

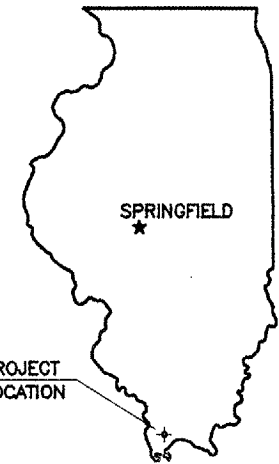
01 21 2005

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 1	02-01176-00-BR	PULASKI	10	1
PROJECT NO. BROS-153(27)			CONTRACT NO. 99230	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

BRIDGE REPLACEMENT AND REHABILITATION PROGRAM

TOWNSHIP ROUTE 1 (WETAUG ROAD)
COUNTY UNIT ROAD DISTRICT
SECTION 02-01176-00-BR
PROJECT NO. BROS-153(27)
LITTLE CREEK

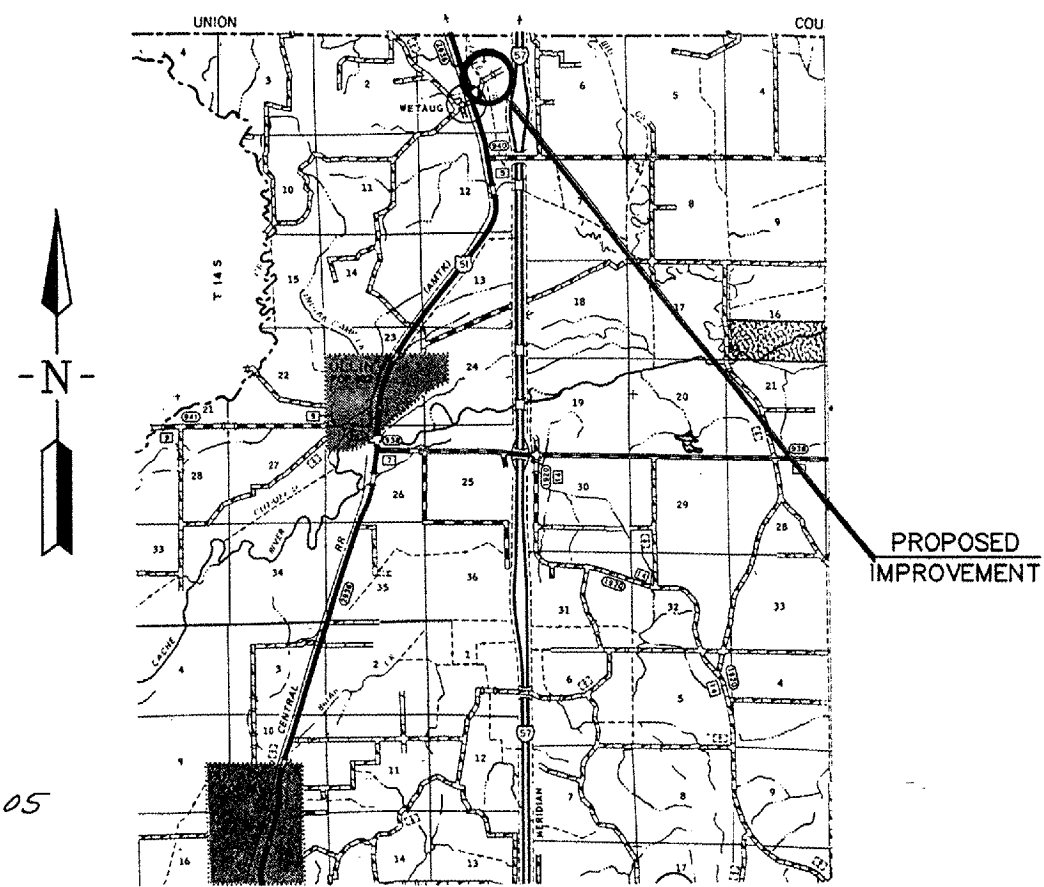


SUMMARY OF QUANTITIES

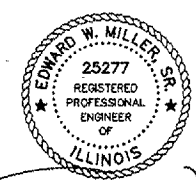
CODE NO.	PAY ITEM	UNIT	TOTAL
20100500	TREE REMOVAL, ACRES	UNIT	0.3
20200100	EARTH EXCAVATION	CU YD	821
20300100	CHANNEL EXCAVATION	CU YD	111
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	137
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	505
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50200100	STRUCTURE EXCAVATION	CU YD	24
50300225	CONCRETE STRUCTURES	CU YD	20.4
50400405	PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)	SQ FT	1270
50800105	REINFORCEMENT BARS	POUND	2080
50900205	STEEL RAILING, TYPE S1	FOOT	106
51201000	FURNISHING METAL PILE SHELLS 12"	FOOT	539
51202600	DRIVING AND FILLING SHELLS	FOOT	539
51203200	TEST PILE METAL SHELLS	EACH	1
51204315	CONCRETE ENCASEMENT	CU YD	2.1
51500100	NAME PLATES	EACH	1
542D0217	PIPE CULVERTS, CLASS D, TYPE 1 12"	FOOT	22
67100100	MOBILIZATION	L.SUM	

- INDEX OF SHEETS
- COVER SHEET
 - PLAN & PROFILE
 - GENERAL PLAN & ELEVATION
 - BECK BEAMS (21" X 36" BEAMS)
 - DECK BEAMS (21" X 48" BEAMS)
 - ABUTMENTS
 - STEEL RAILING
 - NAME PLATE
 - PILE DETAILS
 - CROSS SECTIONS
- STANDARDS 280001-02 TEMPORARY EROSION CONTROL
702001-05 TRAFFIC CONTROL DEVICES
BLR 21-6 TRAFFIC CONTROL

PULASKI COUNTY



CLASSIFICATION : LOCAL ROAD (RURAL)
ADT : 50
DESIGN SPEED : 30 MPH



05-20-05

Edward W. Miller

Edward W. Miller
PROFESSIONAL ENGINEER
#062-025277
EXPIRES NOV. 30, 2005

CONTRACT NO. 99230
E. MILLER ENGINEERING, INC.
CONSULTING ENGINEERS
HARRISBURG, ILLINOIS

LOCATION MAP

SCALE: 1" = 2 MILES

NET LENGTH OF IMPROVEMENT = 505.00 FT. = 0.0956 MILES

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

APPROVED May 20, 2005
John H. ...
LOCAL AGENCY REPRESENTATIVE

PASSED MAY 27, 2005
Deni W. Hall
DISTRICT ENGINEER OF LOCAL ROADS & STREETS

APPROVED 6-1, 2005
Mary C. Lamie
- MARY C. LAMIE, P.E.
DEPUTY DIRECTOR OF HIGHWAYS, REGION FIVE ENGINEER

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 1	02-01176-00-BR	PULASKI	10	2
PROJECT NO. BROS-153(27)			CONTRACT NO. 99230	

B.M. - RR Spike in 34" Oak Tree
65' Lt. Sta. 14+56
Elev. 361.36 (USGS)

Existing Structure - Timber deck with steel stringers on closed timber abutments.
13.0' W x 60.0' L

CURVE DATA
PI Sta = 10+01.67
 $\Delta = 11^{\circ}27'38''$
R = 499.94'

CURVE DATA
PI Sta = 13+60.86
 $\Delta = 39^{\circ}33'25''$ T = 90.56'
D = 22^{\circ}45'00'' L = 173.88'
R = 251.85' E = 15.79'

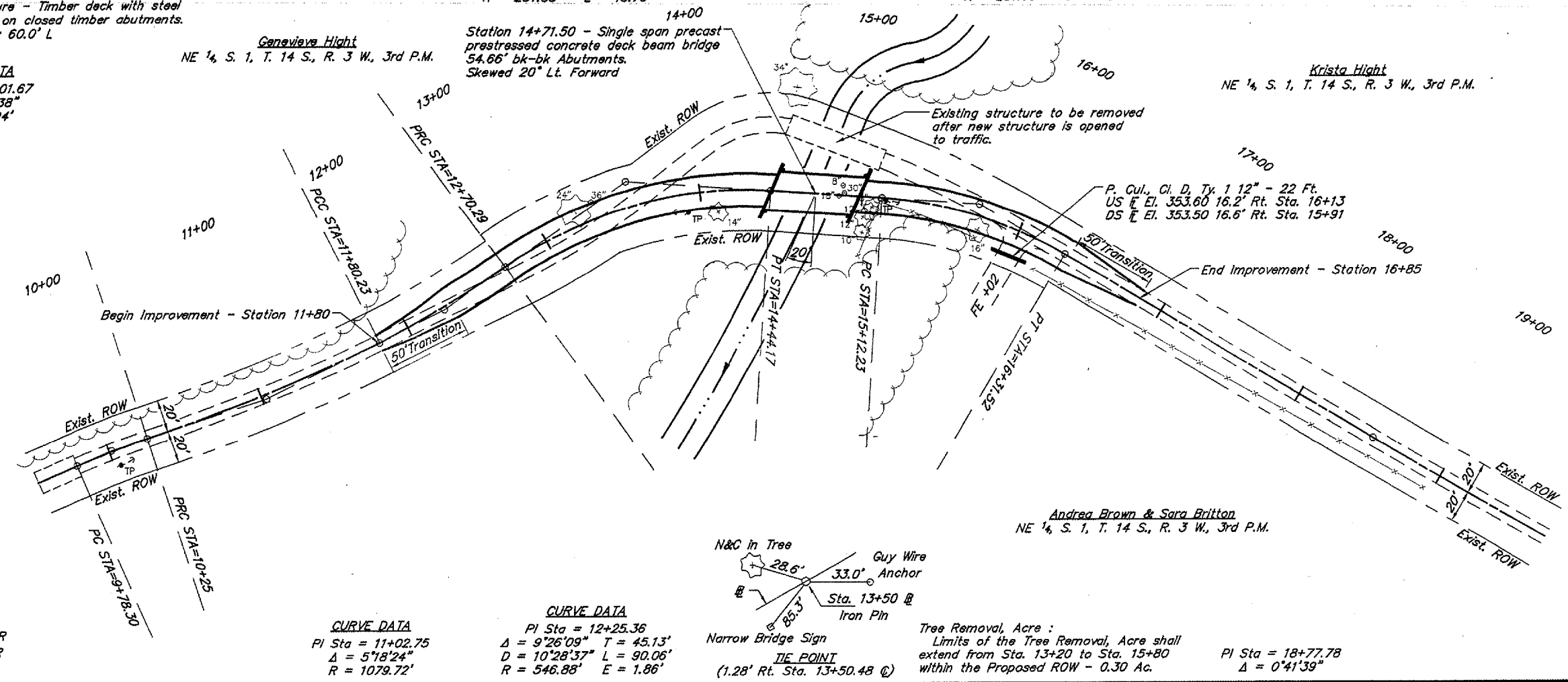
CURVE DATA
PI Sta = 15+73.01
 $\Delta = 27^{\circ}08'18''$ T = 60.79'
D = 22^{\circ}45'00'' L = 119.29'
R = 251.85' E = 7.23'

