

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PLANS FOR PROPOSED HIGHWAY BRIDGE PROGRAM

T.R. 454 HAMILTON COUNTY SECTION 08-01116-00-BR

PROJECT NO. BROS-065(045) JOB NO. C-99-527-08

CONTRACT # 99442 SOUTHERN OUTLET

INDEX OF SHEETS

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

THE FOLLOWING STANDARDS ARE A PART OF THESE PLANS AND ARE INCLUDED IN THE PROPOSAL:

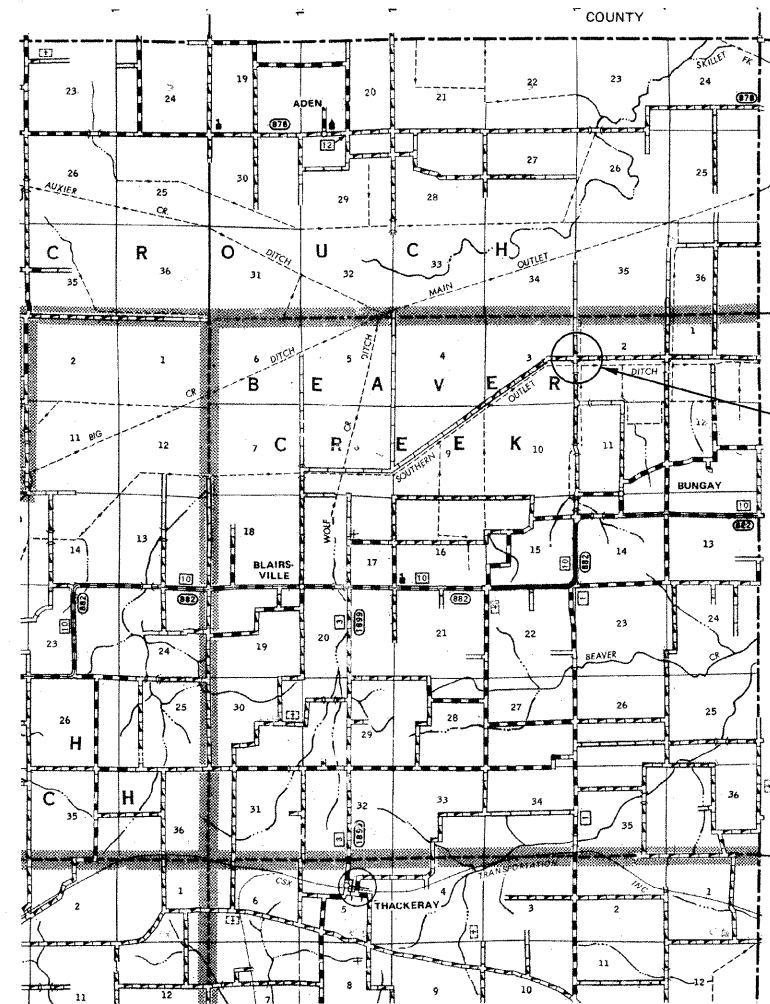
000001-06	STANDARD SYMBOLS, ABBREVIATIONS & PATTERNS
280001-05	TEMPORARY EROSION CONTROL SYSTEMS
515001-03	NAME PLATE FOR BRIDGES
701901-01	TRAFFIC CONTROL DEVICES
B.L.R. 21-8	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
B.L.R. 22-6	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS (TWO-LANE TWO-WAY RURAL TRAFFIC) (ROAD CLOSED TO THRU TRAFFIC)

SUMMARY OF QUANTITIES

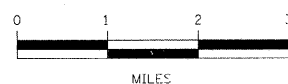
CODE NO.	ITEM	UNIT	QUANTITY
20200100	EARTH EXCAVATION	CU YD	9.00
20300100	CHANNEL EXCAVATION	CU YD	55.00
20400800	FURNISHED EXCAVATION	CU YD	88.00
28001000	AGGREGATE (EROSION CONTROL)	TON	17.00
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	380.00
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	180.00
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1.00
50300225	CONCRETE STRUCTURES	CU YD	23.80
50300280	CONCRETE ENCASEMENT	CU YD	2.60
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SO FT	1680.00
50800105	REINFORCEMENT BARS	POUND	2530.00
Δ 50900205	STEEL RAILING, TYPE S1	FOOT	140.00
51201600	FURNISHING STEEL PILES HP12X53	FOOT	400.00
51202305	DRIVING PILES	FOOT	400.00
51500100	NAME PLATES	EACH	1.00
67100100	MOBILIZATION	L SUM	1.00
*X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.10

Δ SPECIALTY ITEMS

DESIGN DESIGNATION:
 DESIGN SPEED: 30 MPH
 HIGHWAY CLASS - LOCAL ROAD
 EXISTING STRUCTURE NO.: 033-3127
 PROPOSED STRUCTURE NO.: 033-3313
 CURRENT A.D.T. = 10
 CONTRACT NO. 99442



LAYOUT
 APPROXIMATE SCALE 1 INCH = 1 MILE



GROSS LENGTH	303.00 FT	0.057 MILES
OMISSIONS	0.00 FT	0.000 MILES
NET LENGTH	303.00 FT	0.057 MILES

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

SECTION 08-01116-00-BR
 BEGINS STATION 2+50

STATION 5+00, STRUCTURE NO. 033-3313
 A 70' LONG SINGLE SPAN PRECAST
 PRESTRESSED CONCRETE DECK BEAM
 BRIDGE (27" DEPTH), 24' ROADWAY,
 0.00% GRADE, 0° SKEW.

SECTION 08-01116-00-BR
 ENDS STATION 5+53

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

APPROVED 2/1/2011

 COUNTY ENGINEER

PASSED 3/15/2011

 ENGINEER OF LOCAL ROADS AND STREETS

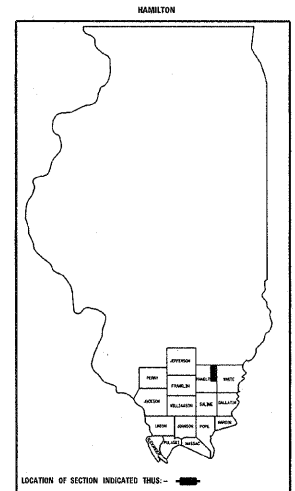
RELEASING FOR BID
 BASED ON LIMITED
 REVIEW 3/15/2011

 MARY C. LAMIÉ, P.E.
 DEPUTY DIRECTOR OF HIGHWAYS
 REGION FIVE ENGINEER

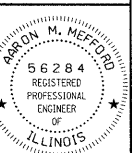
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
454	08-01116-00-BR	HAMILTON	13	1

FED. ROAD DIST. NO. 9 ILLINOIS FED. AID PROJECT
 PROJECT# BROS-065(045) CONTRACT# 99442
 JOB # C-99-527-08 SOUTHERN OUTLET
 LEC JOB # H091019HM

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



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



AARON M. MEFFORD
 NAME

 SIGNATURE
 2/1/11
 DATE
 11-30-11
 EXPIRES

TOWNSHIP ROUTE 454
 OVER SOUTHERN OUTLET
 HAMILTON COUNTY, ILLINOIS

SHEET TITLE:

TITLE SHEET

SCALE: VARS

BY: AMM

DATE: 3/15/11

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 70 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 TRANSITION
STA. 2+50 TO STA 3+00
ALL QUANTITIES ARE INCLUDED IN THE PROPOSAL



P.I. STA= 2+75
Δ= 00°52'49" LT

P.I. STA= 3+60
Δ= 00°55'24" RT



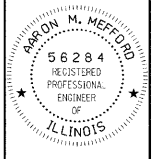
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
454	08-01116-00-BR	HAMILTON	13	2
FED. ROAD DIST. NO. 9 ILLINOIS		FED. AID PROJECT		
PROJECT# BROS-0651045		CONTRACT# 99442		
JOB NO. C-99-527-08		SOUTHERN OUTLET		
LEC JOB # H09H015HM				

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



PROFESSIONAL DESIGN FIRM
LAND SURVEY &
PROFESSIONAL
ENGINEERING
CORPORATION
184-00687
(82-032435)(35-002769)



AARON M. MEFFORD
NAME
SIGNATURE
DATE: Feb. 2, 2011
11-30-11
EXPIRES

TOWNSHIP ROUTE 454
OVER SOUTHERN OUTLET
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:

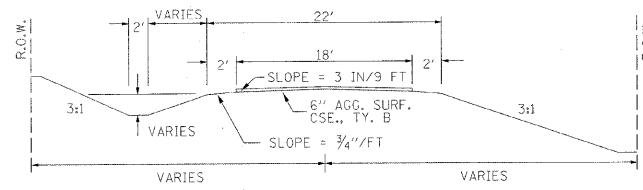
PLAN & PROFILE

SCALE: VARIES
BY: AMM
DATE: 1/29/11
REV:

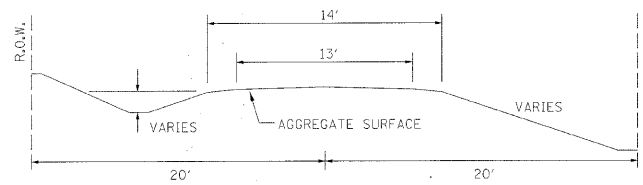
2 OF 13
SHEETS

SHEET NO.
2

TYPICAL CROSS SECTION PROPOSED



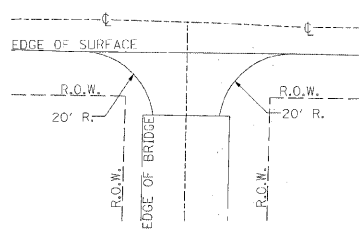
TYPICAL CROSS SECTION EXISTING



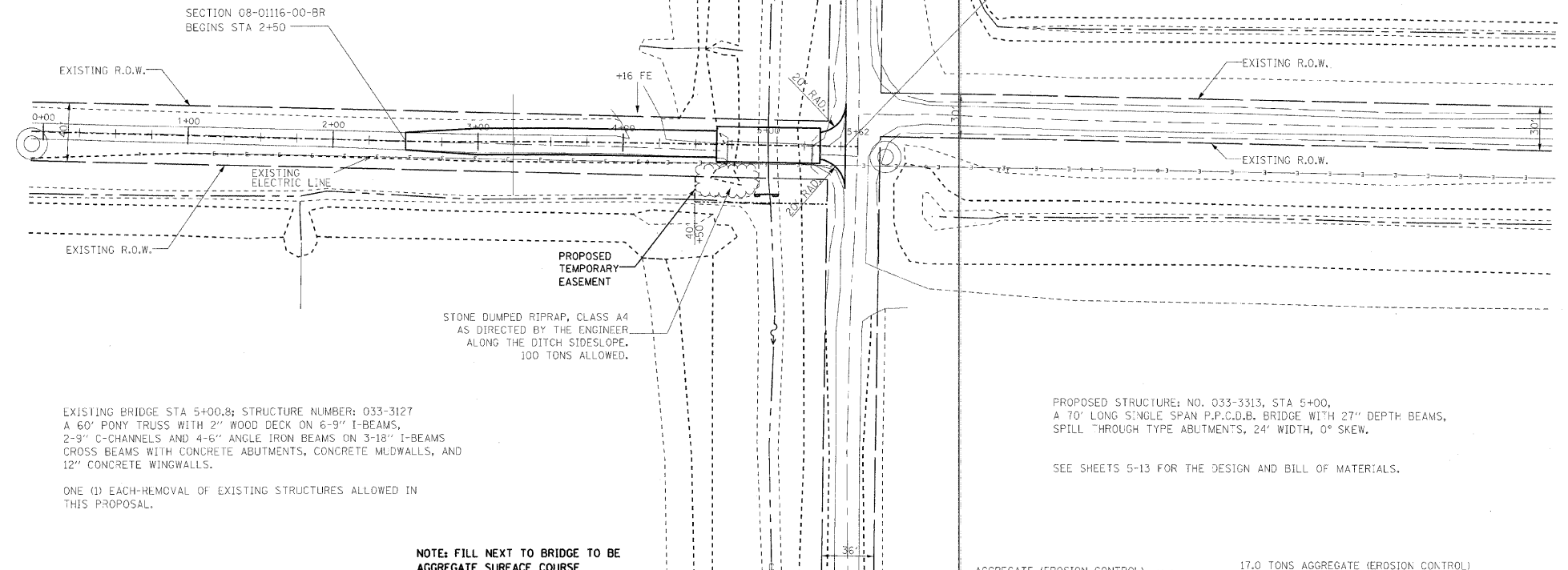
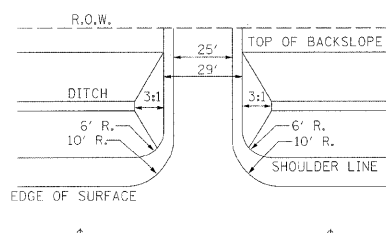
UTILITIES:

U.L.L.E.
1-800-892-0123
FAIRFIELD ELECTRIC DEPARTMENT
1-618-842-3445

INTERSECTION DETAIL



FIELD ENTRANCE DETAIL



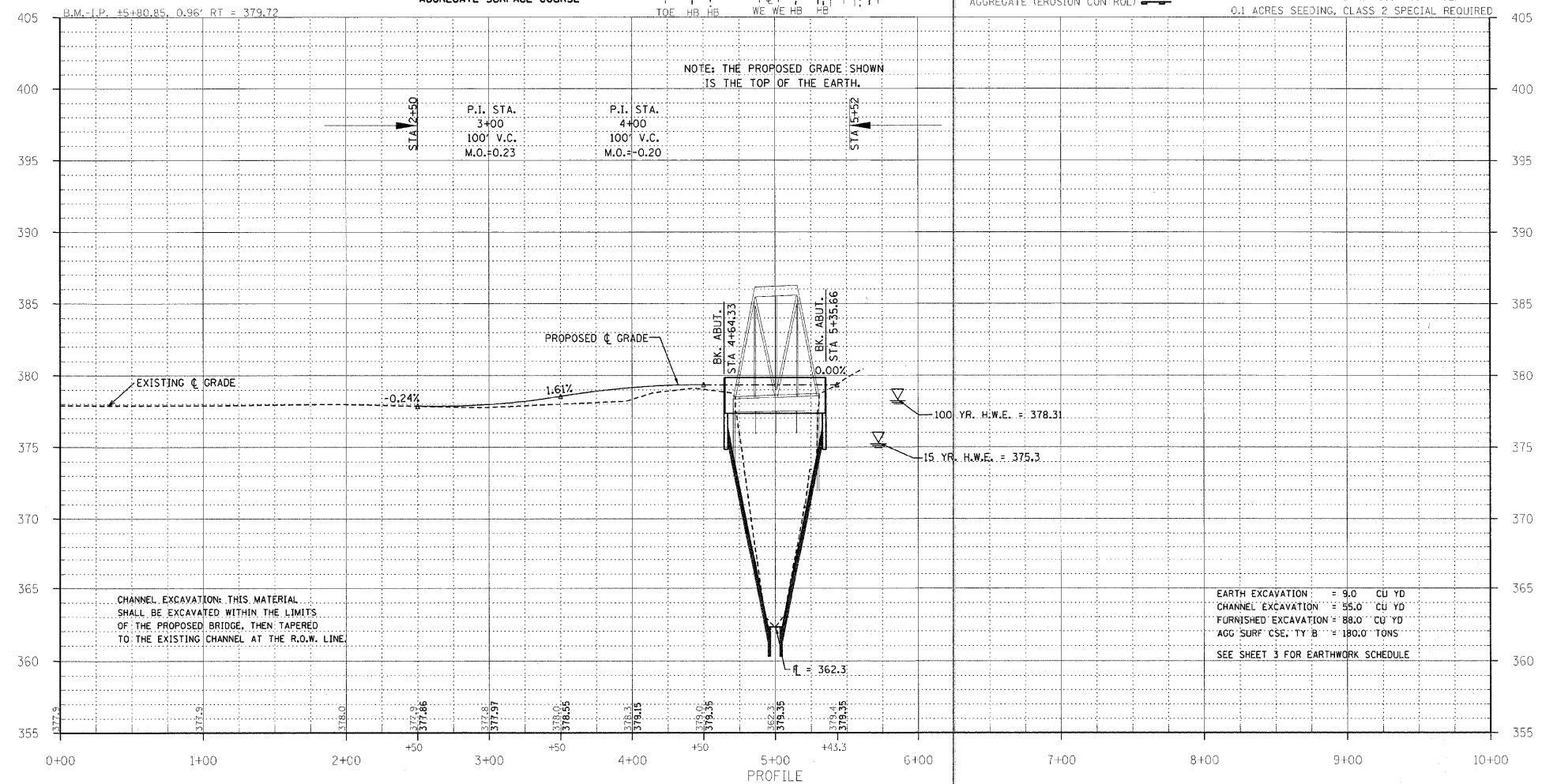
EXISTING BRIDGE STA 5+00.8; STRUCTURE NUMBER: 033-3127
A 60' PONY TRUSS WITH 2" WOOD DECK ON 6-9" I-BEAMS,
2-9" C-CHANNELS AND 4-6" ANGLE IRON BEAMS ON 3-18" I-BEAMS
CROSS BEAMS WITH CONCRETE ABUTMENTS, CONCRETE MIDWALLS, AND
12" CONCRETE WINGWALLS.

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

NOTE: FILL NEXT TO BRIDGE TO BE
AGGREGATE SURFACE COURSE

PROPOSED STRUCTURE: NO. 033-3313, STA 5+00,
A 70' LONG SINGLE SPAN P.P.C.D.B. BRIDGE WITH 27" DEPTH BEAMS,
SPILL THROUGH TYPE ABUTMENTS, 24' WIDTH, 0° SKEW.

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



T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
154	08-01116-00-DR	HAMILTON	13	3
FED. ROAD DIST. NO. 9 ILLINOIS				
PROJECT* BROS-065(045)				
JOB NO. C-99-527-08				
SOUTHERN OUTLET			FED. AID PROJECT	
CONTRACT# 99442			PHONE:	
FAX:			(618)-262-8651	
FAX:			(618)-263-3327	
LEC JOB # H091C15HM				

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ENGINEERING
CORPORATION
184-000887
(62-032455)(35-002769)



AARON M. MEFFORD
NAME
Aaron Mefford
SIGNATURE
DATE
2/01/11
11-30-11
EXPIRES

TOWNSHIP ROUTE 454
OVER SOUTHERN OUTLET
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:

CROSS-SECTIONS

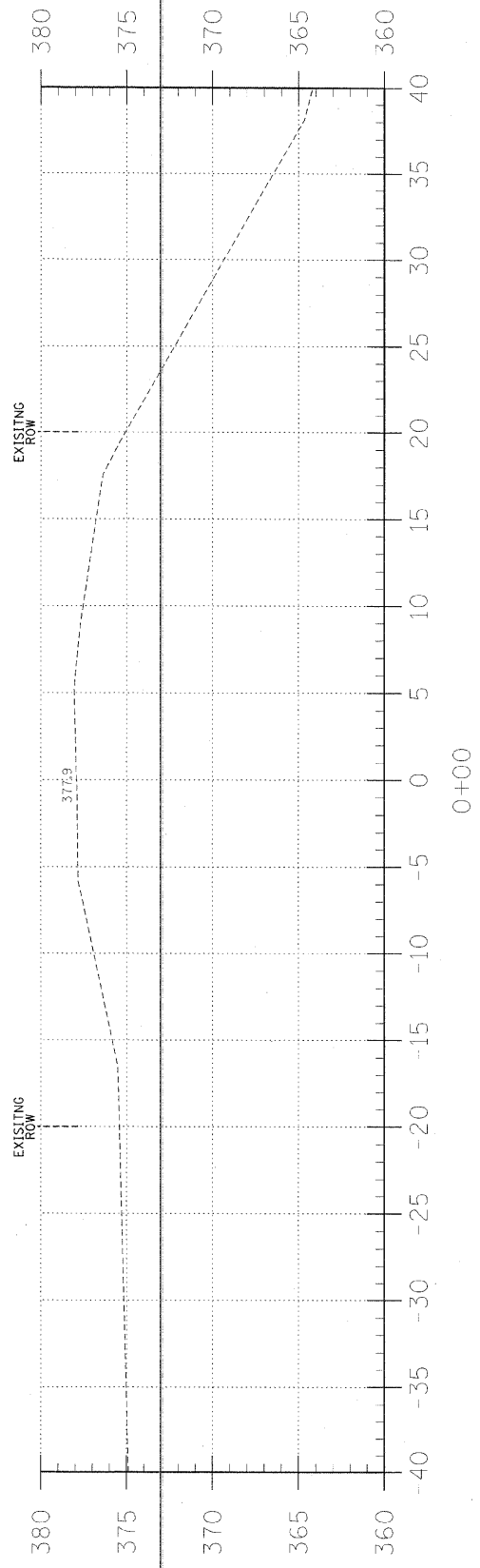
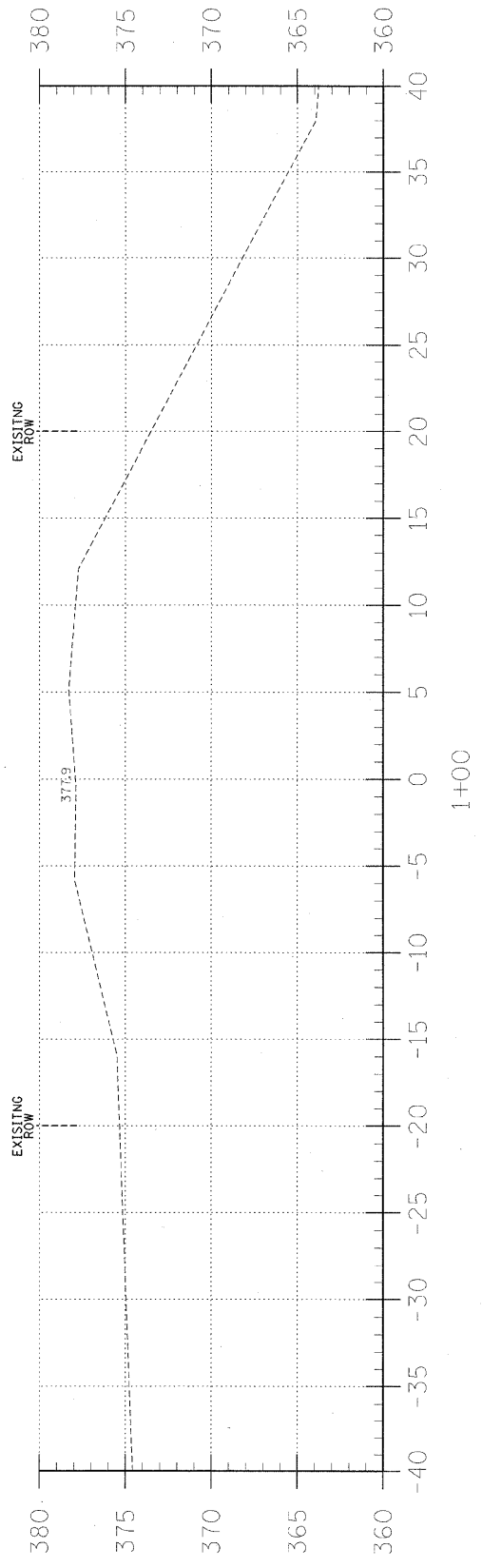
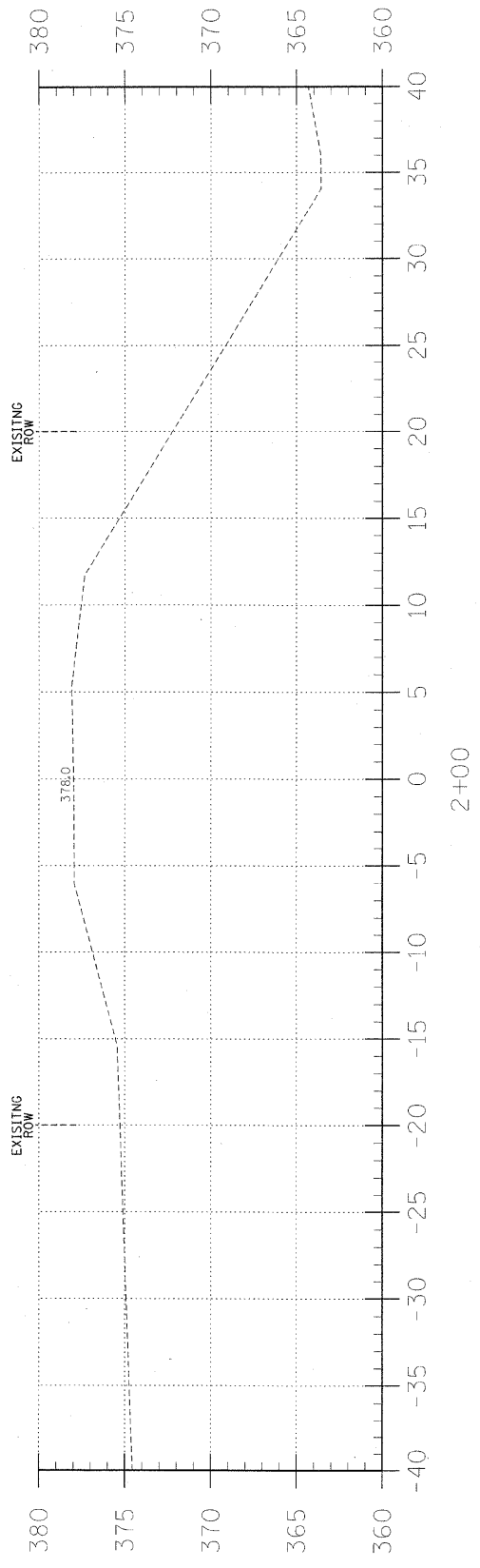
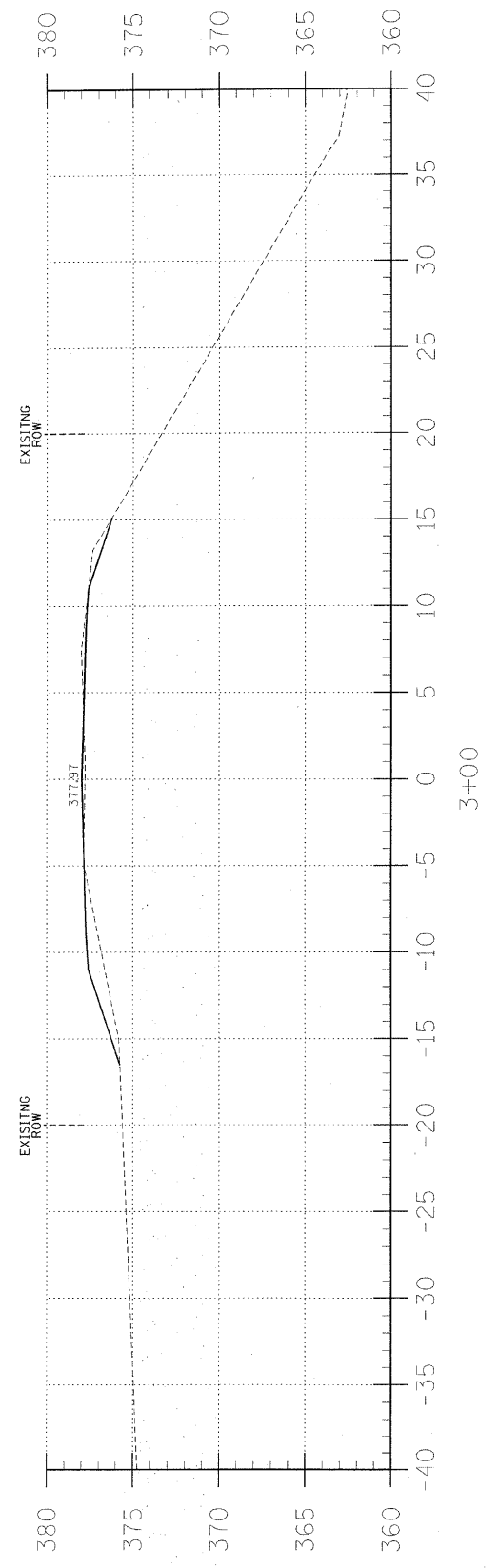
SCALE: 1" = 5'
BY: AMM
DATE: 10/9/11
REV:

3 OF 13
SHEETS

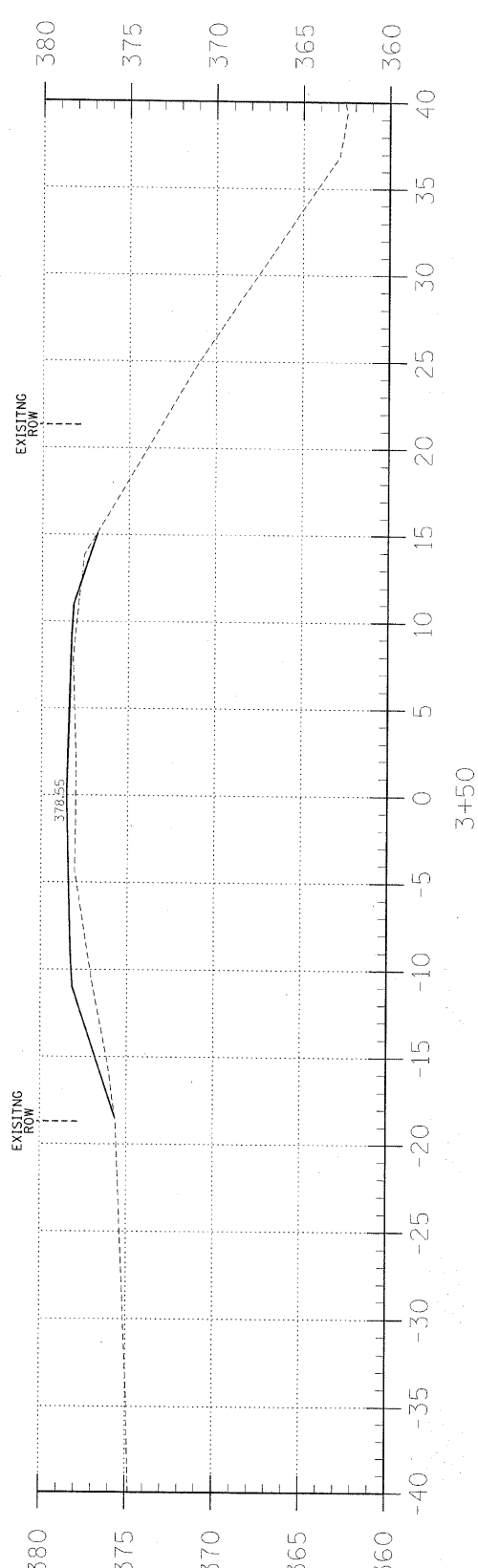
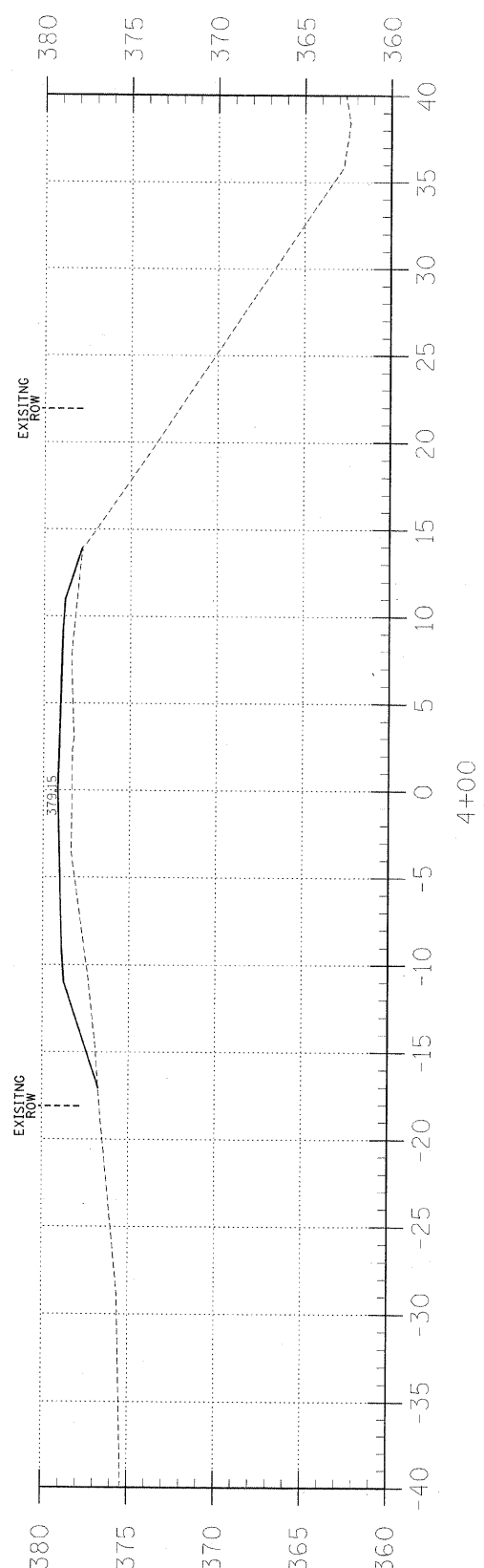
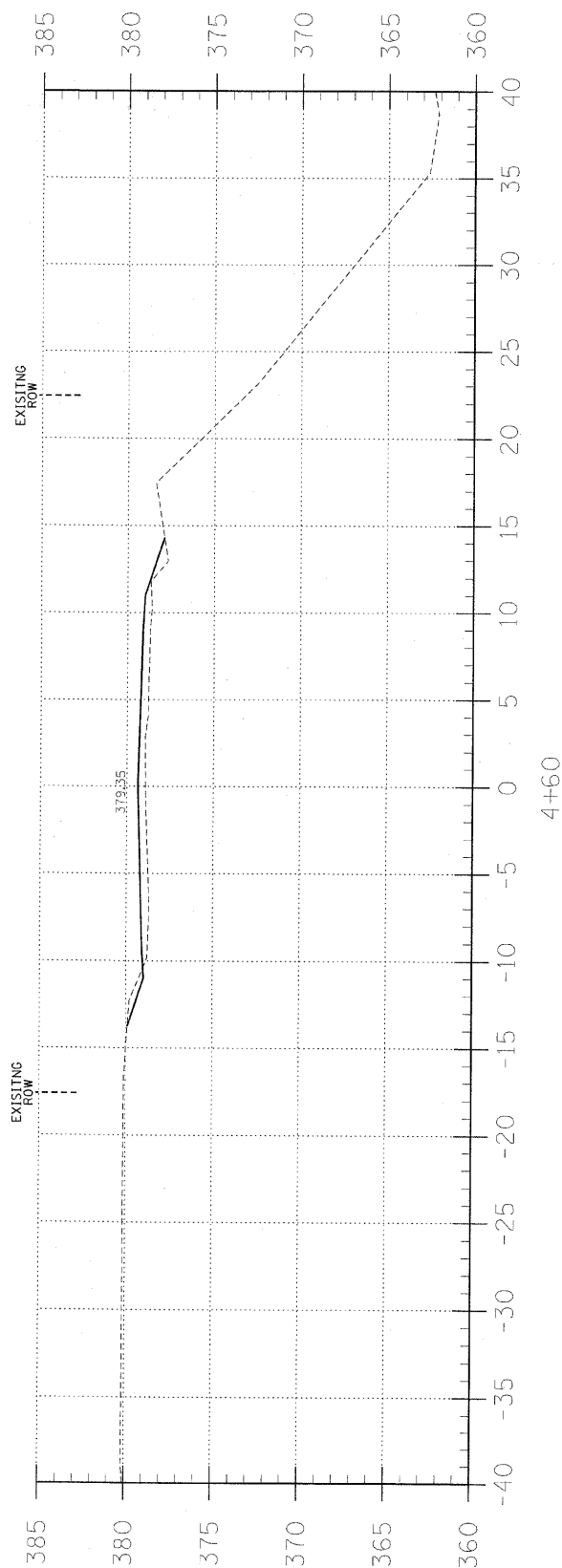
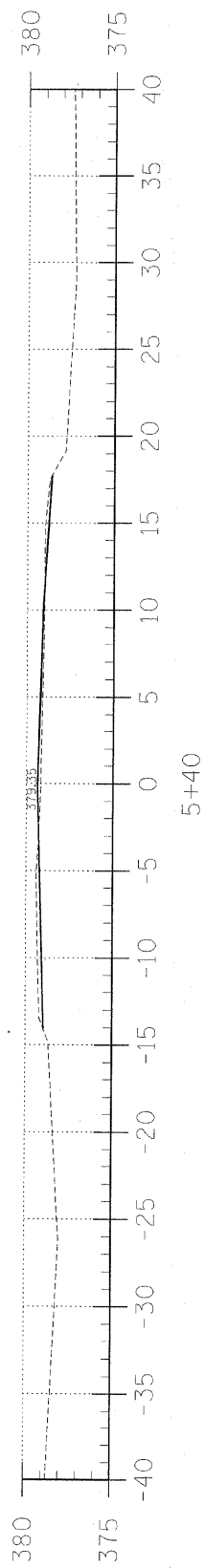
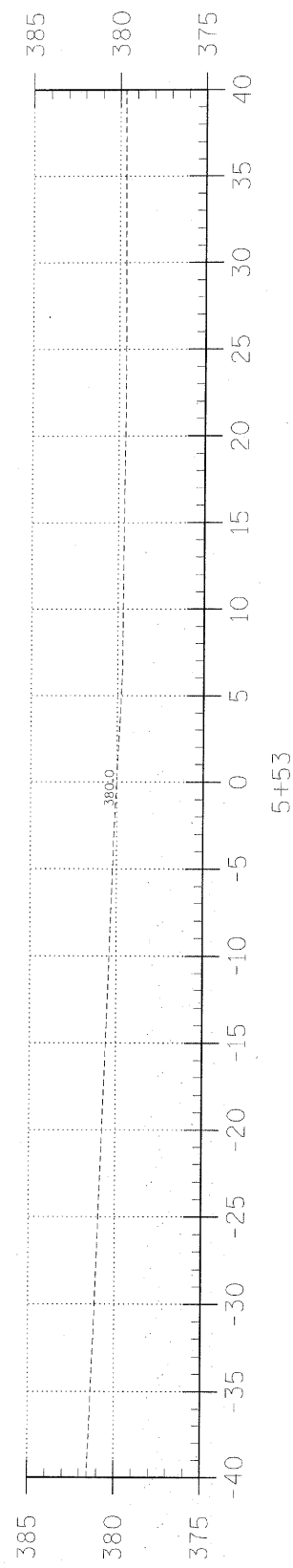
SHEET NO.
3

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+64.3	8.8	0.0	0.0	6.6	108.8	-102.2
STA 4+64.3 TO 5+35.6	0.0	55.0	27.5	20.6	0.0	20.6
STA 5+35.6 TO 5+52	0.5	0.0	0.0	0.4	0.3	0.1
1 FIELD ENTRANCE	0.0	0.0	0.0	0.0	6.0	-6.0
TOTAL	9.3	55.0	27.5	27.6	115.1	-87.5



C = 1.8
F = 7.0



C = 2.9
F = 1.6

C = 0.8
F = 10.0

C = 0.0
F = 24.1

C = 0.5
F = 16.2

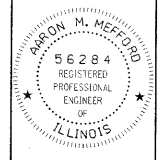
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
454	08-01116-00-BR	HAMILTON	13	4
FED. ROAD DIST. NO. 9 ILLINOIS		FED. AID PROJECT		
PROJECT# BROS-065(045)		CONTRACT# 99442		
JOB NO. C-99-527-08		SOUTHERN OUTLET		
LEC JOB # H09L015HW				

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ENGINEERING
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184-000887
(62-032435)(35-002769)



AARON M. MEFFORD
NAME
Aaron Mefford
SIGNATURE
DATE
2-1-11
EXPIRES
11-30-11

TOWNSHIP ROUTE 454
OVER SOUTHERN OUTLET
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:

CROSS-SECTIONS

SCALE: 1" = 5'
BY: AMM
DATE: 1/28/11
REV:

4 OF 13
SHEETS

SHEET NO.
4

BENCHMARK: I.P. ±0.96' Rt. Sta. ±5+00.85

EXISTING STRUCTURE NO. 033-3127; Sta. 5+00. Single span steel pony truss bridge with timber deck on closed concrete abutments and wingwalls. 60.0' bk.-bk. abutts.; 13.8' o.-o. deck Structure closed to traffic.

