06-15-12 LETTING ITEM 058

Contract #91465

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 16	*	Vermilion	12	1
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

*10-02146-00-BR

INDEX OF SHEETS

LIST OF STANDARD DRAWINGS

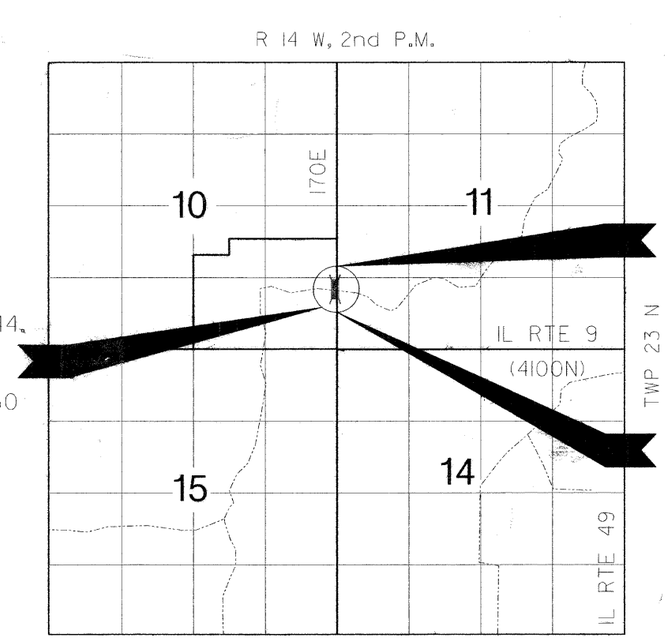
STANDARD NO.	DESCRIPTION
000001 - 06	STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
280001 - 06	TEMPORARY EROSION CONTROL SYSTEMS
515001 - 03	NAME PLATE FOR BRIDGES
542401 - 01	METAL END SECTION FOR PIPE CULVERTS
701006 - 03	OFF ROAD OPERATIONS, 2 L, 2 W, 15' TO 24' FROM PAVEMENT EDGE
701301 - 04	LANE CLOSURE, 2L, 2W SHORT TIME OPERATIONS
701901 - 02	TRAFFIC CONTROL DEVICES
BLR 21 - 9	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION OF RURAL LOCAL HIGHWAYS

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED BRIDGE REPLACEMENT

SCALES:
PLAN / PROFILE HORIZ. 0 20' 40'
PROFILE VERT. 0 4' 8' 12'
CROSS SECTIONS HORIZ. / CROSS SECTIONS VERT. 0 5' 10'

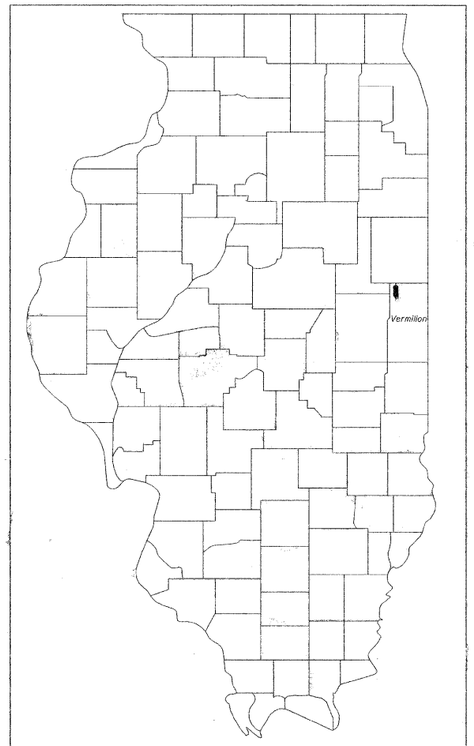
VERMILION COUNTY
SECTION 10-02146-00-BR
TR 16 (170 E)
BROS-0183(313)
JOB NO. C-95-311-12



LOCATION MAP

ADT = 59 (CURRENT), 59 (DESIGN)
FUNCTIONAL CLASS = LOCAL ROAD

NET LENGTH OF SECTION = 300 FEET = 0.056 MILES



LOCATION OF SECTION INDICATED THUS: ■

APPROVED February 27 20 12
Mark Rumble
BUTLER TOWNSHIP ROADWAY COMMISSIONER

APPROVED February 27 20 12
Douglas R Steske
DOUG STESKE, PE VERMILION COUNTY ENGINEER

PASSED 3/7 20 12
DISTRICT FIVE ENGINEER OF LOCAL ROADS & STREETS

Releasing For Bid Based on Limited Review March 8 20 12
DEPUTY DIRECTOR OF HIGHWAYS, REGION THREE ENGINEER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WARNING
CALL J.U.L.I.E. TOLL FREE 1-800-892-0123
CALL 811 BEFORE YOU DIG
DIG NO.:

KELLY JO HOFFMANN 062-58725 REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS

Kelly Jo Hoffmann
KELLY JO HOFFMANN
Illinois Licensed Professional Engineer Number 58725
License Expires 11/30/2013

FRAUENHOFFER & ASSOCIATES
A division of Engineering Resource Associates, Inc.
Consulting Engineers, Scientists, & Surveyors
3002 CROSSING COURT
CHAMPAIGN, IL 61822
PHONE (217) 351-6268
FAX (217) 355-1902

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Contract #91465

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 16	*	Vermilion	12	2
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

* 10-02146-00-BR

SUMMARY OF QUANTITIES - SEC. 10-02146-00-BR

CODE	DESCRIPTION	UNIT	QUANTITY
20100500	Tree Removal	Acres	0.04
20200100	Earth Excavation	Cu. Yd.	80
•25000200	Seeding, Class 2	Acre	0.16
•25000400	Nitrogen Fertilizer Nutrient	Pound	18
•25000500	Phosophorus Fertilizer Nutrient	Pound	18
•25000600	Potassium Fertilizer Nutrient	Pound	18
•25100115	Mulch, Method 2	Acre	0.16
•28000250	Temporary Erosion Control Seeding	Pound	16
•28000305	Temporary Ditch Checks	Foot	40
•28000400	Perimeter Erosion Barrier	Foot	520
40200800	Aggregate Surface Course, Type B	Ton.	215
50100100	Removal of Existing Structures	Each	1
50105220	Pipe Culvert Removal	Foot	65
50200100	Structure Excavation	Cu. Yd.	150
•50300225	Concrete Structures	Cu. Yd.	32.6
•50400505	Precast Prestressed Concrete Deck Beams (27" depth)	Sq. Ft.	1625
50800105	Reinforcement Bars	Pound	3590
Δ50900205	Steel Railing, Type SI	Foot	124
51201400	Furnishing Steel Piles HP10x42	Foot	500
51202305	Driving Piles	Foot	500
51203400	Test Pile Steel HP10x42	Each	2
51204650	Pile Shoes	Each	12
51500100	Name Plates	Each	1
•542C1060	Pipe Culverts, Class C, Type 2 15"	Foot	40
59300100	Controlled Low-Strength Material	Cu. Yd.	67.5
•67100100	Mobilization	L. Sum	1
•X7010216	Traffic Control and Protection (Special)	L. Sum	1
Δ78201000	Terminal Marker - Direct Applied	Each	4
•X2810108	Stone Riprap, Class A4 (Special)	Sq. Yd	190
•XX004566	Concrete Cut-Off Wall	Cu. Yd.	5.4

* SEE SPECIAL PROVISIONS.
Δ SPECIALTY ITEMS

EARTHWORK SCHEDULE

LOCATION	EARTH EXCAVATION	SHRINKAGE FACTOR	% USED	ADJUSTED EXCAVATION	FILL REQUIRED	EARTHWORK BALANCE
	C.Y.			C.Y.	C.Y.	C.Y.
STA 8+50 to STA 9+00	12	25%	100%	9	6	3
STA 9+00 to STA 9+60	4	25%	100%	3	42	-36
STA 9+60 to STA 9+69	0	25%	100%	0	11	-47
BRIDGE REMOVAL & RIPRAP	254	25%	60%	81	0	67
STA 10+31 to STA 10+40	0	25%	100%	0	18	49
STA 10+40 to STA 11+00	6	25%	100%	5	66	-12
STA 11+00 to STA 1+50	13	25%	100%	10	4	-6
STA 10+36 LT remove field entrance	14	25%	100%	11	0	5
STA 10+45 RT remove field entrance	28	25%	100%	21	0	26
STA 12+60 RT move field entrance	4	25%	100%	3	10	19

No Furnished Excavation necessary.

