

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 284	05-13111-00-BR	EFFINGHAM	13	1
CONTRACT NO. 95519		ILLINOIS	PROJECT BROS-049(153)	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

Joint Utility Locating Information for Excavators  
JULIE 1-800-892-0123

PLANS FOR PROPOSED  
HIGHWAY BRIDGE PROGRAM PROJECT  
SECTION 05-13111-00-BR EFFINGHAM COUNTY  
PROJECT BROS-049(153)  
JOB NO. C-97-074-07

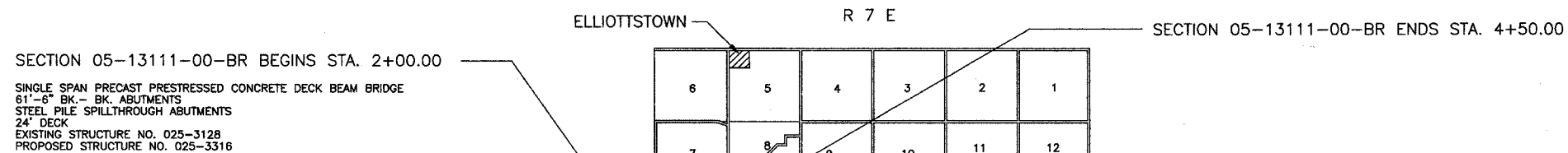
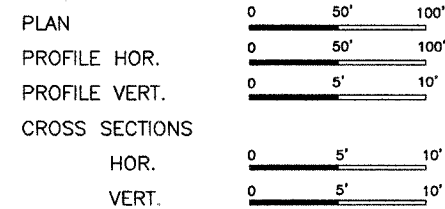
INDEX OF SHEETS

SHEET	ITEM
1	COVER SHEET
2	SUMMARY OF QUANTITIES
3	ROADWAY PLAN AND PROFILE
4	GENERAL PLAN AND ELEVATION
5	STANDARD CS-2427-60
6	STANDARD CB-2427-36
7	STANDARD CB-2427-48
8	STANDARD CA-2427-10
9	STANDARD CR-TS1
10	STANDARD CN
11	STANDARD CX-1
12-13	CROSS SECTIONS

STANDARD DRAWINGS

- STANDARD 000001-04
- STANDARD 280001-03
- STANDARD 702001-06
- STANDARD BLR 21-6
- STANDARD BLR 22-4

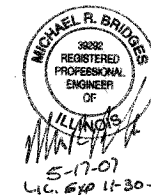
T.R. 284



CONTRACT NO. 95519

RURAL LOCAL ROAD  
ADT = 75  
DESIGN SPEED = 30 M.P.H.

NET LENGTH SECTION 05-13111-00-BR = 250.00 Ft. = 0.047 Mi.



CHARLESTON ENGINEERING INC.  
105 N. KITCHELL  
P.O. BOX 397  
OLNEY, ILLINOIS 62450  
PH. 618-392-0736

APPROVED May 18 2007  
COUNTY ENGINEER

PASSED May 30 2007  
DISTRICT SEVEN ENGINEER OF LOCAL ROADS AND STREETS

Releasing For Bid Based on Limited Review May 30 2007  
DEPUTY DIRECTOR OF HIGHWAYS  
REGION FOUR ENGINEER

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

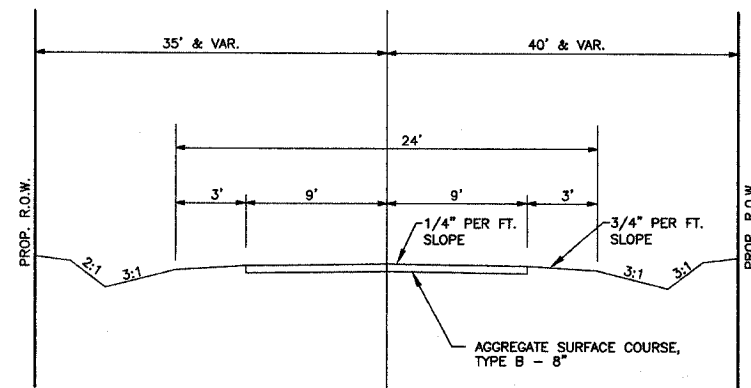
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 284	05-13111-00-BR	EFFINGHAM	13	2
CONTRACT NO. 95519		ILLINOIS	PROJECT BROS-049(153)	