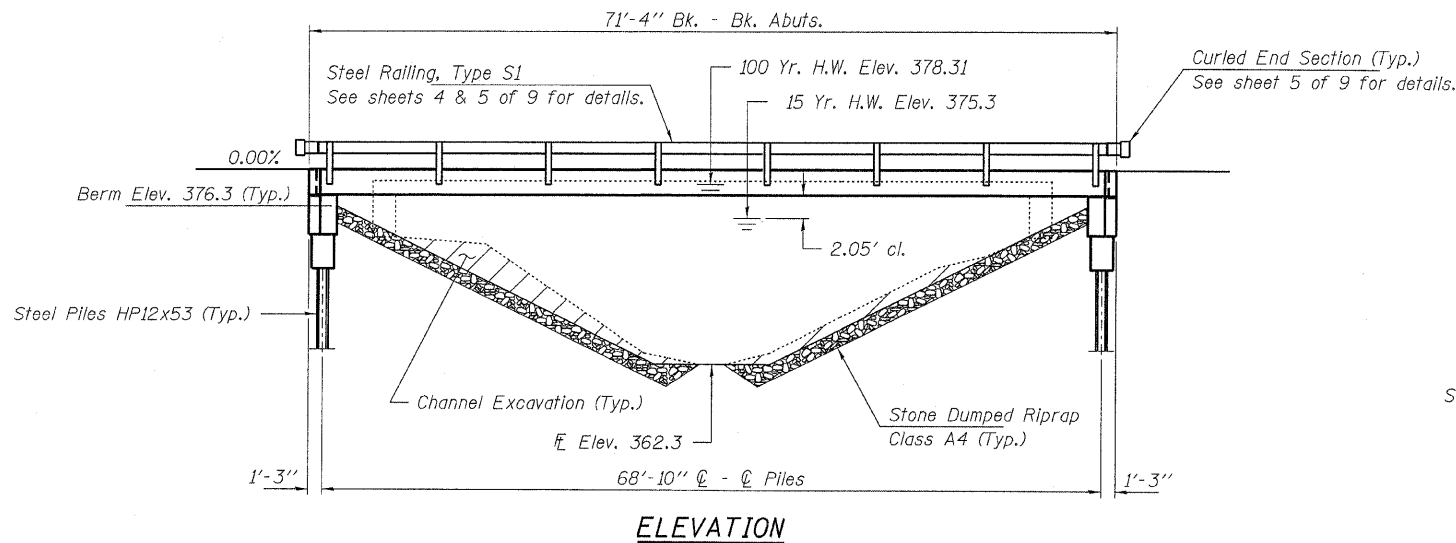
No Salvage

GENERAL NOTES

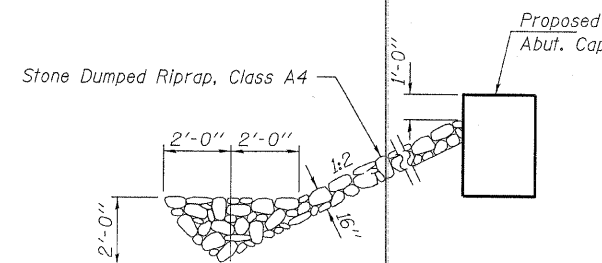
Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
 Excavation behind existing abutment walls shall be performed to balance front and back soil pressure before removing the existing superstructure.
 Reinforcement bars shall conform 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 Sheets 8 & 9 of 9 for Borings.

SOUTHERN OUTLET
 BUILT 20__ BY
 HAMILTON COUNTY
 SEC. 08-01116-00-BR
 BEAVER CREEK ROAD DISTRICT
 STR. NO. 033-3313
 LOADING HL-93

NAME PLATE
 See Std. 515001

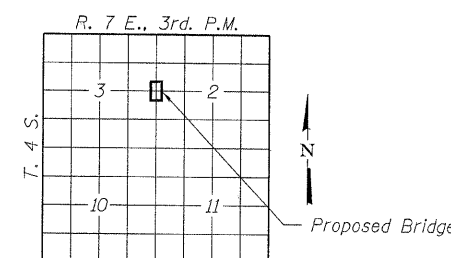


ELEVATION

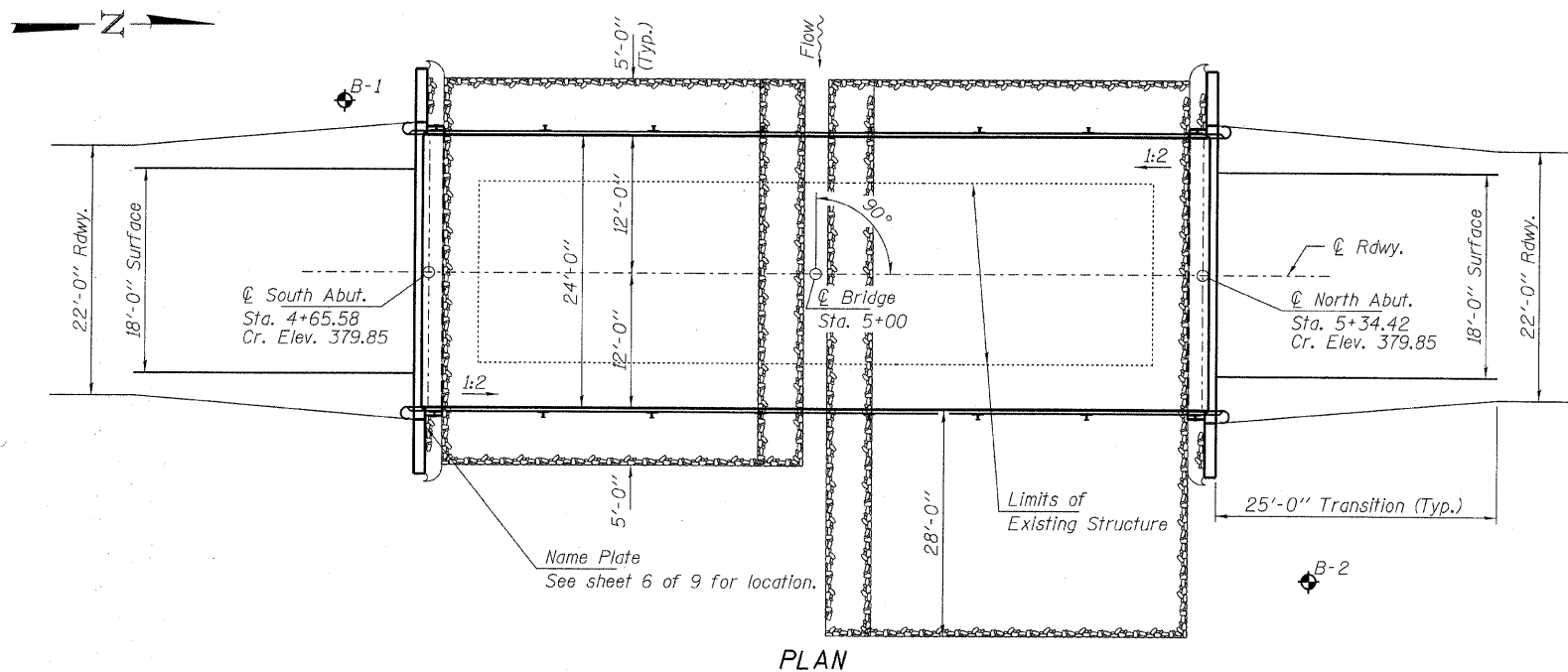


SECTION A-A

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



LOCATION SKETCH



PLAN

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Channel Excavation	Cu. Yd.			55
Stone Dumped Riprap, Class A4	Ton			280
Removal of Existing Structures	Each			1
Concrete Structures	Cu. Yd.		23.8	23.8
Concrete Encasement	Cu. Yd.		2.6	2.6
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1,680		1,680
Reinforcement Bars	Pound		2,530	2,530
Steel Railing, Type S1	Foot	140		140
Furnishing Steel Piles HP12x53	Foot		400	400
Driving Piles	Foot		400	400
Name Plates	Each		1	1

DESIGN STRESSES

FIELD UNITS

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

PRECAST PRESTRESSED UNITS

f'c = 6,000 psi
 f'ci = 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.)

SEISMIC DATA

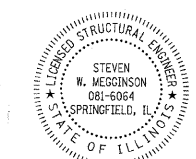
Seismic Performance Zone (SPZ) = 2
 Design Spectral Acceleration at 1.0 sec. (SD1) = 0.300g
 Design Spectral Acceleration at 0.2 sec. (SD5) = 0.720g
 Soil Site Class = D

WATERWAY INFORMATION

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Natural Head - Ft.		Headwater El.	
			Exist.	Prop.	H.W.E. Exist.	Prop.	Exist.	Prop.
Design	15	3200	408	468	375.3	0.13	0.05	375.35
Base	100	5330	544	593	378.31	0.39	0.33	378.7
Max. Calc.	500	7250		593	381.06		0.62	

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 1/27/2011
 ILLINOIS STRUCTURAL NO. 081-6064



Expires 11-30-2012

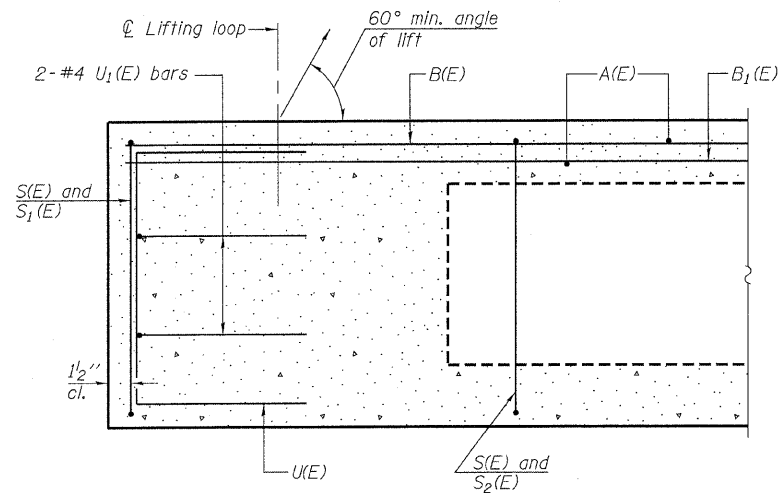
GENERAL PLAN AND ELEVATION
STRUCTURE NO. 033-3313

DESIGNED	S.W.M.
CHECKED	V.J.H.
DRAWN	D.T.M.
CHECKED	S.W.M.

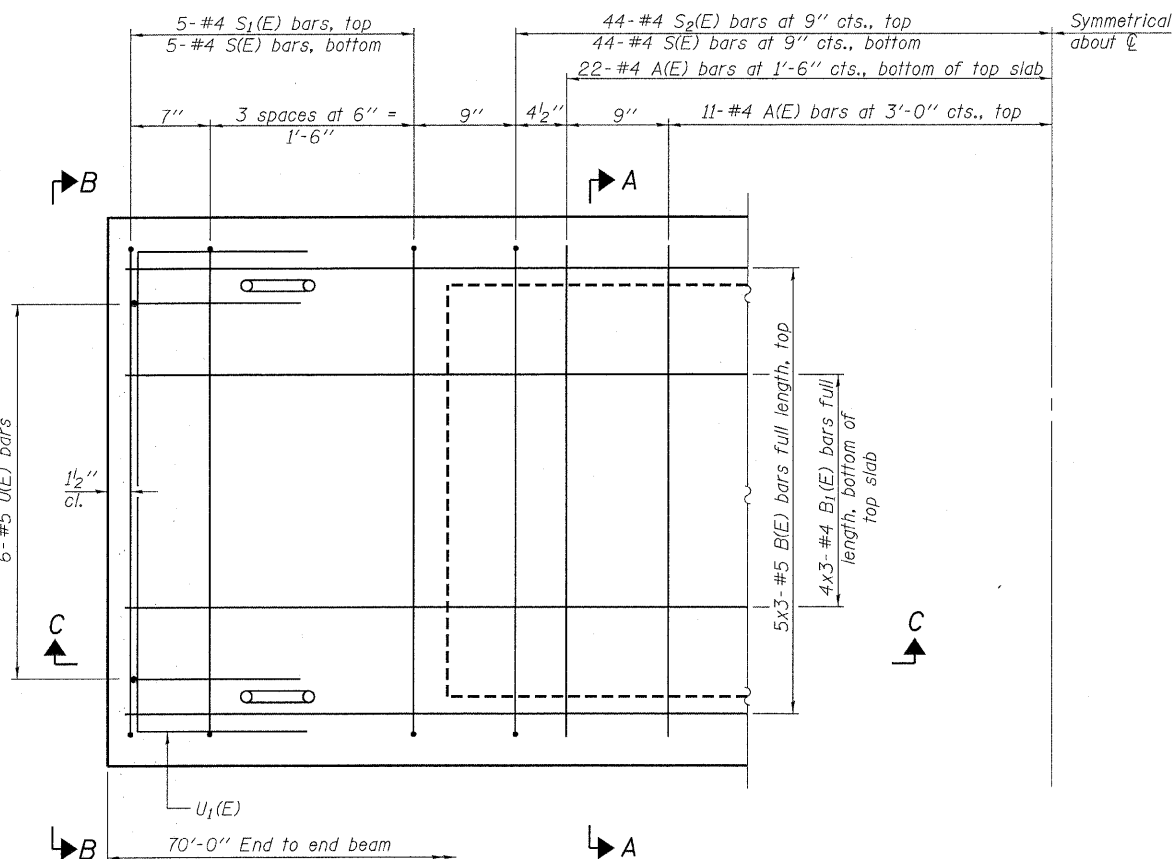
LOADING HL-93

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

HAMPTON, LENZINI AND RENWICK, INC. CIVIL ENGINEERS - STRUCTURAL ENGINEERS - LAND SURVEYORS 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 217.546.3400 www.hirengineering.com <small>194.000995 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORPORATION</small>	SHEET NO. 1	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	9 SHEETS	454	08-01116-00-BR	HAMILTON	13	5
PROJECT NUMBER: 09.0069.130	DATE: 04/27/10	BEAVER CREEK ROAD DISTRICT		CONTRACT NO. 99442		
		FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT BROS-065(045)		

