

**INDEX TO SHEETS**

- 1 COVER SHEET & SUMMARY OF QUANTITIES
- 2-3 GENERAL NOTES & TYPICAL SECTIONS
- 4 PLAN AND PROFILE
- 5-11 BRIDGE PLANS
- 12-13 CROSS SECTIONS

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
PLANS FOR PROPOSED  
LOCAL AGENCY IMPROVEMENT  
T.R. 197 PRESS ROAD  
SECTION 03-18101-03-BR  
FED PROJECT NO. BROS-163(28)  
SMITHTON ROAD DISTRICT  
ST CLAIR COUNTY  
CONSTRUCTION JOB NO. C-98-317-07

SECTION NO.	ROAD DISTRICT	COUNTY	SHEET OF SHEETS
03-18101-03-BR	SMITHTON	ST. CLAIR	1 OF 13
FHWA REG. NO. 7 ILLINOIS		PROJECT BROS-163(28)	
FEDERAL AID PROJECT		CONTRACT #97306	

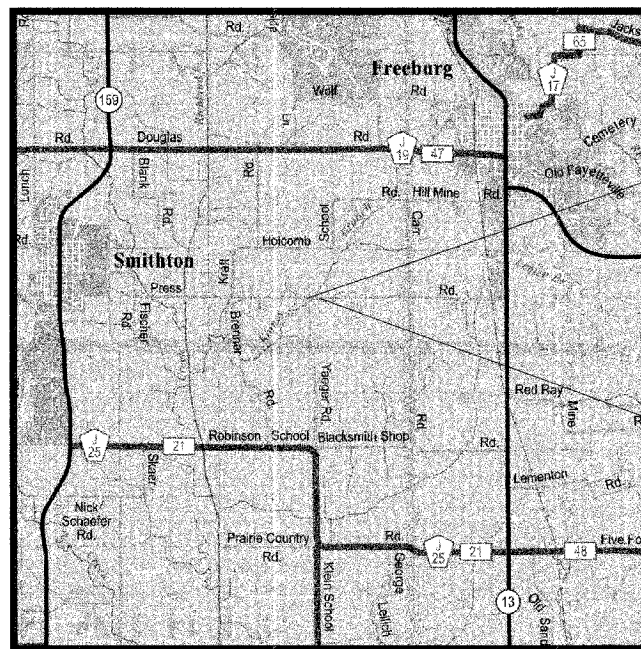
**SUMMARY OF QUANTITIES**

CODE NO.	ITEM	UNIT	QUANTITY
20200100	EARTH EXCAVATION	CU YD	53
20300100	CHANNEL EXCAVATION	CU YD	195
20400800	FURNISHED EXCAVATION	CU YD	902
25000200	SEEDING, CLASS 2	ACRE	0.4
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	36
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	36
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	36
25100115	MULCH, METHOD 2	ACRE	0.8
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	40
28000300	TEMPORARY DITCH CHECKS	EACH	1
28000400	PERIMETER EROSION BARRIER	FOOT	90
28100707	STONE DUMPED RIPRAP, CLASS A4	SQ YD	216
28200200	FILTER FABRIC	SQ YD	216
35100700	AGGREGATE BASE COURSE, TYPE A 8"	SQ YD	1175
40200500	AGGREGATE SURFACE COURSE, TYPE A 6"	SQ YD	157
40300100	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	648
40300300	BITUMINOUS MATERIALS (COVER AND SEAL COATS)	GALLON	1175
40300500	COVER COAT AGGREGATE	TON	15
40300600	SEAL COAT AGGREGATE	TON	15
40603315	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N70	TON	21.9
48101498	AGGREGATE SHOULDERS, TYPE B 4"	SQ YD	266
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	24.4
50300280	CONCRETE ENCASEMENT	CU YD	2.6
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1680
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	2960
50900205	STEEL RAILING, TYPE S1	FOOT	120
56300300	ADJUSTING WATER SERVICE LINES	FOOT	20
51201400	FURNISHING STEEL PILES HP10X42	FOOT	561
51202305	DRIVING PILES	FOOT	561
51203400	TEST PILE STEEL HP10X42	EACH	1
51204650	PILE SHOES	EACH	10
51500100	NAME PLATES	EACH	1
54200253	PIPE CULVERTS, CLASS D, TYPE 1, 48"	FOOT	15
58100200	WATERPROOFING MEMBRANE SYSTEM	SQ YD	186.7
58300100	PORTLAND CEMENT MORTAR FAIRING COURSE	FOOT	360
66700205	PERMANENT SURVEY MARKERS, TYPE I	EACH	2
67100100	MOBILIZATION	L SUM	1
70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1
Z0076600	TRAINEES	HOURL	500

\* :SPECIALTY ITEM  
Δ Y080

**UTILITIES**

AT&T ILLINOIS 203 GOETHE AVENUE COLLINSVILLE, IL 62234 618-346-6494	MONROE COUNTY ELECTRIC CO-OP P. O. BOX 128 WATERLOO, ILLINOIS 62298 TEL: (618) 939-7171	FSH WATER COMMISSION RR 1 FREEBURG, ILLINOIS 62243 TEL: (618) 539-3100
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**LOCATION MAP**

LENGTH OF STRUCTURE = 61.88 ft (0.012 mi)  
LENGTH OF ROADWAY = 538.12 ft (0.102 mi)  
TOTAL LENGTH OF PROJECT = 600 ft (0.114 mi)



SCALES	PLAN	1" = 30'
	PROFILE	HORZ 1" = 30'
		VERT 1" = 10'
	CROSS SECTIONS	HORZ 1" = 10'
VERT 1" = 10'		

SECTION 03-18101-03-BR  
BEGINS STATION 119+00

SECTION 03-18101-03-BR INCLUDES A  
SINGLE SPAN (60') PRECAST, PRESTRESSED  
CONCRETE DECK BRIDGE AT STA 121+83.50.

SECTION 03-18101-03-BR  
ENDS STATION 125+00

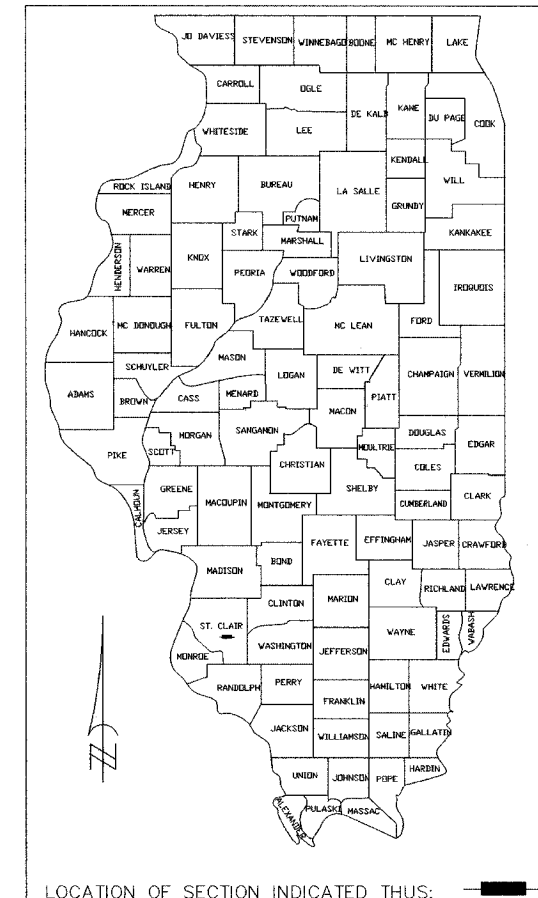
DESIGN DESIGNATION  
ROADWAY CLASSIFICATION : LOCAL ROAD  
BRIDGE CLASSIFICATION : LOCAL ROAD  
CURRENT ADT : 350  
DESIGN SPEED : 40 MPH  
DESIGN FREQUENCY : 20 YR.

Call Joint Utility Locating Information for Excavators  
(J.U.L.I.E.) before digging 800-892-0123

SMITHTON TOWNSHIP T.1S., R.8W.  
S.W. 1/4 OF THE N.W. 1/4 SECTION 36 &  
N.W. 1/4 OF THE S.W. 1/4 SECTION 36

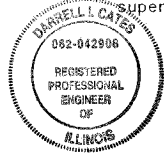
**STANDARDS**

000001-04	667101
280001-03	702001-06
406201	BLR 21-6
515001-02	



4/17, 2007

These plans were prepared by me or by a full-time member of my staff working under my personal supervision.



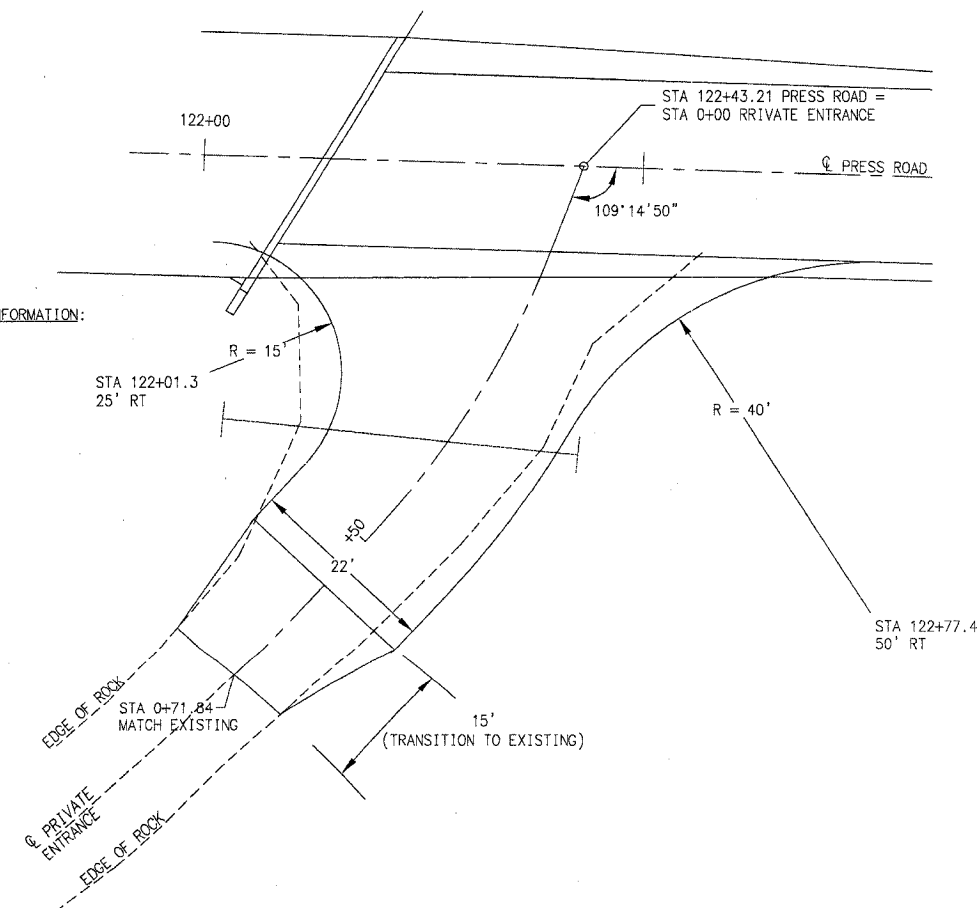
*Darrell I. Cates*  
DARRELL I. CATES, P.E.

County Engineer  
License Number 62-042908  
License Expiration Date: November 30, 2007

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	
APPROVED	<i>April 16, 2007</i> <i>Robert Davis</i> HIGHWAY COMMISSIONER
APPROVED	<i>4/17, 2007</i> <i>Darrell I. Cates</i> COUNTY ENGINEER
PASSED	<i>April 20, 2007</i> <i>Richard C. Mauchman</i> DISTRICT 8 ENGINEER OF LOCAL ROADS & STREETS
RELEASING FOR BID BASED ON LIMITED REVIEW	<i>April 20, 2007</i> <i>Mary C. Lomis</i> DEPUTY DIRECTOR OF HIGHWAYS, REGION 5 ENGINEER

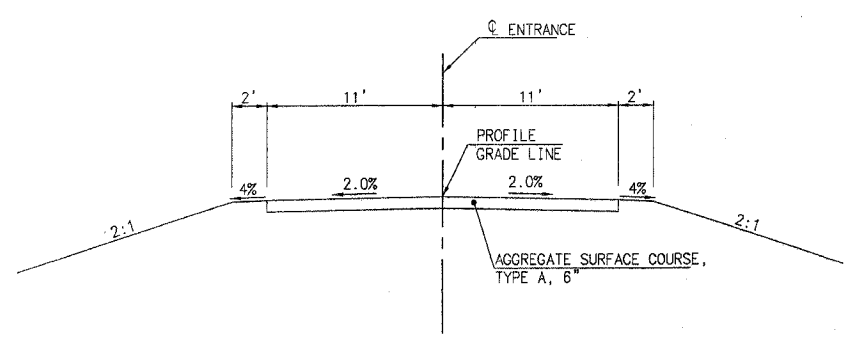


SECTION NO.	ROAD DISTRICT	COUNTY	SHEET OF SHEETS
03-18101-03-BR	SMITHTON	ST. CLAIR	3 OF 13
FHWA REG. NO.	ILLINOIS	PROJ BROS-163(28)	
FEDERAL AID PROJECT	CONTRACT #97306		

