

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
---	01-03131-00-BR	VERMILION	13	1
FED. ROAD DIST. NO.	ILLINOIS	CONTRACT NO. 91365		

## INDEX OF SHEETS

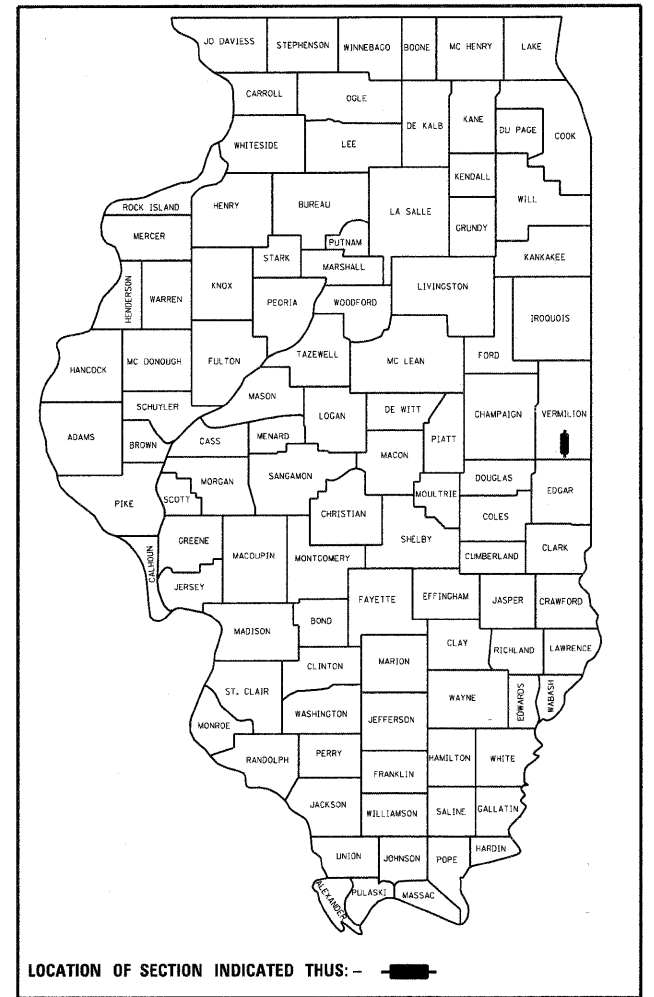
- 1 COVER SHEET
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- 7 BRIDGE RAIL DETAILS
- 8 ABUTMENT DETAILS
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## HIGHWAY STANDARDS

- 000001-05 STANDARD SYMBOLS
- 280001-04 TEMPORARY EROSION CONTROL SYSTEMS
- 515001-02 NAME PLATE FOR BRIDGES
- 701001-0 OFF-ROAD OPERATIONS LESS THAN 15'
- 701006-0 OFF-ROAD OPERATIONS GREATER THAN 15'
- 701901-01 TRAFFIC CONTROL DEVICES
- BLR 21- APPLICATION OF TRAFFIC CONTROL DEVICES

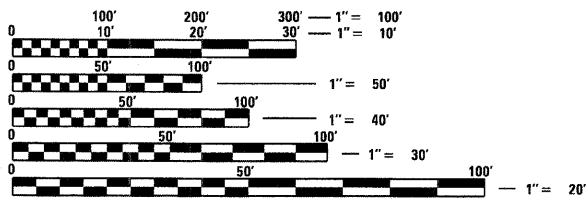
# STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PROPOSED HIGHWAY PLANS

SECTION: 01-03131-00-BR  
PROJECT: BROS-183(093)  
JOB NO. C-95-313-06  
VERMILION COUNTY  
T.R. # 164



ENGINEERING PLAN SUBMITTAL	
THESE ENGINEERING PLANS AND SUPPORTING DOCUMENTS ARE ISSUED FOR THE FOLLOWING PURPOSE ONLY	
PRELIMINARY PLAN REVIEW NO.	
PRE-FINAL PLAN REVIEW NO.	1
<input checked="" type="checkbox"/> FINAL PLAN REVIEW NO.	
PERMIT APPLICATION	
BIDDING	
CONSTRUCTION	

DATE: 09-29-2008



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

J.U.L.I.E.  
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION  
1-800-892-0123  
OR 811

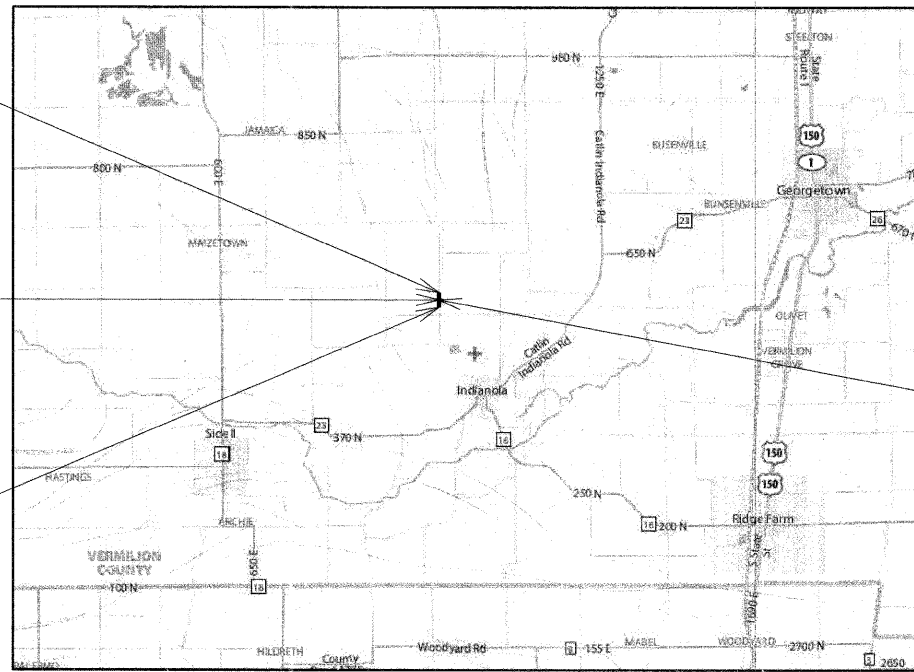
PROJECT ENGINEER - ADAM GROVES  
PROJECT MANAGER - DAN FEUERBORN

CONTRACT NO. ~~91365~~ 91365

PROJECT ENDS  
STA 44 + 50.0

ROADWAY OMISSION  
FROM STA 42 + 85.0  
TO STA 43 + 20.0

PROJECT BEGINS  
STA 41 + 50.0



### R12W LOCATION MAP



TOTAL LENGTH OF PROJECT = 300 FEET = 0.057 MILES  
NET LENGTH = 300 FEET = 0.057 MILES  
ADT = 109  
FUNCTIONAL CLASSIFICATION = LOCAL ROAD

**ESI** CONSULTANTS, LTD  
753 WINDSOR ROAD  
CHARLESTON, IL 61920  
(217) 348-1900  
WWW.ESI-CONSULTANTS.LTD.COM

ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184-003685  
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**PROPOSED STRUCTURE REPLACEMENT OVER SWANK CREEK DISTRICT 5**  
SEC 01-03131-00-BR  
STATION 43 + 00  
NEW SN: 092-3494  
OLD SN: 092-3125

APPROVED October 20 20 08  
Dan Staker  
COUNTY ENGINEER

APPROVED October 20 20 08  
Tim J. Brennan  
ROAD COMMISSIONER

PASSED 10/23 20 08  
Dan St.  
DISTRICT FIVE ENGINEER OF LOCAL ROADS & STREETS

Releasing For Bid Based on Limited Review 10/23 20 08  
Dan Feuerborn  
DEPUTY DIRECTOR OF HIGHWAYS, REGION THREE ENGINEER  
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

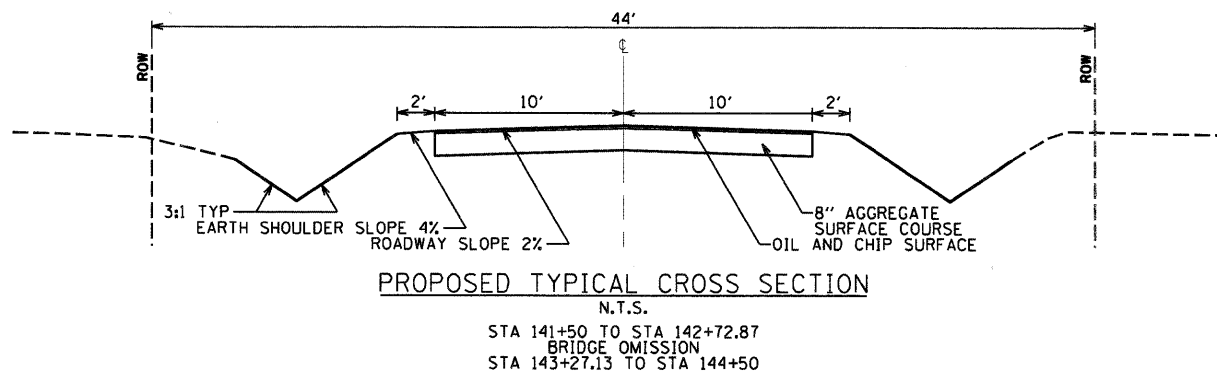
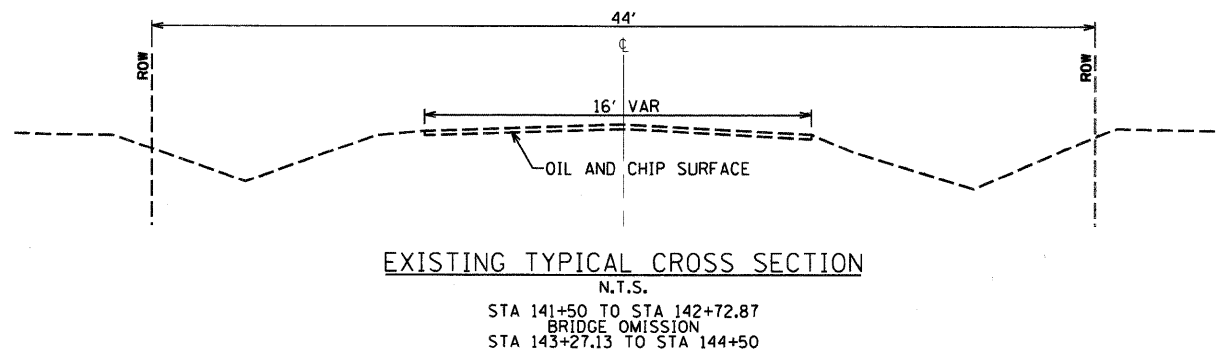


Dan Feuerborn 10.23.2008  
Date  
License Expires 11-30-2009

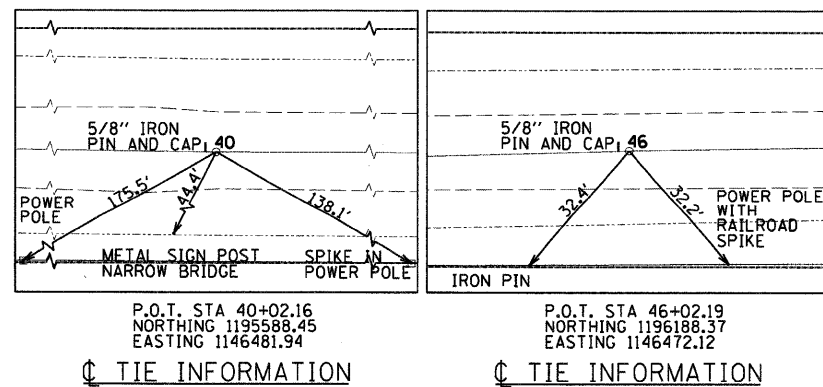
# GENERAL NOTES

- ALL CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE STATE OF ILLINOIS "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, ADOPTED JANUARY 1, 2007," THESE PLANS AND THE SPECIAL PROVISIONS INCLUDED IN THE CONTRACT DOCUMENTS.
- THE REVISION NUMBER INDICATED FOR THE STANDARDS LISTED IN THE INDEX OF SHEETS SHALL BE USED IN CONSTRUCTION OF THIS SECTION.
- THE FOLLOWING RATES OF APPLICATION HAVE BEEN USED IN CALCULATING PLAN QUANTITIES...  
AGGREGATE SURFACE COURSE, TYPE B - 2.05 TON/CU YD
- THE AREA TO BE SEEDED SHALL CONSIST OF ALL EARTH SURFACES DISTURBED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER.
- THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ON THE PLANS ARE BASED ON CAREFUL FIELD INVESTIGATION AND THE BEST INFORMATION AVAILABLE, BUT ARE NOT GUARANTEED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THEIR EXACT LOCATIONS FROM THE UTILITY COMPANIES AND BY FIELD INSPECTION. THE CONTRACTOR IS REQUIRED TO CONTACT J.U.L.I.E AT, 1-800-892-0123, PRIOR TO PROCEEDING WITH ANY EXCAVATION AND WORK ON THE PROJECT.