40200800

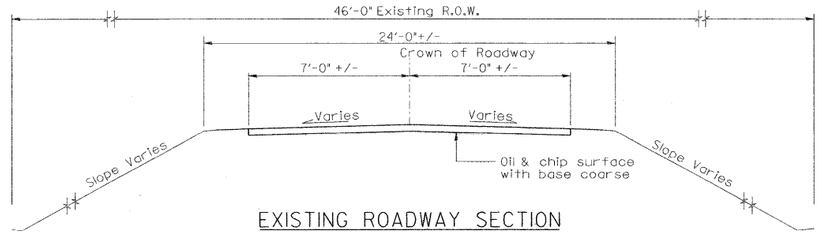
AGGREGATE SURFACE COURSE, TYPE B (CA-6)		
LOCATION		TONS
STA. 8+50	TO STA. 9+69	100
STA. 10+31	TO STA. 11+50	100
Relocated Field Entrance at 12+60, RT		15
	TOTAL	215

50105220

PIPE CULVERT REMOVAL	
LOCATION	FEET
Field Entrance @ 10+36.5, LT.	28
Field Entrance @ 10+45, RT.	37
TOTAL	65

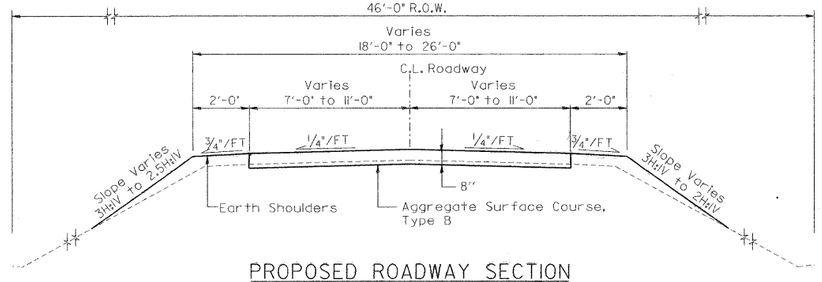
542C1060

PIPE CULVERTS, CLASS C, TYPE 2 15"	
LOCATION	FEET
Relocated Field Entrance at 12+60, RT	40
TOTAL	40



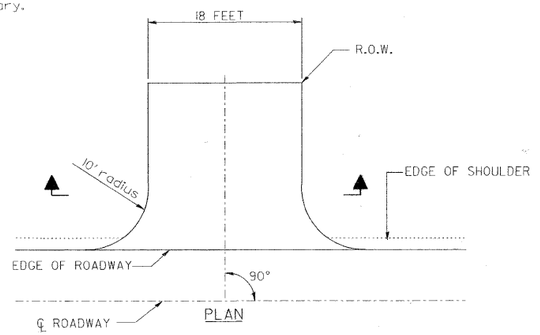
EXISTING ROADWAY SECTION

Sta. 8+50 to Sta. 9+82.5
Sta 10+17.5 to Sta. 11+50



PROPOSED ROADWAY SECTION

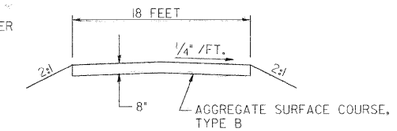
Sta. 8+50 to Sta. 9+69
Sta. 10+31 to Sta. 11+50



PLAN

ENTRANCE DETAIL

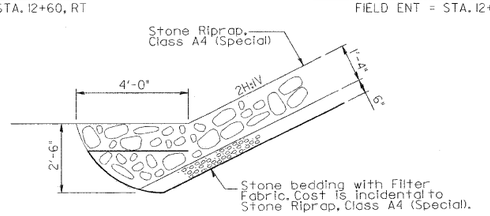
FIELD ENT = STA. 12+60, RT



SECTION

ENTRANCE DETAIL-SECTION

FIELD ENT = STA. 12+60, RT



STONE RIPRAP TOE DETAIL

GENERAL NOTES

1. The locations of Existing utilities as shown on the plan are for information only, and are not guaranteed. It shall be the Contractor's responsibility to ascertain their exact location from the utility companies and by field inspection.
2. See the Plan & Profile sheet for roadway and shoulder tapers.
3. Aggregrate Surface Course, Type B shall be crushed limestone, gradation CA-6.
4. Tree Removal shall include the cost the removal of the existing brush.
5. The following rates of application are used for calculating quantites:

   1.80 Ton/C.Y. - Aggregate Surface Course
   1.75 Ton/C.Y. or 0.78 Ton/Sq. Yd. - Stone Riprap / RR4
   1.80 Ton/C.Y. or 0.3 Ton/Sq. Yd. - Stone Bedding / RR1

UTILITIES

Call J.U.L.I.E. 1-800-892-0123
The Contractor shall coordinate the relocation of any utilities with the utility company where they conflict with the proposed improvements.

DSGN	K.J. Hoffmann				
DR	N.J. Liggett				
CHK	J.R. Wolf				
APVD	J.A. Frauenhoffer	NO.	DATE	REVISION	BY / APVD

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CHAMPAIGN, IL 61822
PHONE (217) 351-6268
FAX (217) 355-1902

SUMMARY OF QUANTITIES & TYPICAL SECTIONS
TR 16 (170E) OVER BRANCH OF PIGEON CREEK
SEC 10-02146-00-BR
VERMILION COUNTY

SHEET 2
DWG NO. 11050SOQ.dgn
DATE FEB 2012
PROJ NO. 11050

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Contract #91465

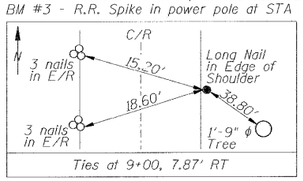
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 16	*	Vermilion	12	3
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

* 10-02146-00-BR

SCALE 1" = 20'

BM #1 - R.R. Spike in power pole at STA 8+21, 26.5' RT., Elev. 103.34
BM #2 - Chiseled "X" in top of the east curb at the center of the bridge, Elev. 100.63
BM #3 - R.R. Spike in power pole at STA 10+69.5, 26' RT., Elev. 100.09

SE ¼, Section 10, T 23 N, R 14 W, 2nd P.M



Ties at 9+00, 7.87' RT

End south taper @ 9+60
Begin north taper @ 10+40

State of Illinois
Dept. of Natural Resources
1 Natural Resources Way
Springfield, IL 62702

Tree line

Proposed Structure, New S.N. 092-3450.
Sta. 10+00, skew 0°, single span,
27" PPC deck beams, 62'-0" B/B abutments,
27'-0" O/O deck

Flow

Remove existing grass F.E.
10' wide, 10+36.5 LT.

Remove existing 30" ϕ pipe culvert.

Tree Removal, includes removal of existing brush

Telephone Box

Buried telephone line

Tree line

State of Illinois
Dept. of Natural Resources
1 Natural Resources Way
Springfield, IL 62702

Improvement Ends Sta. 11+50

R.O.W.

Proposed E/shoulder

Buried telephone line

Tree line

T/Slope

Proposed C/R

46'-0" ROW

Existing E/R

Existing C/R

7+00 +50 8+00 +50 9+00 +50 10+00 +50 11+00 +50 12+00 +50 13+00

14'-0"

4' 110' 4' 110' 110' 4'

B-1 B-2

Power Pole BM 1

Proposed E/shoulder

R.O.W.

Overhead electric lines

Proposed C/R

T/Slope

R.O.W.

Power Pole

Overhead electric lines

Driveway

Improvement Begins Sta. 8+50

Remove existing structure @ Sta. 10+00

BM 2

Power Pole BM 3

E/field

Relocate F.E. to Sta 12+60 by Commitment to James Thilmony.

Tree line

Flow

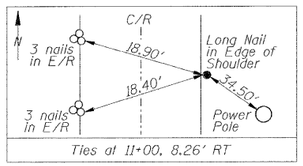
Remove existing grass F.E.
17' wide, 10+45 RT.

Remove existing 15" ϕ pipe culvert.

James Thilmony
2744 E. 4300 North Road
Rankin, IL 60960

(Buildings & Trees are not shown)

James Thilmony
2744 E. 4300 North Road
Rankin, IL 60960



Ties at 11+00, 8.26' RT

UTILITIES

CALL J.U.L.I.E. 1-800-892-0123
The contractor shall coordinate the relocation of any utilities with the utility company where they conflict with the proposed improvements.

SW ¼, Section 11, T 23 N, R 14 W, 2nd P.M

CHANNEL EXCAVATION

The Channel shall be excavated as shown with 2:1 slopes within the existing right-of-way. Suitable excavated materials may be used in embankments.

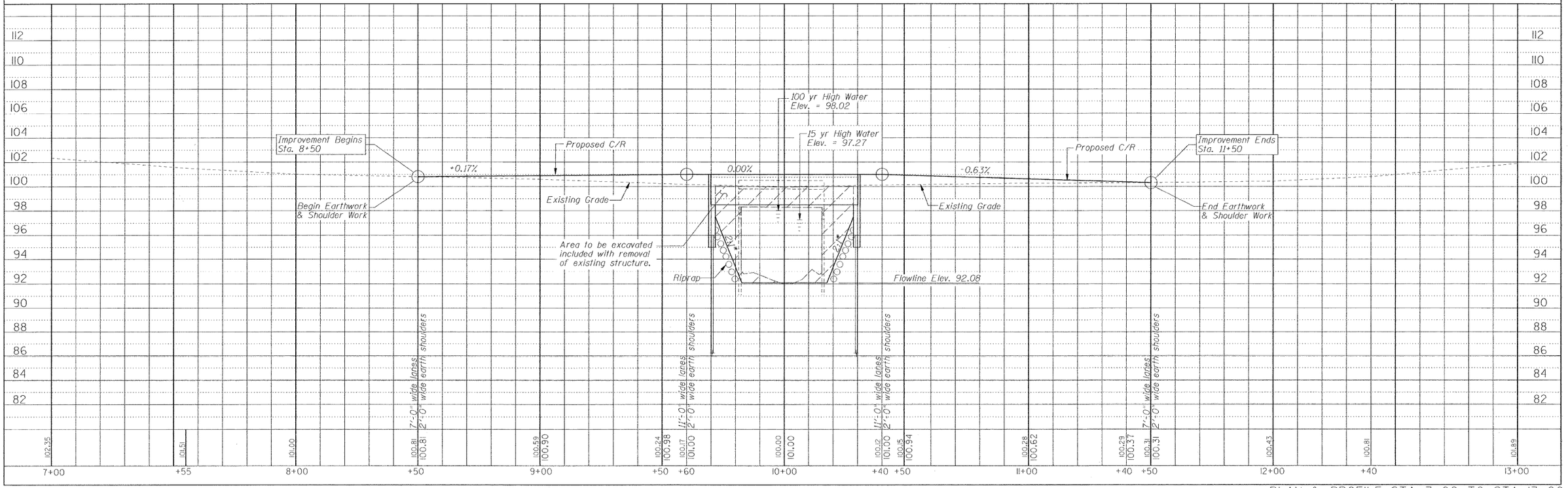
EXISTING STRUCTURE DESCRIPTION

S.N. 092-3044. The existing structure is an unskewed, 35.00' long (B-B of abutments), 24.16' wide PPC deck beam bridge. The superstructure rests on 2 timber abutments with angled timber wingwalls.

