

**INDEX OF SHEETS**

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3-4	ROADWAY CROSS SECTIONS
5-13	BRIDGE DESIGN

**HIGHWAY STANDARDS**

000001-06	STANDARD SYMBOLS, ABBREVIATIONS & PATTERNS (8 SHEETS)
515001-03	NAME PLATE FOR BRIDGES (2 SHEETS)
701901-03	TRAFFIC CONTROL DEVICES (3 SHEETS)
B.L.R. 21-9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
B.L.R. 22-7	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS (TWO-LANE TWO-WAY RURAL TRAFFIC) (ROAD CLOSED TO THRU TRAFFIC)

**SUMMARY OF QUANTITIES**

QUANTITY	UNIT	ITEM	CODE NO.
260.00	CU YD	EARTH EXCAVATION	20200100
132.00	CU YD	CHANNEL EXCAVATION	20300100
432.00	CU YD	FURNISHED EXCAVATION	20400800
490.00	TON	STONE DUMPED RIPRAP, CLASS A4	28100807
340.00	TON	AGGREGATE SURFACE COURSE, TYPE B	40200800
1.00	EACH	REMOVAL OF EXISTING STRUCTURES	50100100
21.00	CU YD	CONCRETE STRUCTURES	50300225
2.80	CU YD	CONCRETE ENCASEMENT	50300280
960.00	SQ FT	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	50400305
2340.00	POUND	REINFORCEMENT BARS	50800105
80.00	FOOT	STEEL RAILING, TYPE S1	50900205 *
330.00	FOOT	FURNISHING STEEL PILES HP10X42	51201400
330.00	FOOT	DRIVING PILES	51202305
1.00	EACH	TEST PILE STEEL HP10X42	51203400
1.00	EACH	NAME PLATES	51500100
70.00	FOOT	PIPE CULVERTS, CLASS D, TYPE 2 15"	54201060
26.00	FOOT	PIPE CULVERTS, SPECIAL 72"	54205107
1.00	L SUM	MOBILIZATION	67100100
0.40	ACRE	SEEDING, CLASS 2 (SPECIAL)	X2501000
1.00	EACH	FIELD TILE ADJUSTMENT	XX004633

\* SPECIALTY ITEMS



Know what's below.  
Call before you dig.

DESIGN DESIGNATION:  
DESIGN SPEED: 30 MPH  
HIGHWAY CLASS - LOCAL ROAD  
EXISTING STRUCTURE NO.: 024-3051  
PROPOSED STRUCTURE NO.: 024-3141  
CURRENT A.D.T. = 25  
CONTRACT NO. 95666

**STATE OF ILLINOIS**

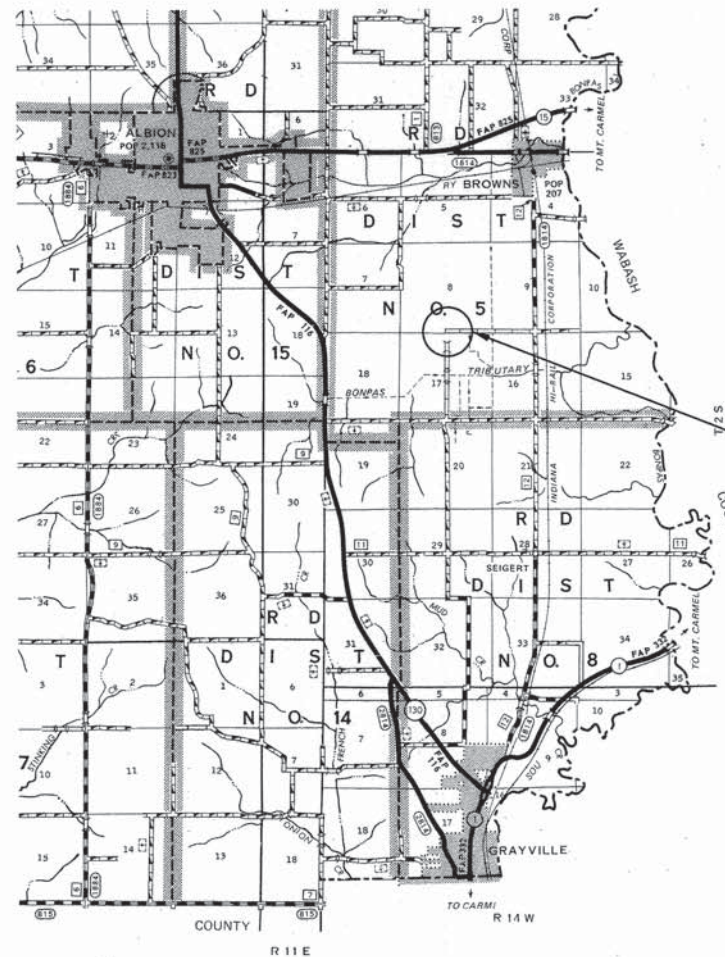
**DEPARTMENT OF TRANSPORTATION**

**PLANS FOR PROPOSED  
FEDERAL AID - S.T.P. BRIDGE**

**T.R. 122 EDWARDS COUNTY SECTION 10-05110-00-BR**

**PROJECT NO. BROS-047(036) JOB NO. C-97-004-12**

**CONTRACT #95666 DRAINAGE DITCH**



LAYOUT  
APPROXIMATE SCALE 1 INCH = 1 MILE



GROSS LENGTH	450.00 FT	0.085 MILES
OMISSIONS	0.00 FT	0.000 MILES
NET LENGTH	450.00 FT	0.085 MILES

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
122	10-05110-00-BR	EDWARDS	13	1

FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT  
PROJECT # BROS-047(036) CONTRACT # 95666  
LEC JOB # H010107 DRAINAGE DITCH

323 W. 3RD ST.  
P.O. BOX 160  
MT. CARMEL, IL  
62863  
PHONE:  
(618)-262-8651  
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(618)-263-3327

405 W. STATE ST.  
SUITE 1  
PRINCETON, IN  
47670

PHONE:  
(812)-386-7611  
FAX:  
(812)-385-2812



PROFESSIONAL  
DESIGN FIRM  
LAND SURVEY &  
PROFESSIONAL  
ENGINEERING  
CORPORATION  
184-00887  
(62-032435)(35-002769)



AARON M. MEFFORD  
NAME  
SIGNATURE  
DATE  
11-30-15  
EXPIRES

PLAN	1" = 50'	
PROFILE	1" = 50'	
PROFILE VERT.	1" = 5'	

SECTION 10-05110-00-BR  
BEGINS STATION 2+75

STATION 5+00, STRUCTURE NO. 024-3141  
A 40' LONG SINGLE SPAN PRECAST  
PRESTRESSED CONCRETE DECK BEAM BRIDGE  
(17" DEPTH, 24' ROADWAY, 0° SKEW.

SECTION 10-05110-00-BR  
ENDS STATION 7+25

APPROVED FEBRUARY 18 20 14  
  
COUNTY ENGINEER

PASSED 2-24 20 14  
  
DISTRICT SEVEN ENGINEER OF  
LOCAL ROADS & STREETS

Releasing For  
Bid Based on  
Limited Review 2-24 20 14  
  
DEPUTY/DIRECTOR OF HIGHWAYS,  
REGION FOUR ENGINEER

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

DRAINAGE DITCH  
TOWNSHIP ROUTE 122  
EDWARDS COUNTY, ILLINOIS

SHEET TITLE:  
TITLE SHEET

SCALE: VARS  
BY: AMM  
DATE: 2/14  
REV:

1 OF 13  
SHEETS  
SHEET NO.  
1



**GENERAL NOTES:**

THIS SECTION SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLANS, SPECIAL PROVISIONS AND "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", ADOPTED JANUARY 1, 2012.

THE WORK INVOLVED ON THIS SECTION CONSISTS OF THE REMOVAL OF THE EXISTING STRUCTURE, THE CONSTRUCTION OF A 40 FOOT LONG SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE, EARTH APPROACHES, AGGREGATE SURFACE COURSE AND OTHER MISCELLANEOUS ITEMS NECESSARY TO COMPLETE THIS SECTION.

ALL ELEVATIONS ARE BASED ON U.S.G.S. MEAN SEA LEVEL DATUM.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT ALL THE UTILITIES, AFFECTING THE PROJECT, PRIOR TO CONSTRUCTION.

NOTE: CONSTRUCTION TRANSITIONS  
 STA. 2+75 TO STA. 3+25  
 STA. 6+75 TO STA. 7+25  
 ALL QUANTITIES ARE INCLUDED IN THE PROPOSAL



CURVE #1  
 P.I. STA: 6+41.59  
 ΔP LT: 172.313'  
 D: 176.24'  
 R: 4500'  
 T: 54.47'  
 L: 108.93'  
 E: 0.33'  
 @: NONE  
 T.R.: NONE  
 S.E. RUN: NONE  
 P.C. STA: 5+87.12  
 P.T. STA: 6+96.05

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
122	10-05110-00-BR	EDWARDS	13	2
FED. ROAD DIST. NO. 7 ILLINOIS		DRAINAGE DITCH		
PROJECT # BR05-0470361		CONTRACT # 95666		
LEC JOB # HD10107				

323 W 3RD ST.  
 P.O. BOX 160  
 MT. CARMEL, IL  
 62863  
 PHONE:  
 (618)-262-8651  
 FAX:  
 (618)-263-3327

405 W STATE ST.  
 SUITE 1  
 PRINCETON, IN  
 47670  
 PHONE:  
 (812)-386-7611  
 FAX:  
 (812)-385-2812



PROFESSIONAL DESIGN FIRM  
 LAND SURVEY &  
 PROFESSIONAL  
 ENGINEERING  
 CORPORATION  
 184-00087  
 (62-032435)(35-002769)



AARON M. MEFFORD  
 NAME  
 SIGNATURE  
 DATE  
 2-18-14  
 11-30-15  
 EXPIRES

DRAINAGE DITCH  
 TOWNSHIP ROUTE 122  
 EDWARDS COUNTY, ILLINOIS

SHEET TITLE:

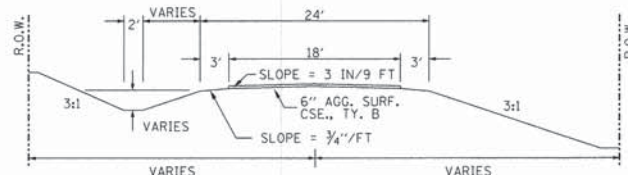
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SCALE: VARS  
 BY: AMM  
 DATE: 2/14  
 REV:

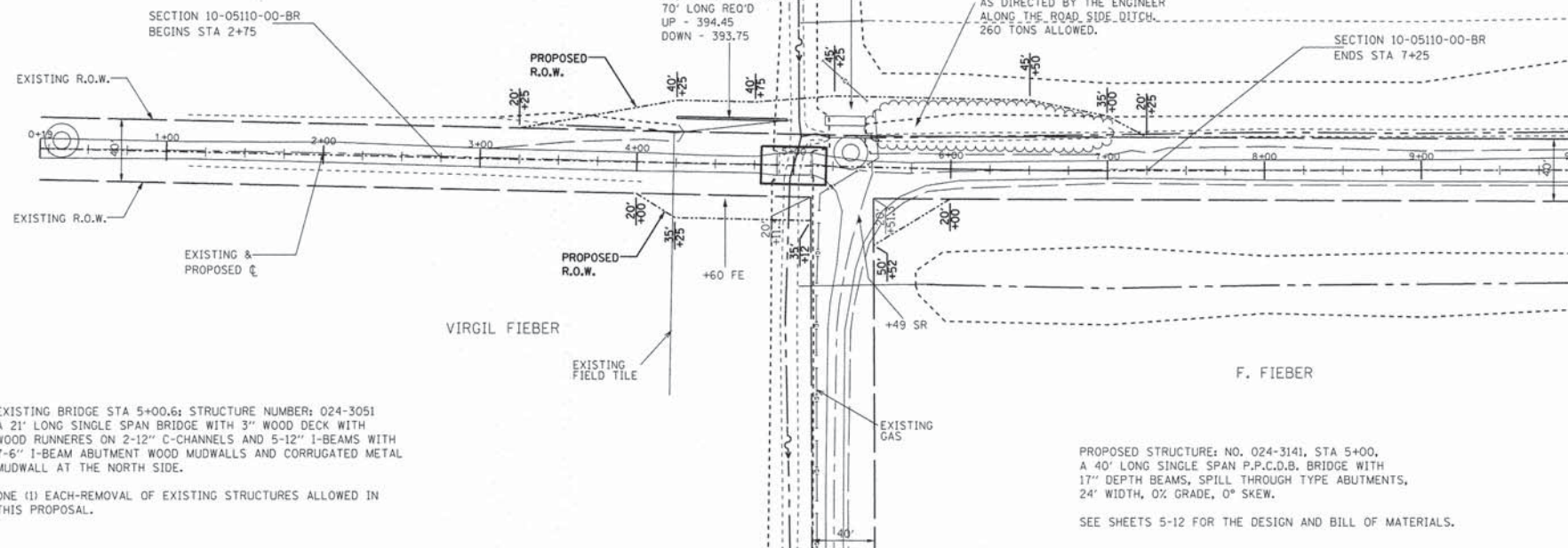
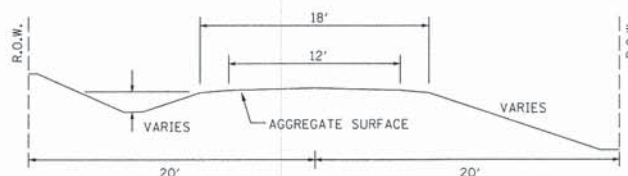
2 OF 13  
 SHEETS