**DESIGN DATA**

LOCAL ROAD  
ADT = 75

**GENERAL NOTES**

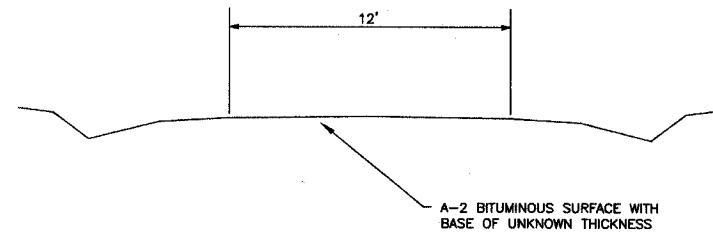
- SEEDING: THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE PORTIONS OF SECTION 250 OF THE STANDARD SPECIFICATIONS AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR SEEDING CLASS 2 (SPECIAL).
    - SPRING SEEDING SHALL EXTEND FROM JANUARY 1 TO JUNE 30
    - FALL SEEDING SHALL EXTEND FROM JULY 1 TO DECEMBER 31
  - FERTILIZER NUTRIENTS SHALL BE APPLIED AT THE RATE OF 100 LB/ACRE
  - MULCHING SHALL BE DONE IN ACCORDANCE WITH ARTICLE 251 OF THE STANDARD SPECIFICATIONS AND SHALL BE DONE BY METHOD 2, PROCEDURE 2 AT THE RATE OF 2 TONS PER ACRE.
2. NO PAYMENT FOR OVERHAUL WILL BE MADE ON THIS SECTION.



**TYPICAL SECTION**

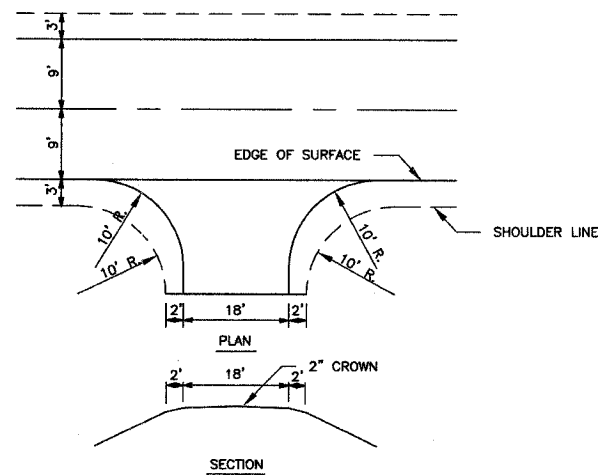
PROPOSED

SUMMARY OF QUANTITIES			
CODE NO.	ITEM	UNIT	QUANTITY
20200100	TREE REMOVAL (OVER 15 UNITS DIAMETER)	UNIT	44
20200100	EARTH EXCAVATION	CU YD	35
20300100	CHANNEL EXCAVATION	CU YD	160
25001000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.20
28000310	AGGREGATE DITCH CHECKS	EACH	2
28000900	FENCE (EROSION CONTROL)	FOOT	220
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	150
35101400	AGGREGATE BASE COURSE, TYPE B	TON	60
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	160
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	18.2
50300280	CONCRETE ENCASEMENT	CU YD	2.1
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27\"/>		