# TYPICALS



# CENTERLINE TIE INFORMATION



# SUMMARY OF QUANTITIES

PAY CODE	ITEM	UNITS	QUANTITY
20200100	EARTH EXCAVATION	CU YD	103
20300100	CHANNEL EXCAVATION	CU YD	68
25001000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.30
28000255	TEMPORARY EROSION CONTROL SEEDING	ACRE	0.30
28000300	TEMPORARY DITCH CHECKS	EACH	10
28000400	PERIMETER EROSION BARRIER	FOOT	100
28100108	STONE RIPRAP, CLASS A4 (SPECIAL)	SQ YD	222
35100100	AGGREGATE BASE COURSE, TYPE A	TON	232
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50105220	PIPE CULVERT REMOVAL	FOOT	62
50200100	STRUCTURE EXCAVATION	CU YD	117.0
50300225	CONCRETE STRUCTURES	CU YD	23.9
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1410
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	2970
* 50900205	STEEL RAILING, TYPE S1	FOOT	105
51201600	FURNISHING STEEL PILES HP12X53	FOOT	402
51202305	DRIVING PILES	FOOT	402
51203600	TEST PILE STEEL HP12X53	EACH	2
51204600	METAL SHOES	EACH	14
51500100	NAME PLATES	EACH	1
59300100	CONTROLLED LOW-STRENGTH MATERIAL	CU YD	44.8
67100100	MOBILIZATION	L SUM	1
XX004566	CONCRETE CUT-OFF WALL	CU YD	7.8
XX005699	BITUMINOUS SURFACE TRFATMENT, A-3 SPECIAL	SQ YD	630

\* SPECIALTY ITEMS

# EARTHWORK SCHEDULE

STATION	Fill SQ FT	Fill CU YD	Cut SQ FT	Cut CU YD	Total CU YD
41+50	0		0		
		3.2		5.6	8.8
41+75	7.0		12.1		
		11.06		9.9	21.0
42+00	16.9		9.3		
		16.8		10.6	27.3
42+25	19.3		13.5		
		22.8		13.8	36.6
42+50	29.9		16.4		
		28.3		9.3	37.6
42+72.87	36.9		5.5		
Structure Ex Backfill	22.6				22.6
BRIDGE OMISSION					
Structure Ex Backfill	22.6				22.6
43+27.13	41.0		10.6		
		27.4		11.8	39.2
43+50	23.7		17.2		
		19.5		14.6	34.1
43+75	18.4		14.3		
		13.0		12.0	25.0
44+00	9.7		11.7		
		6.8		10.3	17.0
44+25	4.9		10.5		
		2.3		4.9	7.1
44+50	0.0		0.0		
2+46 Feet Total Length					
TOTAL FILL EMBANKMENT	196.3 CU YD		TOTAL CUT EARTH EXCAVATION	102.7 CU YD	TOTAL EARTHWORK
					299.0 CU YD
	Waste = 68 CU YD			FURNISHED EX = 0 CU YD	

PRINTED DATE: 10/16/2008 11:00:00 AM Project: Vermilion, county of Vt, 164 over swank creek\cadd\dn\sheet5 02.dn.dgn

USER NAME = #USER#	DESIGNED - ADG	REVISED -
PLOT SCALE = 20.0000' / IN.	DRAWN - ADG	REVISED -
PLOT DATE = 10/16/2008	CHECKED - DF	REVISED -
	DATE - 09-29-2008	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

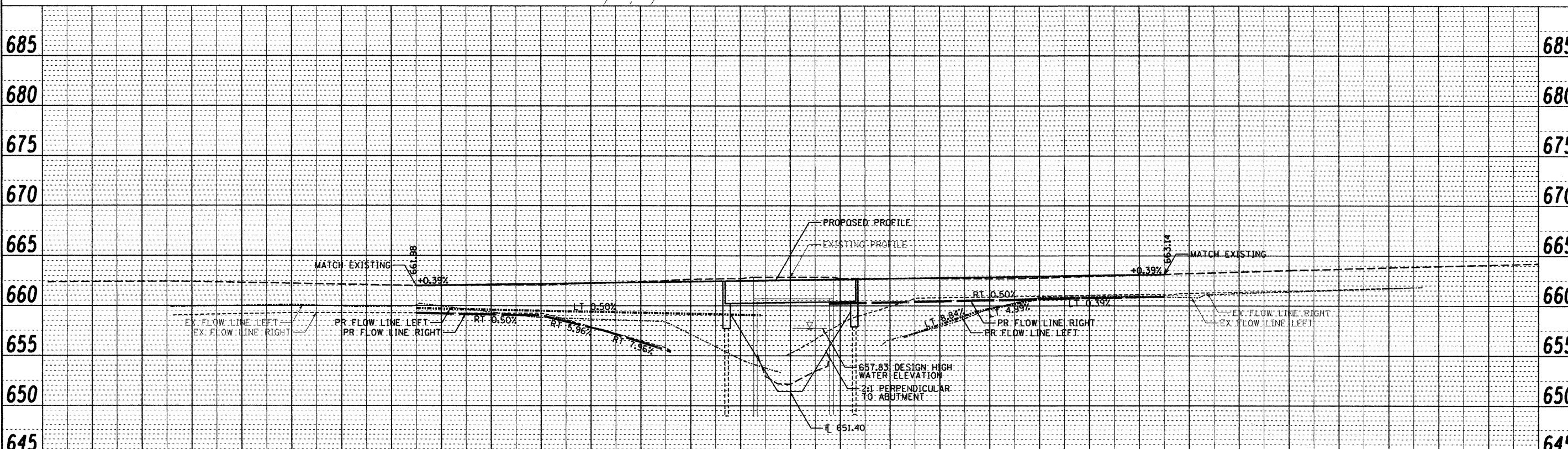
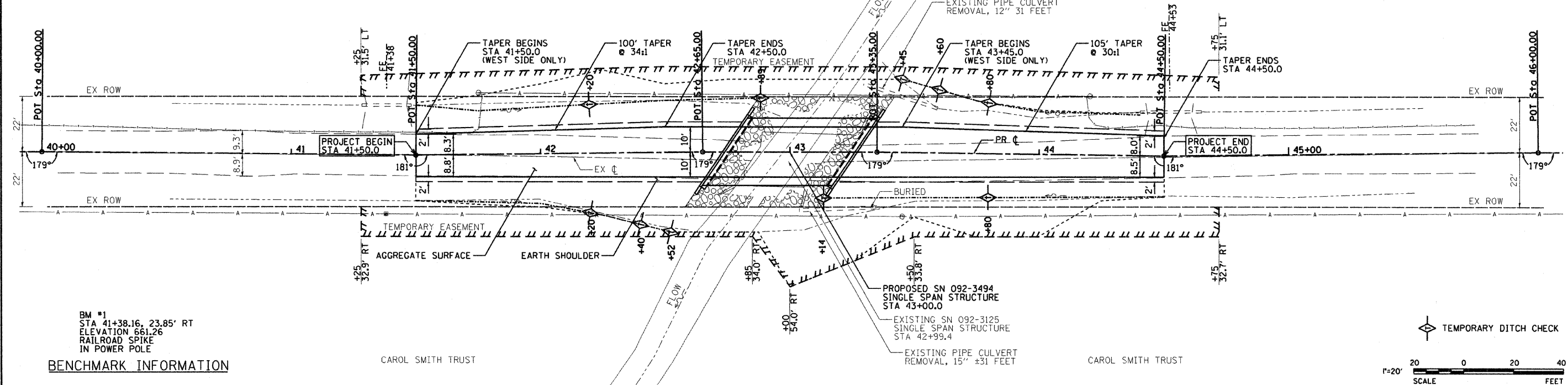
GENERAL NOTES & QUANTITIES

SCALE: NTS SHEET NO. 1 OF 1 SHEETS

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F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	01-03131-00-BR	VERMILION	13	2
CONTRACT NO. 91365				

FED. ROAD DIST. NO. - ILLINOIS FED. AID PROJECT



DESIGNED - ADG	REVISED -
DRAWN - ADG	REVISED -
CHECKED - DF	REVISED -
DATE - 09-29-2008	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**PLAN & PROFILE**  
SCALE: 1"=20' SHEET NO. 1 OF 1 SHEETS STA. 41.50 TO STA. 44+50

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	01-03131-00-BR	VERMILION	13	3
CONTRACT NO. 91365				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

DATE
BY
REGISTERED
PLANNING
NOTED
CADD FILE NAME

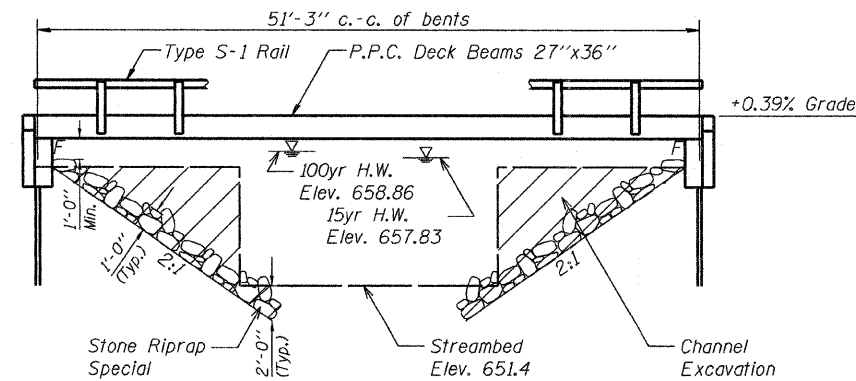
DATE
BY
REGISTERED
PROFILES
NOTED
STRUCTURE
STATUS
FILE NO.