Removal of Existing Structure = 1 EACH

PLAN — SURVEYED, BY, DATE; DRAWN; ALIGNMENT CHECKED; ELEVATIONS CHECKED; CADD FILE NAME; NOTE BOOK; NO.

PROFILE — SURVEYED, BY, DATE; DRAWN; GRADES CHECKED; ALIGNMENT; STRUCTURE NO'S/FINS CHKD; NOTE BOOK



PLAN & PROFILE STA. 7+00 TO STA. 13+00

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Consulting Engineers, Scientists, & Surveyors

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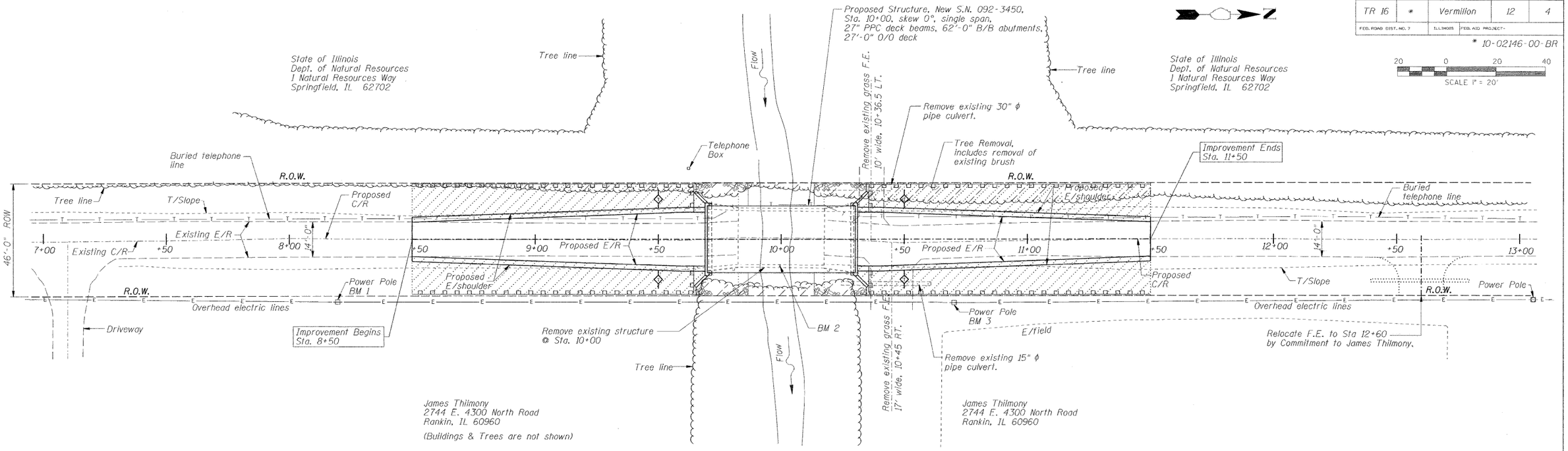
Contract #91465

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 16	*	Vermilion	12	4
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

* 10-02146-00-BR

SE 1/4, Section 10, T 23 N, R 14 W, 2nd P.M



SW 1/4, Section 11, T 23 N, R 14 W, 2nd P.M

EROSION CONTROL SEQUENCE

1. Placement of perimeter erosion control barrier prior to commencement of any work. See Standard 280001.
2. Removal of the existing structure
3. Earth excavation & structure excavation.
5. Construction of the substructure.
6. Placement of PPC deck beams
7. Place riprap.
8. Regrade for aggregate surface course placement and shoulders.
9. Install guardrail and bridge rail.
10. Removal and proper clean up of the temporary erosion controls.
11. Placement of the permanent erosion controls.

PERMANENT EROSION CONTROL

Seeding, Cl. 2 with Fertilizer and Mulch

TEMPORARY EROSION CONTROL

Temporary Ditch Check (10' each location)

Perimeter Erosion Barrier

Temporary Erosion Control Seeding

NITROGEN FERTILIZER NUTRIENT
PHOSPHORUS FERTILIZER NUTRIENT
POTASSIUM FERTILIZER NUTRIENT

LOCATION				POUND
STA. 8+50	TO	STA. 9+69	LT	4.5
STA. 8+50	TO	STA. 9+69	RT	4.5
STA. 10+31	TO	STA. 11+50	LT	4.5
STA. 10+31	TO	STA. 11+50	RT	4.5
			TOTAL	18

SEEDING, CLASS 2
MULCH, METHOD 2

LOCATION				ACRE
STA. 8+50		STA. 9+69	LT	0.04
STA. 8+50		STA. 9+69	RT	0.04
STA. 10+31		STA. 11+50	LT	0.04
STA. 10+31		STA. 11+50	RT	0.04
			TOTAL	0.16

TEMPORARY DITCH CHECKS

LOCATION			FOOT
STA. 9+50	LT/RT	10' EACH	20
STA. 10+50	LT/RT	10' EACH	20
		TOTAL	40

PERIMETER EROSION BARRIER

LOCATION				FOOT
STA. 8+50	TO	STA. 9+69	LT	130
STA. 8+50	TO	STA. 9+69	RT	130
STA. 10+31	TO	STA. 11+50	LT	130
STA. 10+31	TO	STA. 11+50	RT	130
			TOTAL	520

TEMPORARY EROSION CONTROL SEEDING

LOCATION				POUND
STA. 8+50	TO	STA. 9+69	LT	4
STA. 8+50	TO	STA. 9+69	RT	4
STA. 10+31	TO	STA. 11+50	LT	4
STA. 10+31	TO	STA. 11+50	RT	4
			TOTAL	16

BILL OF MATERIAL - EROSION CONTROL

ITEM	UNIT	QUANTITY
Seeding, Class 2	ACRE	0.16
Nitrogen Fertilizer Nutrient	POUND	18
Phosophorus Fertilizer Nutrient	POUND	18
Potassium Fertilizer Nutrient	POUND	18
Mulch, Method 2	ACRE	0.16
Temporary Erosion Control Seeding	POUND	16
Temporary Ditch Checks	FOOT	40
Perimeter Erosion Barrier	FOOT	520

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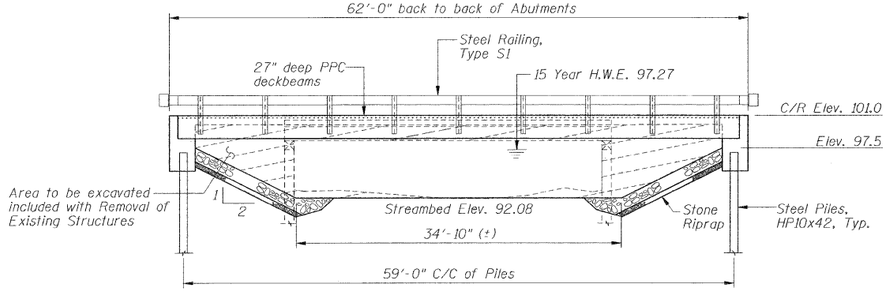
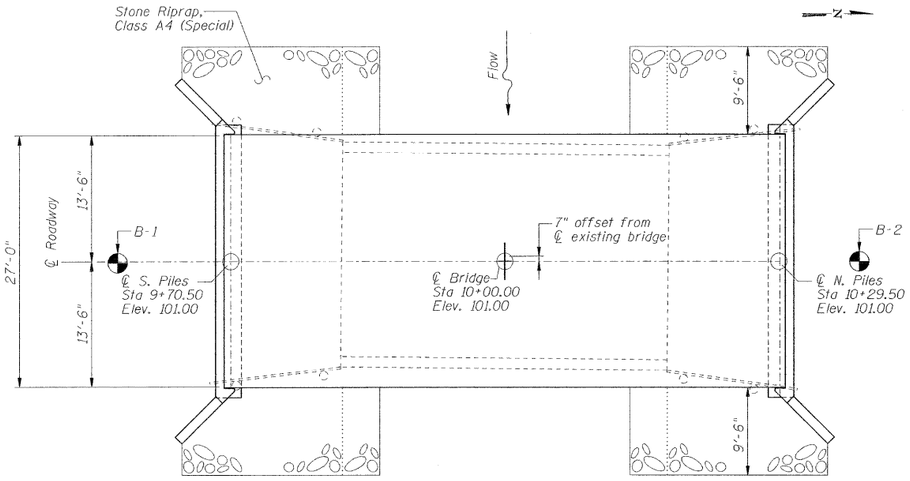
EROSION CONTROL PLAN



ELEVATION



PLAN

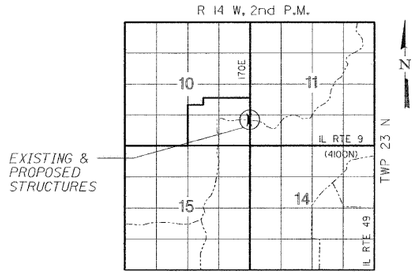
GENERAL NOTES

1. The Contractor shall drive test piles to 110% of the Nominal Required Bearing specified in production locations at the substructures specified or approved by the Engineer before ordering the remainder of the piles.
2. Boring Data is shown only as a guide to bidders in estimating soil conditions which may be encountered during construction.
3. Class SI or MS Concrete shall be used in the abutments.
4. Reinforcement bars shall conform to the requirements of ASTM A706, Grade 60 (IL Modified). See Special Provisions.
5. Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.