SHEET NO.  
 2

**TYPICAL CROSS SECTION PROPOSED**



**TYPICAL CROSS SECTION EXISTING**



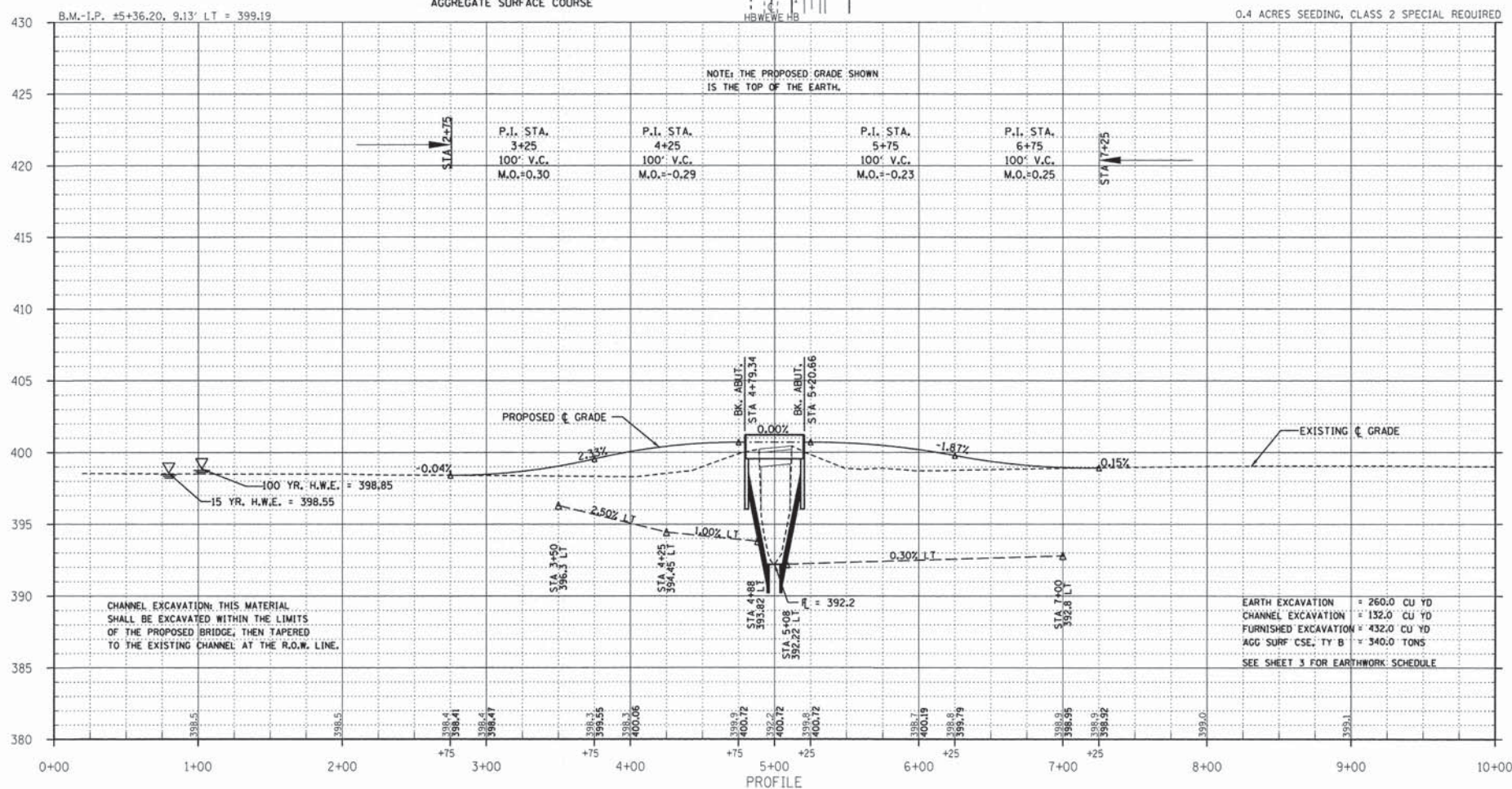
EXISTING BRIDGE STA 5+00.6; STRUCTURE NUMBER: 024-3051  
 A 21' LONG SINGLE SPAN BRIDGE WITH 3" WOOD DECK WITH WOOD RUNNERS ON 2-12" C-CHANNELS AND 5-12" I-BEAMS WITH 7-6" I-BEAM ABUTMENT WOOD MUDWALLS AND CORRUGATED METAL MUDWALL AT THE NORTH SIDE.

ONE (1) EACH-REMOVAL OF EXISTING STRUCTURES ALLOWED IN THIS PROPOSAL.

PROPOSED STRUCTURE: NO. 024-3141, STA 5+00, A 40' LONG SINGLE SPAN P.P.C.D.B. BRIDGE WITH 17" DEPTH BEAMS, SPILL THROUGH TYPE ABUTMENTS, 24' WIDTH, 0% GRADE, 0° SKEW.

SEE SHEETS 5-12 FOR THE DESIGN AND BILL OF MATERIALS.

NOTE: FILL NEXT TO BRIDGE TO BE AGGREGATE SURFACE COURSE



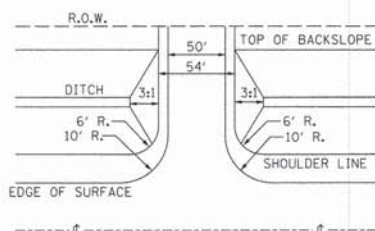
NOTE: CONSTRUCT SPECIAL DITCH

STA 3+50 TO STA 4+88 LT  
 STA 5+08 TO STA 7+00 LT

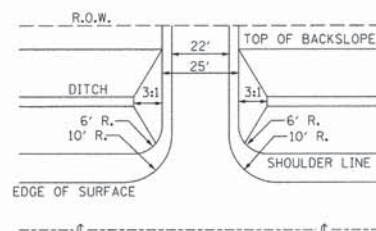
UTILITIES:  
 J.U.L.I.E. 1-800-892-0123  
 CONSUMER GAS 1-618-445-3012

NOTE: FIELD TILE ADJUSTMENT  
 STA 4+23 LT  
 1 EACH FIELD TILE ADJUSTMENT

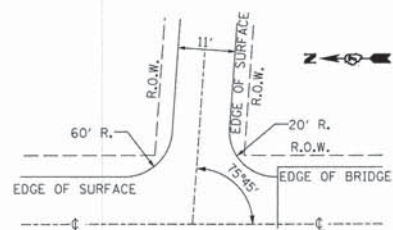
**FIELD ENTRANCE DETAIL**  
 STA. 4+60 LT & RT



**FIELD ENTRANCE DETAIL**  
 STA. 5+33 LT



**SIDEROAD DETAIL**



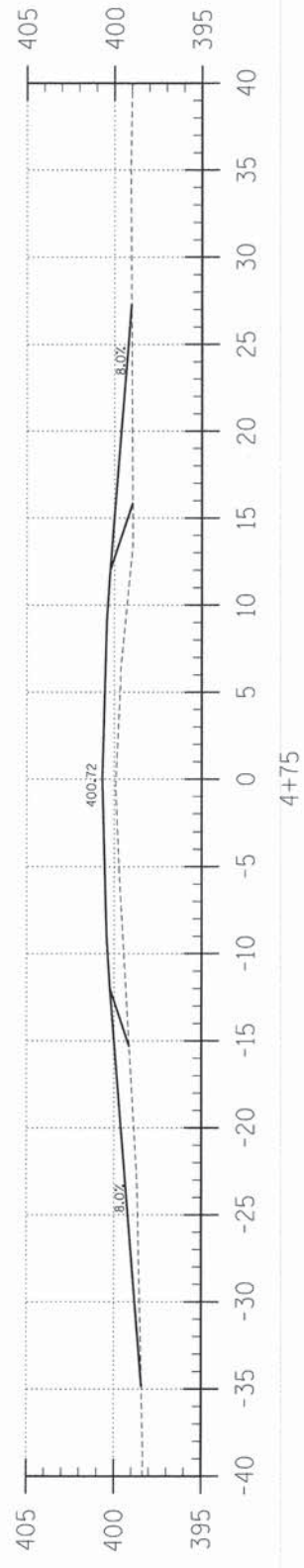


T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
122	10-05110-00-BR	EDWARDS	13	3
FED. ROAD DIST. NO. 7 ILLINOIS		DRAINAGE DITCH		
PROJECT * BR05-041036		CONTRACT * 95666		
LEC JOB * HDL0107D				

323 W. 3RD ST.  
P.O. BOX 160  
MT. CARMEL, IL  
62863  
PHONE:  
(618)-262-8651  
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(618)-263-3327

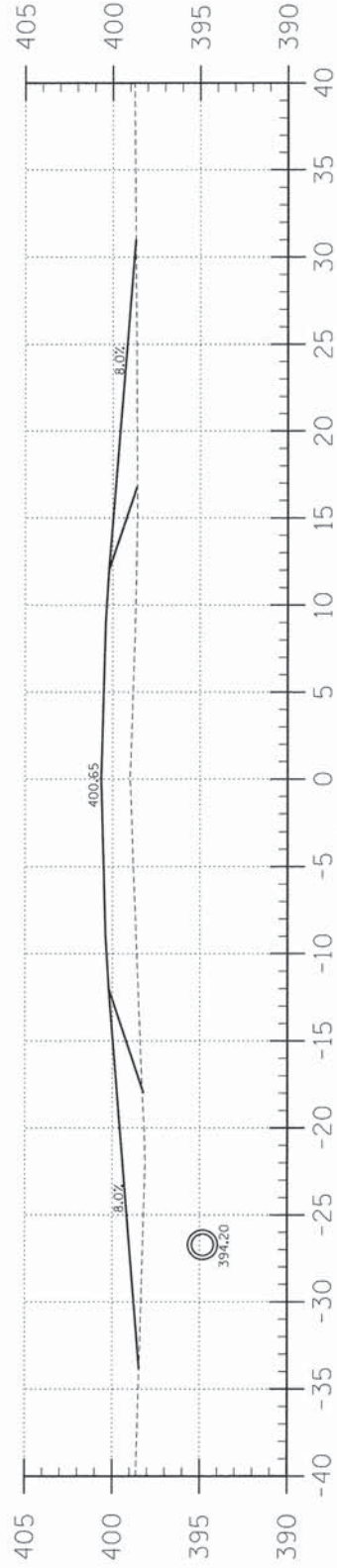
405 W. STATE ST.  
SUITE  
PRINCETON, IN  
47670  
PHONE:  
(812)-386-7611  
FAX:  
(812)-385-2812

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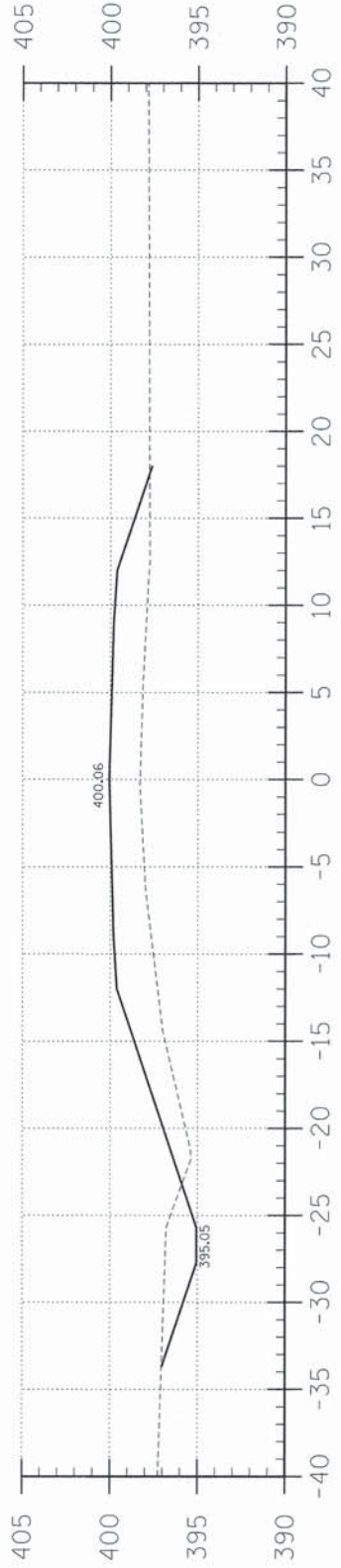
4+75

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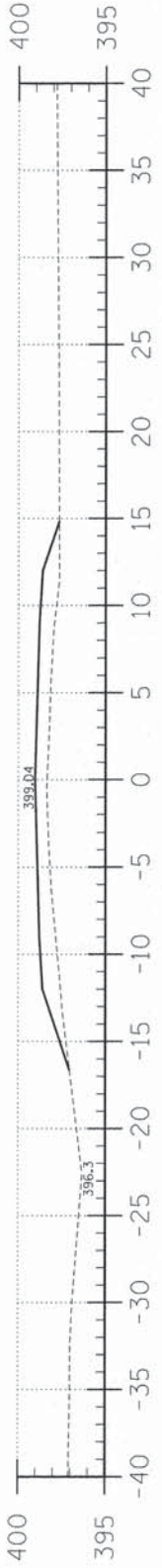
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4+00

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F = 22.9



3+50

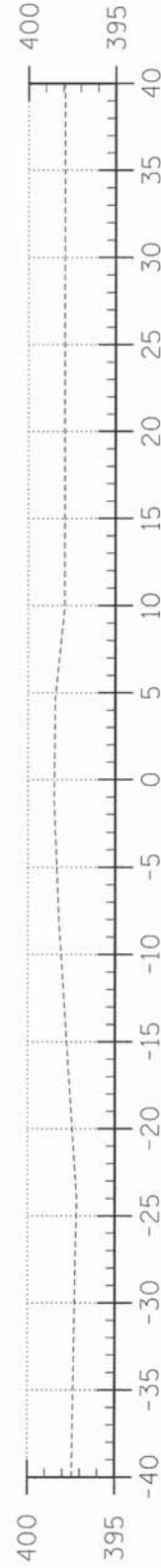
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F = 5.2



