

**INDEX OF SHEETS**

SHEET NO.	DESCRIPTION
1	TITLE SHEET & SUMMARY OF QUANTITIES
2	PLAN & PROFILE, TYPICAL SECTIONS & GENERAL NOTES
3	ROADWAY CROSS SECTIONS
4-12	BRIDGE DESIGN
13	CURLED END SECTIONS

**THE FOLLOWING STANDARDS ARE A PART OF THESE PLANS AND ARE INCLUDED AFTER SHEET NO. 13**

000001-04	STANDARD SYMBOLS & ABBREVIATIONS
280001-02	TEMPORARY EROSION CONTROL SYSTEMS
702001-05	TRAFFIC CONTROL DEVICES
BLR 21-6	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
BLR 22-4	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS (TWO-LANE TWO WAY RURAL TRAFFIC) (ROAD CLOSED TO THRU TRAFFIC)

**SUMMARY OF QUANTITIES**

QUANTITY	UNIT	ITEM	CODE NO.
7.00	CU YD	EARTH EXCAVATION	20200100
205.00	CU YD	CHANNEL EXCAVATION	20300100
55.00	TON	AGGREGATE (EROSION CONTROL)	28001000
244.00	TON	STONE DUMPED RIPRAP, CLASS A4	28100807
66.00	TON	AGGREGATE SURFACE COURSE, TYPE B	40200800
1.00	EACH	REMOVAL OF EXISTING STRUCTURES	50100100
33.60	CU YD	CONCRETE STRUCTURES	50300225
2520.00	SQ FT	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	50400305
3860.00	POUND	REINFORCEMENT BARS	50800105
210.00	FOOT	STEEL RAILING, TYPE S1	50900205
1152.00	FOOT	FURNISHING STEEL PILES HP12X53	51201600
1152.00	FOOT	DRIVING STEEL PILES	51202700
21.0	CU YD	CONCRETE ENCASEMENT	51204315
1.00	EACH	NAME PLATES	51500100
1.00	L54M	MOBILIZATION	07100100

DESIGN DESIGNATION:  
 DESIGN SPEED: 30 MPH  
 HIGHWAY CLASS - LOCAL ROAD  
 EXISTING STRUCTURE NO.: 033-3189  
 PROPOSED STRUCTURE NO.: 033-3297  
 CURRENT A.D.T. = 50  
 CONTRACT NO. 95421

**STATE OF ILLINOIS**

**DEPARTMENT OF TRANSPORTATION**

**PLANS FOR PROPOSED FEDERAL AID - B.R.R.P. PROJECT**

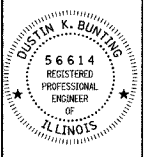
**T.R. 236 HAMILTON COUNTY SECTION 00-03136-00-BR  
 PROJECT NO. BROS-065(35) JOB NO. C-97-020-05**

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
236	00-03136-00-BR	HAMILTON	13	1

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

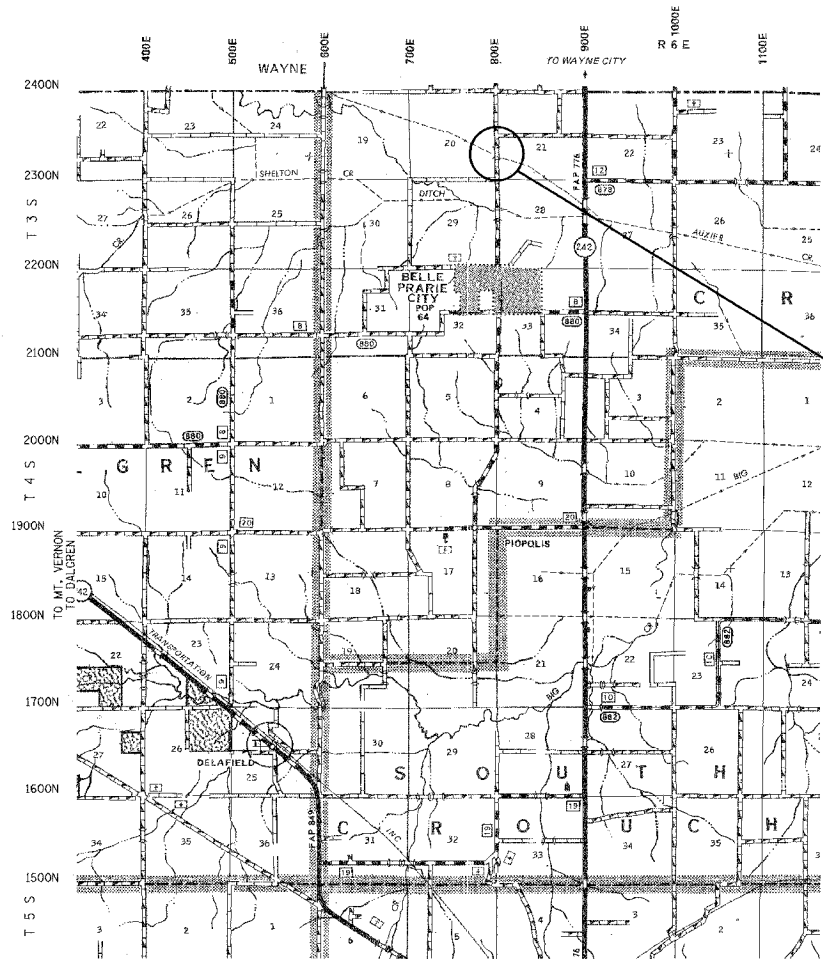
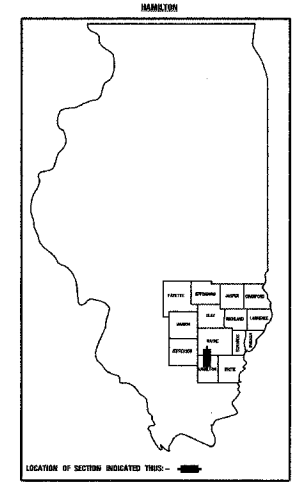


PROFESSIONAL DESIGN FIRM  
 LAND SURVEY & PROFESSIONAL ENGINEERING CORPORATION  
 184-000887  
 (62-032435)(35-002769)



DUSTIN K. BUNTING  
 NAME  
 SIGNATURE  
 DATE: 05-09-05  
 11-30-05 EXPIRES

TOWNSHIP ROUTE 236  
 AUXIER CREEK  
 HAMILTON COUNTY, ILLINOIS



SECTION 00-03136-00-BR BEGINS STATION 4+00

STATION 5+00, STRUCTURE NO. 033-3297  
 A 105' TRIPLE SPAN (3 @ 35') PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE, (17" DEPTH) BEAMS, 24' ROADWAY, 0.00% GRADE, 25° LEFT FORWARD SKEW.

SECTION 00-03136-00-BR ENDS STATION 6+00

PLAN	1" = 50'	0 50' 100'
PROFILE	1" = 50'	0 50' 100'
PROFILE VERT.	1" = 5'	0 5' 10'
CROSS SECTION	1" = 5'	0 5' 10'

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

THE ACCEPTANCE OF THIS PROJECT IS BASED ON THE MINIMUM DESIGN CRITERIA FOR A FEDERAL AID BRIDGE REPLACEMENT AND REHABILITATION PROGRAM ON THE COUNTY HIGHWAY SYSTEM.

*Maurice E. Kasel*  
 DIST. ENGR. LOCAL RDS. & STS.

APPROXIMATE SCALE: 1 INCH = 1 MILE



GROSS LENGTH	200.00 FT.	0.04 MILES
OMISSIONS	0.00 FT.	0.00 MILES
NET LENGTH	200.00 FT.	0.04 MILES

APPROVED	<i>May 10, 2005</i>	20 05
	<i>Kenneth P. ...</i>	COUNTY ENGINEER
PASSED	<i>6/8 2005</i>	20 05
	<i>Maurice E. Kasel</i>	DISTRICT ENGINEER OF LOCAL ROADS & STREETS
APPROVED	<i>6/8 2005</i>	20 05
	<i>Christina M. Keenan</i>	DEPUTY DIRECTOR OF HIGHWAYS/ REGION 4 ENGINEER

SHEET TITLE:	
TITLE SHEET	
SCALE:	VRIS
BY:	DKB
DATE:	1/26/04
REV:	
1	OF 13
SHEETS	
SHEET NO. 1	

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
236	00-03136-00-BR	HAMILTON	13	2
FED. ROAD DIST. NO. 7 ILLINOIS		AUXIER CREEK		
LEC JOB # H02L024M		CONTRACT NO. 95421		

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

405 W. STATE ST  
SUITE 1  
FRANCIS LUEKE, IN  
47670  
PHONE: (812)-386-7611  
FAX: (812)-385-2812

**GENERAL NOTES:**

THIS SECTION SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLANS, SPECIAL PROVISIONS AND "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", ADOPTED JANUARY 1, 2002.

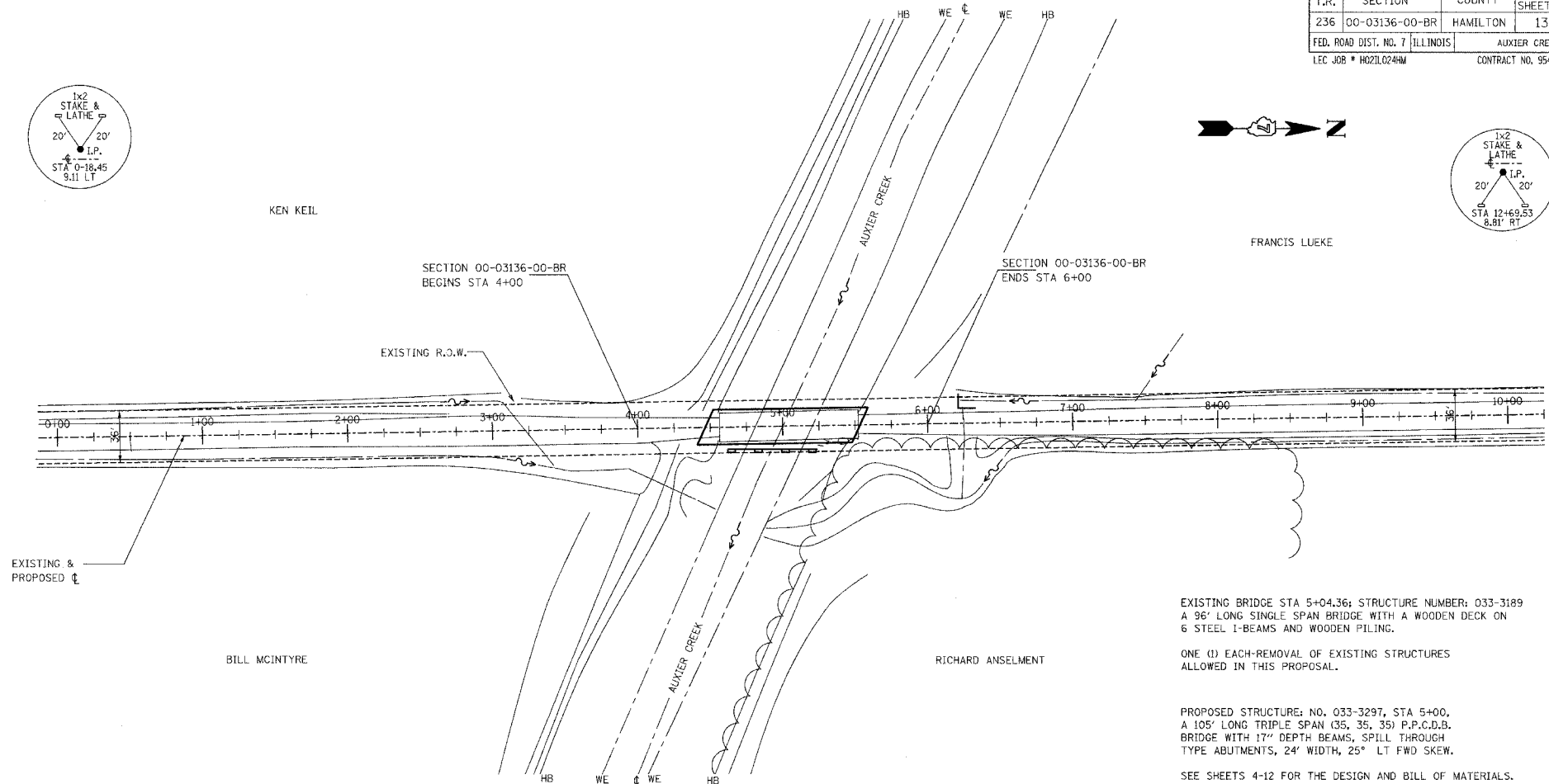
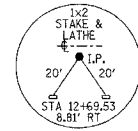
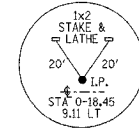
THE WORK INVOLVED ON THIS SECTION CONSISTS OF THE REMOVAL OF THE EXISTING STRUCTURE, THE CONSTRUCTION OF A 105 FOOT LONG TRIPLE SPAN (3 @ 35') PRECAST, PRESTRESSED CONCRETE DECK BEAM BRIDGE, EARTH APPROACHES, AGGREGATE SURFACE COURSE AND OTHER MISCELLANEOUS ITEMS NECESSARY TO COMPLETE THIS SECTION.

ALL ELEVATIONS ARE BASED ON U.S.G.S. MEAN SEA LEVEL DATUM.

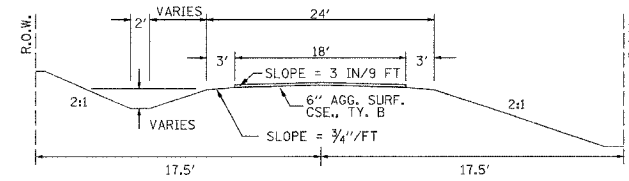
IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONTACT ALL THE UTILITIES, AFFECTING THE PROJECT, PRIOR TO CONSTRUCTION.

SEEDING SHALL BE DONE BY OTHERS.

