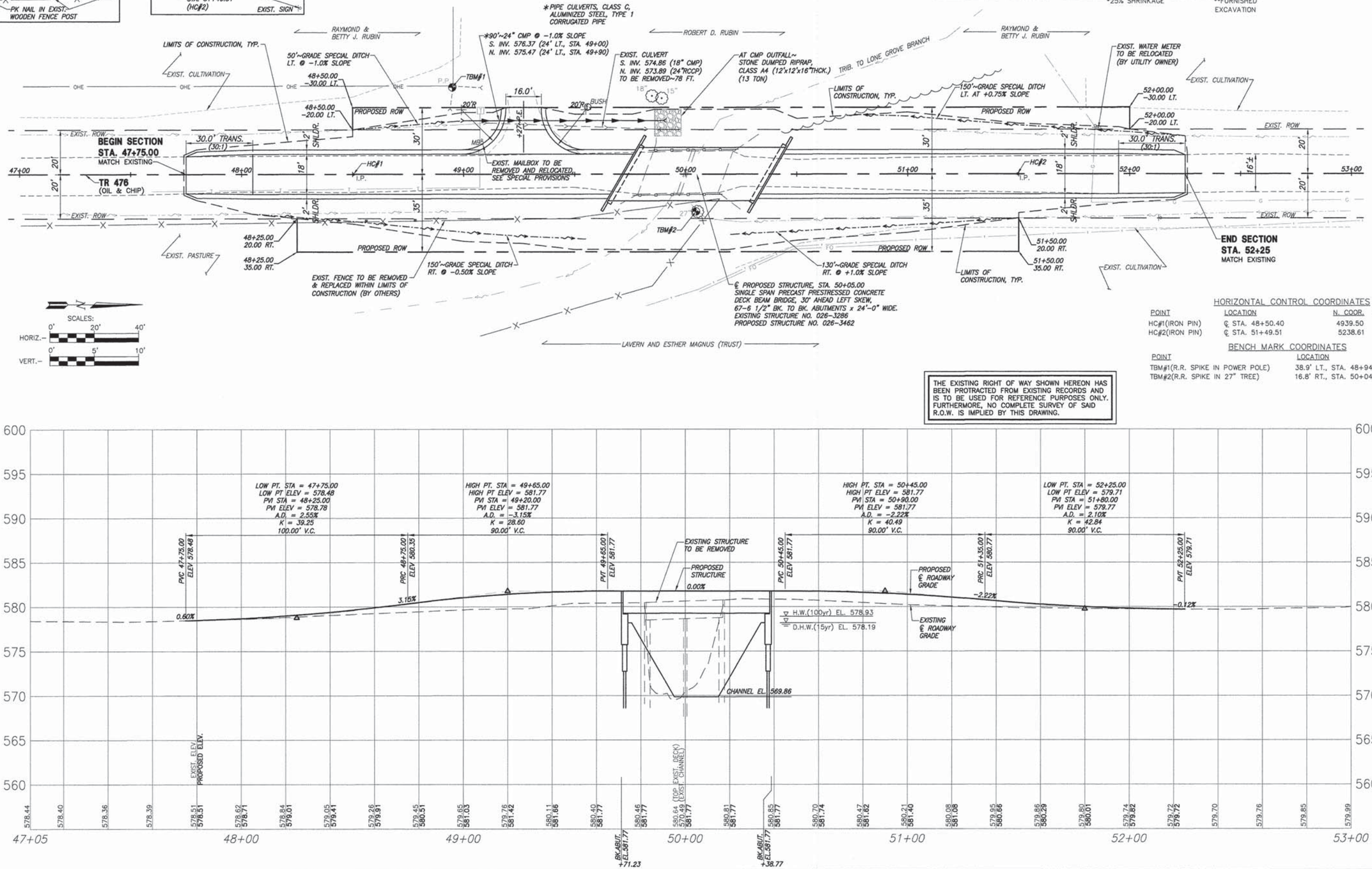
EARTHWORK SCHEDULE

LOCATION	EARTH EXCAVATION CU. YD.	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE* CU. YD.	EMBANKMENT CU. YD.	EARTHWORK BALANCE** WASTE (+) OR SHORTAGE (−) CU. YD.
STA. 47+75 TO S. BRIDGE ABUT.	38	28	229	−201
N. BRIDGE ABUT. TO STA. 52+25	34	25	197	−172
TOTAL	72	53	426	−373

*25% SHRINKAGE

**FURNISHED EXCAVATION

EXISTING STRUCTURE:
0.84' LT., STA. 50+00, S.N. 026-3286,
TWO SPAN BRIDGE WITH TRANSVERSE PRECAST CONCRETE SLABS ON STEEL STRINGERS SUPPORTED ON CLOSED CONCRETE ABUTMENTS AND A TIMBER PILE BENT PIER WITH A CONCRETE CAP, 37.0'L x 21.25'W,
TO BE REMOVED.
SEE SPECIAL PROVISIONS FOR SALVAGE.



SCALES:
HORIZ.– 0' 20' 40'
VERT.– 0' 5' 10'

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.

HORIZONTAL CONTROL COORDINATES

POINT	LOCATION	N. COOR.	E. COOR.
HC#1(IRON PIN)	℄ STA. 48+50.40	4939.50	7493.03
HC#2(IRON PIN)	℄ STA. 51+49.51	5238.61	7493.03

BENCH MARK COORDINATES

POINT	LOCATION	ELEV.
TBM#1(R.R. SPIKE IN POWER POLE)	38.9' LT., STA. 48+94.9	580.35
TBM#2(R.R. SPIKE IN 27" TREE)	16.8' RT., STA. 50+04.7	576.83

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

DESIGNED	BLT	REVISED -
DRAWN	JMW	REVISED -
CHECKED	GLH	REVISED -
DATE	12/29/2014	REVISED -

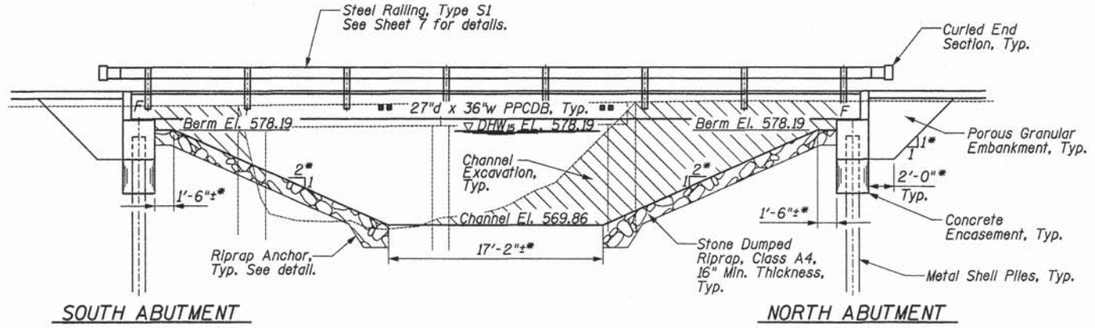
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLAN AND PROFILE OF ROADWAY
STRUCTURE NO. 026-3462
STA. 47+05 TO STA. 53+00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 476	12-07130-00-BR	FAYETTE	10	3
		CONTRACT NO. 95753		
RAAI JOB NO. 52013	ILLINOIS	FED. AID PROJECT		