Genevieve Hight
NE 1/4 S. 1, T. 14 S., R. 3 W., 3rd P.M.

Station 14+71.50 - Single span precast prestressed concrete deck beam bridge
54.66' bk-bk Abutments.
Skewed 20° Lt. Forward

Krista Hight
NE 1/4 S. 1, T. 14 S., R. 3 W., 3rd P.M.

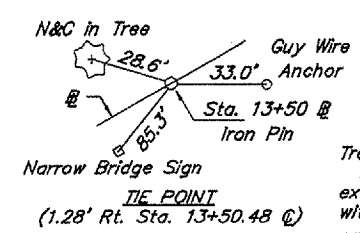
Andrea Brown & Sara Britton
NE 1/4 S. 1, T. 14 S., R. 3 W., 3rd P.M.



SCALES:
1" = 80' HOR
1" = 10' VER

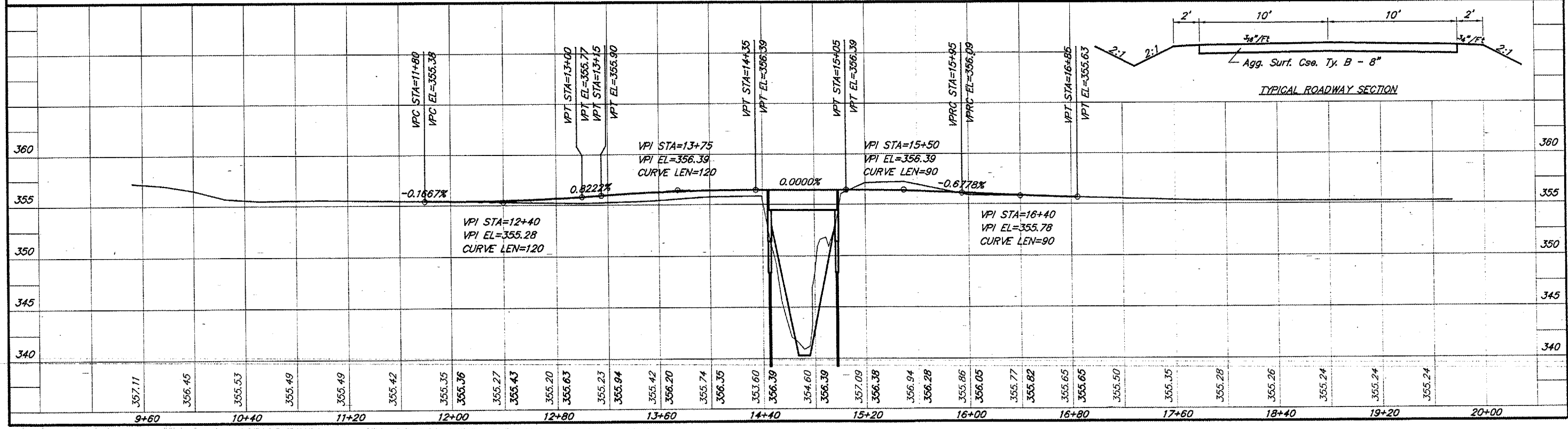
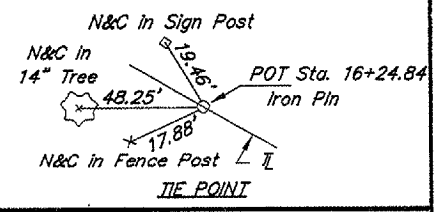
CURVE DATA
PI Sta = 11+02.75
 $\Delta = 5^{\circ}18'24''$
R = 1079.72'

CURVE DATA
PI Sta = 12+25.36
 $\Delta = 9^{\circ}26'09''$ T = 45.13'
D = 10^{\circ}28'37'' L = 90.06'
R = 546.88' E = 1.86'



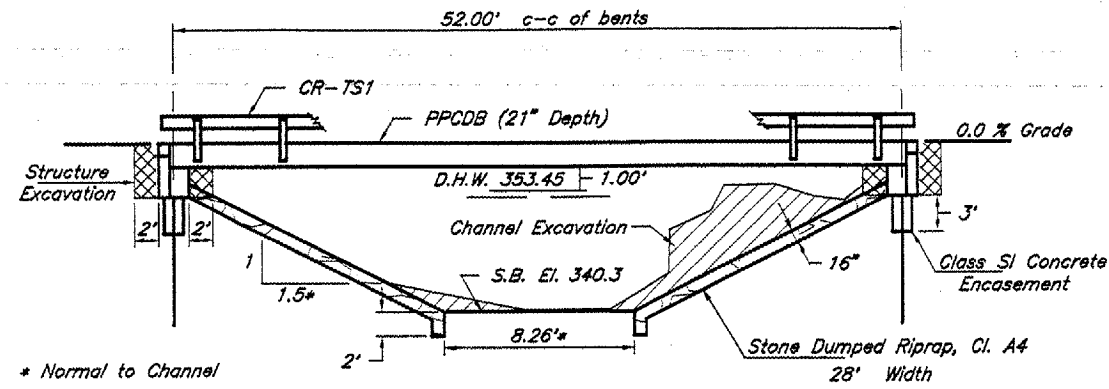
Tree Removal, Acre :
Limits of the Tree Removal, Acre shall extend from Sta. 13+20 to Sta. 15+80 within the Proposed ROW - 0.30 Ac.

PI Sta = 18+77.78
 $\Delta = 0^{\circ}41'39''$



B.M. - RR Spike in 34" Oak Tree
65' Lt. of Sta. 14+56
Elev. 361.36 (USGS)

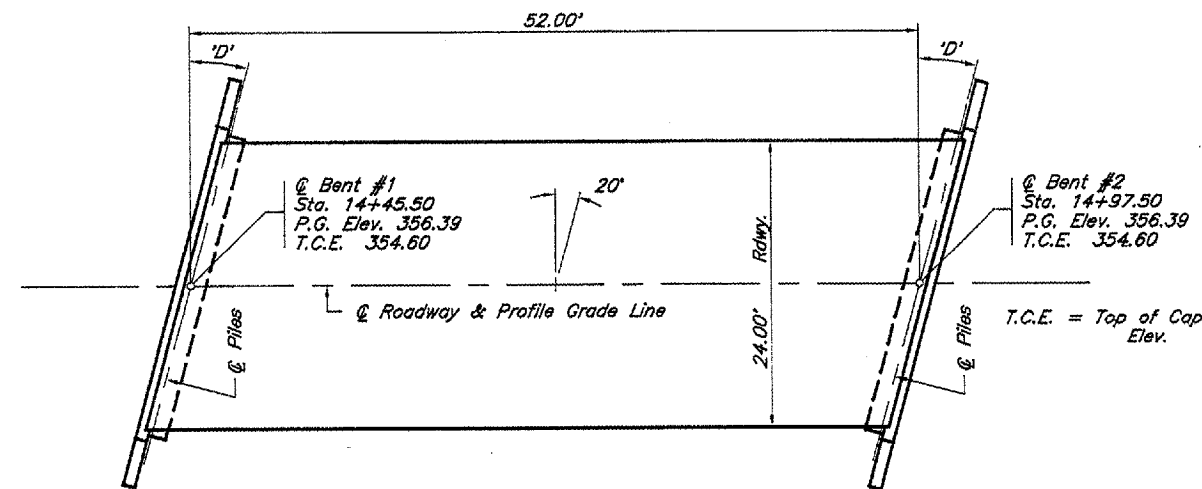
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 1	02-01176-00-BR	PULASKI	10	3
PROJECT NO. BROS-153(27)			CONTRACT NO. 99230	



Existing Structure - Timber deck with steel stringers on closed timber abutments 13'W x 60'L

* Normal to Channel

ELEVATION



PLAN

Skew Angle "D" = 20' Left Forward

Boring 1-S
30' Lt. Sta. 15+27

GENERAL NOTES

- The Contractor shall drive one test pile, as specified, in a permanent location as directed by the Engineer before ordering the remaining piles.
- See special provisions for boring logs.
- The Article or Section numbers referencing the Standard Specifications for Road and Bridge Construction as shown on the standard bridge plan sheets included with the contract plans should be interpreted as referring to the current edition of the Standard Specifications (Adopted January 1, 2002) as shown in the "Article/Section No. Reference Table".