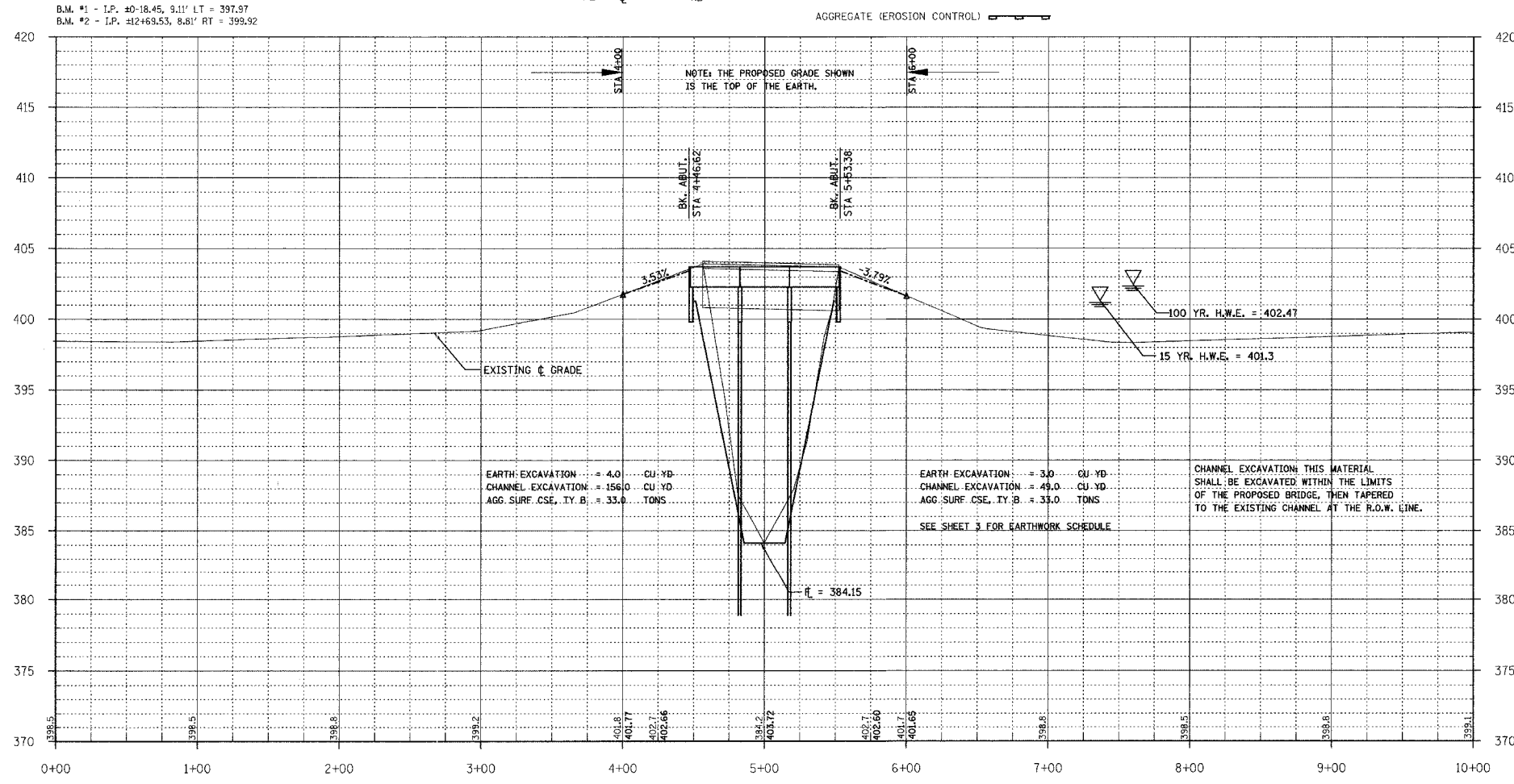
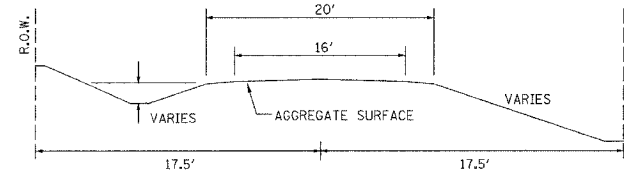
PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL INSTALL AGGREGATE (EROSION CONTROL) ACROSS AUXIER CREEK AT THE R-O-W LINE DOWNSTREAM FROM THE PROPOSED BRIDGES. GRADATION OF THE RIPRAP SHALL BE RR4 AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 280001.



**TYPICAL CROSS SECTION PROPOSED**



**TYPICAL CROSS SECTION EXISTING**



EXISTING BRIDGE STA 5+04.36, STRUCTURE NUMBER: 033-3189  
A 96' LONG SINGLE SPAN BRIDGE WITH A WOODEN DECK ON 6 STEEL I-BEAMS AND WOODEN PILING.

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

PROPOSED STRUCTURE: NO. 033-3297, STA 5+00, A 105' LONG TRIPLE SPAN (35, 35, 35) P.P.C.D.B. BRIDGE WITH 17" DEPTH BEAMS, SPILL THROUGH TYPE ABUTMENTS, 24' WIDTH, 25° LT FWD SKEW.

SEE SHEETS 4-12 FOR THE DESIGN AND BILL OF MATERIALS.

B.M. #1 - I.P. #0-18.45, 9.11' LT = 397.97  
B.M. #2 - I.P. #12+69.53, 8.81' RT = 399.92

EARTH EXCAVATION = 4.0 CU. YD.  
CHANNEL EXCAVATION = 156.0 CU. YD.  
AGG. SURF. CSE. T.Y. B. = 33.0 TONS

EARTH EXCAVATION = 3.0 CU. YD.  
CHANNEL EXCAVATION = 49.0 CU. YD.  
AGG. SURF. CSE. T.Y. B. = 33.0 TONS

CHANNEL EXCAVATION: THIS MATERIAL SHALL BE EXCAVATED WITHIN THE LIMITS OF THE PROPOSED BRIDGE, THEN TAPERED TO THE EXISTING CHANNEL AT THE R.O.W. LINE.

SEE SHEET 3 FOR EARTHWORK SCHEDULE

PROFESSIONAL DESIGN FIRM  
LAND SURVEY & PROFESSIONAL ENGINEERING CORPORATION  
184-000897  
(62-032435)(35-002769)



DUSTIN K. BUNTING  
NAME  
SIGNATURE  
DATE  
05-09-05  
11-30-05 EXPIRES

TOWNSHIP ROUTE 236  
AUXIER CREEK  
HAMILTON COUNTY, ILLINOIS

SHEET TITLE:

PLAN & PROFILE

SCALE: VARIES  
BY: DKB  
DATE: 06/04  
REV:

2 OF 13 SHEETS

SHEET NO. 2

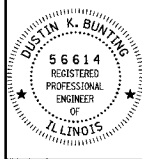
T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
236	00-03136-00-BR	HAMILTON	13	3
FED. ROAD DIST. NO. 7 ILLINOIS		AUXIER CREEK		
LEC JOB # H021L024M		CONTRACT NO. 95421		

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

405 W. STATE ST  
SUITE 1  
PRINCETON, IN  
47670  
PHONE: (812)-386-7611  
FAX: (812)-385-2812



PROFESSIONAL DESIGN FIRM  
LAND SURVEY &  
PROFESSIONAL ENGINEERING CORPORATION  
184-00087  
(82-032435)(35-002789)



JUSTIN K. BUNTING  
NAME  
*[Signature]*  
SIGNATURE  
DATE  
11-30-05  
EXPIRES

TOWNSHIP ROUTE 236  
AUXIER CREEK  
HAMILTON COUNTY, ILLINOIS

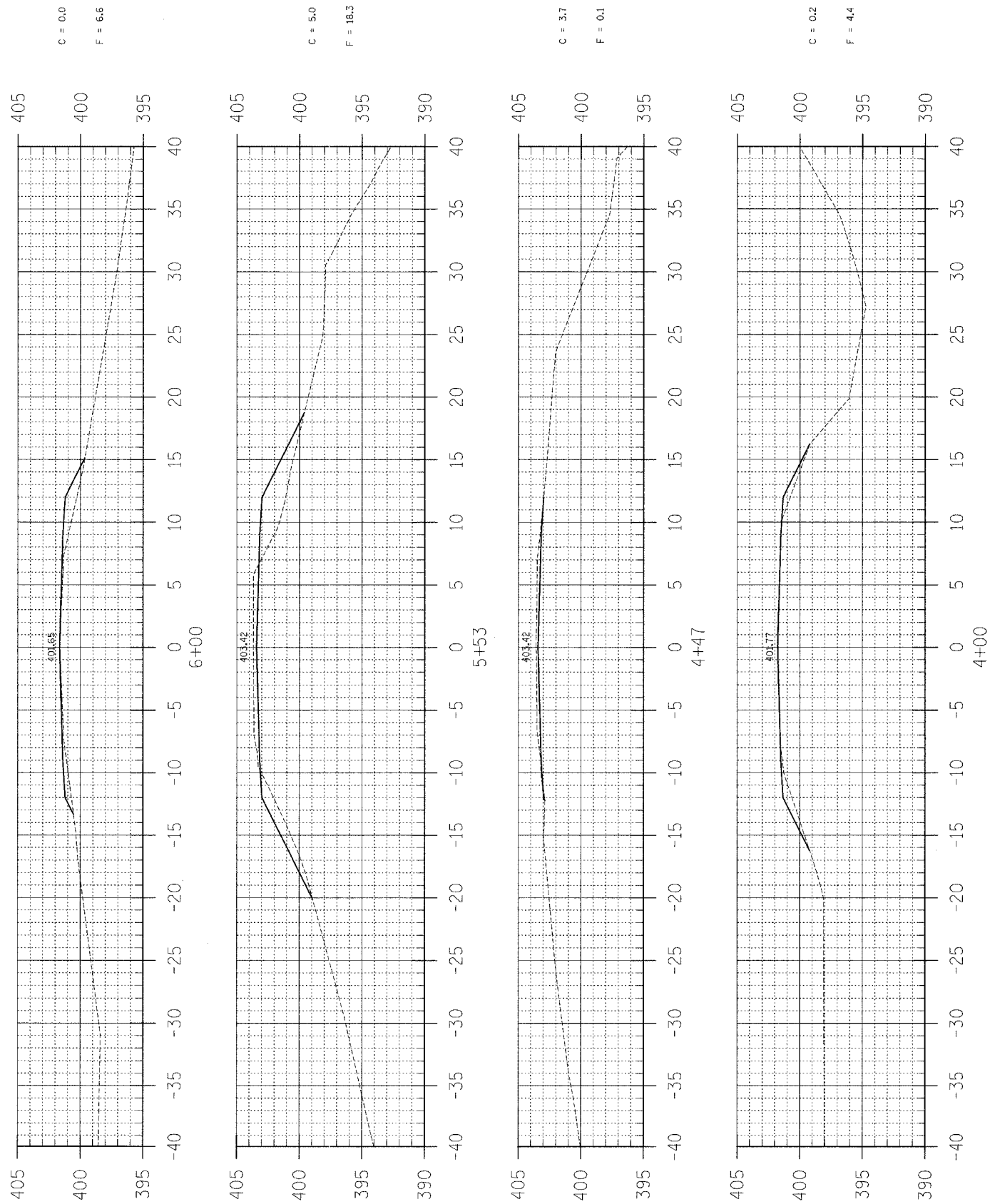
SHEET TITLE:

CROSS-SECTIONS

SCALE: 1" = 5'  
BY: DKB  
DATE: 10/04  
REV:

3 OF 13 SHEETS

SHEET NO. 3



C = 0.0  
F = 6.6

C = 5.0  
F = 18.3

C = 3.7  
F = 0.1

C = 0.2  
F = 4.4

EARTHWORK SCHEDULE

LOCATION	EARTH EXCAVATION	CHANNEL EXCAVATION	ESTIMATED UNSUITABLE MATERIAL	SUITABLE MATERIAL ADJUSTED FOR SHRINKAGE	EMBANKMENT	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)
	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD	CUBIC YARD
STA 4+00 TO 4+46.6	3.6	0.0	0.0	2.7	11.1	-8.4
STA 4+46.6 TO 5+53.4	0.0	205.0	102.5	76.9	0.0	76.9
STA 5+53.4 TO 6+00	3.3	0.0	0.0	2.5	28.0	-25.5
TOTAL	6.9	205.0	102.5	82.1	39.1	43.0

**B.M.-** #1-I.P.  $\pm 0-18.45$ , 9.11' LT = 397.97  
 #2-I.P.  $\pm 12+69.53$ , 8.81' RT = 399.92

T.R.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
236	00-03136-00-BR	HAMILTON	13	4
ILLINOIS FED. ROAD DIST. NO. 7		PROJECT BRS-XXXXXX		
L.E.C. JOB # H021L024M		AUXIER CREEK	CONTRACT NO. 95421	

923 W. 3RD ST.  
 P.O. BOX 180  
 MT. CARMEL, IL 62863  
 PHONE: (618)-262-8651  
 FAX: (618)-263-3327

405 W. STATE ST.  
 SUITE 1  
 PRINCETON, IN 47670  
 PHONE: (812)-386-7611  
 FAX: (812)-385-2812



PROFESSIONAL LAND SURVEYING FIRM  
 048-00082  
 PROFESSIONAL ENGINEERING CORPORATION  
 184-00087



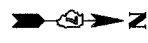
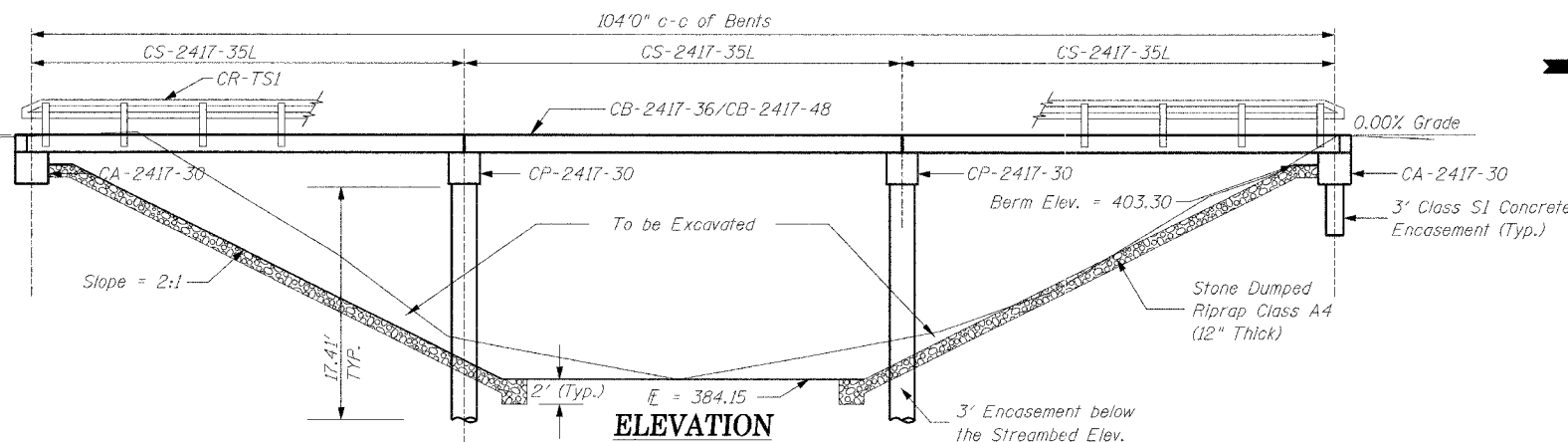
DUSTIN K. BUNTING  
 NAME  
 SIGNATURE  
 DATE: 05-08-05  
 11-30-05 EXPIRES

TOWNSHIP ROUTE 236  
 AUXIER CREEK  
 HAMILTON COUNTY, ILLINOIS

Existing Bridge Sta 5+04.36;  
 Structure Number: 033-3189  
 A 96' long single span bridge with a wooden deck on 6 steel I-beams and wooden piling.