3+00



2+75



2+00

EARTHWORK SCHEDULE

LOCATION	EARTH EXCAVATION	CHANNEL EXCAVATION	ESTIMATED UNSUITABLE MATERIAL	SUITABLE MATERIAL ADJUSTED FOR SHRINKAGE	EMBANKMENT	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)
	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD
STA 0+00 TO 4+79.3	20.7	0.0	0.0	15.5	253.2	-237.7
STA 4+79.3 TO 5+20.6	0.0	132.0	66.0	49.5	0.0	49.5
STA 5+20.6 TO 10+00	238.9	0.0	0.0	179.2	329.5	-150.3
1 SIDE ROAD	0.0	0.0	0.0	0.0	27.8	-27.8
3 FIELD ENTRANCE	0.0	0.0	0.0	0.0	66.0	-66.0
TOTAL	259.6	132.0	66.0	244.2	676.5	-432.3



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LAND SURVEY & PROFESSIONAL ENGINEERING CORPORATION  
184-000887  
(62-032435)(35-002769)



AARON M. MEFFORD  
NAME  
*Aaron Mefford*  
SIGNATURE  
2-18-14  
DATE  
11-30-15  
EXPIRES

DRAINAGE DITCH  
TOWNSHIP ROUTE 122  
EDWARDS COUNTY, ILLINOIS

SHEET TITLE:

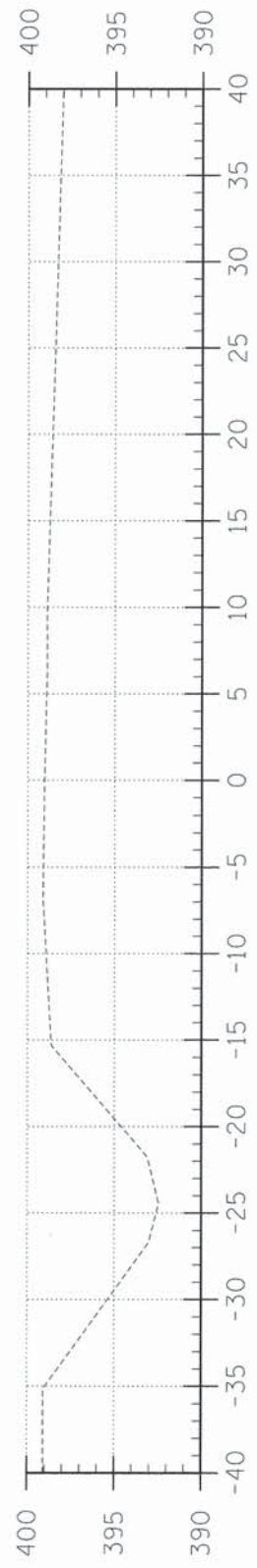
CROSS-SECTIONS

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BY: AMM  
DATE: 2/9/14  
REV:

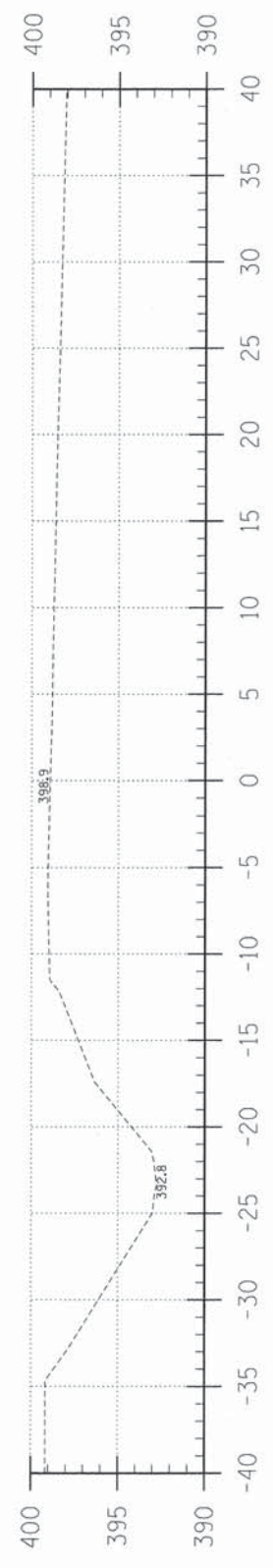
3 OF 13 SHEETS

SHEET NO. 3



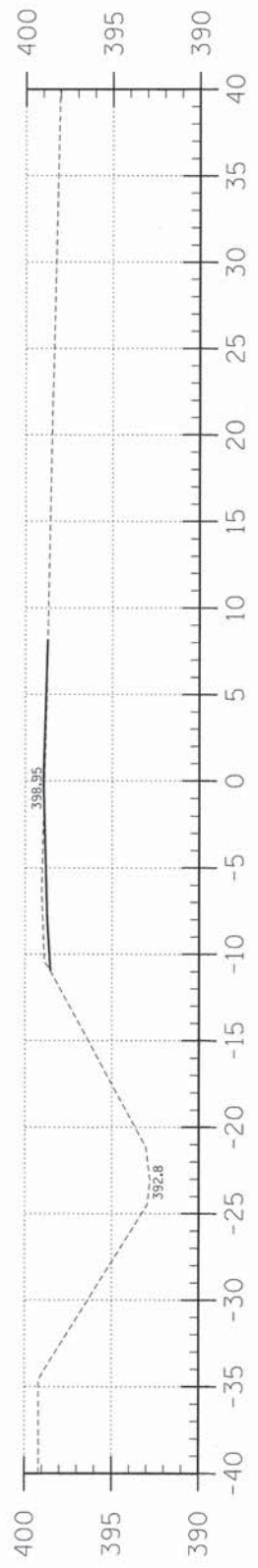


8+00



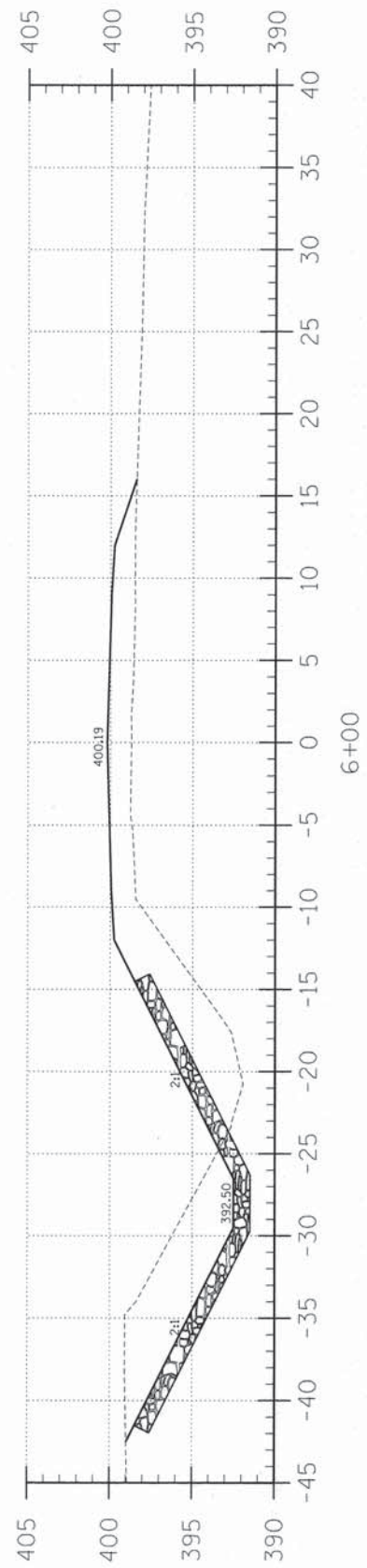
7+25

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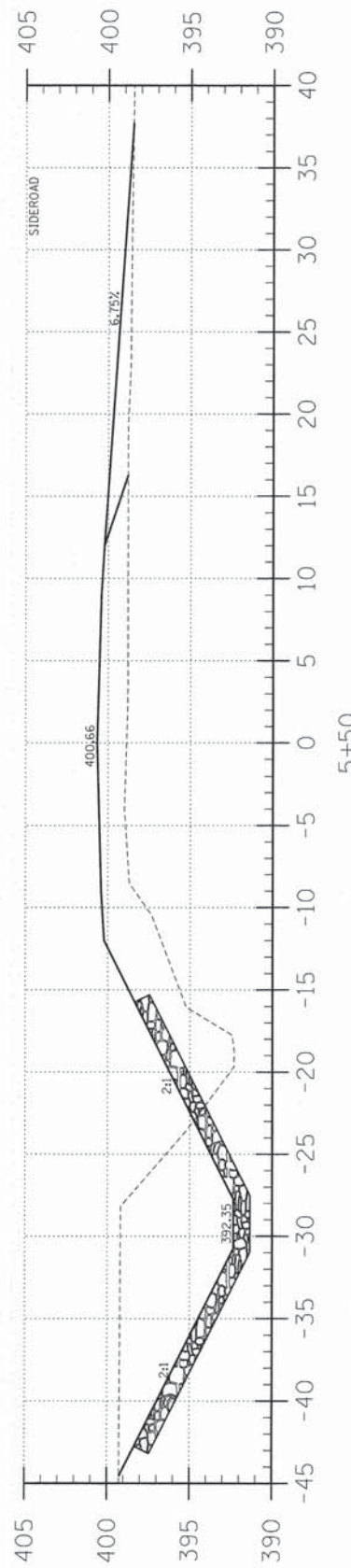
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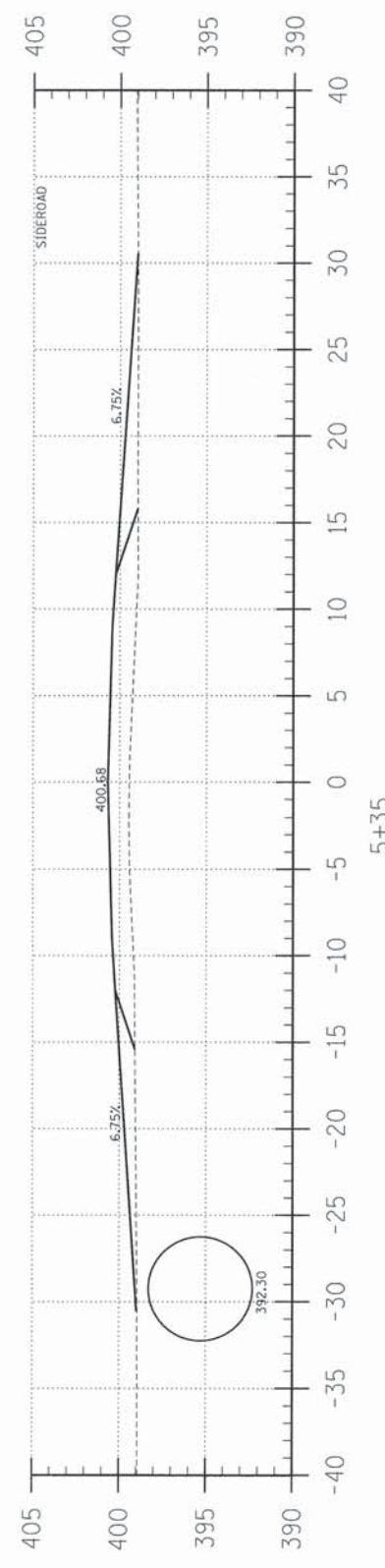
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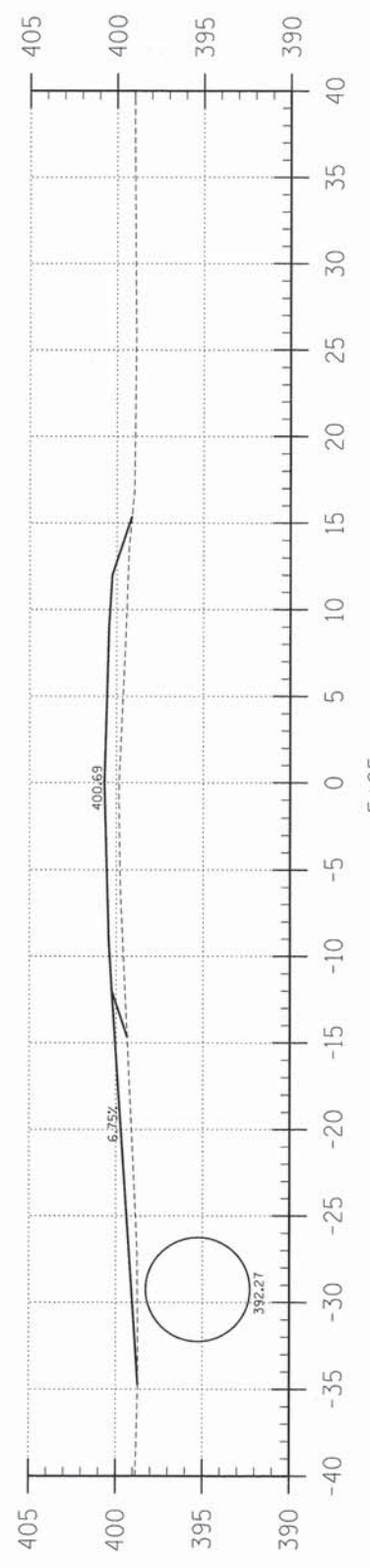
5+50

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F = 33.6



5+35

C = 0.0  
F = 23.0



5+25

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
122	10-05110-00-BR	EDWARDS	13	4
PROJECT • BR05-0410361		CONTRACT • 95666		
LEC JOB • HILOIOTED				

323 W. 3RD ST.  
P.O. BOX 160  
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FAX: (812)-385-2612



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LAND SURVEY & PROFESSIONAL ENGINEERING CORPORATION  
184-000887  
(62-032435)(35-002789)



AARON M. MEFFORD  
NAME  
SIGNATURE  
DATE  
11-30-15  
EXPIRES

DRAINAGE DITCH  
TOWNSHIP ROUTE 122  
EDWARDS COUNTY, ILLINOIS

SHEET TITLE:

CROSS-SECTIONS

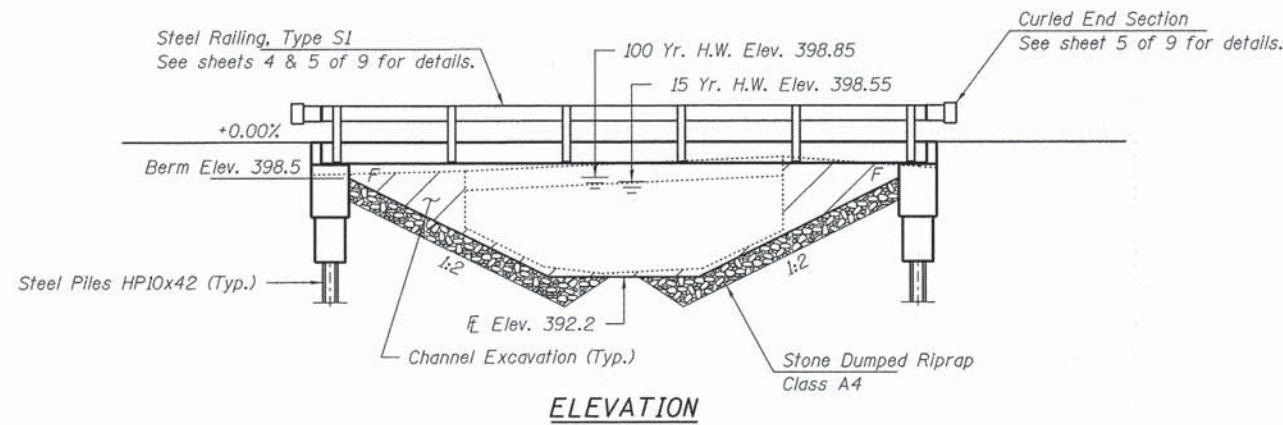
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BY: AMM  
DATE: 2/14  
REV:

4 OF 13  
SHEETS

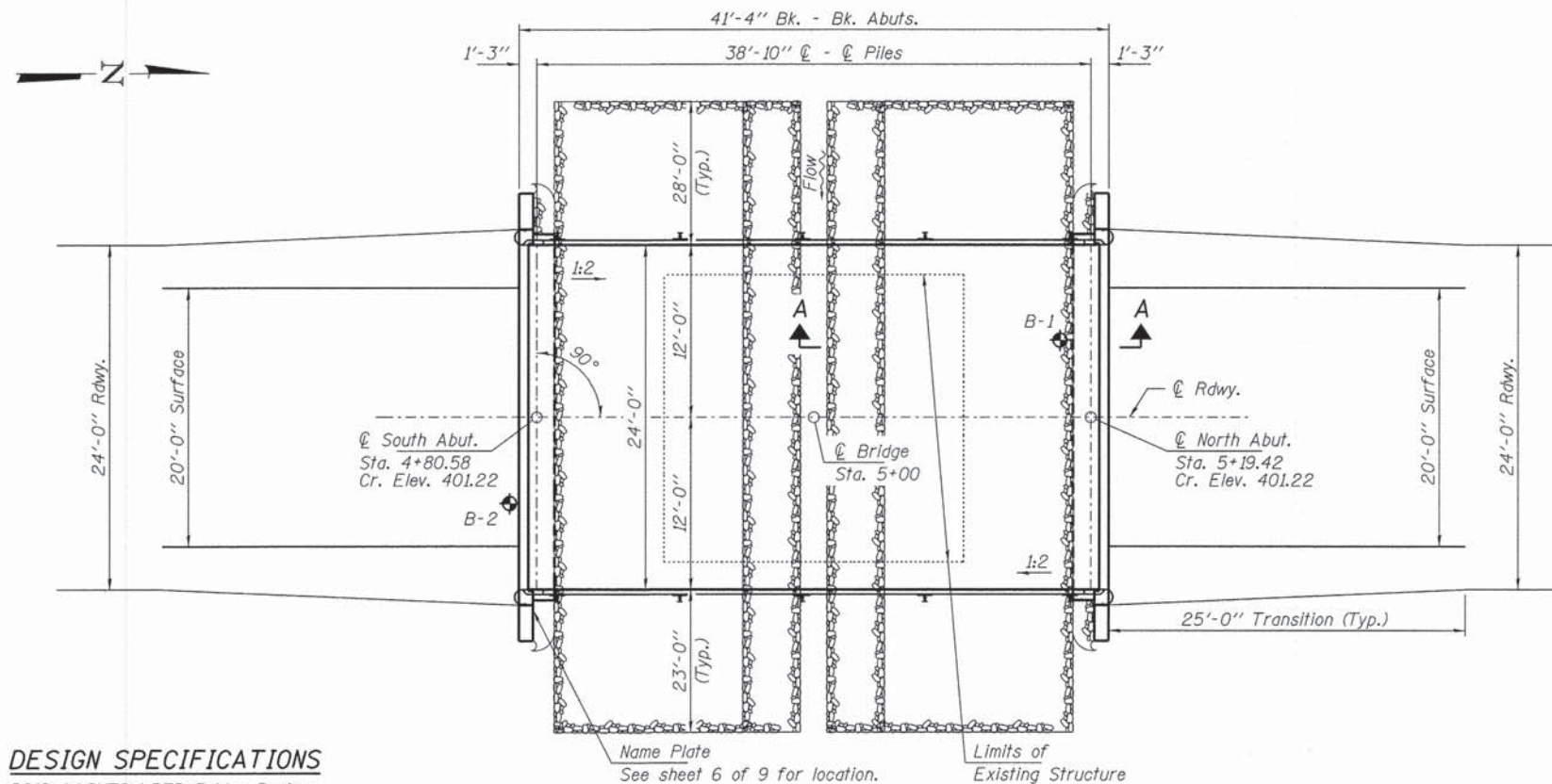
SHEET NO.  
4



EXISTING STRUCTURE NO. 024-3051: Sta. 5+00.6; 21' long single span bridge with wood deck with wood runners on C-channels and I-beams on I-beam abutment wood mudwalls and corrugated metal mudwall at the north side.  
Structure closed to traffic during construction.



**ELEVATION**



**PLAN**

**DESIGN SPECIFICATIONS**

2012 AASHTO LRFD Bridge Design Specifications, 6th Edition with all applicable Interims.

**LOADING HL-93**

Allow 50#/sq. ft. for future wearing surface.

**DESIGN STRESSES**

**FIELD UNITS**

$f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (Reinf.)

**PRECAST PRESTRESSED UNITS**

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

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 2  
Design Spectral Acceleration at 1.0 sec. ( $S_{D1}$ ) = 0.270g  
Design Spectral Acceleration at 0.2 sec. ( $S_{D5}$ ) = 0.644g  
Soil Site Class = D

**WATERWAY INFORMATION**

Drainage Area = 1.5 Sq. Mi.		Existing Low Grade Elev. 398.3 @ Sta. 4+00		Proposed Low Grade Elev. 398.4 @ Sta. 2+75		
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.	Natural H.W.E.	Head - Ft.	Headwater El.
Design	15	691	101	150	398.55	0.25
Base	100	1210	107	161	398.85	0.61
Max. Calc.	500					0.73
						399.46
						399.58

I certify that to the best of my 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 LRFD Specifications."

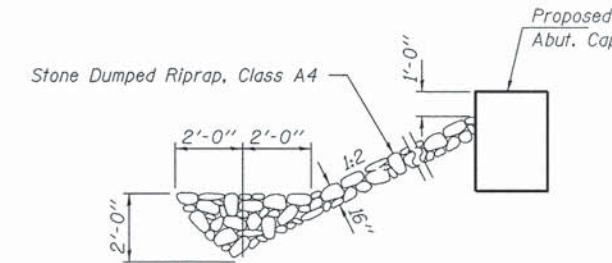
*Steven W. McGinnis* 06/06/2013  
ILLINOIS STRUCTURAL ENGINEER NO. 081-6064



Expires 11-30-2014

**GENERAL NOTES**

Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.  
The Contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at North Abutment or approved by the Engineer before ordering the remainder of piles. Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60 (IL Modified). See Special Provisions.  
Excavation required to construct the Abutments shall be included in the cost of Concrete Structures. No additional compensation will be allowed for Structure Excavation.  
All proposed construction activities shall be in accordance with Nationwide Permit number 14 of the Department of the Army authorized under Section 404 of the Clean Water Act. The IEPA has issued Section 401 Water Quality Certification for this activity. See Special Provisions for conditions.

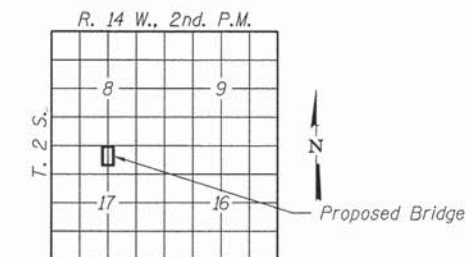


**SECTION A-A**

Note: See Special Provisions for Stone Dumped Riprap, Class A4.

**INDEX OF STRUCTURE SHEETS**

1. General Plan & Elevation
2. 17" x 48" PPC Deck Beam
3. 17" x 48" PPC Deck Beam Details
4. Superstructure Details
5. Steel Railing, Type S-1
6. Abutments
7. HP Pile Details
- 8-9. Boring



**LOCATION SKETCH**

BUILT 2011 BY  
EDWARDS COUNTY  
SEC. 10-05110-00-BR  
ROAD DISTRICT NO. 5  
STR. NO. 024-3141  
LOADING HL-93

**NAME PLATE**  
See Std. 515001

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			132
Stone Dumped Riprap, Class A4	Ton			230
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		21.0	21.0
Concrete Encasement	Cu. Yd.		2.8	2.8
Precast Prestressed Concrete Deck Beams (17" Depth)	Sq. Ft.	960		960
Reinforcement Bars	Pound		2,340	2,340
Steel Railing, Type S1	Foot	80		80
Furnishing Steel Piles HP10x42	Foot		330	330
Driving Piles	Foot		330	330
Test Pile Steel HP10x42	Each		1	1
Name Plates	Each		1	1

FILE NAME = 100378-shr-bridge.dgn  
USER NAME =  
DESIGNED - A.S.L.  
CHECKED - S.W.M.  
DRAWN - D.T.M.  
CHECKED - S.W.M.

DESIGNED - A.S.L.  
CHECKED - S.W.M.  
DRAWN - D.T.M.  
CHECKED - S.W.M.

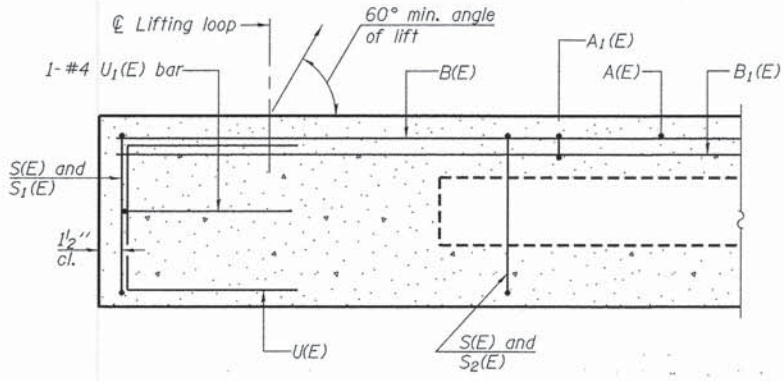
STATE OF ILLINOIS  
EDWARDS COUNTY HIGHWAY DEPARTMENT

GENERAL PLAN & ELEVATION  
STRUCTURE NO. 024-3141

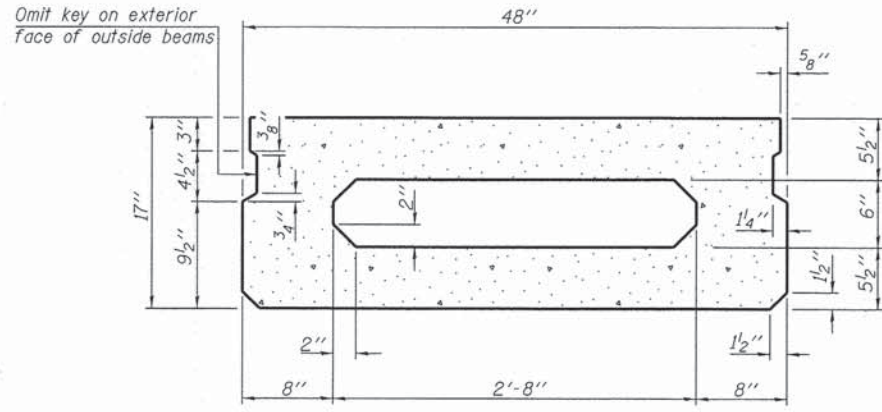
SHEET NO. 1 OF 9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	NO.
122	10-05110-00-BR	EDWARDS	13	5
ROAD DISTRICT NO. 5			CONTRACT NO. 95666	
ILLINOIS FED. AID PROJECT				