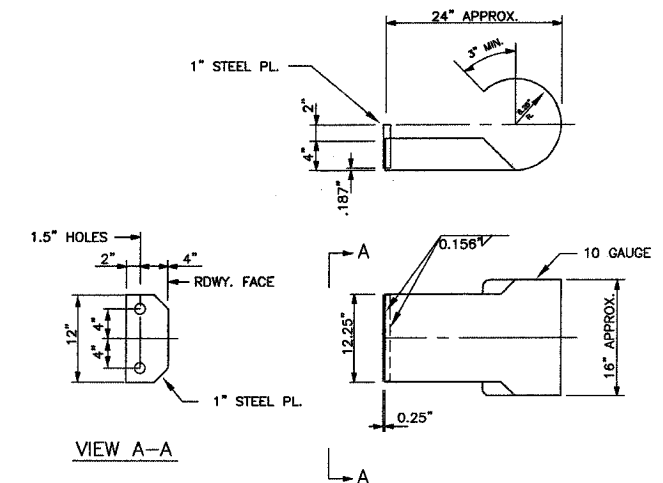


**TYPICAL SECTION**

EXISTING



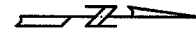
**FIELD ENTRANCE DETAIL**



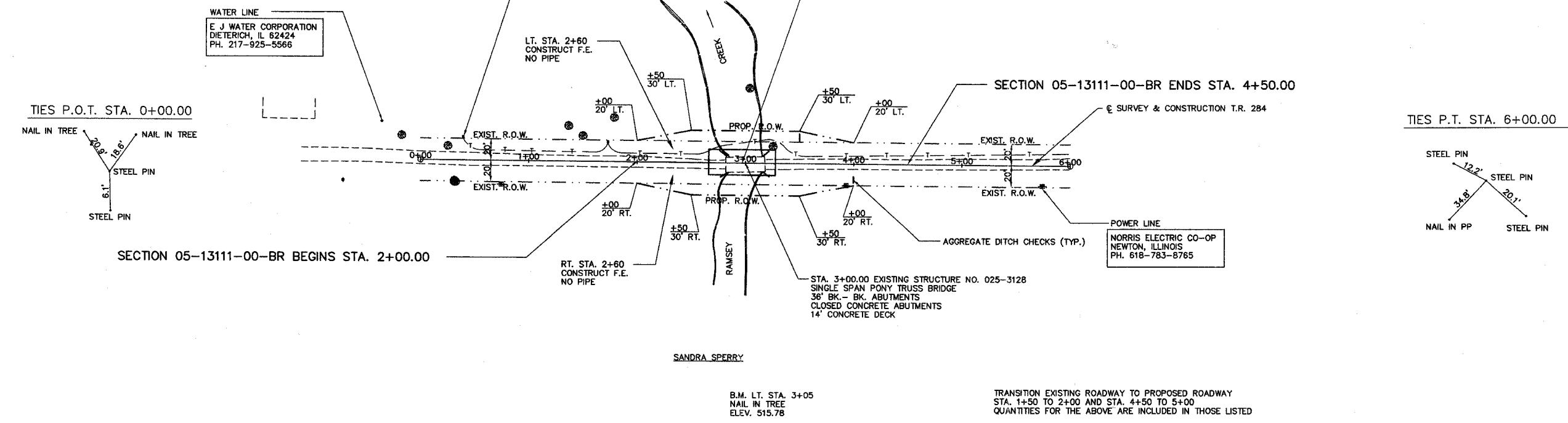
**CURLED END SECTION DETAILS**

4 REQUIRED - COST INCLUDED IN  