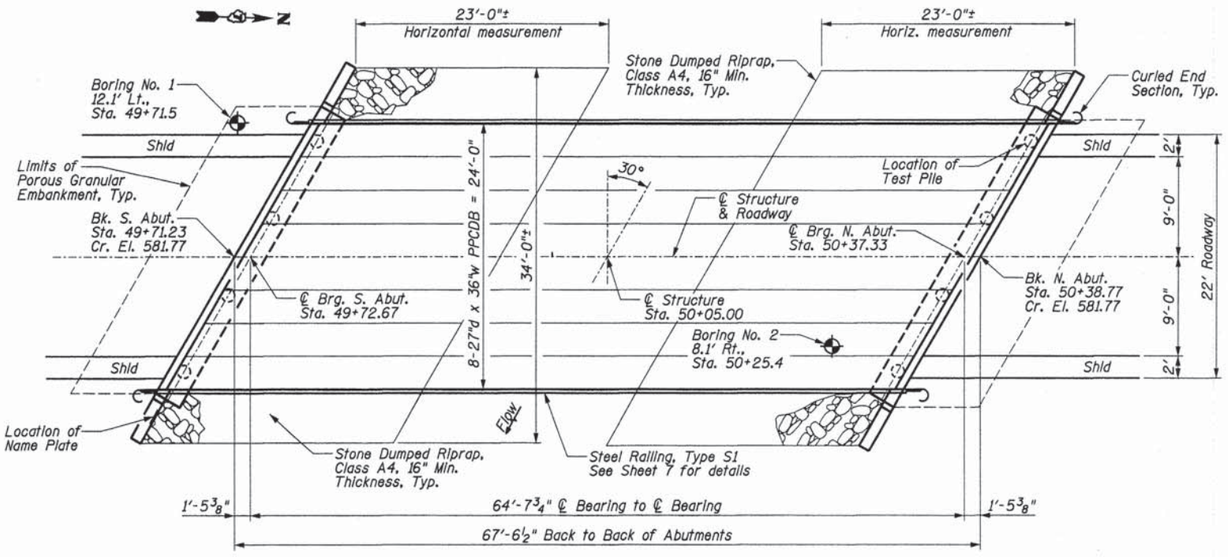
TBM #1: RR Spike in power pole
38.9'± Lt. of Sta. 48+94.9 - Elev. 580.35

TBM #2: RR Spike in 27"ϕ tree
16.8'± Rt. of Sta. 50+04.7 - Elev. 576.83

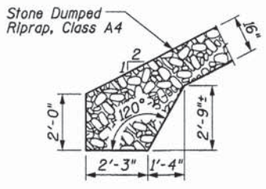


ELEVATION

*Normal to Channel



PLAN

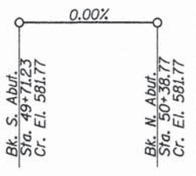


RIPRAP ANCHOR DETAIL

WATERWAY INFORMATION

Drainage Area = 4.32 sq. mi. Existing Low Grade Elev. 578.36 ● Sta. 47+40
Proposed Low Grade Elev. 578.36 ● Sta. 47+40

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	885	207	322	578.19	0.20	0.02	578.39	578.21
Base	100	1400	222	368	578.93	0.74	0.07	579.67	579.00
Base	500	1870	222	389	579.43	1.44	0.22	580.87	579.65



GRADE ON STRUCTURE

(along ℄ TR 476)

Existing Structure: 0.84' Lt., Sta. 50+00, S.N. 026-3286
Two span bridge with transverse precast concrete slabs on steel stringers supported on closed concrete abutments and a timber pile bent pier with concrete cap.
37.0'L x 21.25' W. To be removed.
See Special Provisions for salvage.

LOADING HL-93

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

DESIGN SPECIFICATIONS

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

DESIGN STRESSES

FIELD UNITS

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

PRECAST PRESTRESSED UNITS

f'_c = 6,000 psi
f'_{ci} = 5,000 psi
f_{pu} = 270,000 psi (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) = 2
Soil Site Classification = C
S_{D1} = 0.172 S_{DS} = 0.438

BILL OF MATERIALS (BRIDGE ONLY)

ITEM	UNIT	TOTAL
Channel Excavation	Cu Yd	342
Porous Granular Embankment	Ton	110
Stone Dumped Riprap, Class A4	Ton	150
Removal of Existing Structures	Each	1
Concrete Structures	Cu Yd	27.2
Concrete Encasement	Cu Yd	3.4
PPCDB (27" Depth)	Sq Ft	1584
Reinforcement Bars	Pound	4060
Steel Railing, Type S1	Foot	136
Furnishing Metal Shell Piles 14"x0.025"	Foot	259
Driving Piles	Foot	259
Test Pile Metal Shells	Each	1
Name Plates	Each	1
Terminal Marker - Direct Applied	Each	4

GENERAL NOTES

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

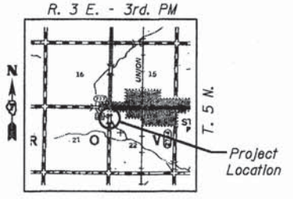
Channel excavation shall be excavated as shown within the limits of the proposed bridge, then tapered to the Right-of-Way line. If the Engineer deems the material satisfactory, it may be used to construct the roadway embankment.