LICENSED STRUCTURAL ENGINEER
KELLY JO HOFFMANN
81-6497
SAVOY, IL
STATE OF ILLINOIS

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 the requirements of the current "AASHTO LRFD Bridge Design Specifications."

KELLY JO HOFFMANN
Illinois Licensed Structural Engineer Number 6497
License Expires 11/30/12

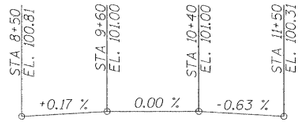


LOCATION MAP

Structure No. 092-3450
Sec. 10-02146-00-BR
Built 20___
TR 16 / 170E
Vermilion County
Loading HL-93

NAME PLATE

See Standard 515001



PROFILE GRADE

DESIGN SPECIFICATIONS

AASHTO (2010) and applicable Interims

DESIGN LOADING

HL-93
50 P.S.F Future Wearing Surface

DESIGN STRESSES

f'_c = 3,500 psi (Cast in Place Concrete)
f'_c = 5,000 psi (P.P.C. Units)
f'_{ci} = 4,000 psi (P.P.C. Units)
f_y = 60,000 psi (Reinforcement)
f'_s = 270,000 psi ($\frac{1}{2}$" ϕ Strands)
f'_{si} = 201,960 psi ($\frac{1}{2}$" ϕ Strands)

WATERWAY DATA

Drainage Area	3.18	Sq. Mi.
Existing Opening	145	Sq. Ft.
Required Opening (15 Yr.)	129	Sq. Ft.
Proposed Opening (15 Yr.)	234	Sq. Ft.
Design Discharge (15 Yr.)	391	C.F.S.
Computed Discharge (100 Yr.)	606	C.F.S.
15 Yr. Head	0.01	Ft.
100 Yr. Head	0.05	Ft.

BORING DATA

N - Standard Penetration Test - Blows per foot to drive 2" O.D. split spoon sampler 12" with 140 lb. hammer falling 30".
Qu - Unconfined Compressive Strength - Tons/Sq. Ft.
W - Water Content - Percentage of oven dry weight - %

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 16	*	Vermilion	12	5
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

* 10-02146-00-BR

BORING B-1

Location: STA 9+58.5 (±), ℄
Elev. 100.0 (±)

	N	Qu	W	
100.0				Elev. 100.0 (±)
				1" Oil & Chip
	12	3.7BS	20.9	3" Stone
				1' black silty sandy CLAY
95.0	9	1.9VS	26.0	Black silty CLAY
	8	2.2V	23.0	
90.0	7	1.4V	26.2	Gray CLAY
	5	1.6VB	30.9	
	4	1.9B	20.8	
85.0				Gray silty sandy CLAY
	10	4.2B	20.4	
	11	3.8V	18.5	
80.0				
	16	7.1V	18.0	
				Gray silty sandy CLAY with small rocks
75.0	10	4.1BS	20.8	
70.0	11	3.7B	21.7	
65.0	10	3.0B	22.1	
60.0	10	1.9B	19.9	
55.0	8	2.3VB	17.8	Gray CLAY with small rocks
50.0	10	3.4V	16.6	
45.0	10	3.2V	3.2	
40.0	14	3.5B	21.9	End of Boring

BORING B-2

Location: STA 10+38 (±), ℄
Elev. 100.1 (±)

	N	Qu	W	
100.1				Elev. 100.1 (±)
				1" Oil & Chip
	11	2.4S	34.6	3" Stone
				1' black silty sandy CLAY
95.1	7	2.1S	27.2	Black silty CLAY
	7	1.6VB	25.8	Gray/Brown silty sandy CLAY
90.1	7	1.8VS	26.6	
	3	1.4B	28.8	Gray silty sandy CLAY
85.1	4	1.0BS	32.7	
	6	-	19.7	Gray sandy CLAY
80.1	14	4.5BS	19.9	
	14	5.3S	16.7	Gray silty CLAY
75.1	16	7.9S	17.6	
70.1	12	4.1BS	19.4	
65.1	9	2.6B	20.7	
60.1	11	3.0B	20.3	Gray CLAY
55.1	12	2.6VB	21.8	
50.1	12	3.3B	16.3	
45.1	9	-	28.9	Gray fine clayey SAND
				Gray silty CLAY
40.1	19	3.6BS	15.0	End of Boring

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Structures	Each	1	-	1
Structure Excavation	Cu. Yd.	-	150	150
Concrete Structures	Cu. Yd.	-	32.6	32.6
Precast Prestressed Concrete Deck Beams (27" depth)	Sq. Ft.	1625	-	1625
Reinforcement Bars	Pound	-	3590	3590
Steel Railing, Type S1	Foot	124	-	124
Furnishing Steel Piles HP10x42	Foot	-	500	500
Driving Piles	Foot	-	500	500
Test Pile Steel HP10x42	Each	-	2	2
Pile Shoes	Each	-	12	12
Name Plates	Each	-	1	1
Controlled Low-Strength Material	Cu. Yd.	-	67.5	67.5
Terminal Marker - Direct Applied	Each	4	-	4
Stone Riprap, Class A4 (Special)	Sq. Yd	-	190	190
Concrete Cut-Off Wall	Cu. Yd.	-	5.4	5.4

DSGN K.J. Hoffmann					
DR N.J. Liggett					
CHK J.R. Wolf					
APVD J.A. Frauenhoffer	NO.	DATE	REVISION	BY	APVD

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GENERAL PLAN AND ELEVATION
TR16 (170E) OVER BRANCH OF PIGEON CREEK
SEC 10-02146-00-BR
VERMILION COUNTY

SHEET 5
DWG NO. 10050GPE.dgn
DATE DEC 2011
PROJ NO. 11050

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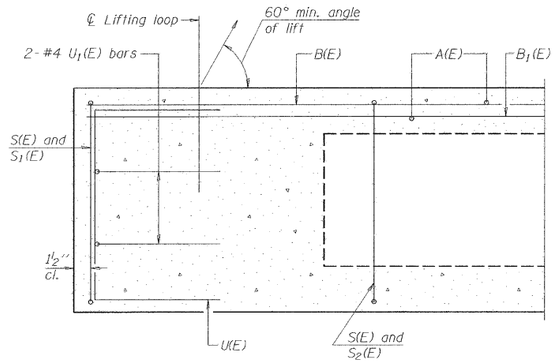
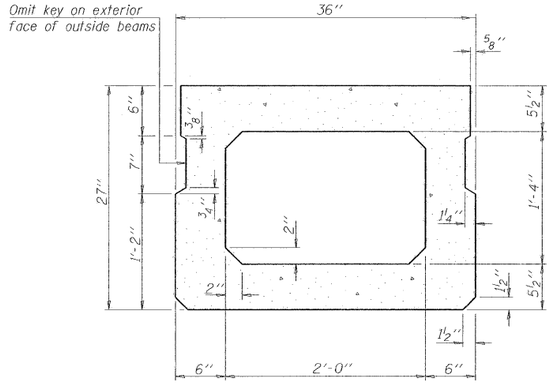
Contract #91465

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 16	*	Vermilion	12	6
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

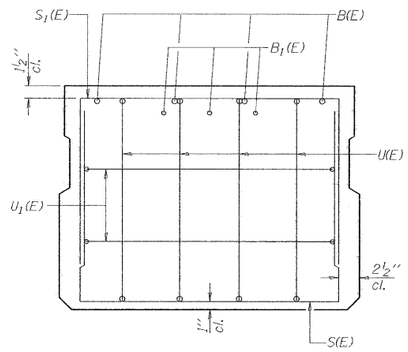
* 10-02146-00-BR



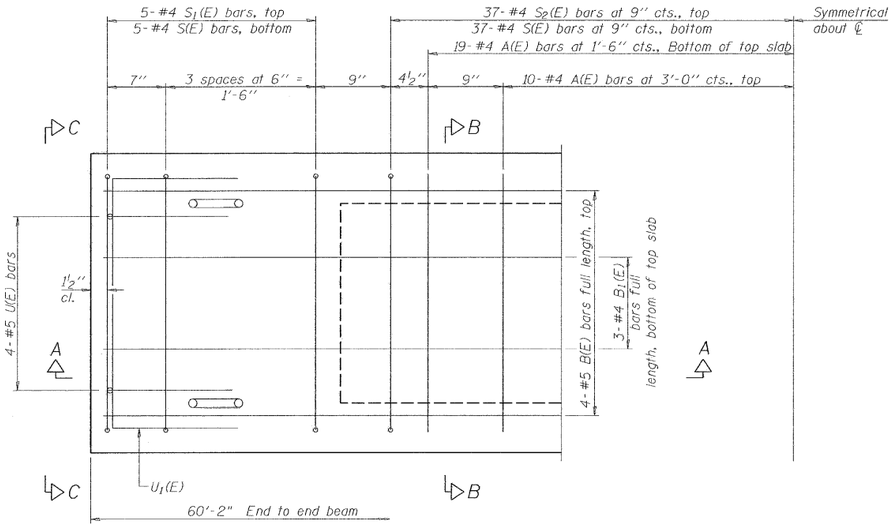
SECTION A-A



SECTION B-B
(Showing dimensions)

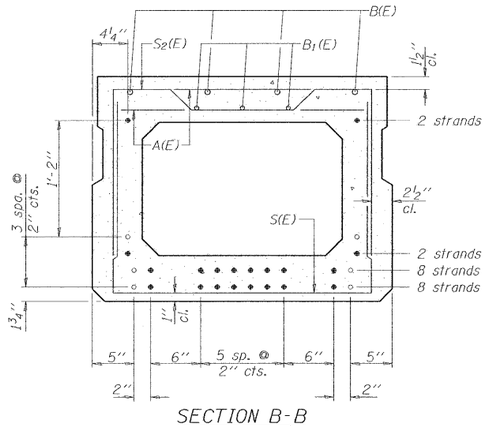


VIEW C-C



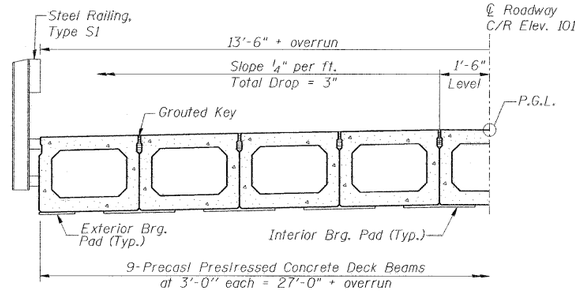
PLAN VIEW

Note: Spacing of S(E) and S_2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.