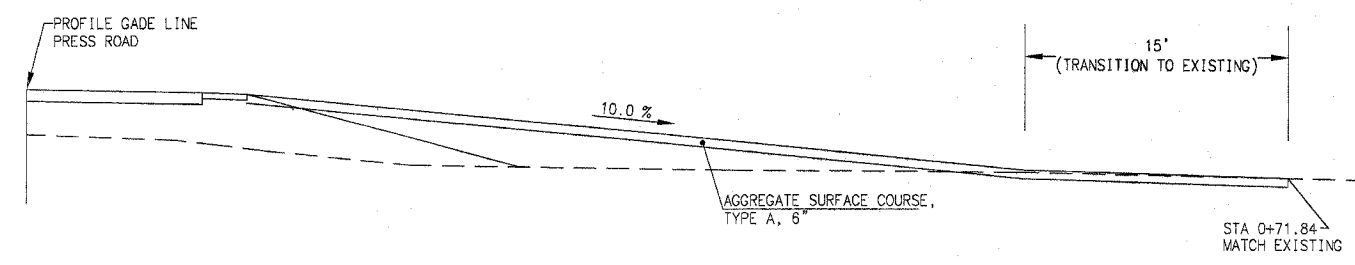


PRIVATE ENTRANCE CURVE INFORMATION:  
P.C. STA. 0+09.84  
L = 38.45 FT  
R = 100 FT  
DELTA = 22.03°  
P.T. STA. 0+48.29

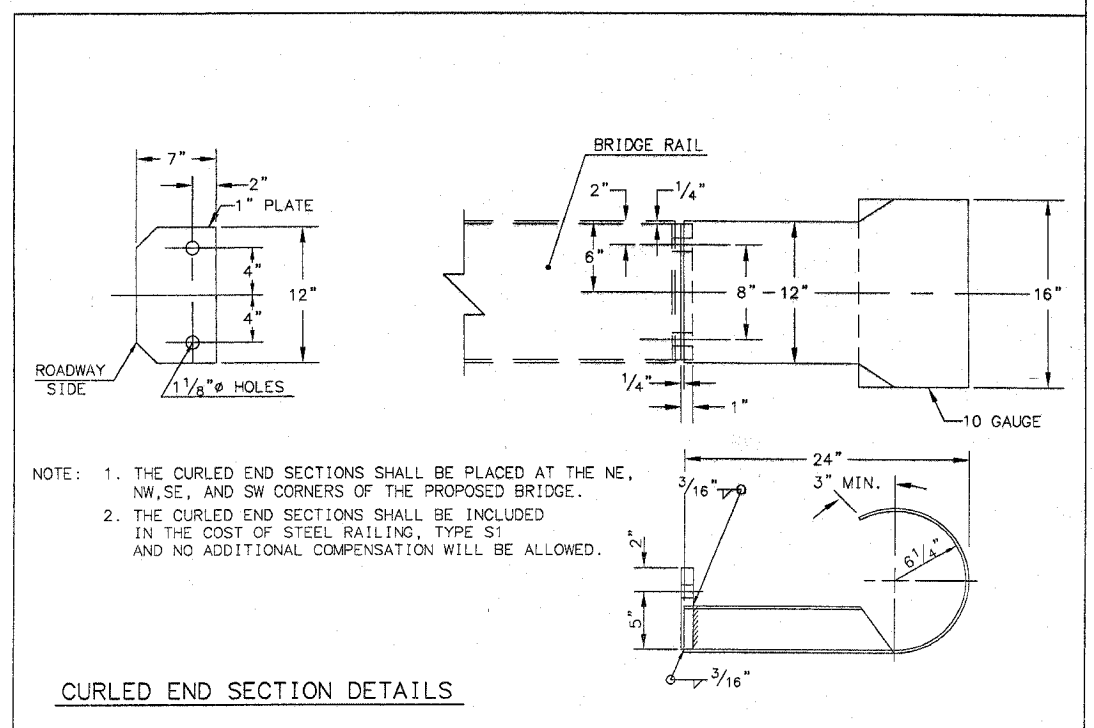
PROPOSED ENTRANCE DETAIL



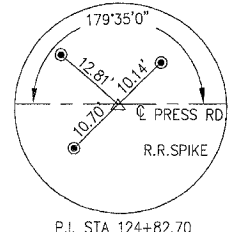
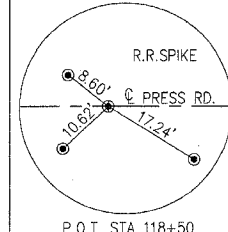
PROPOSED ENTRANCE TYPICAL SECTION  
STA 0+48.32 TO STA 0+56.84



PROPOSED ENTRANCE PROFILE

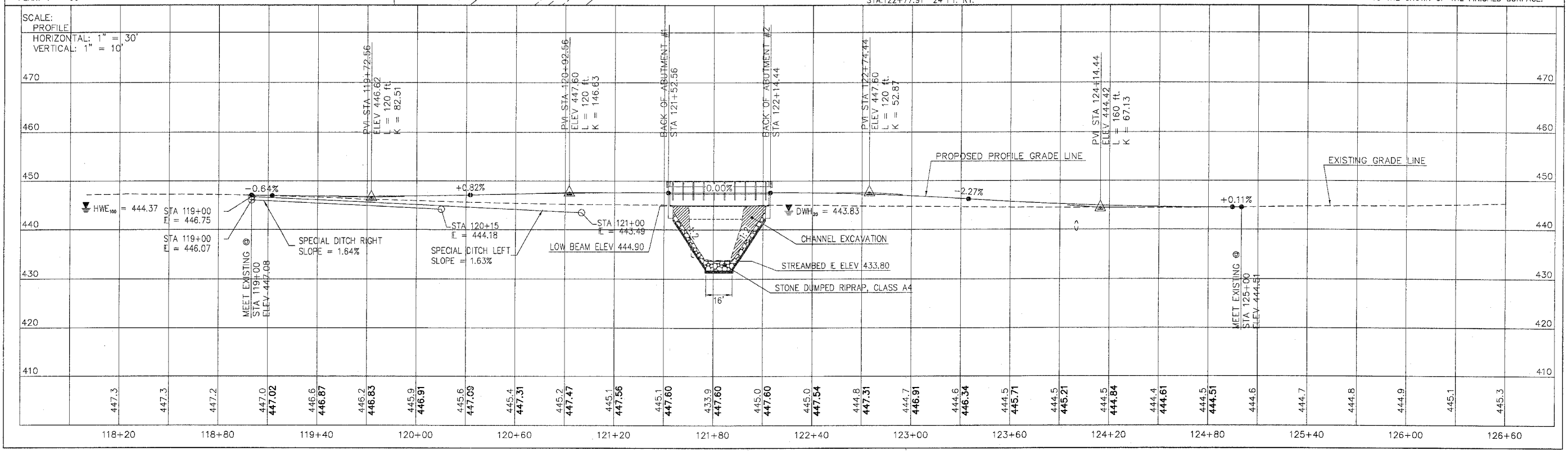
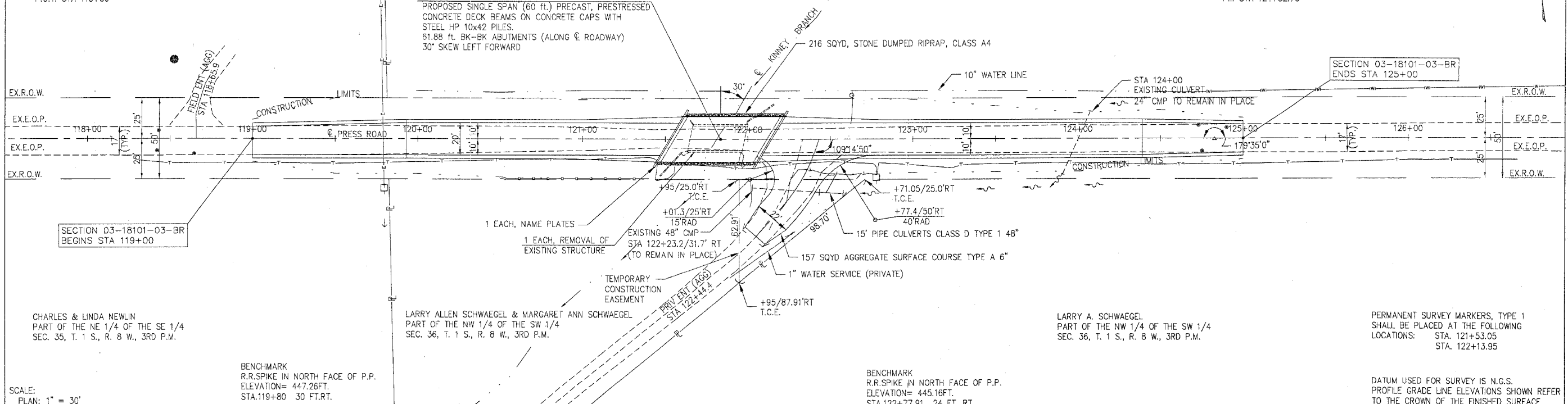


CURLED END SECTION DETAILS



SHARON A. LUEBBERS  
SW 1/4 OF THE NW 1/4  
SEC. 36, T. 1 S., R. 8 W., 3RD P.M.

SECTION NO.	ROAD DISTRICT	COUNTY	SHEET OF SHEETS
03-18101-03-BR	SMITHTON	ST. CLAIR	4 OF 13
FHWA REG. NO.	ILLINOIS	PROJ BROS-163(28)	
FEDERAL AID PROJECT	CONTRACT #97306		



SCALE:  
PLAN: 1" = 30'

BENCHMARK  
R.R. SPIKE IN NORTH FACE OF P.P.  
ELEVATION = 447.26 FT.  
STA. 119+80 30 FT. RT.

BENCHMARK  
R.R. SPIKE IN NORTH FACE OF P.P.  
ELEVATION = 445.16 FT.  
STA. 122+77.91 24 FT. RT.

PERMANENT SURVEY MARKERS, TYPE 1  
SHALL BE PLACED AT THE FOLLOWING  
LOCATIONS: STA. 121+53.05  
STA. 122+13.95

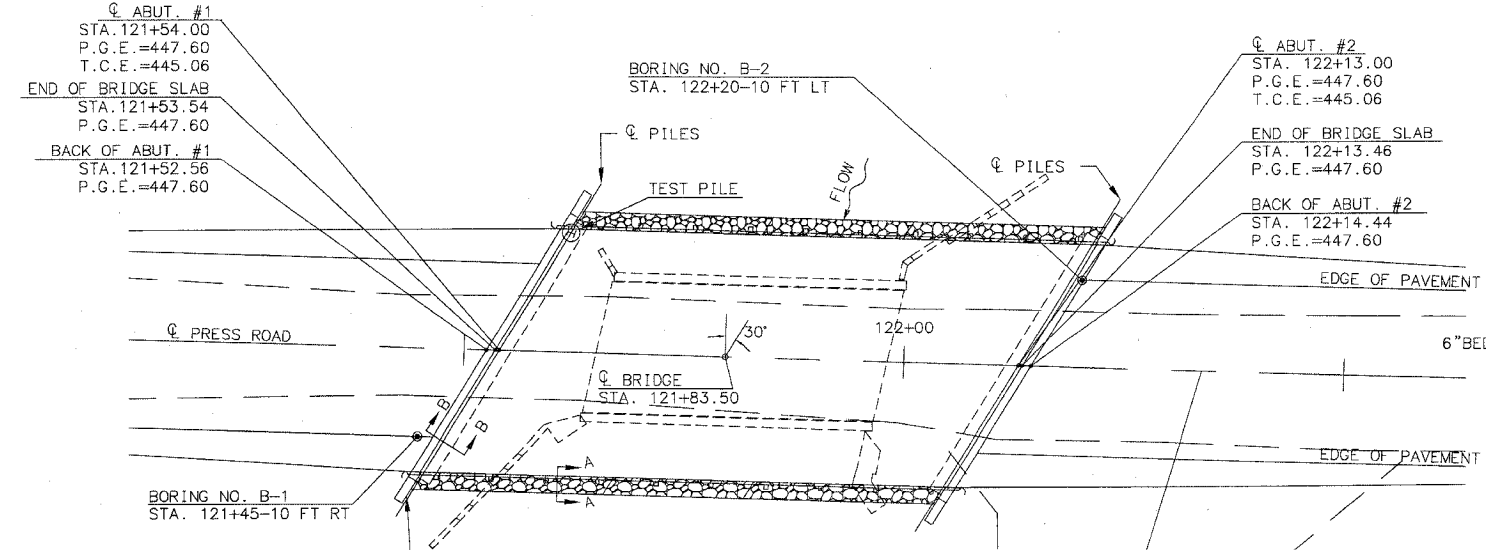
DATUM USED FOR SURVEY IS N.G.S.  
PROFILE GRADE LINE ELEVATIONS SHOWN REFER  
TO THE CROWN OF THE FINISHED SURFACE.

SECTION NO.	ROAD DISTRICT	COUNTY	SHEET OF SHEETS
03-18101-03-BR	SMITHTON	ST. CLAIR	5 OF 13
FHWA REG. NO.	ILLINOIS	PROJ BROS-163(28)	
FEDERAL AID PROJECT		CONTRACT #97306	

DIMENSIONS GIVEN ALONG  $\phi$  OF STRUCTURE.

EXISTING STRUCTURE (NO. 082-4061) IS A SINGLE SPAN (32') CAST IN PLACE CONCRETE DECK ON STEEL BEAMS STA 121+83.5 WITH A 12 DEGREE SKEW WITH CONCRETE DITCH CHECKS.