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, ⅛" 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

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
081-004341
LICENSED STRUCTURAL ENGINEER
STATE OF ILLINOIS

William D. Lueking
William D. Lueking

12/29/14
Date of Signing

11/30/2016
Date of License Expiration

STATION 50+05.00
BUILT 201_ BY
FAYETTE COUNTY
TR 476 SEC. 12-07130-00-BR
LOADING HL-93
STRUCTURE NO. 026-3462

NAME PLATE

See Std. 515001

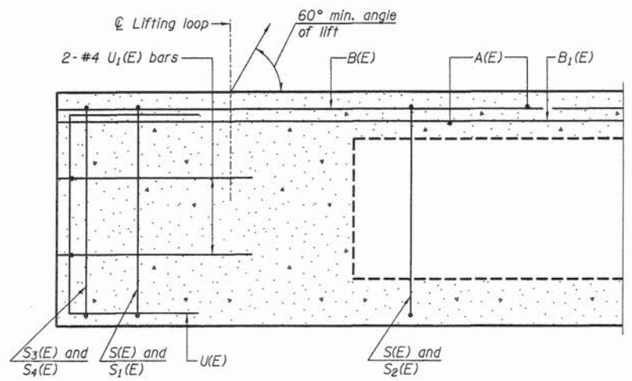
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED	- BLT	REVISED -
DRAWN	- JN	REVISED -
CHECKED	- WDL	REVISED -
DATE	- 12/29/2014	REVISED -

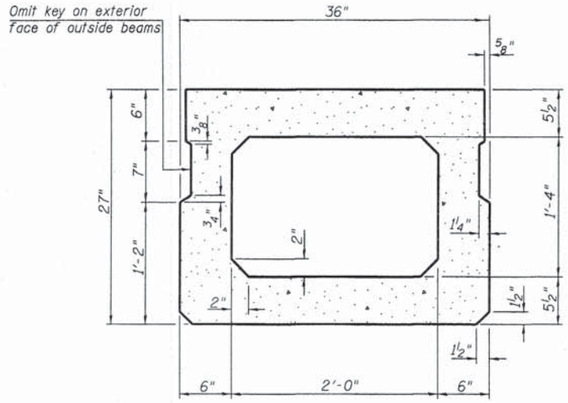
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
STRUCTURE NO. 026-3462

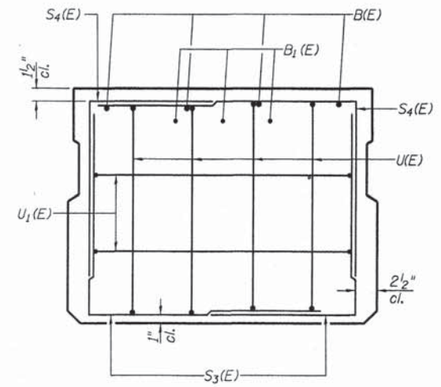
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 476	12-07130-00-BR	FAYETTE	10	4
		CONTRACT NO. 95753		
RAAI JOB NO. 52013	ILLINOIS FED. AID PROJECT			



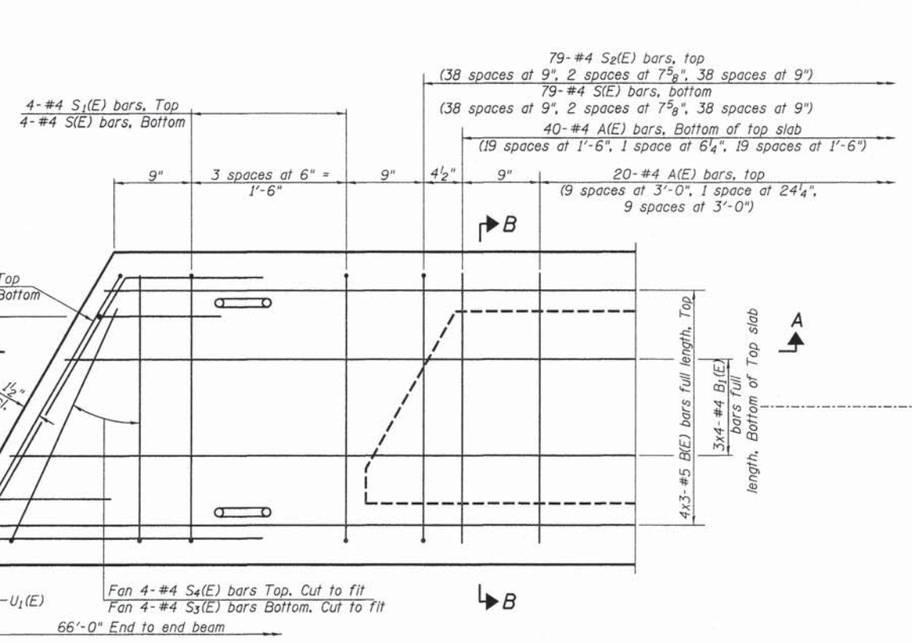
SECTION A-A



SECTION B-B
(Showing dimensions)

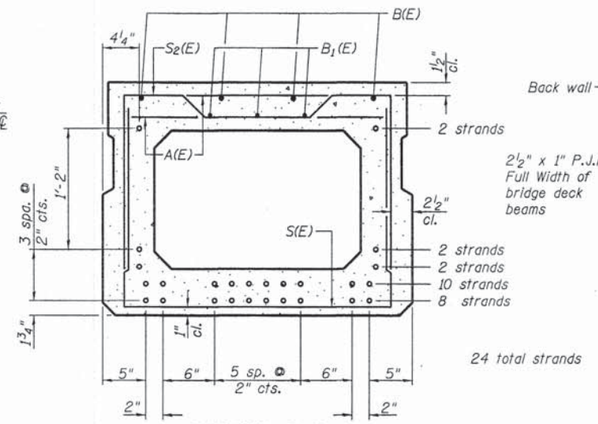


VIEW C-C



PLAN VIEW

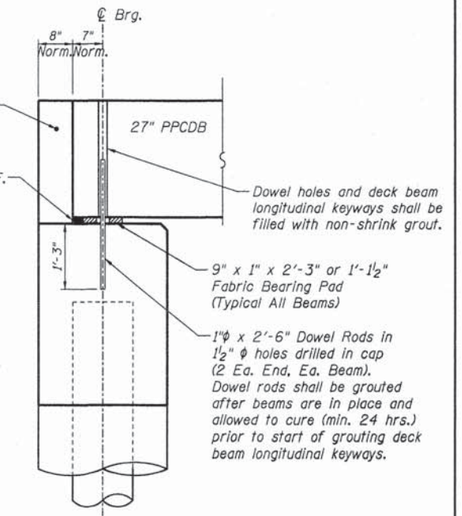
Similar about ℄



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.



FIXED BEARING ABUTMENT
(Normal to ℄)

MINIMUM BAR LAP

#4 bar = 2'-0"
#5 bar = 2'-6"

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.