One (1) Each Removal of Existing Structures allowed in Proposal

NOTE: All items deemed fit for use on other Road District projects shall become the property of the said District. These items shall be stored along the R.O.W. at no additional cost to the Project.

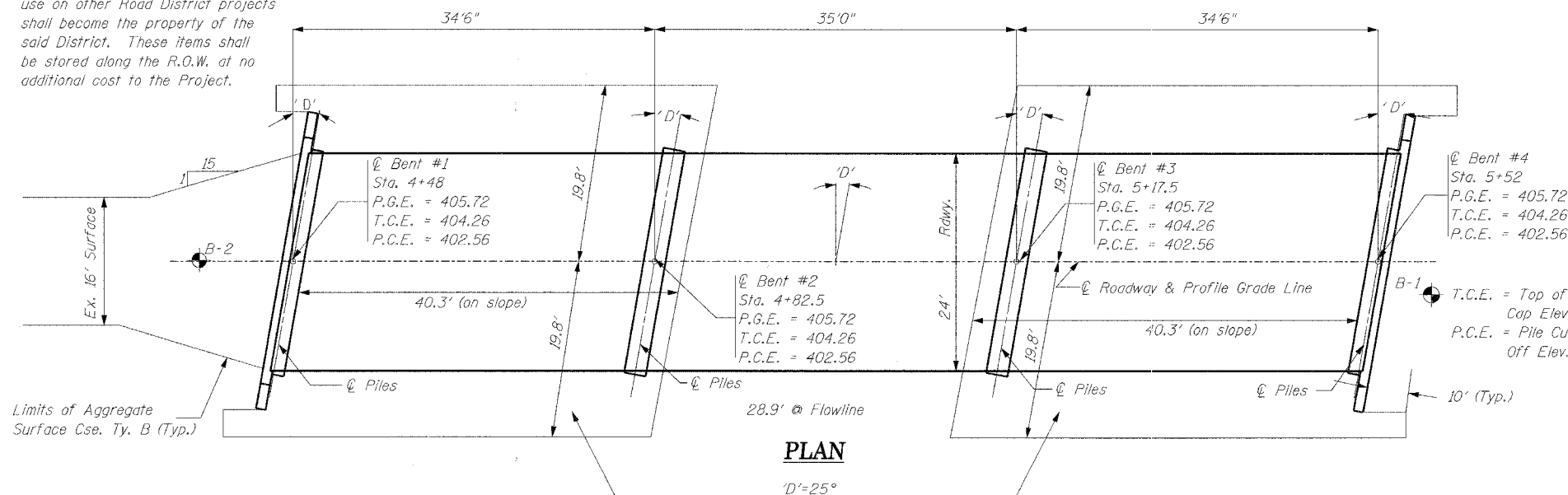


**GENERAL NOTES**

- Class SI Concrete shall be used throughout except in the deck beams.
- The Contractor shall drive 2 test piles, as specified, in permanent locations as directed by the Engineer before ordering the remaining piles.
- See Special Provisions for boring logs.
- A Calcium Nitrate Corrosion Inhibitor, as covered in the Special Provisions, shall be used in the concrete for Precast Prestressed Concrete Deck Beams.
- The Bit Cone Test, Class I and the waterproofing membrane system shown in these plans shall not be provided.
- 4-3/4" shear studs will be required per pile which will be encased within the concrete cap.
- The HP piles shall be oriented with the strong axis bending in the longitudinal direction.

Item	Super	Sub.		Total
		Piers	Abuts.	
Removal of Existing Structures	Each			1
Bit Cone Test, Class I	Top			
Waterproofing Membrane System	Cu.Yd.			
Concrete Structures	Cu.Yd.	14.2	19.4	33.6
P.P. Conc. Dk. Bm. 17" Dp.	Sq.Ft.	2520		2520
Steel Railing, Type S1	Foot	210		210
Reinforcement Bars	Pound	1700	2160	3860
Furnishing Steel Piles HP12X53	Foot	576	576	1152
Driving Steel Piles	Foot	576	576	1152
Test Pile Steel HP12X53	Each	1	1	2
Name Plates	Each		1	1
Class SI Concrete Encasement	Cu.Yd.	18.3	2.7	21.0
Shear Studs	Each		32	64

NOTE: Four (4) Each Curled End Sections required. Item to be incidental to the Steel Railing.

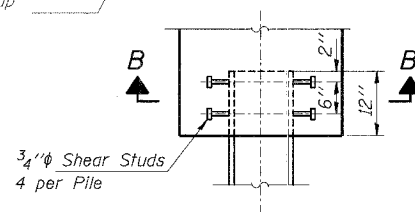


NOTE: The Article or Section Numbers Referencing the Standard Specifications for Road and Bridge Construction as shown on the Standard Bridge Plan Sheets included with the contract plans should be interpreted as referring to the current edition of the Standard Specification (Adopted January 1, 2002) 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
STD 2340	STD 631026

**PILE DATA (2-PIERS)**

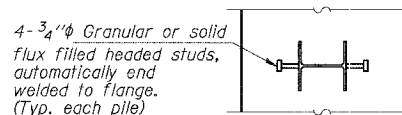
Type: Steel Piles HP12X53  
 Capacity: Drive to Refusal  
 Estimated Length: 72 Feet/Pile  
 Number Required: 8



**PILE DETAIL**

**PILE DATA (2-ABUTS)**

Type: Steel Piles HP12X53  
 Capacity: Drive to Refusal  
 Estimated Length: 72 Feet/Pile  
 Number Required: 8

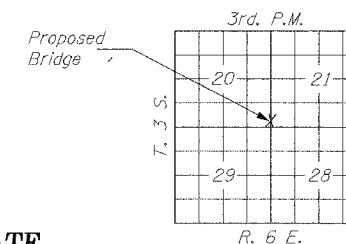


**SECTION B-B**

STATION 5+00  
 AUXIER CREEK  
 SEC. 00-03136-00-BR BUILT 20  
 PROJECT BRS-065(35)  
 HAMILTON COUNTY  
 LOADING HS 20-44  
 STR. NO. 033-3297

**LETTERING FOR NAME PLATE**

Locate Name Plate at the Southeast corner of the Bridge (See Std. CN)



**LOCATION SKETCH**

**INDEX OF SHEETS**

- General Plan & Elevation
- Standard CS-2417-35L
- Standard CB-2417-36
- Standard CB-2417-48
- Standard CA-2417-30
- Standard CP-2417-30
- Standard CR-TS1
- Standard CN
- Standard CX-1

**WATERWAY INFORMATION**

Drainage Area = 66 sq.mi.		Low Grade Elev. = 398.34 at Sta. 7+58				
Flood	Freq. Yr.	Q C.F.S.	Opening Sq Ft	Natural H.W.E.	Head-Ft	Headwater El.
Design	15	4430	879.4	982.3	401.30	401.56
Base	100	6515	879.4	1074.2	402.47	403.13
Overtopping						
Max. Calc.	500	8110				

**GENERAL PLAN AND ELEVATION**

TOWNSHIP ROUTE 236  
 OVER AUXIER CREEK  
 SECTION 00-03136-00-BR  
 HAMILTON COUNTY  
 STATION 5+00

SHEET TITLE: GENERAL PLAN AND ELEVATION

SCALE: NONE

BY: DEB

DATE: 04/01

REV:

4	OF	13
---	----	----

SHEETS

SHEET NO. 4

**SEISMIC DATA**

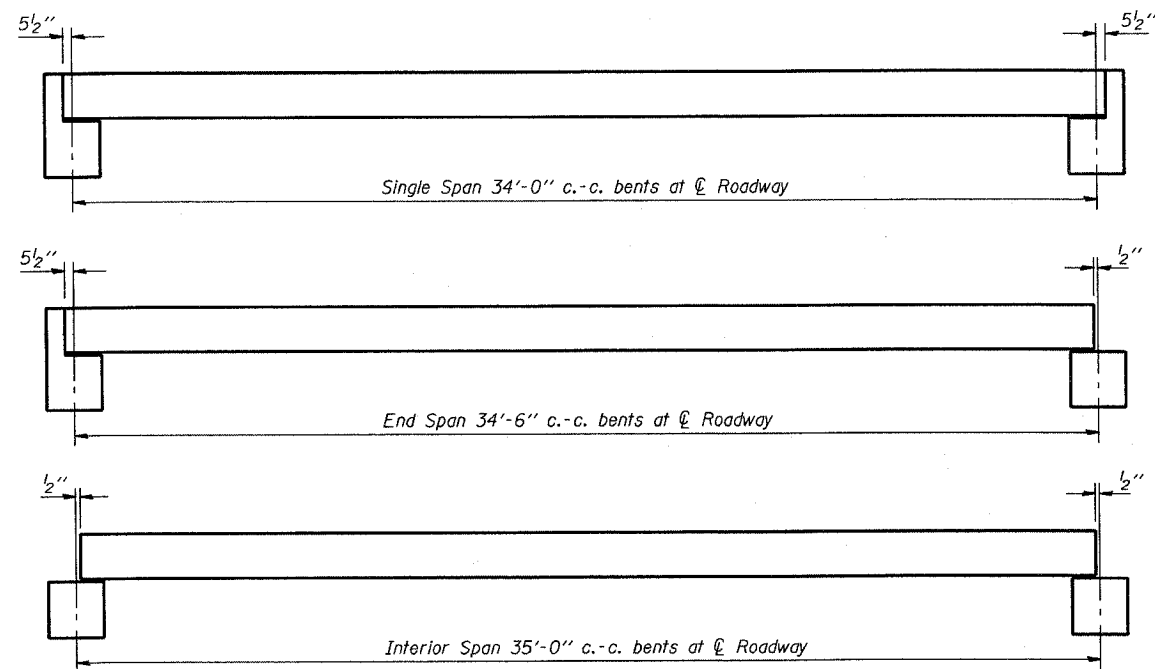
Seismic Performance Category (SPC) = B  
 Bedrock Acceleration Coefficient (A) = 0.095g  
 Site Coefficient (S) = 1.5



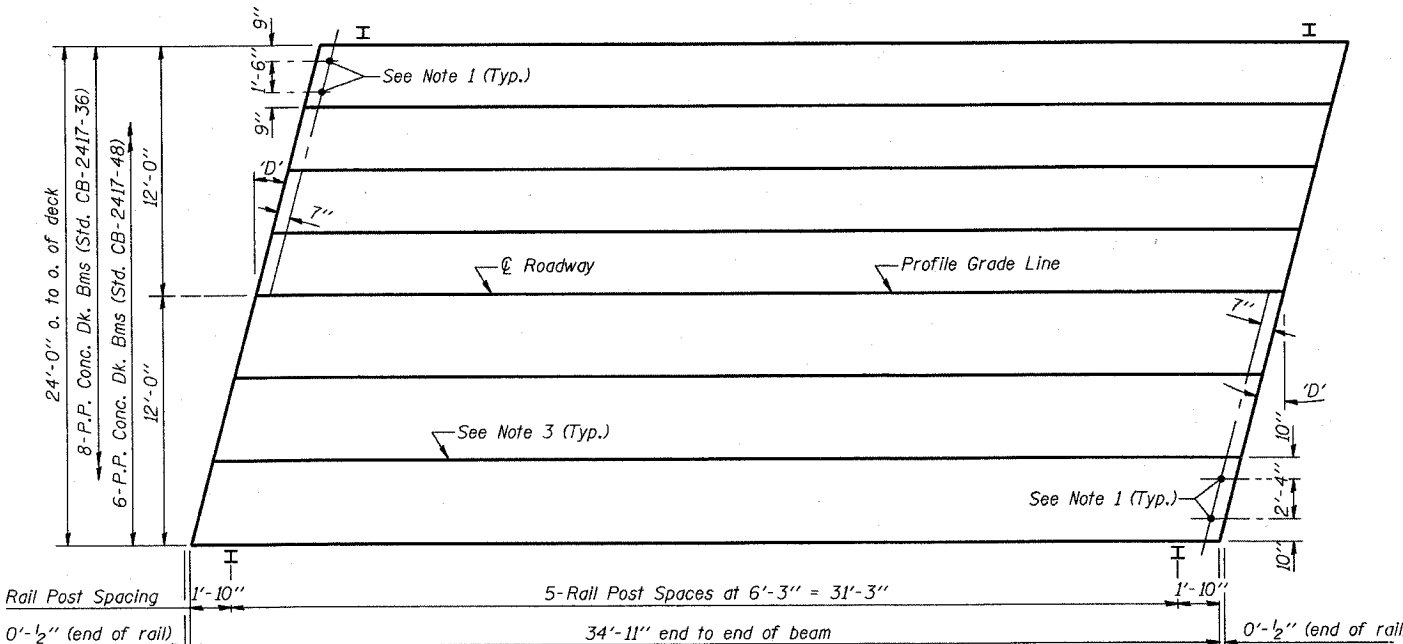
Steven W. Meggitt 3-18-05  
 ILLINOIS STRUCTURAL NO. 6064  
 Expires 11-30-06  
 Complies with 2002 AASHTO Specifications for Seismic Design of Bridges.

**DESIGN SPECIFICATIONS**

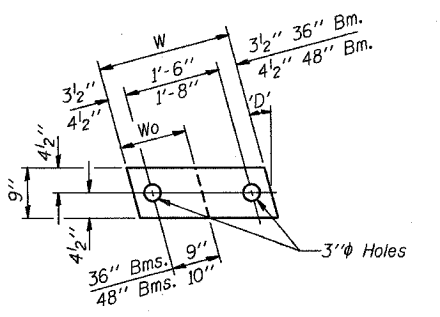
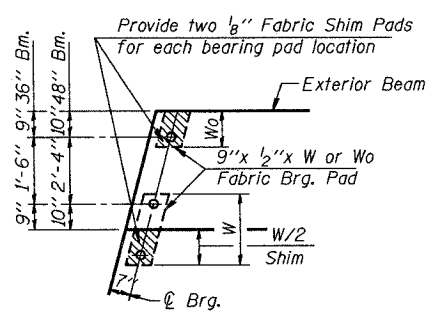
2002 AASHTO  
 HS 20-44 Loading. Load Factor Design.