SALVAGE: ALL MATERIALS REQUIRED TO BE REMOVED WHICH ARE CONSIDERED SALVAGEABLE BY THE ENGINEER SHALL REMAIN THE PROPERTY OF THE ROAD DISTRICT. ALL OTHERS SHALL BE DISPOSED OF BY THE CONTRACTOR AT HIS OWN EXPENSE.



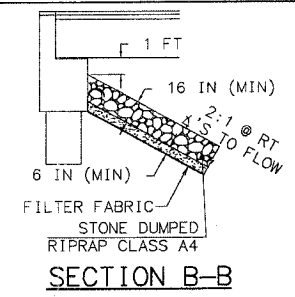
**PLAN**

SKEW ANGLE: 30' LEFT FORWARD

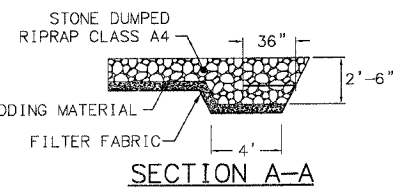
P.G.E. = PROFILE GRADE ELEVATION  
T.C.E. = TOP OF CAP ELEVATION

BENCHMARK  
R.R. SPIKE IN NORTH FACE OF POWERPOLE  
30' RT STA 119+80  
ELEV = 447.26 FT

BENCHMARK  
R.R. SPIKE IN NORTH FACE OF POWERPOLE  
24' RT STA 122+77.91  
ELEV = 445.16 FT



**SECTION B-B**



**SECTION A-A**

**GENERAL NOTES**

1. THE CONTRACTOR SHALL DRIVE TEST PILE(S) TO 110% OF THE NOMINAL REQUIRED BEARING SPECIFIED IN PRODUCTION LOCATIONS AT THE SUBSTRUCTURES SPECIFIED AS APPROVED BY THE ENGINEER BEFORE ORDERING THE REMAINDER OF THE PILES.
2. REFER TO THE SPECIAL PROVISIONS FOR BORING LOG INFORMATION.
3. A CORROSION INHIBITOR SHALL BE USED IN THE CONCRETE FOR THE PRECAST, PRESTRESSED CONCRETE DECK BEAMS, ACCORDING TO ARTICLE 1020.05(b) OF THE STANDARD SPECIFICATIONS.
4. RAILING SHALL BE IN ACCORDANCE WITH SECTION 509 OF THE STANDARD SPECIFICATIONS, EXCEPT AS NOTED ON THE PLANS, AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER FOOT FOR STEEL RAILING, TYPE S1 WHICH PRICE SHALL INCLUDE THE COST OF FURNISHING AND ERECTING.
5. REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706 GRADE 60 (1L MODIFIED). SEE SPECIAL PROVISIONS. THIS NOTE SUPERSEDES NOTES ON THE ABUTMENT SHEETS.
6. THE COST OF STRUCTURE EXCAVATION SHALL BE CONSIDERED INCLUDED IN THE COST OF CONCRETE STRUCTURES.
7. IN ADDITION TO ALL OTHER REQUIREMENTS OF SECTION 512 OF THE STANDARD SPECIFICATIONS, SPLICES FOR STEEL H PILES SHALL DEVELOP FULL CAPACITY OF THE STEEL'S CROSS SECTIONAL AREA OF THE PILE FOR TENSION, SHEAR AND BENDING FORCES. ONE APPROVED METHOD OF ACHIEVING THIS REQUIREMENT IS FULL PENETRATION BUTT WELDING OF THE ENTIRE CROSS SECTION. OTHER TYPES OF SPLICES MEETING THE FULL CAPACITY REQUIREMENT MAY BE ALLOWED SUBJECT TO THE APPROVAL OF THE ENGINEER. ANY PROPOSAL BY THE CONTRACTOR TO USE AN ALTERNATE SPLICE METHOD MUST INCLUDE ADEQUATE DOCUMENTATION DEMONSTRATING THAT THE FULL TENSION, SHEAR AND BENDING CAPACITIES WILL BE MET. APPROPRIATE WELDER QUALIFICATIONS WILL BE REQUIRED FOR THE POSITIONS AND PROCESSES USED IN SPLICING ALL PILES. NONDESTRUCTIVE TESTING OF COMPLETED WELDS WILL BE LIMITED TO VISUAL INSPECTION.

**TOTAL BILL OF MATERIALS (STRUCTURE)**

ITEM	UNIT	SUPER	SUB		TOTAL
			ABUTS.	PIERS	
CHANNEL EXCAVATION	CU YD				195
STONE DUMPED RIPRAP, CLASS A4	SQ YD				216
FILTER FABRIC	SQ YD				216
HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N70	TON	21.9			21.9
CONCRETE STRUCTURES	CU YD		24.4		24.4
PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1680			1680
REINFORCEMENT BARS, EPOXY COATED	POUND		2960		2960
STEEL RAILING, TYPE S1	FOOT	120			120
FURNISHING STEEL PILES HP 10x42	FOOT		561		561
DRIVING PILES	FOOT		561		561
TEST PILE STEEL HP 10x42	EACH		1		1
CONCRETE ENCASEMENT	CU YD		2.6		2.6
WATERPROOFING MEMBRANE SYSTEM	SQ YD	186.7			186.7
PORTLAND CEMENT MORTAR FAIRING COURSE	FOOT	360			360
REMOVAL OF EXISTING STRUCTURES	EACH				1
PILE SHOES	EACH		10		10
NAME PLATES	EACH				1

**DESIGN SPECIFICATIONS**

2003 AASHTO, HS-20 LOADING, LOAD FACTOR DESIGN  
ALLOW 25 PSF FOR FUTURE WEARING SURFACE

**SEISMIC DATA**

S.P.C. = B  
A = 0.120  
S = I/1.0

**INDEX OF SHEETS**

5. GENERAL PLAN & ELEVATION
6. P.P.C. DECK BEAM SUPERSTRUCTURE (60'-0" SPAN)
7. P.P.C. DECK BEAM DETAILS
8. P.P.C. DECK BEAMS PILE BENT ABUTMENT
9. STANDARD CR-TS1
10. STANDARD CN
11. STANDARD CX-1

**PILE DATA (2-ABUTMENTS)**

TYPE: HP 10x42 (W/ PILE SHOES)  
ALLOWABLE RESISTANCE: 111.6 KIPS PER PILE  
AVAILABLE:  
NOMINAL REQUIRED BEARING: 334.8 KIPS PER PILE  
ESTIMATED LENGTH: 64 FT (ABUTMENT #1)  
61 FT (ABUTMENT #2)  
NUMBER PRODUCTION PILES: 9  
NUMBER TEST PILES: 1

THE STEEL H-PILES SHALL BE ACCORDING TO AASHTO M270 GRADE 50.

**DESIGN STRESSES**

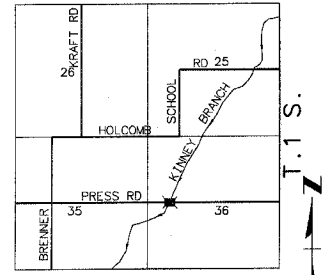
**FIELD UNITS**

f'c = 3500 psi fy = 60000 psi

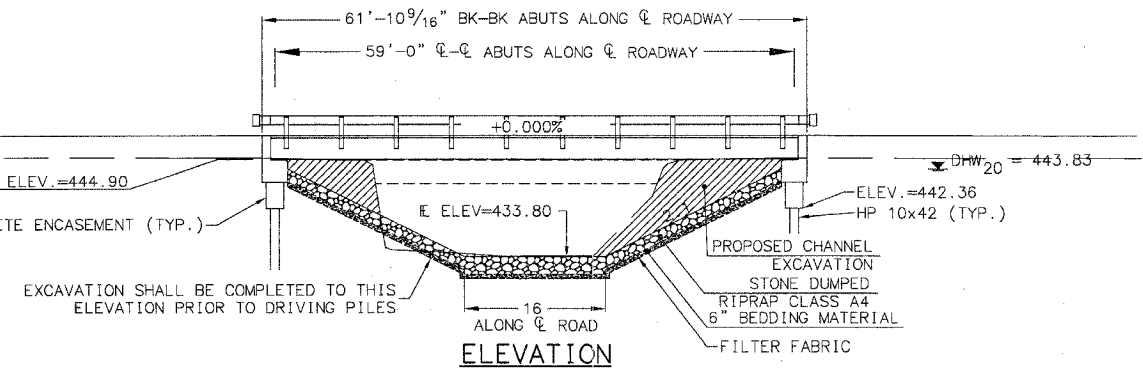
**PRECAST PRESTRESSED UNITS**

f'c = 5000 psi  
f'ci = 4000 psi  
f's = 270000 psi (1/2"  $\phi$  STRESSED RELIEVED STRANDS)  
f'si = 201,960 psi (1/2"  $\phi$  STRESSED RELIEVED STRANDS)  
fy = 60000 psi

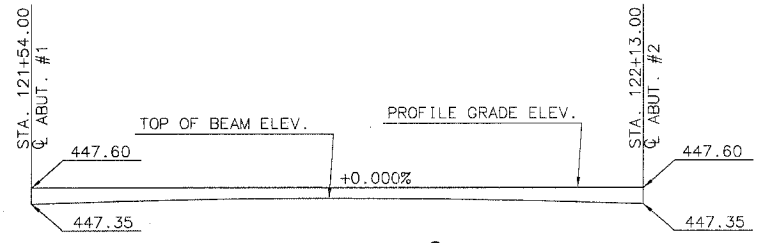
**R.8 W. 3rd PM**



**LOCATION SKETCH**



**ELEVATION**



**PROPOSED PROFILE ALONG  $\phi$  OF STRUCTURE**

**WATERWAY INFORMATION**

DRAINAGE AREA = 3.27 sq.mi. LOW RDWY. ELEV.=444.51 @ Sta. 124+86.80

FLOOD YR.	FREQ.	Q cfs	OPENING sq.ft.		NAT. H.W.E. ft	HEAD ft		HEADWATER ELEV. - ft	
			EXIST.	PROP.		EXIST.	PROP.	EXIST.	PROP.
DESIGN	20	1376	222.45	312.70	443.83	1.26	0.17	445.09	444.00
BASE	100	2080	222.45	338.94	444.37	1.23	0.97	445.60	445.34

KINNEY BRANCH  
BUILT 20\_\_ BY  
SMITHTON TOWNSHIP  
ST. CLAIR COUNTY  
SEC. 03-18101-03-BR  
STA. 121+83.50  
STR. NO. 082-4151 LOADING HS-20

**LETTERING FOR NAME PLATE**

LOCATE NAME PLATE AT S.W. WINGWALL CORNER OF BRIDGE (SEE STD. 515001)

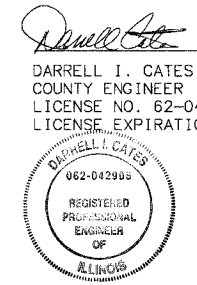
	INITIALS	DATE
DESIGNED	JLH	2006
CHECKED		
DRAWN	JLH	8/2006
CHECKED		

PREPARED BY ST. CLAIR COUNTY HIGHWAY DEPARTMENT

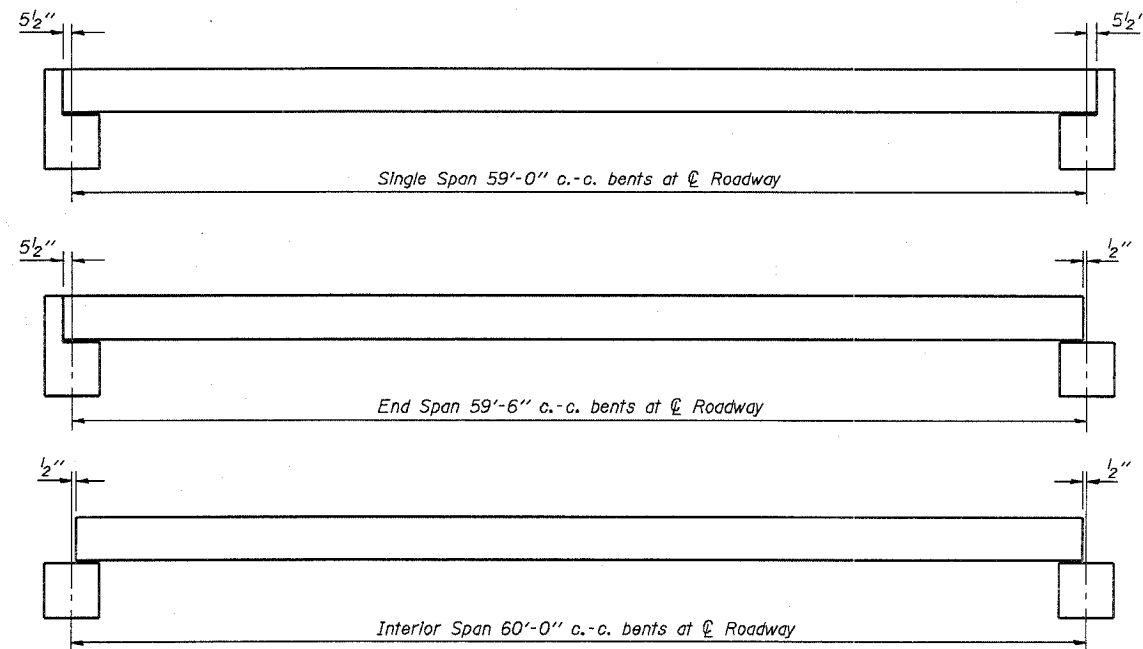
**GENERAL PLAN & ELEVATION**

T.R. 197  
KINNEY BRANCH  
SECTION 03-18101-03-BR  
ST. CLAIR COUNTY  
STATION 121+83.50  
S.N. 082-4151

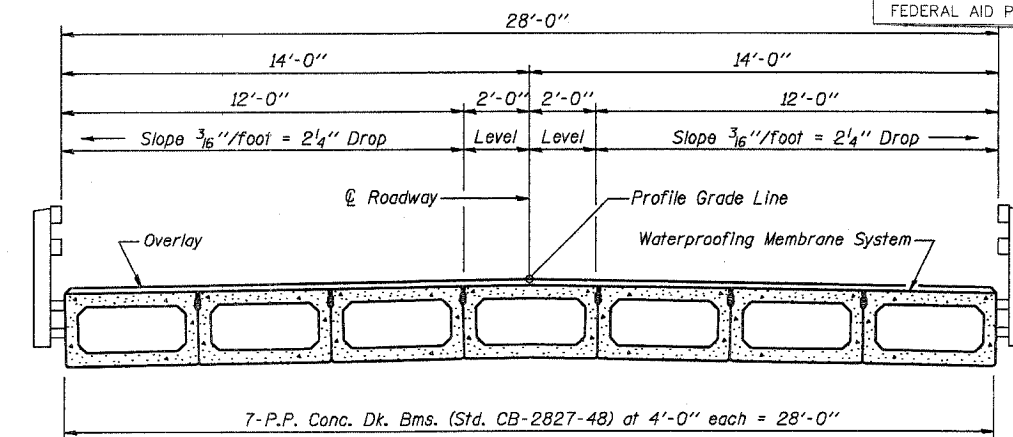
THE STANDARD DETAIL SHEETS FOR THIS STRUCTURE WERE ASSEMBLED BY ME OR PERSONS UNDER MY DIRECT SUPERVISION.