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	60	#4	2'-7"	—
B(E)	12	#5	23'-7"	—
$B_1(E)$	12	#4	18'-0"	—
S(E)	87	#4	6'-5"	—
$S_1(E)$	8	#4	5'-11"	⊐⊏
$S_2(E)$	79	#4	6'-2"	⊐⊐
$S_3(E)$	12	#4	4'-5"	⊐
$S_4(E)$	12	#4	4'-2"	⊐
U(E)	8	#5	4'-6"	⊏
$U_1(E)$	4	#4	6'-10"	⊿

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

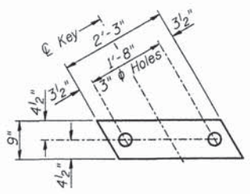
RHUTASEL and ASSOCIATES, INC.
CONSULTING ENGINEERS • LAND SURVEYORS
CENTRALIA, ILLINOIS FREEBURG, ILLINOIS
ILLINOIS DESIGN FIRM LICENSE NO. 184-000287

DESIGNED - BLT	REVISED -	
DRAWN - JN	REVISED -	
CHECKED - WDL	REVISED -	
DATE - 12/29/2014	REVISED -	

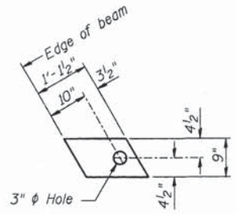
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS
STRUCTURE NO. 026-3462

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 476	12-07130-00-BR	FAYETTE	10	5
		CONTRACT NO. 95753		
RAAI JOB NO. 52013	ILLINOIS FED. AID PROJECT			



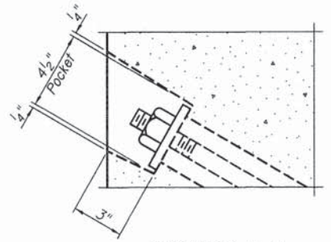
FABRIC BEARING PAD
(Interior)



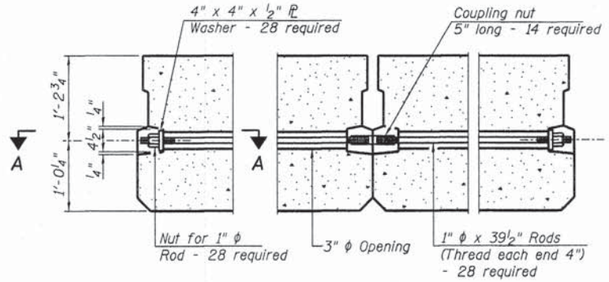
FABRIC BEARING PAD
(Exterior)

FIXED

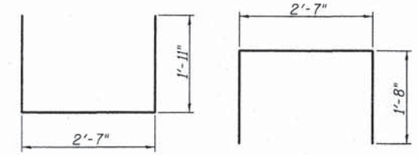
Note: All bearing pads shall be 1" thick.

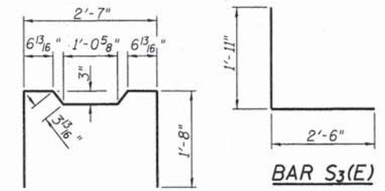


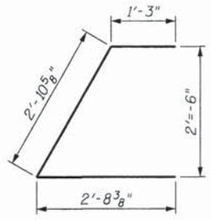
SECTION A-A

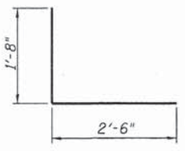


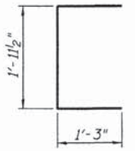
TYPICAL TRANSVERSE TIE ASSEMBLY

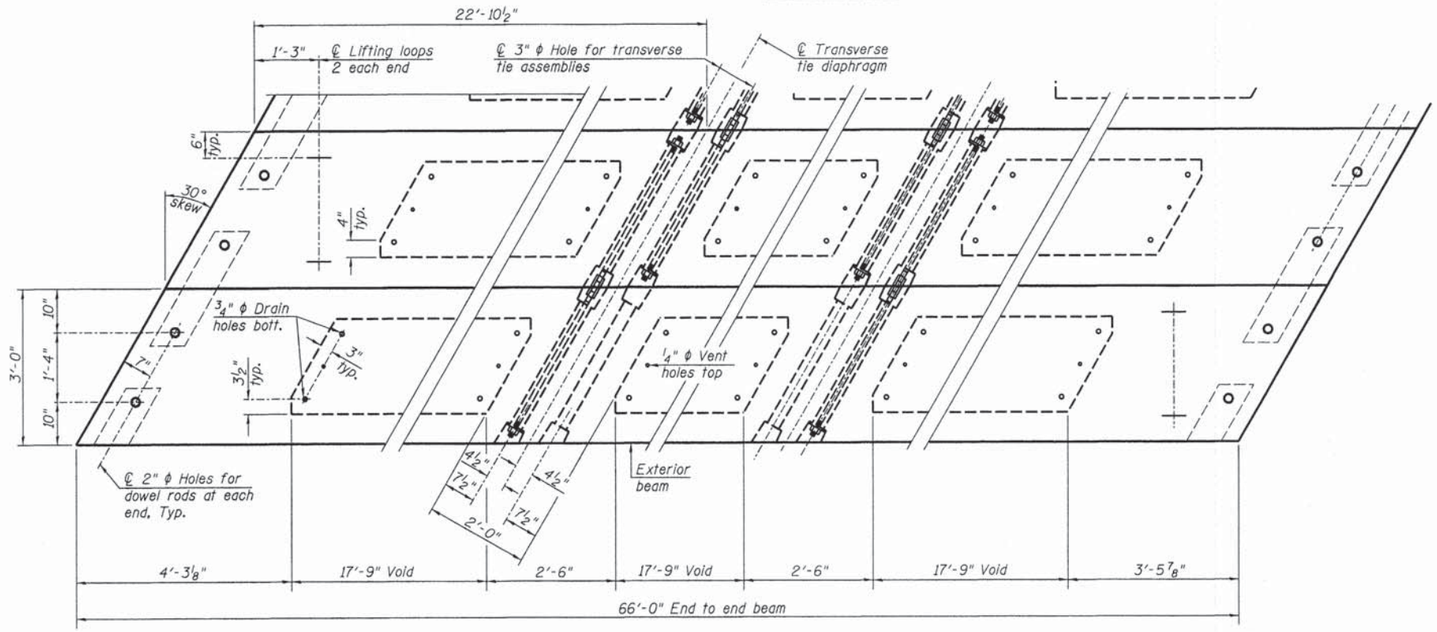






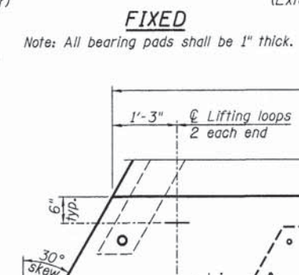




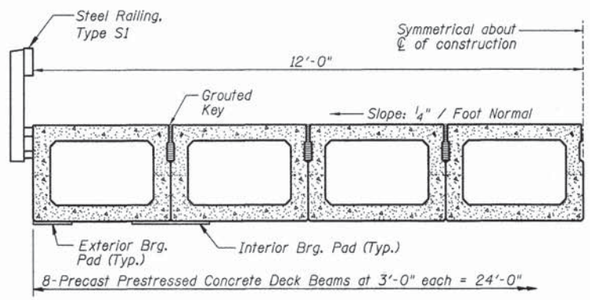


PLAN VIEW

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



LIFTING LOOP DETAIL



HALF CROSS SECTION

See Sheet 7 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, Grade 60, IL Modified.