PRINTED DATE: 10/6/2008  
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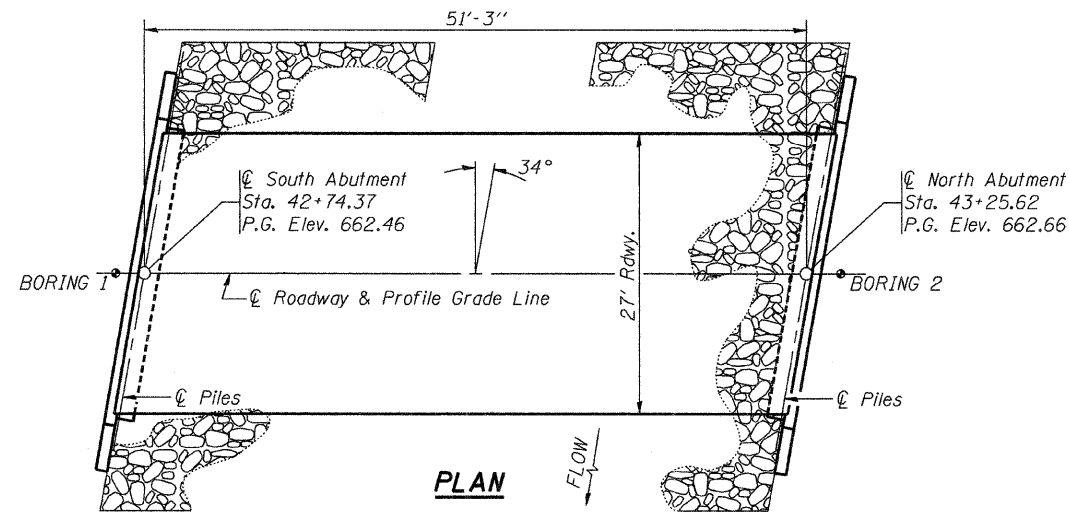
B.M. - Sta. 41+38.16, 23.85' Right, railroad spike in power pole, elev. 661.26.

Existing Structure - Structure 092-3125 consists of single span reinforced concrete deck on steel I-beams on closed concrete abutments. The bk. to bk. of abutments length is 30' and the out-to-out width is 18'. The existing structure shall be completely replaced. Road closure shall be used during construction.

Salvage - Any material deemed salvageable by the Engineer shall be stockpiled on the R.O.W. and shall become the property of Vermilion County. The Contractor shall dispose of all remaining material.



**ELEVATION**



**PLAN**

STA 41+50 ELEV 661.98	STA 43+00 ELEV 662.56	STA 44+50 ELEV 663.14
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**PROFILE GRADE**

**DESIGN STRESSES**

**FIELD UNITS**

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

**PRECAST PRESTRESSED UNITS**

$f'_c = 6,000$  psi  
 $f'_{ci} = 5,000$  psi  
 $F'_s = 270,000$  psi ( $\frac{1}{2}$ " low relax. strands)  
 $F_{si} = 201,960$  psi ( $\frac{1}{2}$ " low relax. strands)



**DESIGN SPECIFICATIONS**

2007 AASHTO LRFD Bridge Design Specifications - 4th ed.

**LOADING HL-93**

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

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 1  
Bedrock Acceleration Coefficient (A) = 0.075g  
Site Coefficient (S) = 1.0

**PILE DATA (2-ABUTS.)**

Type STEEL HP 12x53  
Nominal Required Bearing 258 kips  
Factored Resistance Available 129 kips  
Estimated Pile Length 31 Feet North Abut. and 36 Feet South Abut.  
Number of Production Piles 12  
Number of Test Piles 2 (1 In Each Abutment)

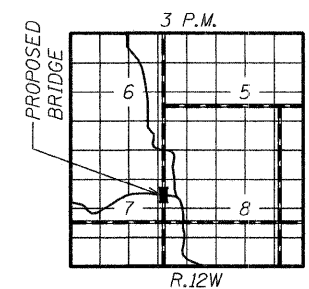
SWANK CREEK  
BUILT 200\_ BY  
VERMILION COUNTY  
SEC. 01-03131-00-BR  
PROJECT NO. BROS-183(092)  
TR 164 STA. 43+00  
STR. NO. 092-3494 LOADING HL-93

**LETTERING FOR NAME PLATE**

Locate Name Plate at Corner of Bridge (See Std. 515001)

**WATERWAY INFORMATION**

Drainage Area = 5.5 SQ MI		Low Grade Elev. = 495.9 @ Sta. 5+00							
Flood	Freq. Yr.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater EL.		
		Exist.	Prop.		Exist.	Prop.	Exist.	Prop.	
Design	15	489	103	134	657.83	0.3	0.1	658.13	657.93
Base	100	761	126	171	658.86	0.5	0.1	659.36	658.96
Overtopping									
Max. Calc.	500								



**LOCATION SKETCH**

**GENERAL NOTES**

- The Contractor shall drive 1 test pile, as specified, in a permanent location as directed by the Engineer before ordering the remaining piles.
- See Bridge Plan Sheet 7 for boring logs.
- A Corrosion inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.
- Concrete sealer shall be applied to exterior face of each fascia beam. Reinforcement bars shall conform to the requirements of AASHTO M31 or M322 Grade 60.
- The Steel H-piles shall be according to AASHTO M270 grade 50.
- The test pile(s) shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.
- Reinforcement bars shall conform to the requirements of ASTM A 706 Fr 60 (IL Modified). See Special Provisions.
- Reinforcement bars designated (E) shall be epoxy coated.
- Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.

**TOTAL BILL OF MATERIAL**

Item	Unit	Super	Sub.		Total
			Piers	Abuts.	
Removal of Existing Structures	Each	-	-	-	1
Concrete Structures	Cu. Yd.	-	-	23.9	23.9
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1410	-	-	1410
Steel Bridge Railing, Type S-1	Foot	105	-	-	105
Reinforcement Bars, Epoxy Coated	Pound	-	-	2970	2970
Furnishing Steel Piles HP 12x53	Foot	-	-	402	402
Driving Piles	Foot	-	402	-	402
Test Piles Steel HP 12x53	Each	-	-	2	2
Name Plates	Each	1	-	-	1
Concrete Cut-off Wall	Cu. Yd.	-	-	7.8	7.8
Structure Excavation	Cu. Yd.	-	-	117.0	117.0
Stone Riprap Class A4 (Special)	Ton	-	-	222.0	222.0
Channel Excavation	Cu. Yd.	-	-	68.0	68.0
Controlled Low-Strength Material	Cu. Yd.	-	-	44.8	44.8

**INDEX OF SHEETS**

- General Plan & Elevation
- Superstructure
- Superstructure Details
- Steel Railing
- Abutment Details
- Pile Details
- Boring Logs



Daniel Feuerborn  
License Expires 11-30-2008

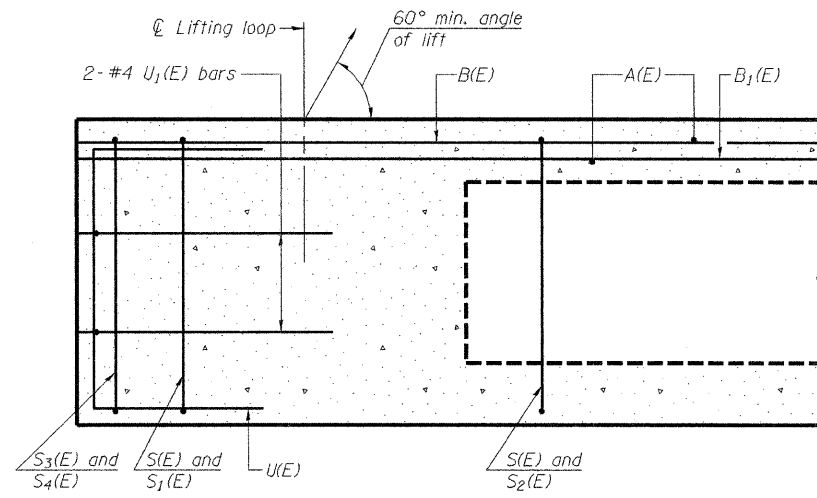
11.24.2008  
Date

I certify that to the best of knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current AASHTO Standard Specifications for Highway Bridges.

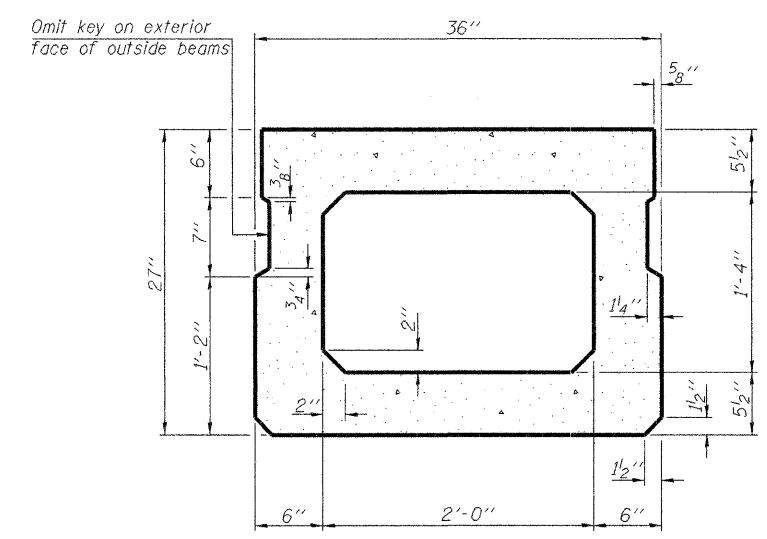
**GENERAL PLAN & ELEVATION  
TR 164 OVER SWANK CREEK**

DATE: 09-29-2008 DRAWN BY: ADG CHECKED BY: DF

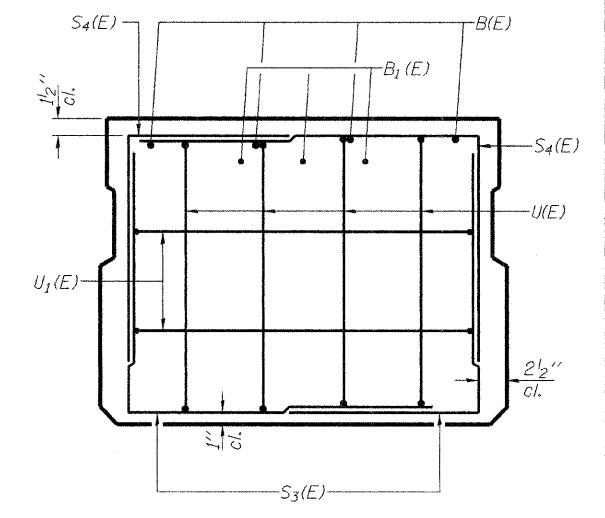
SHEET NO. 1 OF 7 SHEETS	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		01-03131-00-BR	VERMILION	13	4
		SN 092-3494	CONTRACT NO. 91365		
FED. ROAD DIST. NO. -		ILLINOIS FED. AID PROJECT			