ARTICLE/SECTION NO. REFERENCE TABLE

Previous No.	Current No.
504.06	504.06
505.04	505.04
706.05	1006.05
706.32	1006.32
760.07	1060.07

TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub.		Total
			Piers	Abuts.	
Removal of Existing Structures	Each				1
Concrete Structures	Cu. Yds.			20.4	20.4
P.P. Conc. Dk. Brm. 21" Dp.	Sq. Ft.	1270			1270
Steel Railing, Type S1	Foot	106			106
Reinforcement Bars	Pound			2080	2080
Furnishing Metal Pile Shells 12"	Foot			539	539
Driving and Filling Shells	Foot			539	539
Test Pile Metal Shells	Each			1	1
Class SI Concrete Encasement	Cu. Yds.			2.1	2.1
Name Plates	Each			1	1
Structure Excavation	Cu. Yds.			24	24
Channel Excavation	Cu. Yds.			111	111
Stone Dumped Riprap, Class A4	Tons			137	137

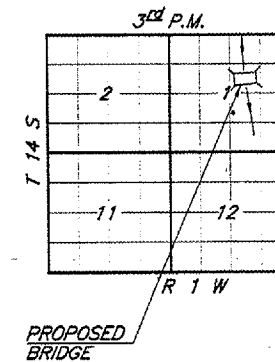
PILE DATA (2-ABUTS.)

Type ----- Metal Pile Shells 12"
Capacity ----- 38 Tons
Estimated Length ----- 77 Feet
Number Required ----- 8 (Includes 1 Test Pile located in Bent #1)

LITTLE CREEK
SEC. 02-01176-00-BR BUILT 20____
COUNTY UNIT ROAD DISTRICT
PULASKI COUNTY
LOADING HS20
STR. NO. 077-3138

LETTERING FOR NAME PLATE

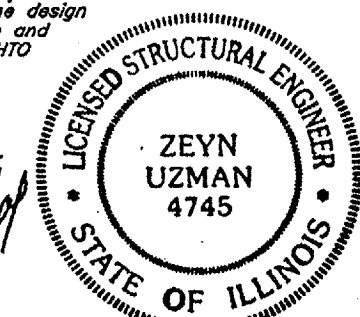
Locate Name Plate at southeast
Corner of Bridge (See Std. CN)



LOCATION SKETCH

"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 Standard Specifications for Highway Bridges."

Zeyn B. Uzman
S.E. #81-4745
Expires Nov. 30, 2004
9/2/09



DESIGN SPECIFICATIONS

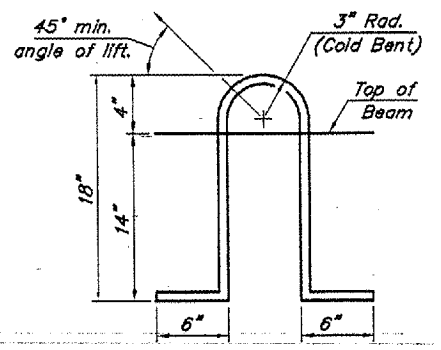
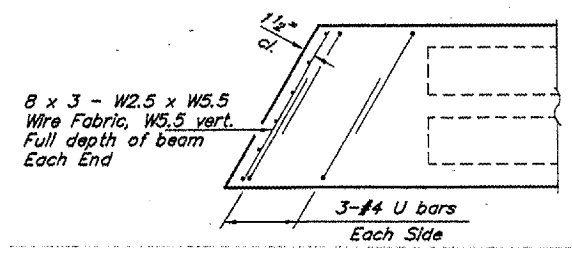
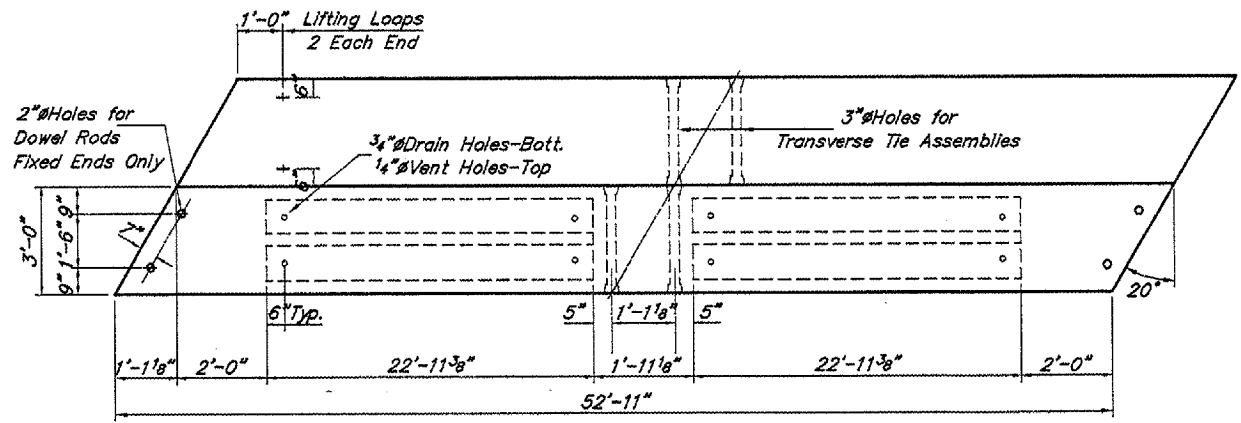
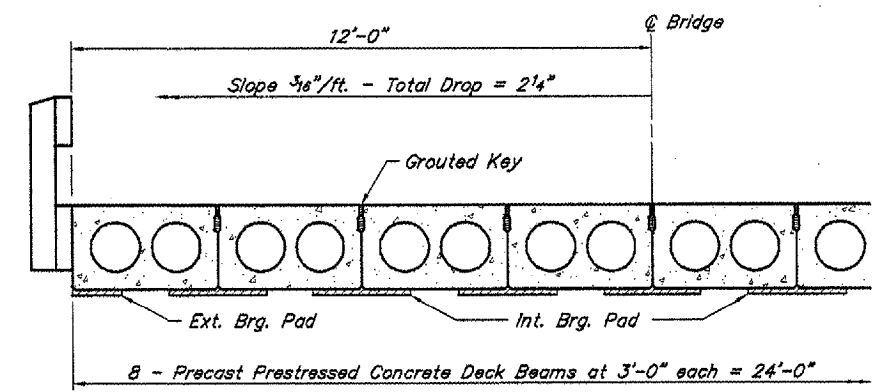
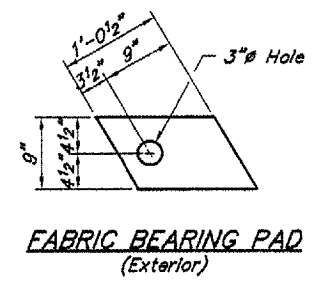
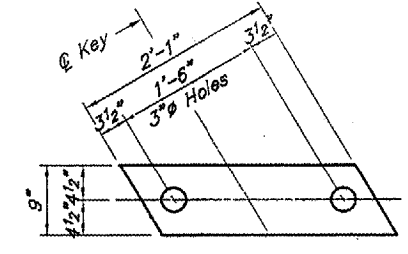
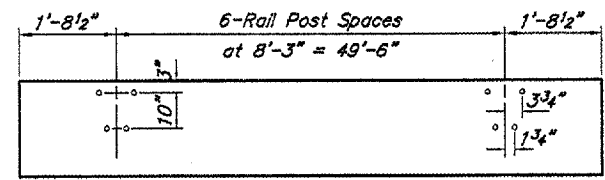
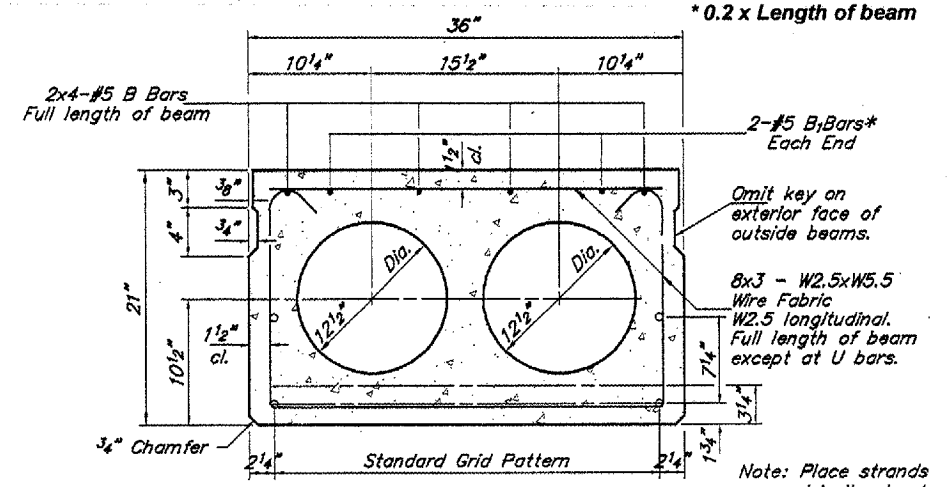
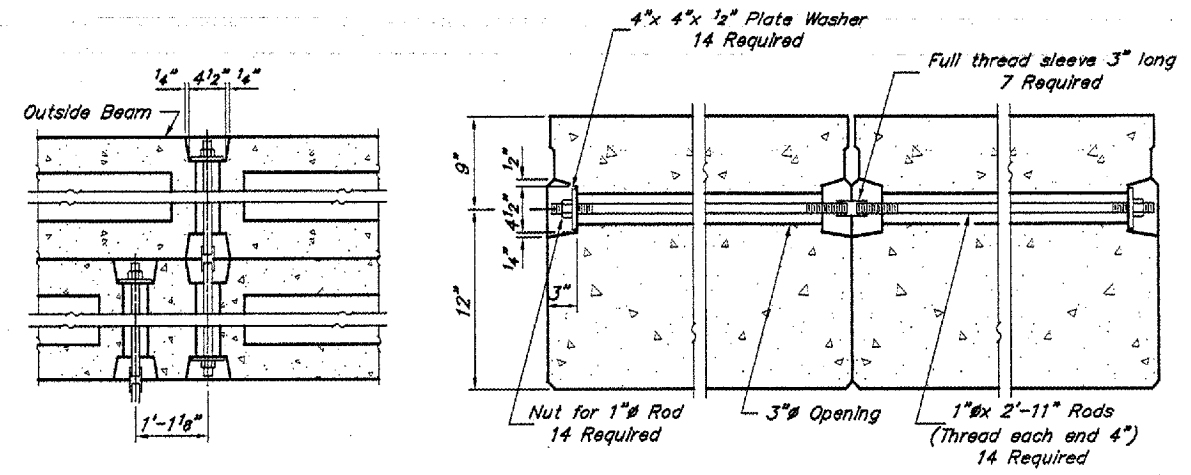
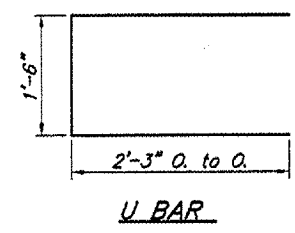
1996 AASHTO & Interims
HS 20-44 Loading. Load Factor Design.

