

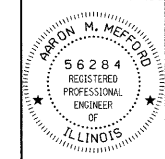
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4	07-00064-00-BR	EDWARDS	13	1
FED. ROAD DIST. NO. 7 ILLINOIS		FED. AID PROJECT		
PROJECT # ARA-047(032)		CONTRACT # 95606		
LEC JOB # H081009ED		BEAR CREEK		

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



AARON M. MEFFORD
NAME
Aaron M. Mefford
SIGNATURE
DATE
10-26-09
11-30-11
EXPIRES

BEAR CREEK
COUNTY HIGHWAY 4
EDWARDS COUNTY, ILLINOIS

STATE OF ILLINOIS

DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED FEDERAL AID - A.R.R. PROJECT

C.H. 4 EDWARDS COUNTY SECTION 07-00064-00-BR

PROJECT NO. ARA-047(032) JOB NO. C-97-023-10

CONTRACT #95606 BEAR CREEK

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET & SUMMARY OF QUANTITIES
2	PLAN & PROFILE, TYPICAL SECTIONS, GENERAL
3-4	NOTES & STONE RIPRAP DITCH DESIGN
5-13	ROADWAY CROSS SECTIONS BRIDGE DESIGN

STANDARDS

000001-05	STANDARD SYMBOLS, ABBREVIATIONS & PATTERNS (8 SHEETS)
280001-05	TEMPORARY EROSION CONTROL SYSTEMS (2 SHEETS)
515001-03	NAME PLATE FOR BRIDGES
666001-01	RIGHT OF WAY MARKERS
701901-01	TRAFFIC CONTROL DEVICES (3 SHEETS)
B.L.R. 21-8	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
B.L.R. 22-6	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS (TWO-LANE TWO-WAY RURAL TRAFFIC) (ROAD CLOSED TO THRU TRAFFIC)

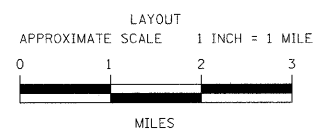
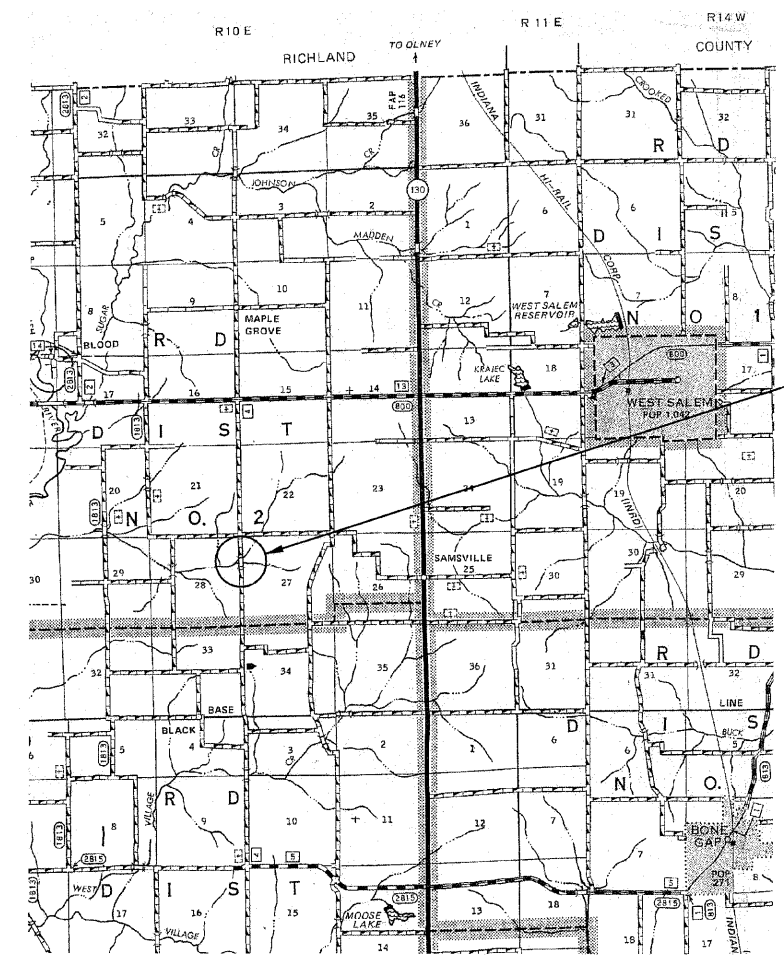
SUMMARY OF QUANTITIES

QUANTITY	UNIT	ITEM	CODE NO.
0.10	ACRE	TREE REMOVAL, ACRES	20100500
147.00	CU YD	EARTH EXCAVATION	20200100
95.00	CU YD	CHANNEL EXCAVATION	20300100
72.00	CU YD	FURNISHED EXCAVATION	20400800
0.20	ACRE	SEEDING, CLASS 2 (SPECIAL)	25001000
12.00	FEET	TEMPORARY DITCH CHECKS	28000305
18.00	TON	AGGREGATE (EROSION CONTROL)	28001000
650.00	TON	STONE DUMPED RIPRAP, CLASS A4	28100807
55.00	TON	STONE RIPRAP DITCH	28102600
270.00	TON	AGGREGATE SURFACE COURSE, TYPE B	40200800
1.00	EACH	REMOVAL OF EXISTING STRUCTURES	50100100
23.40	CU YD	CONCRETE STRUCTURES	50300225
2.80	CU YD	CONCRETE ENCASEMENT	50300280
1200.00	SQ FT	PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)	50400405
2510.00	POUND	REINFORCEMENT BARS	50800105
97.00	FOOT	STEEL RAILING, TYPE S1	50900205 *
360.00	FOOT	FURNISHING STEEL PILES HP10X42	51201400
360.00	FOOT	DRIVING PILES	51202305
1.00	EACH	NAME PLATES	51500100
40.00	FOOT	PIPE CULVERTS, CLASS D, TYPE 1 15"	54200220
5.00	EACH	FURNISHING AND ERECTING RIGHT-OF-WAY MARKERS	66600105
1.00	L SUM	MOBILIZATION	67100100
1.00	L SUM	TRAFFIC CONTROL AND PROTECTION	70101700

* SPECIALTY ITEMS



DESIGN DESIGNATION:
DESIGN SPEED: 30 MPH
HIGHWAY CLASS - LOCAL ROAD
EXISTING STRUCTURE NO.: 024-3083
PROPOSED STRUCTURE NO.: 024-3137
CURRENT A.D.T. = 150
CONTRACT NO. 95606



GROSS LENGTH	425.00 FT	0.080 MILES
OMISSIONS	0.00 FT	0.00 MILES
NET LENGTH	425.00 FT	0.080 MILES

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

SECTION 07-00064-00-BR
BEGINS STATION 2+50

STATION 5+00, STRUCTURE NO. 024-3137
A 50' LONG SINGLE SPAN PRECAST
PRESTRESSED CONCRETE DECK BEAM BRIDGE
(21" DEPTH, 24" ROADWAY, 1.0% GRADE,
15° RT. FWD. SKEW.

SECTION 07-00064-00-BR
ENDS STATION 6+75

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	
APPROVED	<i>October 26th</i> 2009 <i>Dan K. Bl...</i> COUNTY ENGINEER
PASSED	<i>10/29</i> 2009 <i>Maureen E. Costl</i> DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS
Releasing For Bid Based on Limited Review	<i>10/29</i> 2009 <i>Roger L. Dushell</i> DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER

SHEET TITLE:	
TITLE SHEET	
SCALE:	VARIABLE
BY:	AMM
DATE:	10/29/09
REV:	
1	OF 13
SHEETS	
SHEET NO.	
1	

GENERAL NOTES:

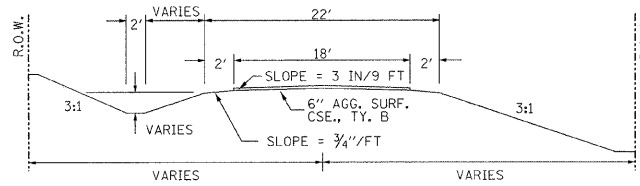
THIS SECTION SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLANS, SPECIAL PROVISIONS AND "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", ADOPTED JANUARY 1, 2007.

THE WORK INVOLVED ON THIS SECTION CONSISTS OF THE REMOVAL OF THE EXISTING STRUCTURE, THE CONSTRUCTION OF A 50 FOOT LONG SINGLE SPAN PRECAST, PRESTRESSED CONCRETE BEAM BRIDGE, EARTH APPROACHES, AGGREGATE SURFACE COURSE AND OTHER MISCELLANEOUS ITEMS NECESSARY TO COMPLETE THIS SECTION.

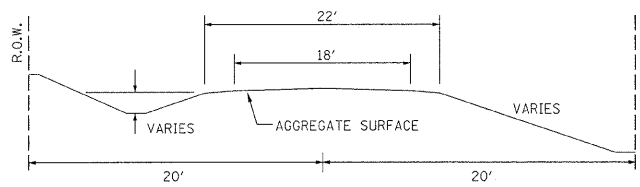
ALL ELEVATIONS ARE BASED ON U.S.G.S. MEAN SEA LEVEL DATUM.

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

TYPICAL CROSS SECTION PROPOSED



TYPICAL CROSS SECTION EXISTING



UTILITIES:

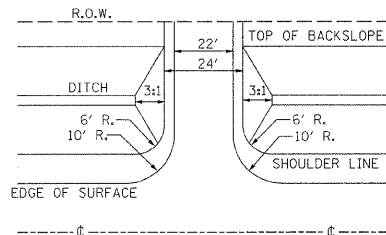
J.U.L.I.E. 1-800-892-0123

VERIZON
1-618-395-6191

WAYNE-WHITE ELECTRIC CO-OP
1-618-842-2196

ELLERY WATER CORP.
1-618-838-7116

FIELD ENTRANCE DETAIL



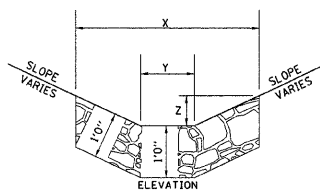
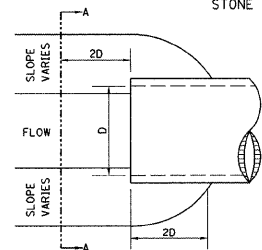
NOTE: CONSTRUCT SPECIAL DITCH

STA 3+00 TO STA 4+78 LT
STA 5+25 TO STA 6+75 LT

NOTE: CONSTRUCT STONE RIPRAP DITCH

STA 4+50 LT TO STA 4+78 LT (0.62 TON/LIN FT)
STA 5+25 LT TO STA 5+85 LT (0.62 TON/LIN FT)
55 TON STONE RIPRAP DITCH ALLOWED IN PROPOSAL.

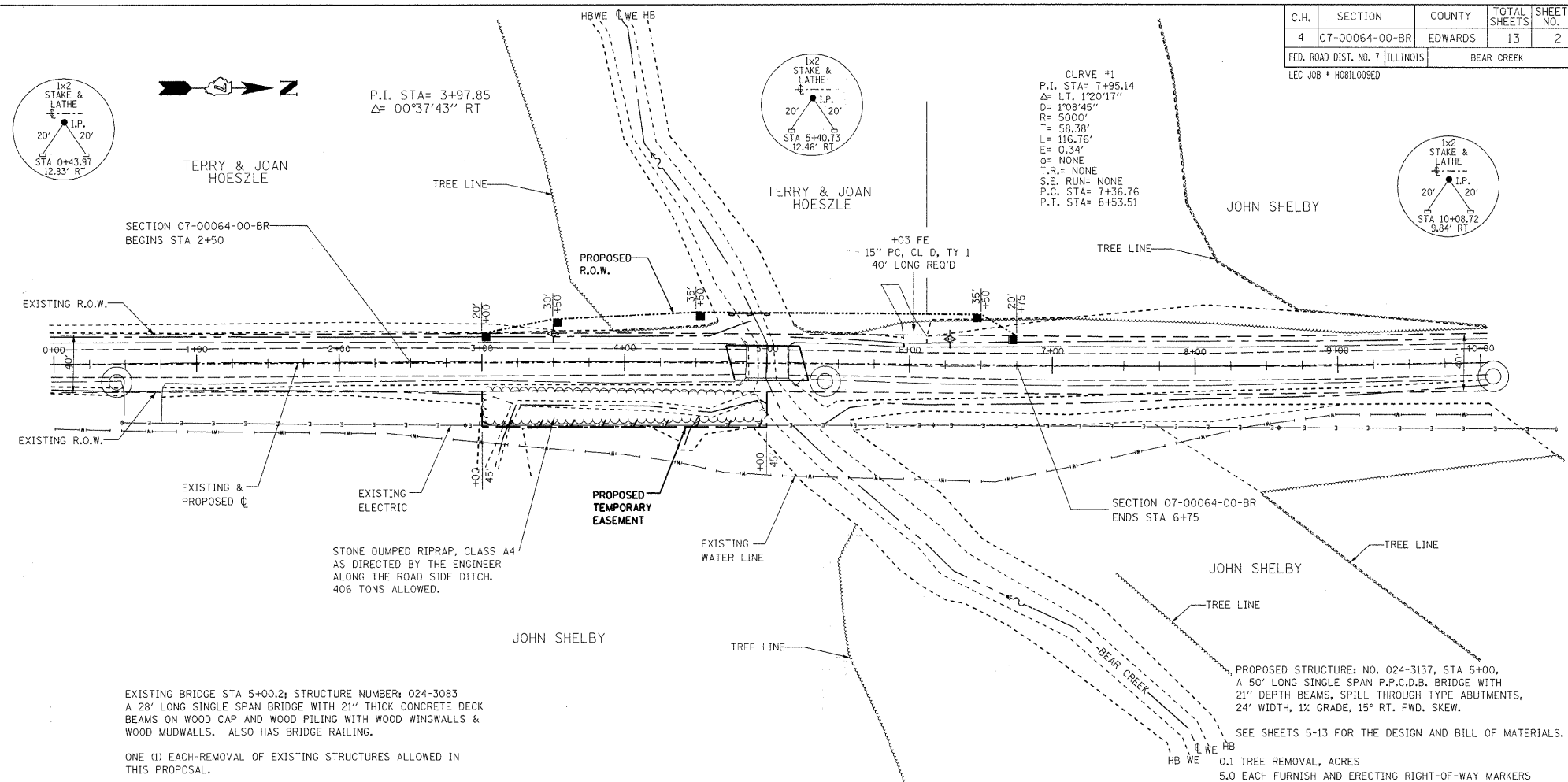
STONE RIPRAP DITCH DESIGN



NOTE:

BOTTOM OF DITCH	SLOPE		
	1 1/2:1	2:1	3:1
X= 2 FT	5 FT	6 FT	8 FT
Y= 2 FT	2 FT	2 FT	2 FT
Z= 1 FT	1 FT	1 FT	1 FT
	0.40	0.48	0.62 TON/LIN. FT

NOTE: FOR PLACEMENT, QUALITY GRADATION AND OTHER MISCELLANEOUS REQUIREMENTS FOR STONE RIPRAP DITCH-SEE SPECIAL PROVISIONS.