TYPICAL ELEVATIONS

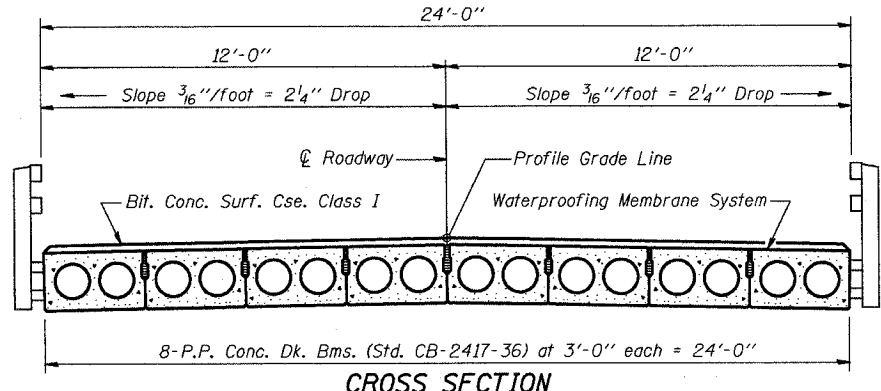


PLAN  
 ('D' = Designated Skew Angle)

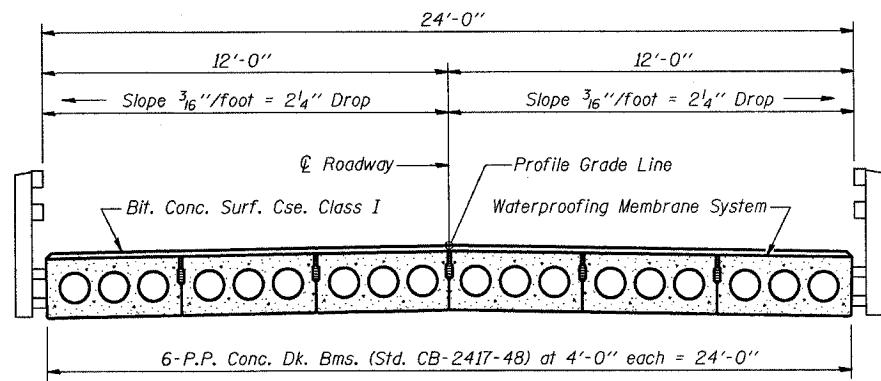


Beam	W	Wo
36"	2'-1"	1'-0 1/2"
48"	2'-5"	1'-2 1/2"

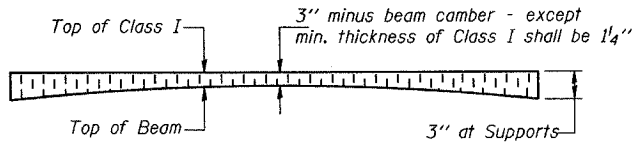
1/2" FABRIC BRG. PAD DETAILS



CROSS SECTION



CROSS SECTION

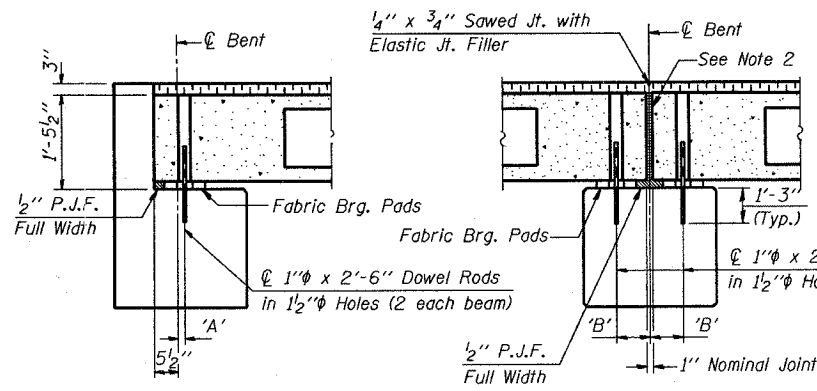


PROFILE OF OVERLAY

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"

- 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 centerline pier shall be filled with non-shrink grout.
  - Longitudinal keys shall be grouted.



SECTION AT ABUTS.  
 (Along centerline Beams)

SECTION AT PIERS  
 (Along centerline Beams)

QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 17" Dp.	840 Sq. Ft.
Steel Railing	70 Ft.
Bit. Conc. Surf. Cse. Class I	12.7 Tons
Waterproofing Membrane System	93.3 Sq. Yds.

**P.P.C. DECK BEAM SUPERSTRUCTURE**

24' RDWY.	17" BMS.	35' SPAN	LEFT
-----------	----------	----------	------

STANDARD CS 2417 35L

Illinois Department of Transportation

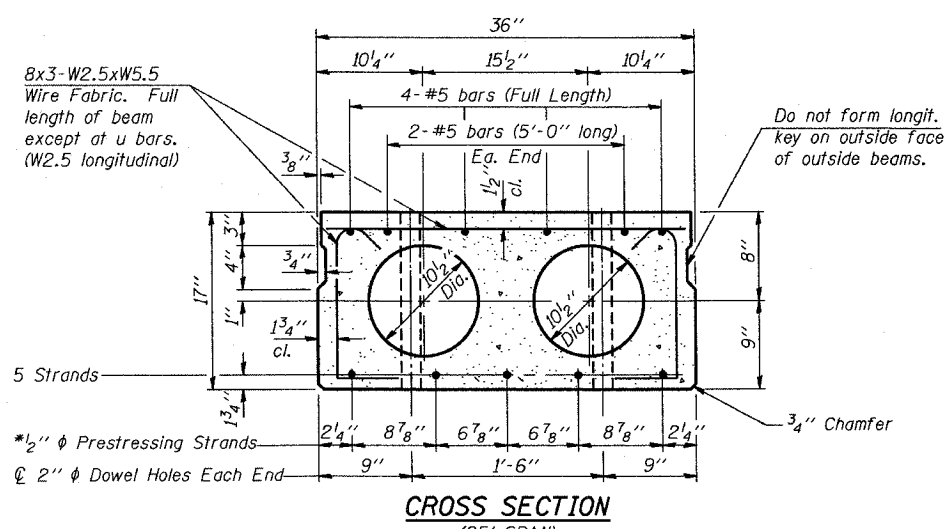
PASSED NOVEMBER 1, 1995

*Ralph E. Anderson*  
 Engineer of Bridge Design

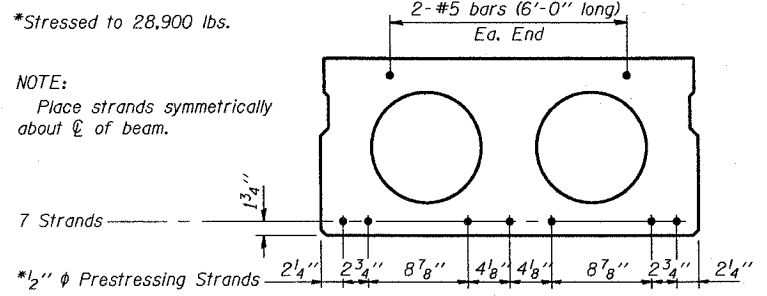
APPROVED NOVEMBER 1, 1995

*Ralph E. Anderson*  
 Engineer of Bridges and Structures

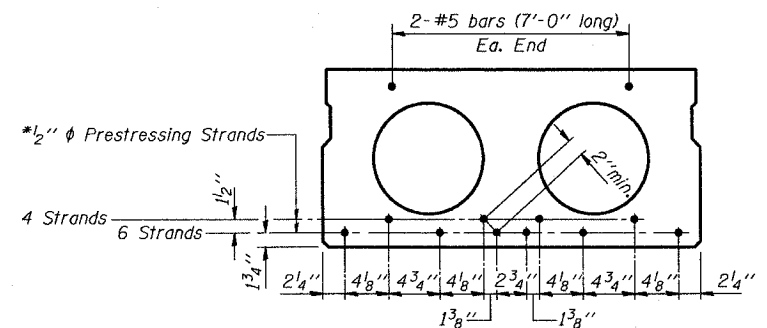
Un 3 11:26:43 1996 c:\pilot\queue\queue3.acf rey /usr/project/brst/dpe/118.prf



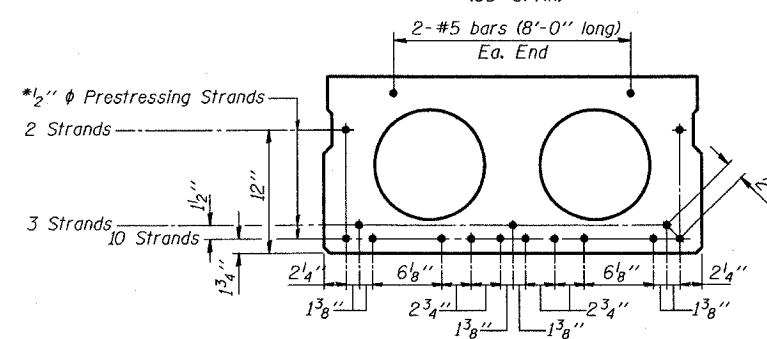
**CROSS SECTION**  
(25' SPAN)



**CROSS SECTION**  
(30' SPAN)

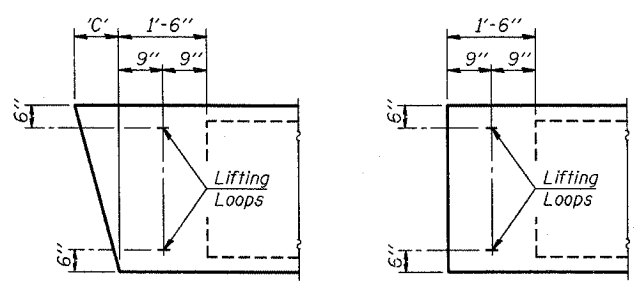


**CROSS SECTION**  
(35' SPAN)



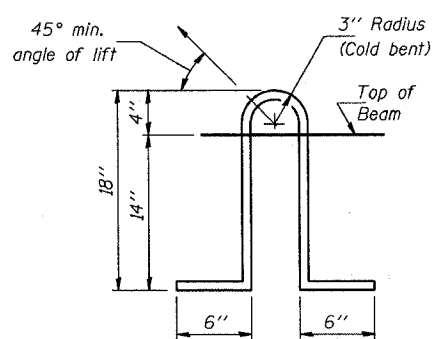
**CROSS SECTION**  
(40' SPAN)

NOTE  
 The std. reinf. shown on the 25' span cross section is typical for all spans, except as shown.



**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.

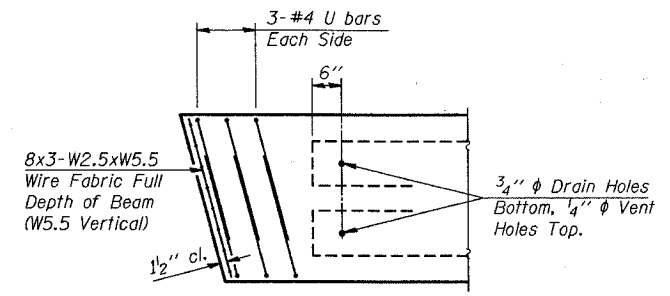


**LIFTING LOOP DETAIL**

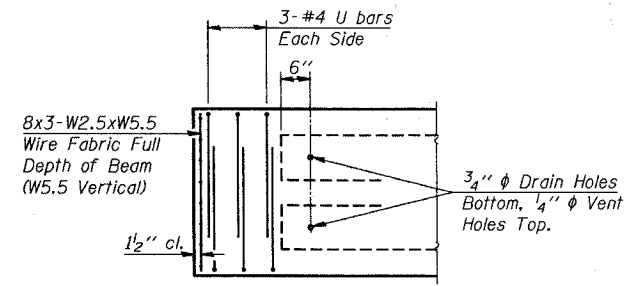
Lifting loops shall be 2, 1/2 inch diameter-270 ksi strands, as shown. Alternate approved lifting devices are also acceptable.

**DIMENSION 'C'**

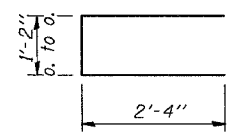
Skew Angle 'D'	0°	5°	10°	15°	20°	25°	30°
Dimension 'C' (Inches)	0	3 3/8	6 1/8	9 5/8	13 1/8	16 3/4	20 3/4



**END REINFORCEMENT**  
(SKEWED)



**END REINFORCEMENT**  
(RIGHT ANGLE)



**BAR U**

**NOTES**

- Prestressing steel shall be uncoated high strength, stress relieved 7-wire strand, Grade 270.
- The nominal diameter shall be 1/2 inch and the nominal cross-sectional area shall be 0.153 square inches.
- Reinforcement bars shall conform to AASHTO M-31, M-42 or M-53, Grade 60.
- Rail Post anchor devices shall be cast into outside beam as elsewhere specified.
- 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 minimum of 1/4 inch.
- Low relaxation strands may be substituted for the stress relieved strands. The initial prestressing force applied to each strand shall be the same as for the stress relieved strands (28,900 lbs.).
- 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.

**DESIGN STRESSES**

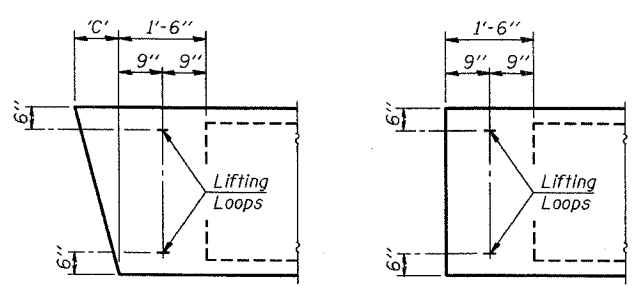
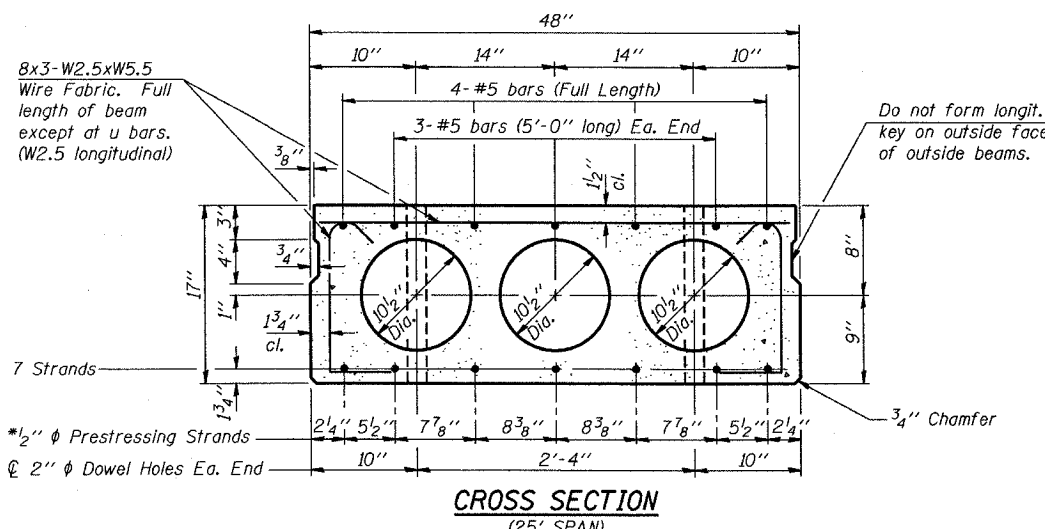
$f'_c = 5,000$  p.s.i.  
 $f'_{ci}$  = (See Required Release Strength Table)  
 $f'_s = 270,000$  p.s.i. (1/2 inch diameter Strand)  
 $f_{si} = 189,000$  p.s.i. (1/2 inch diameter Strand)  
 $f_y = 60,000$  p.s.i.