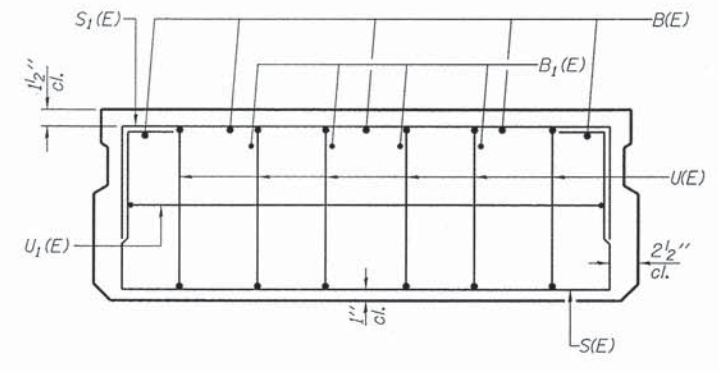




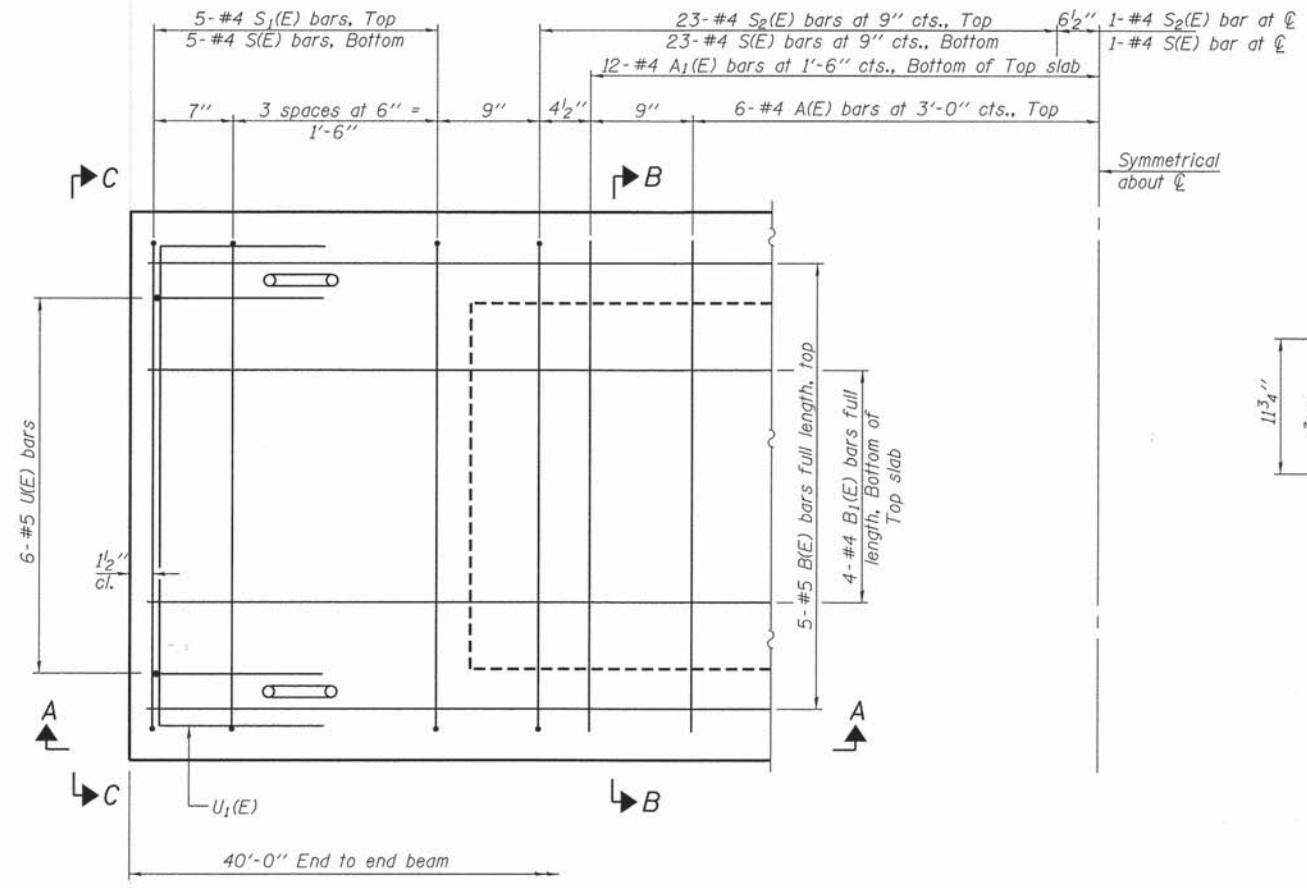
SECTION A-A



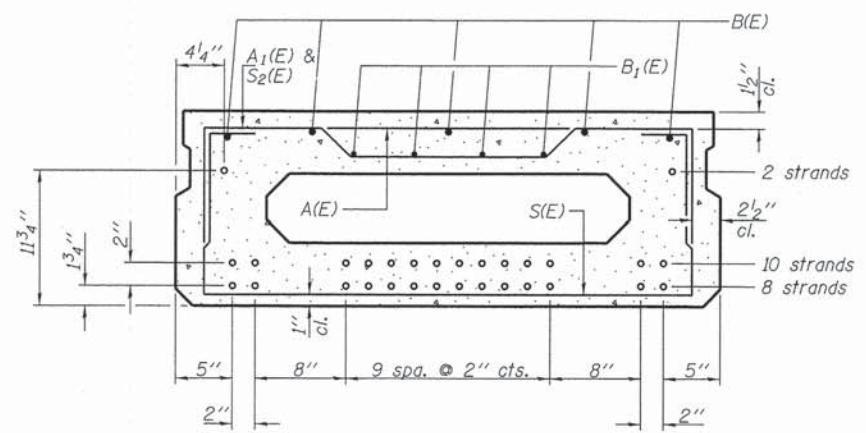
SECTION B-B  
(Showing dimensions)



VIEW C-C



PLAN VIEW



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)	12	#4	3'-7"	—
A1(E)	24	#4	3'-10"	~
B(E)	5	#5	39'-8"	—
B1(E)	4	#4	39'-8"	—
S(E)	57	#4	6'-9"	—
S1(E)	10	#4	5'-3"	—
S2(E)	47	#4	5'-6"	—
U(E)	12	#5	3'-8"	—
U1(E)	2	#4	6'-0"	—

Note: See sheet 3 & 4 of 9 for additional details and Bill of Material.

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

Notes:  
Spacing of S(E) and S2(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.

PD-1748-0 7-1-10

FILE NAME = 100370-shr-bridge.dgn	USER NAME =	DESIGNED - A.S.L.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC. 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703		CHECKED - S.W.M.	REVISED -
PLLOT SCALE =		DRAWN - D.T.M.	REVISED -
PLLOT DATE = 6/6/2013		CHECKED - S.W.M.	REVISED -

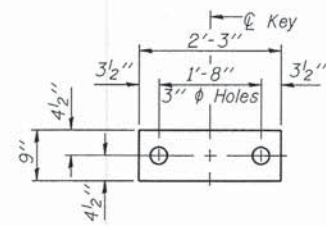
STATE OF ILLINOIS  
EDWARDS COUNTY HIGHWAY DEPARTMENT

17" x 48" PPC DECK BEAM  
STRUCTURE NO. 024-3141

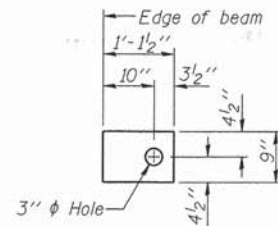
SHEET NO. 2 OF 9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
122	10-05110-00-BR	EDWARDS	13	6
ROAD DISTRICT NO. 5		CONTRACT NO. 95666		
ILLINOIS FED. AID PROJECT				





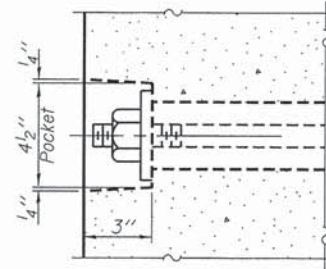
**FABRIC BEARING PAD**  
(Interior - 10 Req'd.)



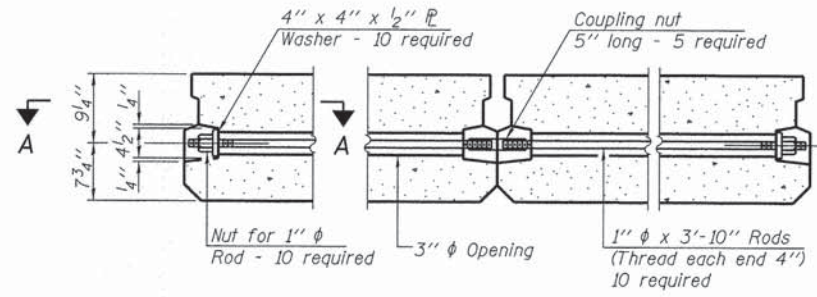
**FABRIC BEARING PAD**  
(Exterior - 4 Req'd.)

**Notes:**  
All bearing pads shall be 1" thick.  
Omit holes when using expansion bearings.  
Expansion bearing pad shall be bonded to the substructure.

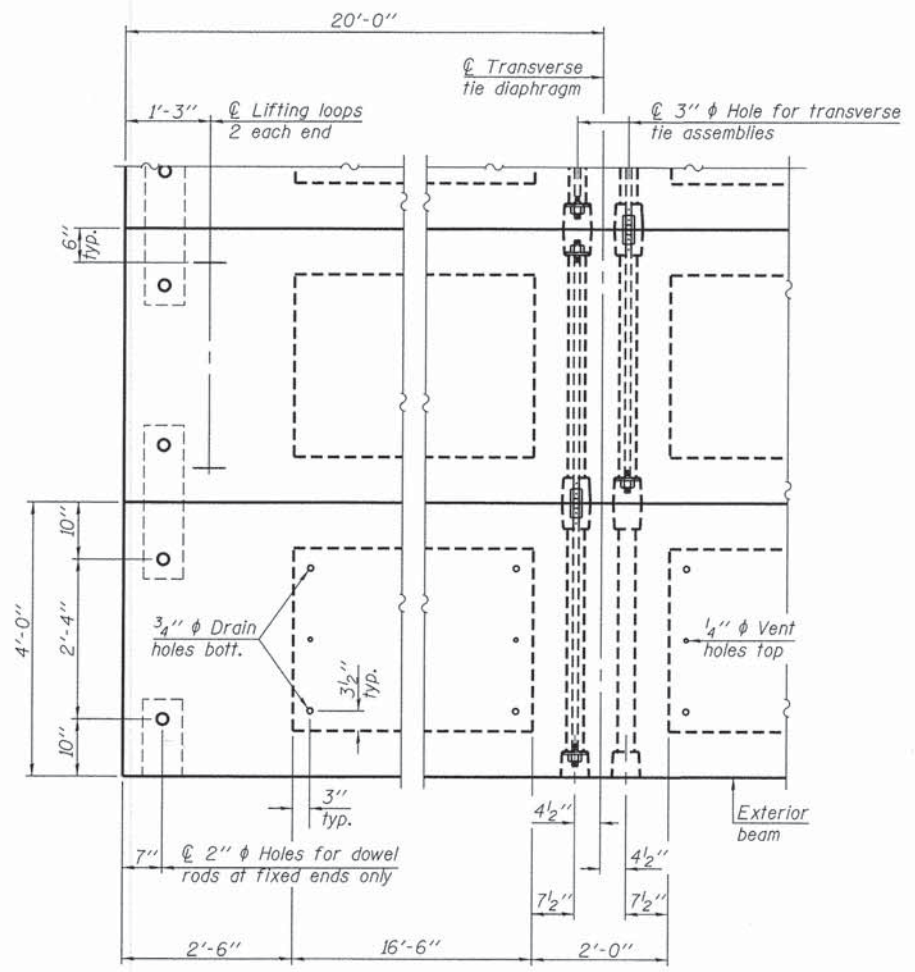
**FIXED**



**SECTION A-A**

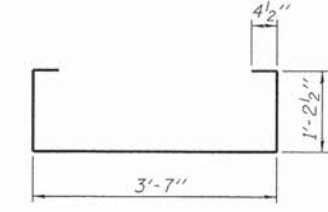


**TYPICAL TRANSVERSE TIE ASSEMBLY**

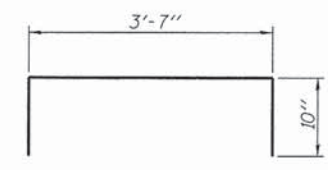


**PLAN VIEW**

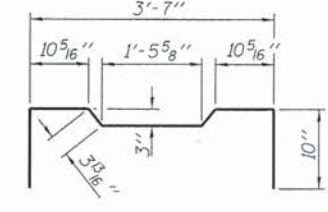
Note: Connect beams in pairs with the transverse tie configuration shown.



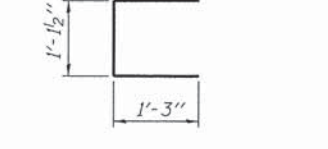
**BAR S(E)**



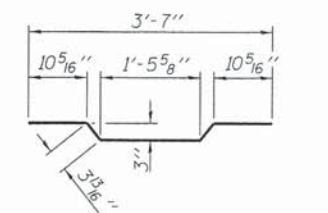
**BAR S1(E)**



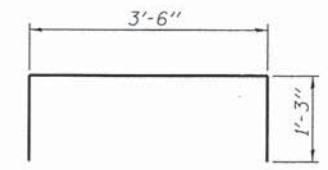
**BAR S2(E)**



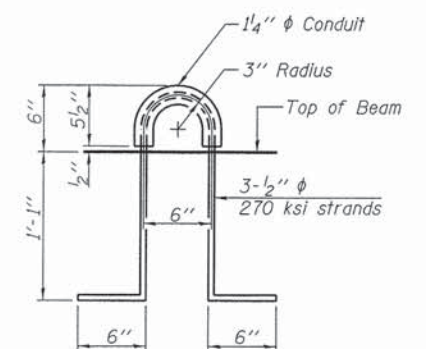
**BAR U(E)**



**BAR A1(E)**



**BAR U1(E)**



**LIFTING LOOP DETAIL**

**BILL OF MATERIAL**

Precast Prestressed Conc. Deck Bms. (17" depth)	Sq. Ft.	960
---	---------	-----

**NOTES**

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" 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. (See Special Provisions).  
Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.  
A minimum 2 1/2" lifting pin shall be used to engage the lifting loops during handling.  
Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.07 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.  
All bars shall be epoxy coated.