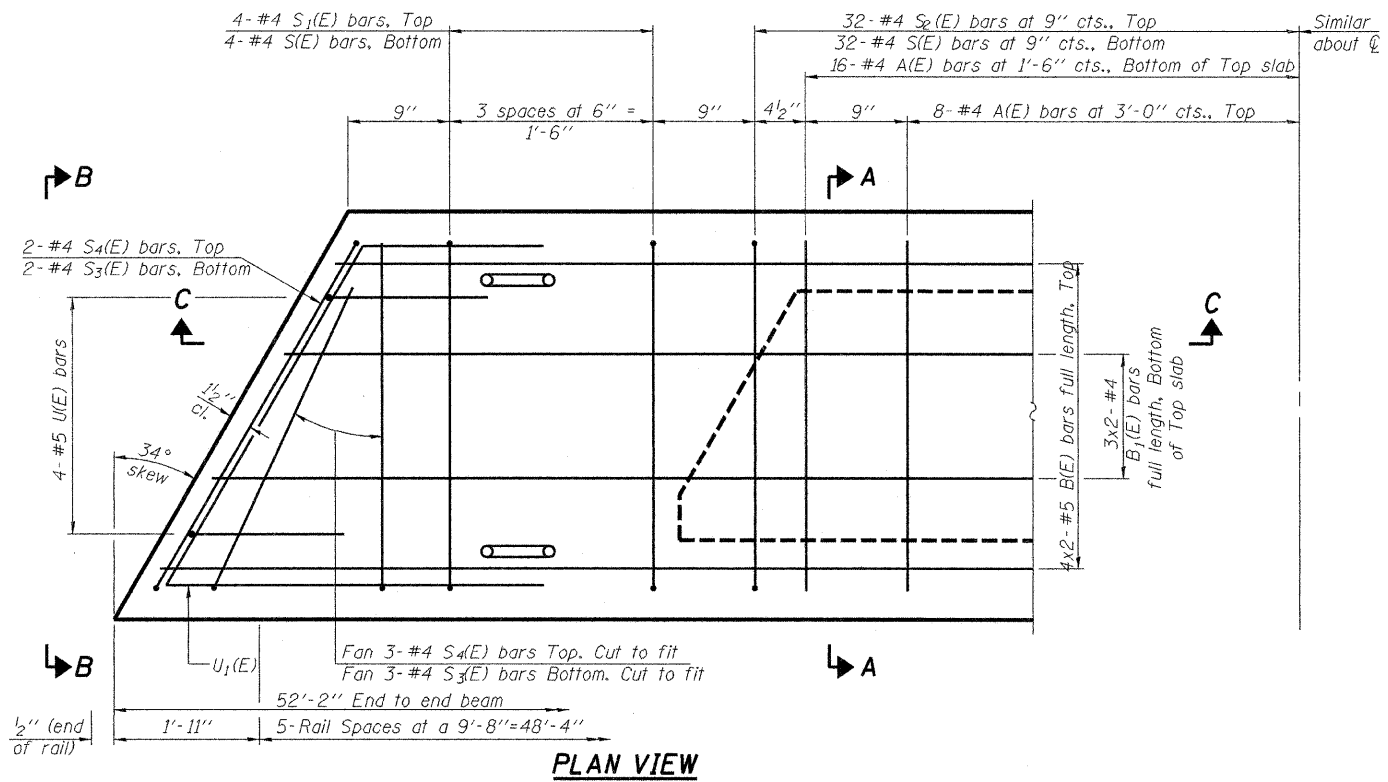
**SECTION C-C**



**SECTION A-A**  
(Showing dimensions)

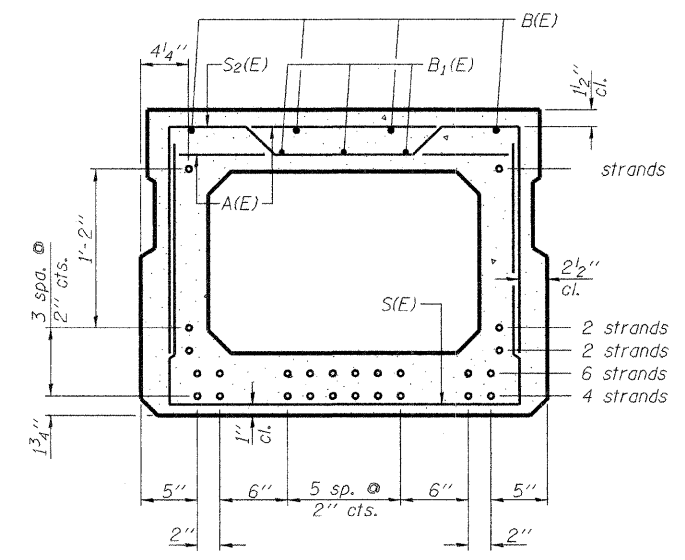


**VIEW B-B**



**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 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)	47	#4	2'-7"	—
B(E)	8	#5	27'-0"	—
B1(E)	6	#4	26'-9"	—
S(E)	71	#4	6'-5"	—
S1(E)	8	#4	5'-11"	—
S2(E)	63	#4	6'-2"	—
S3(E)	10	#4	4'-8"	—
S4(E)	10	#4	4'-8"	—
U(E)	8	#5	4'-6"	—
U1(E)	4	#4	7'-2"	—

Note: See sheet 3 of 7 for additional details and Bill of Material.

**MIN. BAR LAP**

- #4 1'-8"
- #5 2'-2"

**27" X 36" PPC DECK BEAM**

**SUPERSTRUCTURE**  
**TR 164 OVER SWANK CREEK**

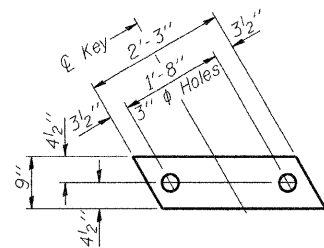
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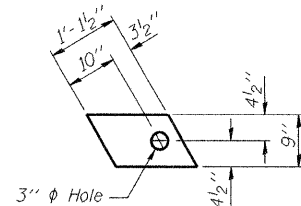
PD-2736-L 5-16-08

SHEET NO. 2 OF 7 SHEETS	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		01-03131-00-BR	VERMILION	13	5
		SN 092-3494	CONTRACT NO. 91365		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT					

PRINTED DATE: 10/6/2008  
 n:\pro\ec\sl\verm\11101\_ county of yr. 164 over swank creek\cadd\gn\sheet\05\_Super.dgn



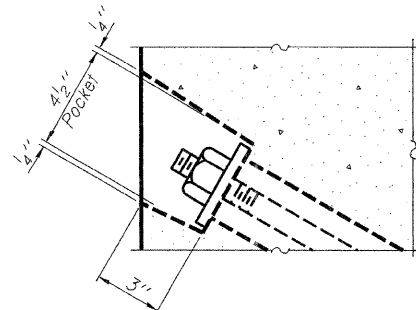
**FABRIC BEARING PAD**  
(Interior)



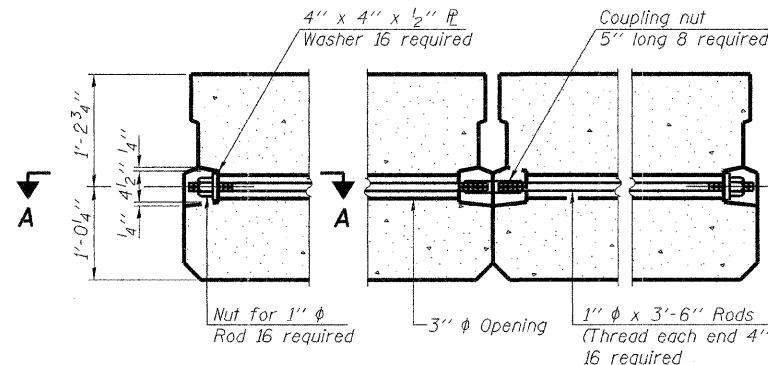
**FABRIC BEARING PAD**  
(Exterior)

**FIXED**

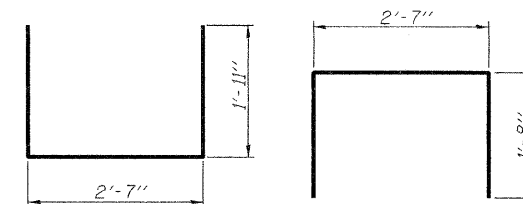
Note: Omit holes when using expansion bearings.