**REQUIRED RELEASE STRENGTH**

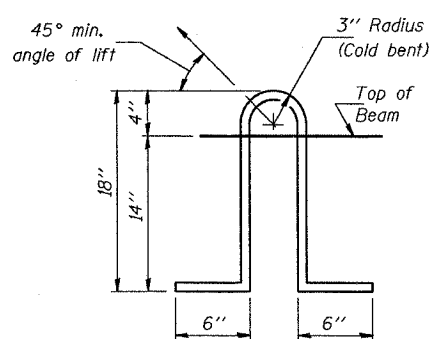
Span	$f'_{ci}$ (psi)
25'	4,000
30'	4,000
35'	4,000
40'	4,000

Illinois Department of Transportation  
 PASSED NOVEMBER 1, 1995  
 Engineer of Bridge Design  
 APPROVED NOVEMBER 1, 1995  
 Engineer of Bridges and Structures

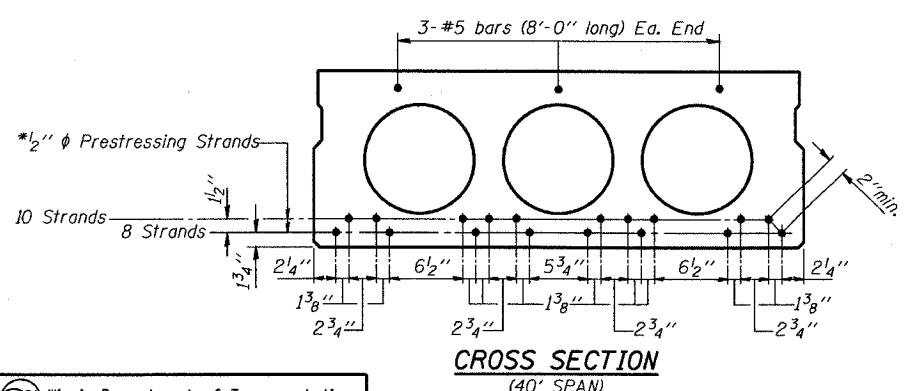
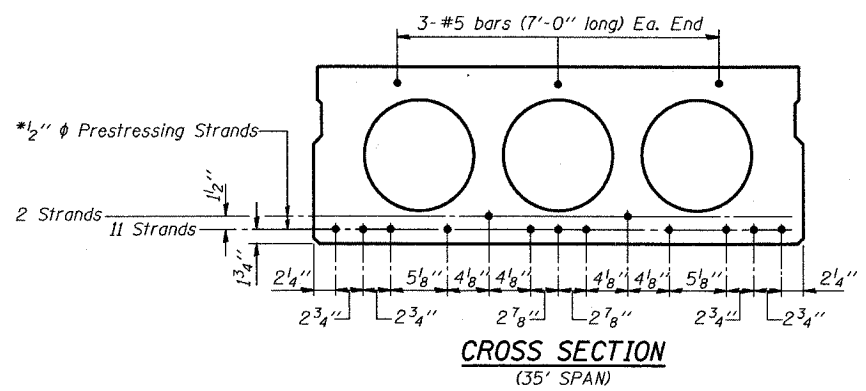
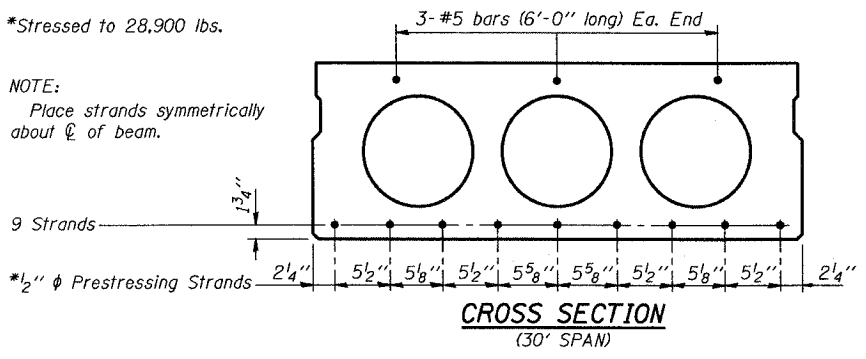
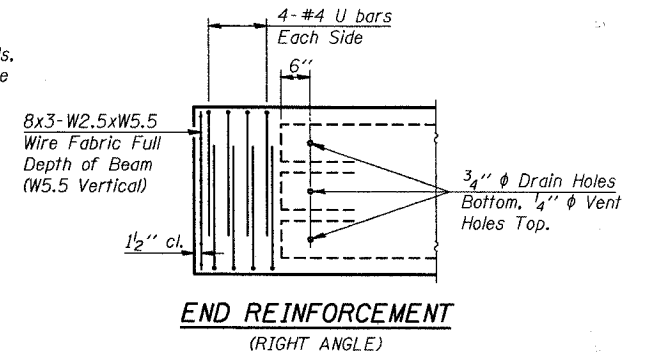
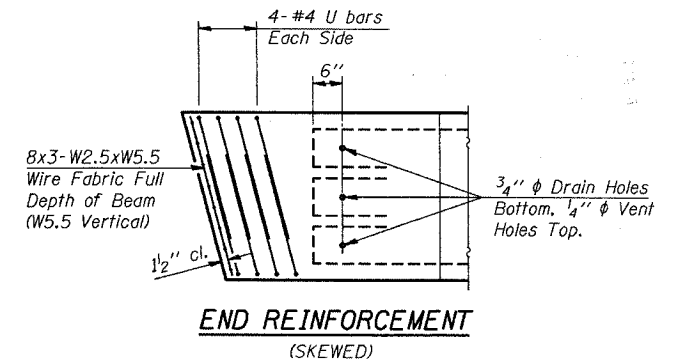
**P.P.C. DECK BEAM DETAILS**  
 24' ROADWAY | 17" x 36" BEAMS  
 STANDARD CB-2417-36



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 loops shall be 2. 1/2"  $\phi$ -270 ksi strands, as shown. Alternate approved lifting devices are also acceptable.



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

NOTES

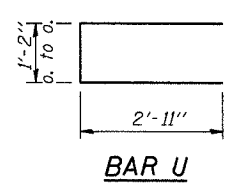
- Prestressing steel shall be uncoated high strength, stress relieved 7-wire strand, Grade 270.
- The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 square inches.
- Reinforcement bars shall conform to AASHTO M-31, M-42 or M-53, Grade 60.
- Rail Post anchor devices shall be cast into outside beam as elsewhere specified.
- 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 minimum of 1/4".
- Low-relaxation strands may be substituted for the stress relieved strands. The initial prestressing force applied to each strand shall be the same as for the stress relieved strands (28,900 lbs.).
- 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.

DESIGN STRESSES

$f'_c = 5,000$  p.s.i.  
 $f_{ci}$  = (See Required Release Strength Table)  
 $f'_s = 270,000$  p.s.i. (1/2"  $\phi$  Strand)  
 $f_{si} = 189,000$  p.s.i. (1/2"  $\phi$  Strand)  
 $f_y = 60,000$  p.s.i.

REQUIRED RELEASE STRENGTH

Span	$f'_{ci}$ (psi)
25'	4,000
30'	4,000
35'	4,200
40'	4,700



NOTE  
 The std. reinf. shown on the 25' span cross section is typical for all spans, except as shown.

Illinois Department of Transportation

PASSED NOVEMBER 1, 1995

*Prof. J. Kasper*  
 Engineer of Bridge Design

APPROVED NOVEMBER 1, 1995

*Ralph E. Anderson*  
 Engineer of Bridges and Structures

18-1 08155

P.P.C. DECK BEAM DETAILS

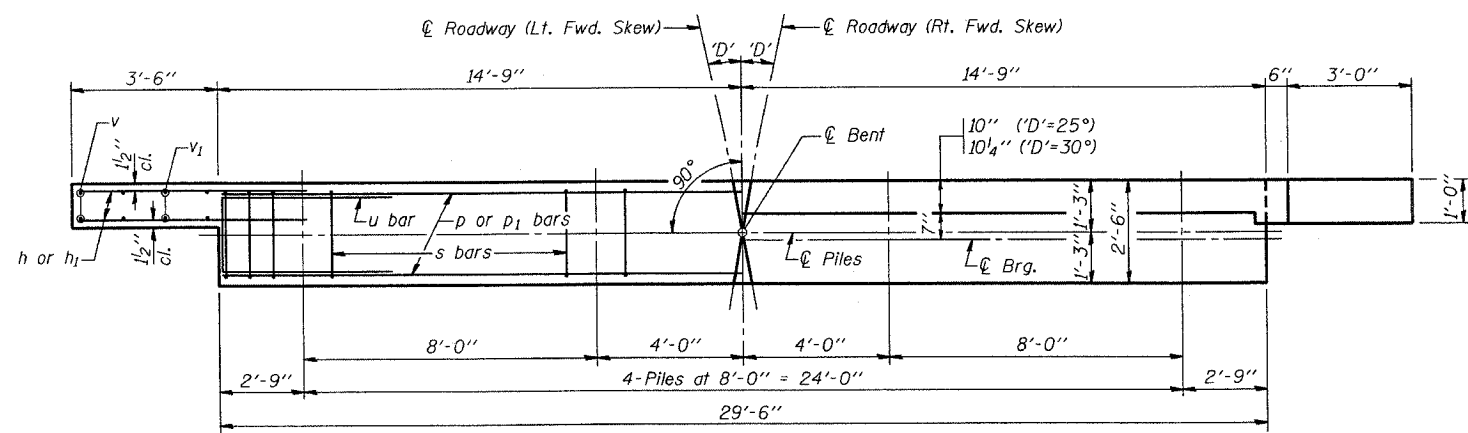
24' ROADWAY | 17" x 48" BEAMS

STANDARD CB-2417-48

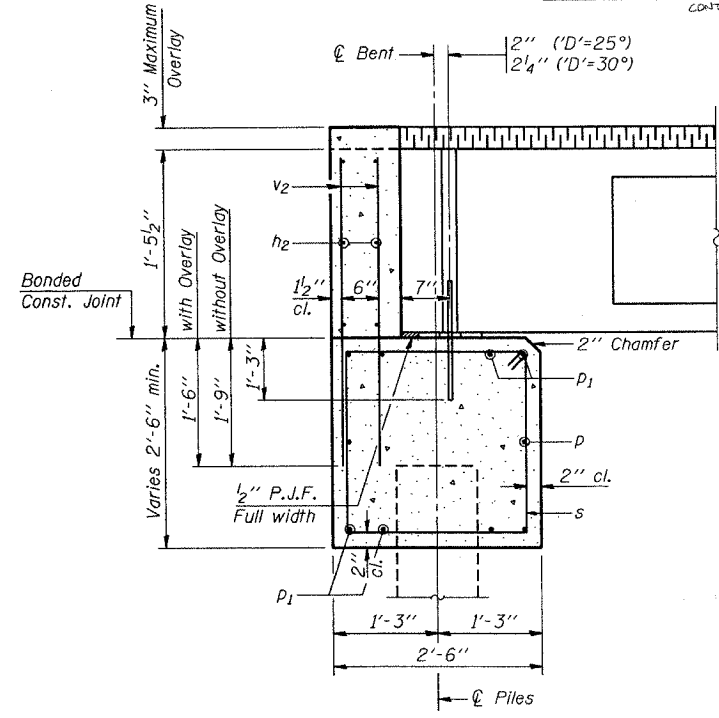
Jun 3 11:32:05 1996 c:\plot\queue\queue3.acf raj /usr/project/brstdpse/1112.prf



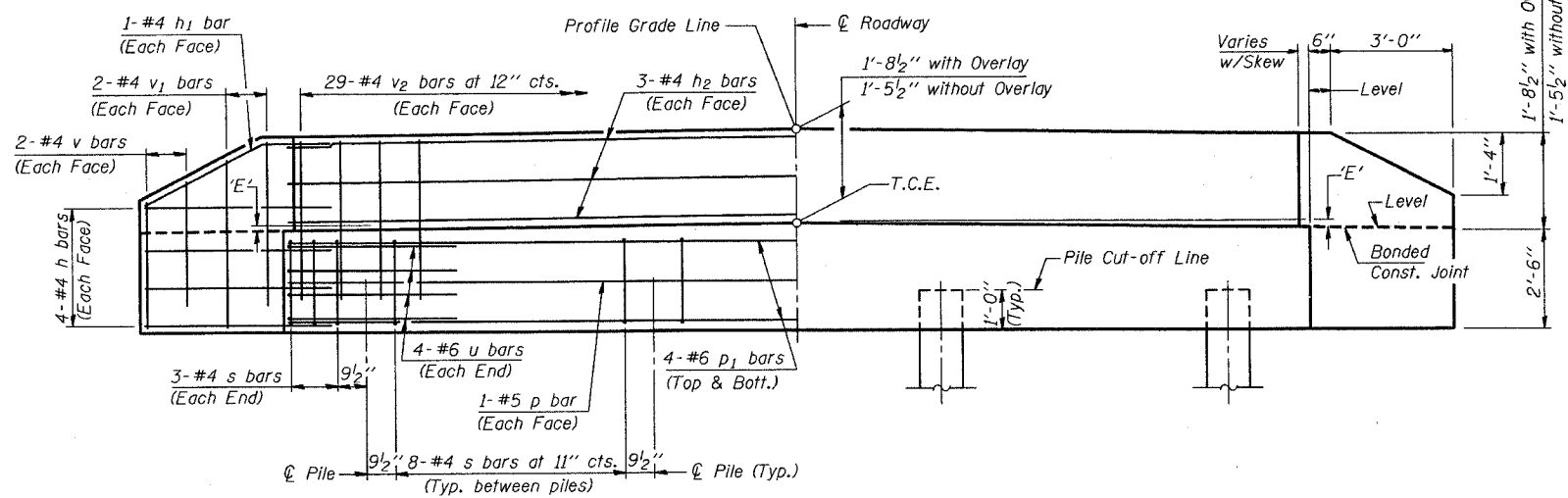
FILE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 230	00-0300-00-BR	HAMILTON	13	8
FED. ROAD DIST. NO. 7		ALLOYS	FED. AID PROJECT NO.	
CONTRACT NO. 95421				



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



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



**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 5/8"	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"	1/8"	4 5/8"
Over 3% to 4%	0"	5 1/8"		

**NOTES**

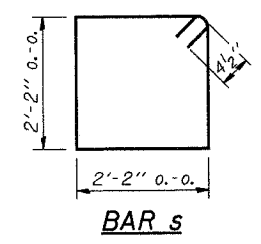
- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
- Reinforcement bars shall conform to A.A.S.H.T.O. M-31, M-42 or M-53, Grade 60.