PD-1748-0D 7-1-10

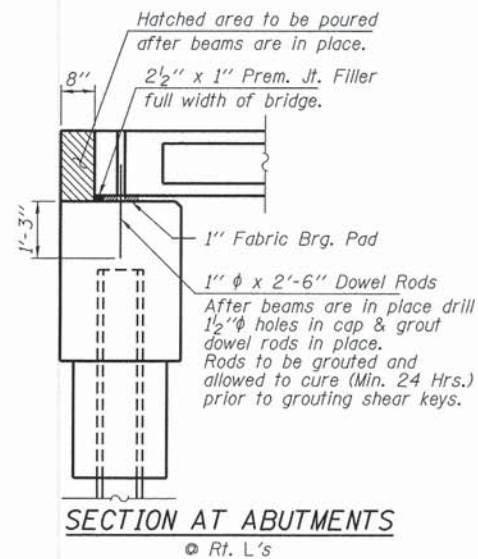
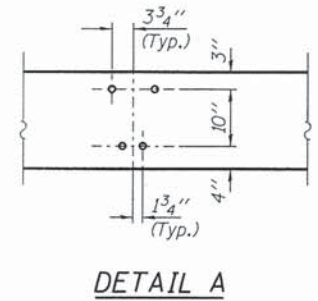
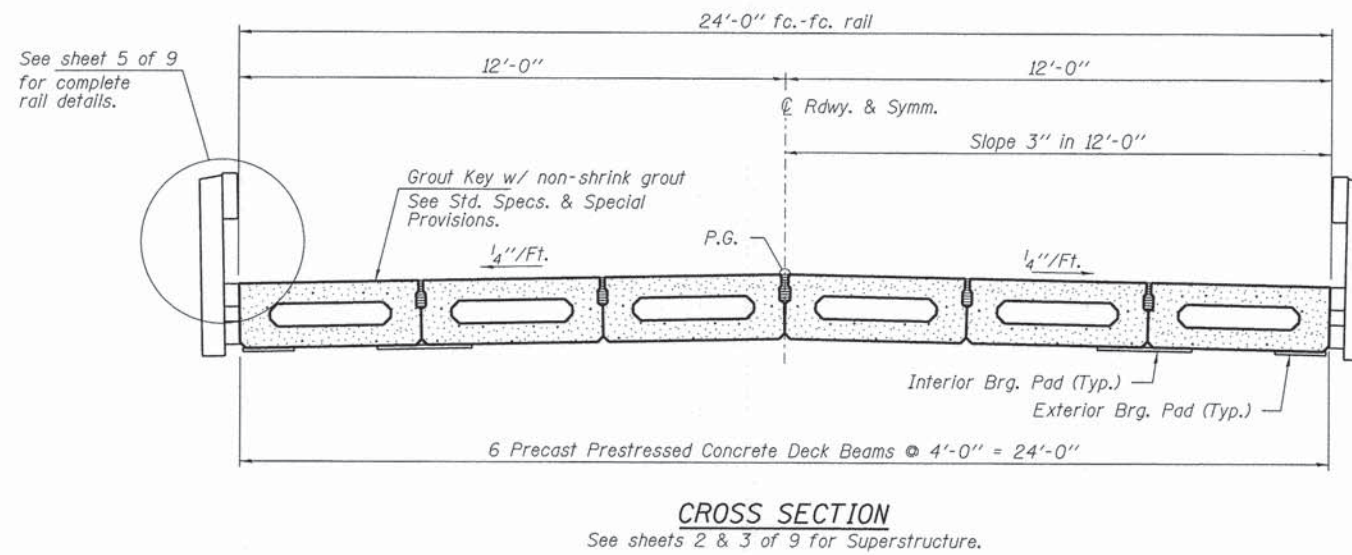
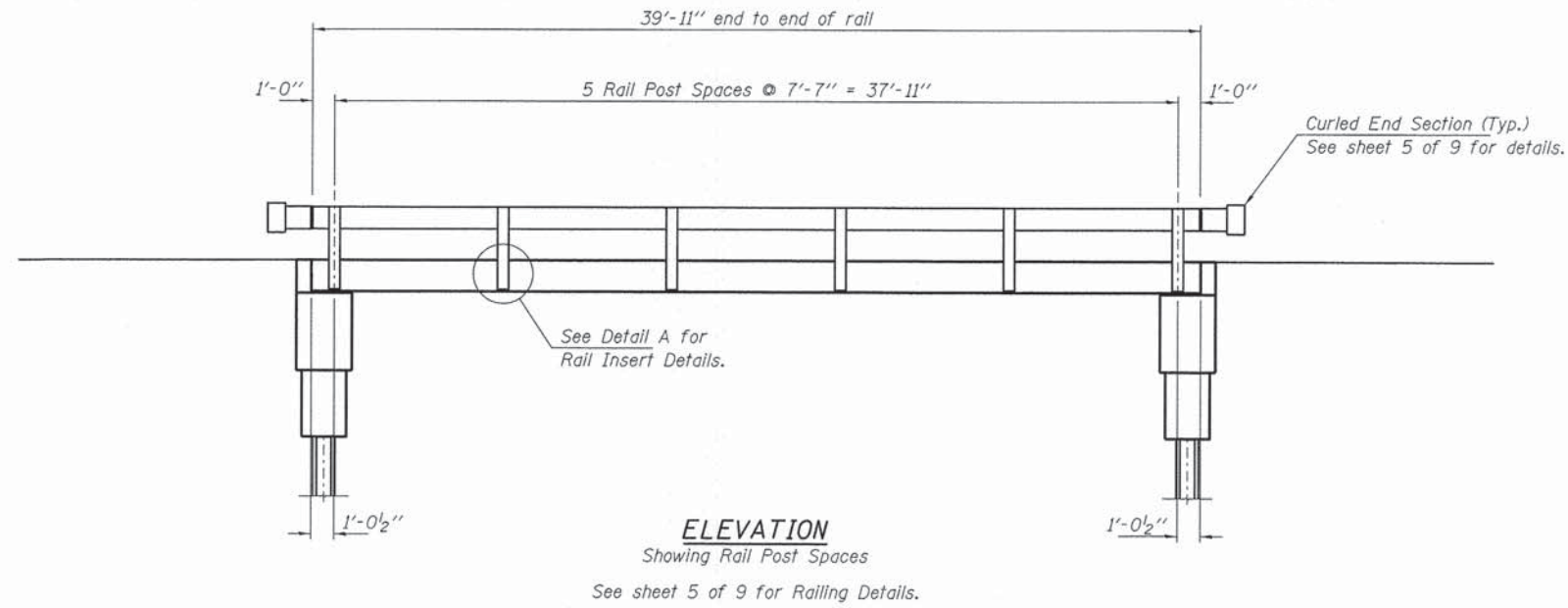
FILE NAME = 100370-sht-br1dge.dgn	USER NAME =	DESIGNED - A.S.L.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC.		CHECKED - S.W.M.	REVISED -
3048 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703	PLOT SCALE =	DRAWN - D.T.M.	REVISED -
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORP. 184.000009	PLOT DATE = 6/6/2013	CHECKED - S.W.M.	REVISED -

STATE OF ILLINOIS  
EDWARDS COUNTY HIGHWAY DEPARTMENT

17" x 48" PPC DECK BEAM DETAILS  
STRUCTURE NO. 024-3141

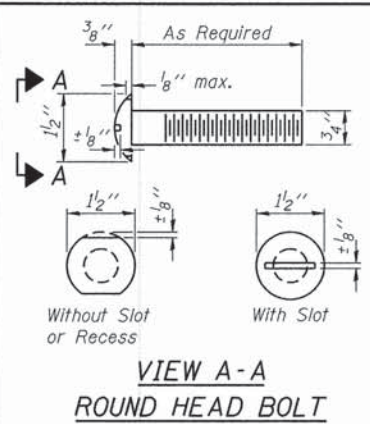
SHEET NO. 3 OF 9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
122	10-05110-00-BR	EDWARDS	13	7
ROAD DISTRICT NO. 5			CONTRACT NO. 95666	
ILLINOIS FED. AID PROJECT				

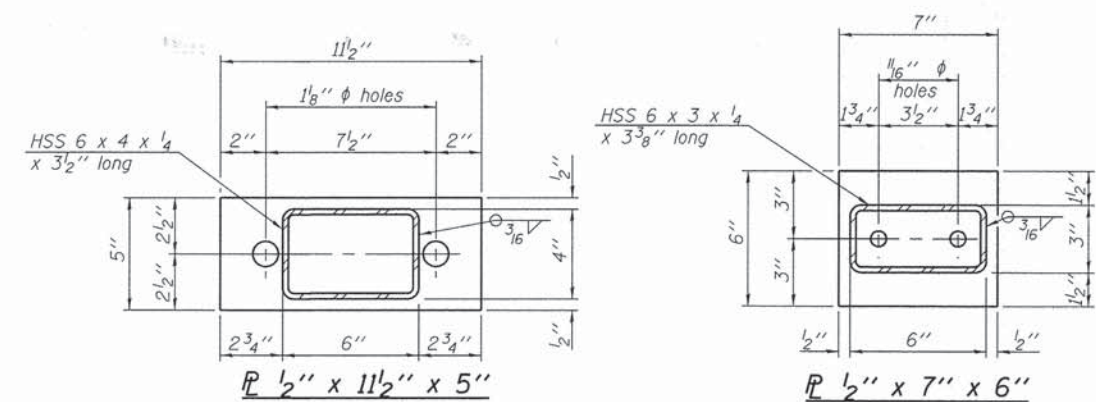


FILE NAME = 180370-shr-bridge.dgn	USER NAME =	DESIGNED - A.S.L.	REVISED -	<b>STATE OF ILLINOIS</b> <b>EDWARDS COUNTY HIGHWAY DEPARTMENT</b>	<b>SUPERSTRUCTURE DETAILS</b> <b>STRUCTURE NO. 024-3141</b>	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
<b>HAMPTON, LENZINI AND RENWICK, INC.</b> 2045 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62710	PLOT SCALE =	CHECKED - S.W.M.	REVISED -			122	10-05110-00-BR	EDWARDS	13	8	
<b>HLR</b> ILLINOIS PROFESSIONAL DESIGN FIRM L.S./P.E./S.E. CORP. 184.000559	PLOT DATE = 6/6/2013	DRAWN - D.T.M.	REVISED -			ROAD DISTRICT NO. 5	CONTRACT NO. 95666				
						SHEET NO. 4 OF 9 SHEETS		ILLINOIS FED. AID PROJECT			



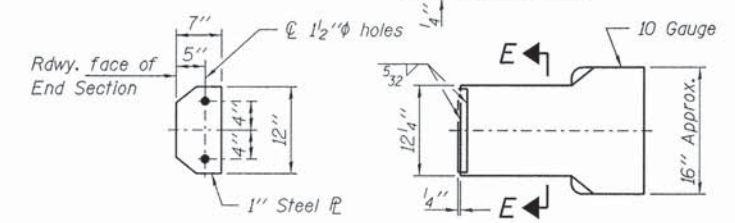


**VIEW A-A  
ROUND HEAD BOLT**

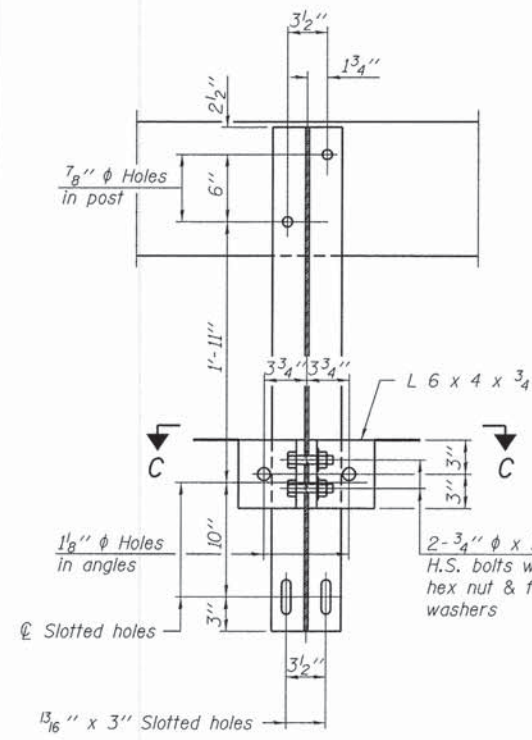


**PLAN 1/2" x 11 1/2" x 5"  
PLAN 1/2" x 7" x 6"**

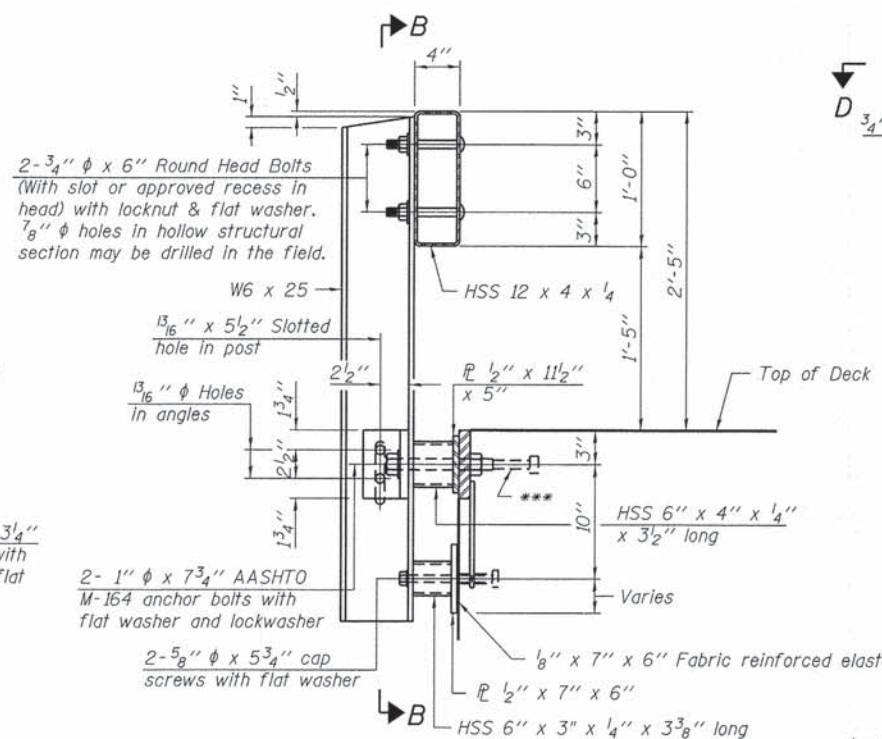
Note: Cost of curled end sections shall be included with the Steel Railing. (4 Required)