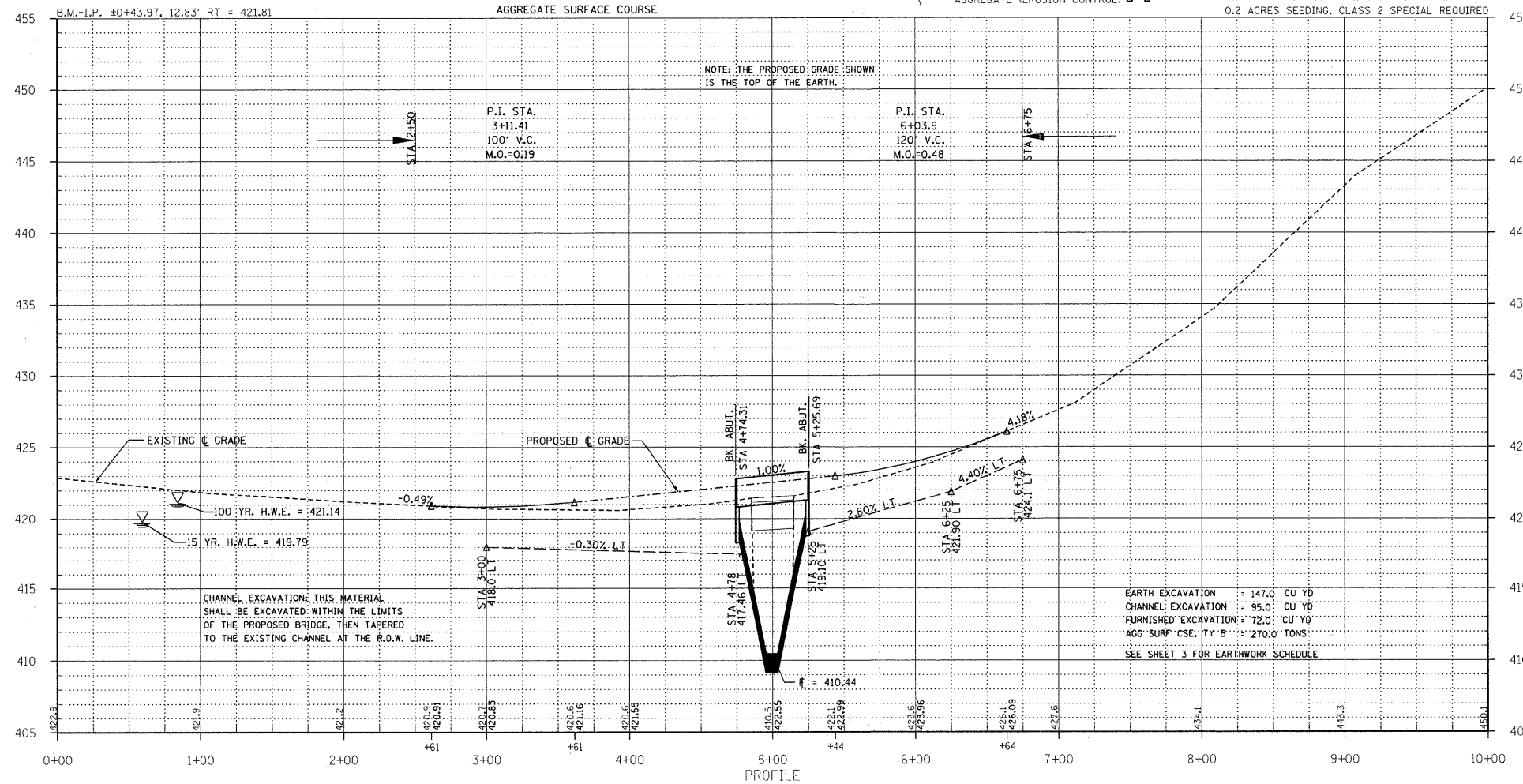


STONE DUMPED RIPRAP, CLASS A4 AS DIRECTED BY THE ENGINEER ALONG THE ROAD SIDE DITCH. 406 TONS ALLOWED.

EXISTING BRIDGE STA 5+00.2; STRUCTURE NUMBER: 024-3083
A 28' LONG SINGLE SPAN BRIDGE WITH 21" THICK CONCRETE DECK BEAMS ON WOOD CAP AND WOOD PILING WITH WOOD WINGWALLS & WOOD MUDWALLS. ALSO HAS BRIDGE RAILING.

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

NOTE: FILL NEXT TO BRIDGE TO BE AGGREGATE SURFACE COURSE



TEMPORARY DITCH CHECKS
AGGREGATE (EROSION CONTROL)

PROPOSED STRUCTURE: NO. 024-3137, STA 5+00, A 50' LONG SINGLE SPAN P.P.C.D.B. BRIDGE WITH 21" DEPTH BEAMS, SPILL THROUGH TYPE ABUTMENTS, 24' WIDTH, 1% GRADE, 15° RT. FWD. SKEW.

SEE SHEETS 5-13 FOR THE DESIGN AND BILL OF MATERIALS.

0.1 TREE REMOVAL, ACRES
5.0 EACH FURNISH AND ERECTING RIGHT-OF-WAY MARKERS
12.0 FEET TEMPORARY DITCH CHECKS
18.0 TONS AGGREGATE (EROSION CONTROL)
0.2 ACRES SEEDING, CLASS 2 SPECIAL REQUIRED

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	07-00064-00-BR	EDWARDS	13	2

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184-000897
(62-032435)(35-002769)



AARON M. MEFFORD
NAME

SIGNATURE

DATE
10-26-09

11-30-11
EXPIRES

BEAR CREEK
COUNTY HIGHWAY 4
EDWARDS COUNTY, ILLINOIS

SHEET TITLE:

PLAN & PROFILE

SCALE: VARIES

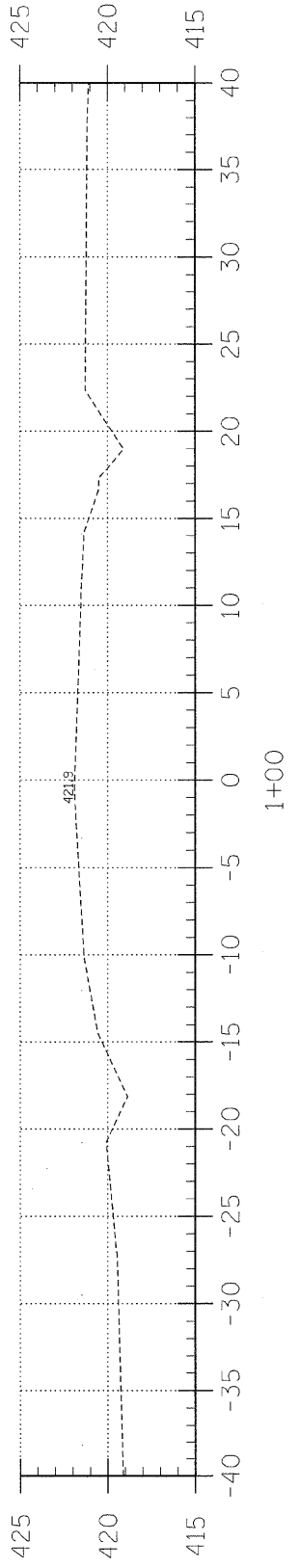
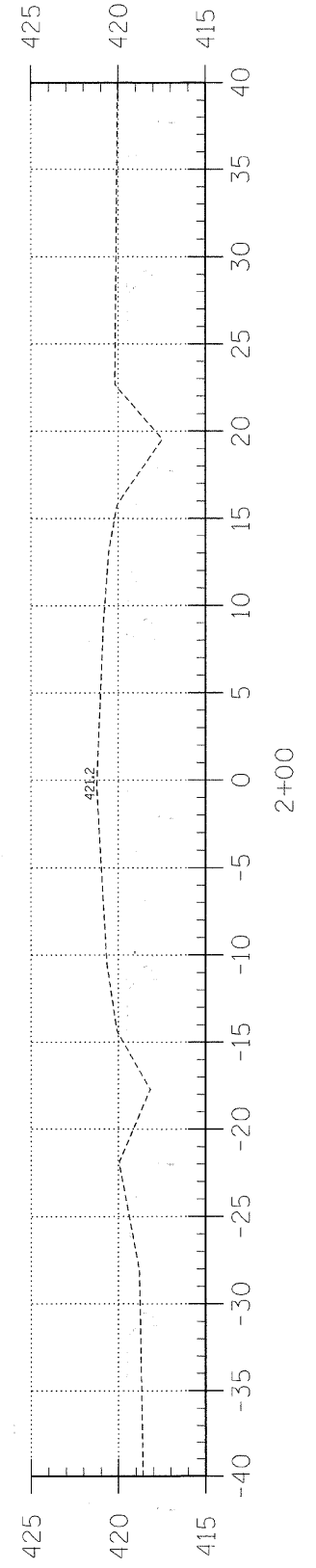
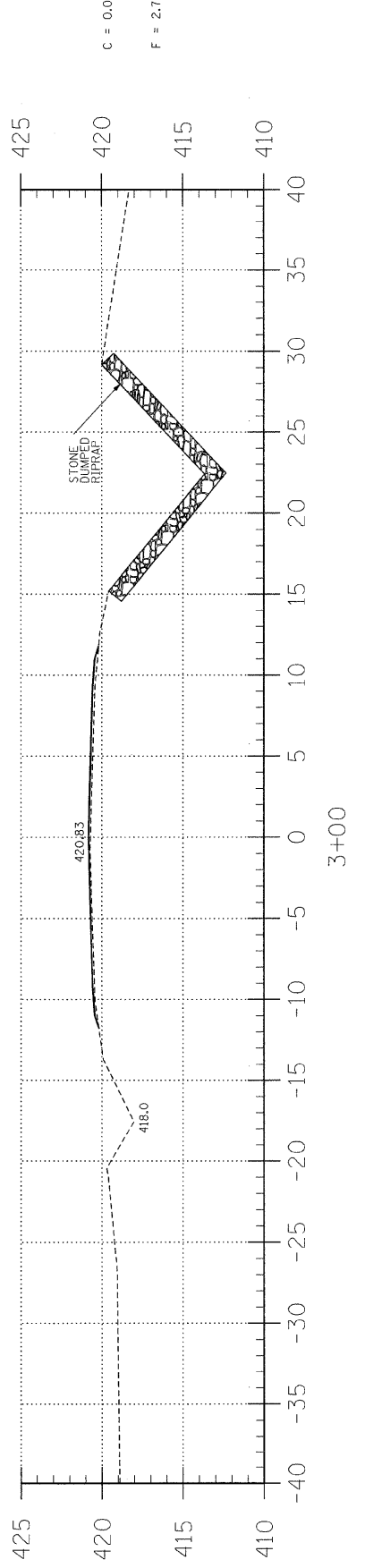
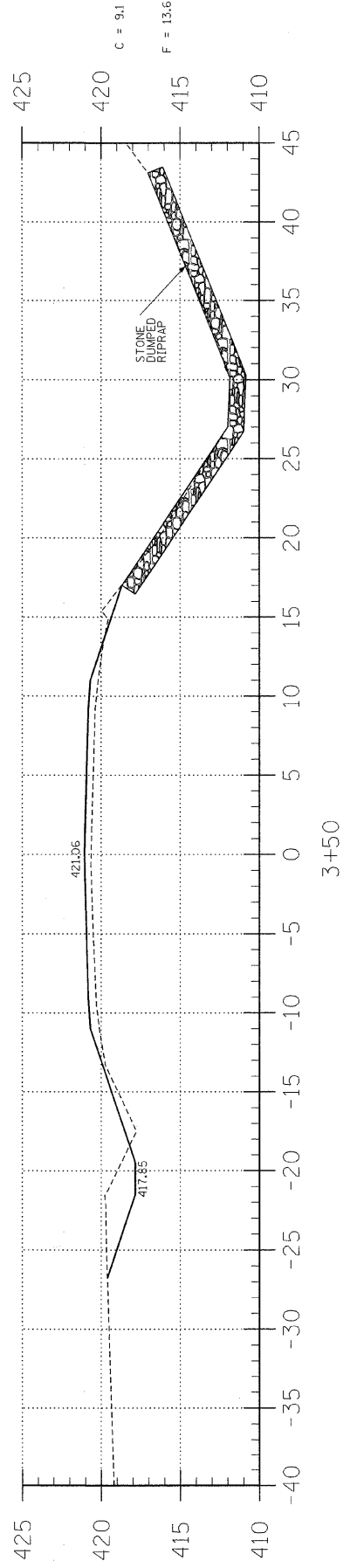
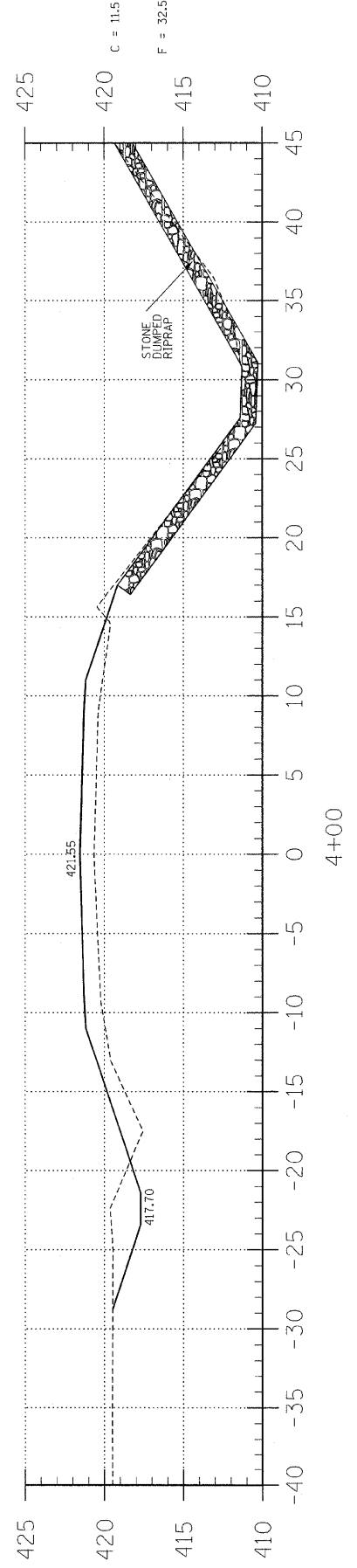
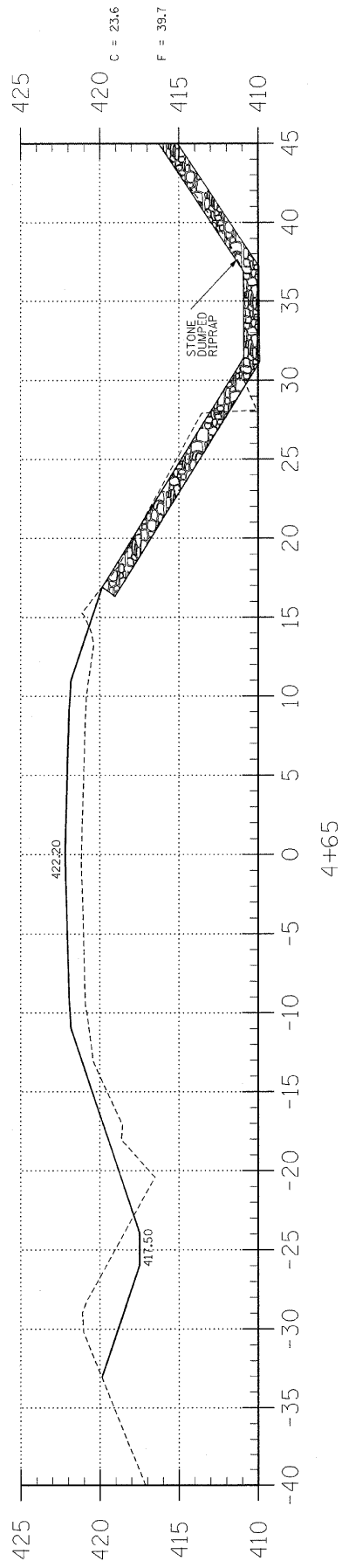
BY: AMM