SECTION B-B
(Showing reinforcement and permissible strand locations)

Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.



HALF CROSS SECTION

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

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	58	#4	2'-7"	—
B(E)	16	#5	17'-9"	—
B_1(E)	12	#4	17'-9"	—
S(E)	84	#4	6'-5"	⌴
S_1(E)	10	#4	5'-11"	⊓
S_2(E)	74	#4	6'-2"	⊓
U(E)	8	#5	4'-6"	⊏
U_1(E)	4	#4	5'-0"	⊓

Note: See sheet 2 of 2 for additional details and Bill of Material.

27" x 36" PPC DECK BEAM
STRUCTURE NO. 092-3450

PD-2736-0 7-1-10

DSGN K.J. Hoffmann					
DR N.J. Liggett					
CHK J.R. Wolf					
APVD J.A. Frauenhoffer	NO.	DATE	REVISION	BY	APVD

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PHONE (217) 351-6268
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SUPERSTRUCTURE DETAILS (SHEET 1 OF 2)
TR16 (170E) OVER BRANCH OF PIGEON CREEK
SEC 10-02146-00-BR
VERMILION COUNTY

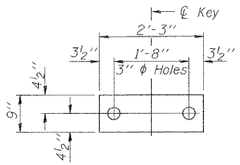
SHEET 6
DWG NO. 10050SUP.dgn
DATE AUG 2011
PROJ NO. 10050

...\11050 Butler\dgn\11050SUP.dgn 02/22/2012 03:47:28 AM

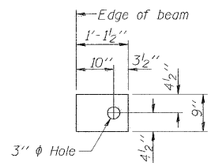
Contract #91465

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 16	*	Vermilion	12	7
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

* 10-02146-00-BR



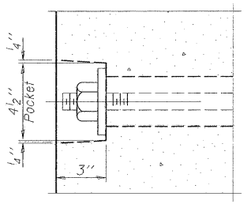
FABRIC BEARING PAD
(Interior)



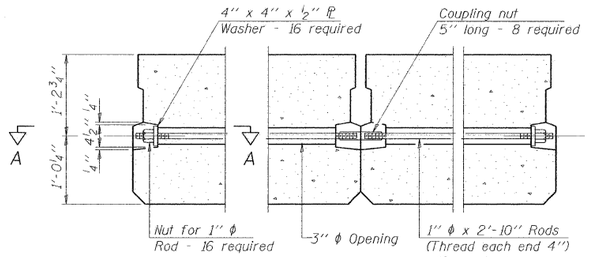
FABRIC BEARING PAD
(Exterior)

FIXED

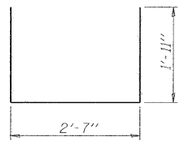
Notes:
All bearing pads shall be 1" thick.
Omit holes when using expansion bearings.
Expansion bearing pad shall be bonded to the substructure.



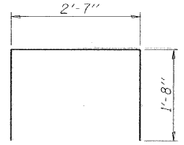
SECTION A-A



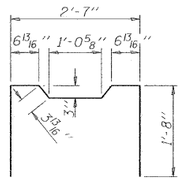
TYPICAL TRANSVERSE TIE ASSEMBLY



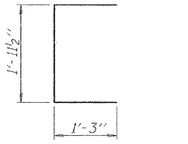
BAR S(E)



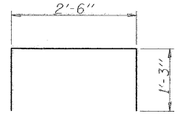
BAR S_1(E)



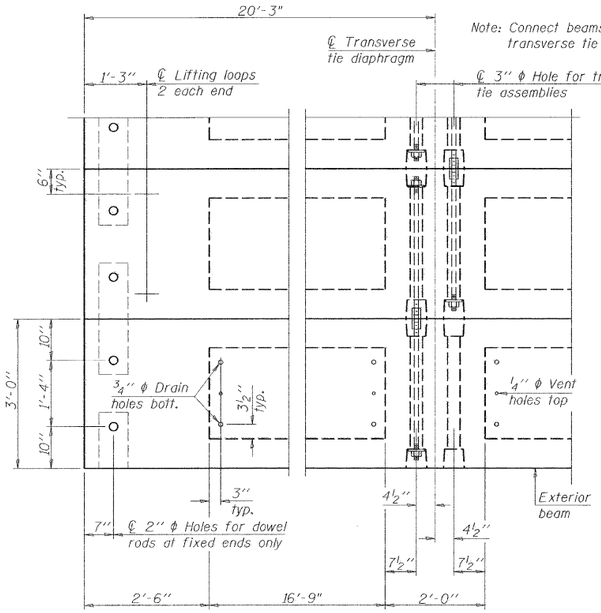
BAR S_2(E)



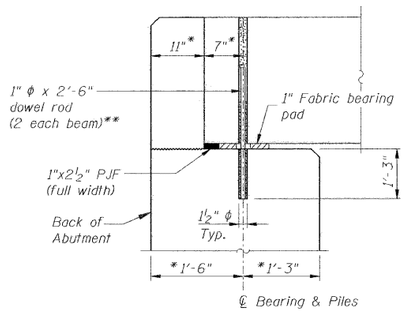
BAR U(E)



BAR U_1(E)



PLAN VIEW

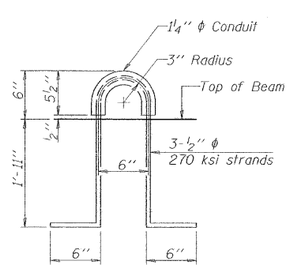


℄ Bearing & Piles

SECTION AT ABUTMENT

* Perpendicular to ℄ of abutment or pier

** Dowel rods to be grouted after beams are in place and prior to grouting the shear keys



LIFTING LOOP DETAIL

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.153 sq. in.

The 1" ϕ rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.

Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions).

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

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

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

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

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

BILL OF MATERIAL

Precast Prestressed Conc. Deck Bms. (27" depth)	Sq. Ft.	1625

PD-2736-0D 7-1-10

27" x 36" PPC DECK BEAM
STRUCTURE NO. 092-3450

DSGN K.J. Hoffmann					
DR N.J. Liggett					
CHK J.R. Wolf					
APVD J.A.Frauenhoffer	NO.	DATE	REVISION	BY	APVD

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SUPERSTRUCTURE DETAILS (SHEET 2 OF 2)
TR16 (170E) OVER BRANCH OF PIGEON CREEK
SEC 10-02146-00-BR
VERMILION COUNTY

SHEET	7
DWG NO.	10050SUP.dgn
DATE	AUG 2011
PROJ NO.	10050

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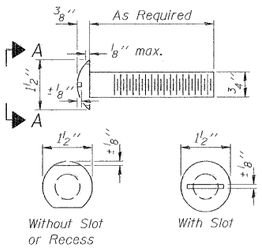
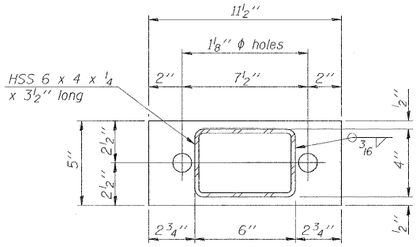
Contract #91465

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 16	*	Vermilion	12	8
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

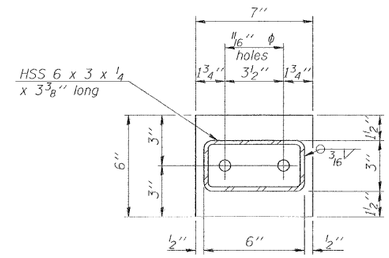
* 10-02146-00-BR



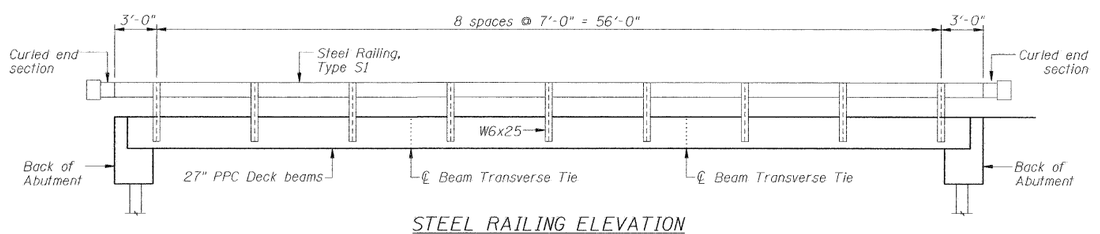
VIEW A-A
ROUND HEAD BOLT



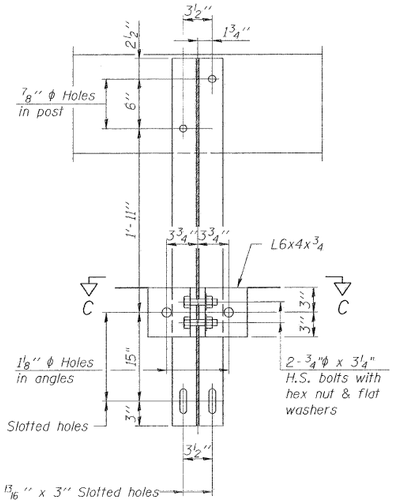
℄ 1/2" x 11 1/2" x 5"