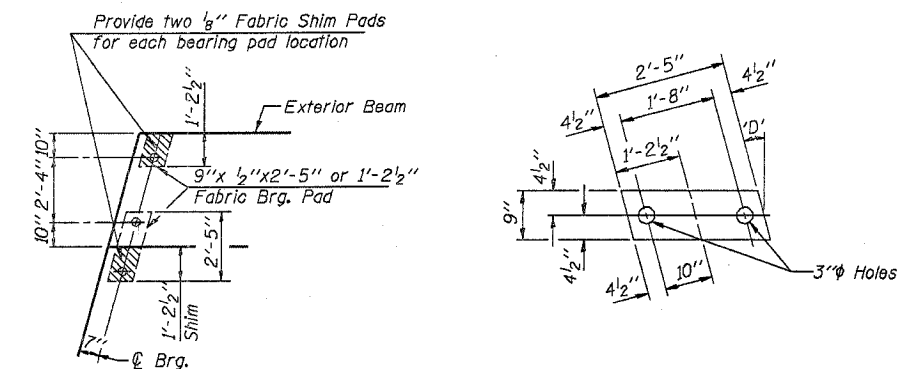
DARRELL I. CATES, P.E.  
COUNTY ENGINEER  
LICENSE NO. 62-042908  
LICENSE EXPIRATION DATE: NOVEMBER 30, 2007



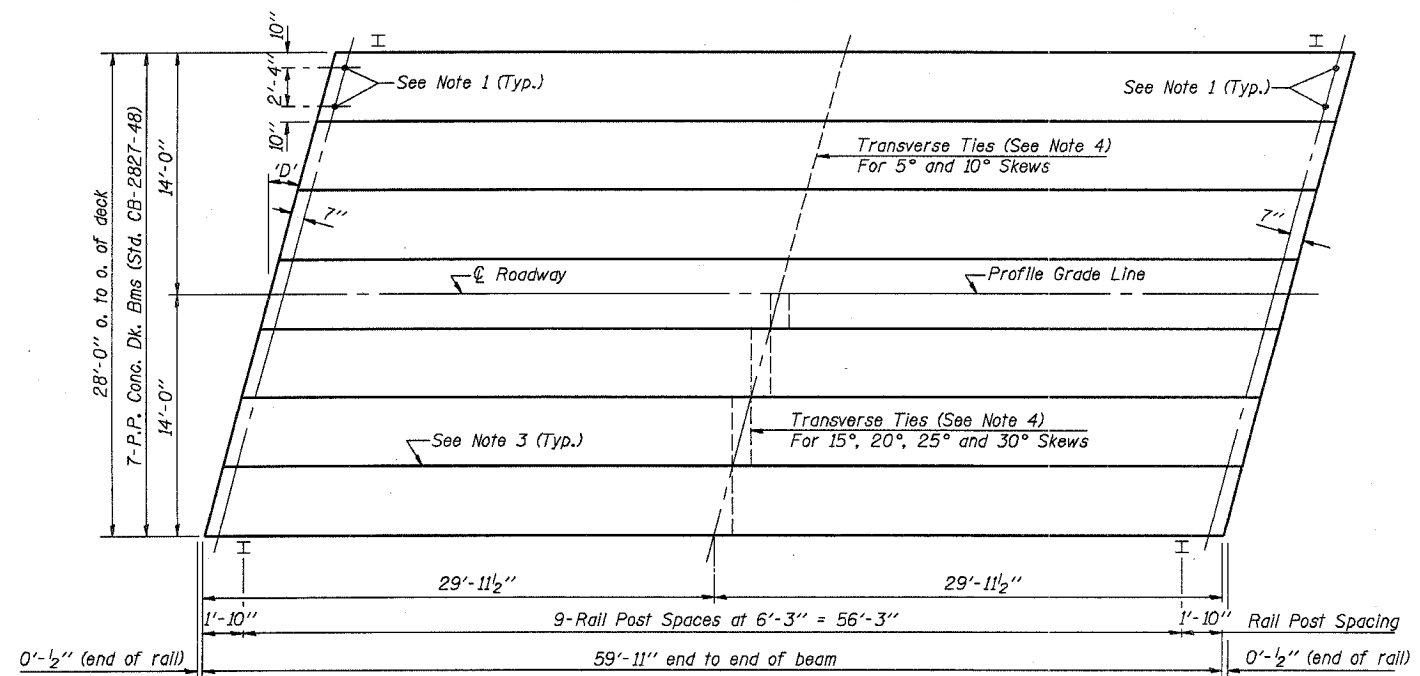
TYPICAL ELEVATIONS



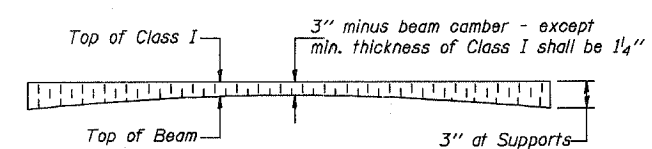
CROSS SECTION



1/2" FABRIC BRG. PAD DETAILS



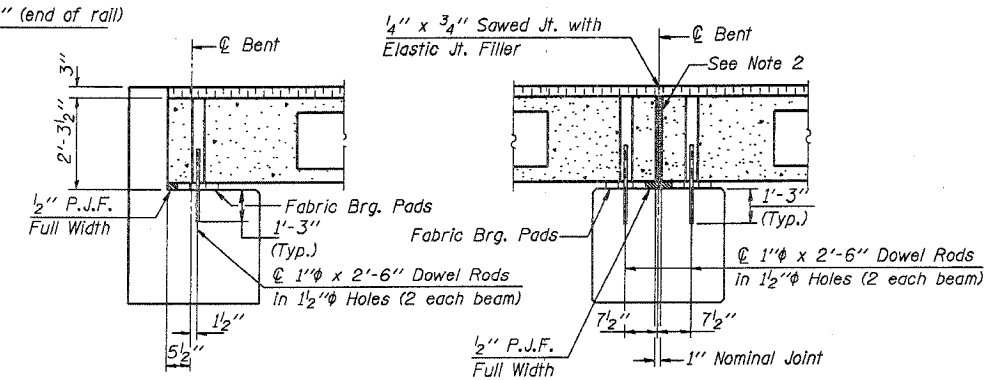
PLAN  
(D' = Designated Skew Angle)



PROFILE OF OVERLAY

DIMENSIONS 'A' AND 'B'

D'	5°	10°	15°	20°	25°	30°
A	1 1/2"	1 5/8"	1 3/4"	1 7/8"	2 1/4"	2 5/8"
B	7 1/2"	7 5/8"	7 3/4"	8"	8 1/4"	8 5/8"



SECTION AT ABUTS.  
(Along Roadway)

SECTION AT PIERS  
(Along Roadway)

QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 27" Dp.	1680 Sq. Ft.
Steel Railing	120 Ft.
Waterproofing Membrane System	186.7 Sq. Yds.
Portland Cement Mortar	
Fairing Course	360 Ft.

Note: Quantity of overlay for one span = 21.9 Tons

P.P.C. DECK BEAM SUPERSTRUCTURE			
28' RDWY.	27' BMS.	60' SPAN	LEFT
STANDARD CS-2827-60L			

NOTES

- 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 min. 24 hrs. prior to grouting the shear keys.
- Nominal 1" joint at Pier shall be filled with non-shrink grout.
- Longitudinal keys shall be grouted.
- 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 outside shall be filled with grout after transverse tie assembly is in place.

Illinois Department of Transportation

PASSED APRIL 4, 2005

Thomas S. [Signature]

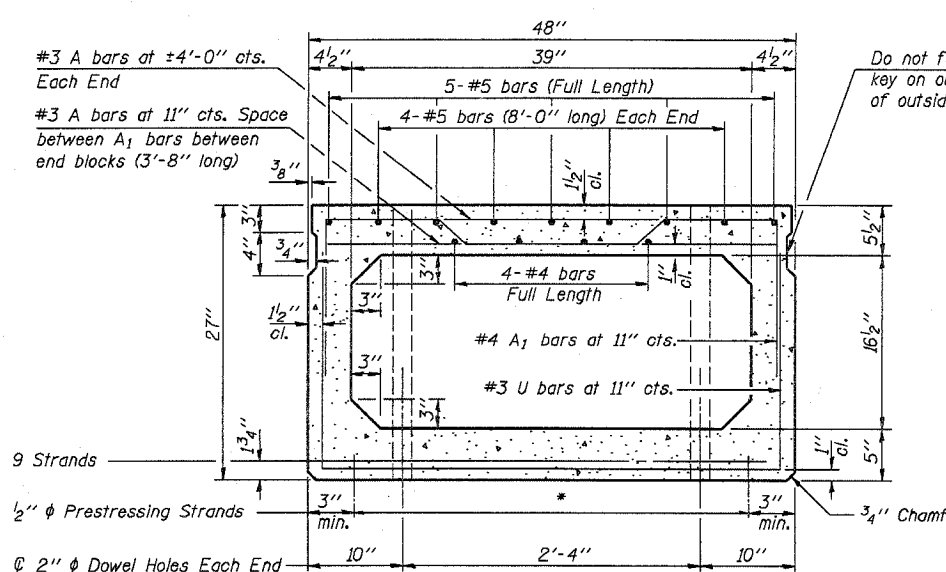
Engineer of Bridge Design

APPROVED APRIL 4, 2005

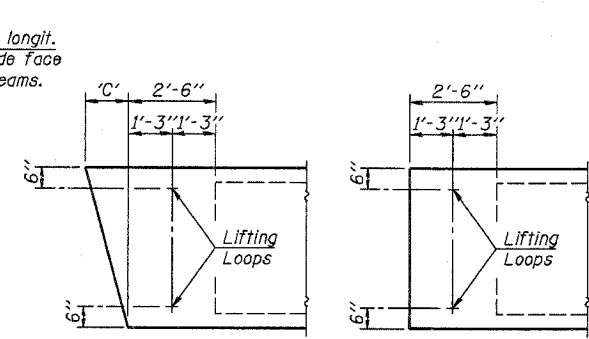
Ralph E. [Signature]

Engineer of Bridges and Structures

SECTION NO.	ROAD DISTRICT	COUNTY	SHEET OF SHEETS
03-18101-03-BR	SMITHTON	ST. CLAIR	7 OF 13
FHWA REG. NO.	ILLINOIS	PROJ BROS-163(28)	
FEDERAL AID PROJECT	CONTRACT #97306		

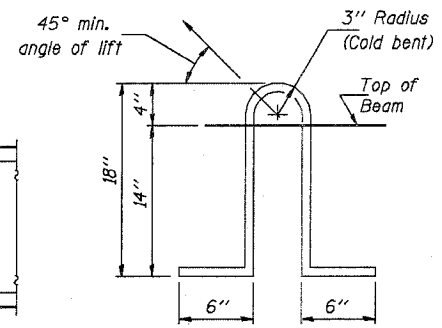


**CROSS SECTION**  
(40' SPAN)



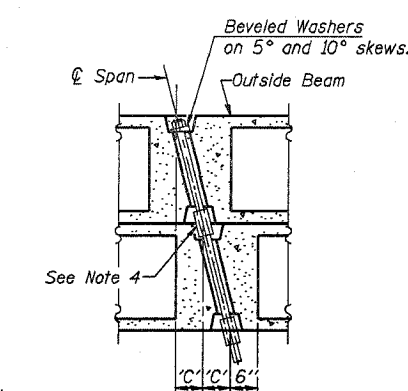
**END BLOCK DETAILS**

Each beam shall have four Lifting Loops, two at each end of beam cast in locations shown above. Loops shall be burned off after beams have been erected.