DATE: 10/26/09

REV:

2 OF 13
SHEETS

SHEET NO.
2



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	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD
STA 0+00 TO 4+74.3	76.6	0.0	0.0	0.0	0.0	57.5	143.2	-85.7				
STA 4+74.3 TO 5+25.7	0.0	95.0	0.0	0.0	47.5	35.6	0.0	35.6				
STA 5+25.7 TO 10+00	70.8	0.0	0.0	0.0	0.0	53.1	71.6	-18.5				
1 FIELD ENTRANCE	0.0	0.0	0.0	0.0	0.0	0.0	3.2	-3.2				
TOTAL	147.4	95.0	0.0	0.0	47.5	146.2	218.0	-71.8				

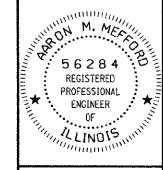
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4	07-00064-00-BR	EDWARDS	13	3
FED. ROAD DIST. NO. 7 ILLINOIS		FED. AID PROJECT		
PROJECT# ARA-047(032)		CONTRACT# 95606		
JOB NO. C-97-023-10		BEAR CREEK		

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AARON M. MEFFORD
NAME
Aaron Mefford
SIGNATURE
10-26-09
DATE
113011
EXPIRES

BEAR CREEK
COUNTY HIGHWAY 4
EDWARDS COUNTY, ILLINOIS

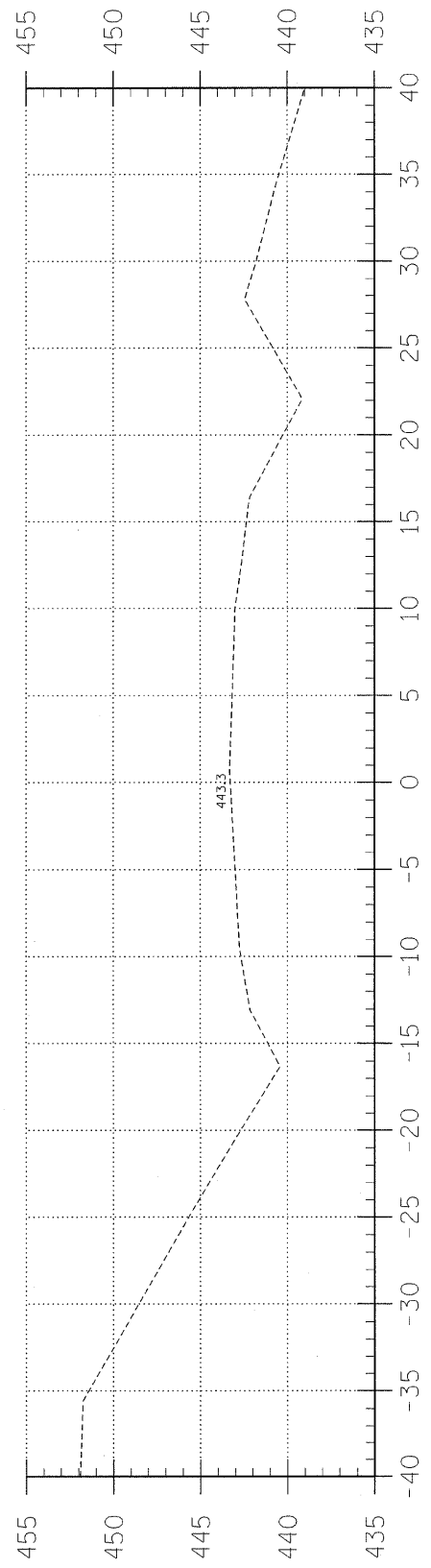
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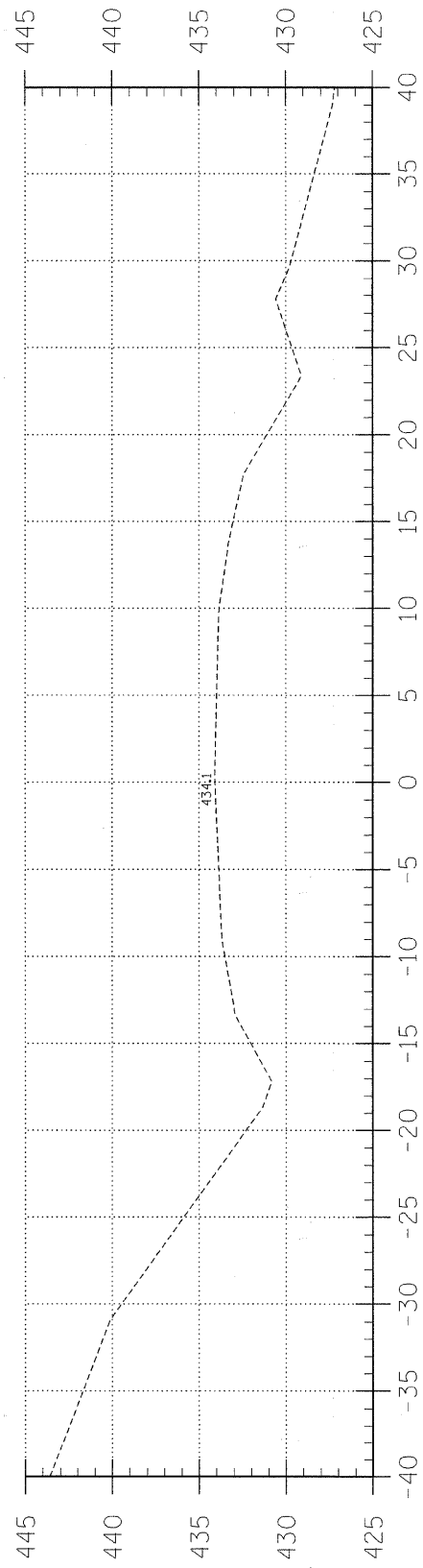
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DATE: 10/20/09
REV:

3 OF 13
SHEETS

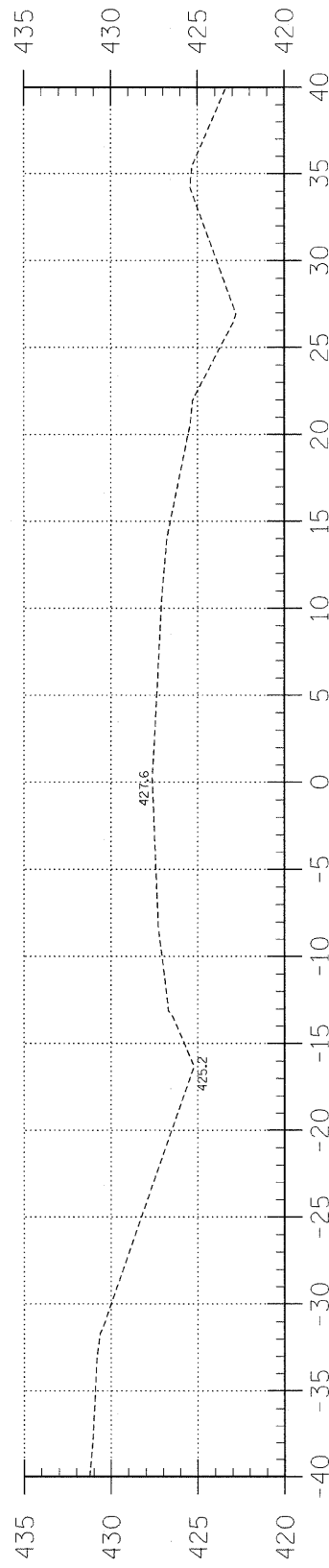
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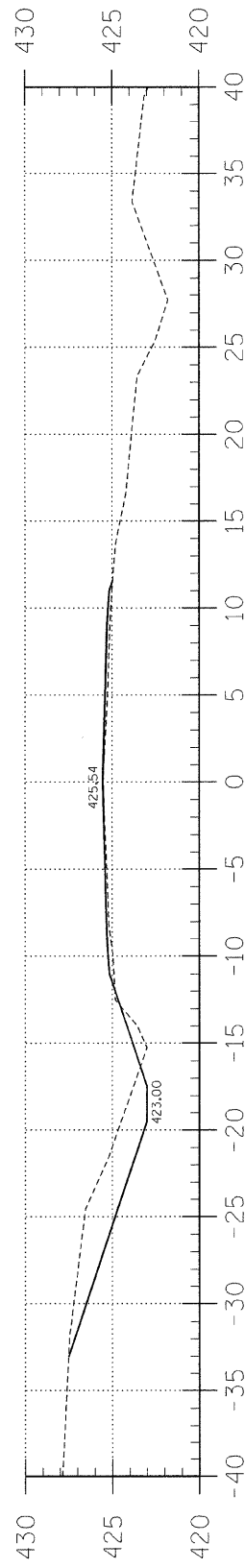
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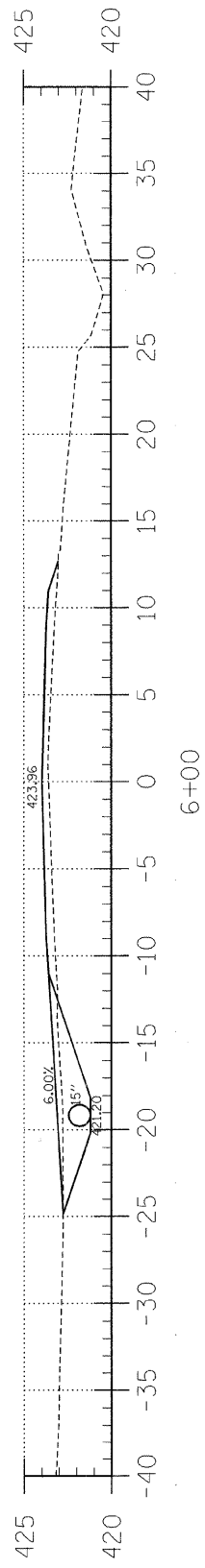
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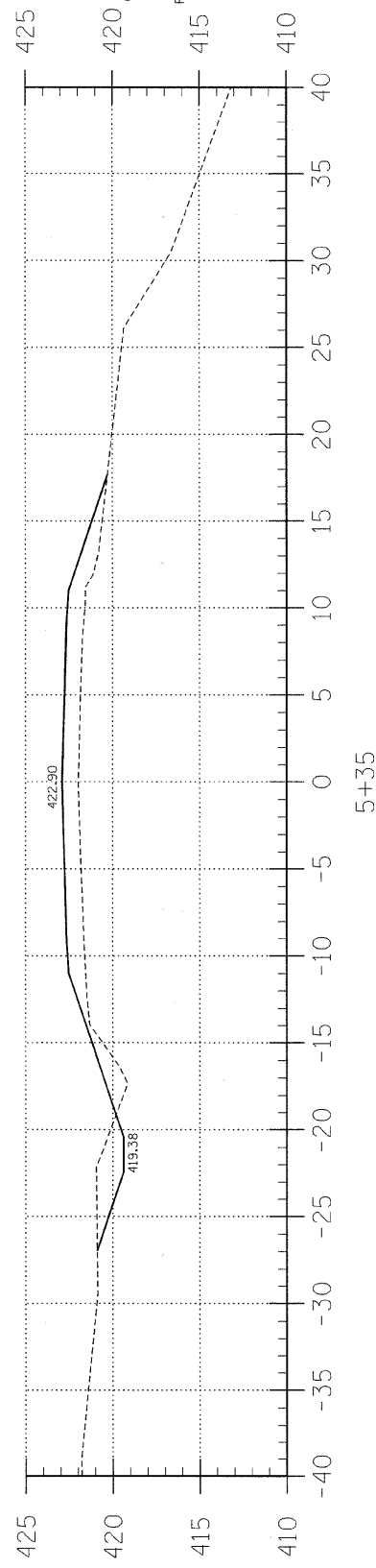
7+00



6+50



6+00



5+35

C = 19.0
F = 4.3

C = 10.4
F = 8.9

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	07-00064-00-BR	EDWARDS	13	4
FED. ROAD DIST. NO. 7 ILLINOIS		FED. AID PROJECT		
PROJECT* ARA-047(032)		CONTRACT* 95606		
JOB NO. C-97-023-10		BEAR CREEK		

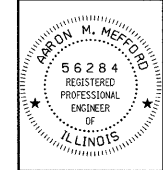
LEC JOB # H081009ED

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184-000887
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AARON M. MEFFORD
NAME
SIGNATURE
DATE
1/30/11
EXPIRES

BEAR CREEK
COUNTY HIGHWAY 4
EDWARDS COUNTY, ILLINOIS

SHEET TITLE:

CROSS-SECTIONS

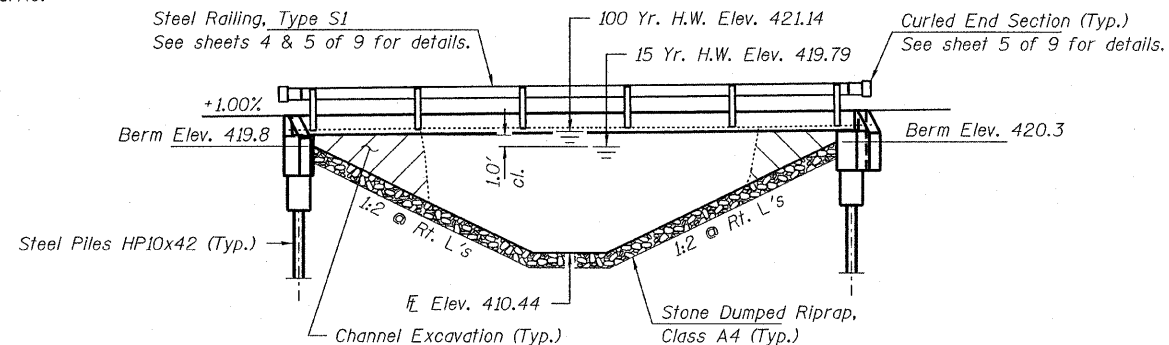
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DATE: 10/20/09
REV:

4 OF 13
SHEETS

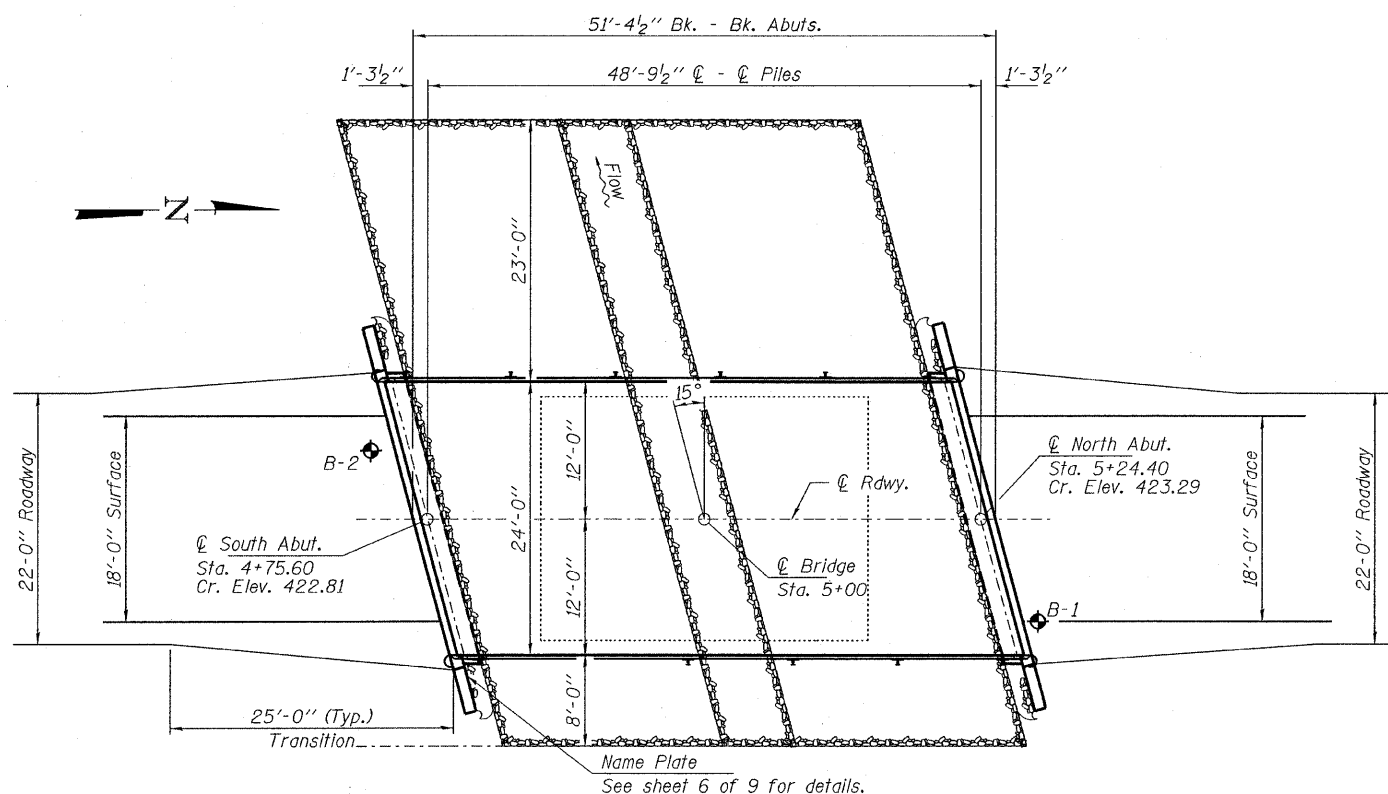
SHEET NO.
4

EXISTING STRUCTURE: Sta. 5+00.2 - Single span precast deck beam bridge on closed timber abutments and timber wingwalls. 30.0' bk.-bk. abuts.; 22.5' o.-o. deck. Structure closed to traffic.

No Salvage



ELEVATION



PLAN

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
fy = 60,000 psi (Reinf.)

PRECAST PRESTRESSED UNITS

f'c = 6,000 psi
f'cl = 5,000 psi
fpu = 270,000 psi (1/2" low lax. strands)
fpbt = 201,960 psi (1/2" low lax. strands)
fy = 60,000 psi (Reinf.)

LOADING HL-93

Design Specifications: 2007 AASHTO LRFD with all applicable interims. 50#/Sq. Ft. Included in dead load for future wearing surface.

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

SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
Design Spectral Acceleration at 1.0 sec. (Sp1) = 0.264g
Design Spectral Acceleration at 0.2 sec. (Sp5) = 0.632g
Soil Site Class = D

WATERWAY INFORMATION

Drainage Area = 2.4 Sq. Mi.		Existing Low Grade Elev. 420.60 @ Sta. 4+00		Proposed Low Grade Elev. 420.83 @ Sta. 3+00		
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist. Prop.	Natural H.W.E. Exist. Prop.	Head - Ft. Exist. Prop.	Headwater El. Exist. Prop.
Design	15	1247	206 250	419.79 421.14	0.24 0.13	420.03 419.92
Max. Calc.	100	2200	206 295	421.14 422.14	1.00 0.45	422.14 421.59

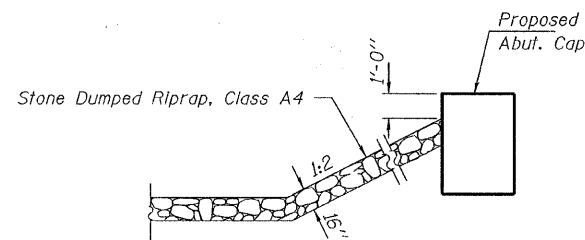
GENERAL NOTES

Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
Excavation behind existing abutment walls shall be performed to balance front and back soil pressure before removing the existing superstructure.
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. See sheet 9 of 9 for Borings.

BEAR CREEK
BUILT 20__ BY
EDWARDS COUNTY
SEC. 07-00064-00-BR
C.H. 4
STR. NO. 024-3137
LOADING HL-93

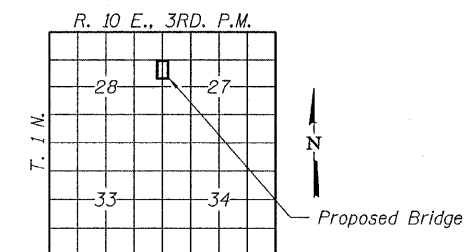
NAME PLATE

See Std. 515001



SECTION A-A

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



LOCATION SKETCH

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			95
Stone Dumped Riprap, Class A4	Ton			244
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		23.4	23.4
Concrete Encasement	Cu. Yd.		2.8	2.8
Precast Prestressed Concrete Deck Beams (21" Depth)	Sq. Ft.	1,200		1,200
Reinforcement Bars	Pound		2,510	2,510
Steel Railing, Type S1	Foot	97		97
Furnishing Steel Piles HP10x42	Foot		360	360
Driving Piles	Foot		360	360
Name Plates	Each		1	1

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."

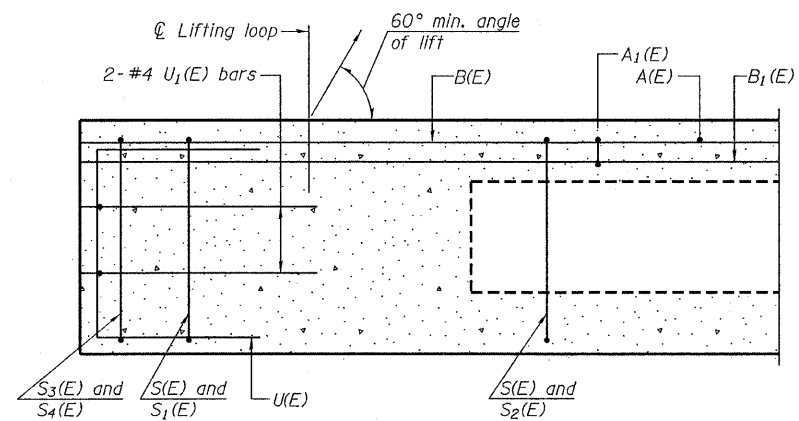
Steven W. Megginson 10/15/2009
ILLINOIS STRUCTURAL NO. 081-6064



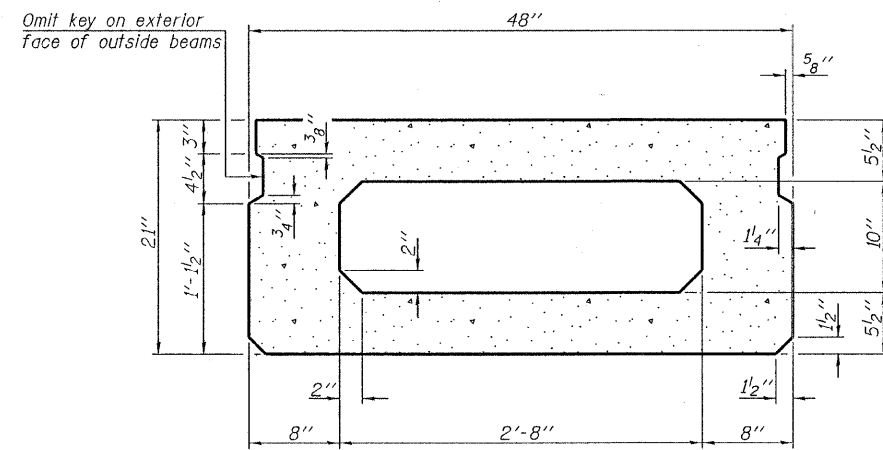
Expires 11-30-2010

GENERAL PLAN AND ELEVATION
STRUCTURE NO. 024-3137

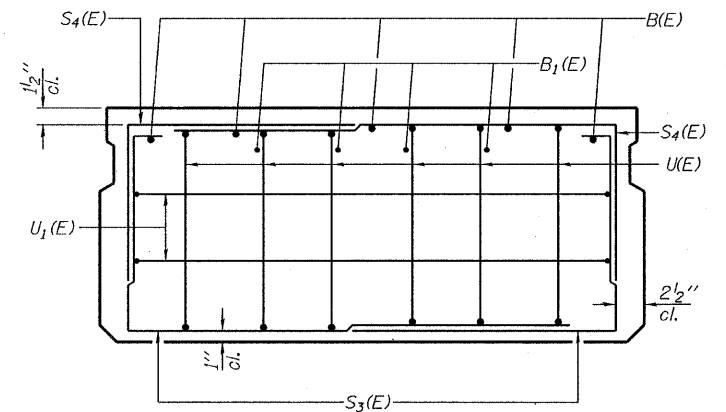
HAMPTON, LENZINI & RENWICK, INC. CIVIL & STRUCTURAL ENGINEERS LAND SURVEYORS HLR 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 (217) 546-3400 PROJECT NUMBER: 09.0047.130 DATE: 10/15/09	SHEET NO. 1	C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	9 SHEETS	4	07-00064-00-BR	EDWARDS	13	5
			CONTRACT NO. 95606			
		FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



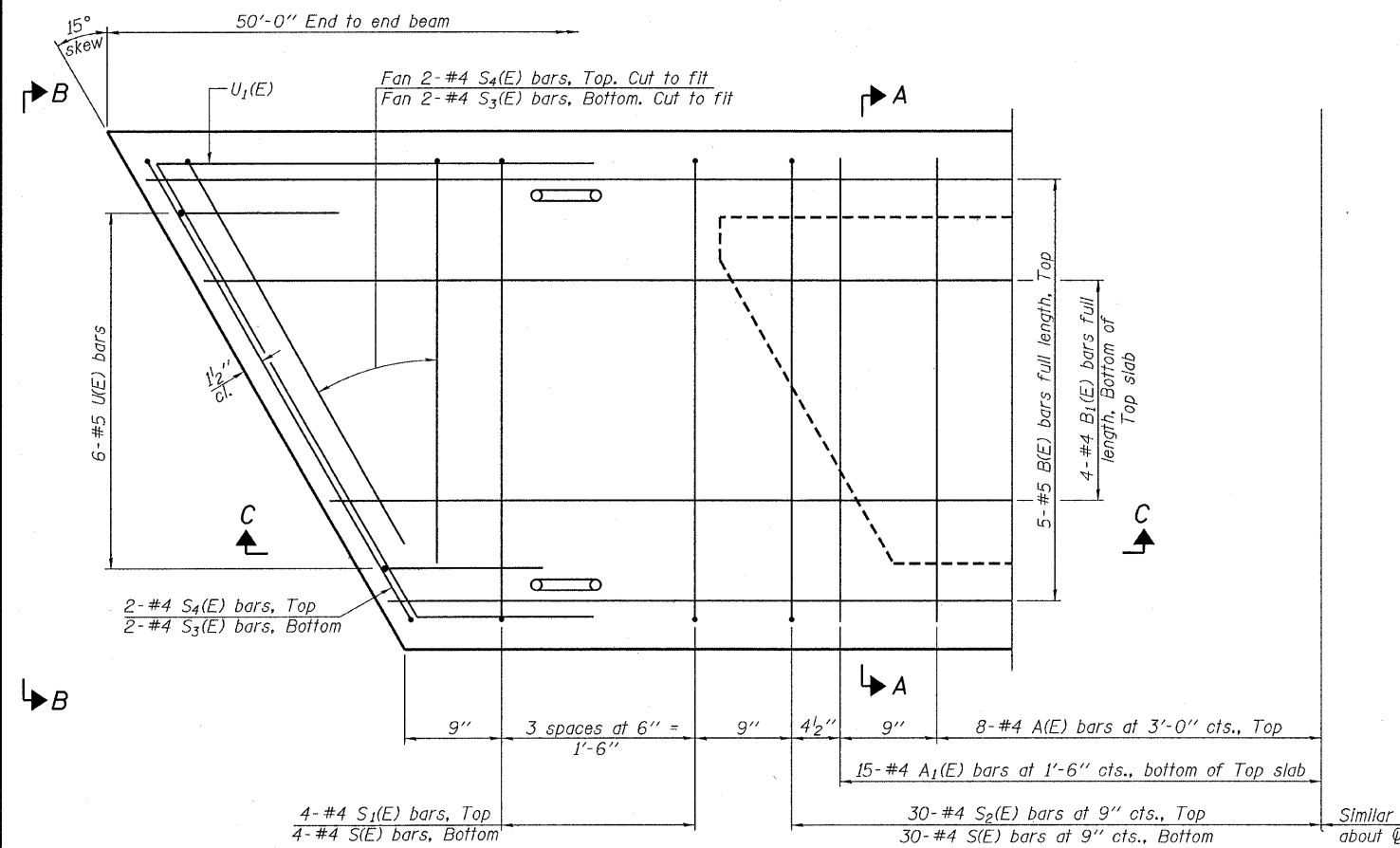
SECTION C-C



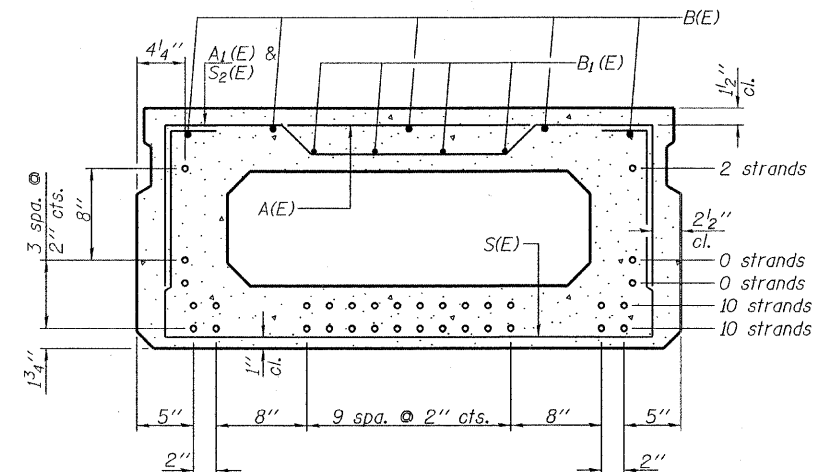
SECTION A-A
(Showing dimensions)



VIEW B-B



PLAN VIEW



SECTION A-A
(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)	16	#4	3'-7"	—
A1(E)	30	#4	3'-10"	—
B(E)	5	#5	49'-8"	—
B1(E)	4	#4	49'-8"	—
S(E)	68	#4	7'-5"	U
S1(E)	8	#4	5'-11"	U
S2(E)	60	#4	6'-2"	U
S3(E)	8	#4	4'-8"	U
S4(E)	8	#4	3'-11"	U
U(E)	12	#5	4'-0"	U
U1(E)	4	#4	7'-1"	U

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

Note: 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.