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

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

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

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

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

BILL OF MATERIAL

Precast Prestressed Concrete Deck Beams, (27" depth)	Sq. Ft.	1584

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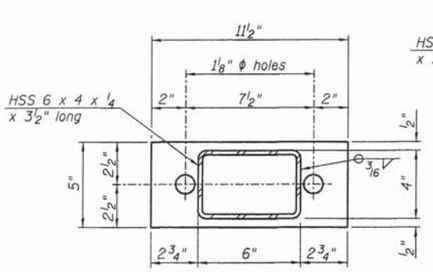
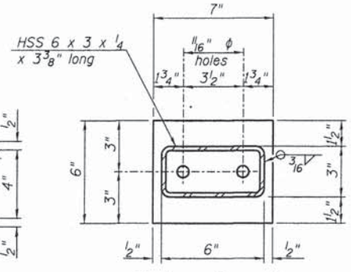
DEPARTMENT OF TRANSPORTATION

PRECAST PRESTRESSED CONCRETE DECK BEAM DETAILS
STRUCTURE NO. 026-3462

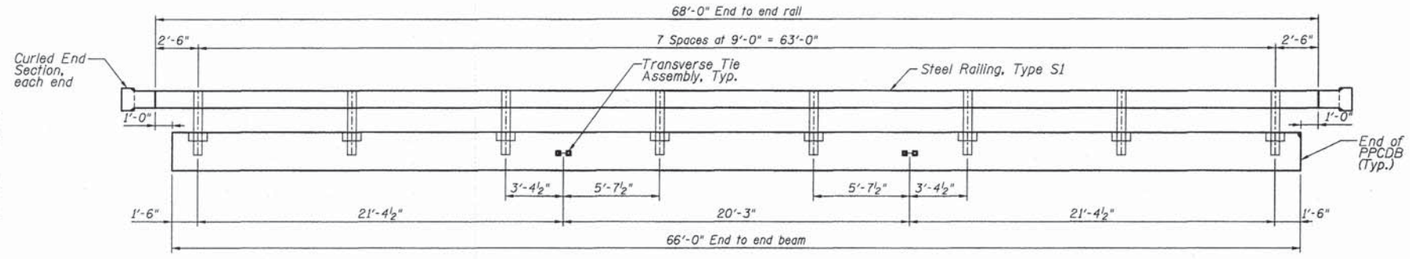
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 476	12-07130-00-BR	FAYETTE	10	6
		CONTRACT NO. 95753		
RAAI JOB NO. 52013	ILLINOIS FED. AID PROJECT			



℄ ½" x 11½" x 5"

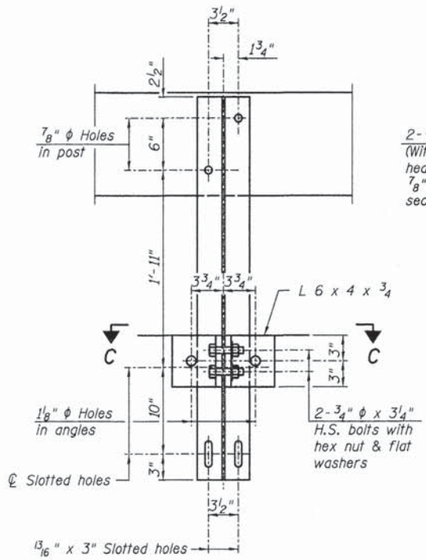


℄ ½" x 7" x 6"

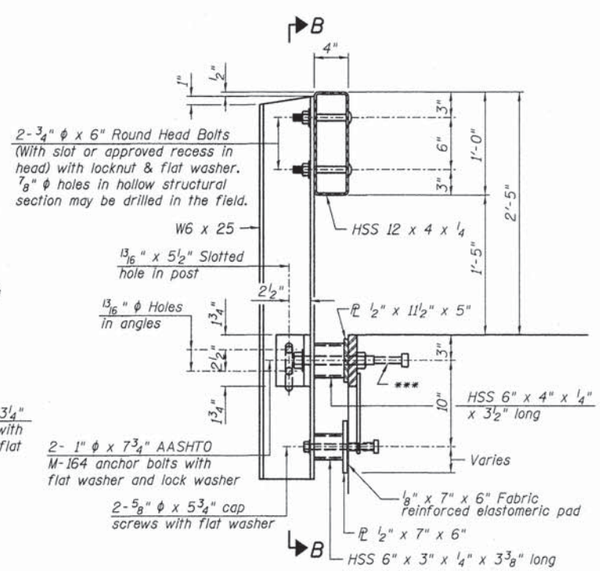


ELEVATION

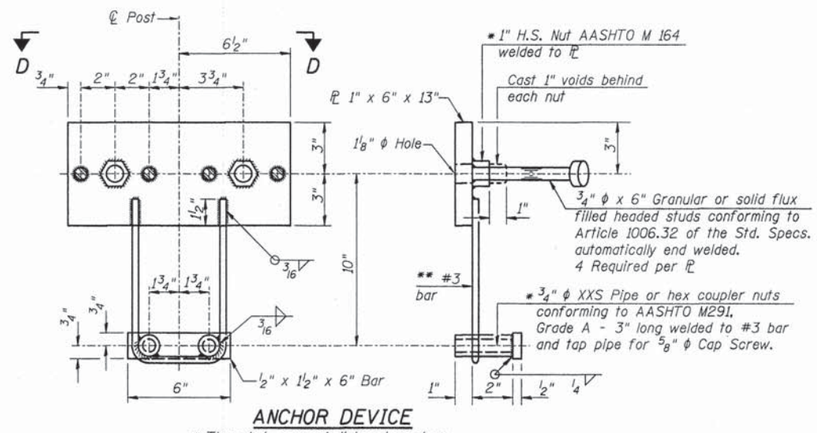
Note: The cost of the Curled End Sections shall be included in the contract unit price per foot for "STEEL RAILING, TYPE S1", and no additional compensation will be allowed.