WATERWAY INFORMATION

		Drainage Area = 11.84 Sq. Mi.		Low Grade Elev. = 355.24		At Sta. 19+00			
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Natural H.W.E. Prop.	Head-Ft. Exist.	Prop.	Headwater El. Exist. Prop.		
Design	15	3464	361.2	367.7	353.45	0.43	0.31	353.88	353.76
Base	100	5419	478.7*	414.1*	355.78	0.00	0.01	355.78	355.79
Overtopping	±31	4206		414.1	354.57		0.67		355.24
Max. Calc.	500								

* Over road flow area
Exist 1328 SF
Prop 1333 SF

GENERAL PLAN & ELEVATION
TOWNSHIP ROUTE 1
LITTLE CREEK
SECTION 02-01176-00-BR
PULASKI COUNTY
STATION 14+71.50



NOTES

Reinforcement bars shall conform to AASHTO M-31, M-42 or M-53, Grade 60. Prestressing steel shall be uncoated high strength, stress-relieved 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. Required release strength, f_{cl}, shall be 4,800 p.s.i. An equal substitution of the low-relaxation strands for the stress-relieved strands will be permitted.

Lifting loops shall be 5/8" diameter, 6x25 class wire rope with fiber core and shall have a minimum ultimate tensile strength of 33,000 lbs. or 2-1/2" #270 ksl strands, as shown.

Keyway surfaces shall be cleaned to remove form oil or other bond breaking material prior to shipment of the beams. Cleaning shall be done by sandblasting the keyway areas between the top of the beam and the bottom edge of the key.

The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar on outside shall be filled with grout after transverse tie assembly is in place.

The bearing seat surfaces shall be adjusted by shimming to assure firm and even bearing. Two 1/8" fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing.

After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure a minimum of 24 hours prior to grouting the shear keys.

Nominal 1" joint at @ Pier shall be filled with non-shrink grout.

Rail Post Anchor Devices shall be cast into exterior face of outside beams as elsewhere specified.

Cost of reinforcement and accessories cast into the beam, of bearing pads, and of grouting longitudinal shear keys is incidental to Precast Prestressed Concrete Deck Beams.

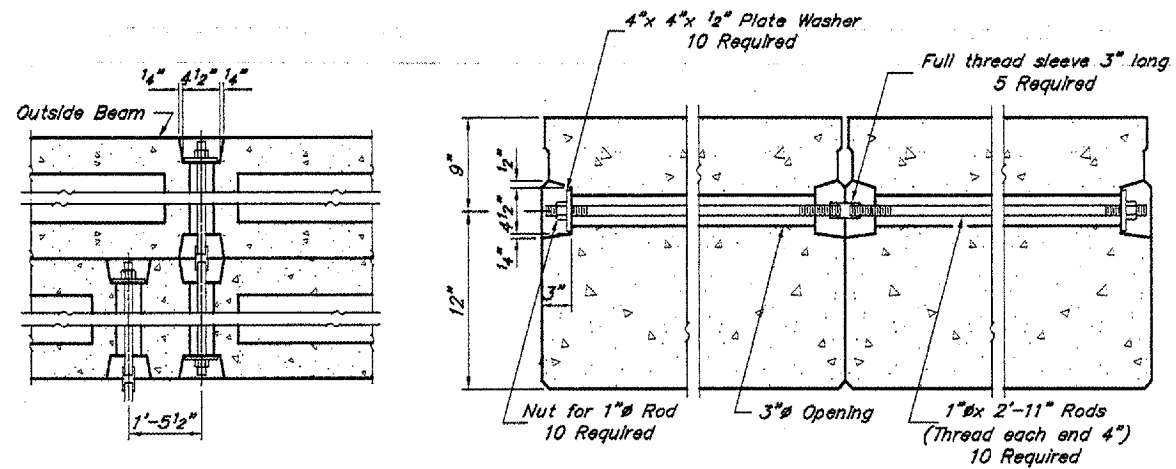
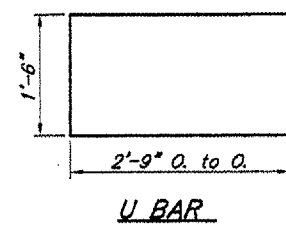
When Waterproofing Membrane System is specified, the top surface of the beams shall be finished in accordance with Article 504.06 of the Standard Specifications except that the surface shall not be roughened by brooming. The finished surface shall be free of depressions or high spots with sharp corners, and the top edge of keys shall be rounded or chamfered a min. of 1/4".

BILL OF MATERIAL

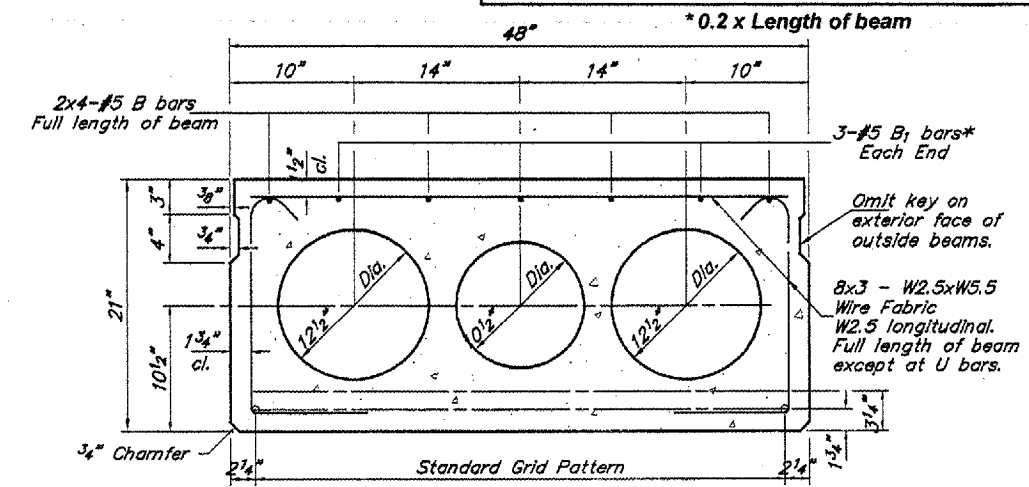
Bar	No.	Size	Length	Shape
B	8	#5	27'-5"	—
B ₁	2	#5	10'-7"	—
U	12	#4	6'-0"	—
Precast Prestressed Concrete Deck Beams		Sq. Ft.	1270	

DECK BEAMS 21" X 36"
LITTLE CREEK
SECTION 02-01176-00-BR
PULASKI COUNTY

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 1	02-01176-00-BR	PULASKI	10	6
PROJECT NO. BROS-153(27)			CONTRACT NO. 99230	

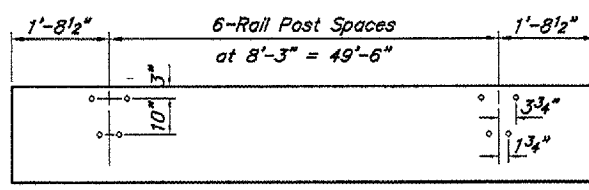


TYPICAL TRANSVERSE TIE ASSEMBLY

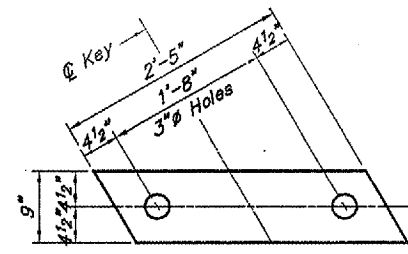


TYPICAL SECTION
 24-1/2" Strands Each Strand Stressed to 28,900 lbs.
 14-Strands 1 3/4" up, 6-Strands 3 1/4" up,
 2-Strands 6" up, 2-Strands 15" up.