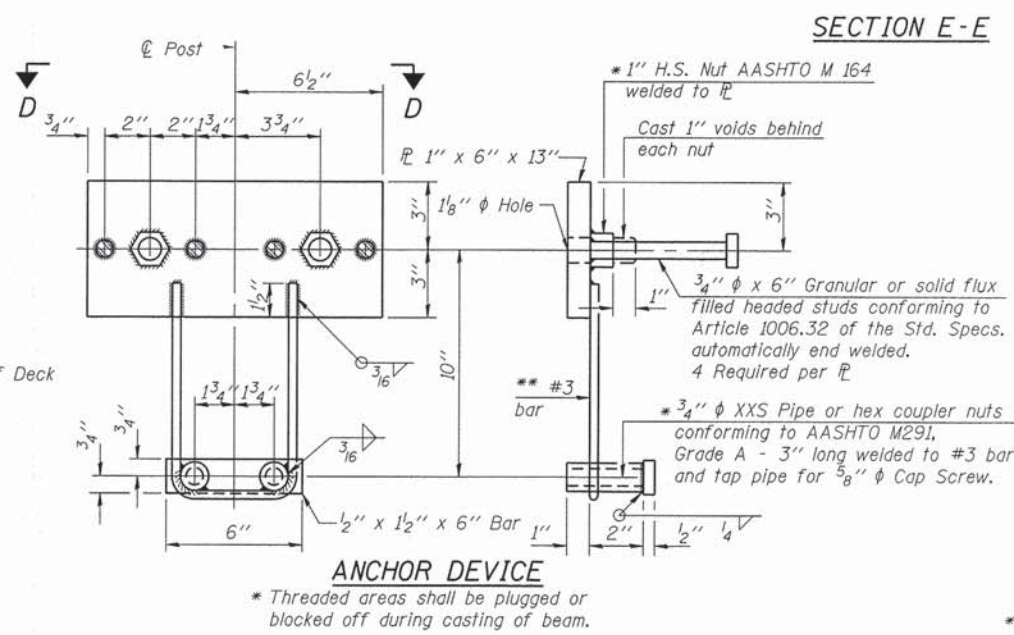
**SECTION E-E  
CURLLED END SECTION DETAILS**



**SECTION B-B**

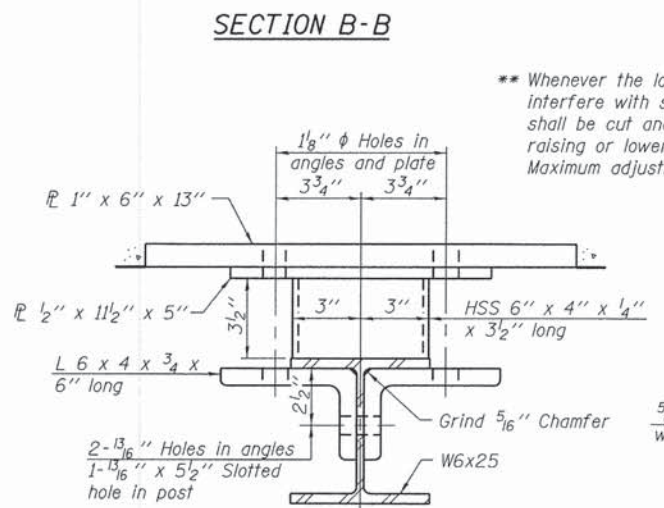


**SECTION AT RAILING POST**

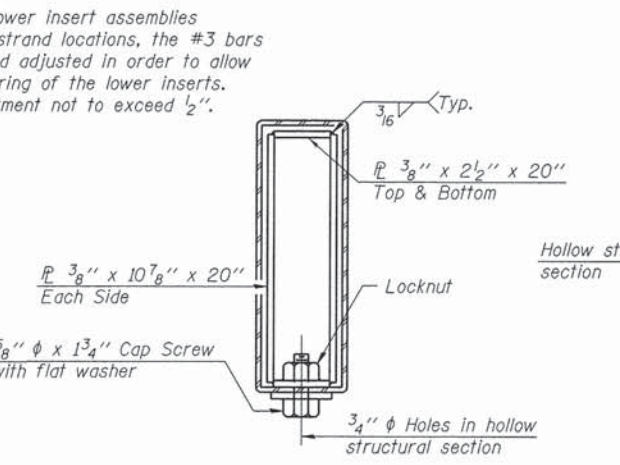


**ANCHOR DEVICE**

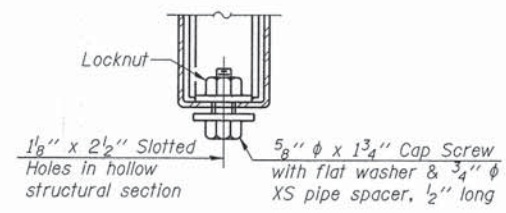
Notes:  
All field drilled holes shall be coated with an approved zinc rich paint before erection. For multi-span bridges, sufficient 1/4 inch x 6 inch x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1. All steel rail elements 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.



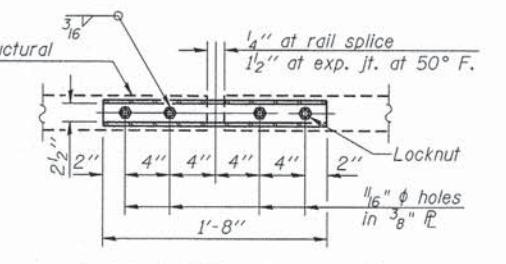
**SECTION C-C**



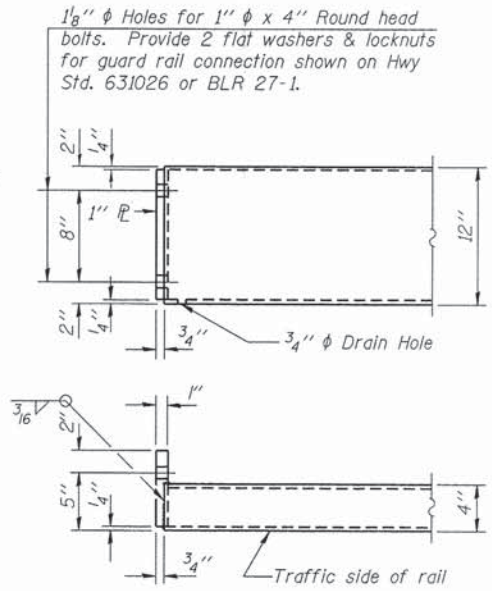
**SECTIONS AT RAIL SPLICE**



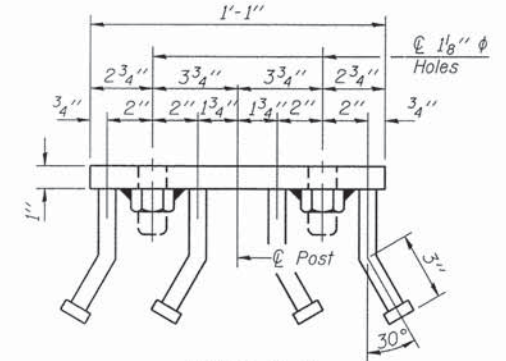
**RAIL SPLICE CONNECTION  
AT EXPANSION JT.**



**PLAN-BOTT. SPLICE  
TYPICAL**



**END OF RAIL DETAILS**



**VIEW D-D**

**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	80

R-23A 7-1-10 (10'-9" Maximum Post Spacing)

FILE NAME = 100370-shr-bridge.dgn	USER NAME =	DESIGNED - A.S.L.	REVISED -
HAMPTON, LENZI AND RENWICK, INC.		CHECKED - S.W.M.	REVISED -
204 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703		DRAWN - D.T.M.	REVISED -
ILLINOIS PROFESSIONAL DESIGN FIRM L3 / P.E. / SE CORP. 184-00089		CHECKED - S.W.M.	REVISED -
PLOT SCALE =			
PLOT DATE = 6/6/2013			

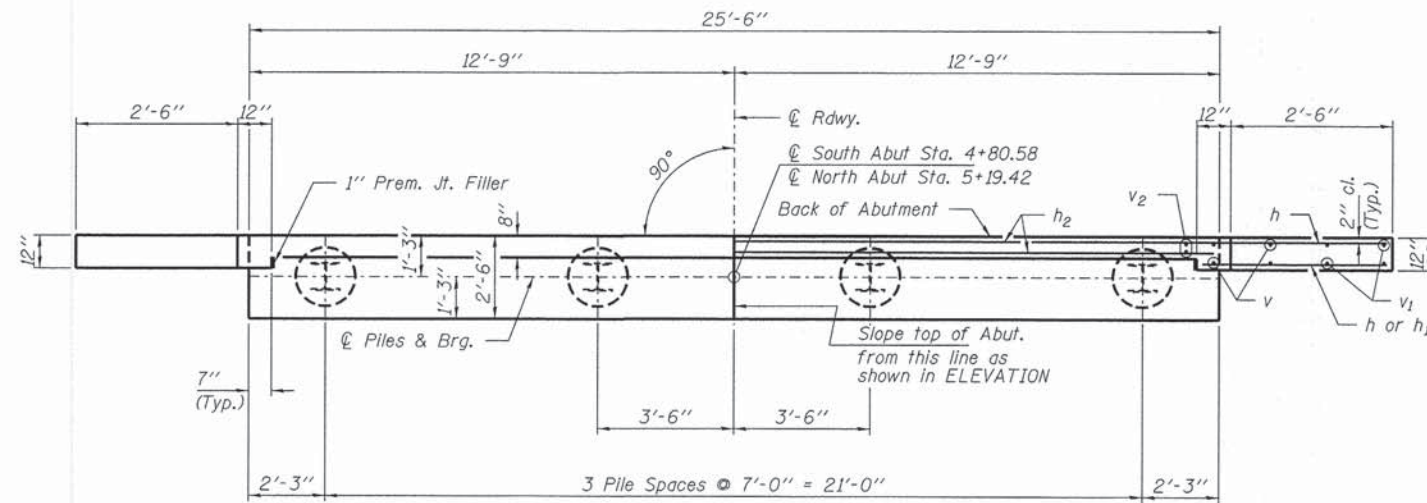
STATE OF ILLINOIS  
EDWARDS COUNTY HIGHWAY DEPARTMENT

STEEL RAILING, TYPE S-1  
STRUCTURE NO. 024-3141

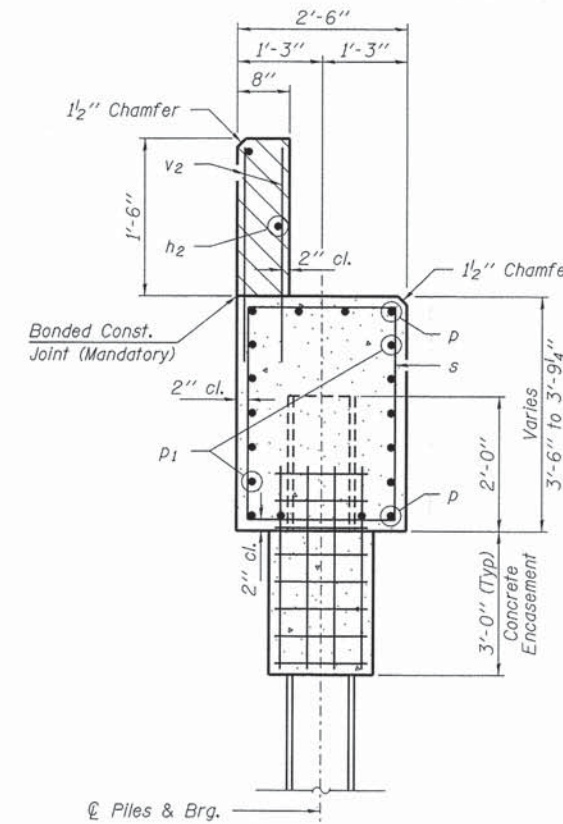
SHEET NO. 5 OF 9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
122	10-05110-00-BR	EDWARDS	13	9
ROAD DISTRICT NO. 5			CONTRACT NO. 95666	
ILLINOIS FED. AID PROJECT				



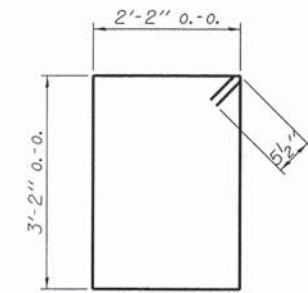


PLAN

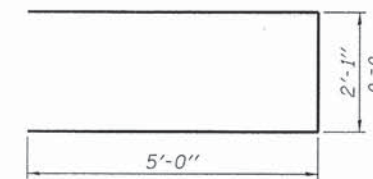


SECTION A-A

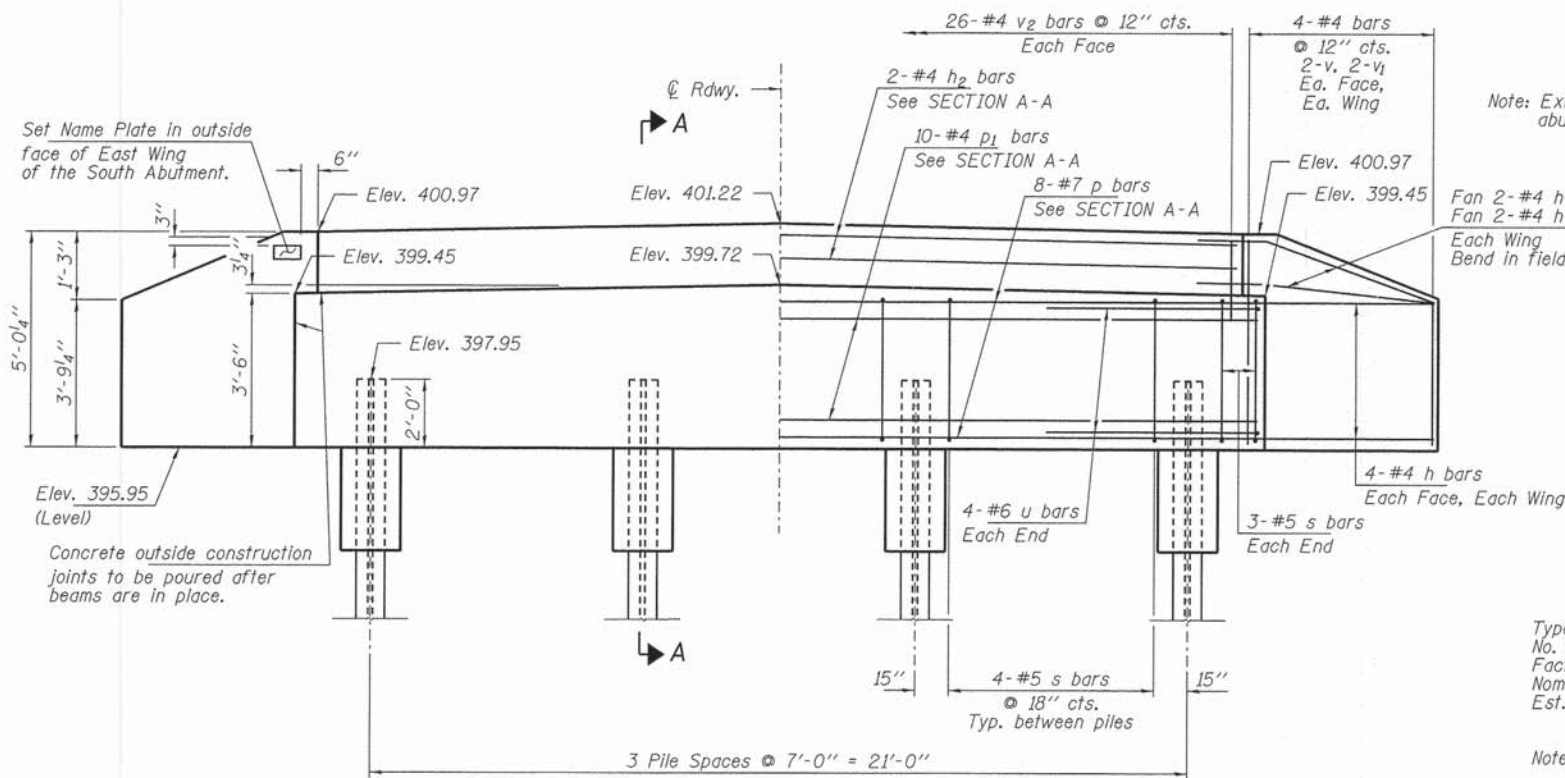
Hatched area to be poured after beams are in place.