**SECTION A-A**

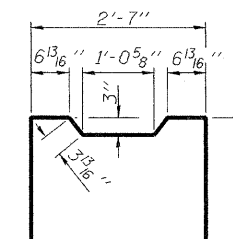


**TYPICAL TRANSVERSE TIE ASSEMBLY**

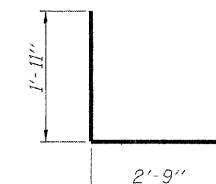


**BAR S1(E)**

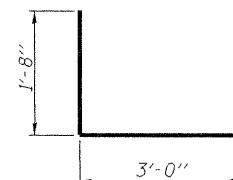
**BAR S2(E)**



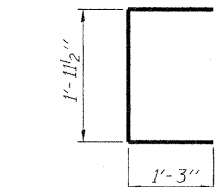
**BAR S3(E)**



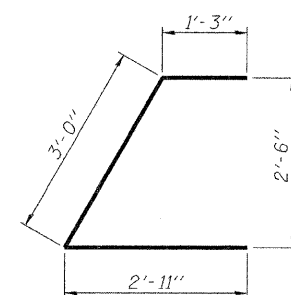
**BAR S4(E)**



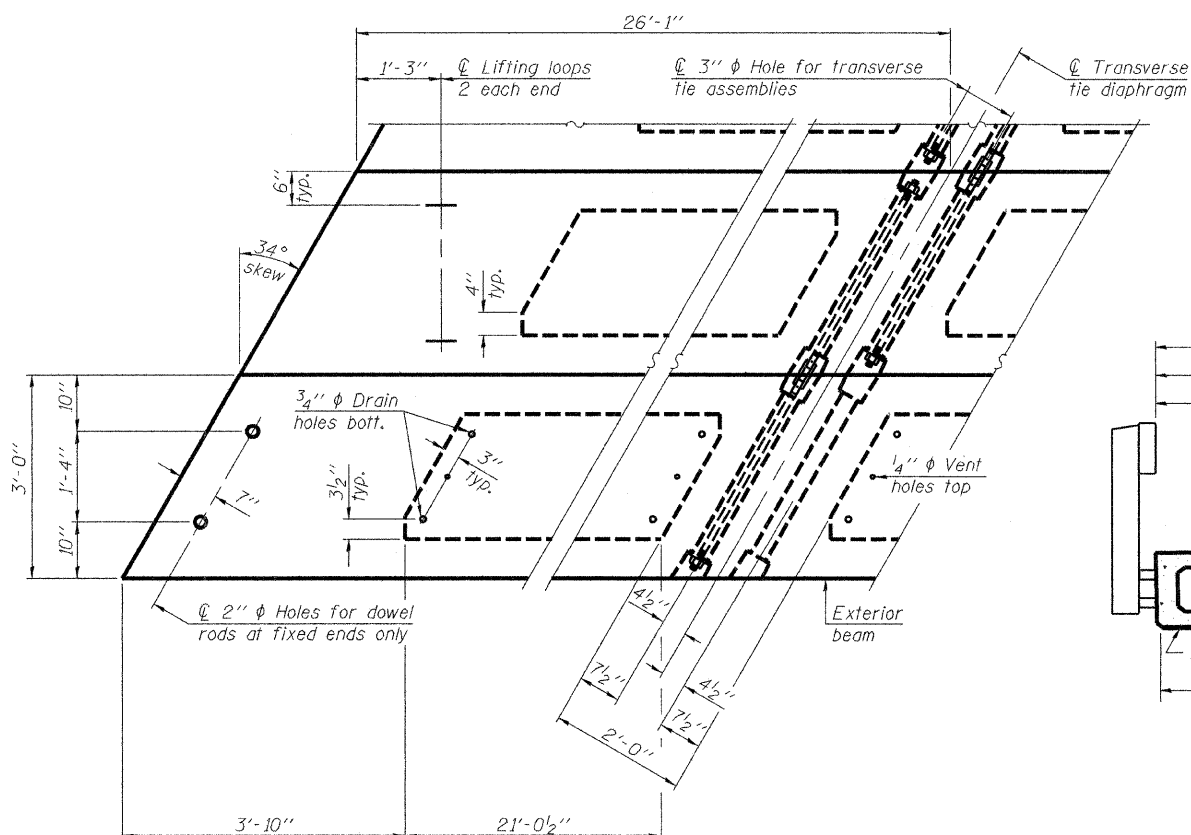
**BAR U1(E)**



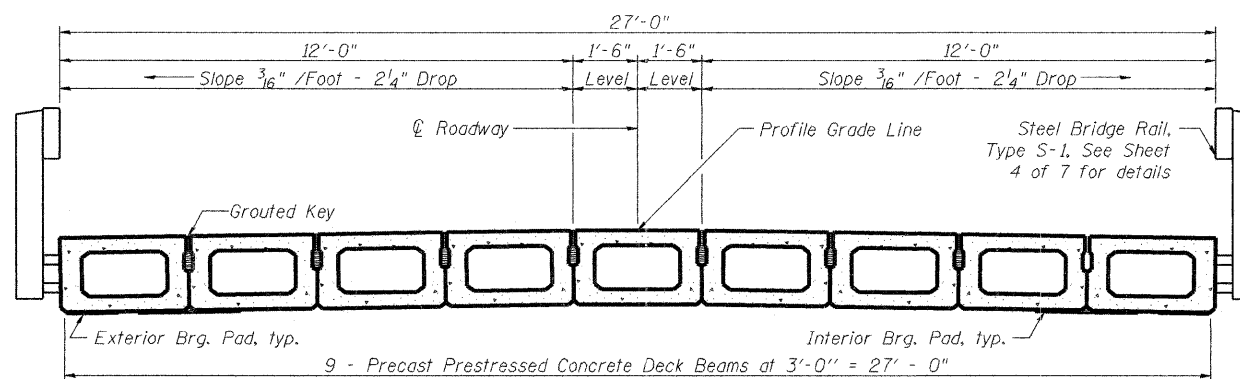
**BAR U2(E)**



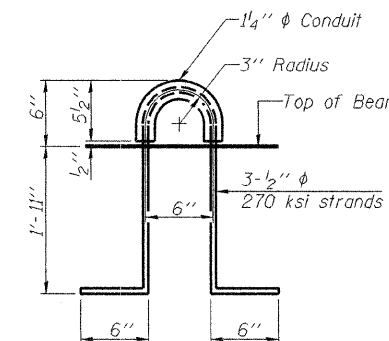
**BAR U3(E)**



**PLAN VIEW**



**CROSS SECTION**



**LIFTING LOOP DETAIL**

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" diameter lifting pin shall be used to engage the lifting loops during handling.
- Corrosion inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.
- Compressive strength of prestressed concrete, f'c, shall be 6000 psi.
- Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

**BILL OF MATERIAL**

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1410
-------------------------------------------------	---------	------

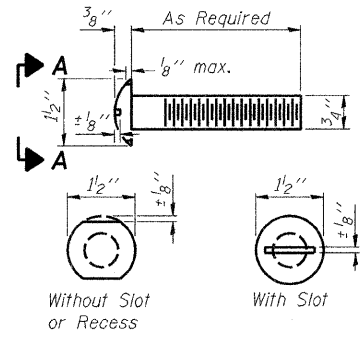
**27" X 36" PPC DECK BEAM DETAILS**

**SUPERSTRUCTURE DETAILS TR 164 OVER SWANK CREEK**

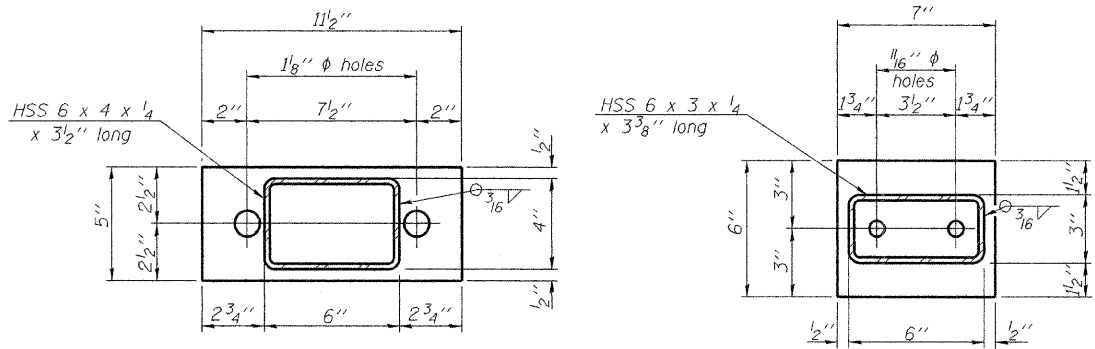
DATE: 09-29-2008 DRAWN BY: ADG CHECKED BY: DF

SHEET NO. 3 OF 7 SHEETS	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		01-03131-00-BR	VERMILION	13	6
		SN 092-3494	CONTRACT NO. 91365		
FED. ROAD DIST. NO. - ILLINOIS FED. AID PROJECT					