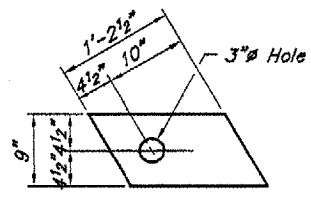
Note: Place strands symmetrically about C of beam.



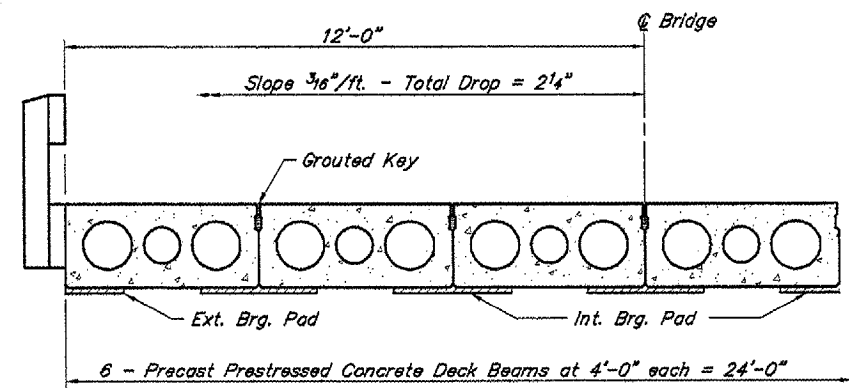
RAIL POST SPACING



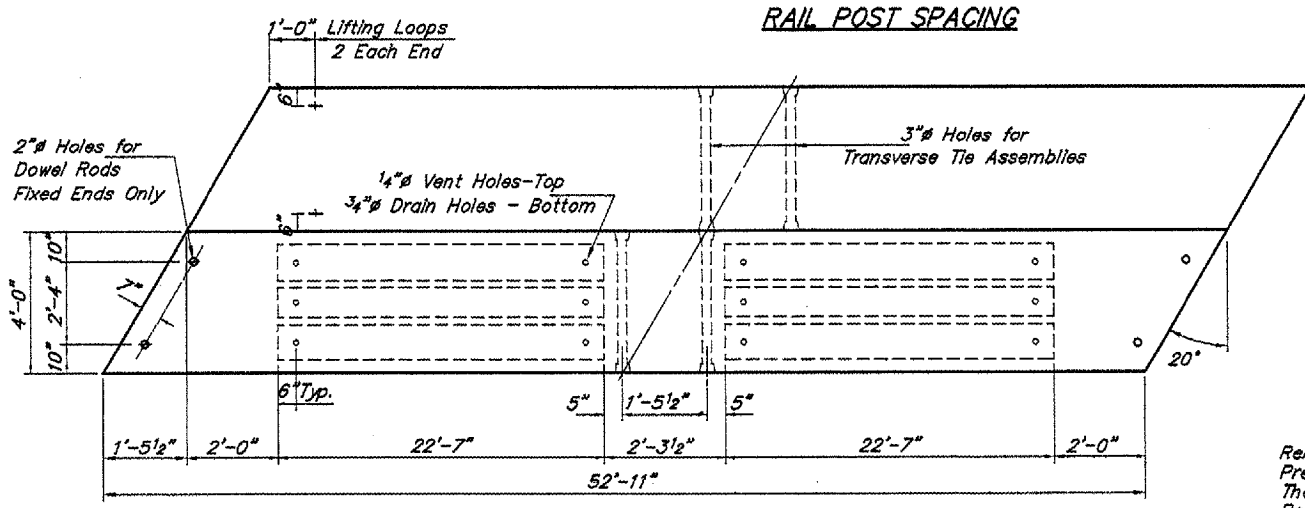
FABRIC BEARING PAD (Interior)



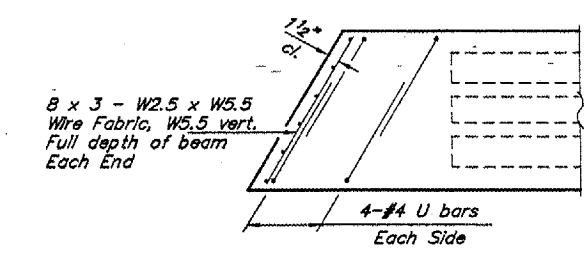
FABRIC BEARING PAD (Exterior)



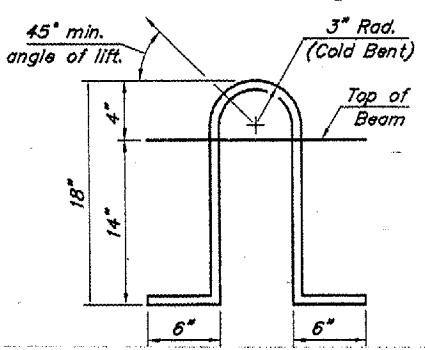
HALF CROSS SECTION



PLAN



END PLAN



LIFTING LOOP DETAIL

NOTES

Reinforcement bars shall conform to AASHTO M-31, M-42 or M-53, Grade 60. Prestressing steel shall be uncoated high strength, stress-relieved 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. Required release strength, f'cl, shall be 4,200 p.s.i. An equal substitution of the low-relaxation strands for the stress-relieved strands will be permitted.

Lifting loops shall be 3/8" diameter, 6x25 class wire rope with fiber core and shall have a minimum ultimate tensile strength of 33,000 lbs. or 2-1/2"-270 ksi strands, as shown.

Keyway surfaces shall be cleaned to remove form oil or other bond breaking material prior to shipment of the beams. Cleaning shall be done by sandblasting the keyway areas between the top of the beam and the bottom edge of the key.

The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar on outside shall be filled with grout after transverse tie assembly is in place.

The bearing seat surfaces shall be adjusted by shimming to assure firm and even bearing. Two 1/8" fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing.

After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure a minimum of 24 hours prior to grouting the shear keys.

Nominal 1" joint at C of Pier shall be filled with non-shrink grout.

Rail Post Anchor Devices shall be cast into exterior face of outside beams as elsewhere specified.

Cost of reinforcement and accessories cast into the beam, of bearing pads, and of grouting longitudinal shear keys is incidental to Precast Prestressed Concrete Deck Beams.

When Waterproofing Membrane System is specified, the top surface of the beams shall be finished in accordance with Article 504.06 of the Standard Specifications except that the surface shall not be roughened by brooming. The finished surface shall be free of depressions or high spots with sharp corners, and the top edge of keys shall be rounded or chamfered a min. of 1/4".

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
B	8	#5	27'-5"	—
B1	3	#5	10'-7"	—
U	16	#4	7'-0"	□
Precast Prestressed Concrete Deck Beams		Sq. Ft.	1270	

DECK BEAMS 21" X 48"
LITTLE CREEK
SECTION 02-01176-00-BR
PULASKI COUNTY

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 1	02-01178-00-BR	PULASKI	10	7
PROJECT NO. BROS-153(27)			CONTRACT NO. 99230	

NOTES

Hollow structural steel tubing shall conform to the requirements of ASTM designation A500 Grade B Structural Steel Tubing and shall meet the longitudinal CYN requirements of 15 ft.-lbs. at 0° F.

All other steel shapes and plates shall conform to the requirements of AASHTO M 270 Grade 36 except posts and angles shall conform to AASHTO M 270 Grade 50.

Bolts, cap screws, and nuts shall conform to the requirement of ASTM designation A307 except for high strength bolts, nuts and washers noted which shall conform to AASHTO M 164.

All bolts, nuts, cap screws, washers and lock washers shall be galvanized according to AASHTO M 232.

All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication according to AASHTO M-111 and ASTM A 385. Galvanized rail shall not be painted.

Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for STEEL RAILING, TYPE S-1.

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.

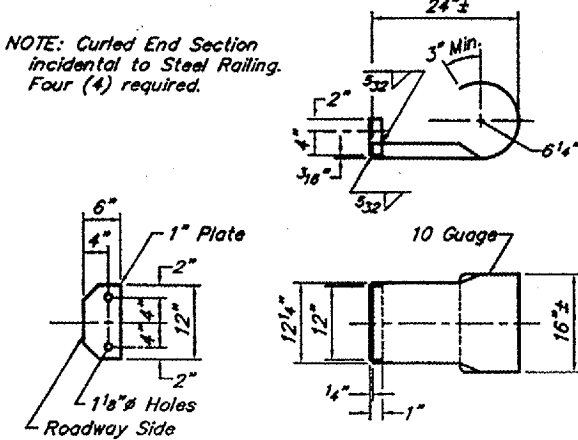
All field drilled holes shall be coated with an approved zinc rich paint before erection.

The 1/2" x 7" x 6" plates that come in contact with concrete shall either receive two coats of asphalt paint conforming to Section 1060.07 Type II, or 1/8" fabric bearing pads shall be placed between the plates and concrete.