SECTION B-B

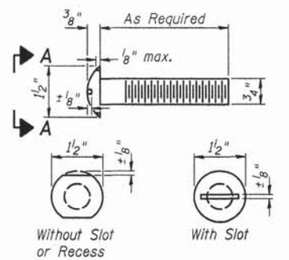


SECTION AT RAILING POST

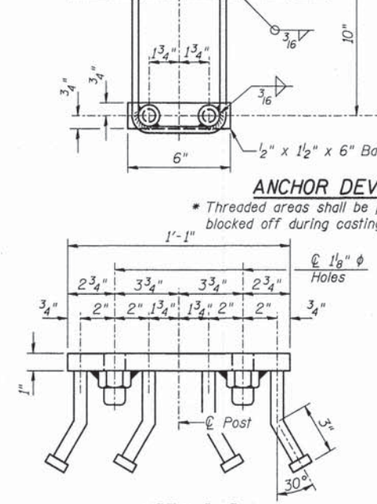


ANCHOR DEVICE

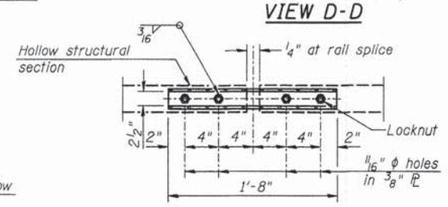
* Threaded areas shall be plugged or blocked off during casting of beam.



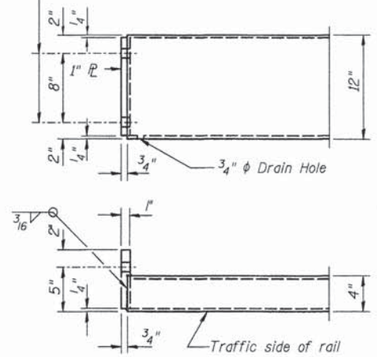
VIEW A-A
ROUND HEAD BOLT



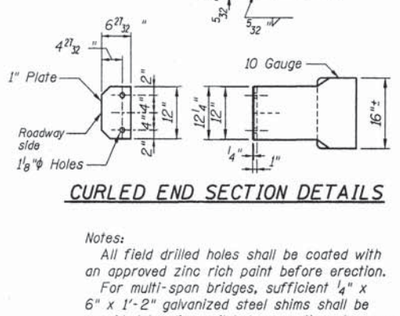
VIEW D-D



PLAN-BOTT. SPLICE ℄
TYPICAL

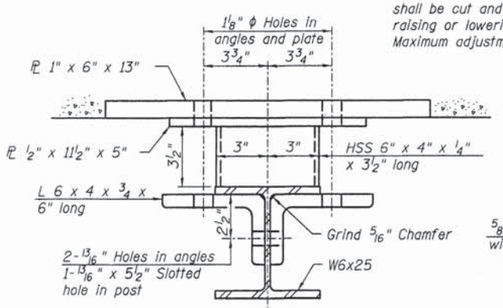


END OF RAIL DETAILS

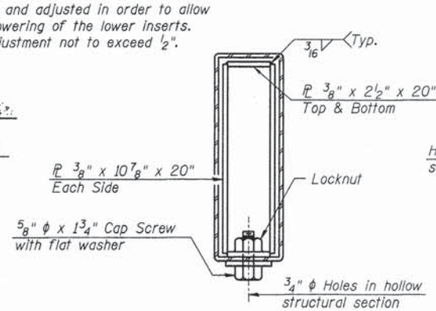


CURLED END SECTION DETAILS

** 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

Notes:

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

For multi-span bridges, sufficient ¼" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S1.

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.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S1	Foot	136

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STEEL RAILING, TYPE S1 DETAILS
STRUCTURE NO. 026-3462

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 476	12-07130-00-BR	FAYETTE	10	7
		CONTRACT NO. 95753		
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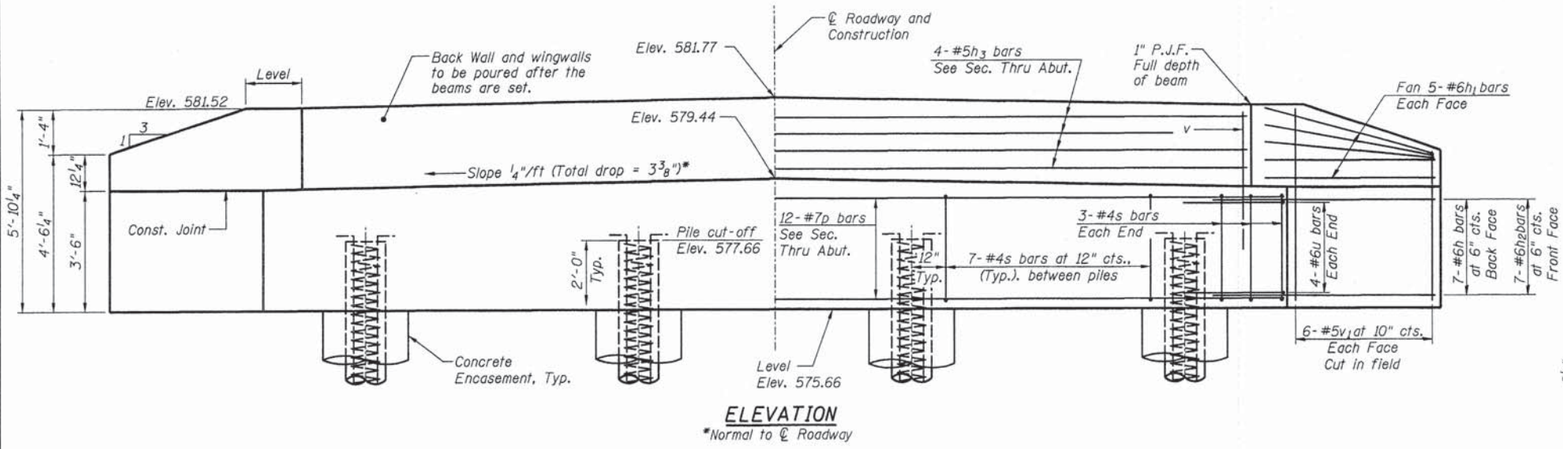
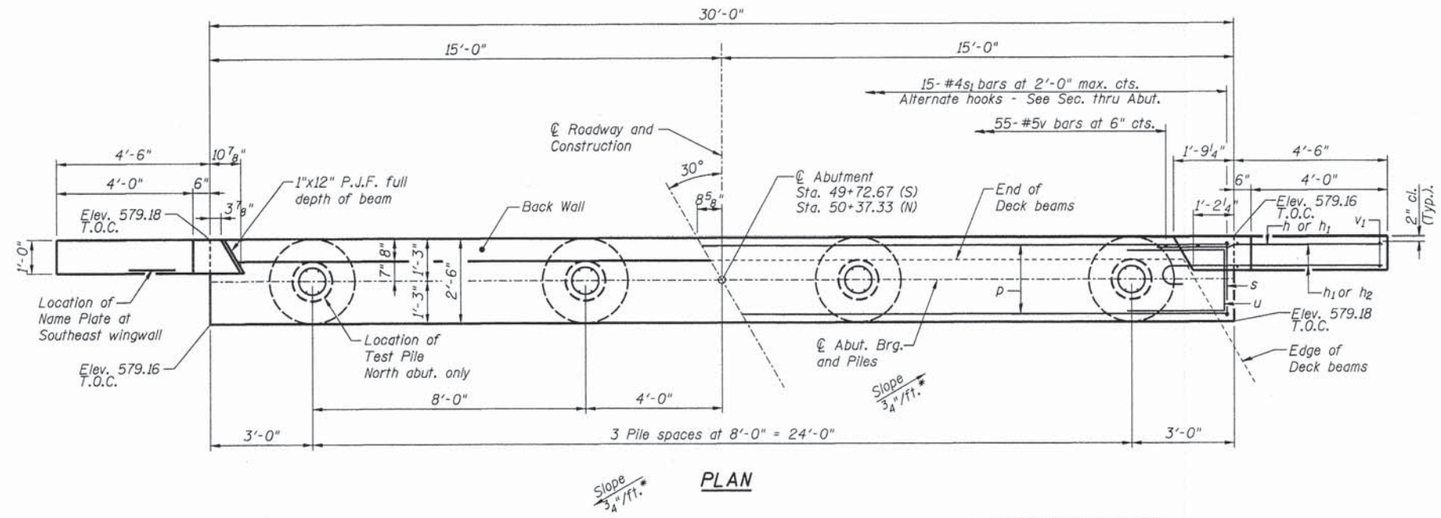
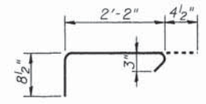