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

PD-2148-R

10-1-08

HAMPTON, LENZINI & RENWICK, INC.
CIVIL & STRUCTURAL ENGINEERS
LAND SURVEYORS

HLR 3085 STEVENSON DRIVE, SUITE 201
SPRINGFIELD, ILLINOIS 62703
(217) 546-3400

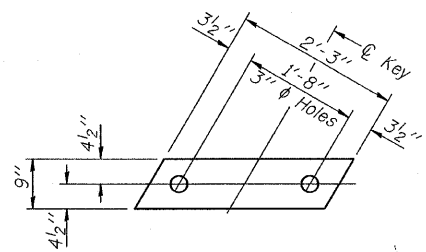
PROJECT NUMBER: 09.0047.130 DATE: 10/15/09

SHEET NO. 2

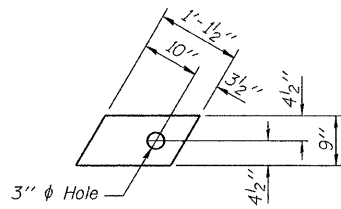
9 SHEETS

C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
4	07-00064-00-BR	EDWARDS	13	6
		CONTRACT NO. 95606		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

SUPERSTRUCTURE
21" X 48" PPC DECK BEAM
STRUCTURE NO. 024-3137



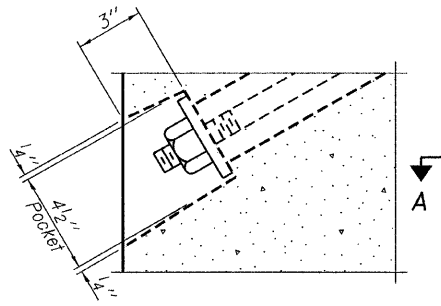
FABRIC BEARING PAD
(Interior - 10 Req'd.)



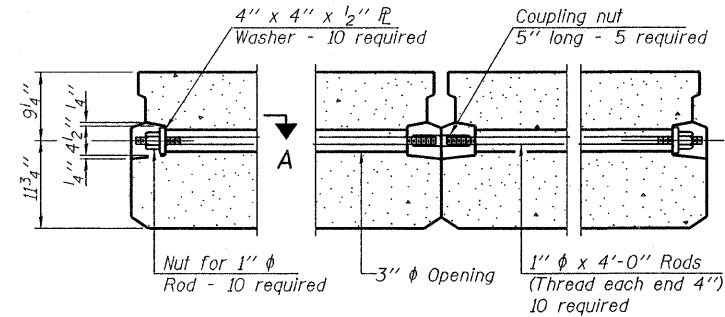
FABRIC BEARING PAD
(Exterior - 4 Req'd.)

FIXED

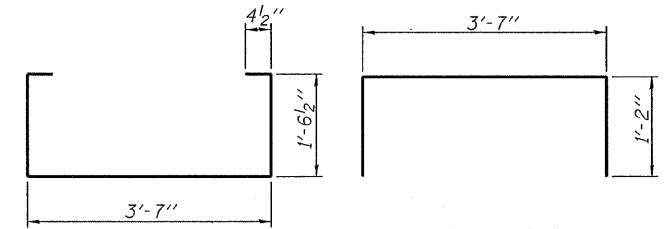
Note: Omit holes when using expansion bearings.



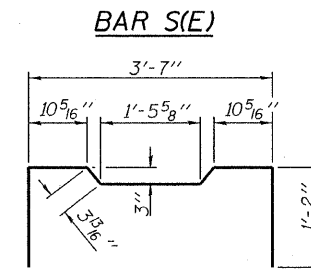
SECTION A-A



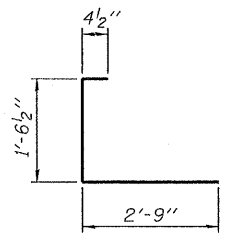
TYPICAL TRANSVERSE TIE ASSEMBLY



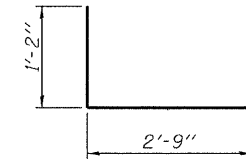
BAR S₁(E)



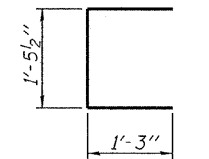
BAR S₂(E)



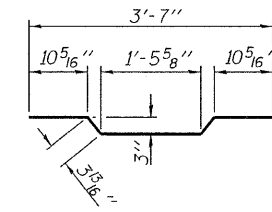
BAR S₃(E)



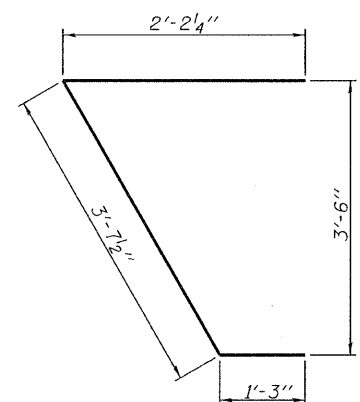
BAR S₄(E)



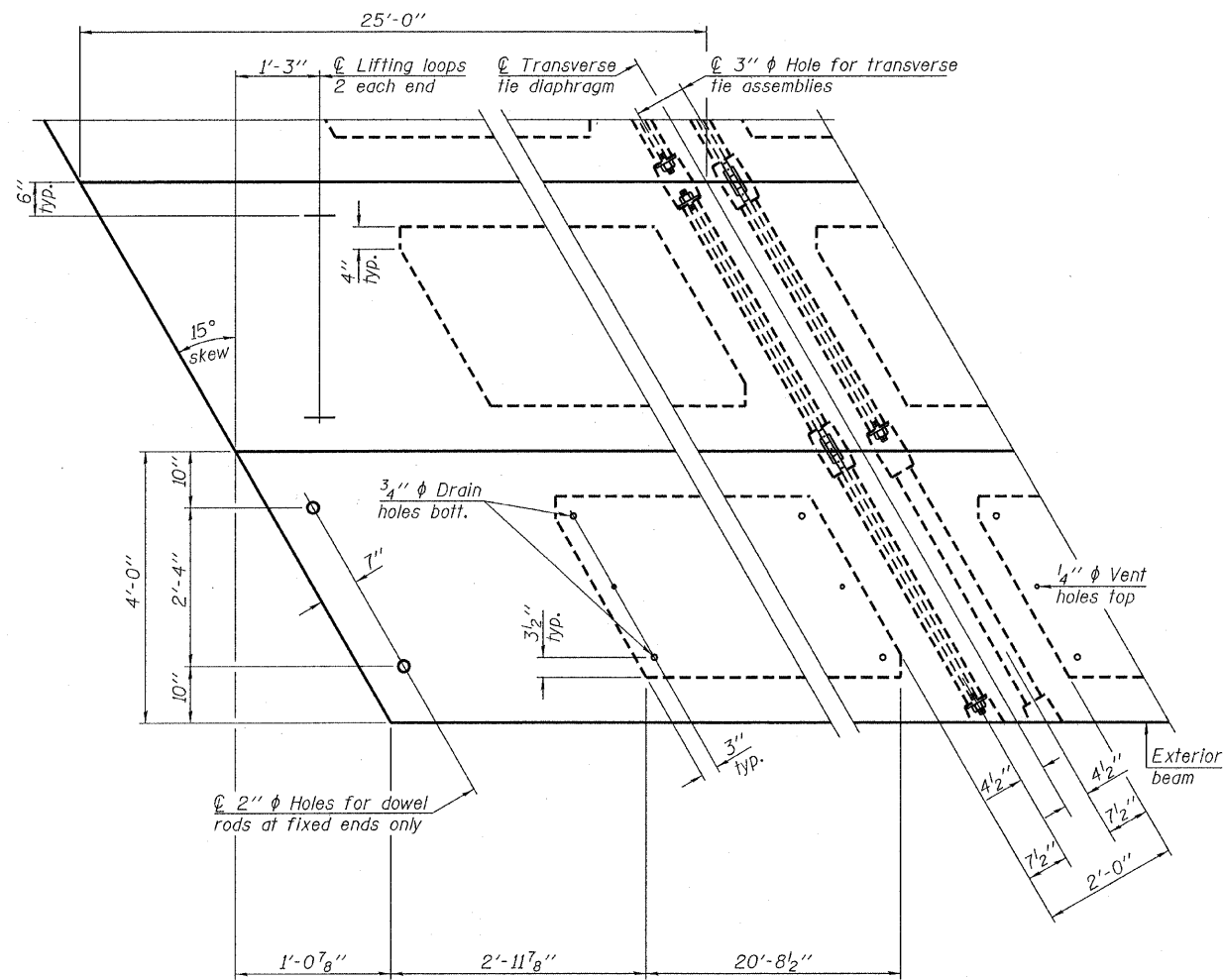
BAR U(E)



BAR A₁(E)



BAR U₁(E)



PLAN VIEW

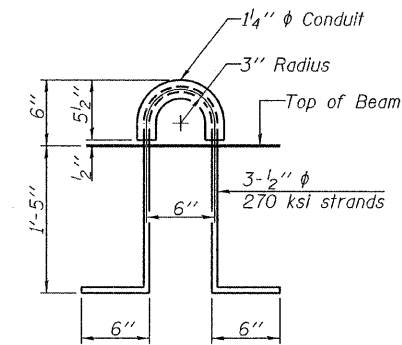
NOTES

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" 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. (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" 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.



LIFTING LOOP DETAIL

BILL OF MATERIAL

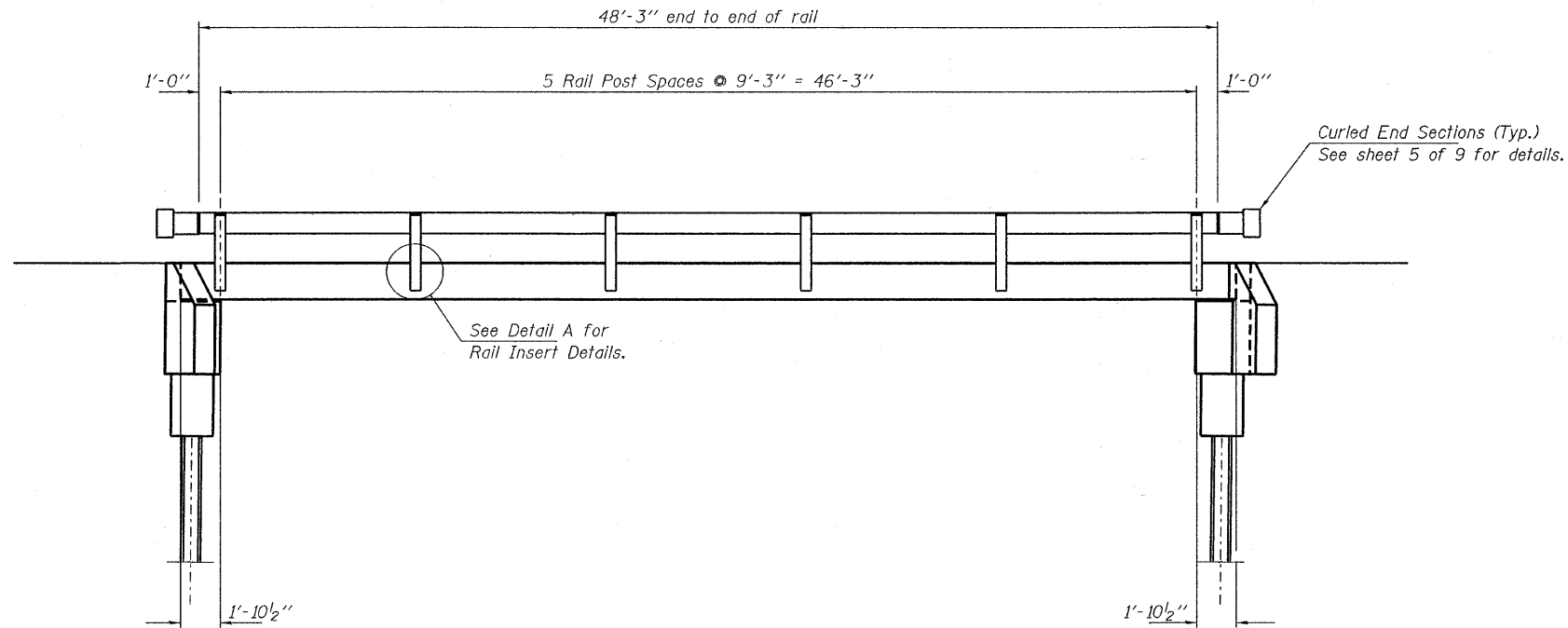
Precast Prestressed Conc. Deck Bms. (21" depth)	Sq. Ft.	1,200
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SUPERSTRUCTURE DETAILS
21' X 48" PPC DECK BEAM
STRUCTURE NO. 024-3137

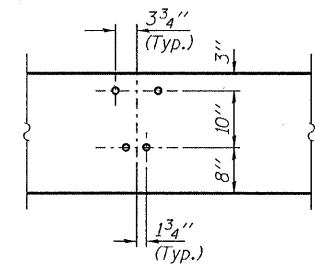
DESIGNED - A.S.L.
CHECKED - S.W.M.
DRAWN - D.A.B.
CHECKED - D.T.M.

PD-2148-RD 10-1-08

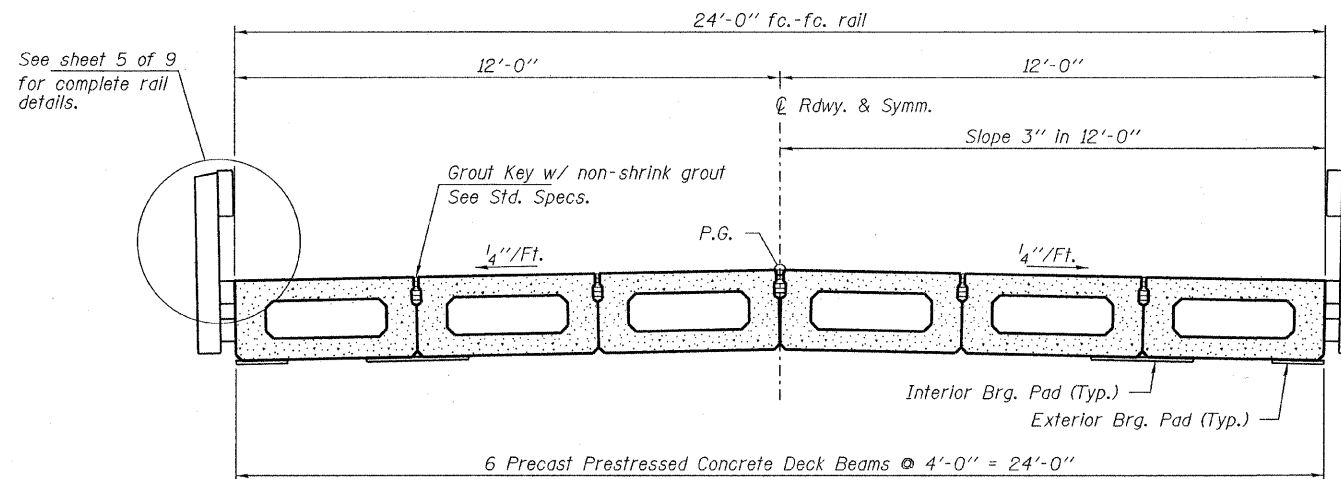
HAMPTON, LENZINI & RENWICK, INC. CIVIL & STRUCTURAL ENGINEERS LAND SURVEYORS 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 (217) 546-3400	SHEET NO. 3 9 SHEETS	C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		4	07-00064-00-BR	EDWARDS	13	7
PROJECT NUMBER: 09 0047.130 DATE: 10/15/09		FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		CONTRACT NO. 95606



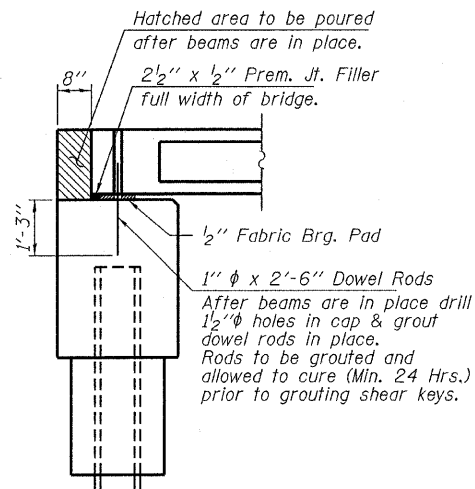
ELEVATION
Showing Rail Post Spaces
See sheet 5 of 9 for Railing Details.