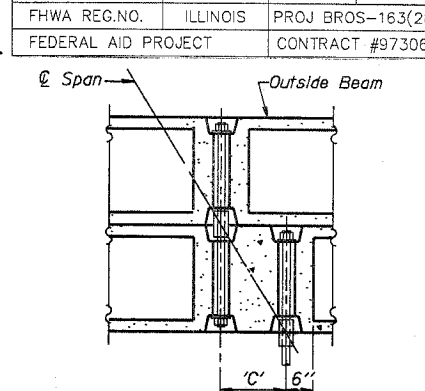


**LIFTING LOOP DETAIL**

Lifting loops shall be 3/2" φ-270 ksi strands, as shown. Alternate approved lifting devices are also acceptable.



**PARTIAL PLAN TRANSVERSE TIE ASSEMBLY**  
(D=0°, 5° and 10°)



**PARTIAL PLAN TRANSVERSE TIE ASSEMBLY**  
(D=15°, 20°, 25° and 30°)

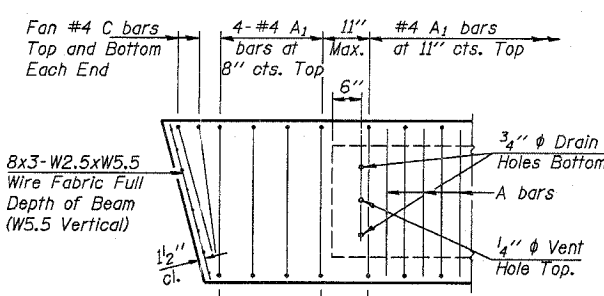
**DIMENSION 'C'**

Skew Angle 'D'	0°	5°	10°	15°	20°	25°	30°
Dimension 'C' (Inches)	0	4 1/4	8 1/2	12 7/8	17 1/2	22 3/8	27 3/4

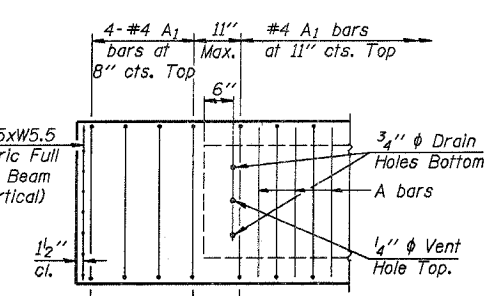
**\* TRANSVERSE STRAND PLACEMENT GUIDELINES**

1. Place strands symmetrically about centerline of beam.
2. The minimum distance from center to center of strands in all directions shall be 2".
3. The minimum clearance from strand to dowel hole shall be 1/2".
4. The minimum clearance from strand to void shall be 1 1/2".

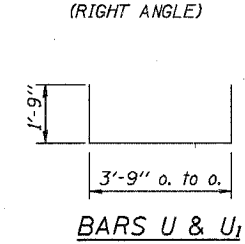
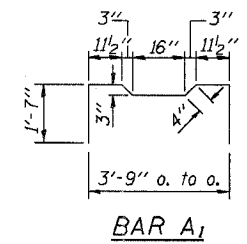
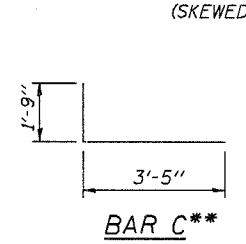
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



**END REINFORCEMENT**  
(SKEWED)



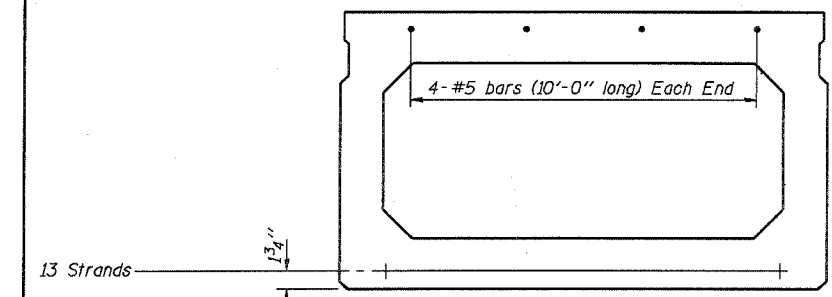
**END REINFORCEMENT**  
(RIGHT ANGLE)



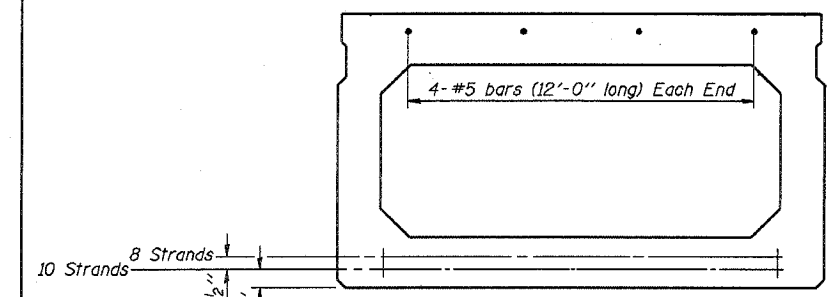
**DESIGN STRESSES**

$f'_c = 5,000$  p.s.i.  
 $f'_a = 4,000$  p.s.i.  
 $f'_s = 270,000$  p.s.i. (1/2" φ Strand)  
 $f_{sl} = 201,960$  p.s.i. (1/2" φ Strand)  
 $f_y = 60,000$  p.s.i.

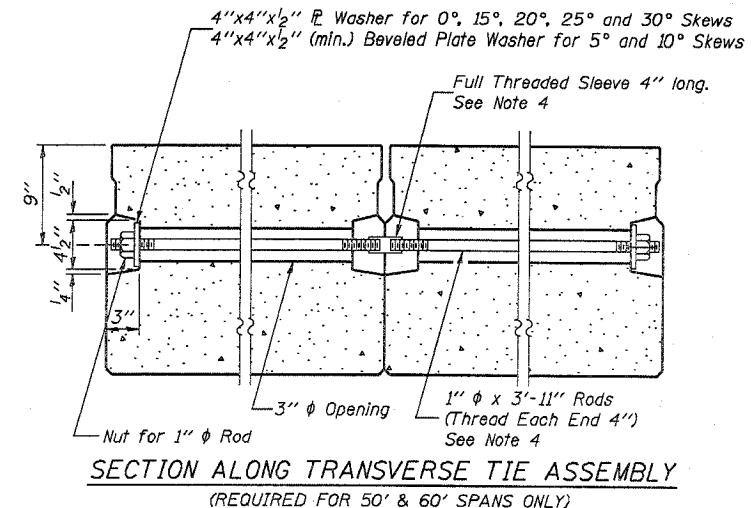
**MIN. BAR LAP**  
 #4 bars = 1'-4"  
 #5 bars = 1'-8"



**CROSS SECTION**  
(50' SPAN)



**CROSS SECTION**  
(60' SPAN)



**SECTION ALONG TRANSVERSE TIE ASSEMBLY**  
(REQUIRED FOR 50' & 60' SPANS ONLY)

**NOTES**

1. Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270.
2. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 square inches.
3. Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-322, Grade 60.
4. On 0°, 5° and 10° skew angles, alternate approved transverse tie rods of increased segmental length are acceptable.
5. Rail Post anchor devices shall be cast into outside beam as elsewhere specified.
6. When a Waterproofing Membrane System is specified, the top surface of the beams shall be screeded with a straightedge and finished with a hand float. 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 minimum of 1/4".
7. 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.

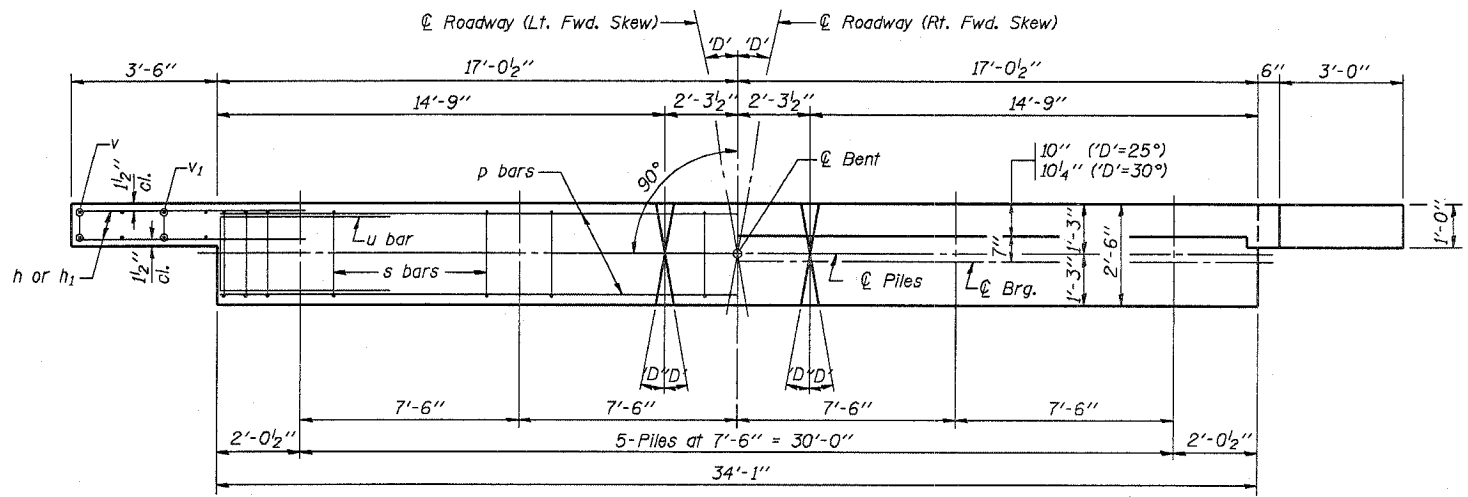
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 PASSED APRIL 4, 2005  
 Thomas J. Noman  
 Engineer of Bridge Design  
 APPROVED APRIL 4, 2005  
 Ralph E. Anderson  
 Engineer of Bridges and Structures

**NOTE**  
 The std. reinf. and dimensions shown on the 40' span cross section is typical for all spans, except as shown.

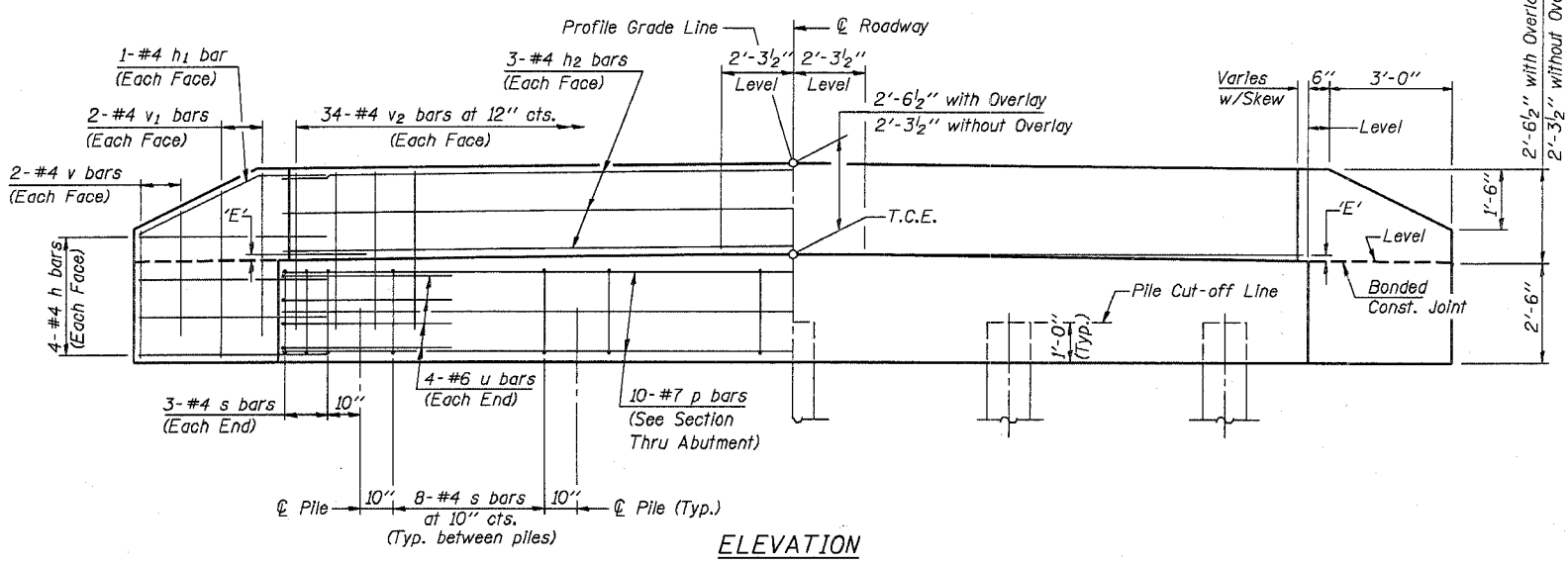
**\*\*NOTE:**  
 The following number of C bars shall be used:  
 Skew No.  
 5° and 10° — 1  
 15° and 20° — 2  
 25° and 30° — 3

**P.P.C. DECK BEAM DETAILS**  
 28' ROADWAY | 27" x 48" BEAMS  
 STANDARD CB-2827-48

SECTION NO.	ROAD DISTRICT	COUNTY	SHEET OF SHEETS
03-18101-03-BR	SMITHTON	ST. CLAIR	8 OF 13
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FEDERAL AID PROJECT		CONTRACT #97306	