ELEVATION

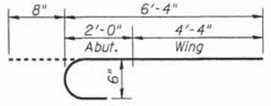
*Normal to ℄ Roadway



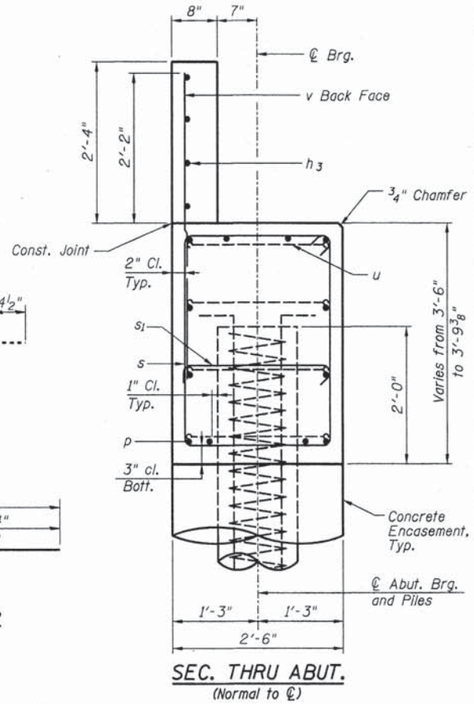
PLAN



BAR s1

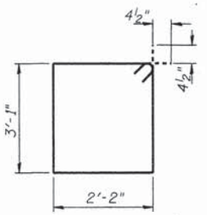


BAR h2

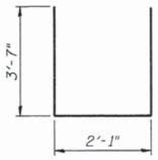


SEC. THRU ABUT.

(Normal to ℄)



BAR s



BAR u

BILL OF MATERIAL FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape
h	14	#6	8'-0"	
h1	20	#6	4'-8"	
h2	14	#6	7'-0"	
h3	4	#5	27'-4"	
p	12	#7	29'-8"	
s	27	#4	11'-3"	
s1	15	#4	3'-3"	
u	8	#6	9'-3"	
v	55	#5	4'-4"	
v1	24	#5	5'-6"	CUT IN FIELD
Concrete Structures			Cu Yd	13.6
Concrete Encasement			Cu Yd	1.7
Reinforcement Bars			Pound	2030
Furnishing Metal Shell Piles 14"x0.250"	Foot		S. Abut.	136
			N. Abut.	123
Driving Piles	Foot		S. Abut.	136
			N. Abut.	123
Test Pile, Metal Shells	Each		S. Abut.	0
			N. Abut.	1

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

GENERAL NOTES

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

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

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

Space reinforcement in cap to miss PPCDB dowel rods.

The Metal Shell Piles shall be according to ASTM A 252, Grade 3.

The Contractor shall drive one (1) Test Pile of the size and type as indicate on the plans in a production 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.

PILE DATA SOUTH ABUTMENT

Type:	Metal Shell Piles 14"x0.250"
Nominal Required Bearing:	317 kips
Factored Resistance Available:	174 kips
Estimated Length:	34'/pile
No. Production Piles:	4
No. Test Piles:	0

PILE DATA NORTH ABUTMENT

Type:	Metal Shell Piles 14"x0.250"
Nominal Required Bearing:	317 kips
Factored Resistance Available:	174 kips
Estimated Length:	41'/pile
No. Production Piles:	3
No. Test Piles:	1

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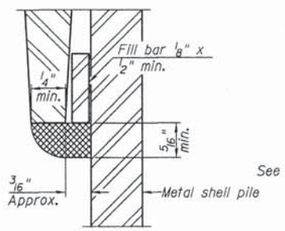
ABUTMENT DETAILS
STRUCTURE NO. 026-3462

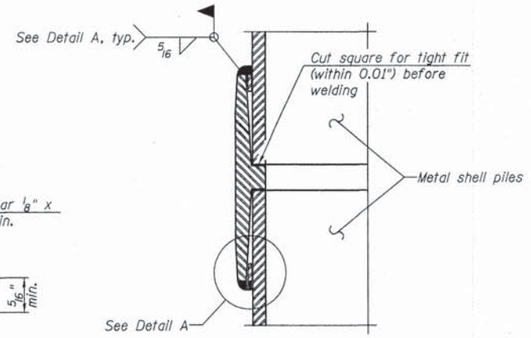
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 476	12-07130-00-BR	FAYETTE	10	8
		CONTRACT NO. 95753		
RAAI JOB NO. 52013	ILLINOIS FED. AID PROJECT			

METAL SHELL PILE TABLE

Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume (yd.³/ft.)
PP12	0.179"	22.60	0.0274
PP12	0.250"	31.37	0.0267
PP14	0.250"	36.71	0.0368
PP14	0.312"	45.61	0.0361