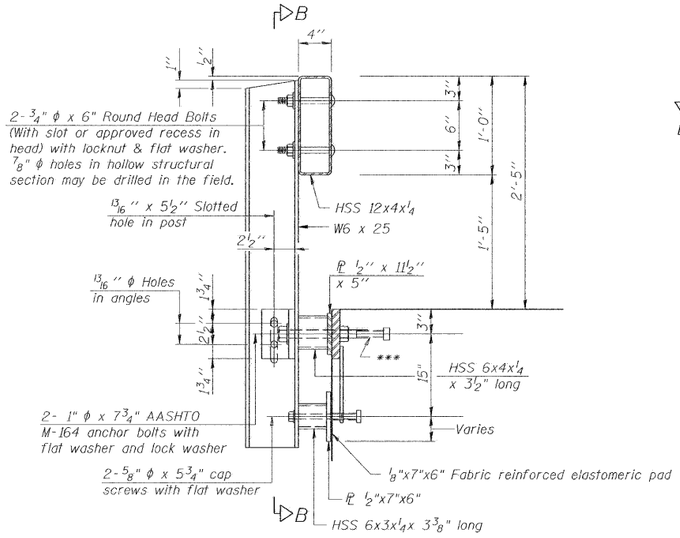
℄ 1/2" x 7" x 6"



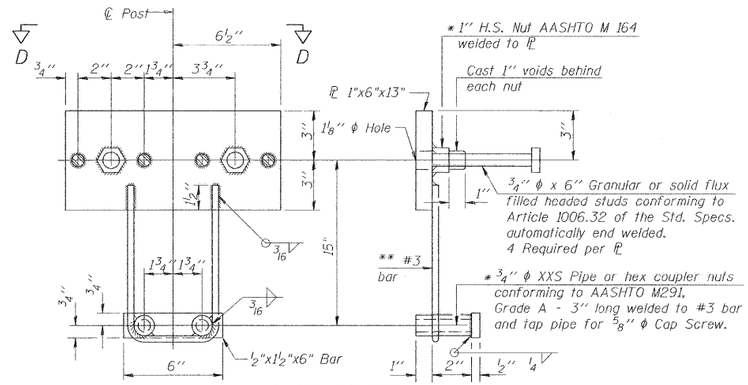
STEEL RAILING ELEVATION



SECTION B-B



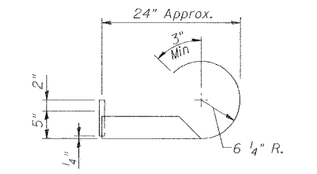
SECTION AT RAILING POST

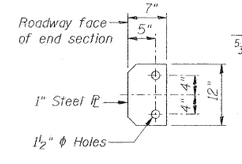


ANCHOR DEVICE

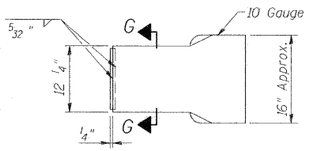
* Threaded areas shall be plugged or blocked off during casting of beam.

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.



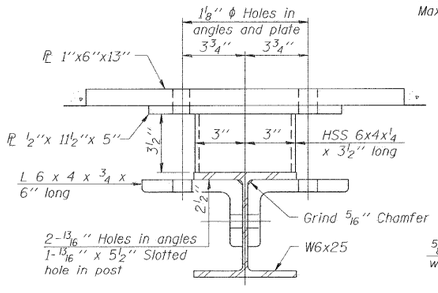


SECTION G-G

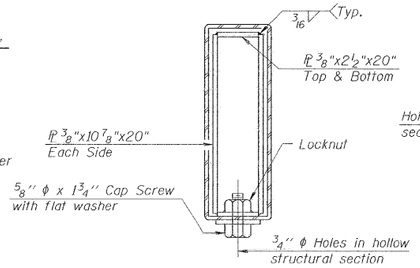


CURLED END SECTION DETAIL

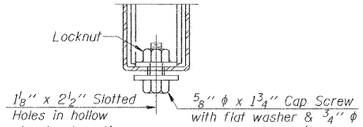
** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".



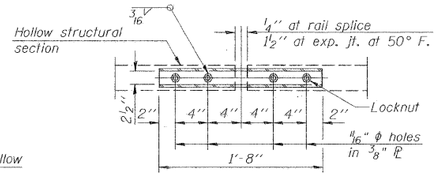
SECTION C-C



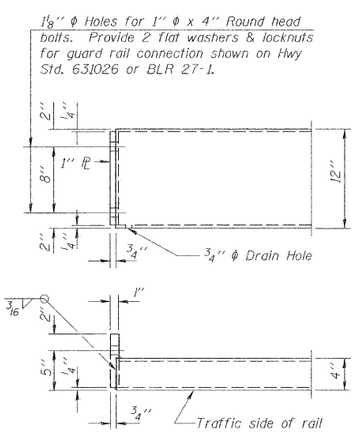
SECTIONS AT RAIL SPLICE



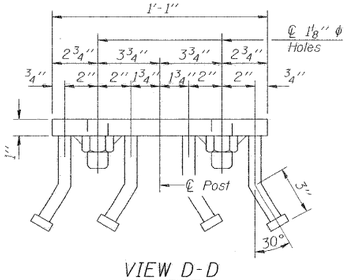
RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTT. SPLICE ℄ TYPICAL



END OF RAIL DETAILS



VIEW D-D

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S1	Foot	124

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

DSGN K.J. Hoffmann					
DR N.J. Liggett					
CHK J.R. Wolf					
APVD J.A.Frauenhoffer	NO.	DATE	REVISION	BY	APVD

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PHONE (217) 351-6268
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STEEL RAILING, TYPE S1
TR16 (170E) OVER BRANCH OF PIGEON CREEK
SEC 10-02146-00-BR
VERMILION COUNTY

SHEET 8
DWG NO. 11050-S1.dgn
DATE AUG 2011
PROJ NO. 11050

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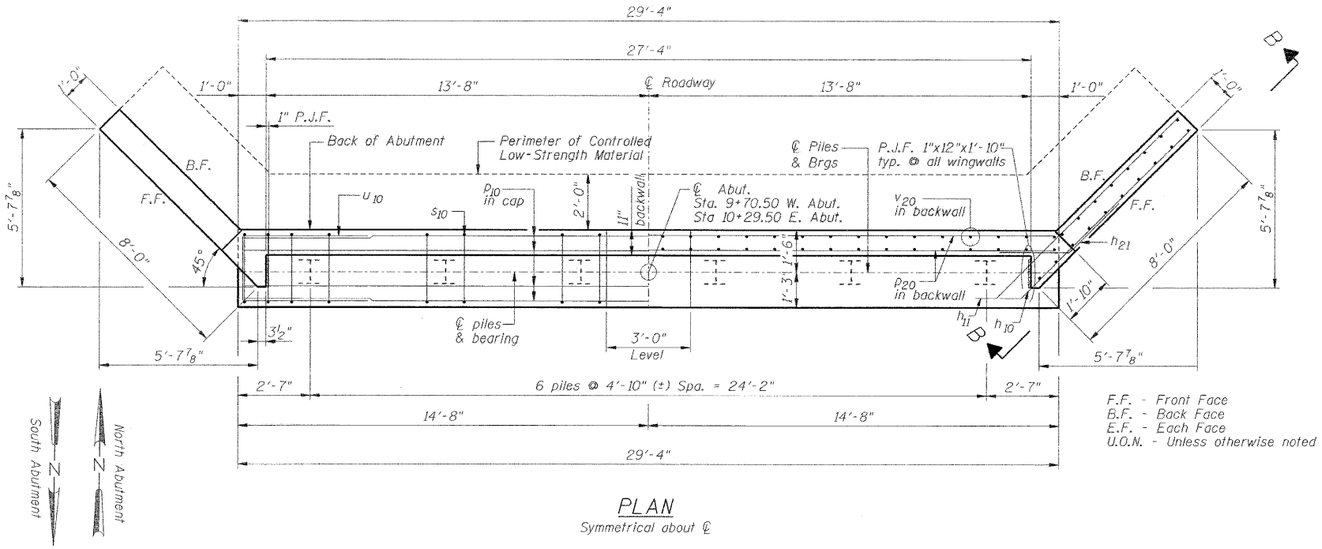
Contract #91465

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 16	*	Vermilion	12	9
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

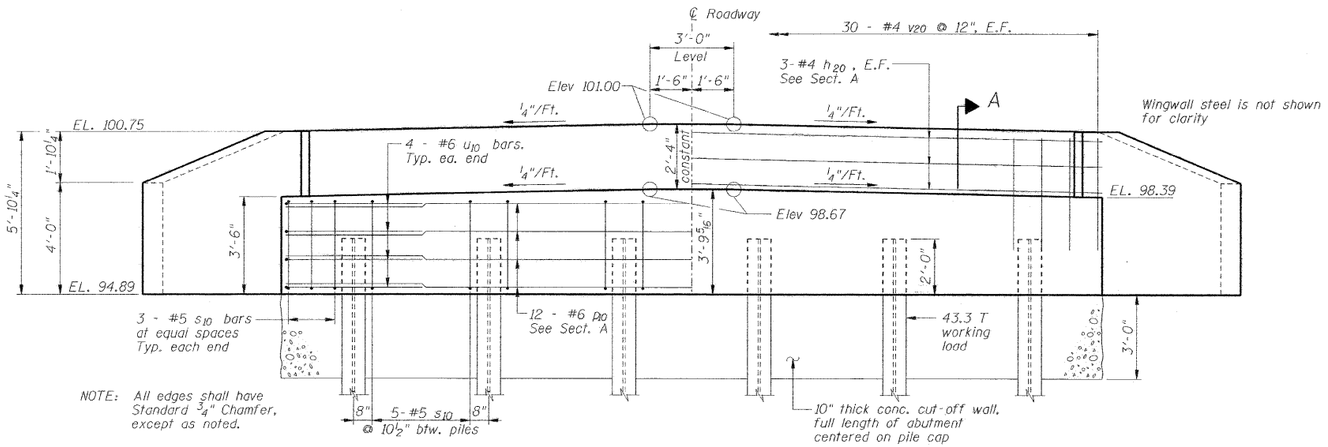
* 10-02146-00-BR



F.F. - Front Face
B.F. - Back Face
E.F. - Each Face
U.O.N. - Unless otherwise noted

PLAN

Symmetrical about ℄



NOTE: All edges shall have Standard 3/4" Chamfer, except as noted.