**PLAN**  
(D'=Designated Skew Angle)



**ELEVATION**

**DIMENSION 'E'**

GRADE	'D'=25°		'D'=30°	
	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END
0%	2 1/2"	2 1/2"	2 3/8"	2 3/8"
Over 0% to 1%	2 1/8"	2 7/8"	2"	2 7/8"
Over 1% to 2%	1 3/8"	3 5/8"	1"	3 3/4"
Over 2% to 3%	5/8"	4 3/8"	1/2"	4 5/8"
Over 3% to 4%	0"	5/8"		

**NOTES**

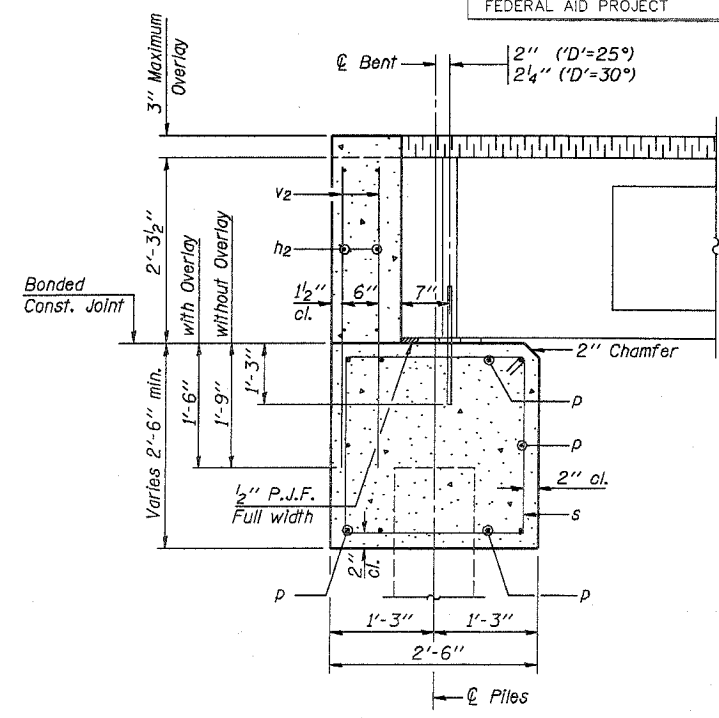
- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
- Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M-322, Grade 60.
- Space reinforcement in cap to miss anchor bolts.

**MAXIMUM PILE LOADS**

SPAN	TONS
40'	29
50'	33
60'	37

**DESIGN STRESSES**

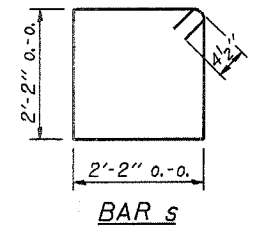
f'c = 3,500 psi  
fy = 60,000 psi



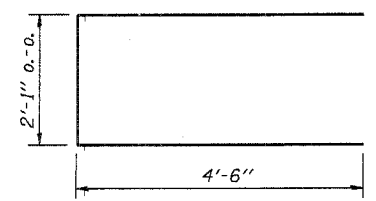
**SECTION THRU ABUTMENT**  
(At Right Angles)

**BAR LIST FOR ONE ABUTMENT**

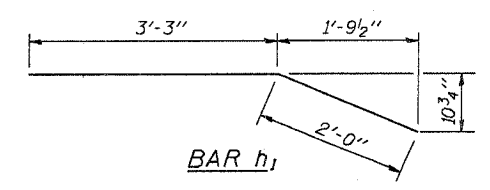
Bar	No.	Size	Length	Shape
h	16	#4	5'-0"	—
h1	4	#4	5'-3"	—
h2	6	#4	33'-9"	—
p	10	#7	33'-9"	—
s	38	#4	9'-5"	□
u	8	#6	11'-1"	—
v	8	#4	3'-2"	—
v1	8	#4	4'-2"	—
v2	68	#4	3'-11"	—
Concrete Structures			12.2 Cu. Yds.	
Reinforcement Bars			1480 Lb.	



**BAR s**



**BAR u**



**BAR h1**

P.P.C. DECK BEAMS		
PILE BENT ABUTMENT		
28' RDWY.	27" BMS.	'D'=25° OR 30°
STANDARD CA-2827-30		

Illinois Department of Transportation  
 PASSED APRIL 4, 2005  
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 APPROVED APRIL 4, 2005  
 Ralph E. Anderson  
 Engineer of Bridges and Structures



**NOTES**

Hollow structural steel tubing shall conform to the requirements of ASTM designation A500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN 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.

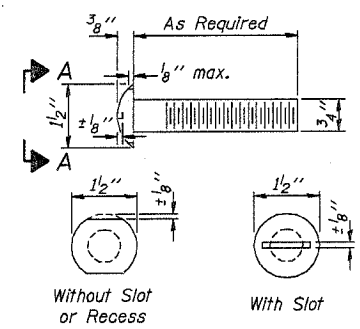
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with STEEL RAILING, TYPE S-1.

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

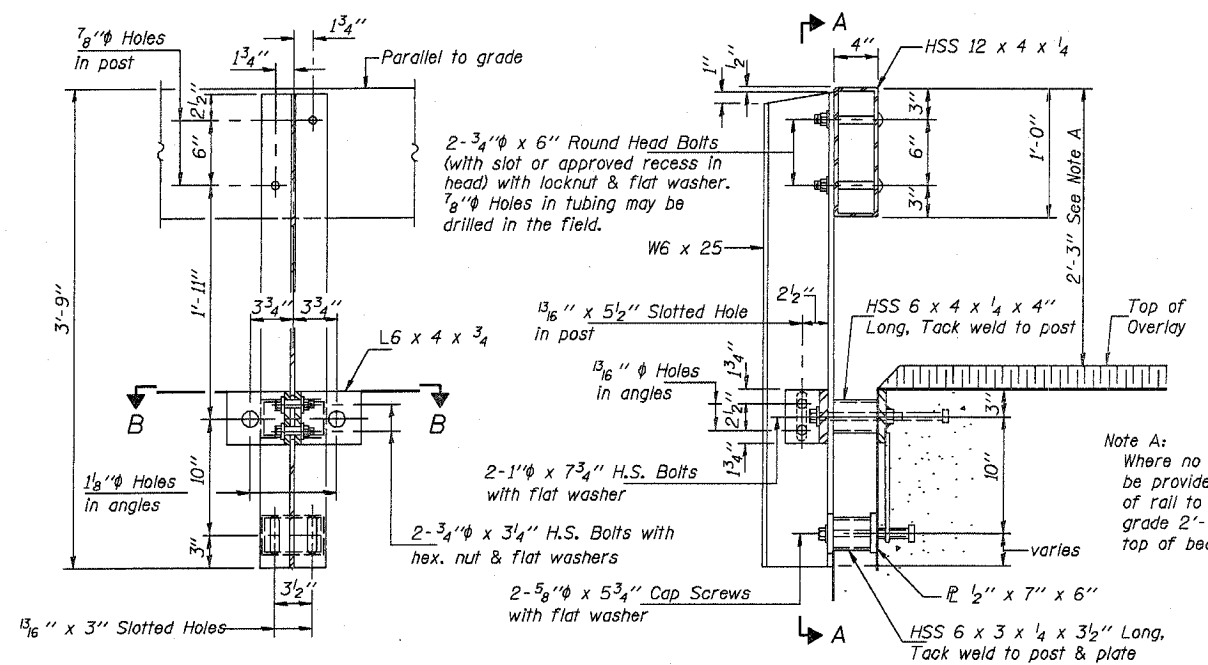
The 1/2" x 7" x 6" plates that come in contact with concrete shall either receive two coats of asphalt paint conforming to Section 1060.07 Type II, or 1/8" fabric bearing pads shall be placed between the plates and concrete.

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 (f)(2) 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.

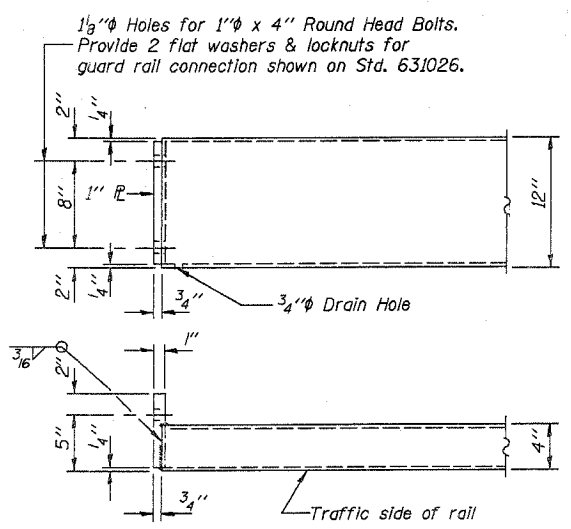


**VIEW A-A  
ROUND HEAD BOLT**

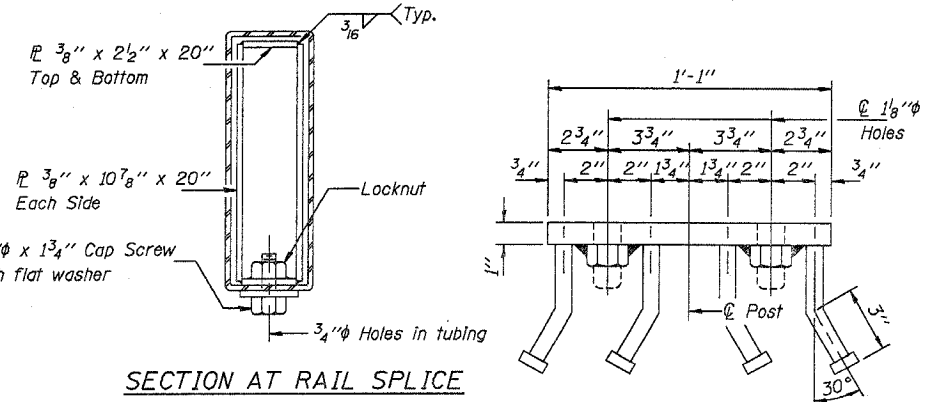


**SECTION A-A**

**SECTION AT RAIL POST**

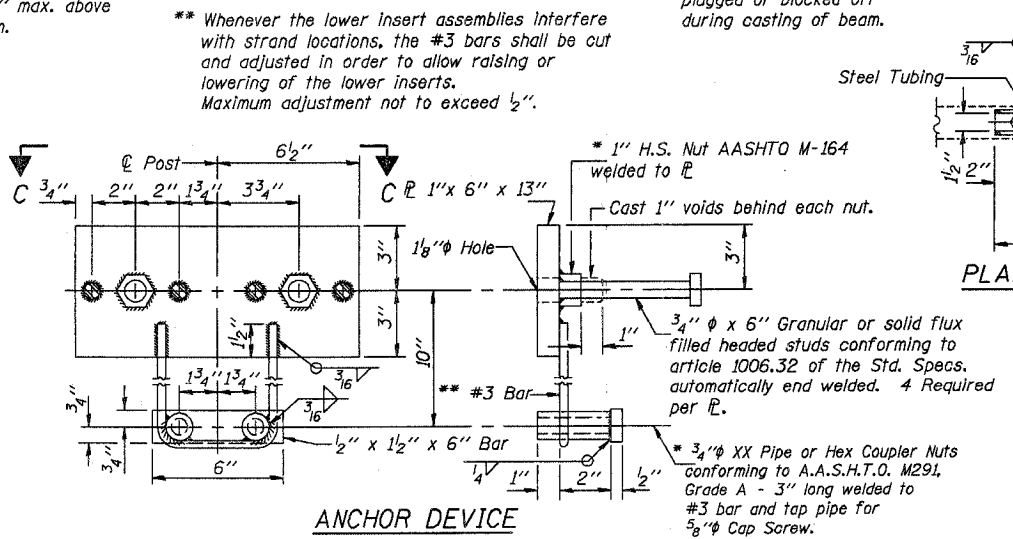


**END OF RAIL DETAILS**

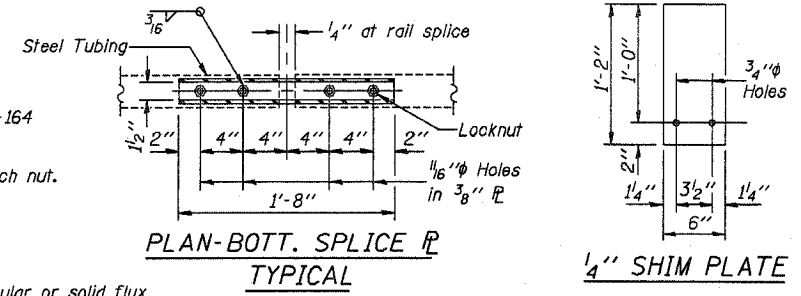


**SECTION AT RAIL SPLICE**

**VIEW C-C**



**ANCHOR DEVICE**



**PLAN-BOTT. SPLICE TYPICAL**

**1/4\"/>**

**Note A:**  
Where no overlay is to be provided, adjust top of rail to lay parallel to grade 2'-5" max. above top of beam.

\*\* 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".

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

\* 1" H.S. Nut AASHTO M-164 welded to R.  
Cast 1" voids behind each nut.

\* 3/4" XX Pipe or Hex Coupler Nuts conforming to A.A.S.H.T.O. M291, Grade A - 3" long welded to #3 bar and top pipe for 5/8" Cap Screw.