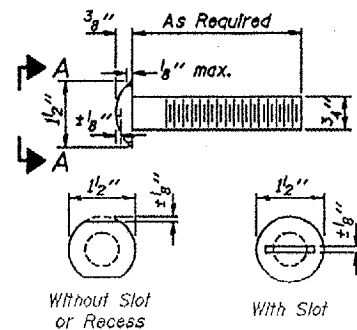
The 3/4" high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened according to Article 505.04 (FX2) of the Standard Specifications. The 1" high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/2 turn. The 5/8" cap screws in bottom of posts shall be tightened to a snug fit only.

The maximum allowable rail post spacing shall be 10'-6". The rail post spacing shown elsewhere in the plans is based on the allowable spacing for another type of rail. When this type of rail is used, the number of posts may be decreased and the post spacing increased to provide equal post spaces of 10'-6" or less.

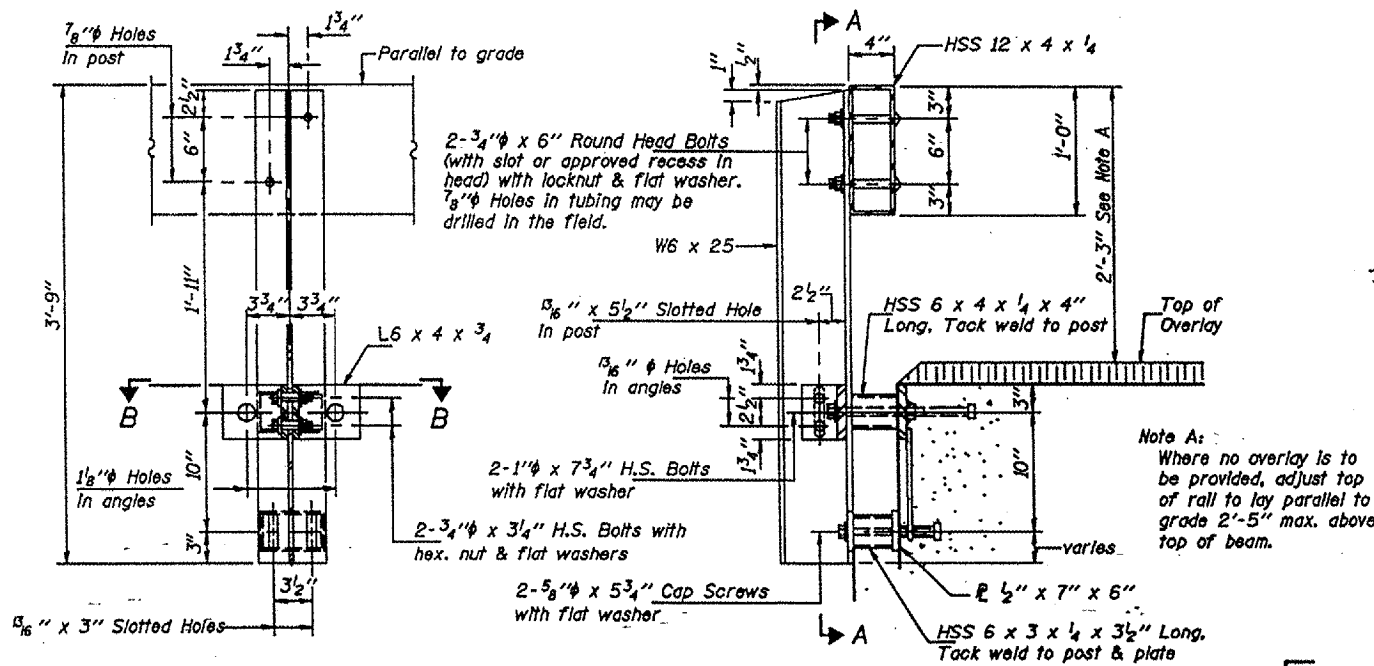
NOTE: Curled End Section incidental to Steel Railing. Four (4) required.