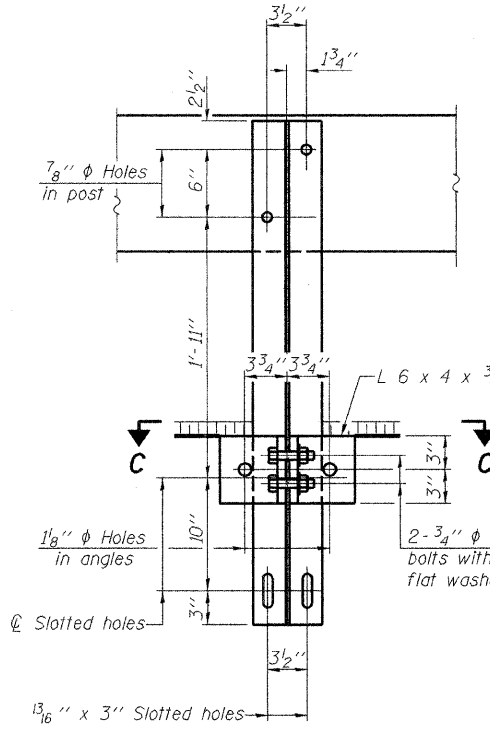


**VIEW A-A ROUND HEAD BOLT**

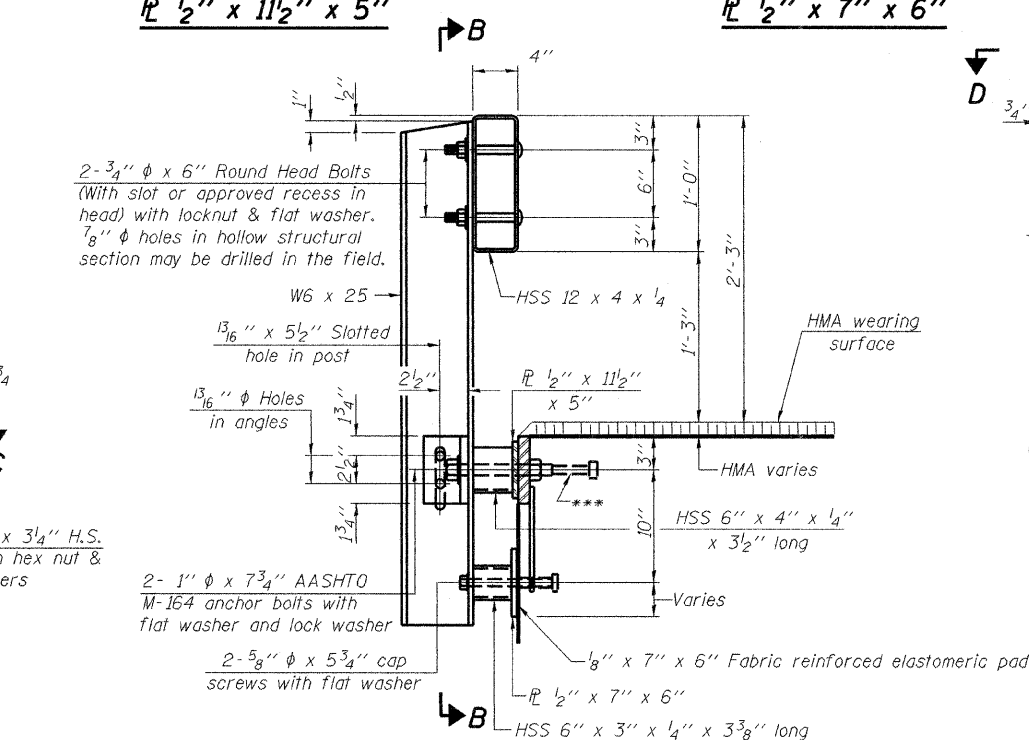


**R 1/2" x 1 1/2" x 5"**

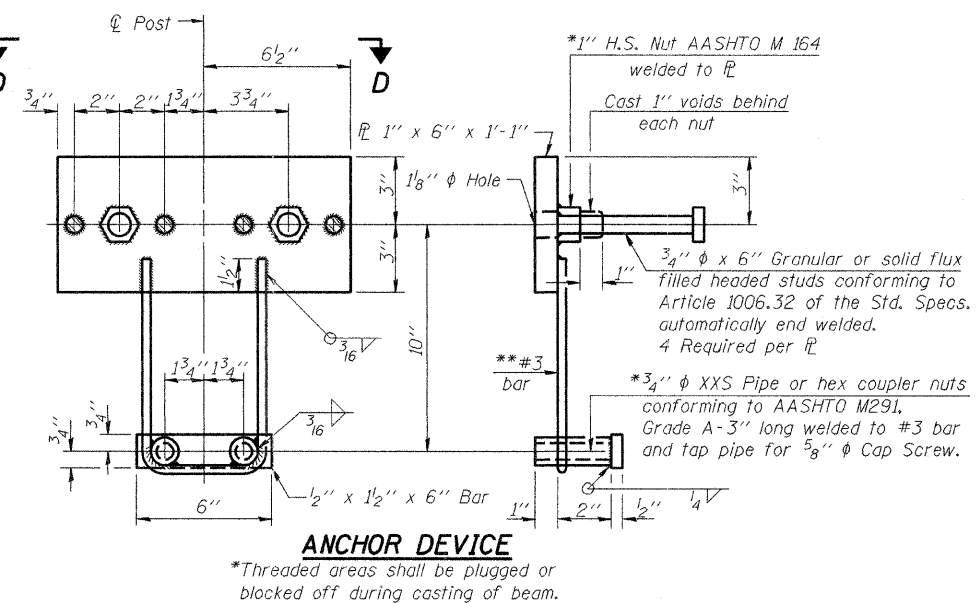
**R 1/2" x 7" x 6"**



**SECTION B-B**

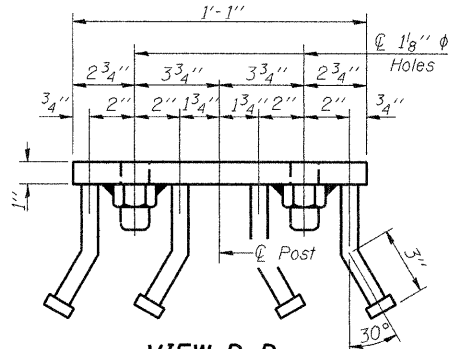


**SECTION AT RAILING POST**

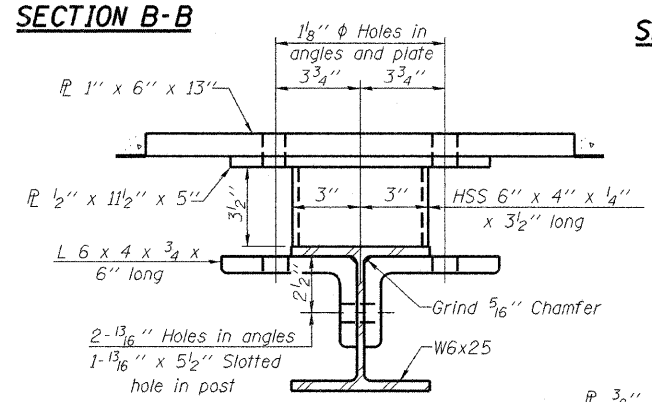


**ANCHOR DEVICE**

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

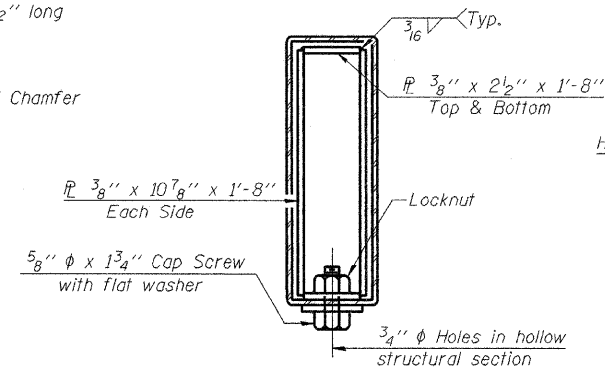


**VIEW D-D**

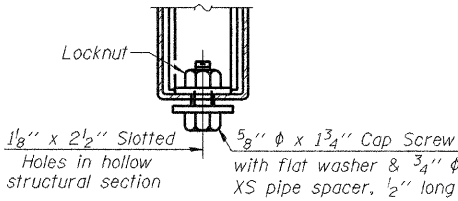


**SECTION C-C**

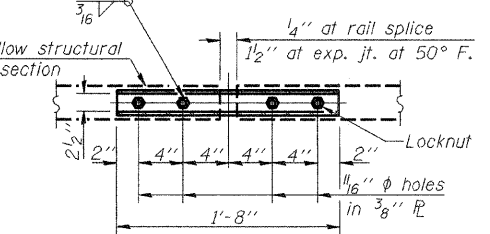
\*\*\*Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".



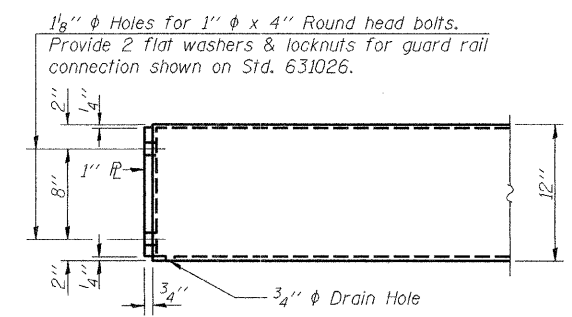
**SECTIONS AT RAIL SPLICE**



**RAIL SPLICE CONNECTION AT EXPANSION JT.**



**PLAN-BOTTOM SPLICE R TYPICAL**



**END OF RAIL DETAILS**

**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	105

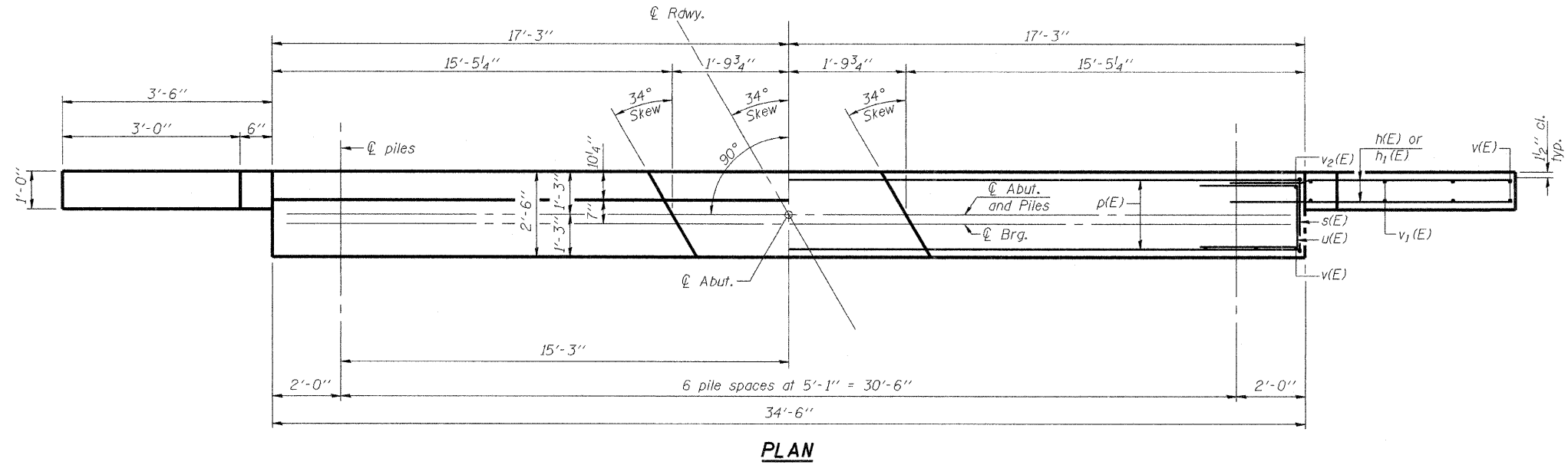
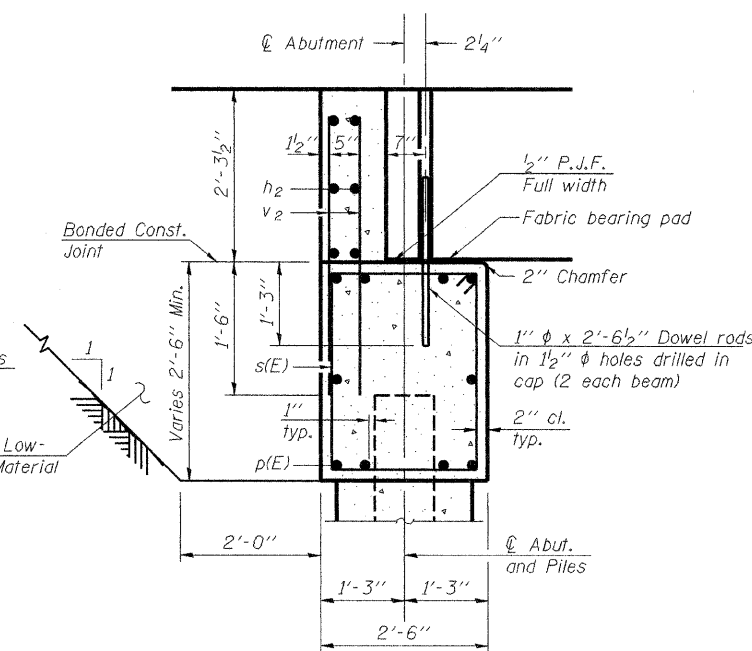
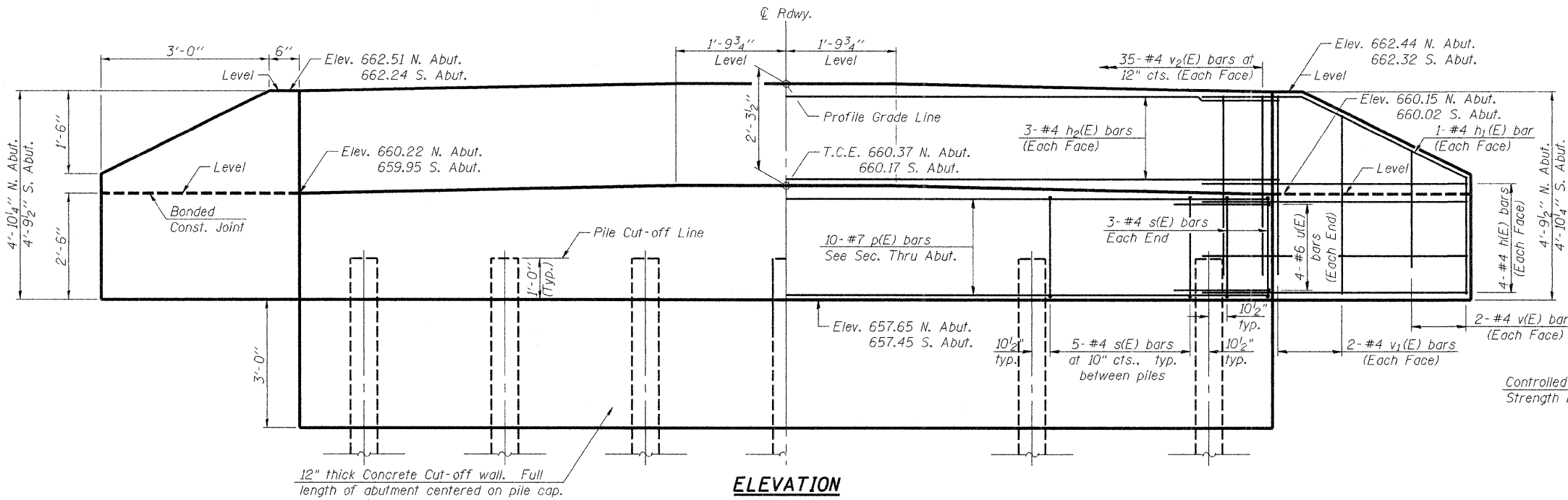
**STEEL RAILING, TYPE S-1  
TR 164 OVER SWANK CREEK**

DATE: 09-29-2008 DRAWN BY: ADG CHECKED BY: DF

SHEET NO. 4	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
OF 7 SHEETS		01-03131-00-BR	VERMILION	13	7
		SN 092-3494	CONTRACT NO. 91365		
		FED. ROAD DIST. NO. -	ILLINOIS FED. AID PROJECT		

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 753 WINDSOR ROAD  
 CHARLESTON, IL 61830  
 (317) 348-1500  
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 ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184-009885

PRINTED DATE: 10/6/2008  
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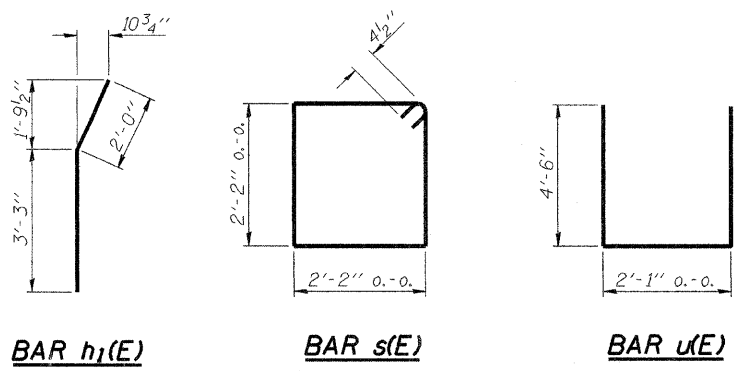


**BILL OF MATERIAL  
TWO ABUTMENTS**

Bar	No.	Size	Length	Shape
h(E)	32	#4	5'-0"	—
h <sub>1</sub> (E)	8	#4	5'-3"	—
h <sub>2</sub> (E)	12	#4	34'-2"	—
p(E)	20	#7	34'-2"	—
s(E)	72	#4	9'-5"	□
u(E)	16	#6	11'-1"	—
v(E)	16	#4	3'-2"	—
v <sub>1</sub> (E)	16	#4	4'-2"	—
v <sub>2</sub> (E)	140	#4	3'-11"	—
Structure Excavation		Cu. Yd.	117.0	
Concrete Structures		Cu. Yd.	23.9	
Reinforcement Bars, Epoxy Coated		Pound	2970	
Furnishing Steel Piles HP 12x53		Foot	402	
Driving Piles		Foot	402	
Concrete Cut-off Wall		Cu. Yd.	7.8	
Test Piles Steel HP 12x53		Each	2	
Controlled Low-Strength Material		Cu. Yd.	44.8	

**PILE DATA (2-ABUTS.)**

Type STEEL HP 12x53  
 Nominal Required Bearing 258 kips  
 Factored Resistance Available 129 kips  
 Estimated Pile Length 31 Feet North Abut. and 36 Feet South Abut.  
 Number of Production Piles 12  
 Number of Test Piles 2



**Notes**

The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.  
 Space reinforcement in cap to miss anchor bolts.