"STEEL RAILING, TYPE S-1"

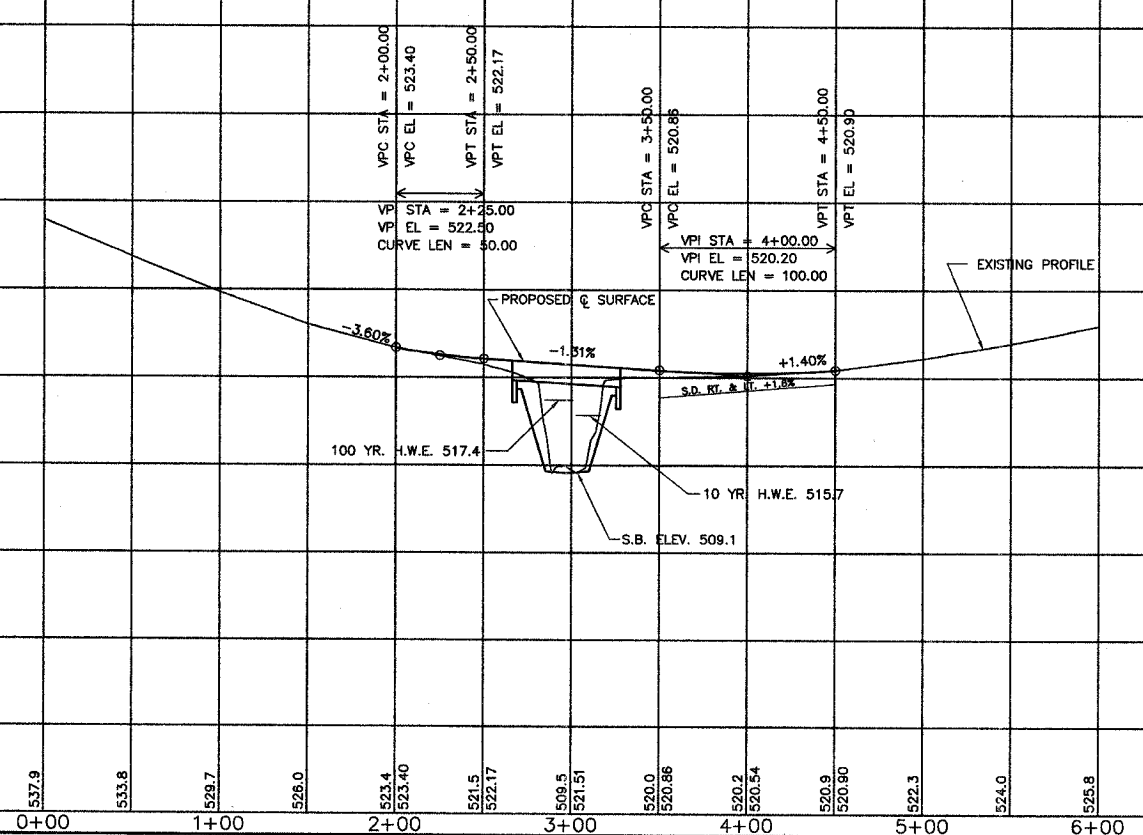
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 284	05-13111-00-BR	EFFINGHAM	13	3
CONTRACT NO. 95519		ILLINOIS	UNION ROAD DISTRICT	