CURLLED END SECTION DETAILS

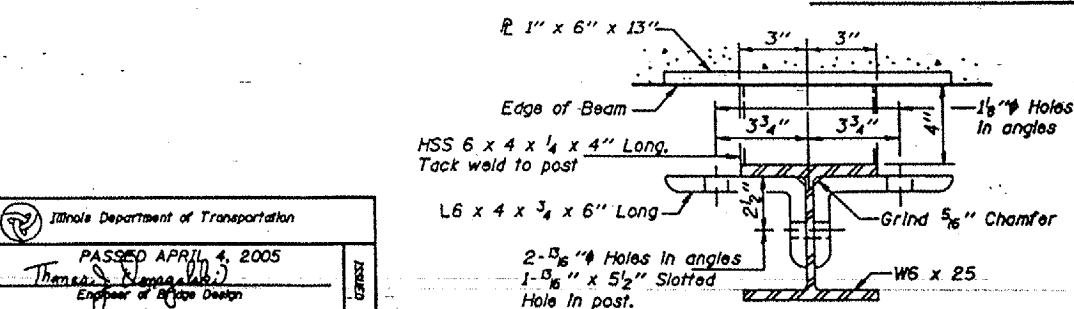


VIEW A-A
ROUND HEAD BOLT

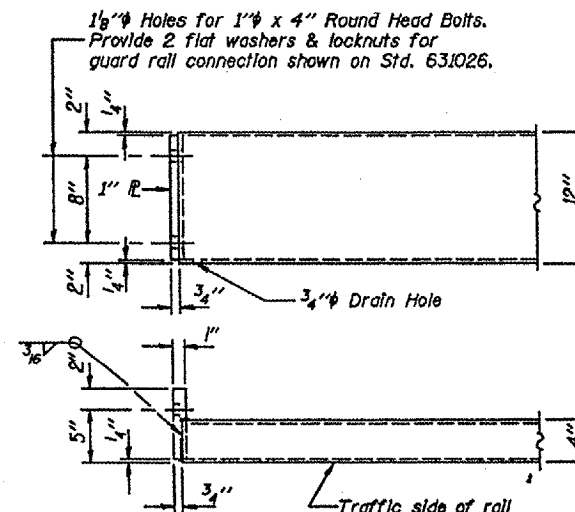


SECTION A-A

SECTION AT RAIL POST

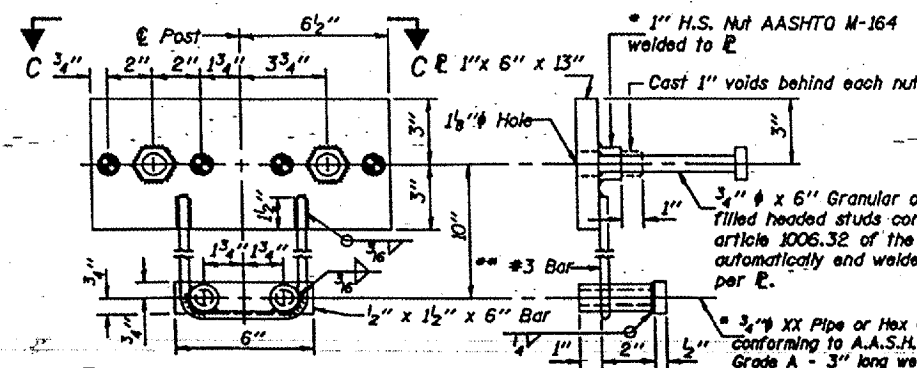


SECTION B-B

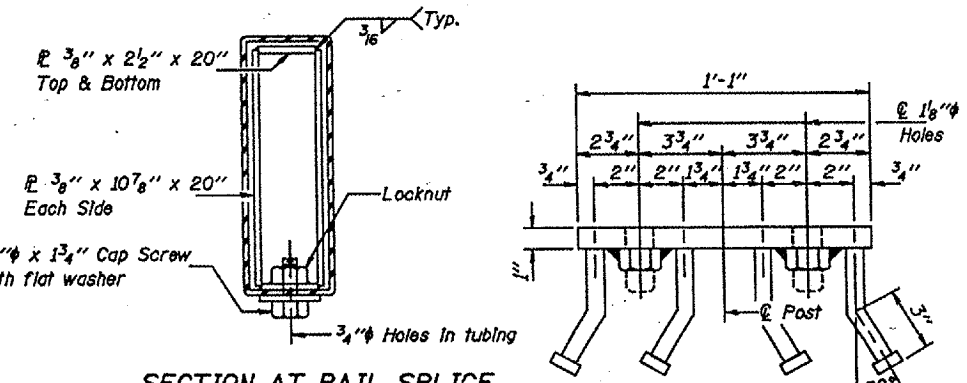


END OF RAIL DETAILS

** 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\".



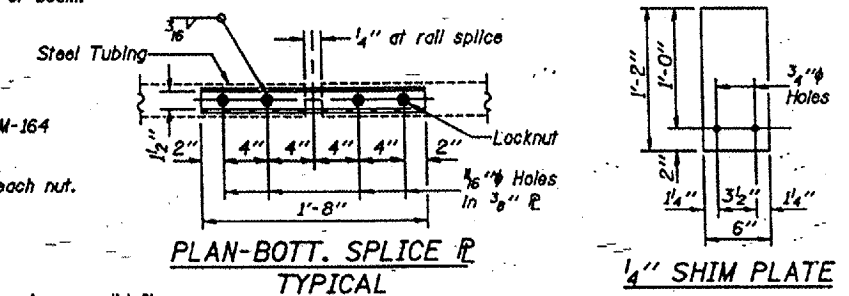
ANCHOR DEVICE



SECTION AT RAIL SPLICE

VIEW C-C

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



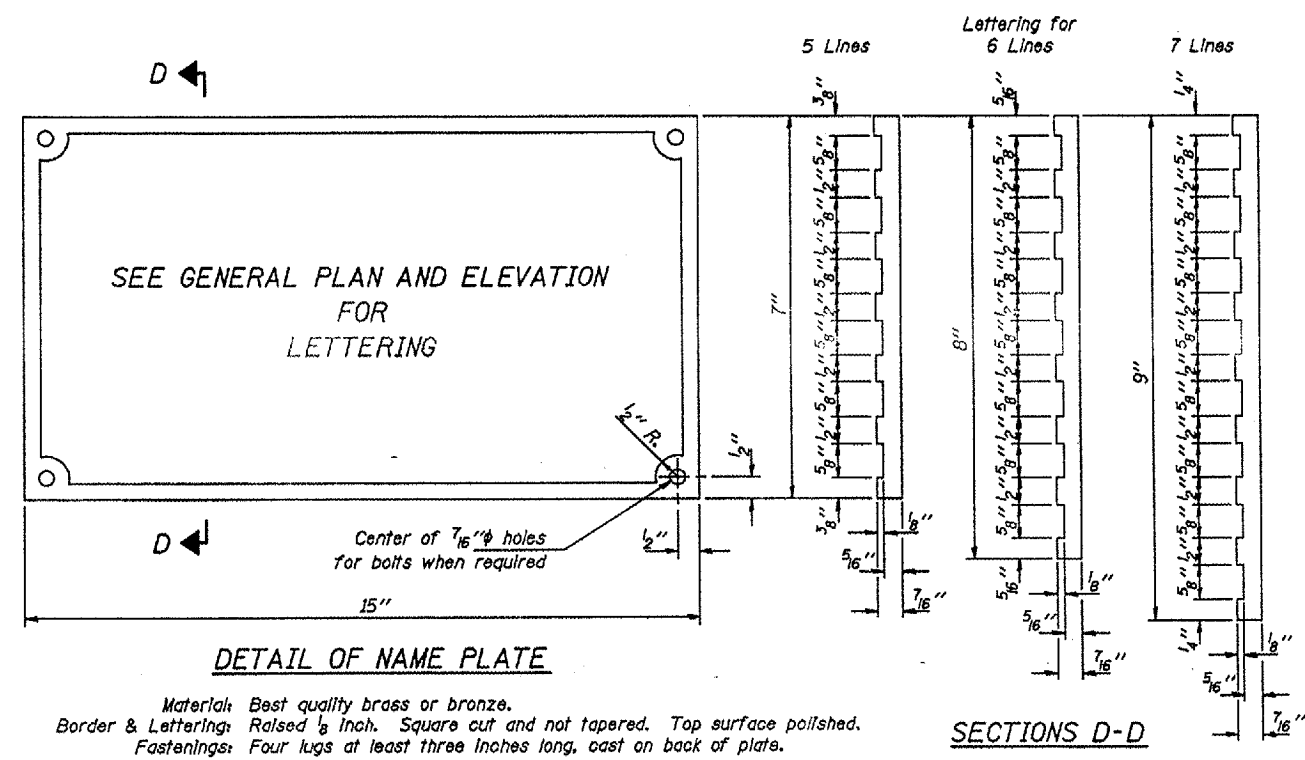
PLAN-BOTT. SPLICE R
TYPICAL

1/4\"/>

Illinois Department of Transportation
 PASSED APRIL 4, 2005
 Theresa [Signature]
 Engineer of Bridge Design
 APPROVED APRIL 4, 2005
 Robert E. [Signature]
 Engineer of Bridge and Structure

STEEL RAILING, TYPE S-1
 STANDARD CR-TS1

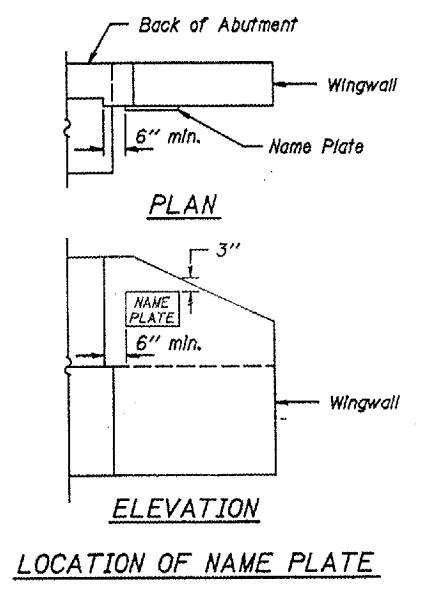
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 1	02-01176-00-BR	PULASKI	10	8
PROJECT NO. BROS-153(27)			CONTRACT NO. 99230	



DETAIL OF NAME PLATE

Material: Best quality brass or bronze.
 Border & Lettering: Raised 1/8 inch. Square cut and not tapered. Top surface polished.
 Fastenings: Four lugs at least three inches long, cast on back of plate.

SECTIONS D-D



LOCATION OF NAME PLATE

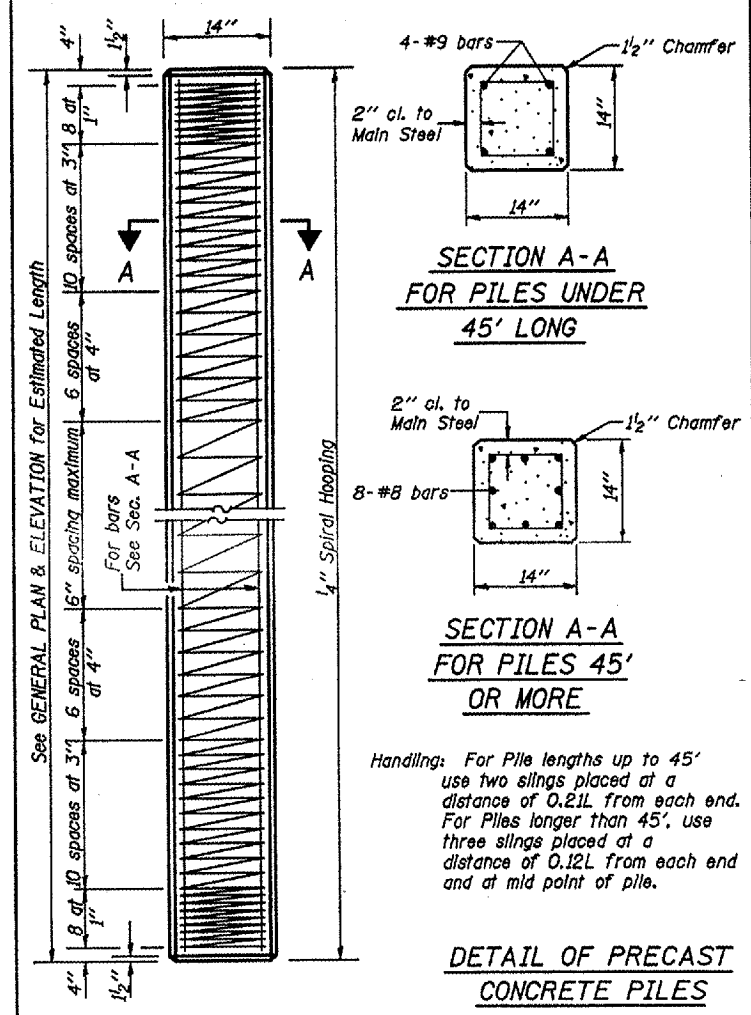
Illinois Department of Transportation
 PASSED APRIL 4, 2005
 Approved by: *Thomas J. ...*
 Engineer of Bridge Design
 APPROVED APRIL 4, 2005
 Approved by: *Ralph E. ...*
 Engineer of Bridges and Structures

NAME PLATE
 STANDARD CN

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 1	02-01176-00-BR	PULASKI	10	9
PROJECT NO. BROS-153(27)			CONTRACT NO. 99230	

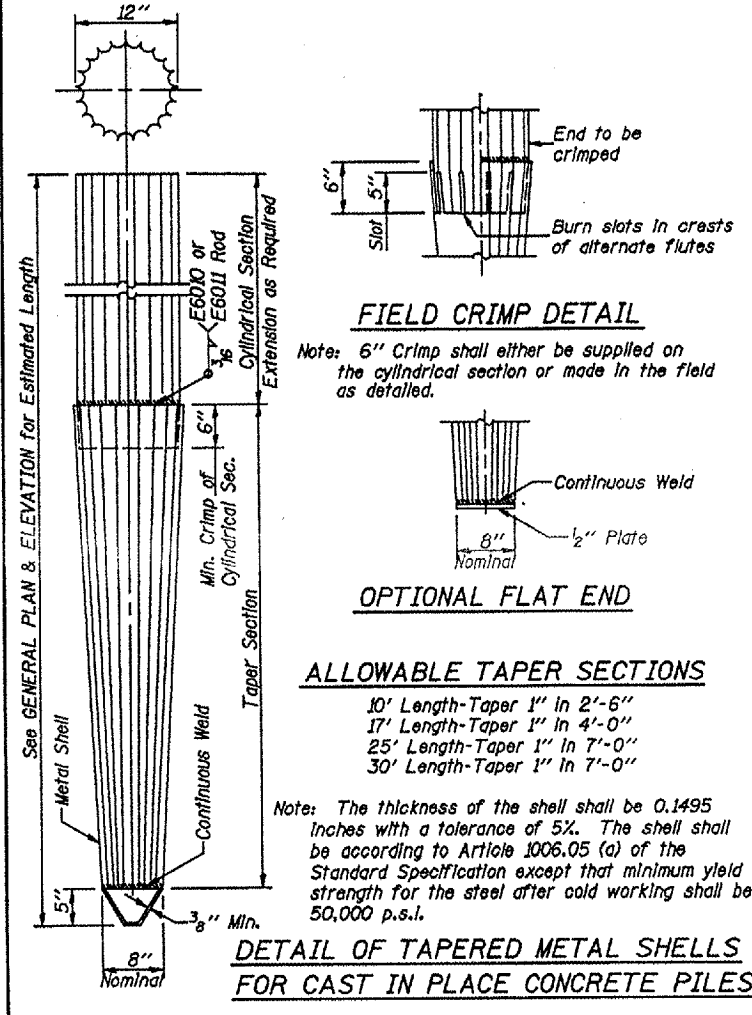
Reinforcement cage shall be omitted when Concrete Encasement is provided.