**MAXIMUM PILE LOADS**

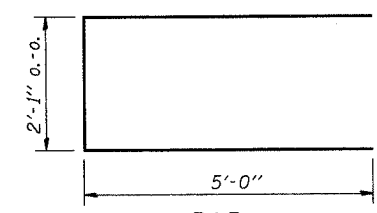
SPAN	TONS
25'	25
30'	26
35'	28
40'	30

**DESIGN STRESSES**

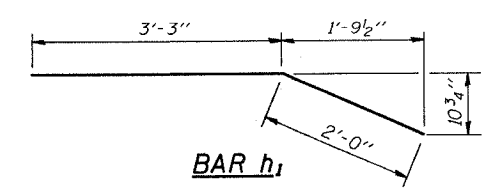
f'c = 3,500 psi  
fy = 60,000 psi



**BAR s**



**BAR u**



**BAR h1**

**BILL OF MATERIAL FOR ONE ABUTMENT**

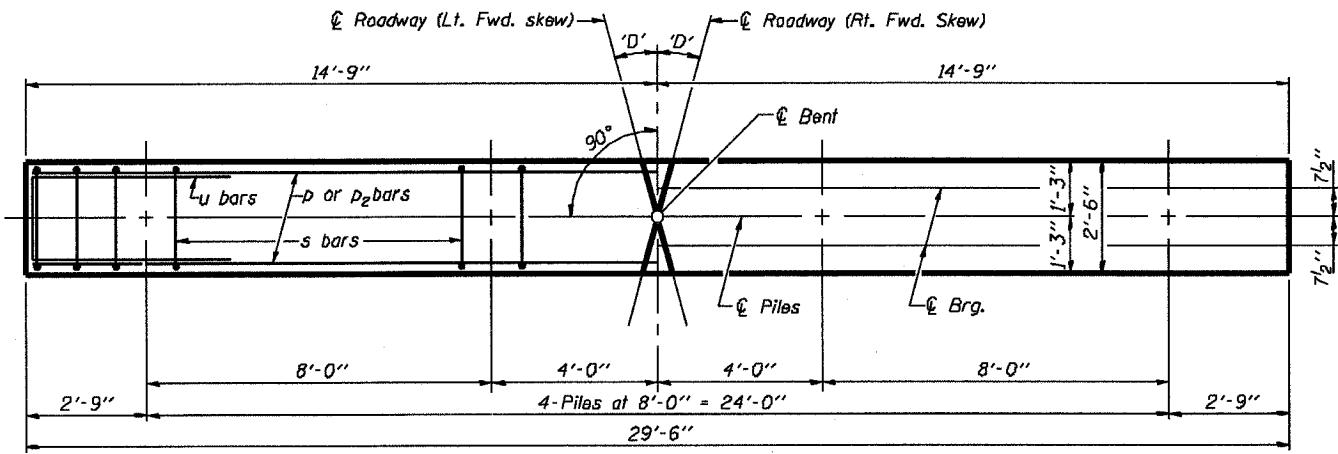
Bar	No.	Size	Length	Shape
h	16	#4	5'-0"	—
h1	4	#4	5'-3"	—
h2	6	#4	29'-2"	—
p	2	#5	29'-2"	—
p1	8	#6	29'-2"	—
s	30	#4	9'-5"	□
u	8	#6	12'-1"	□
v	8	#4	2'-6"	—
v1	8	#4	3'-5"	—
v2	58	#4	3'-1"	—
Concrete Structures			9.7	Cu. Yds.
Reinforcement Bars			1080	Lbs.

**P.P.C. DECK BEAMS  
PILE BENT ABUTMENT**

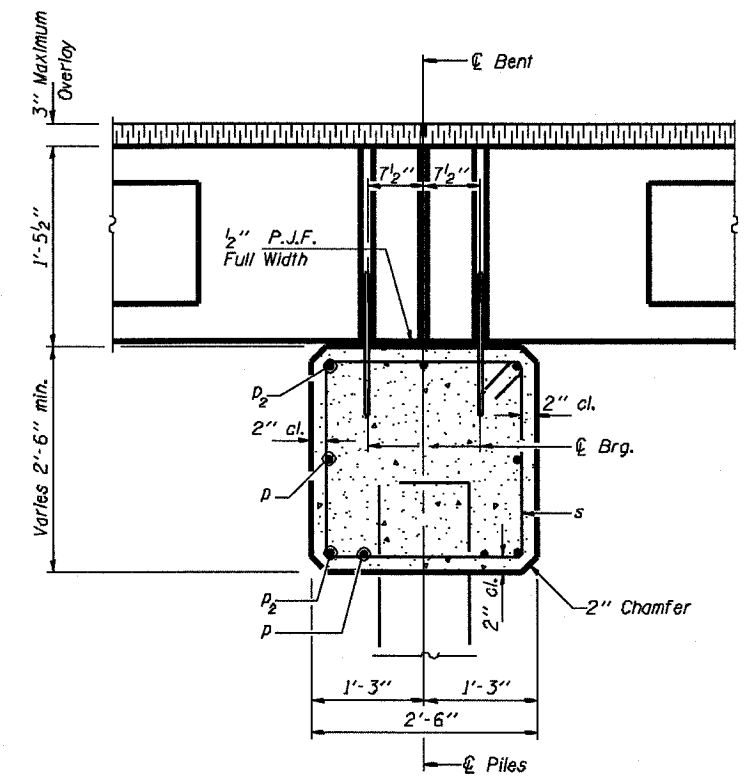
24' RDWY.	17" BMS.	D'=25° OR 30°
STANDARD CA-2417-30		

Illinois Department of Transportation  
PASSED November 1, 1995  
*Orsi D. Kapa*  
Engineer of Bridge Design  
APPROVED November 1, 1995  
*Ralph E. Walker*  
Engineer of Bridges and Structures

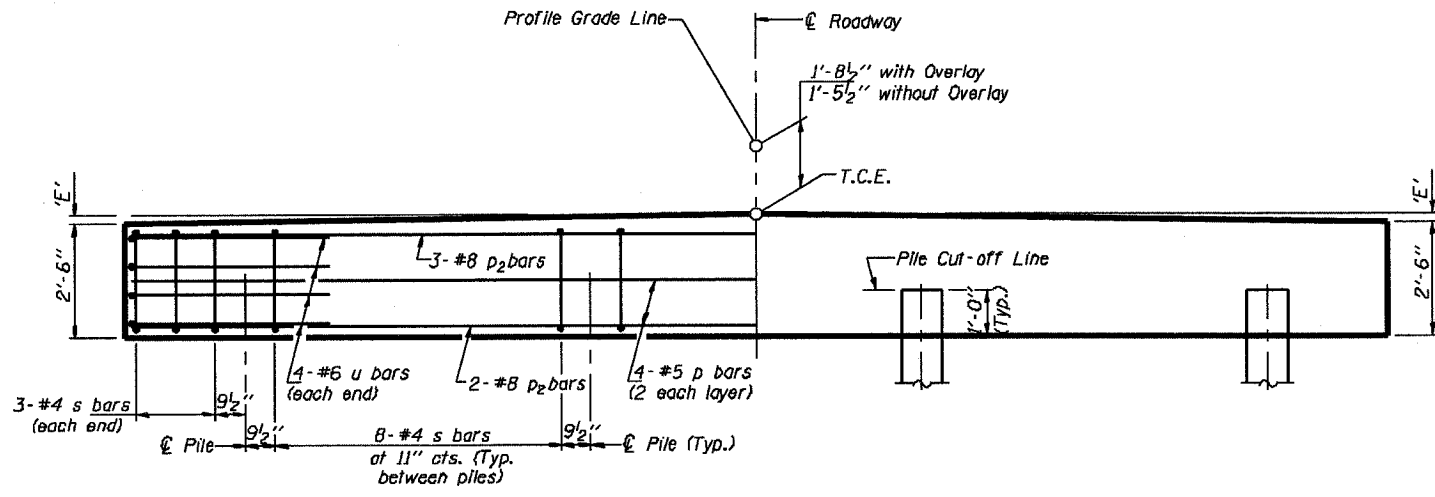




**PLAN**  
 ('D' = Designated Skew Angle)



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



**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 1/8"		

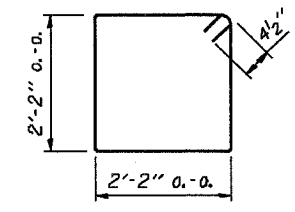
**MAXIMUM PILE LOADS**

SPAN	TONS
25'	33
30'	37
35'	41
40'	44

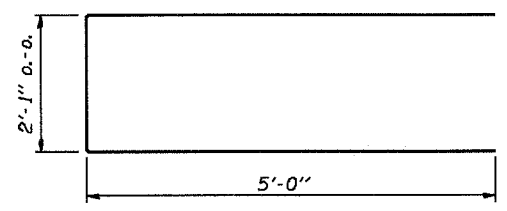
Larger of Either Span Supported by Pier.

**DESIGN STRESSES**

$f'_c = 3,500$  psi  
 $f_y = 60,000$  psi



**Bar s**



**Bar u**

**BILL OF MATERIAL FOR ONE PIER**

Bar	No.	Size	Length	Shape
p	4	#5	29'-2"	—
p2	5	#8	29'-2"	—
s	30	#4	9'-5"	□
u	8	#6	12'-1"	—
Concrete Structures			7.1	Cu. Yds.
Reinforcement Bars			850	Lbs.

**NOTE**

Reinforcement bars shall conform to A.A.S.H.T.O. M-31, M-42 or M-53, Grade 60.

Illinois Department of Transportation  
 PASSED November 1, 1995  
*Prof. J. Harper*  
 Engineer of Bridge Design  
 APPROVED November 1, 1995  
*Ralph E. Anderson*  
 Engineer of Bridges and Structures

**P.P.C. DECK BEAMS  
 PILE BENT PIER**  
 24' RDWY. 17" BMS. 'D'=25° OR 30°  
 STANDARD CP-2417-30

**NOTES**

Hollow structural steel tubing shall conform to the requirements of ASTM designation A-500 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 A-307 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 in accordance with AASHTO M-232.

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

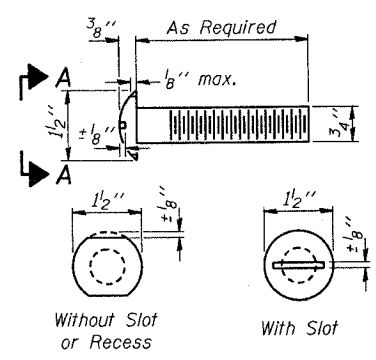
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost incidental to Steel Railing, Type S-1.

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

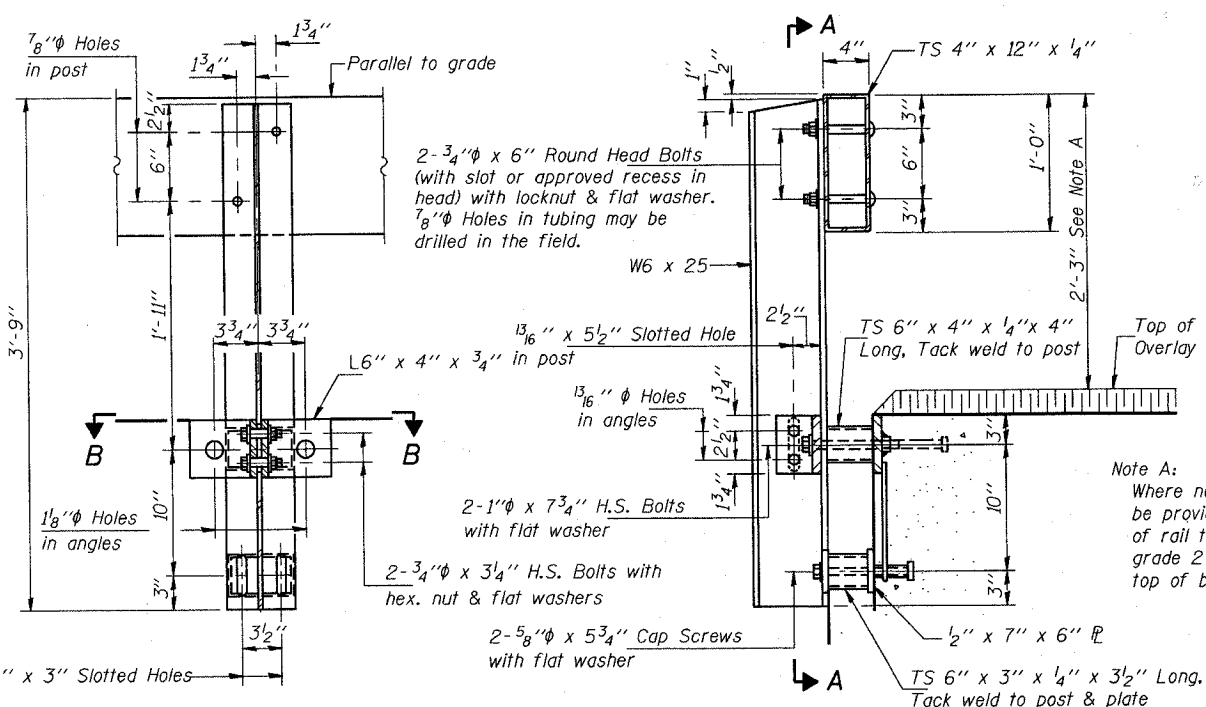
The 1/2" x 7" x 6" plates that come in contact with concrete shall receive two coats of asphalt paint conforming to Section 760.07 Type II or place 1/8" fabric bearing pads between the plates and concrete.