SCALES:  
1" = 50' HOR  
1" = 10' VER

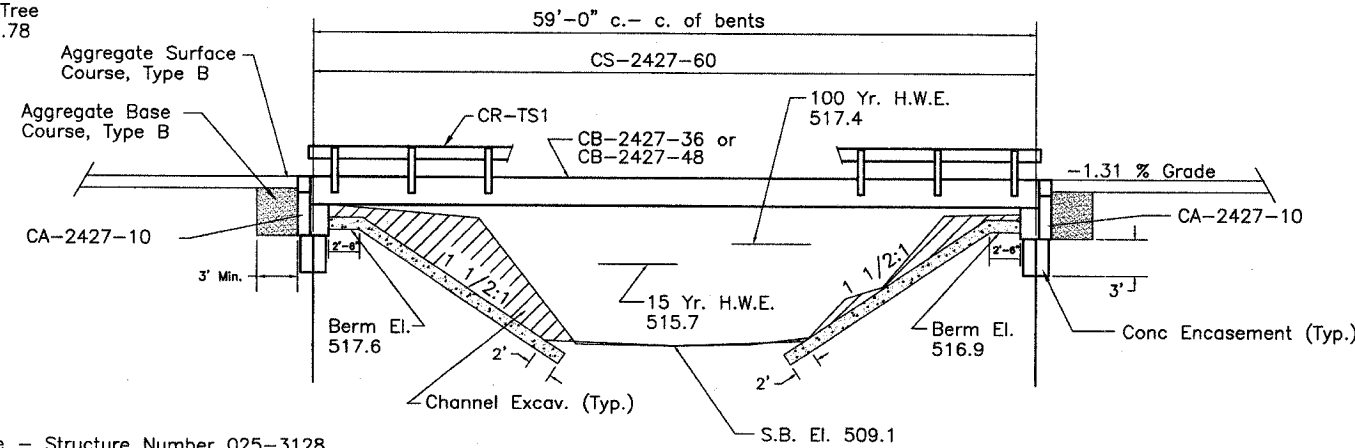


Station	Description	Quantity	Unit
560			560
550	EARTHWORK		CU. YD.
	EARTH EXCAVATION	35	
	CHANNEL EXCAVATION	180	
	EMBANKMENT	110	
540			540
	SEEDING CLASS 2 (SPECIAL)	0.20	ACRE
530	AGG. SURF. CSE. TYPE B	160	TON
	STA. 2+00 TO 4+00		
520	AGGREGATE DITCH CHECKS	2	EACH
	STA. 2+00 TO 4+00		
510			510
500			500
490			490
480			480
470			470



B.M. - Lt. Sta. 3+05  
Spike in Tree  
Elev. 515.78

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 284	05-13111-00-BR	EFFINGHAM	13	4
CONTRACT NO. 95519		ILLINOIS		

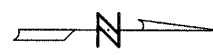


**GENERAL NOTES**

- The Contractor shall drive 2 test piles as specified in a permanent location as directed by the Engineer before ordering the remaining piles.
- See Special Provisions for boring logs.
- A Calcium Nitrite Corrosion inhibitor, as covered in the Special Provisions shall be used in the concrete for precast prestressed concrete deck beams.
- Channel Excavation: This material shall be excavated as shown within the limits of the proposed bridge then tapered to the existing channel at the Roadway R.O.W. It is estimated that 50% of the Channel Excavation will be suitable for use in the embankment. Unsuitable material shall be disposed of by the Contractor.

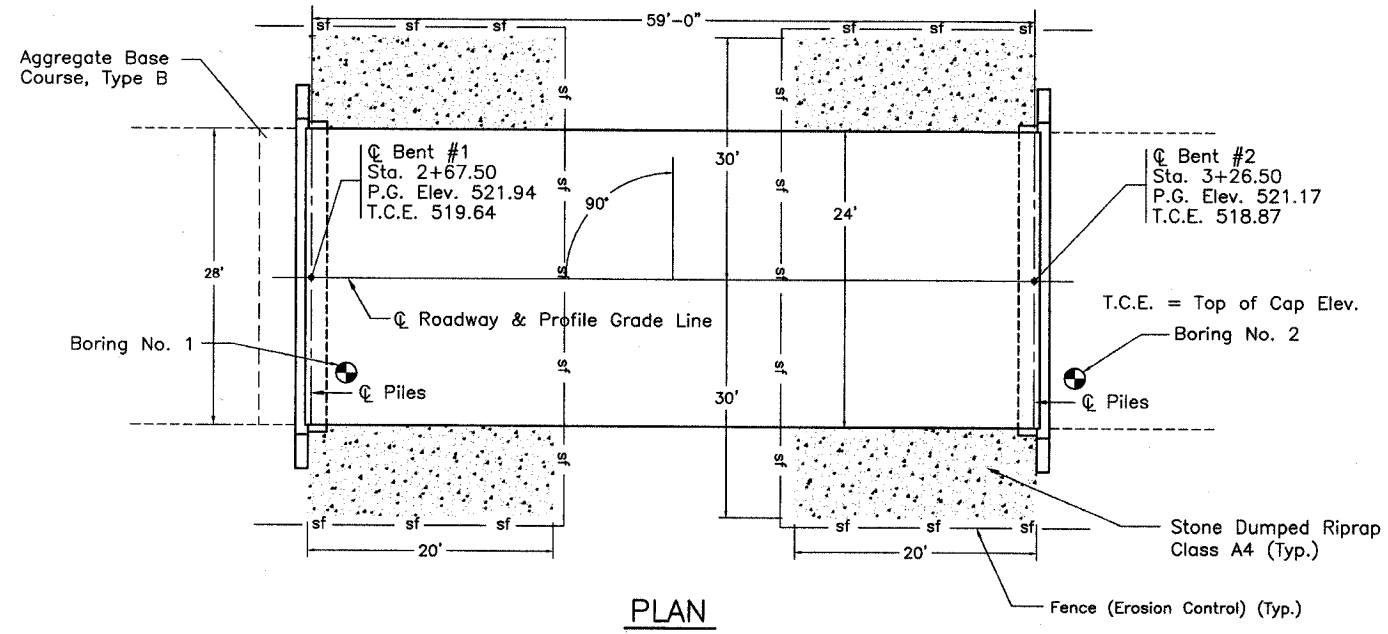
Existing Structure - Structure Number 025-3128  
Single Span Steel Beam Bridge  
36' Bk. - Bk. Abuts.  
Closed Concrete Abutments  
14' Concrete Deck