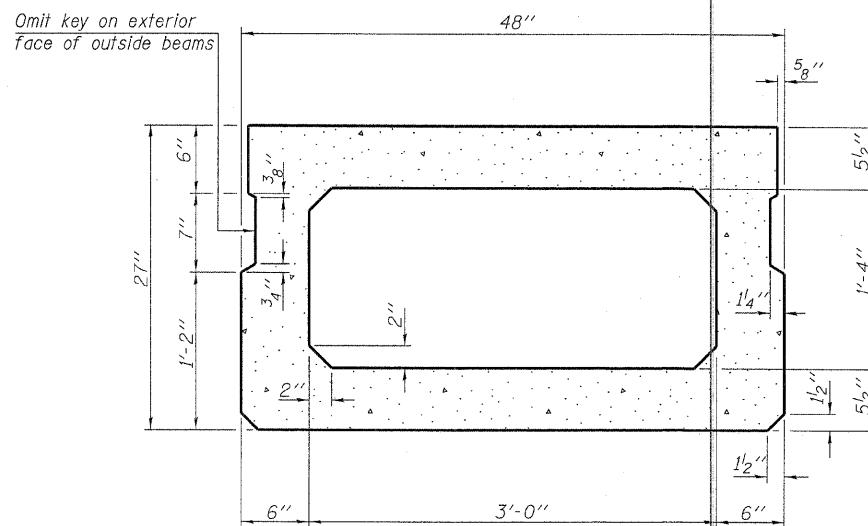


SECTION C-C

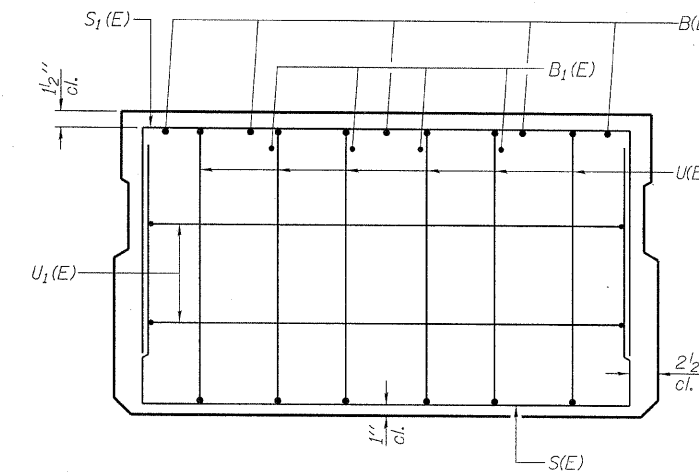


PLAN VIEW

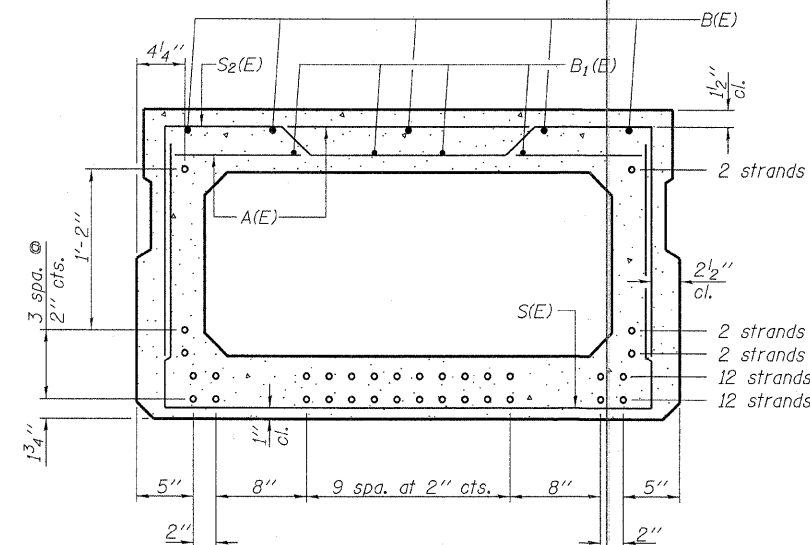
Note: Spacing of S(E) and S₂(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.



SECTION A-A
(Showing dimensions)



VIEW B-B



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)	66	#4	3'-7"	—
B(E)	15	#5	24'-11"	—
B ₁ (E)	12	#4	24'-7"	—
S(E)	98	#4	7'-5"	U
S ₁ (E)	10	#4	6'-11"	U
S ₂ (E)	88	#4	7'-2"	U
U(E)	12	#5	4'-6"	C
U ₁ (E)	4	#4	6'-0"	U

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"

DESIGNED - S.W.M.
CHECKED - V.J.H.
DRAWN - D.T.M.
CHECKED - S.W.M.

PD-2748-0

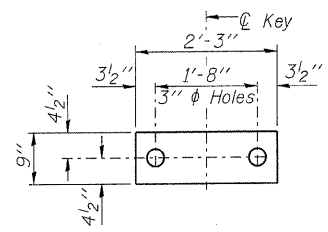
11-1-09

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3085 STEVENSON DRIVE, SUITE 201
SPRINGFIELD, ILLINOIS 62703
217.546.3400 www.hlrengineering.com
184.000969
ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORPORATION
PROJECT NUMBER: 09.0069.130 DATE: 04/27/10

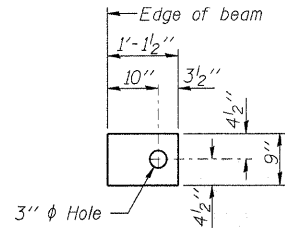
SHEET NO. 2
9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
454	08-01116-00-BR	HAMILTON	13	6
BEAVER CREEK ROAD DISTRICT		CONTRACT NO. 99442		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT BROS-065(045)		

SUPERSTRUCTURE
27" X 48" PPC DECK BEAM
STRUCTURE NO. 033-3313



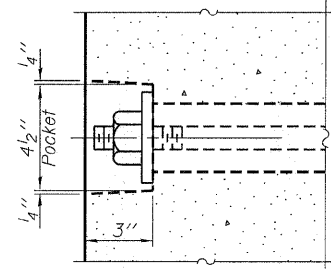
FABRIC BEARING PAD
(Interior)



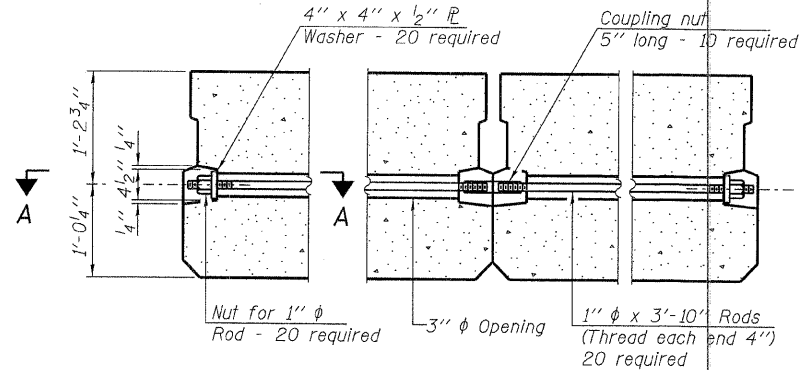
FABRIC BEARING PAD
(Exterior)

FIXED

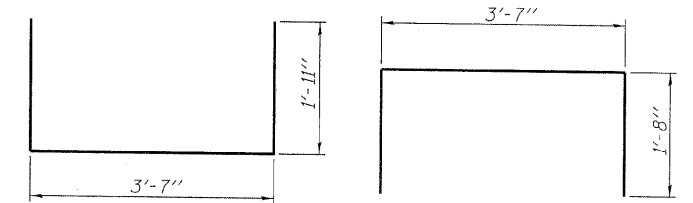
Notes:
All bearing pads shall be 1" thick.
Omit holes when using expansion bearings.
Expansion bearing pad shall be bonded to the substructure.



SECTION A-A

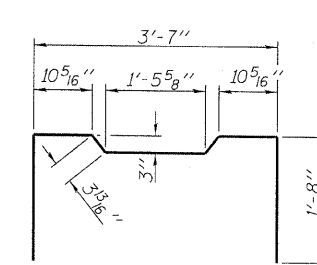


TYPICAL TRANSVERSE TIE ASSEMBLY

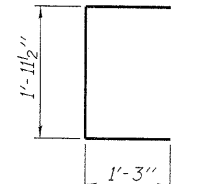


BAR S(E)

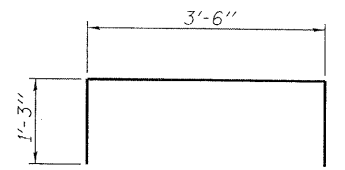
BAR S₁(E)



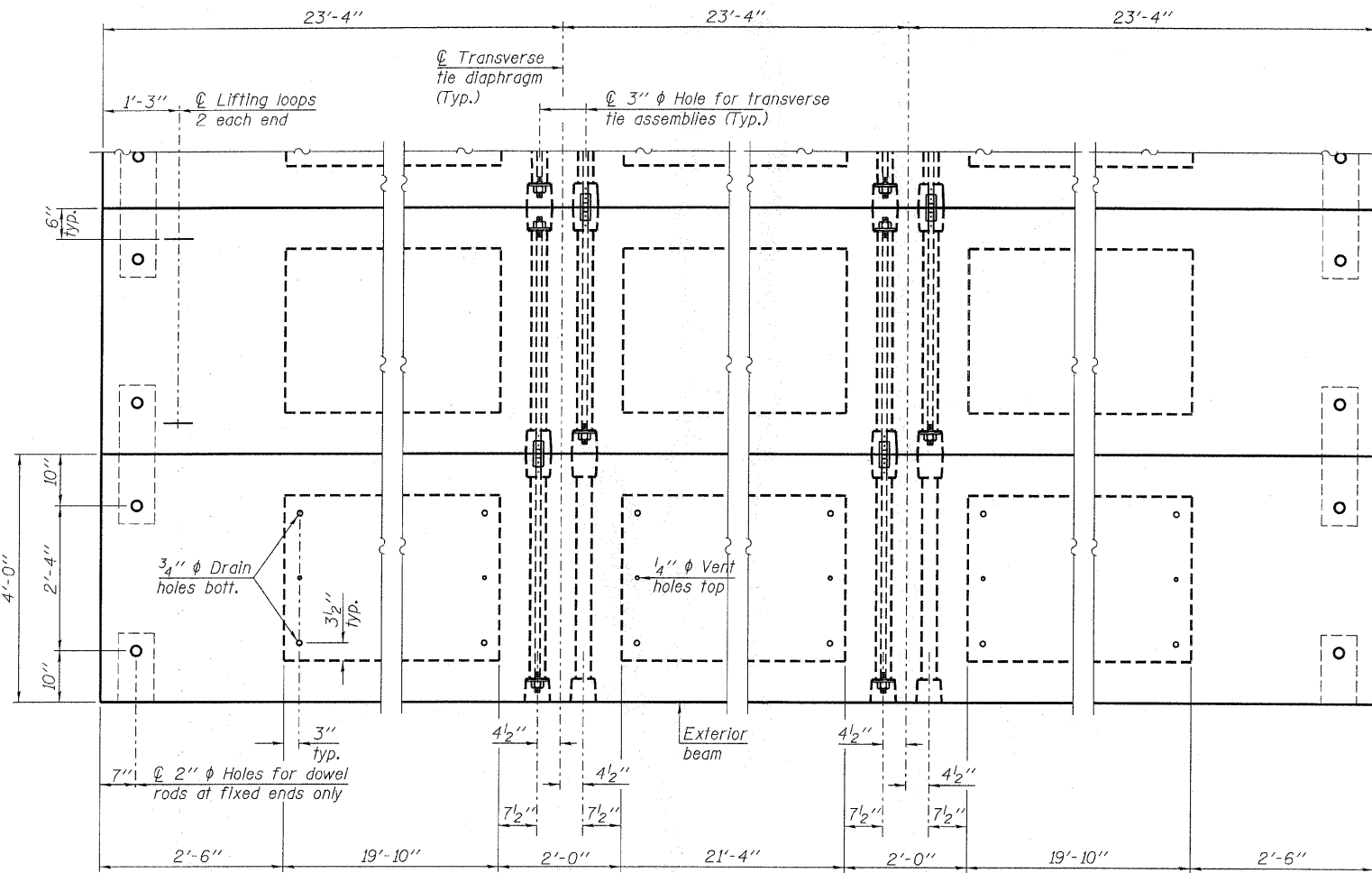
BAR S₂(E)



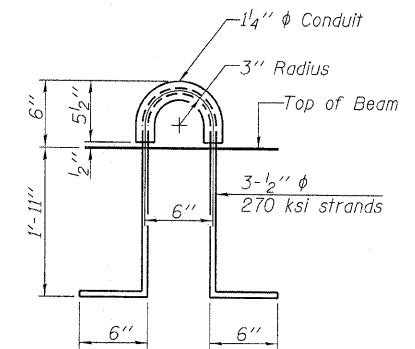
BAR U(E)



BAR U₁(E)



PLAN VIEW



LIFTING LOOP DETAIL

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1,680
---	---------	-------

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

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 1021.06 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.
All bars shall be epoxy coated.