DETAIL A



CROSS SECTION
See sheets 2 & 3 of 9 for Superstructure.

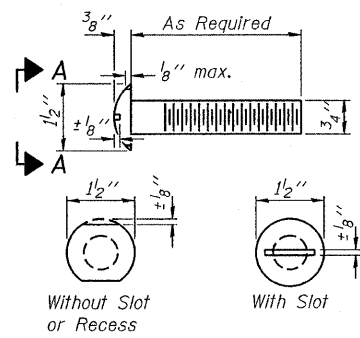


SECTION AT ABUTMENTS
© Rt. L's

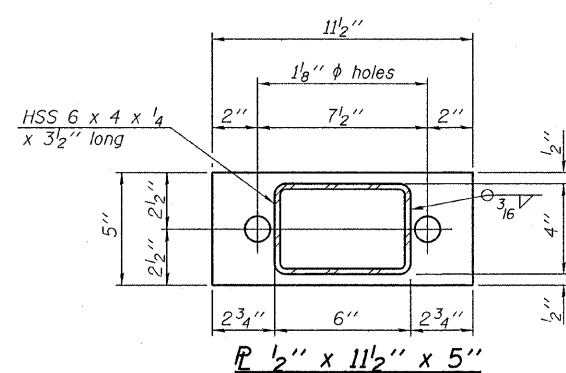
DESIGNED	- A.S.L.
CHECKED	- S.W.M.
DRAWN	- D.A.B.
CHECKED	- D.T.M.

SUPERSTRUCTURE DETAILS
STRUCTURE NO. 024-3137

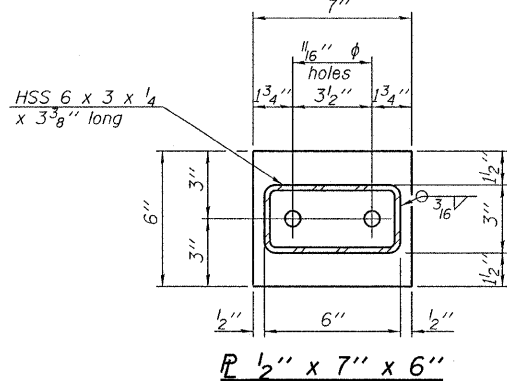
HAMPTON, LENZINI & RENWICK, INC. CIVIL & STRUCTURAL ENGINEERS LAND SURVEYORS 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 (217) 546-3400 PROJECT NUMBER: 09.0047.130 DATE: 10/15/09	SHEET NO. 4	C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	9 SHEETS	4	07-00064-00-BR	EDWARDS	13	8
			CONTRACT NO. 95606			
		FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		



**VIEW A-A
ROUND HEAD BOLT**

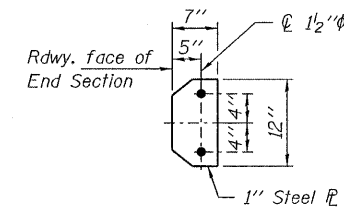


SECTION B-B

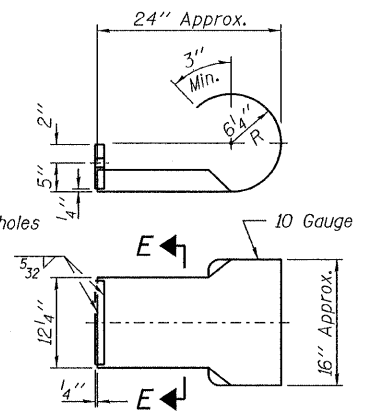


SECTION AT RAILING POST

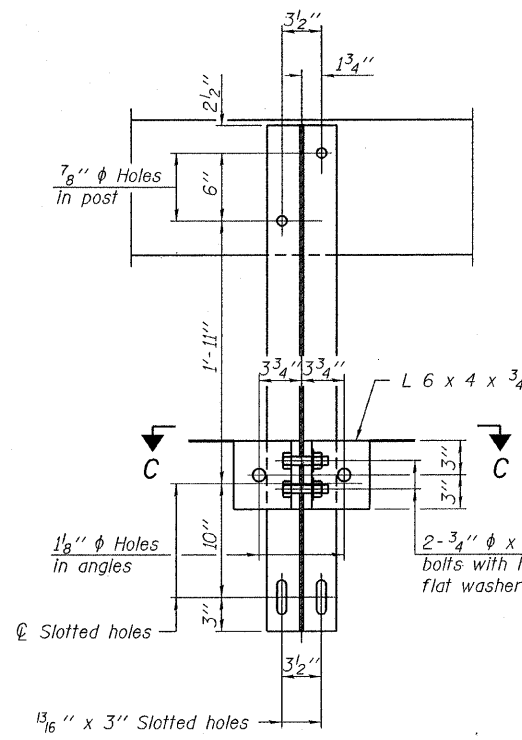
Note: Cost of curled end sections shall be included with the Steel Railing. (4 Required)



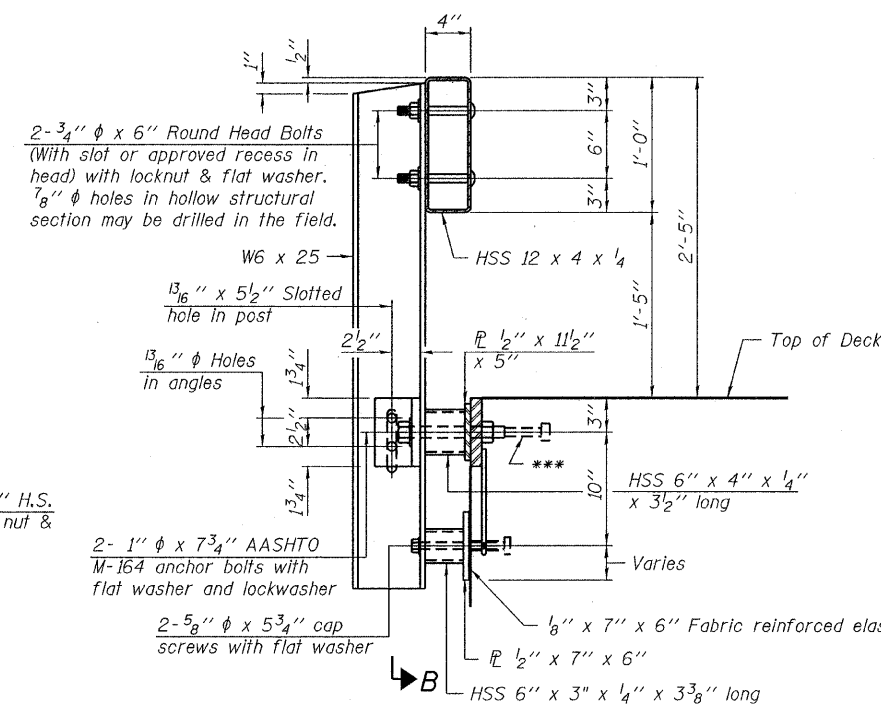
SECTION E-E



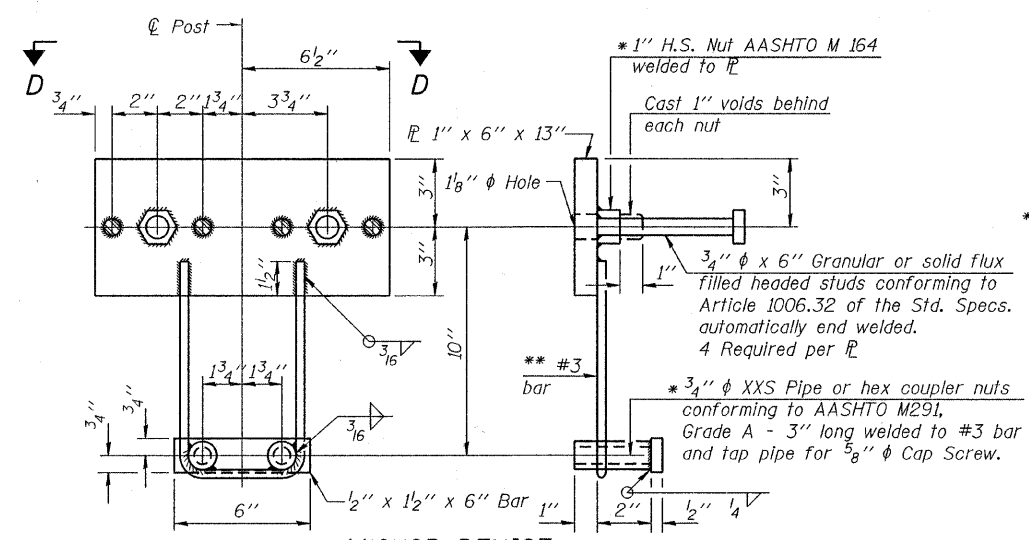
CURLLED END SECTION DETAILS



SECTION C-C

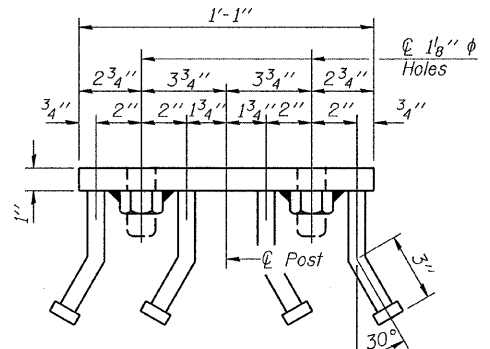


SECTION AT RAILING POST

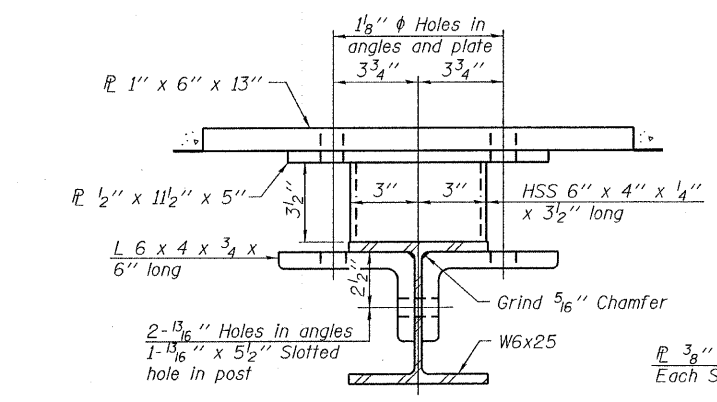


ANCHOR DEVICE

Notes:
All field drilled holes shall be coated with an approved zinc rich paint before erection.
For multi-span bridges, sufficient 1/4" x 6" 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.

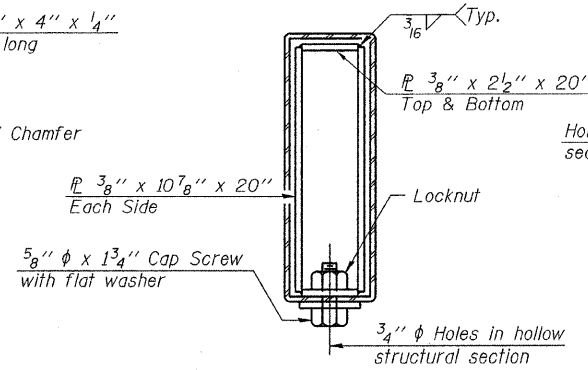


VIEW D-D

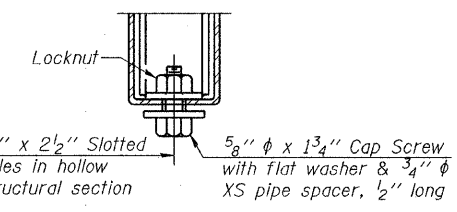


SECTION C-C

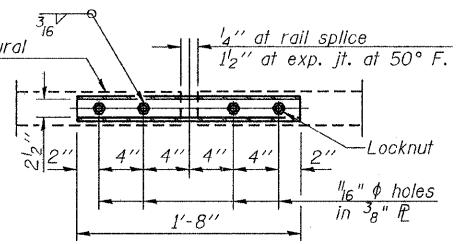
** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".



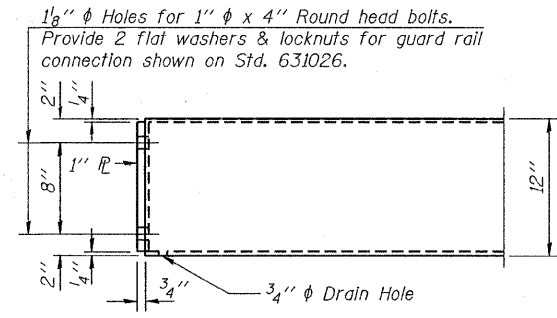
SECTIONS AT RAIL SPLICE



RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTT. SPLICE TYPICAL



END OF RAIL DETAILS

BILL OF MATERIAL

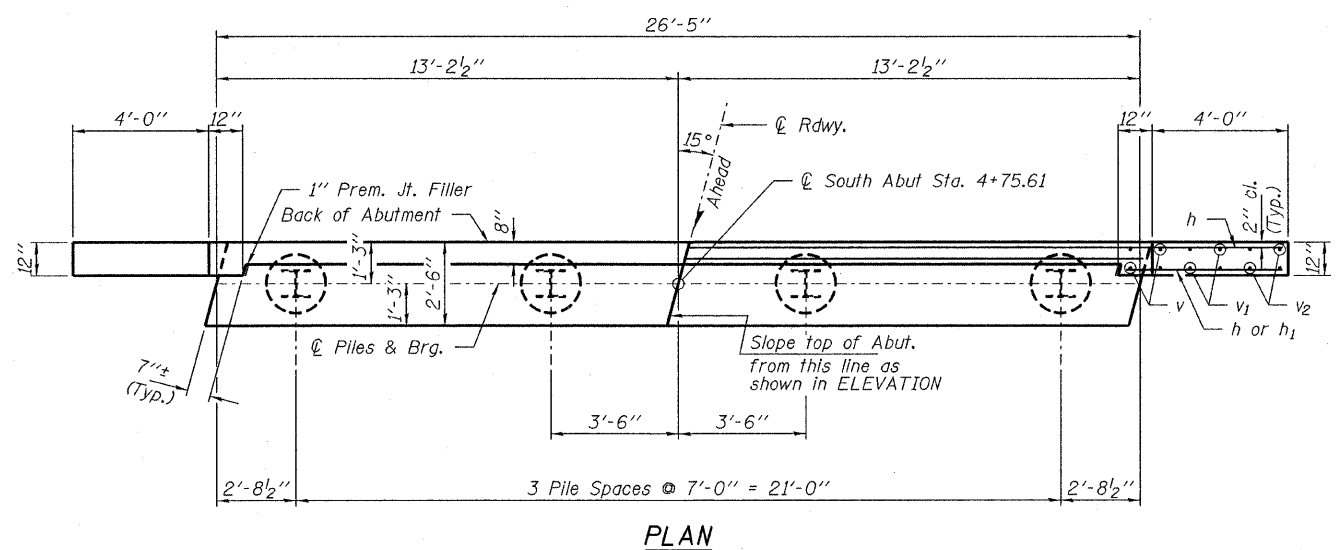
Item	Unit	Quantity
Steel Railing, Type S-1	Foot	97

**STEEL RAILING, TYPE S-1
STRUCTURE NO. 024-3137**

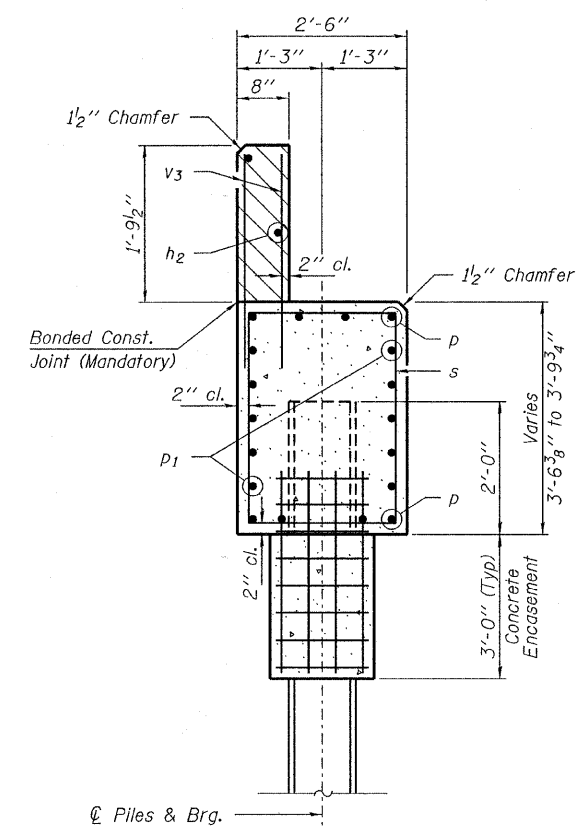
DESIGNED - A.S.L.
CHECKED - S.W.M.
DRAWN - D.A.B.
CHECKED - D.T.M.