The 3/4" high strength bolts used to connect the 6" x 4" x 3/4" angles to the post shall be tightened in accordance with Article 505.04 (f) (3) 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 1/8 turn. The 5/8" cap screws in bottom of posts shall be tightened to a snug fit only.

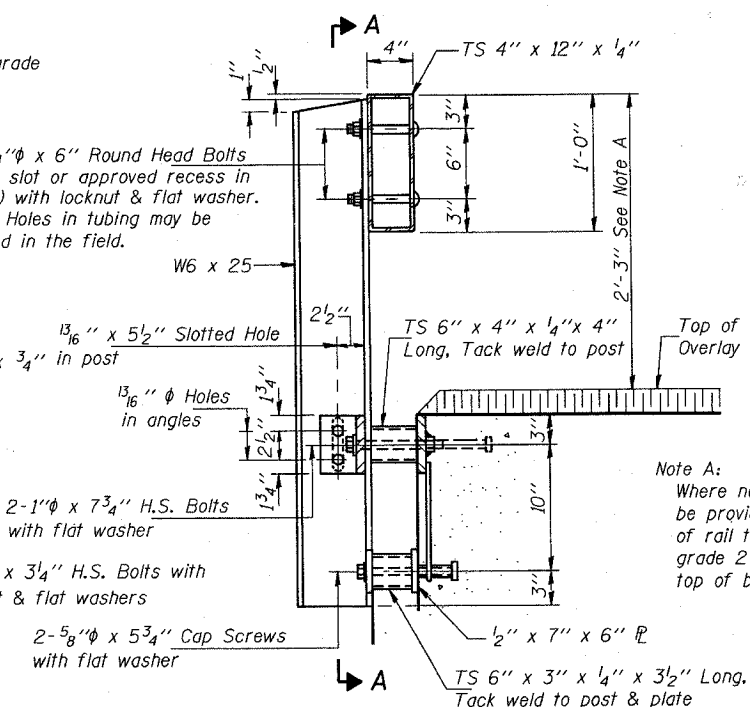
The maximum allowable rail post spacing shall be 10'-6". The rail post spacing shown elsewhere in the plans is based on the allowable spacing for another type of rail. When this type of rail is used, the number of posts may be decreased and the post spacing increased to provide equal post spaces of 10'-6"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



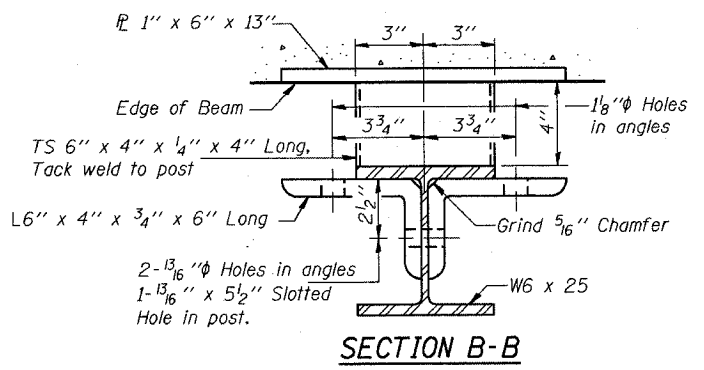
**VIEW A-A  
 ROUND HEAD BOLT**



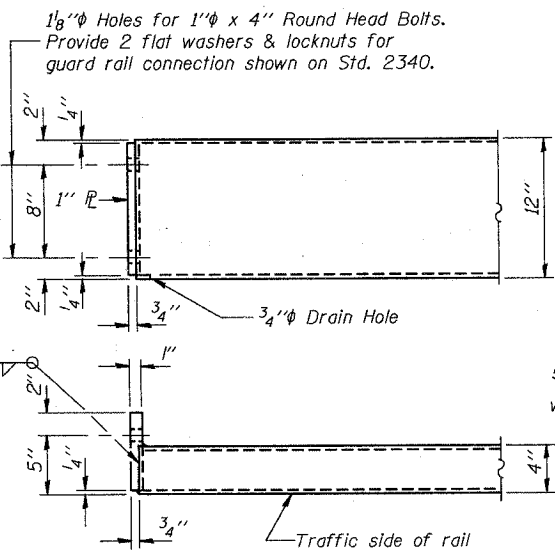
**SECTION A-A**



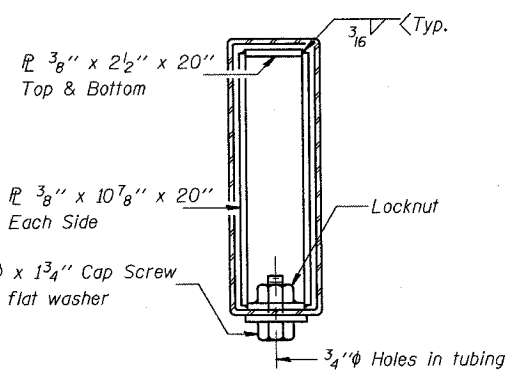
**SECTION AT RAIL POST**



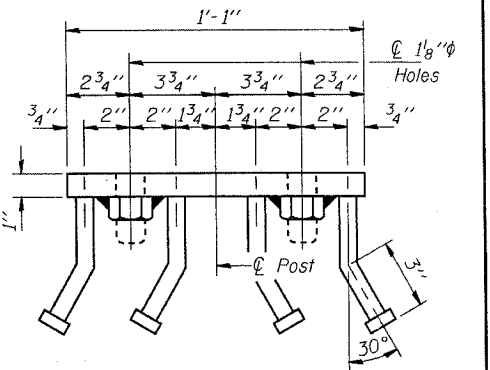
**SECTION B-B**



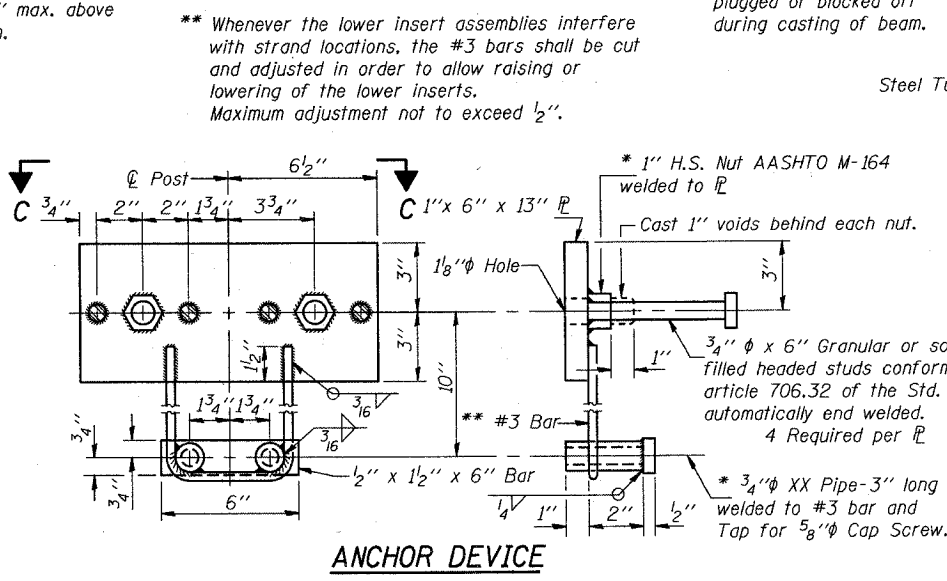
**END OF RAIL DETAILS**



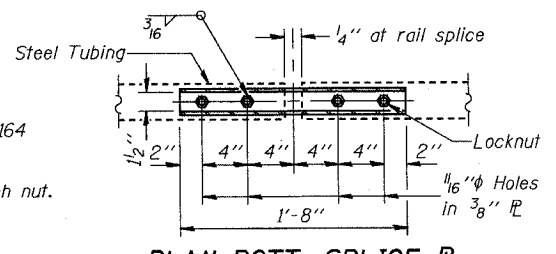
**SECTION AT RAIL SPLICE**



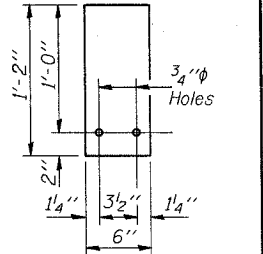
**VIEW C-C**



**ANCHOR DEVICE**



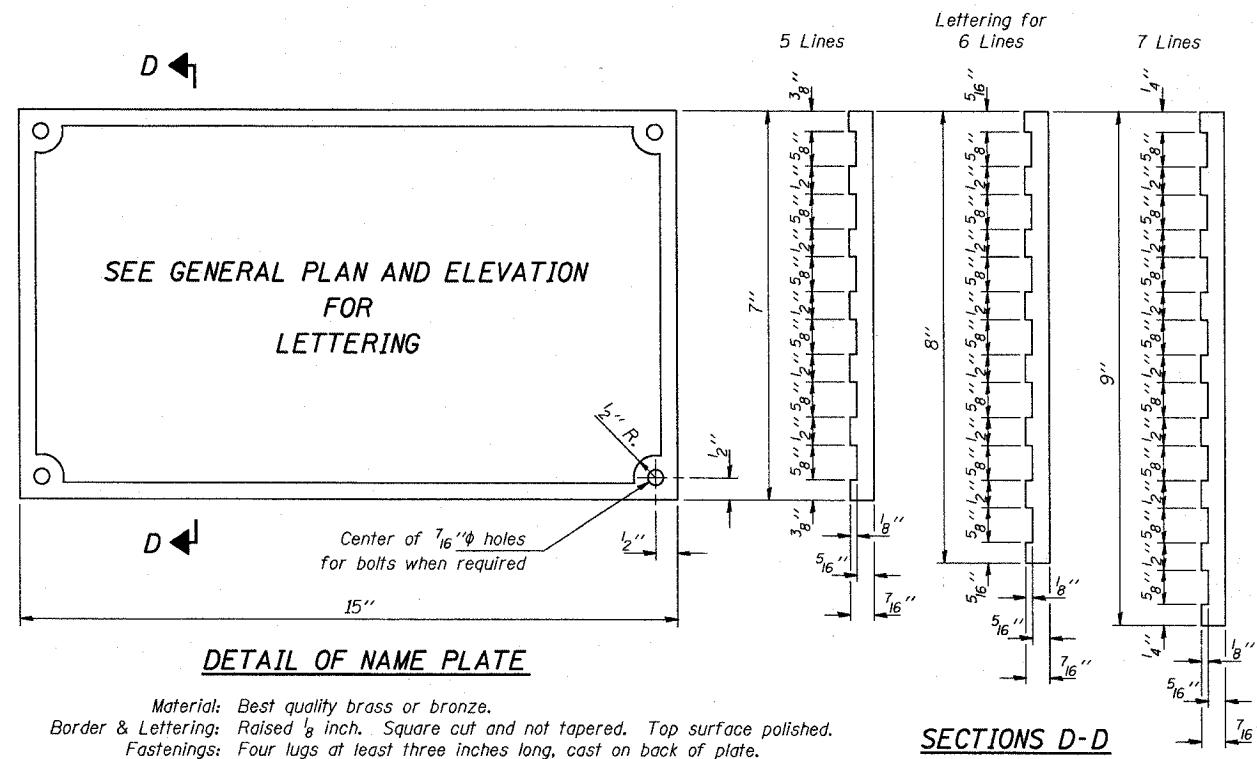
**PLAN-BOTT. SPLICE TYPICAL**



**1/4 SHIM PLATE**

Illinois Department of Transportation  
 PASSED November 1, 1995  
 Approved November 1, 1995  
 Engineer of Bridges and Structures

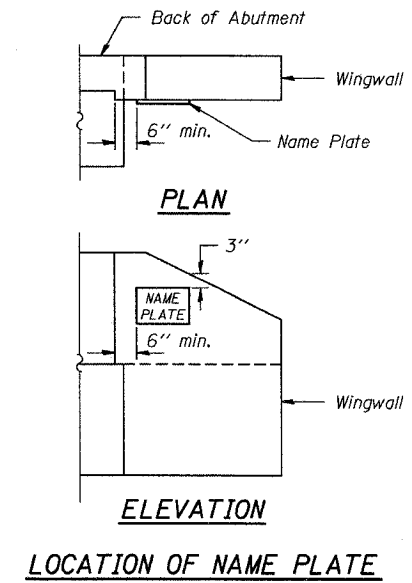
**STEEL RAILING, TYPE S-1  
 STANDARD CR-TS1**