ELEVATION

Symmetrical about ℄

NOTES:

Controlled Low-Strength Material shall be placed behind the abutment up to 6" from finished grade or the bottom of the Aggregate Surface Course, Type B.

Backwall and the tops of wingwalls shall be poured after beams are in place.

PILE DATA

Type: Steel HP 10x42

Nominal Required Bearing: 260 kips

Factored Resistance Available: 130 kips

Estimated Length: 50 ft.

No. Required: 5 @ North Abutment
5 @ South Abutment

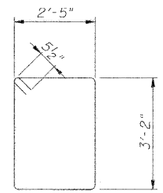
Test Piles: 1 @ North Abutment
1 @ South Abutment

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

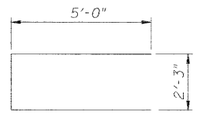
BILL OF MATERIAL - 2 ABUTS.

Bar	No.	Size	Length	Shape
h_{10}	16	# 5	9'-5"	
h_{11}	16	# 5	10'-1"	
h_{12}	4	# 5	7'-7"	
h_{13}	4	# 5	7'-0"	
h_{14}	4	# 5	4'-10"	
h_{15}	4	# 5	4'-3"	
h_{16}	4	# 5	7'-10"	
h_{17}	4	# 5	7'-3"	
h_{20}	12	# 4	29'-0"	
h_{21}	8	# 4	5'-0"	
p_{10}	24	# 6	29'-0"	
s_{10}	62	# 5	12'-1"	
u_{10}	16	# 6	12'-3"	
v_1	16	# 5	5'-6"	
v_2	8	# 5	5'-5"	
v_3	8	# 5	5'-3"	
v_4	8	# 5	5'-0"	
v_5	8	# 5	4'-9"	
v_6	8	# 5	4'-6"	
v_7	8	# 5	4'-3"	
v_8	8	# 5	4'-0"	
v_9	8	# 5	3'-9"	
v_{20}	120	# 4	4'-0"	
Concrete Structures			Cu. Yds.	32.6
Reinforcement Bars			Lbs.	3,590
Test Pile, Steel HP10x42			Each	2
Furnishing Steel Piles HP10x42			Foot	500
Driving Piles			Foot	500
Metal Shoes			Each	12
Name Plate			Each	1
Concrete Cut-off Wall			Cu. Yds.	5.4
Structure Excavation			Cu. Yds.	150
Controlled Low-Strength Material			Cu. Yds.	67.5

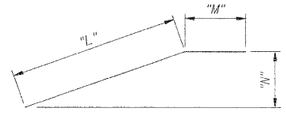
Bar	"L"	"M"	"N"
h_{10}	8'-7"	10"	6'-1"
h_{11}	9'-3"	10"	6'-7"
h_{16}	6'-3"	1'-7"	1'-9 1/2"
h_{17}	6'-3"	1'-0"	1'-9 1/2"
h_{21}(E)	2'-6"	2'-6"	1'-9 1/4"



BAR s_{10}



BAR u_{10}



BAR h_{10}, h_{11}, h_{16}, h_{17}

DSGN	K.J. Hoffmann
DR	K.J. Hoffmann
CHK	J.R. Wolf
APVD	J.A. Frauenhoffer

NO.	DATE	REVISION	BY	APVD

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ABUTMENT DETAILS (SHEET 1 OF 2)

TR16 (170E) OVER BRANCH OF PIGEON CREEK
SEC 10-02146-00-BR
VERMILION COUNTY

SHEET	9
DWG NO.	11050ABT.dgn
DATE	DEC 2011
PROJ NO.	11050

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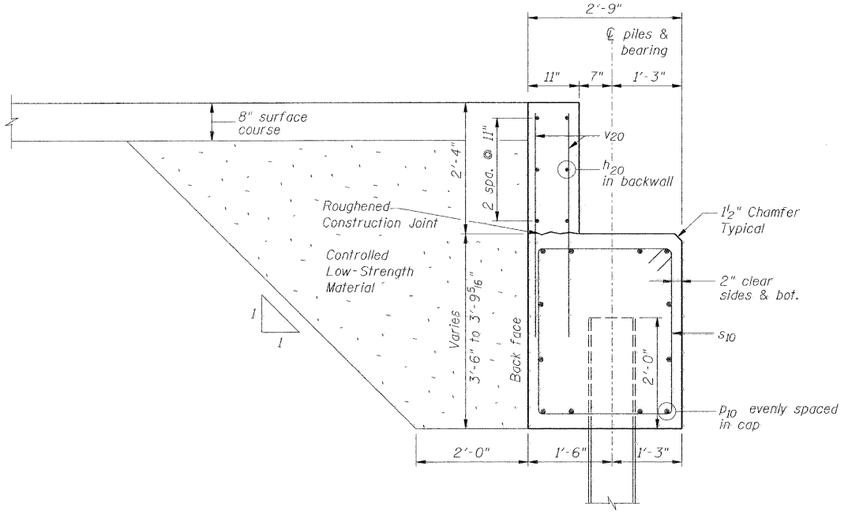
Contract #91465

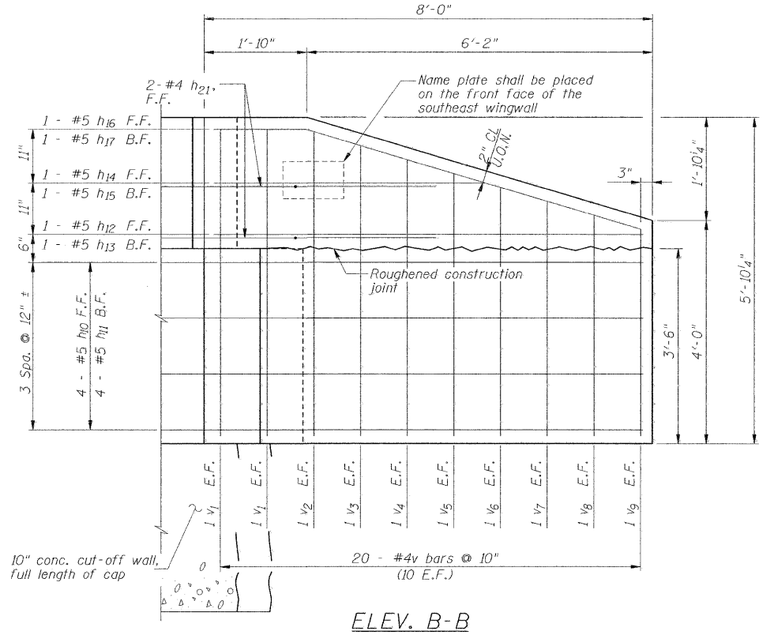
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 16	*	Vermilion	12	10
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

* 10-02146-00-BR



SECTION A

(Perpendicular to ℄ of Abutment)



ELEV. B-B

Tops of wingwalls shall be poured after beams are in place.

Backwall steel is not shown for clarity

DSGN K.J. Hoffmann					
DR K.J. Hoffmann					
CHK J.R. Wolf					
APVD J.A. Frauenhoffer	NO.	DATE	REVISION	BY	APVD

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ABUTMENT DETAILS (SHEET 2 OF 2)

TR16 (170E) OVER BRANCH OF PIGEON CREEK
SEC 10-02146-00-BR
VERMILION COUNTY

SHEET	10
DWG NO.	11050ABT.dgn
DATE	DEC 2011
PROJ NO.	11050

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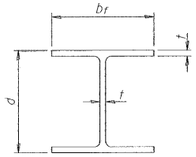
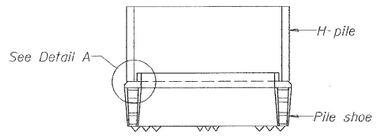
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 16	*	Vermilion	12	11
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

* 10-02146-00-BR

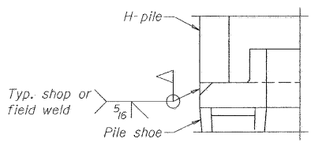


STEEL PILE TABLE

Designation	Depth d	Flange width b_f	Web and Flange thickness t	Encasement diameter A
HP 14x117	$14\frac{1}{4}''$	$14\frac{7}{8}''$	$\frac{13}{16}''$	30''
x102	14''	$14\frac{3}{4}''$	$\frac{11}{16}''$	30''
x89	$13\frac{7}{8}''$	$14\frac{3}{4}''$	$\frac{5}{8}''$	30''
x73	$13\frac{5}{8}''$	$14\frac{5}{8}''$	$\frac{1}{2}''$	30''
HP 12x84	$12\frac{1}{4}''$	$12\frac{1}{4}''$	$\frac{11}{16}''$	24''
x74	$12\frac{1}{8}''$	$12\frac{1}{4}''$	$\frac{5}{8}''$	24''
x63	12''	$12\frac{1}{8}''$	$\frac{1}{2}''$	24''
x53	$11\frac{3}{4}''$	12''	$\frac{7}{16}''$	24''
HP 10x57	10''	$10\frac{1}{4}''$	$\frac{9}{16}''$	24''
x42	$9\frac{3}{4}''$	$10\frac{1}{8}''$	$\frac{7}{16}''$	24''
HP 8x36	8''	$8\frac{1}{8}''$	$\frac{7}{16}''$	18''