R-23A 10-1-08 (10'-9" Maximum Post Spacing)

HAMPTON, LENZINI & RENWICK, INC. CIVIL & STRUCTURAL ENGINEERS LAND SURVEYORS HLR 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 (217) 546-3400 PROJECT NUMBER: 09.0047.130 DATE: 10/15/09	SHEET NO. 5	C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	9 SHEETS	4	07-00064-00-BR	EDWARDS	13	9
		FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT	
				CONTRACT NO. 95606		

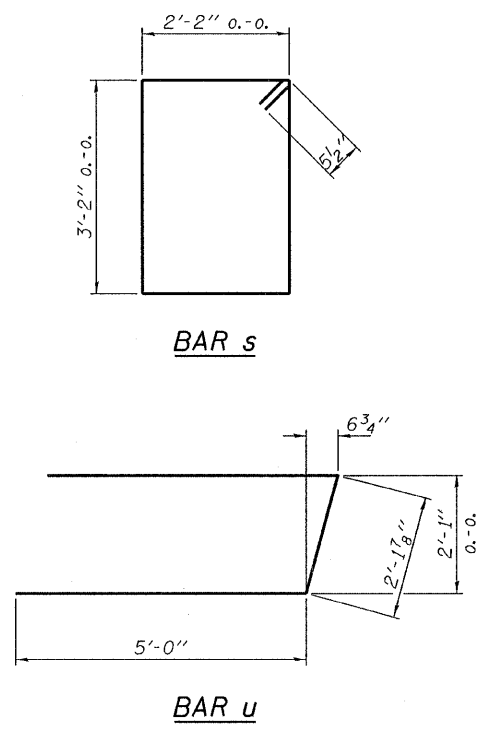


PLAN



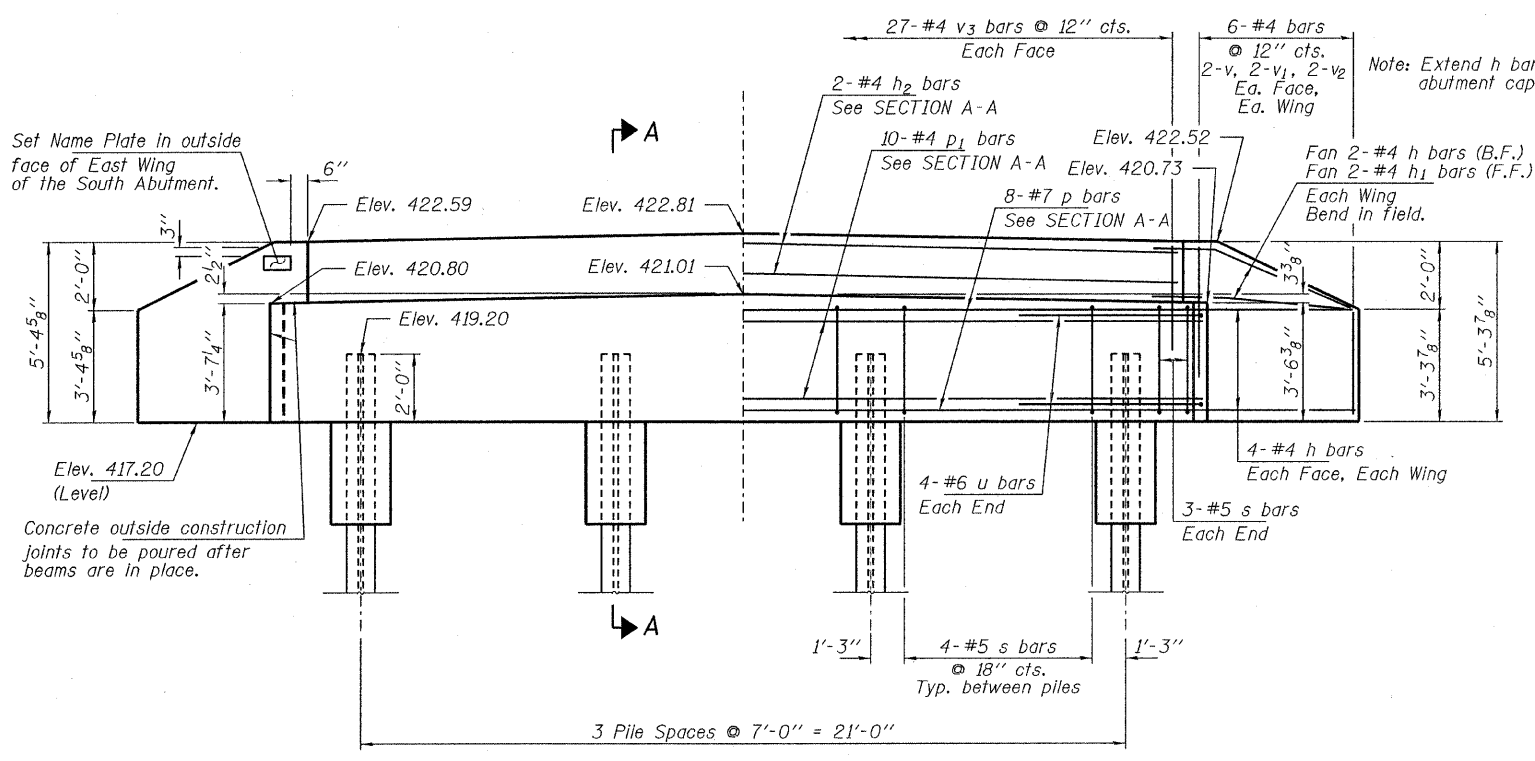
SECTION A-A

Hatched area to be poured after beams are in place.



BAR s

BAR u



ELEVATION

Note: Extend h bars into abutment cap.

PILE DATA

Type ----- Steel HP10x42
 No. Req'd. (S. Abut.) ----- 4
 Factored Resistance Available (Rf) ----- 167 Kips/Pile
 Nominal Required Bearing (Rn) ----- 335 Kips/Pile
 Est. Length ----- 45 Ft/Pile

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

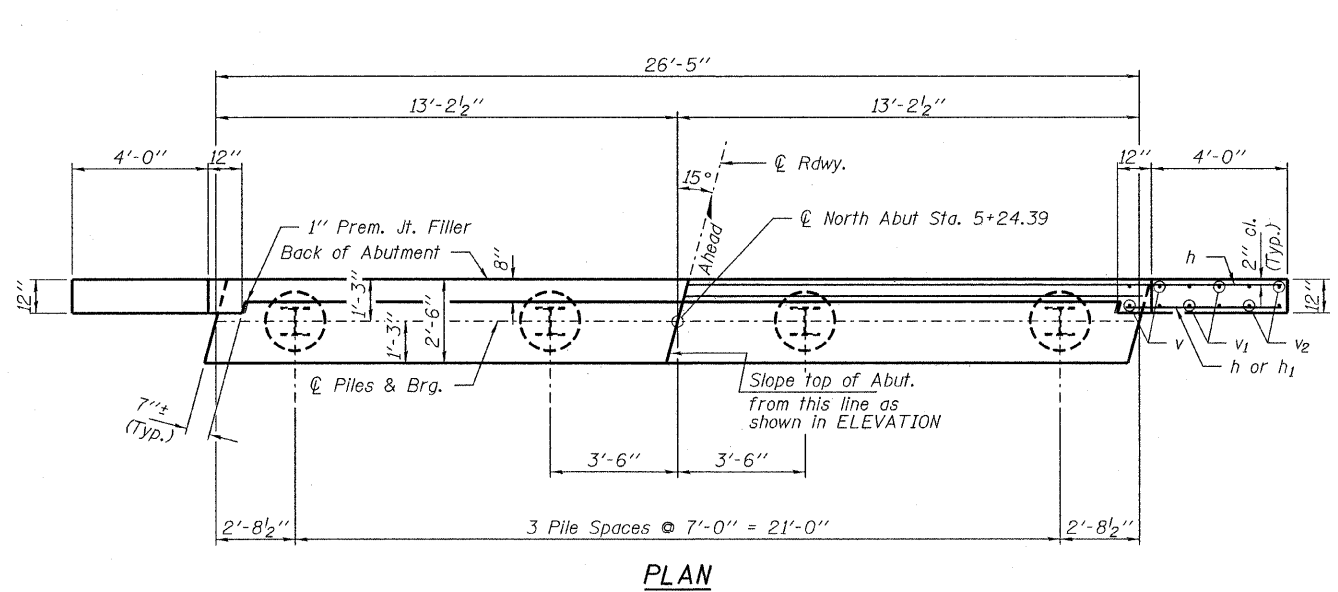
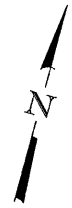
BILL OF MATERIAL - S. ABUT.

BAR	NO.	SIZE	LENGTH	SHAPE
h	20	#4	6'-3"	—
h1	4	#4	4'-9"	—
h2	2	#4	26'-1"	—
p	8	#7	26'-1"	—
p1	10	#4	26'-1"	—
s	18	#5	11'-7"	□
u	8	#6	12'-2"	U
v	8	#4	4'-11"	—
v1	8	#4	4'-1"	—
v2	8	#4	3'-1"	—
v3	54	#4	2'-8"	—
Concrete Structures			Cu. Yd.	11.7
Concrete Encasement			Cu. Yd.	1.4
Reinforcement Bars			Pound	1,255
Steel Piles HP10x42			Foot	180
Name Plates			Each	1

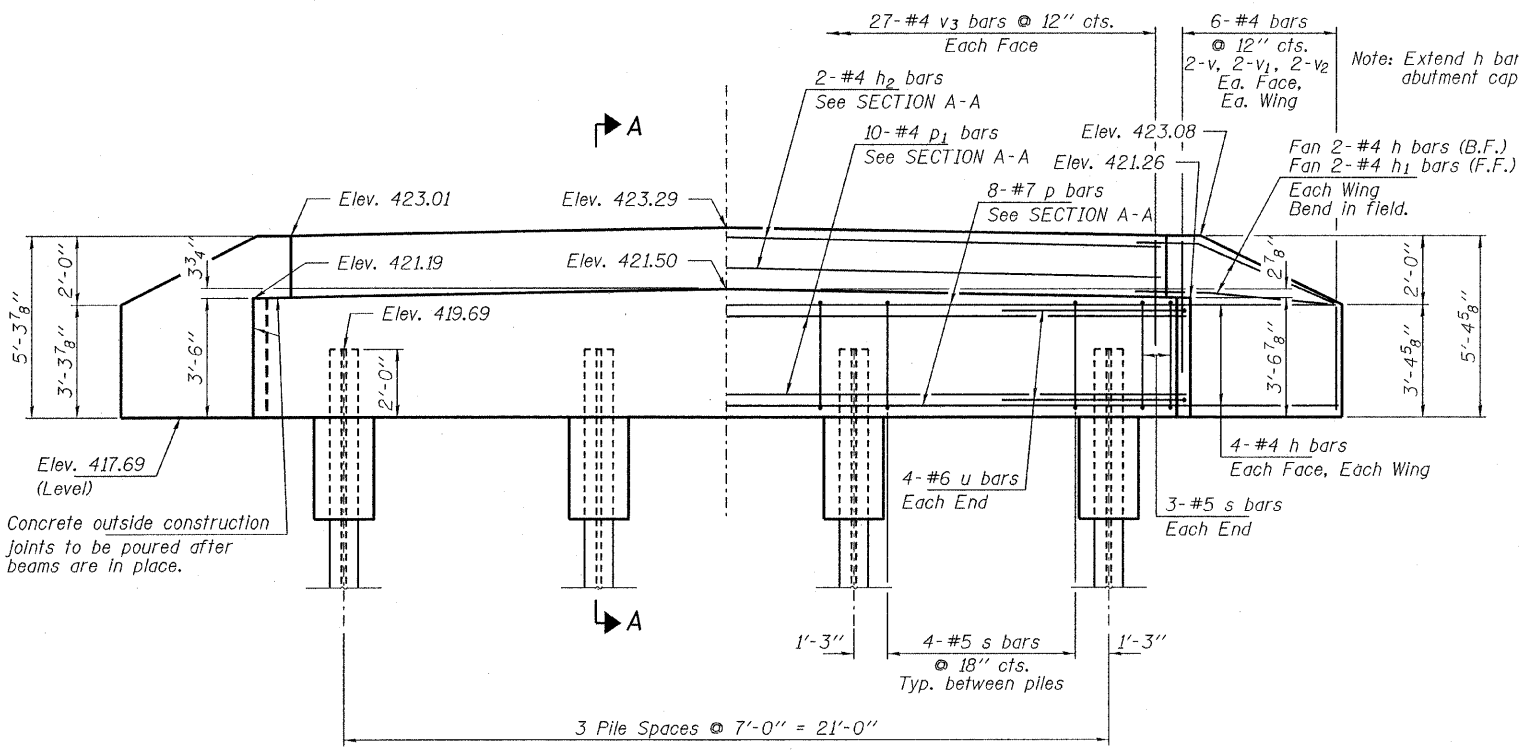
DESIGNED - A.S.L.
CHECKED - S.W.M.
DRAWN - D.A.B.
CHECKED - D.T.M.