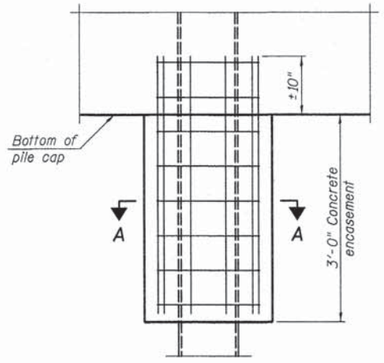


DETAIL A

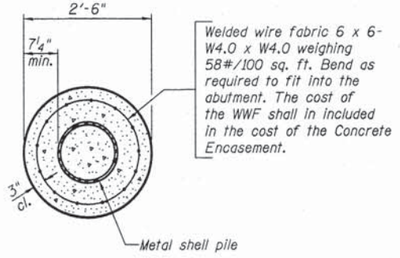


Notes:
The 1/8" x 1/2" min. fill bar may be constructed of 2 bars with a 1/8" max. gap between them.
Pile segments shall be driven to solid contact with splicer before welding.

WELDED COMMERCIAL SPLICE



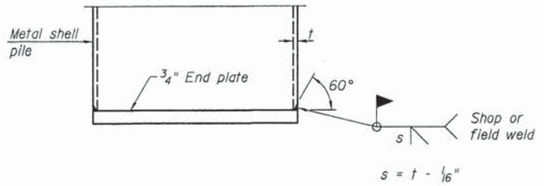
ELEVATION



SECTION A-A

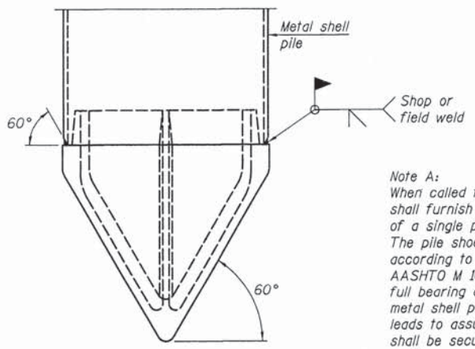
Note:
Forms for encasement may be omitted when soil conditions permit.

CONCRETE ENCASEMENT AT ABUTMENTS



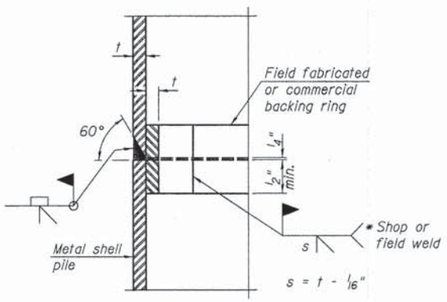
$s = t - 1/16"$

END PLATE ATTACHMENT



Note A:
When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 90-60 or AASHTO M 103 Grade 65-35 and shall provide full bearing over the full circumference of the metal shell pile. The pile shoe shall have tapered leads to assure proper alignment and fitting and shall be secured to the pile with a circumferential weld.

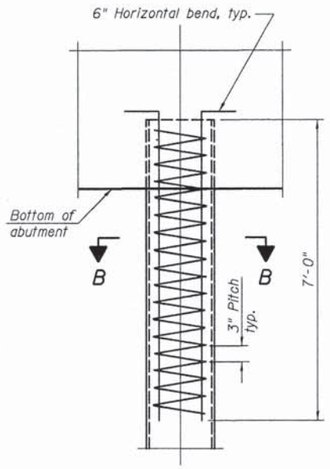
METAL SHELL PILE SHOE ATTACHMENT
(See Note A)



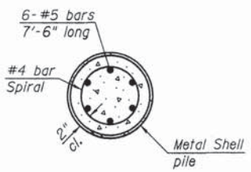
$s = t - 1/16"$

COMPLETE PENETRATION WELD SPLICE

* Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.



ELEVATION



SECTION B-B

The cost of reinforcement and filling metal shells with concrete shall be included in the cost of Furnishing Metal Shell Piles.

METAL SHELL REINFORCEMENT AT ABUTMENTS

Note:
The metal shell piles shall be according to ASTM A 252 Grade 3.

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DATE - 12/29/2014	REVISED -	

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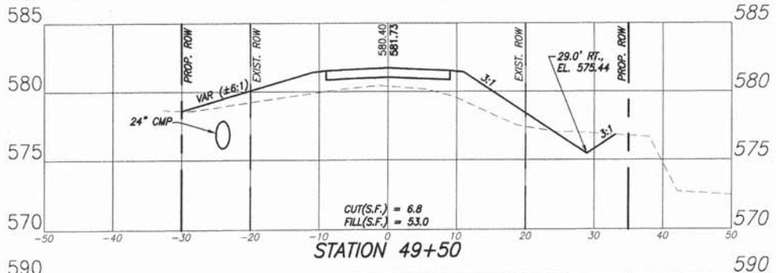
METAL SHELL PILE DETAILS
STRUCTURE NO. 026-3462

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 476	12-07130-00-BR	FAYETTE	10	9
		CONTRACT NO. 95753		
RAAI JOB NO. 52013	ILLINOIS FED. AID PROJECT			



STATION 49+50

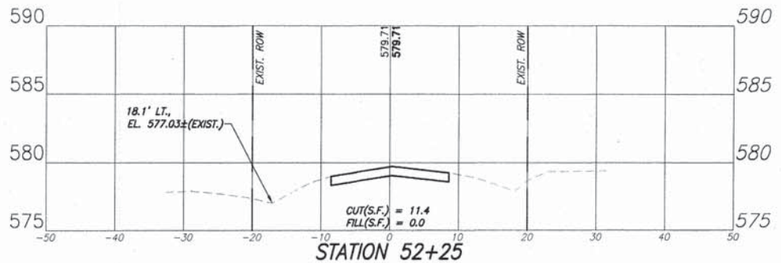
STATION 49+27

STATION 49+00

STATION 48+50

STATION 48+05

STATION 47+75



STATION 52+25

STATION 51+95

STATION 51+50

STATION 51+00

STATION 50+50

BRIDGE

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

DESIGNED - BLT	REVISED -	
DRAWN - JMW	REVISED -	
CHECKED - GLH	REVISED -	
DATE - 12/29/2014	REVISED -	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS OF ROADWAY
STRUCTURE NO. 026-3462
STA. 47+75 TO STA. 52+25

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 476	12-07130-00-BR	FAYETTE	10	10
		CONTRACT NO. 95753		
RAAI JOB NO. 52013	ILLINOIS	FED. AID PROJECT		