The cost of Reinforcement is included with the Cost of Furnishing Piles.

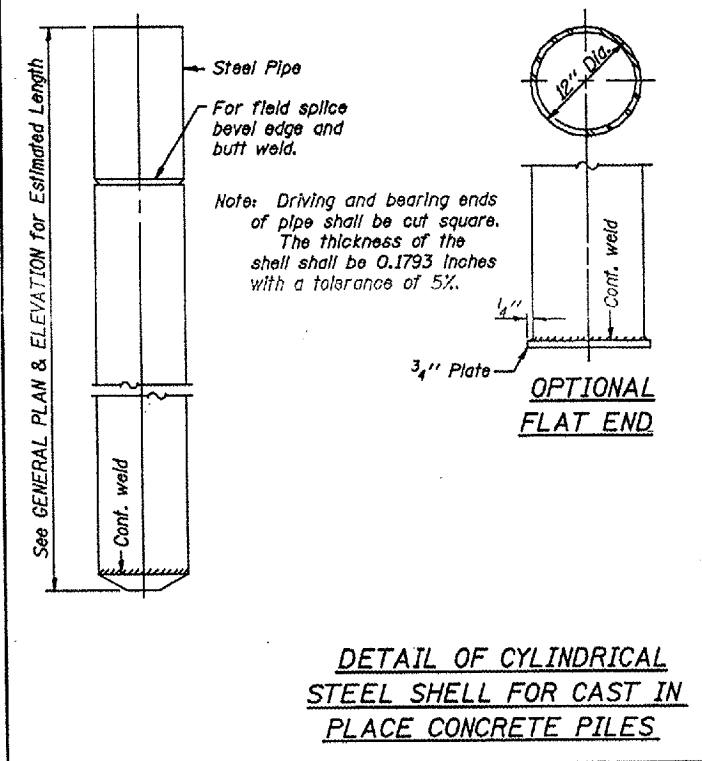


Handling: For Pile lengths up to 45' use two slings placed at a distance of 0.21L from each end. For Piles longer than 45', use three slings placed at a distance of 0.12L from each end and at mid point of pile.

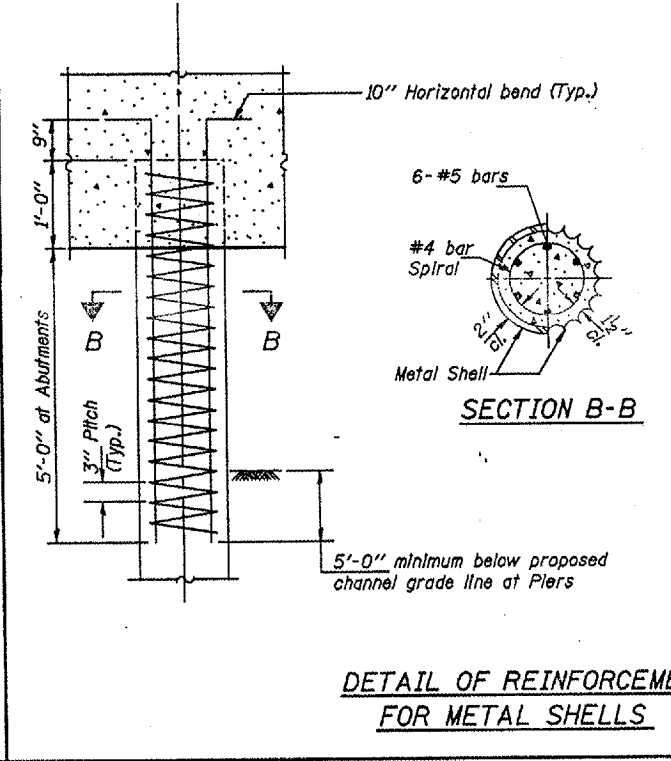
DETAIL OF PRECAST CONCRETE PILES



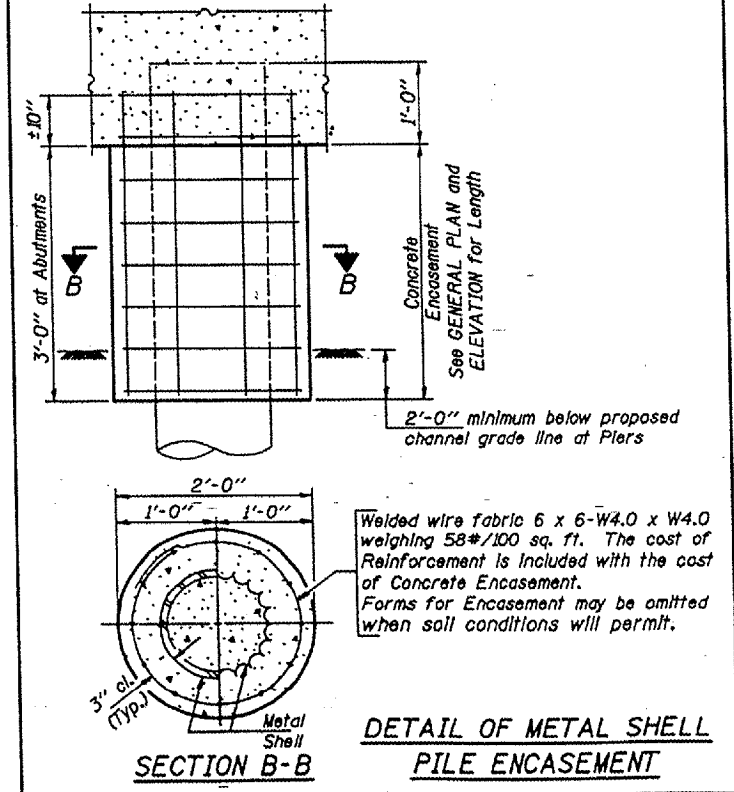
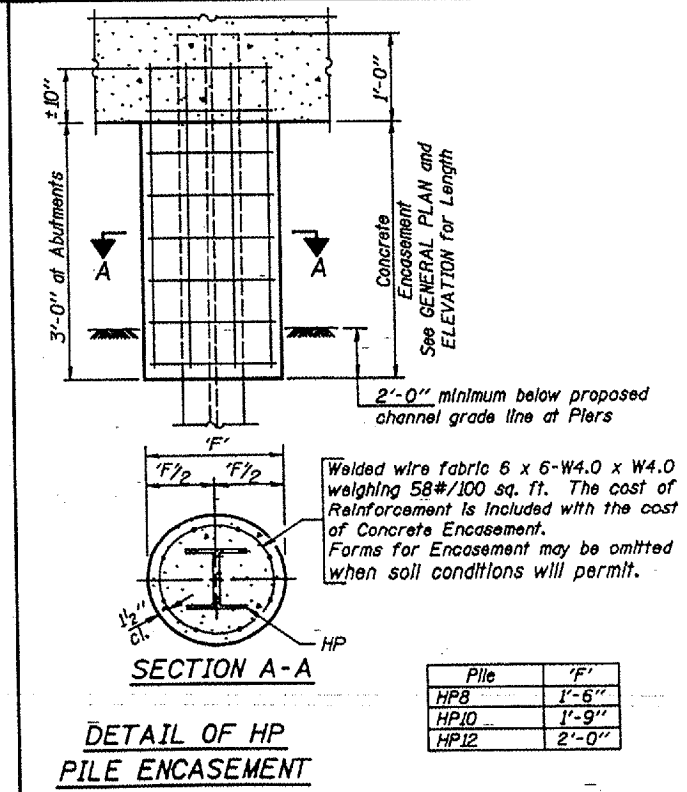
DETAIL OF TAPERED METAL SHELLS FOR CAST IN PLACE CONCRETE PILES



DETAIL OF CYLINDRICAL STEEL SHELL FOR CAST IN PLACE CONCRETE PILES



DETAIL OF REINFORCEMENT FOR METAL SHELLS



QUANTITIES/FT. OF ENCASEMENT (STEEL PILES)

Pile Size	Item	Quantity
HP8	Concrete Encasement	0.063 C.Y.
HP10	Concrete Encasement	0.086 C.Y.
HP12	Concrete Encasement	0.112 C.Y.

(METAL SHELL PILES)

Pile Size	Item	Quantity
12" Dia.	Concrete Encasement	0.087 C.Y.

Illinois Department of Transportation

PASSED FEBRUARY 1, 2000

Theresa D. Romagosa
Engineer of Bridge Design

APPROVED FEBRUARY 1, 2000

Ralph E. Anderson
Engineer of Bridges and Structures

PILE DETAILS

STANDARD CX-1