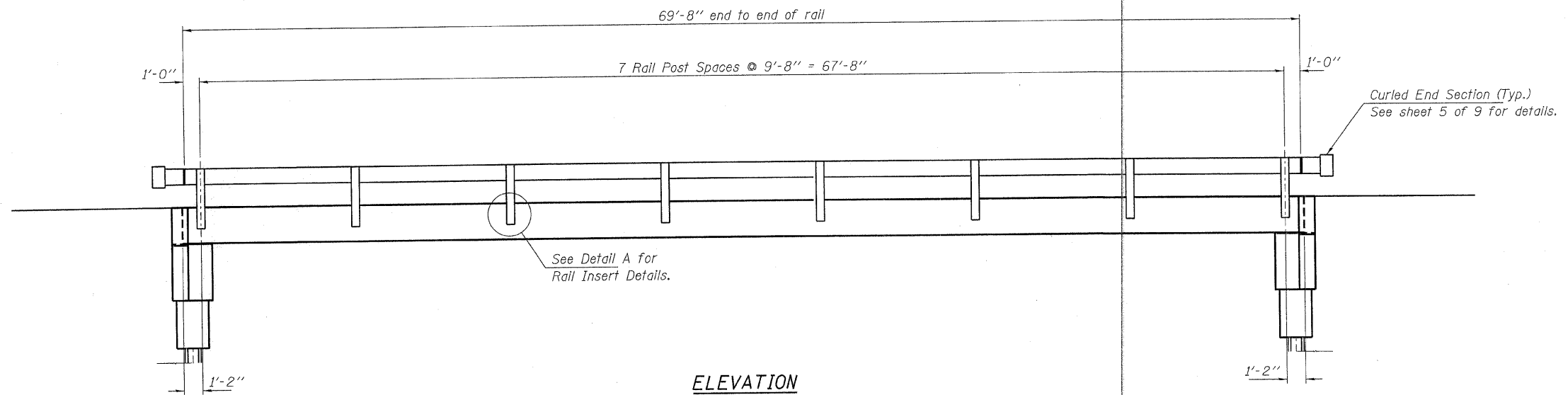
DESIGNED - S.W.M.
CHECKED - V.J.H.
DRAWN - D.T.M.
CHECKED - S.W.M.

PD-2748-OD 11-1-09

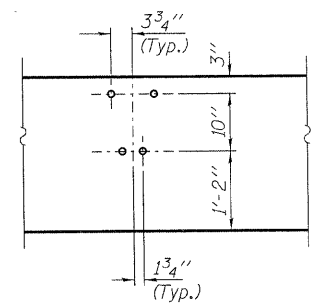
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PROJECT NUMBER: 09.0069.130 DATE: 04/27/10

SHEET NO. 3 9 SHEETS	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	454	08-01116-00-BR	HAMILTON	13	7
BEAVER CREEK ROAD DISTRICT			CONTRACT NO. 99442		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT BROS-065(045)			

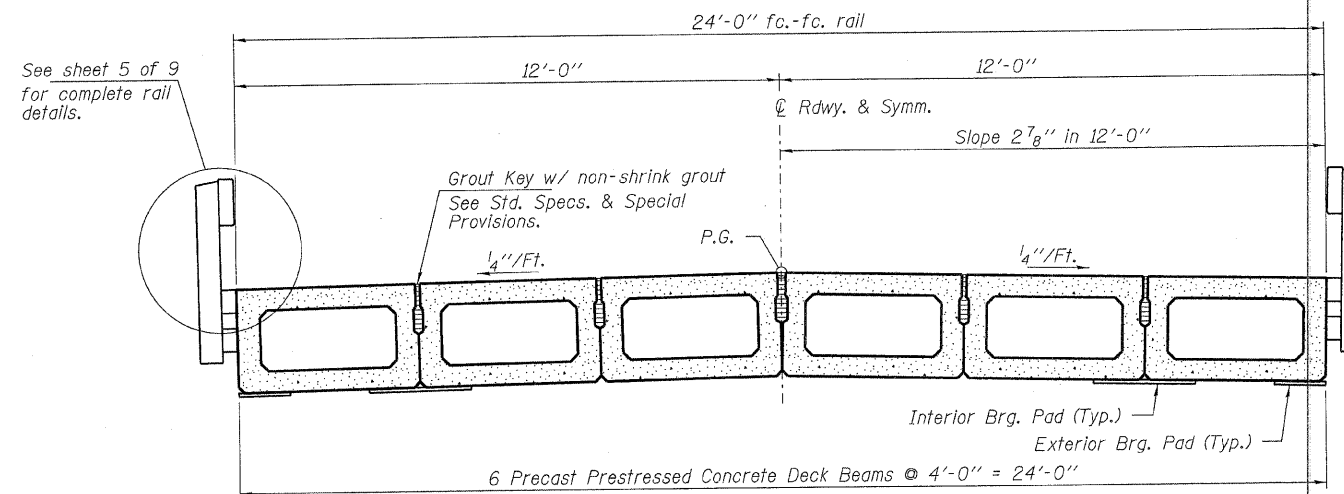
SUPERSTRUCTURE
27" X 48" PPC DECK BEAM DETAILS
STRUCTURE NO. 033-3313



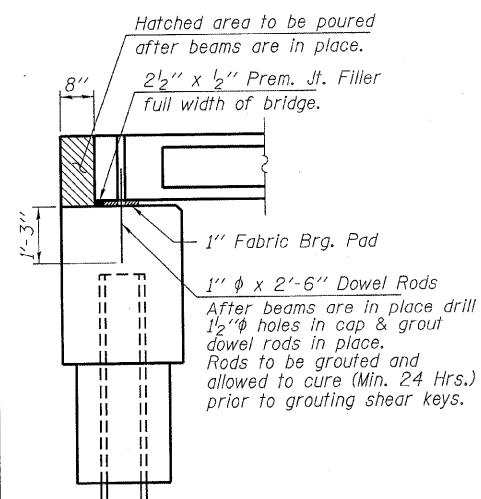
ELEVATION
Showing Rail Post Spaces
See sheet 5 of 9 for Railing Details.



DETAIL A



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

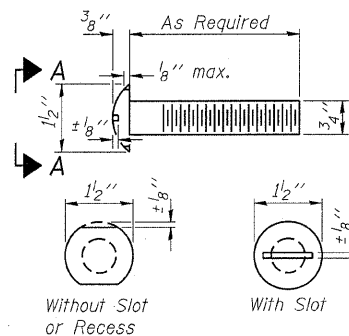


SECTION AT ABUTMENTS
© Rt. L.'s

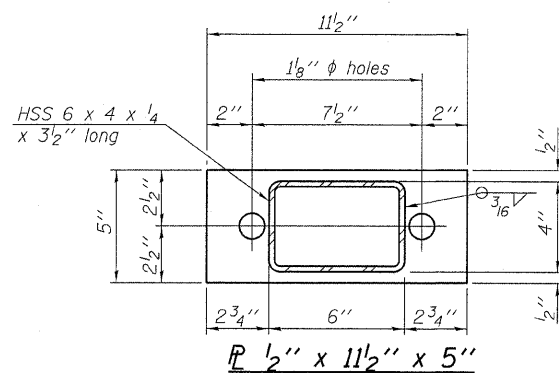
DESIGNED - S.W.M.
CHECKED - V.J.H.
DRAWN - D.T.M.
CHECKED - S.W.M.

SUPERSTRUCTURE DETAILS
STRUCTURE NO. 033-3313

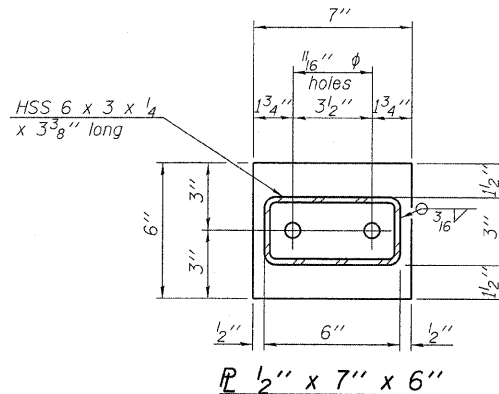
HAMPTON, LENZINI AND RENWICK, INC. CIVIL ENGINEERS - STRUCTURAL ENGINEERS - LAND SURVEYORS HLR 3085 STEVENSON DRIVE, SUITE 201 SPRINGFIELD, ILLINOIS 62703 217.546.3400 www.hlrengineering.com 184.000659 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORPORATION PROJECT NUMBER: 09.0099.130 DATE: 04/27/10	SHEET NO. 4	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	9 SHEETS	454	08-01116-00-BR	HAMILTON	13	8
			BEAVER CREEK ROAD DISTRICT	CONTRACT NO. 99442		
			FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT BR05-065(045)		



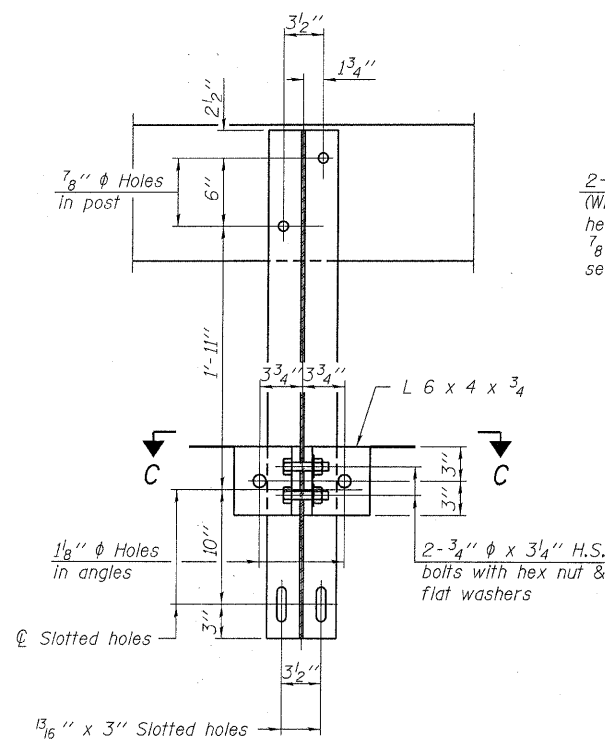
VIEW A-A
ROUND HEAD BOLT



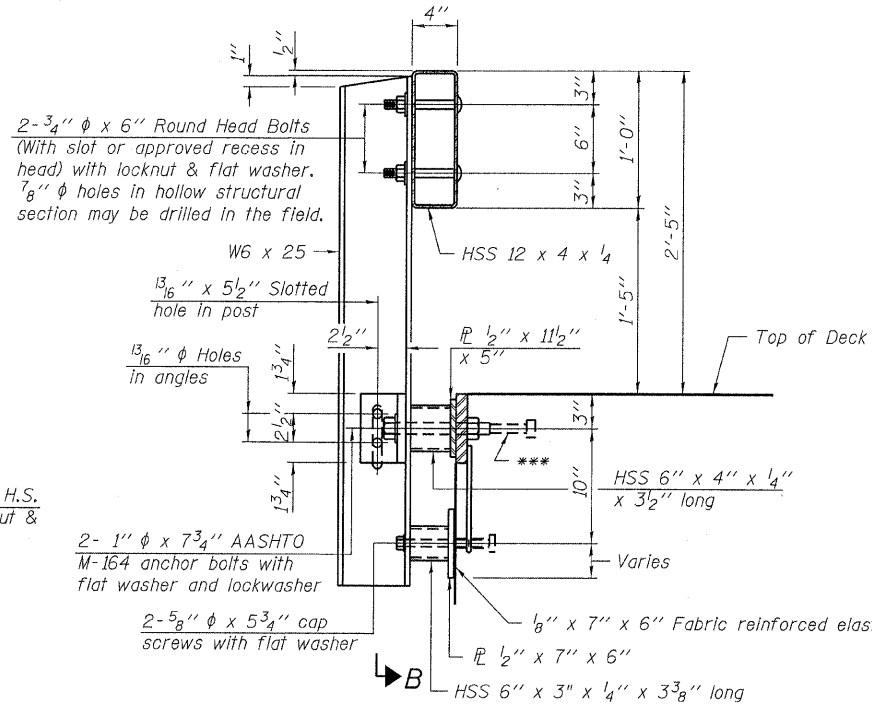
SECTION B-B
R 1/2" x 11 1/2" x 5"