**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**

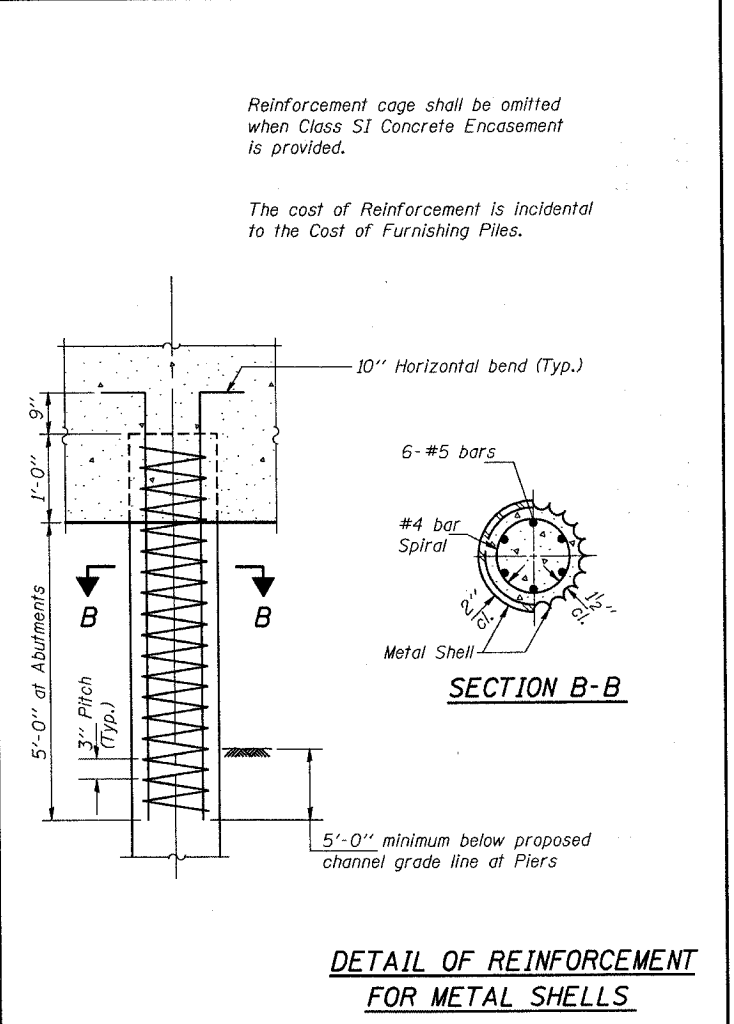
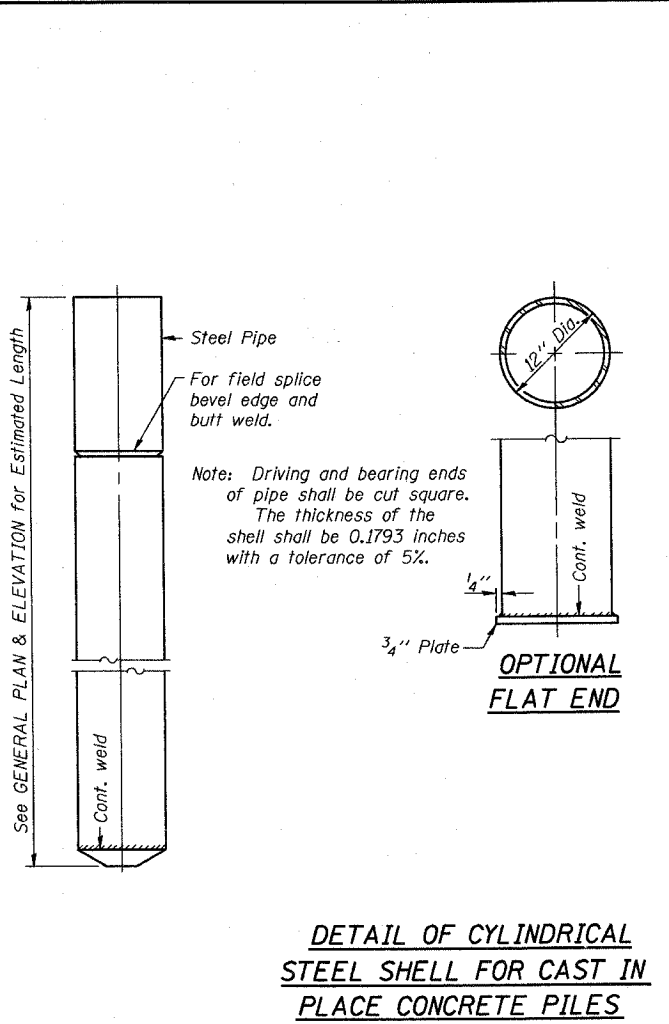
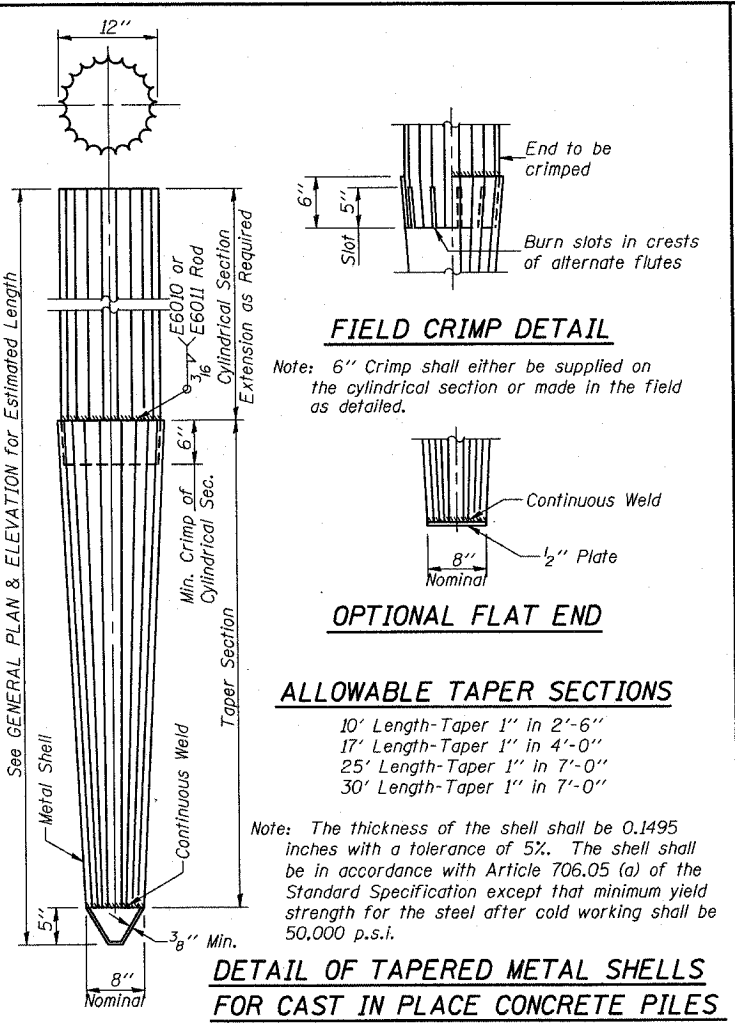
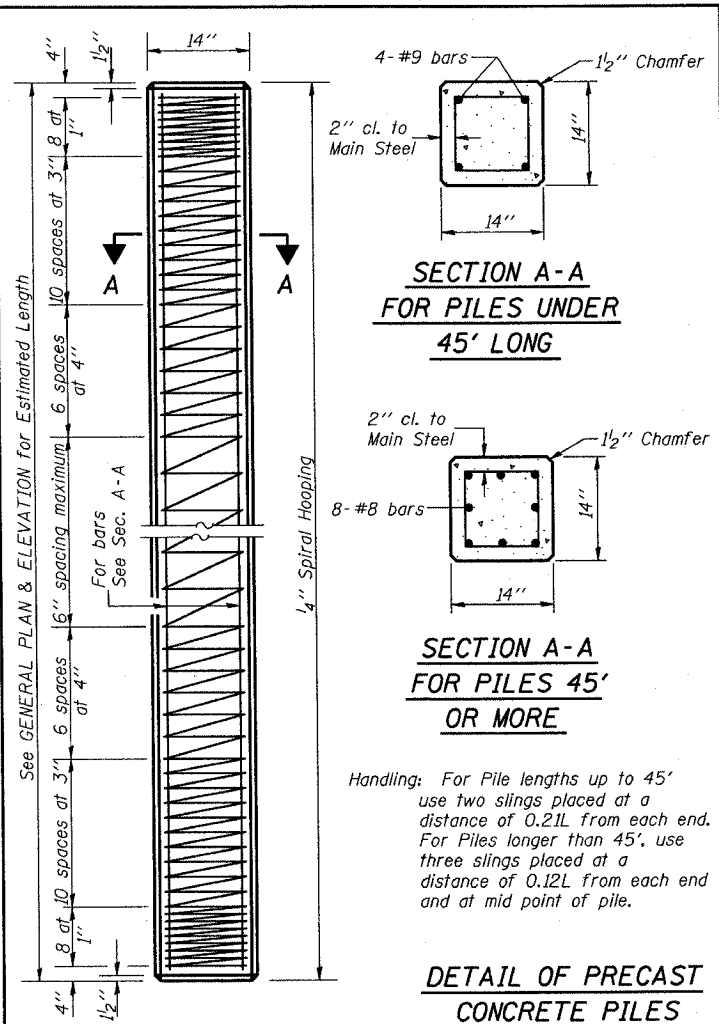


**LOCATION OF NAME PLATE**

Jul 1 15:15:19 1996 c:\p105\queue\queue3\acf\_may\usr\project\brstdpe\engr\ai1.prf

Illinois Department of Transportation	
PASSED November 1, 1995 <i>Raj D. Kasper</i> Engineer of Bridge Design	ISSUED 7-1-95
APPROVED November 1, 1995 <i>Ralph E. Anderson</i> Engineer of Bridges and Structures	

NAME PLATE
STANDARD CN



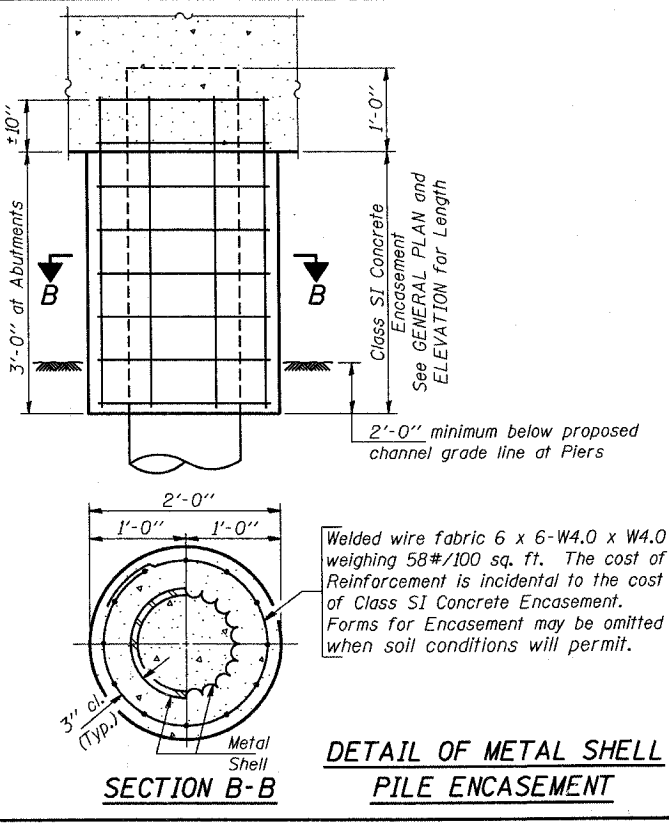
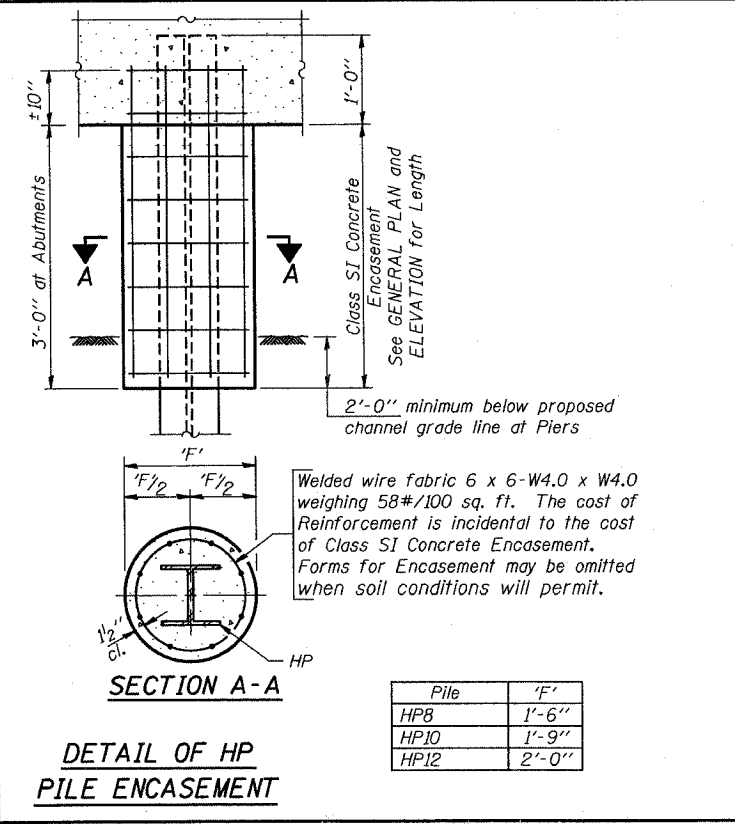
Illinois Department of Transportation

PASSED November 1, 1995

Engineer of Bridge Design

APPROVED November 1, 1995

Engineer of Bridges and Structures



**QUANTITIES/LIN. FT. OF ENCASEMENT**

(STEEL PILES)

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

(METAL SHELL PILES)

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

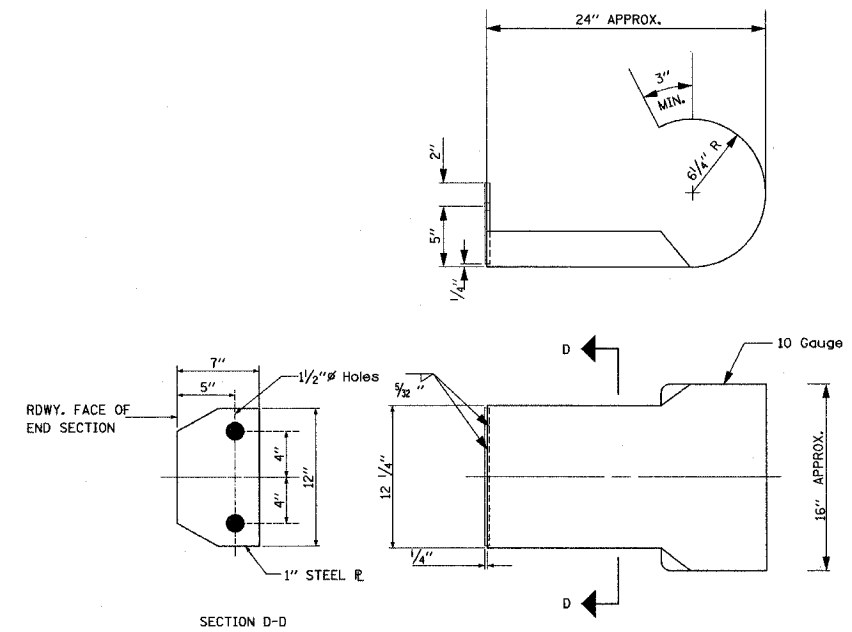
**PILE DETAILS**

**STANDARD CX-1**

7 034218 1995 c:\p101\queue\queue3.acf\_rsq\_user\project\br\stdp\anapile.prf

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 236	00-09154-00-88	HAMILTON	13	13
FED. ROAD DIST. NO. 7 ILLINOIS			FED. AID PROJECT	
CONTRACT NO. 95471				

CURLED END SECTION DETAIL



ALL OTHER STEEL SHAPES AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M-183 EXCEPT POSTS AND ANGLES SHALL CONFORM TO A.A.S.H.T.O. M-223, GRADE 50.

BOLTS, CAP SCREWS, AND NUTS SHALL CONFORM TO THE REQUIREMENT OF A.S.T.M. DESIGNATION A-307 EXCEPT FOR HIGH STRENGTH BOLTS, NUTS, AND WASHERS NOTED WHICH SHALL CONFORM TO A.A.S.H.T.O. DESIGNATION M-164.

ALL BOLTS, NUTS, CAP SCREWS, WASHERS, AND LOCK WASHERS SHALL BE GALVINIZED IN ACCORDANCE WITH A.A.S.H.T.O. DESIGNATION M-232.

ALL FIELD DRILLED HOLES SHALL BE COATED WITH AN APPROVED ZINC RICH PAINT BEFORE ERRECTION.