BAR s



BAR u



ELEVATION

Note: Extend h bars into abutment cap.

Fan 2-#4 h bars (B.F.)  
Fan 2-#4 h1 bars (F.F.)  
Each Wing Bend in field.

PILE DATA

Type Steel HP10x42  
No. Req'd. (2 Abut.) 8  
Factored Resistance Available (Rf) 184 Kips/Pile  
Nominal Required Bearing (Rn) 335 Kips/Pile  
Est. Length 45 Ft/Pile (S. Abut.)  
50 Ft/Pile (N. Abut.)

Notes: \*Includes one test pile to be driven in permanent location at the North Abutment.

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

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

BILL OF MATERIAL - 2 ABUTS.

BAR	NO.	SIZE	LENGTH	SHAPE
h	40	#4	4'-9"	—
h1	8	#4	3'-3"	—
h2	4	#4	25'-2"	—
p	16	#7	25'-2"	—
p1	20	#4	25'-2"	—
s	36	#5	11'-7"	□
u	16	#6	12'-1"	—
v	16	#4	4'-6"	—
v1	16	#4	3'-6"	—
v2	104	#4	2'-4"	—
Concrete Structures			Cu. Yd.	21.0
Concrete Encasement			Cu. Yd.	2.8
Reinforcement Bars			Pound	2,340
Steel Piles HP10x42			Foot	330
Test Pile Steel HP10x42			Each	1
Name Plates			Each	1

FILE NAME = 100370-ah-bridge.dgn	USER NAME =	DESIGNED - A.S.L.	REVISED -
HAMPTON, LENZINI AND RENWICK, INC. 308 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703	PLOT SCALE =	CHECKED - S.W.M.	REVISED -
ILLINOIS PROFESSIONAL DESIGN FIRM L8 / P8 / SE CORP. 184.000909	PLOT DATE = 6/8/2013	DRAWN - D.T.M.	REVISED -
		CHECKED - S.W.M.	REVISED -

STATE OF ILLINOIS  
EDWARDS COUNTY HIGHWAY DEPARTMENT

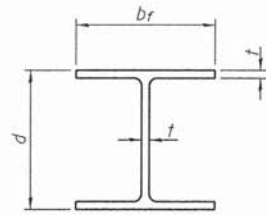
ABUTMENTS  
STRUCTURE NO. 024-3141

SHEET NO. 6 OF 9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
122	10-05110-00-BR	EDWARDS	13	10
ROAD DISTRICT NO. 5			CONTRACT NO. 95666	

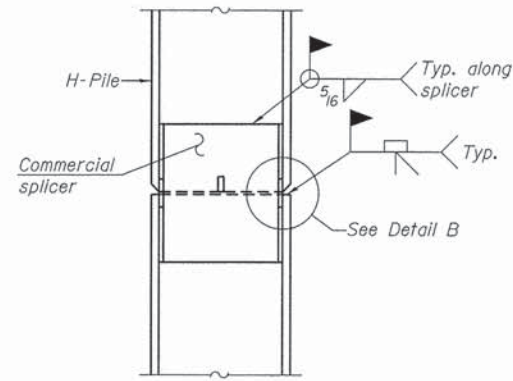
ILLINOIS FED. AID PROJECT



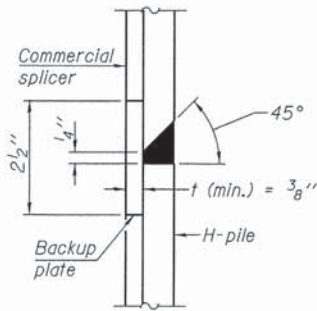


**STEEL PILE TABLE**

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

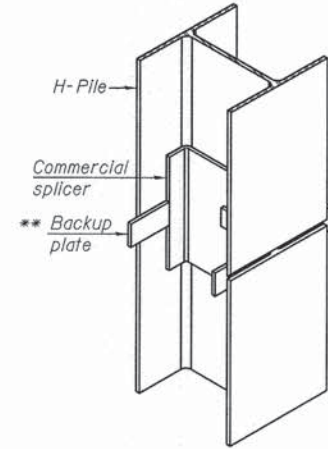


**ELEVATION**

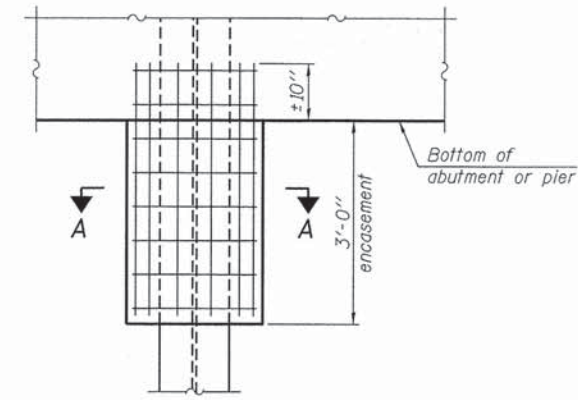


**DETAIL "B"**

**WELDED COMMERCIAL SPLICE**

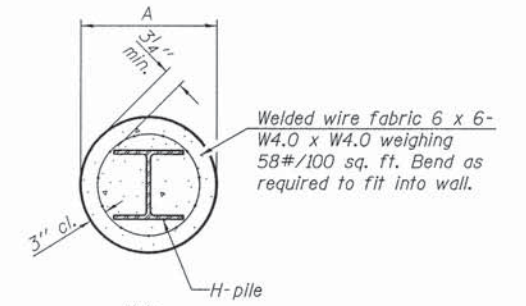


**ISOMETRIC VIEW**



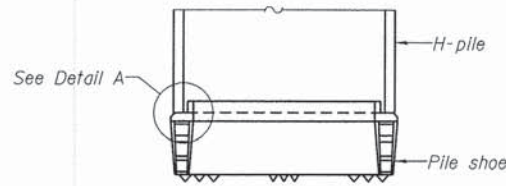
**ELEVATION**

**PILE ENCASEMENT**

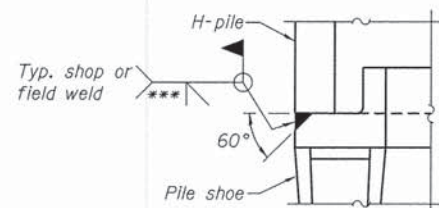


**SECTION A-A**

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

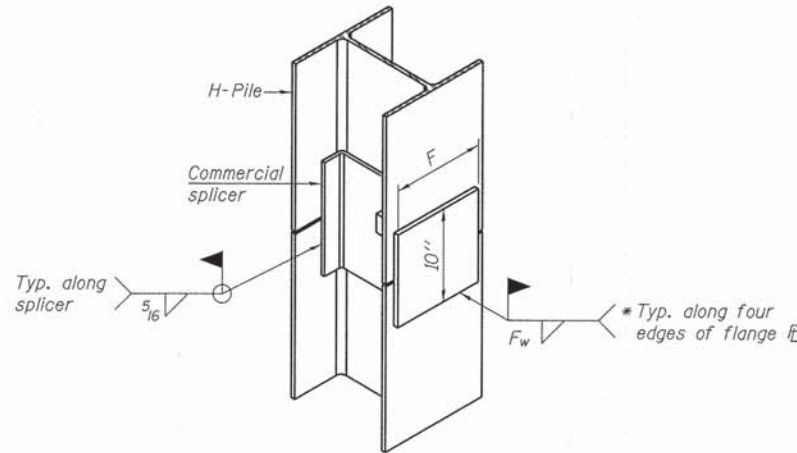


**ELEVATION**



**DETAIL A**

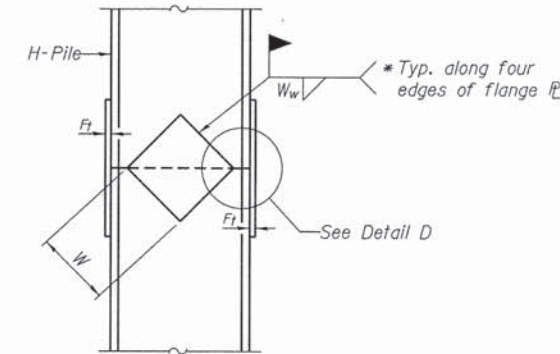
**H-PILE SHOE ATTACHMENT**



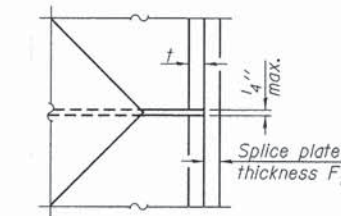
**ISOMETRIC VIEW**

**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.).



**ELEVATION**



**DETAIL D**

**WELDED PLATE FIELD SPLICE**

Designation	F	Ft	Fw	W	Wt	Ww
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"

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

F-HP

7-1-10

FILE NAME = 180378-sht-bridge.dgn	USER NAME =	DESIGNED - A.S.L.	REvised -	<b>STATE OF ILLINOIS EDWARDS COUNTY HIGHWAY DEPARTMENT</b>	<b>HP PILE DETAILS STRUCTURE NO. 024-3141</b>	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
HAMPTON, LENZINI AND RENWICK, INC. 2045 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62761		CHECKED - S.W.M.	REvised -			122	10-05110-00-BR	EDWARDS	13	11
PLLOT SCALE =		DRAWN - D.T.M.	REvised -			ROAD DISTRICT NO. 5		CONTRACT NO. 95666		
PLLOT DATE = 6/6/2013		CHECKED - S.W.M.	REvised -			ILLINOIS FED. AID PROJECT				

SHEET NO. 7 OF 9 SHEETS







Bridge Foundation Boring Log

Project: H-11020 Bridge \_\_\_\_\_ Date: 2-3-2011  
Section: 10-05110-00-BR Station \_\_\_\_\_ Bored by: D. Russell  
Structure: \_\_\_\_\_ Checked By: J. Holcomb  
County: Edwards

Boring No. 2 Station: Offset:	Elevation	N	Qu	tsf	%	Surface Water Elev.		Elevation	N	Qu	tsf	%
						Ground Water Elev. During Drilling	Upon Completion					
	399.8	0										
Ground Surface												
4" Soil and Gravel Mix												
Gray Mottled Brown Silty CLAY to CLAY (A-6)		8	2.15	25				380.8	19	3.85	19	
		8	1.68	26					18	1.08	26	
		7	1.98	25				370.8	17	2.15	19	
		5	1.55	25				368.8				
Brown Mottled Gray Silty CLAY to CLAY (A-6)		5	1.55	25				390.8				
		7	1.78	24				365.8	100/75	--	17	
Gray Mottled Brown Silty CLAY (A-6)		7	1.78	24				364.8				
		4	0.58	33								
		5	1.55	32					12	2.18	21	
Brown Mottled Gray CLAY (A-6)		5	1.55	32								
		5	0.38	25								
Brown Mottled Gray Sandy CLAY (A-6)		5	0.38	25								
		11	1.95	22								
Brown-Gray Clayey SILT (A-4)		11	1.95	22								

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"  
Qu-Unconfined Compressive Strength in tons/sq.ft.  
w-Water Content-percentage of oven dry weight-%  
B = Bulge Failure  
S = Shear Failure  
E = Estimated Value  
P = Penetrometer

Bridge Foundation Boring Log

Project: H-11020 Bridge \_\_\_\_\_ Date: 2-3-2011  
Section: 10-05110-00-BR Station \_\_\_\_\_ Bored by: D. Russell  
Structure: \_\_\_\_\_ Checked By: J. Holcomb  
County: Edwards

Boring No. 2 Station: Offset:	Elevation	N	Qu	tsf	%	Surface Water Elev.		Elevation	N	Qu	tsf	%
						Ground Water Elev. During Drilling	Upon Completion					
	45.8		1.58	37								
clay (continued)												
		15	2.58	23								
		14	1.78	34								
		100/4	--	9								
Gray SHALE		100/5	--	15								
		100/5	--	13								
End of Boring @ -64.0'												

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"  
Qu-Unconfined Compressive Strength in tons/sq.ft.  
w-Water Content-percentage of oven dry weight-%  
B = Bulge Failure  
S = Shear Failure  
E = Estimated Value  
P = Penetrometer

BORING 2