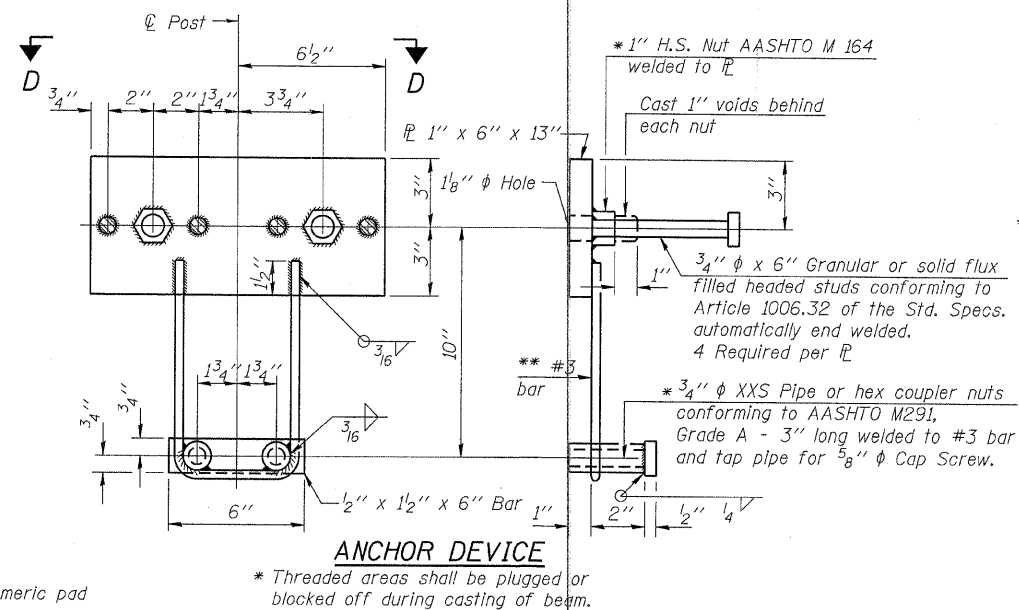
SECTION C-C
R 1/2" x 7" x 6"



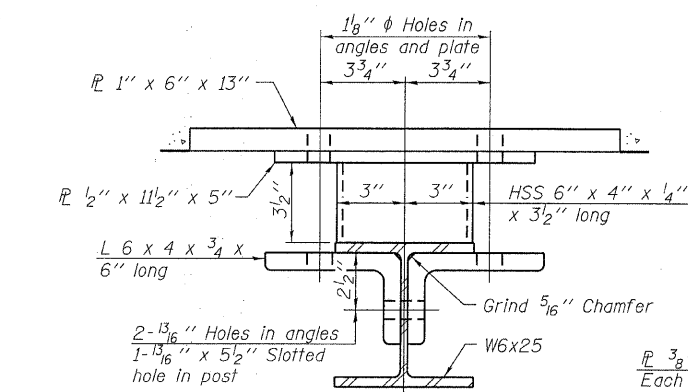
SECTION B-B



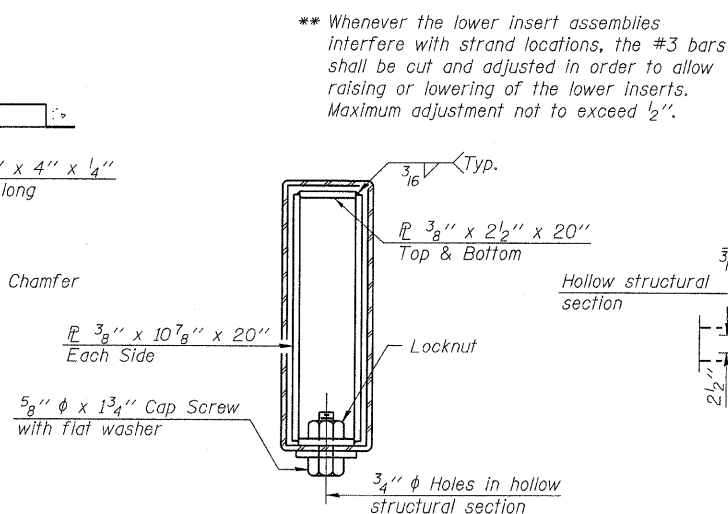
SECTION AT RAILING POST



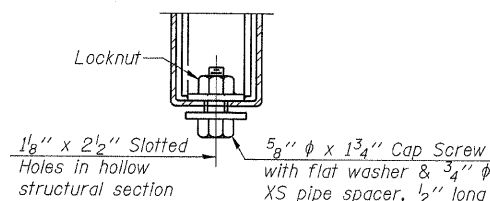
ANCHOR DEVICE



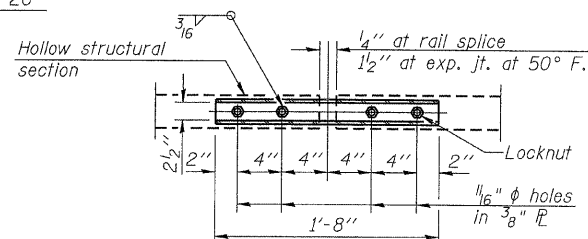
SECTION C-C



SECTIONS AT RAIL SPLICE

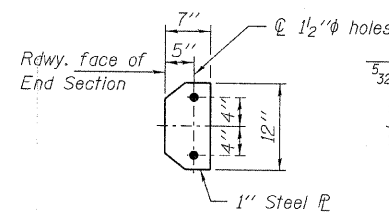


RAIL SPLICE CONNECTION
AT EXPANSION JT.

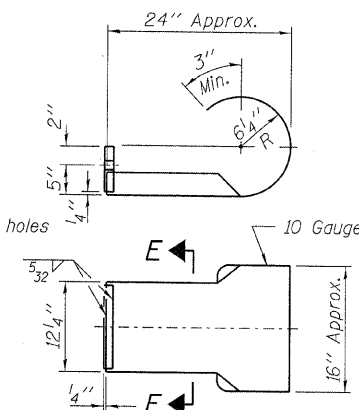


PLAN-BOTT. SPLICE R
TYPICAL

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

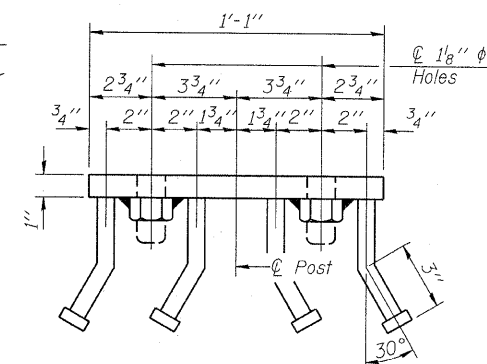


SECTION E-E

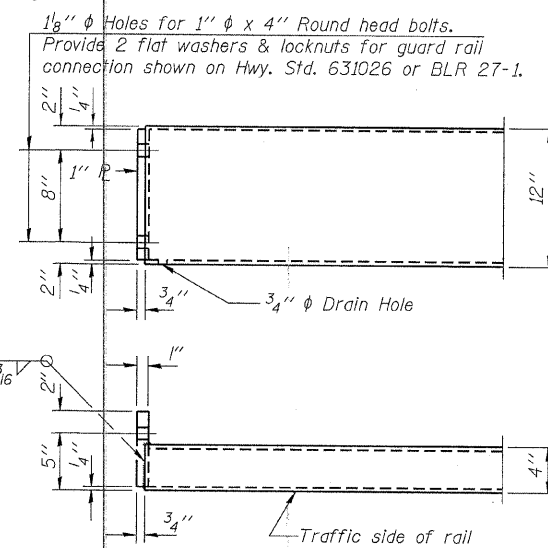


CURLLED END SECTION DETAILS

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



END OF RAIL DETAILS

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	140

STEEL RAILING, TYPE S-1
STRUCTURE NO. 033-3313

DESIGNED - S.W.M.
CHECKED - V.J.H.
DRAWN - D.T.M.
CHECKED - S.W.M.

R-23A

11-1-09

(10'-9" Maximum Post Spacing)

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184.000959 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORPORATION
PROJECT NUMBER: 09.0069.130 DATE: 04/27/10

SHEET NO. 5

9 SHEETS

T.R.

454

BEAVER CREEK ROAD DISTRICT

FED. ROAD DIST. NO.

SECTION

08-01116-00-BR

ILLINOIS FED. AID PROJECT BROS-065(045)

COUNTY

HAMILTON

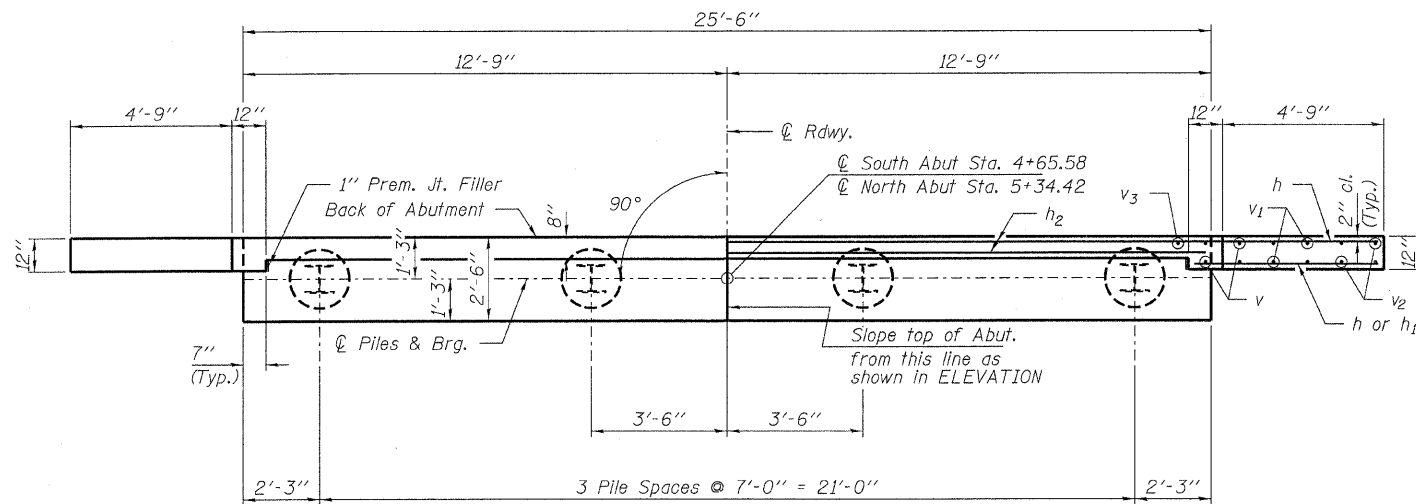
CONTRACT NO. 99442

TOTAL SHEETS

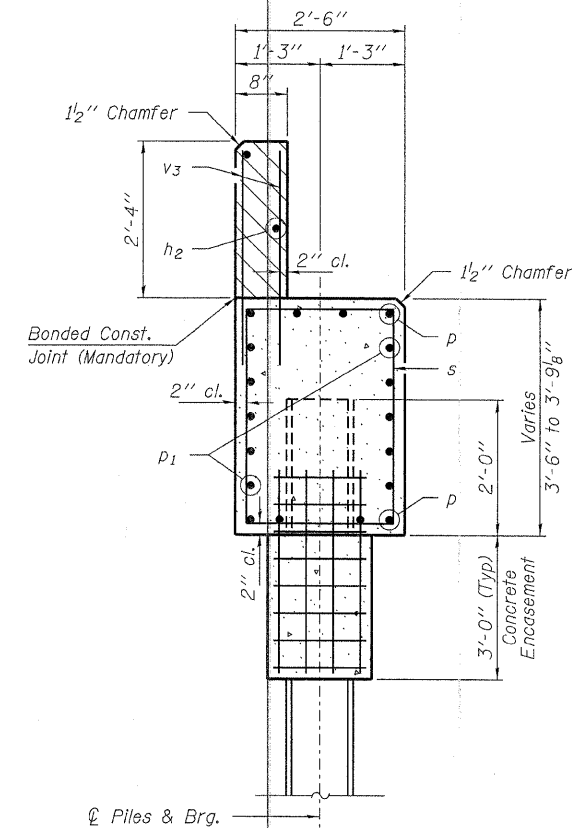
13

SHEET NO.

9

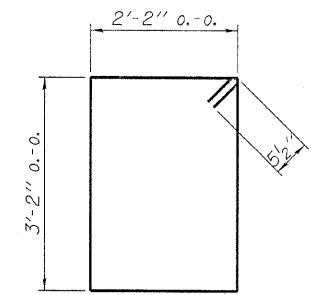


PLAN

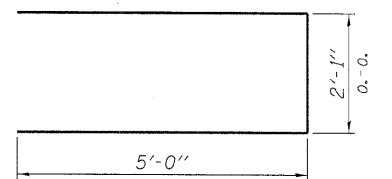


SECTION A-A

Hatched area to be poured after beams are in place.