For details of piles and Concrete Encasement, see sheet 6 of 7.

**ABUTMENT DETAILS  
TR 164 OVER SWANK CREEK**

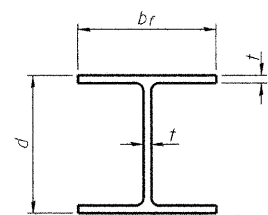
DATE: 09-29-2008 DRAWN BY: ADG CHECKED BY: DF

SHEET NO. 5 OF 7 SHEETS	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		01-03131-00-BR	VERMILION	13	8
		SN 092-3494	CONTRACT NO. 91365		
		FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT			



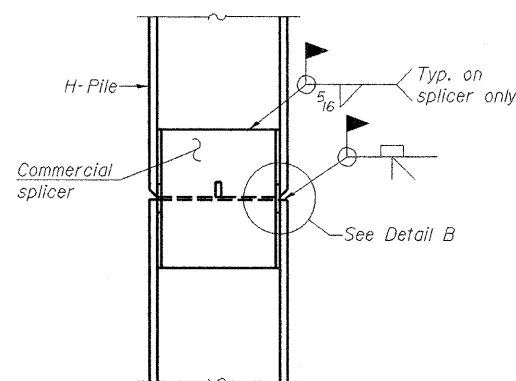
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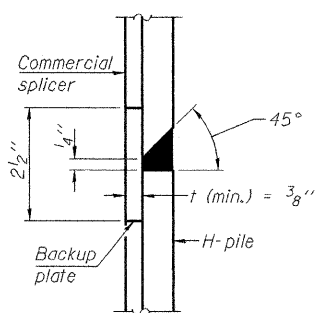


**STEEL PILE TABLE**

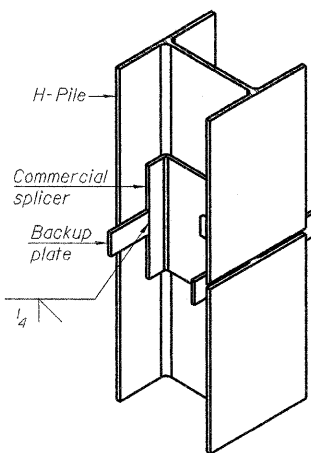
Designation	Depth d	Flange width br	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	1 3/16"	30"
x102	14"	14 3/4"	1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1/16"	24"
x74	12 3/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53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



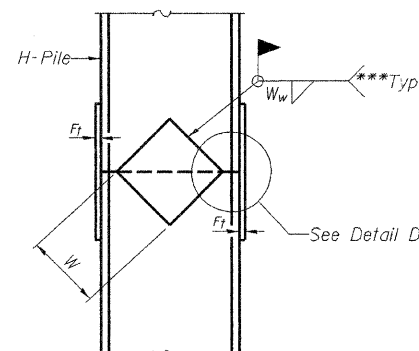
**ELEVATION**



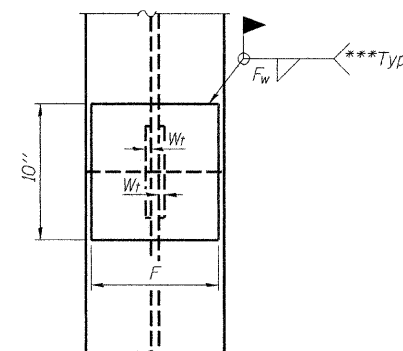
**DETAIL "B"**



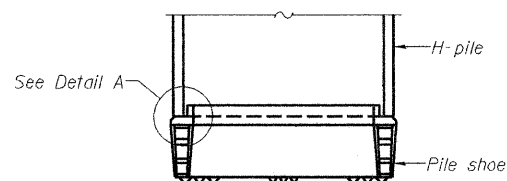
**ISOMETRIC VIEW**



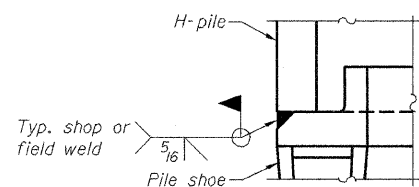
**ELEVATION**



**END VIEW**



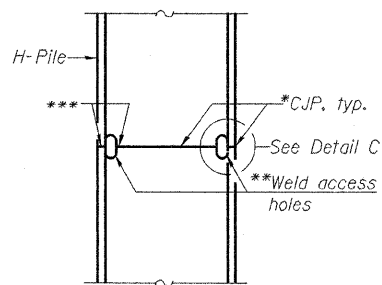
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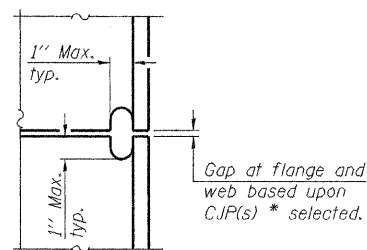
**DETAIL A**

**H-PILE SHOE ATTACHMENT**

**WELDED COMMERCIAL SPLICE**

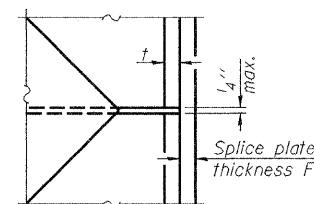


**ELEVATION**



**DETAIL C**

**COMPLETE PENETRATION WELD SPLICE**



**DETAIL D**

**WELDED PLATE FIELD SPLICE**

Designation	F	F <sub>t</sub>	F <sub>w</sub>	W	W <sub>t</sub>	W <sub>w</sub>
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"	1/16"	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"	1/16"	6 1/2"	5/8"	1/2"
x74	10"	7/8"	1/16"	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.

\*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.

**HP PILE DETAILS  
TR 164 OVER SWANK CREEK**

DATE: 09-29-2008 DRAWN BY: ADG CHECKED BY: DF

SHEET NO. 6 OF 7 SHEETS	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		01-03131-00-BR	VERMILION	13	9
		SN 092-3494	CONTRACT NO. 91365		
FED. ROAD DIST. NO. _ ILLINOIS FED. AID PROJECT					

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755 WINDSOR ROAD  
CHAMPELAIN, IL 61820  
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ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184-005895

PRINTED DATE: 10/6/2008  
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Illinois Department  
of Transportation  
Division of Highways  
IDOT - Dist 5

# SOIL BORING LOG

Page 1 of 1

Date 6/28/05

ROUTE 980E DESCRIPTION 1.25 Miles North-Northwest of Idianola LOGGED BY CNA  
SECTION 01-03131-00-BR LOCATION NE, SEC. 7, TWP. 17N, RNG. 12W, 2<sup>nd</sup> PM  
COUNTY Vermillion DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. Station	BORING NO. Station Offset	Ground Surface Elev. ft	D	B	U	M	Surface Water Elev. ft	Stream Bed Elev. ft	Groundwater Elev.: First Encounter Upon Completion After Hrs.	ft	D	B	U	M	SOIL	
															(ft)	(/6")
092-3125 10+00	1 South Abut. 9+71 0.0 ft Rt.	99.9					89.9	89.4								
							Gray Clay Loam Till with Intermittent Sand Seams (continued)									

7/11/2005 11:36:57 AM S:\SOIL BORING LOGS\VERMILION CNTY\092-3125.GPJ

An assumed centerline elevation of 100.00 and station of 10+00 is used when this information is not available.  
The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)  
The SPT (N Value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)



Page 1 of 1

Date 6/28/05



Illinois Department  
of Transportation  
Division of Highways  
IDOT - Dist 5

# SOIL BORING LOG

ROUTE 980E DESCRIPTION 1.25 Miles North-Northwest of Idianola LOGGED BY CNA  
SECTION 01-03131-00-BR LOCATION NE, SEC. 7, TWP. 17N, RNG. 12W, 2<sup>nd</sup> PM  
COUNTY Vermillion DRILLING METHOD Hollow Stem Auger HAMMER TYPE Automatic

STRUCT. NO. Station	BORING NO. Station Offset	Ground Surface Elev. ft	D	B	U	M	Surface Water Elev. ft	Stream Bed Elev. ft	Groundwater Elev.: First Encounter Upon Completion After Hrs.	ft	D	B	U	M	SOIL	
															(ft)	(/6")
092-3125 10+00	2 North Abut. 10+28 0.0 ft Rt.	100.0					89.9	89.4								
							Gray Moderately Sorted Coarse Sand with Gray Sandy Clay Loam Till Seams (continued)									

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An assumed centerline elevation of 100.00 and station of 10+00 is used when this information is not available.  
The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)  
The SPT (N Value) is the sum of the last two blow values in each sampling zone (AASHTO T206)

BBS, from 137 (Rev. 8-99)

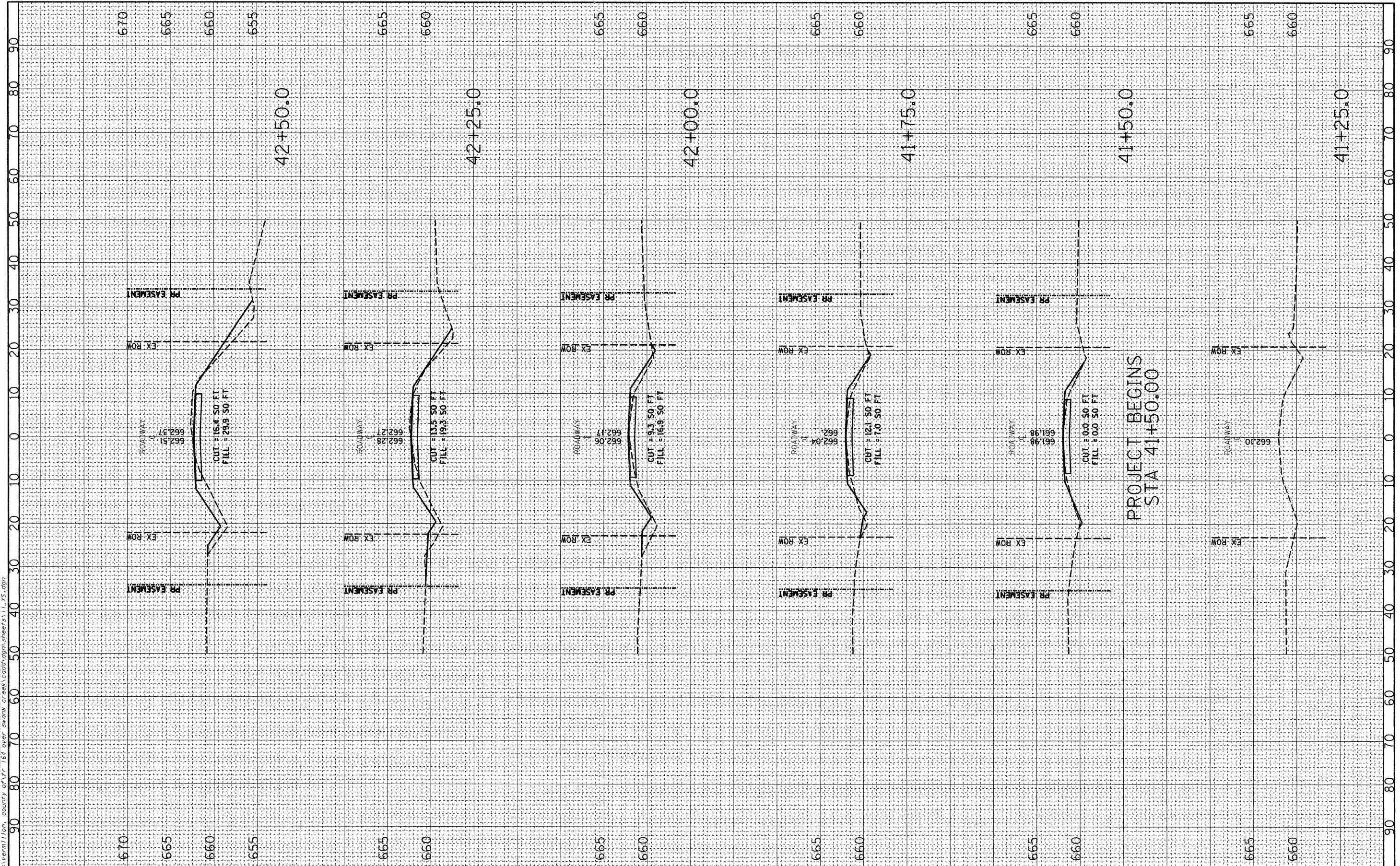
BORING LOGS  
TR 164 OVER SWANK CREEK  
DATE: 09-29-2008 DRAWN BY: ADG CHECKED BY: DF