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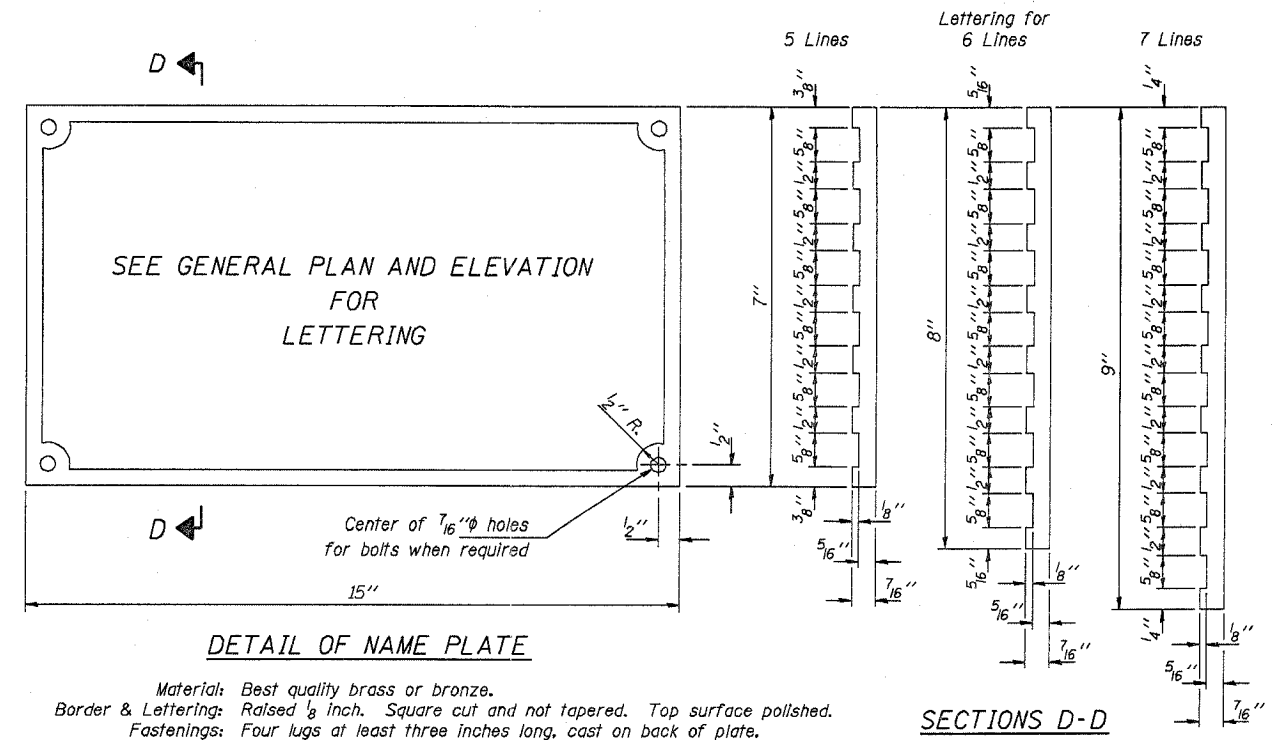
PASSED APRIL 4, 2005  
*Thomas Namagalki*  
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APPROVED APRIL 4, 2005  
*Ralph E. Anderson*  
 Engineer of Bridges and Structures

15081-1-1 03/05

**STEEL RAILING, TYPE S-1  
STANDARD CR-TS1**

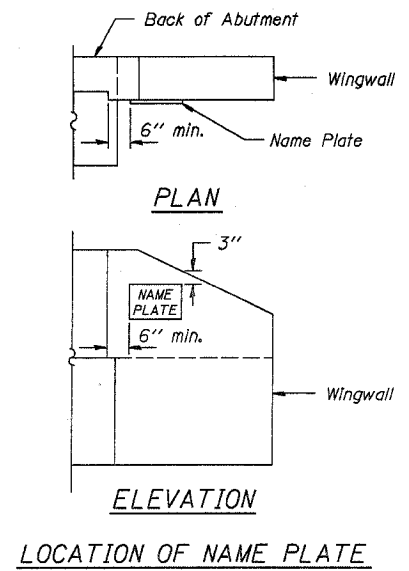
SECTION NO.	ROAD DISTRICT	COUNTY	SHEET OF SHEETS
03-18101-03-BR	SMITHTON	ST. CLAIR	10 OF 13
FHWA REG. NO.	ILLINOIS	PROJ BROS-163(28)	
FEDERAL AID PROJECT		CONTRACT #97306	



**DETAIL OF NAME PLATE**

Material: Best quality brass or bronze.  
 Border & Lettering: Raised  $\frac{1}{8}$  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

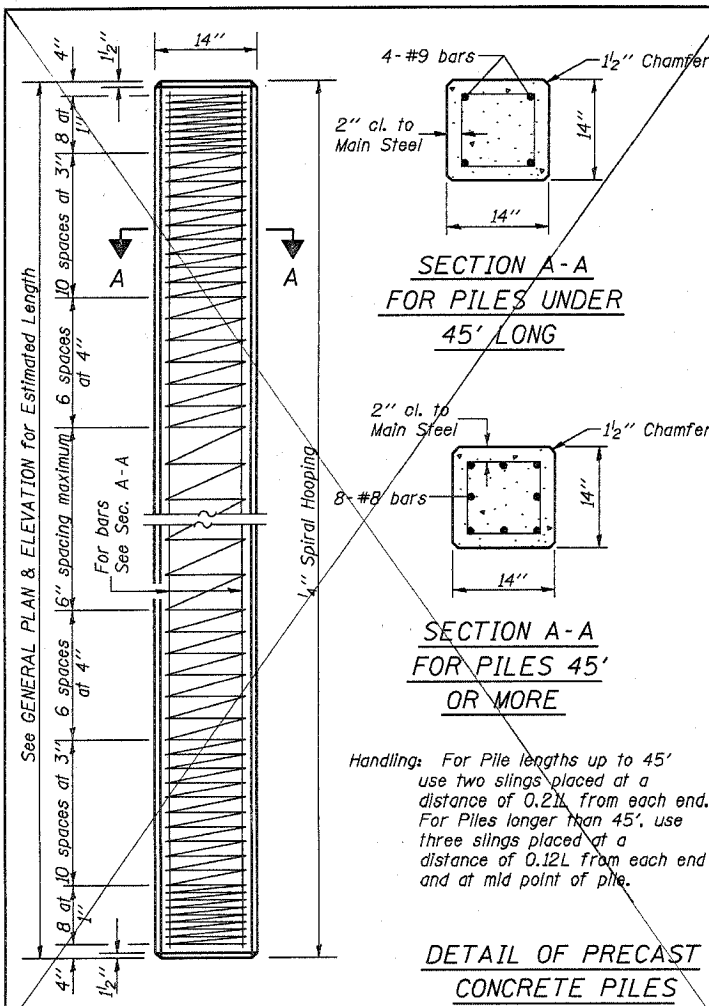
*Thomas J. Donnell*  
 Engineer of Bridge Design

APPROVED APRIL 4, 2005

*Ralph E. Anderson*  
 Engineer of Bridges and Structures

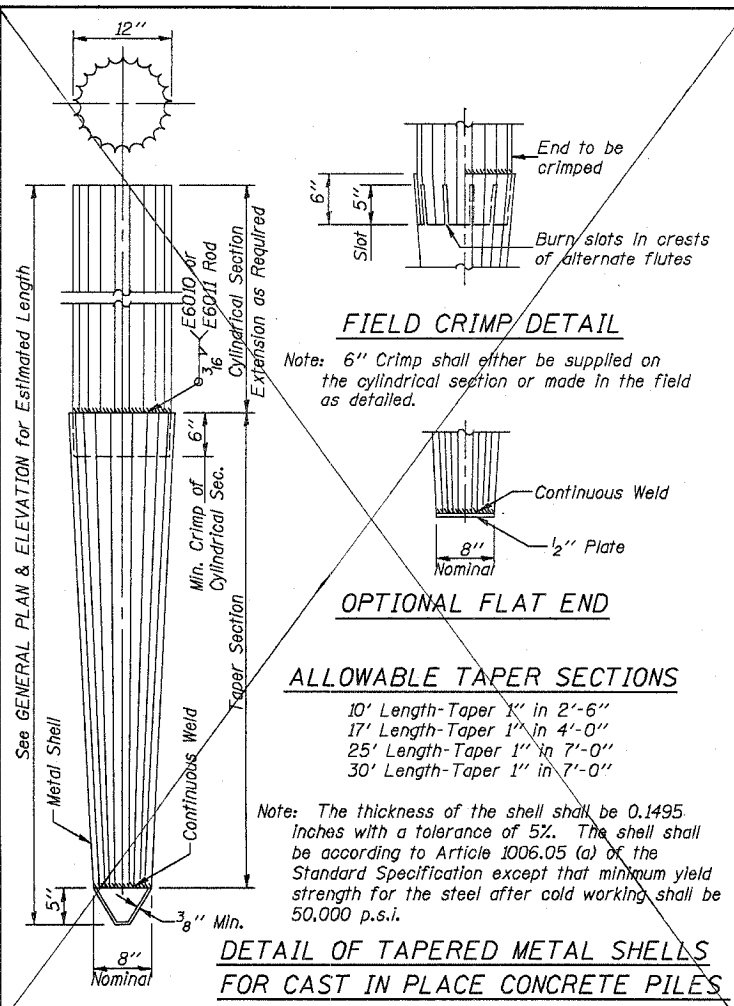
596-1-1 07/857

NAME PLATE  
 STANDARD CN

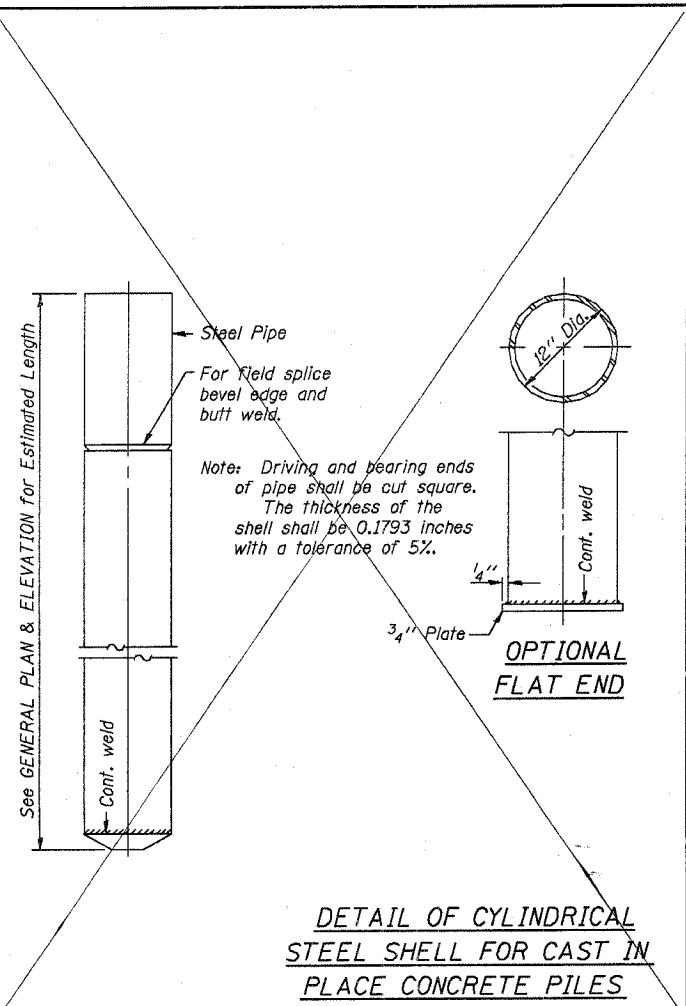


Handling: For Pile lengths up to 45' use two slings placed at a distance of 0.2L from each end. For Piles longer than 45', use three slings placed at a distance of 0.12L from each end and at mid point of pile.