BAR s

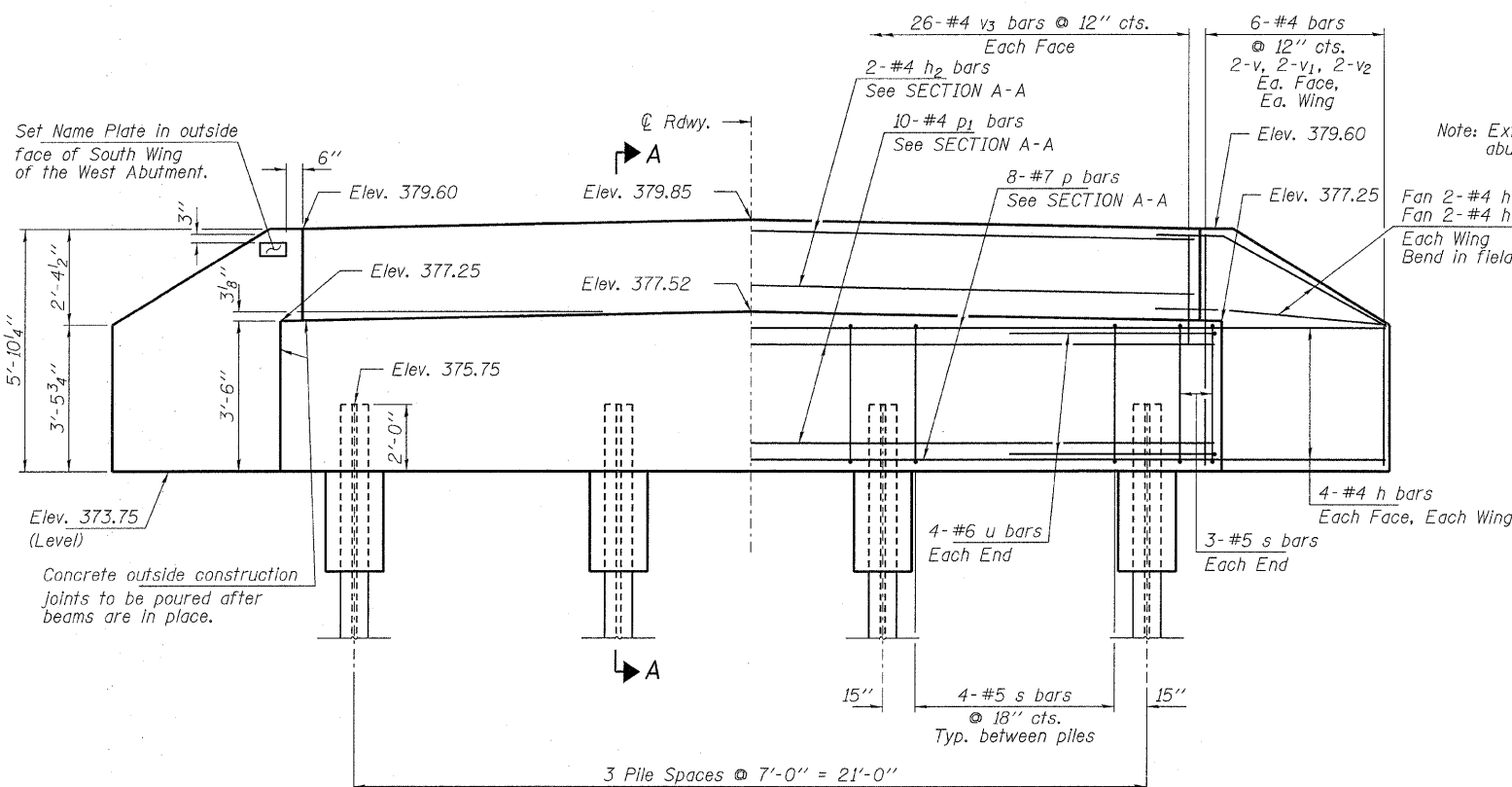


BAR u

BILL OF MATERIAL - 2 ABUTS.

BAR	NO.	SIZE	LENGTH	SHAPE
h	40	#4	7'-0"	—
h ₁	8	#4	5'-6"	—
h ₂	4	#4	25'-2"	—
p	16	#7	25'-2"	—
p ₁	20	#4	25'-2"	—
s	36	#5	11'-7"	□
u	16	#6	12'-1"	—
v	16	#4	5'-5"	—
v ₁	16	#4	4'-5"	—
v ₂	16	#4	3'-5"	—
v ₃	104	#4	3'-2"	—
Concrete Structures			Cu. Yd.	23.8
Concrete Encasement			Cu. Yd.	2.6
Reinforcement Bars			Pound	2,530
Steel Piles HP12x53			Foot	400
Name Plates			Each	1

ABUTMENTS
STRUCTURE NO. 033-3313



ELEVATION

PILE DATA

Type: Steel HP12x53
 No. Req'd. (2 Abutts.): 8
 Factored Resistance Available (Rf): 209 Kips/Pile
 Nominal Required Bearing (Rn): 419 Kips/Pile
 Est. Length: 50 Ft/Pile

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

DESIGNED - S.W.M.
CHECKED - V.J.H.
DRAWN - D.T.M.
CHECKED - S.W.M.

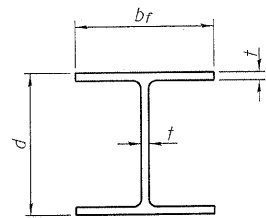
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184.000669
 ILLINOIS PROFESSIONAL DESIGN FIRM LS / PE / SE CORPORATION

PROJECT NUMBER: 09.0069.130 DATE: 04/27/10

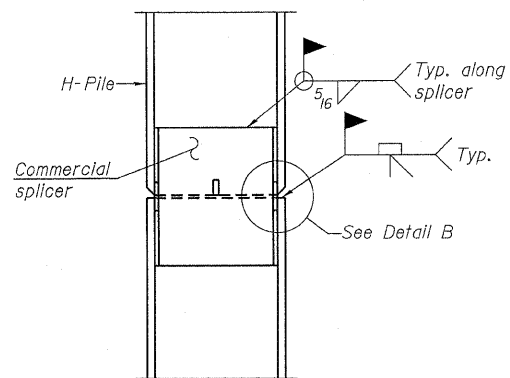
SHEET NO. 6
9 SHEETS

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
454	08-01116-00-BR	HAMILTON	13	10
BEAVER CREEK ROAD DISTRICT		CONTRACT NO. 99442		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT BROS-065(045)		

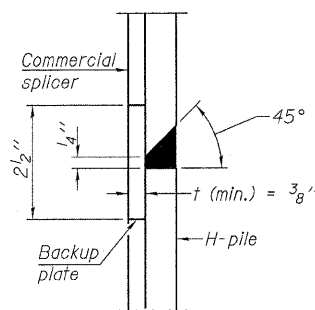


STEEL PILE TABLE

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 1/8"	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"

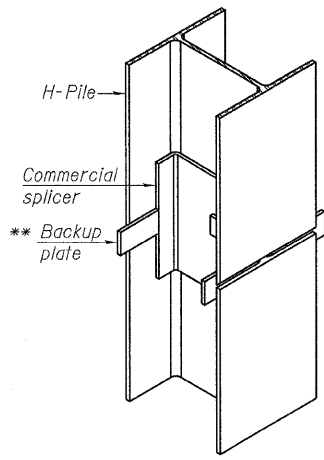


ELEVATION

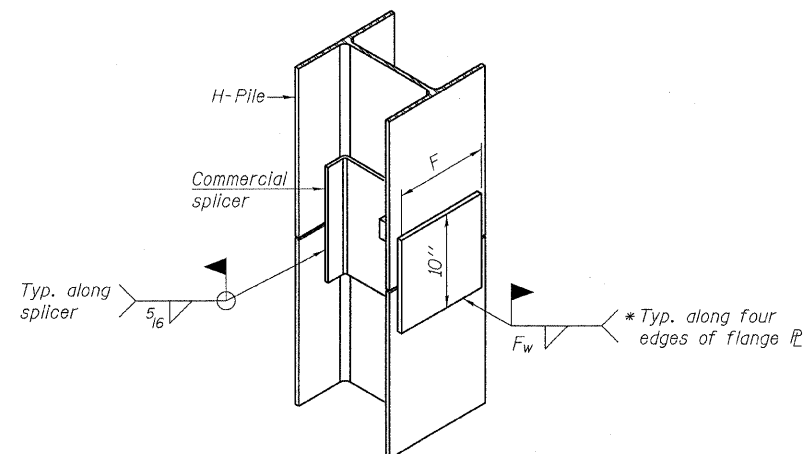


DETAIL "B"

WELDED COMMERCIAL SPLICE



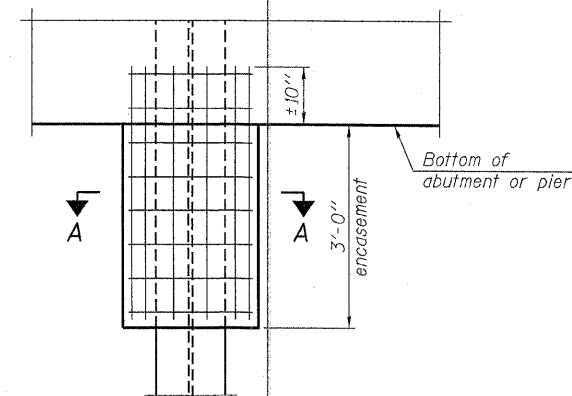
ISOMETRIC VIEW



ISOMETRIC VIEW

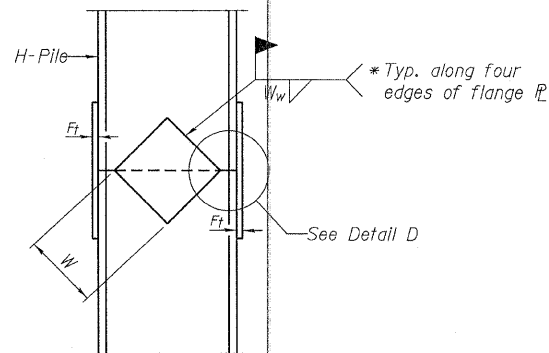
WELDED COMMERCIAL SPLICE ALTERNATE

- * 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.).

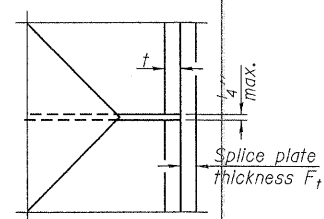


ELEVATION

PILE ENCASEMENT

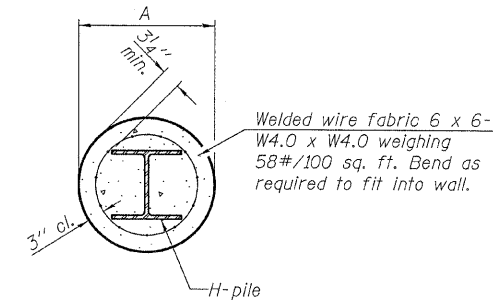


ELEVATION



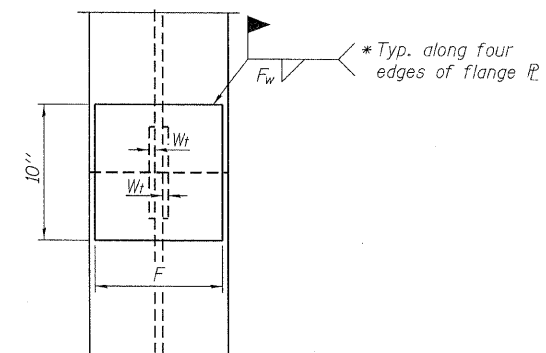
DETAIL D

WELDED PLATE FIELD SPLICE



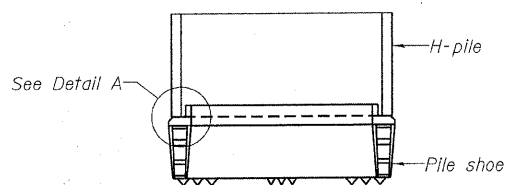
SECTION A-A

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

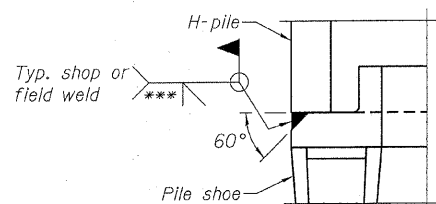


END VIEW

Designation	F	Ft	Fw	W	Wt	Ww
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5 1/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5 1/8"	1/2"
x89	12 1/2"	3/4"	1 1/16"	7 3/4"	5 1/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5 1/8"	1/2"
HP 12x84	10"	7/8"	1 1/16"	6 1/2"	5 1/8"	1/2"
x74	10"	7/8"	1 1/16"	6 1/2"	5 1/8"	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



DETAIL A

H-PILE SHOE ATTACHMENT

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

**HP PILE DETAILS
STRUCTURE NO. 033-3313**

DESIGNED - S.W.M.
CHECKED - V.J.H.
DRAWN - D.T.M.
CHECKED - S.W.M.

F-HP 11-1-09

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 PROJECT NUMBER: 09.0069.130 DATE: 04/27/10

SHEET NO. 7 9 SHEETS	T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	454	08-01116-00-BR	HAMILTON	13	11
BEAVER CREEK ROAD DISTRICT			CONTRACT NO. 99442		
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT BROS-065(045)		