SHEET NO. 7 OF 7 SHEETS	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		01-03131-00-BR	VERMILION	13	10
	SN 092-3494		CONTRACT NO. 91365		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT					

FINAL SURVEY	DATE
SURVEYED	BY
NOTE BOOK	TEMPLATE
AREAS CHECKED	AREAS CHECKED

ORIGINAL SURVEY	DATE
SURVEYED	BY
NOTE BOOK	TEMPLATE
AREAS CHECKED	AREAS CHECKED

PRINTED DATE: 10/6/2008  
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 PLOT DATE = 10/6/2008

DESIGNED - ADG  
 DRAWN - ADG  
 CHECKED - DF  
 DATE - 09-29-2008

REVISED - ---  
 REVISED - ---  
 REVISED - ---  
 REVISED - ---

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS

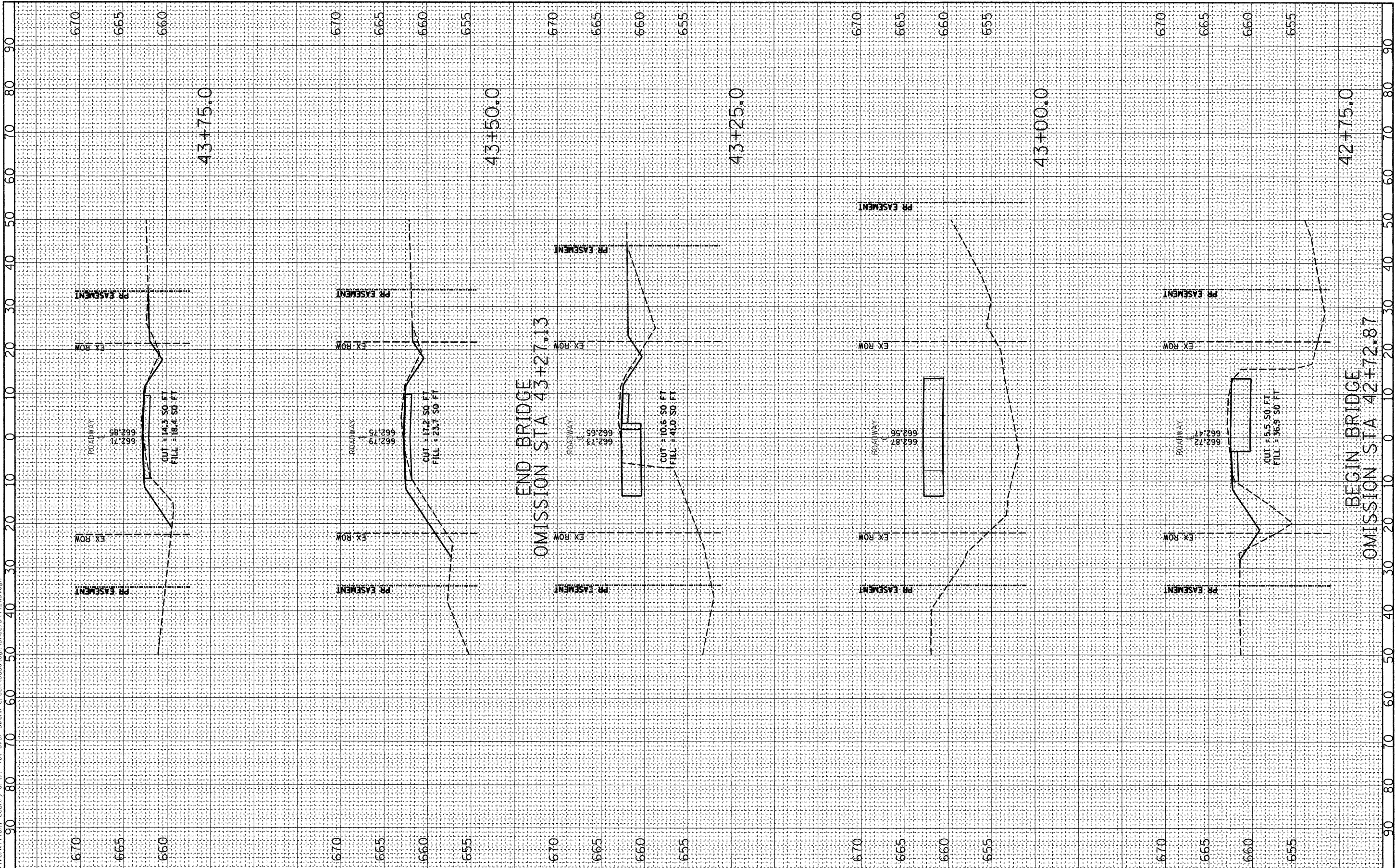
SCALE: 1"=10' 1"V=5' SHEET NO. 1 OF 3 SHEETS STA. 41+25.0 TO STA. 42+50.0

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	01-03131-00-BR	VERMILION	13	11
CONTRACT NO. 91365				
FED. ROAD DIST. NO. - ILLINOIS FED. AID PROJECT				

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

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

PRINTED DATE: 10/6/2008  
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STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS

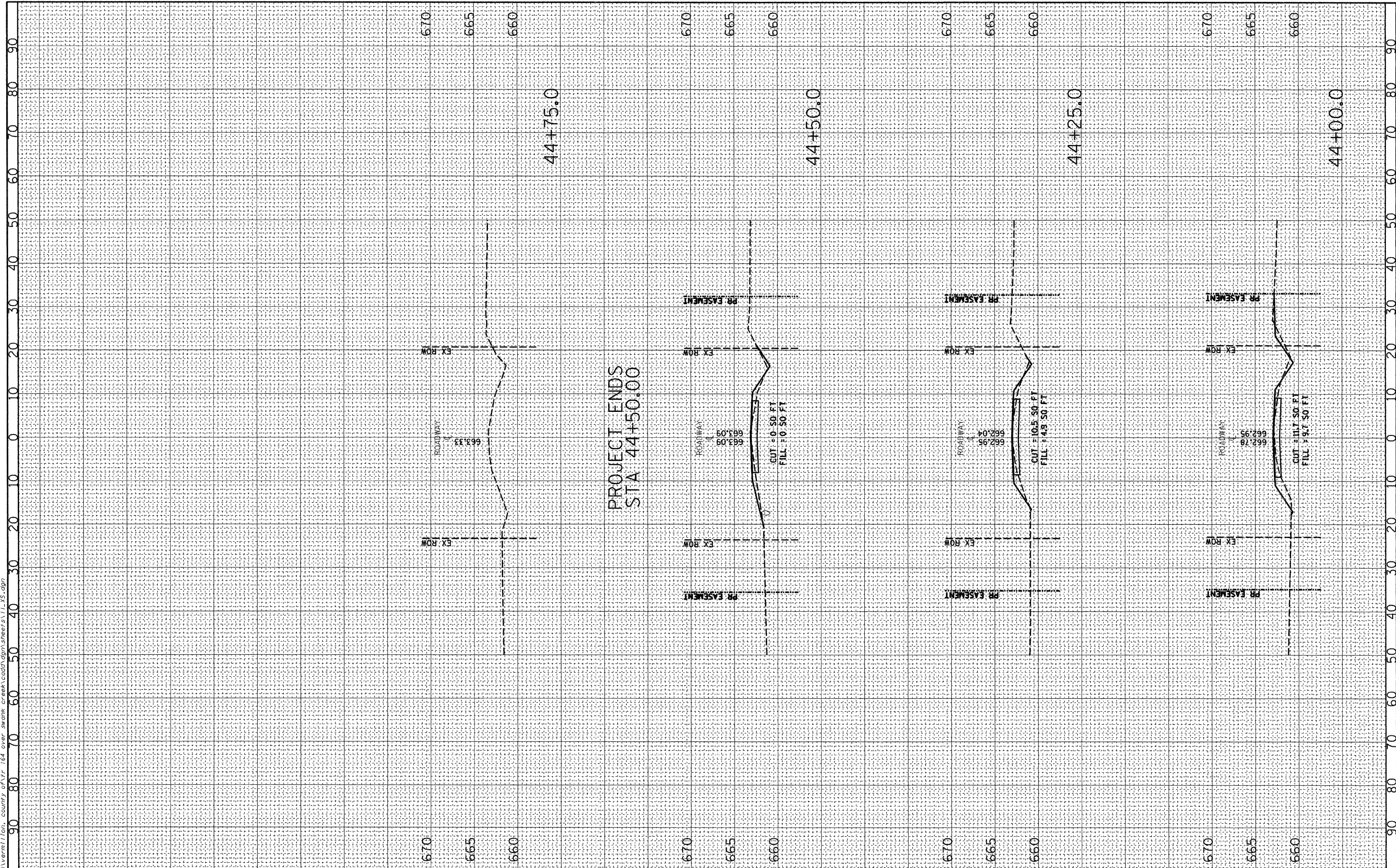
SCALE: 1"=10' 1"V=5' SHEET NO. 2 OF 3 SHEETS STA. 42+75.0 TO STA. 43+75.0

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	01-03131-00-BR	VERMILION	13	12
FED. ROAD DIST. NO. - ILLINOIS FED. AID PROJECT			CONTRACT NO. 91365	

FINAL SURVEY	DATE
NO. _____	BY _____
DATE _____	BY _____
NO. _____	BY _____
DATE _____	BY _____
NO. _____	BY _____
DATE _____	BY _____
NO. _____	BY _____
DATE _____	BY _____
NO. _____	BY _____
DATE _____	BY _____

ORIGINAL SURVEY	DATE
NO. _____	BY _____
DATE _____	BY _____
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DATE _____	BY _____
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DATE _____	BY _____

PRINTED DATE: 10/6/2008  
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DESIGNED - ADG  
 DRAWN - ADG  
 CHECKED - DF  
 DATE - 09-29-2008

REVISED - ---  
 REVISED - ---  
 REVISED - ---  
 REVISED - ---

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS

SCALE: 1"=10' 1"V=5' SHEET NO. 3 OF 3 SHEETS STA. 44+00.0 TO STA. 44+75.0

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	01-03131-00-BR	VERMILION	13	13
CONTRACT NO. 91365				
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				