**SOUTH ABUTMENT
STRUCTURE NO. 024-3137**

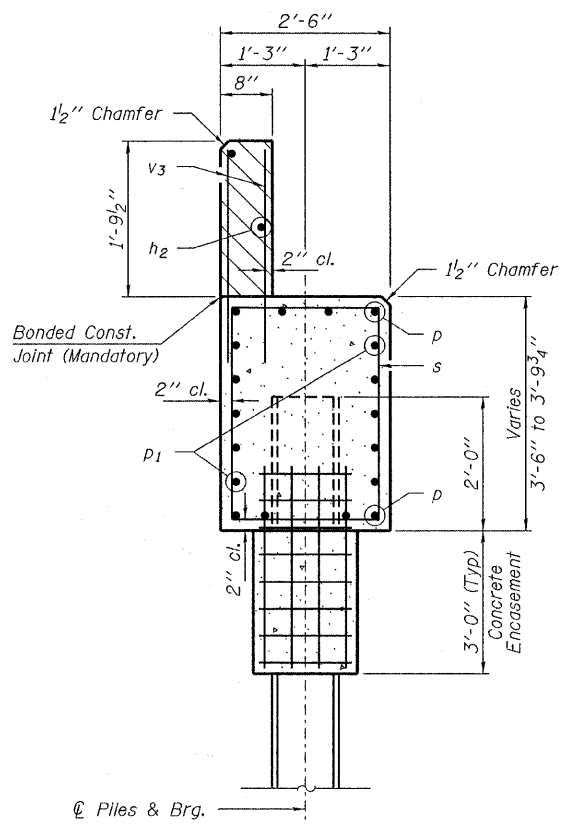
HAMPTON, LENZINI & RENWICK, INC. CIVIL & STRUCTURAL ENGINEERS LAND SURVEYORS 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 (217) 546-3400	SHEET NO. 6 9 SHEETS	C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		4	07-00064-00-BR	EDWARDS	13	10
PROJECT NUMBER: 09.0047.130		DATE: 10/15/09		CONTRACT NO. 95606		
FED. ROAD DIST. NO.		ILLINOIS		FED. AID PROJECT		



PLAN

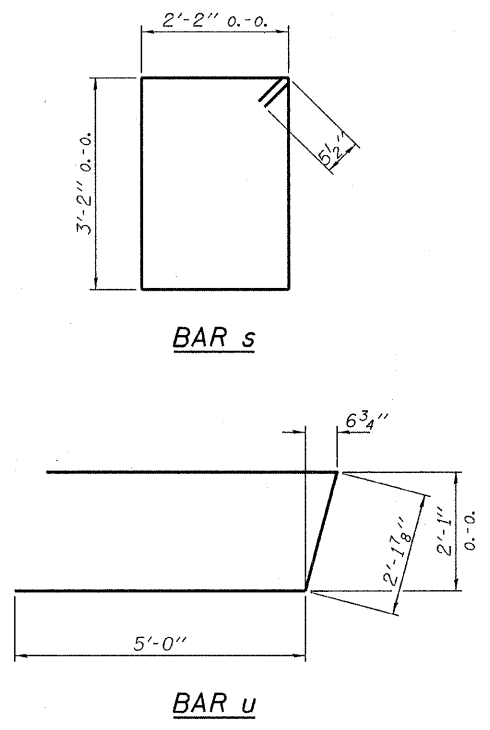


ELEVATION



SECTION A-A

Hatched area to be poured after beams are in place.



BAR s

BAR u

BILL OF MATERIAL - N. ABUT.

BAR	NO.	SIZE	LENGTH	SHAPE
h	20	#4	6'-3"	—
h1	4	#4	4'-9"	—
h2	2	#4	26'-1"	—
p	8	#7	26'-1"	—
p1	10	#4	26'-1"	—
s	18	#5	11'-7"	□
u	8	#6	12'-2"	U
v	8	#4	4'-11"	—
v1	8	#4	4'-1"	—
v2	8	#4	3'-1"	—
v3	54	#4	2'-8"	—
Concrete Structures			Cu. Yd.	11.7
Concrete Encasement			Cu. Yd.	1.4
Reinforcement Bars			Pound	1,255
Steel Piles HP10x42			Foot	180

PILE DATA

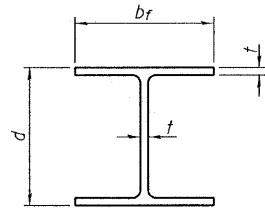
Type: Steel HP10x42
 No. Req'd. (N. Abut.): 4
 Factored Resistance Available (Rf): 167 Kips/Pile
 Nominal Required Bearing (Rn): 335 Kips/Pile
 Est. Length: 45 Ft/Pile

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

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

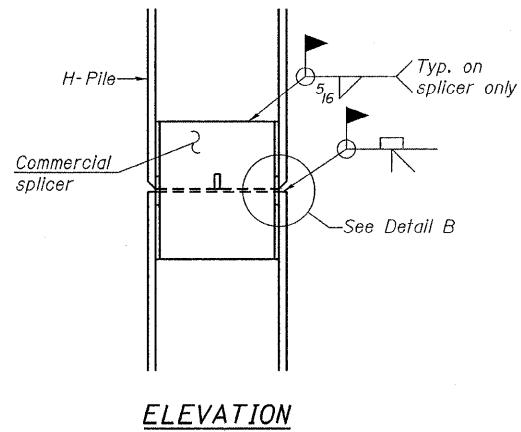
**NORTH ABUTMENT
STRUCTURE NO. 024-3137**

HAMPTON, LENZINI & RENWICK, INC. CIVIL & STRUCTURAL ENGINEERS LAND SURVEYORS HLR 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 (217) 546-3400	SHEET NO. 7 9 SHEETS	C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		4	07-00064-00-BR	EDWARDS	13	11
PROJECT NUMBER: 09.0047.130		DATE: 10/15/09		CONTRACT NO. 95606		
		FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

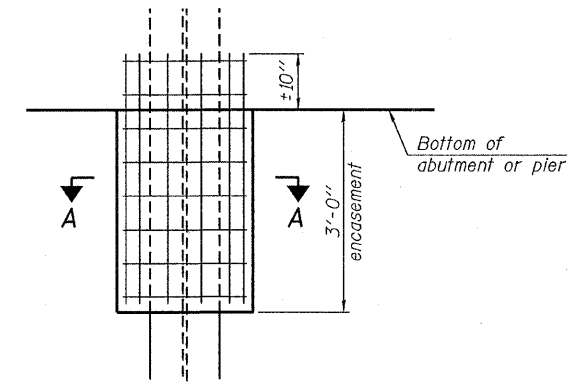


STEEL PILE TABLE

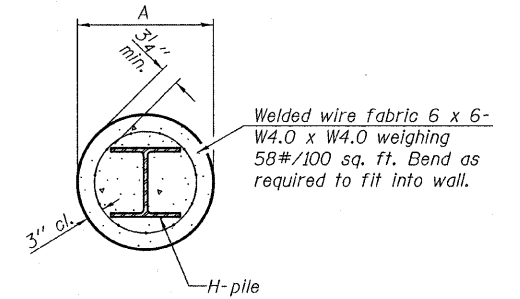
Designation	Depth d	Flange width br	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	11/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	11/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53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



ELEVATION



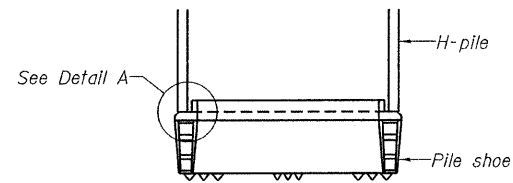
ELEVATION



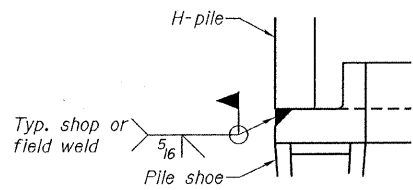
SECTION A-A

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

PILE ENCASEMENT

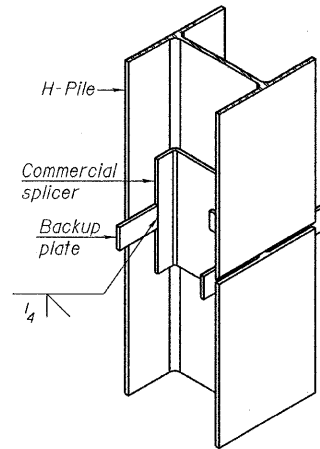


ELEVATION

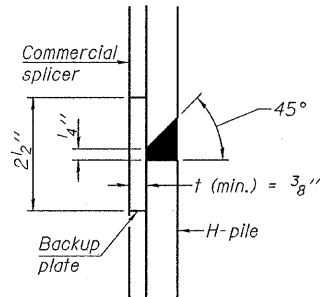


DETAIL A

H-PILE SHOE ATTACHMENT

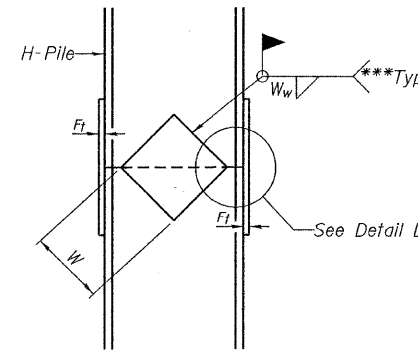


ISOMETRIC VIEW

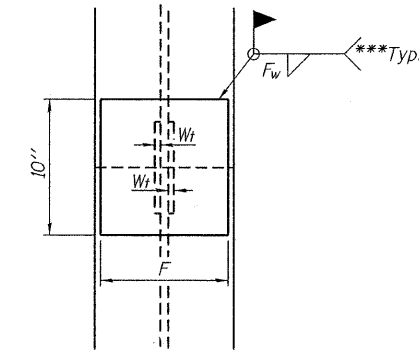


DETAIL "B"

WELDED COMMERCIAL SPLICE



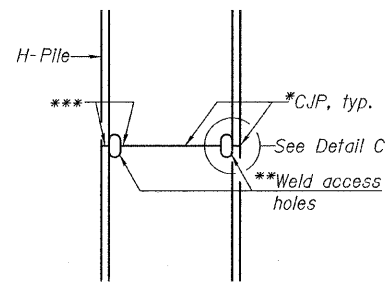
ELEVATION



END VIEW

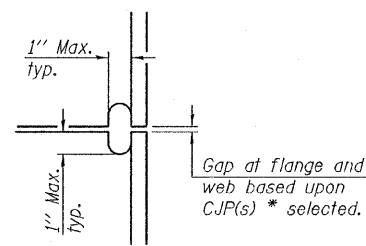
WELDED PLATE FIELD SPLICE

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

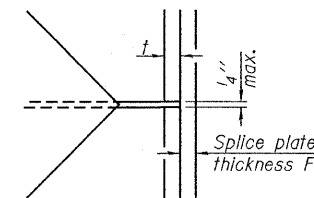


ELEVATION

COMPLETE PENETRATION WELD SPLICE



DETAIL C



DETAIL D

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

- * Use joint conforming to Figure 3.4 in AWS D1.1, Structure Welding Code - Steel.
- ** Preparation per Fig. 5.2 in AWS D1.1, Structure Welding Code - Steel.
- *** Interrupt welds 1/4" from end of each pile.

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

F-HP 10-1-08

**HP PILE DETAILS
STRUCTURE NO. 024-3137**

HAMPTON, LENZINI & RENWICK, INC. CIVIL & STRUCTURAL ENGINEERS LAND SURVEYORS HLR 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 (217) 546-3400 PROJECT NUMBER: 09.0047.130 DATE: 10/15/09	SHEET NO. 8	C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	9 SHEETS	4	07-00064-00-BR	EDWARDS	13	12
			CONTRACT NO. 95606			
			FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	

HOLCOMB FOUNDATION ENGINEERING INC. P.O. Box 88 618-529-5262 Carbondale, Il. 62903 618-457-8991 fax											
Bridge Foundation Boring Log Project: <u>H-08073</u> Bridge _____ Date: <u>5-1-08</u> Section: <u>07-00064-00-BR</u> Station _____ Structure: <u>024-3083</u> Bored by: <u>J. Carter</u> County: <u>Edwards</u> Checked By: <u>T. Holcomb</u>											
Boring No: <u>1</u> Station: _____ Offset: _____		Surface Water Elev. _____ Ground Water Elev. <u>409.8</u> During Drilling <u>387.3</u> Upon Completion <u>plugged</u>		Elevation N Qu tsf W _____		Elevation N Qu tsf W _____					
Ground Surface <u>421.3</u> 399.8 0 2" A-3 Surface _____ 4" Crushed Stone <u>420.8</u> 399.3		silty clay (continued)		_____		_____					
Brown Silty to Sandy CLAY (A-6)		4 0.75 24		-25 12 3.7B 14		_____					
_____		3 0.4B 21		-5 11 2.9B 19		_____					
<u>415.3</u> 393.8 Gray Mottled Brown Sandy CLAY (A-6)		4 1.0S 19		-30 8 1.9B 28		_____					
_____		3 0.7S 21		-10 _____		_____					
<u>409.8</u> 387.3 Gray Fine to Medium SAND (A-2-4)		4 --- 28		-35 23 2.3S 17		_____					
<u>407.8</u> 385.8 Gray Silty CLAY (A-6) with sand and pebbles		2 0.6B 27		-15 _____		_____					
_____		3 0.6B 22		-40 100 /3" --- 7		_____					
_____		9 3.0B 16		-20 100 /4" --- 6		_____					
_____		15 4.2B 14		-44.0 100 /4" --- 6		_____					
End of Boring @ -44.0'		<u>377.3</u> 355.8		_____		_____					
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 1

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

HOLCOMB FOUNDATION ENGINEERING INC. P.O. Box 88 618-529-5262 Carbondale, Il. 62903 618-457-8991 fax											
Bridge Foundation Boring Log Project: <u>H-08073</u> - Bridge _____ Date: <u>5-1-08</u> Section: <u>07-00064-00-BR</u> Station _____ Structure: <u>024-3083</u> Bored by: <u>J. Carter</u> County: <u>Edwards</u> Checked By: <u>T. Holcomb</u>											
Boring No: <u>2</u> Station: _____ Offset: _____		Surface Water Elev. _____ Ground Water Elev. <u>410.4</u> During Drilling <u>386.9</u> Upon Completion <u>plugged</u>		Elevation N Qu tsf W _____		Elevation N Qu tsf W _____					
Ground Surface <u>421.4</u> 399.9 0 3" A-3 Surface _____ 4" Crushed Stone <u>420.8</u> 399.3		silty clay (continued)		_____		_____					
Brown Sandy CLAY (A-6)		3 0.7S 21		-25 16 4.6B 14		_____					
_____		3 0.6B 20		-5 12 2.4S 18		_____					
<u>414.9</u> 393.4 Gray Mottled Brown Sandy CLAY (A-6)		4 0.8B 20		-30 7 1.9S 32		_____					
_____		2 1.0S 25		-10 _____		_____					
<u>410.4</u> 388.9 Gray Fine to Medium SAND (A-2-4) with trace clay		3 --- 22		-35 17 2.7S 17		_____					
_____		2 --- --		-15 _____		_____					
<u>405.4</u> 383.9 Gray Silty CLAY (A-6) with sand and pebbles		3 0.7B 34		-40 100 /6" --- 7		_____					
_____		10 3.3B 17		-20 100 /2" --- 6		_____					
_____		13 3.9B 14		-44.5 100 /3" --- 6		_____					
End of Boring @ -44.5'		<u>376.9</u> 355.4		_____		_____					
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

BORINGS
STRUCTURE NO. 024-3137

HAMPTON, LENZINI & RENWICK, INC. CIVIL & STRUCTURAL ENGINEERS LAND SURVEYORS HLR 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 (217) 546-3400	SHEET NO. 9 9 SHEETS	C.H.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		4	07-00064-00-BR	EDWARDS	13	13
PROJECT NUMBER: 09.0047.130 DATE: 10/15/09		FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		CONTRACT NO. 95606