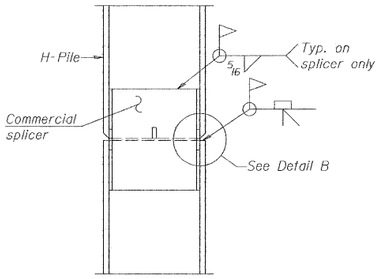


ELEVATION



DETAIL A

H-PILE SHOE ATTACHMENT



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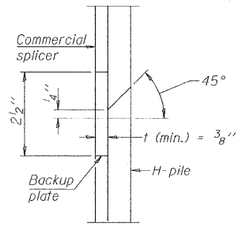
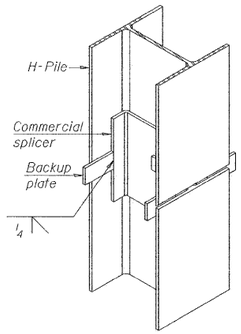
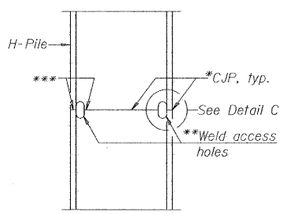


DETAIL "B"



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



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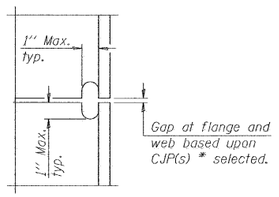


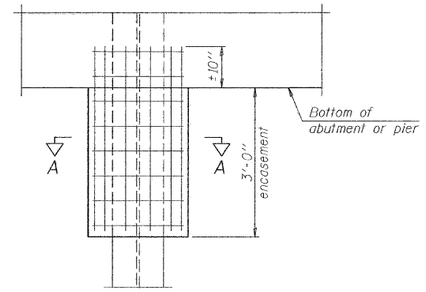
DETAIL C

COMPLETE PENETRATION WELD SPLICE

* 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 ¼'' from end of each pile.



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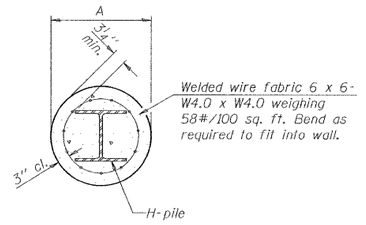
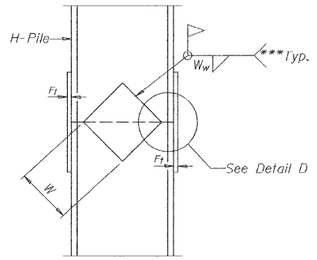


Note:
Forms for encasement may be omitted when soil conditions permit.

SECTION A-A

PILE ENCASEMENT



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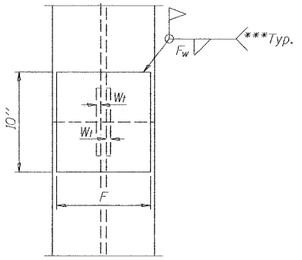
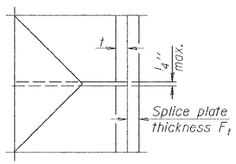


END VIEW



DETAIL D

Designation	F	F_t	F_w	W	W_f	W_w
HP 14x117	$12\frac{1}{2}''$	1''	$\frac{7}{8}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x102	$12\frac{1}{2}''$	$\frac{7}{8}''$	$\frac{3}{4}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x89	$12\frac{1}{2}''$	$\frac{3}{4}''$	$\frac{11}{16}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x73	$12\frac{1}{2}''$	$\frac{5}{8}''$	$\frac{9}{16}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
HP 12x84	10''	$\frac{7}{8}''$	$\frac{11}{16}''$	$6\frac{1}{2}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x74	10''	$\frac{7}{8}''$	$\frac{11}{16}''$	$6\frac{1}{2}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x63	10''	$\frac{5}{8}''$	$\frac{1}{2}''$	$6\frac{1}{2}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
x53	10''	$\frac{5}{8}''$	$\frac{1}{2}''$	$6\frac{1}{2}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
HP 10x57	8''	$\frac{3}{4}''$	$\frac{9}{16}''$	$5\frac{1}{4}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
x42	8''	$\frac{5}{8}''$	$\frac{9}{16}''$	$5\frac{1}{4}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
HP 8x36	7''	$\frac{5}{8}''$	$\frac{7}{16}''$	$4\frac{1}{4}''$	$\frac{1}{2}''$	$\frac{3}{8}''$

WELDED PLATE FIELD SPLICE

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

F-HP 10-1-08

DSGN K.J. Hoffmann					
DR K.J. Hoffmann					
CHK J.R. Wolf					
APVD J.A.Frauenhoffer	NO.	DATE	REVISION	BY	APVD

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PILE DETAILS

TR16 (170E) OVER BRANCH OF PIGEON CREEK
SEC 10-02146-00-BR
VERMILION COUNTY

SHEET 11
DWG NO. 11050PLE.dgn
DATE JAN 2012
PROJ NO. 11050

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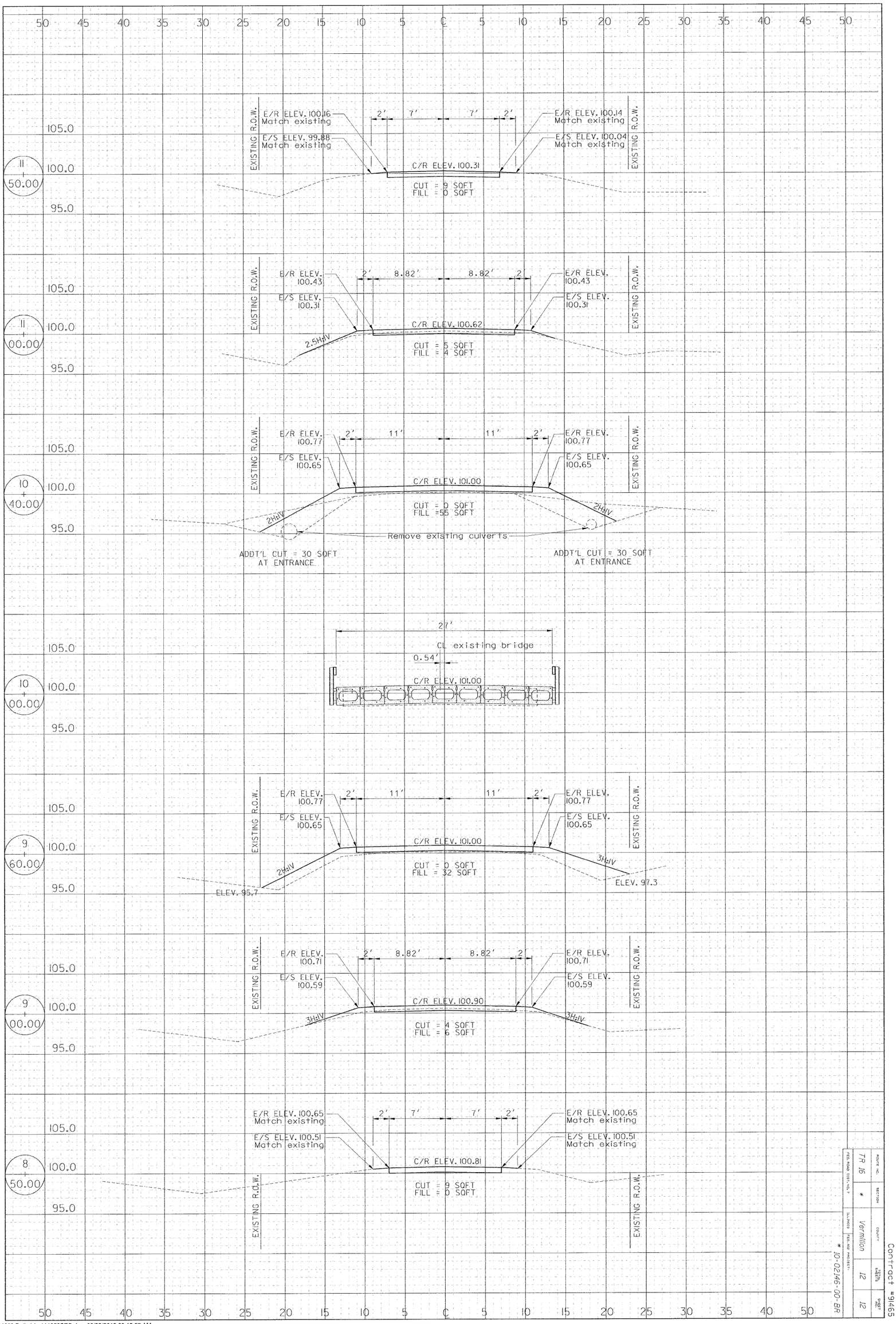

FED. ROAD DIST. NO. 7	ROUTE NO.
ILLINOIS	SECTION
FED. AID PROJECT	COUNTY
* 10-02146-00-BR	Vermilion
	SHEET NO. 12
	SHEET TOTAL 12

Contract #9465

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