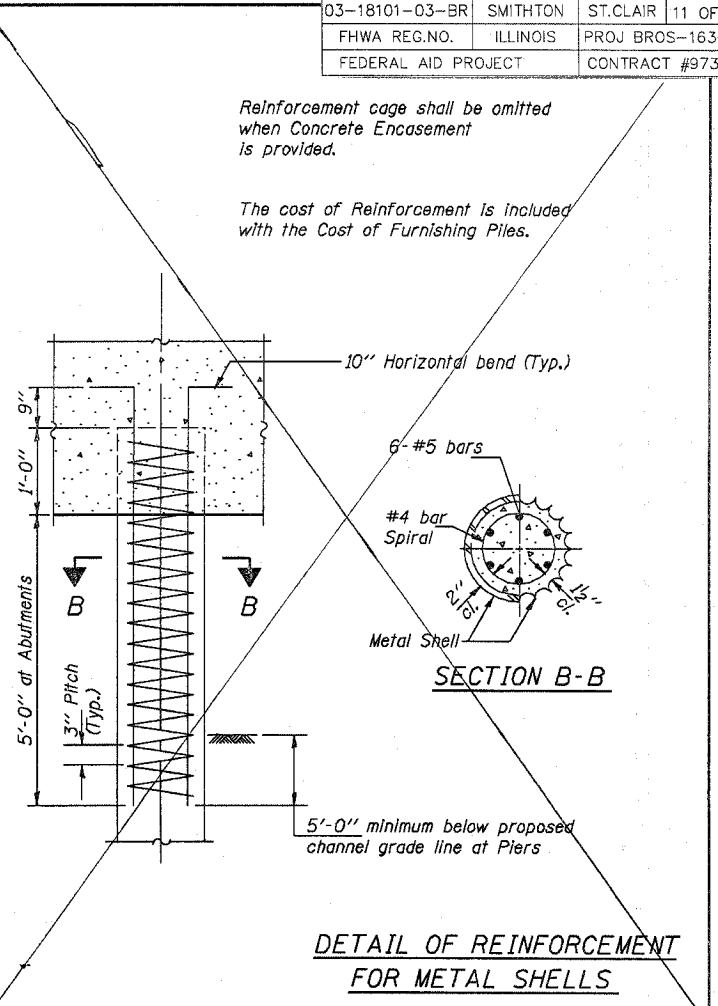
DETAIL OF PRECAST CONCRETE PILES



DETAIL OF TAPERED METAL SHELLS FOR CAST IN PLACE CONCRETE PILES



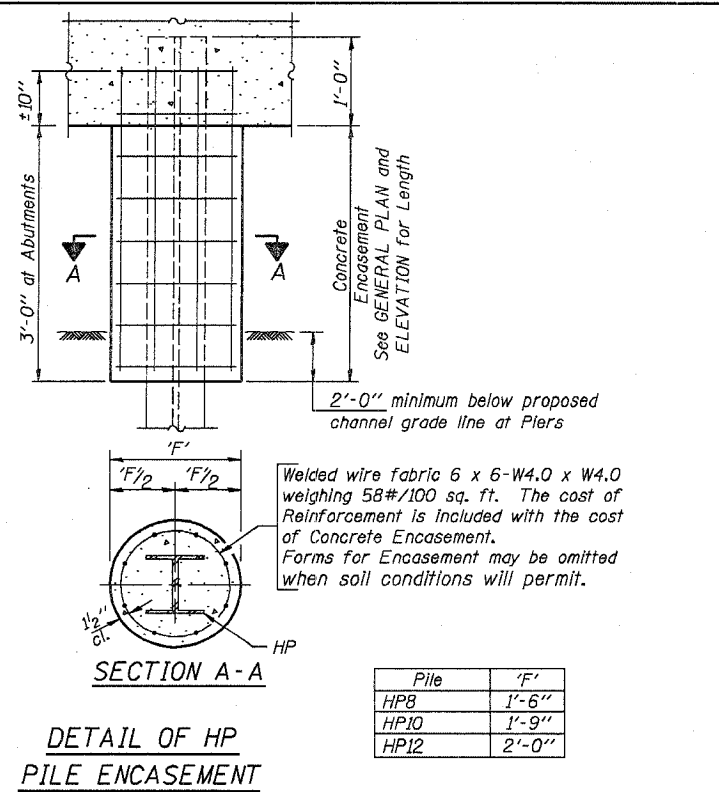
DETAIL OF CYLINDRICAL STEEL SHELL FOR CAST IN PLACE CONCRETE PILES



Reinforcement cage shall be omitted when Concrete Encasement is provided.

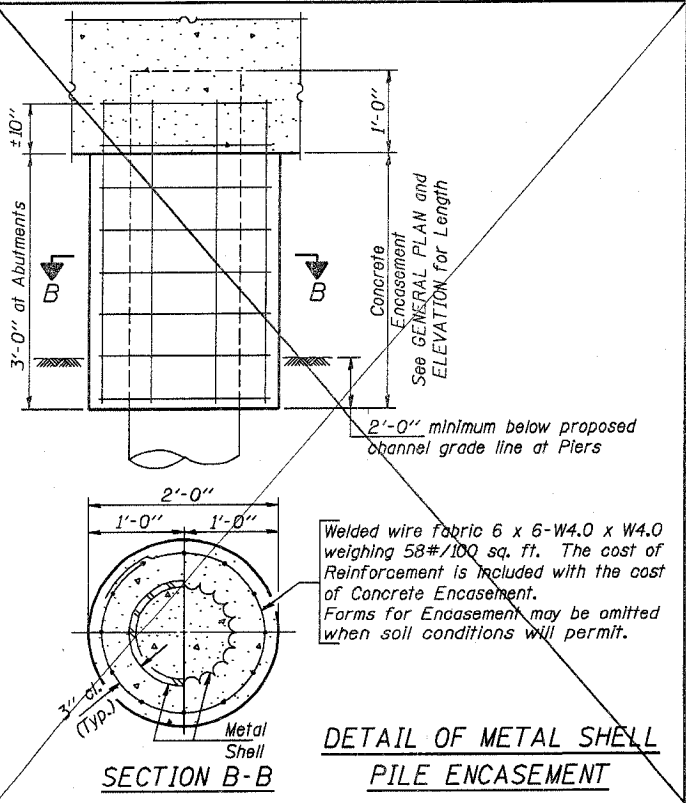
The cost of Reinforcement is included with the Cost of Furnishing Piles.

SECTION B-B



DETAIL OF HP PILE ENCASEMENT

Pile	'F'
HP8	1'-6"
HP10	1'-9"
HP12	2'-0"



DETAIL OF METAL SHELL PILE ENCASEMENT

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.

PILE DETAILS

STANDARD CX-1

Illinois Department of Transportation

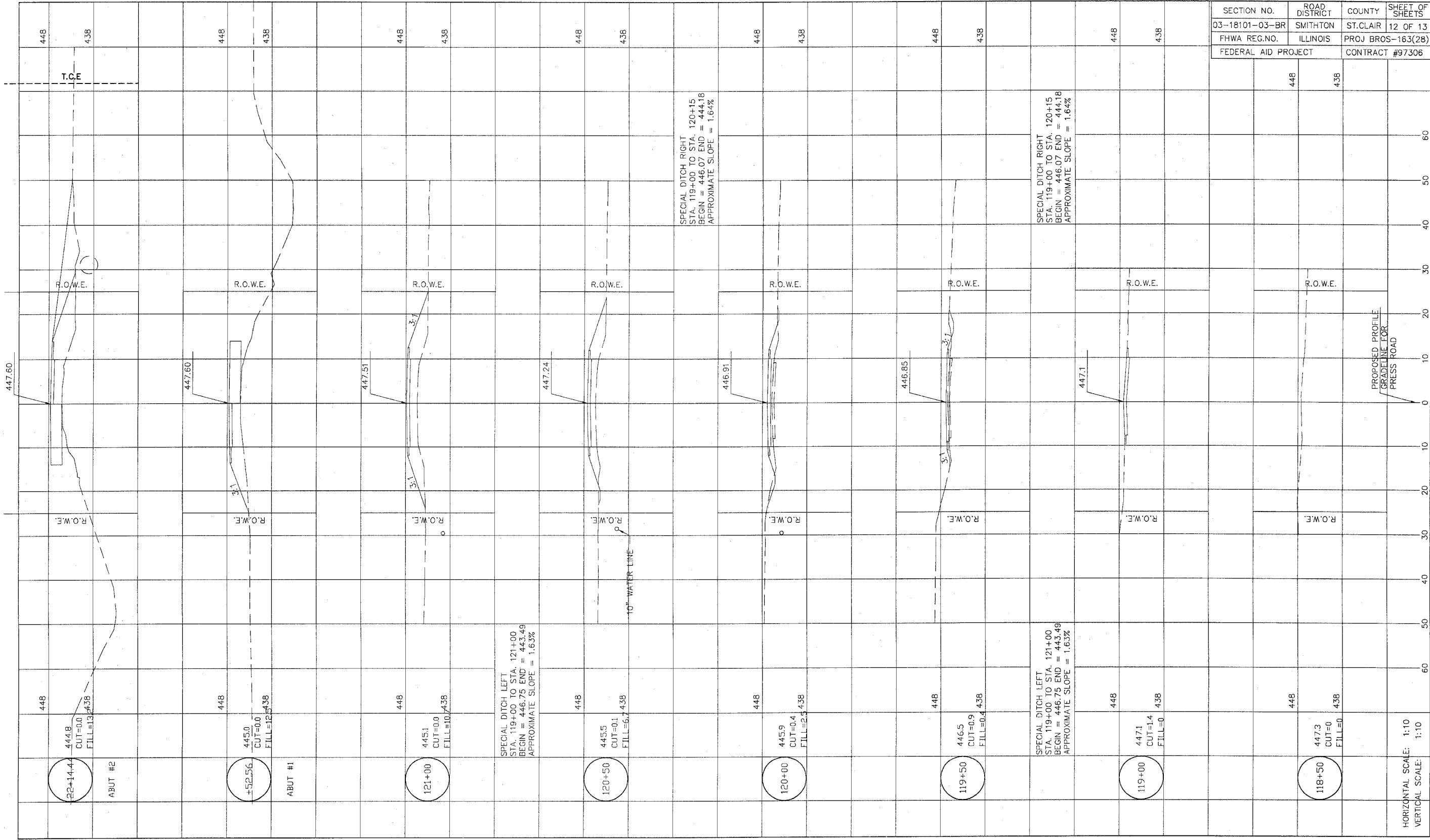
PASSED FEBRUARY 1, 2000

Engineer of Bridge Design

APPROVED FEBRUARY 1, 2000

Engineer of Bridges and Structures

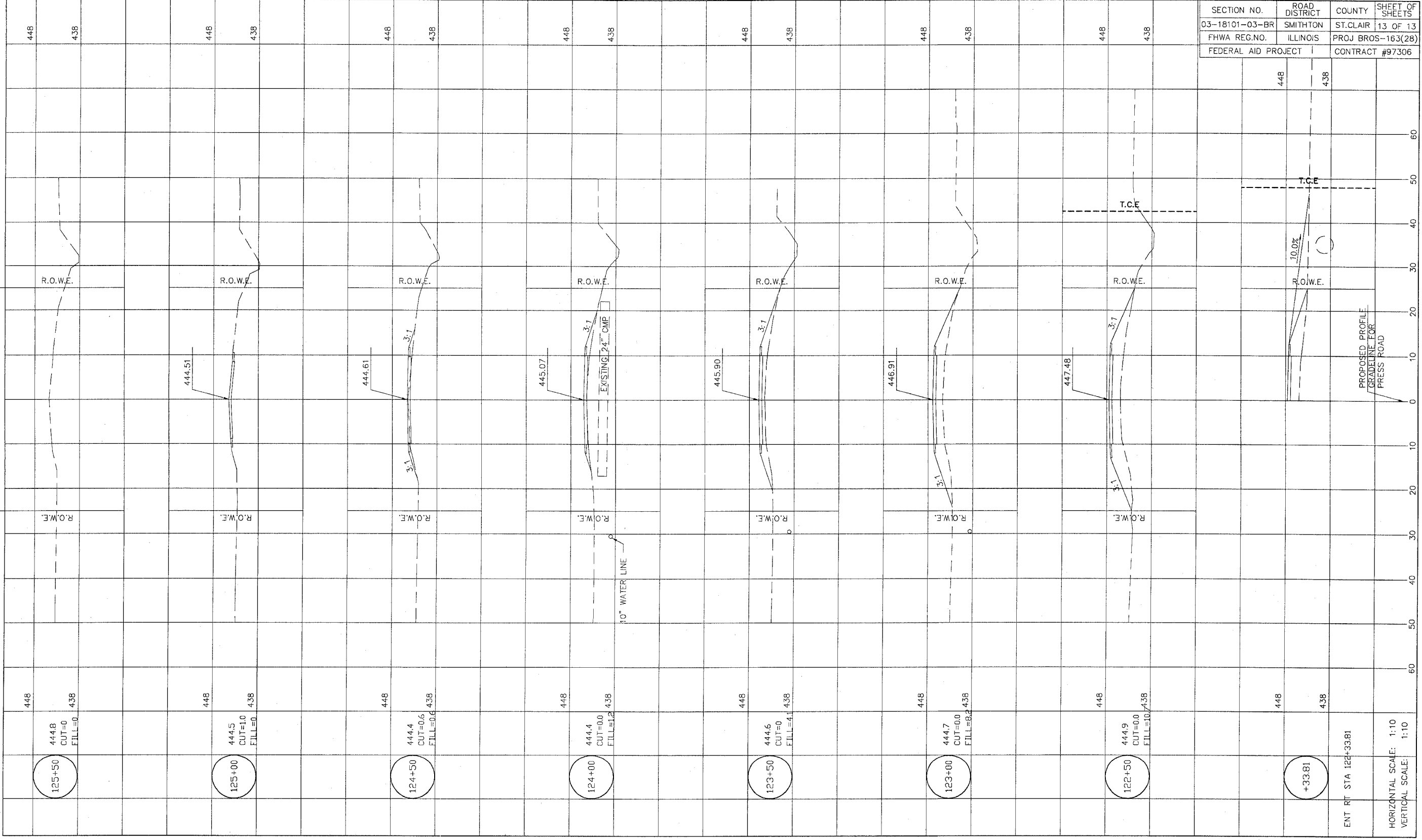
SECTION NO.	ROAD DISTRICT	COUNTY	SHEET OF SHEETS
03-18101-03-BR	SMITHTON	ST. CLAIR	12 OF 13
FHWA REG. NO.	ILLINOIS	PROJ BROS-163(28)	
FEDERAL AID PROJECT		CONTRACT #97306	



PROPOSED PROFILE  
GRADELINE FOR  
PRESS ROAD

HORIZONTAL SCALE: 1:10  
VERTICAL SCALE: 1:10

SECTION NO.	ROAD DISTRICT	COUNTY	SHEET OF SHEETS
03-18101-03-BR	SMITHTON	ST. CLAIR	13 OF 13
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FEDERAL AID PROJECT		CONTRACT #97306	



ENT RT STA 122+33.81

HORIZONTAL SCALE: 1:10  
VERTICAL SCALE: 1:10

PROPOSED PROFILE  
GRADELINE FOR  
PRESS ROAD