**ELEVATION**



**TOTAL BILL OF MATERIAL**

Item	Unit	Super	Sub.		Total
			Piers	Abuts.	
Removal of Existing Structures	Each				1
Concrete Structures	Cu.Yds.			18.2	18.2
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq.Ft.	1440			1440
Steel Railing, Type S-1	Foot	120			120
Reinforcement Bars	Pound			2300	2300
Furnishing Steel Piles HP 10 X 42	Foot			300	300
Driving Piles	Foot			300	300
Test Pile Steel HP 10 X 42	Each			2	2
Name Plates	Each			1	1
Concrete Encasement	Cu.Yds.			2.1	2.1
Aggregate Base Course, Type B	Tons			60	60
Stone Dumped Riprap, Class A-4	Tons			150	150
Channel Excavation	Cu.Yds.			160	160
Fence (Erosion Control)	Foot			220	220



**PLAN**

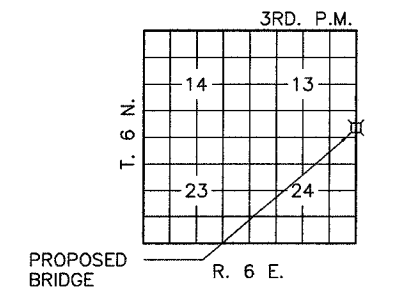
STATION 2+97.00  
RAMSEY CREEK  
SEC. 05-13111-00-BR BUILT 200  
EFFINGHAM COUNTY  
PROJECT BR-OS-(153)  
LOADING HS-20  
STR. NO. 025-3316

**INDEX OF SHEETS**

- GENERAL PLAN & ELEVATION
- STANDARD CS-2427-60
- STANDARD CB-2427-36
- STANDARD CB-2427-48
- STANDARD CA-2427-10
- STANDARD CR-TS1
- STANDARD CN
- STANDARD CX-1

**LETTERING FOR NAME PLATE**

Locate Name Plate at S.E. corner of Bridge (See Std. CR-TS1)



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

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

Type: HP 10 X 42  
Nominal Required Bearing: 335 Kips  
Allowable Resistance Available: 82 Kips  
Estimated Length: 50'  
Number Required: 8 (Includes 2 Test Piles, 1 each located in Bent #1 & Bent #2)

**LOADING HS20-44**

Allow 25#/sq. ft. for future wearing surface

**SEISMIC DATA**

Seismic Performance Category (SPC) = A  
Bedrock Acceleration Coefficient (A) = 7.1%  
Site Coefficient (S) =

**DESIGN SPECIFICATIONS**

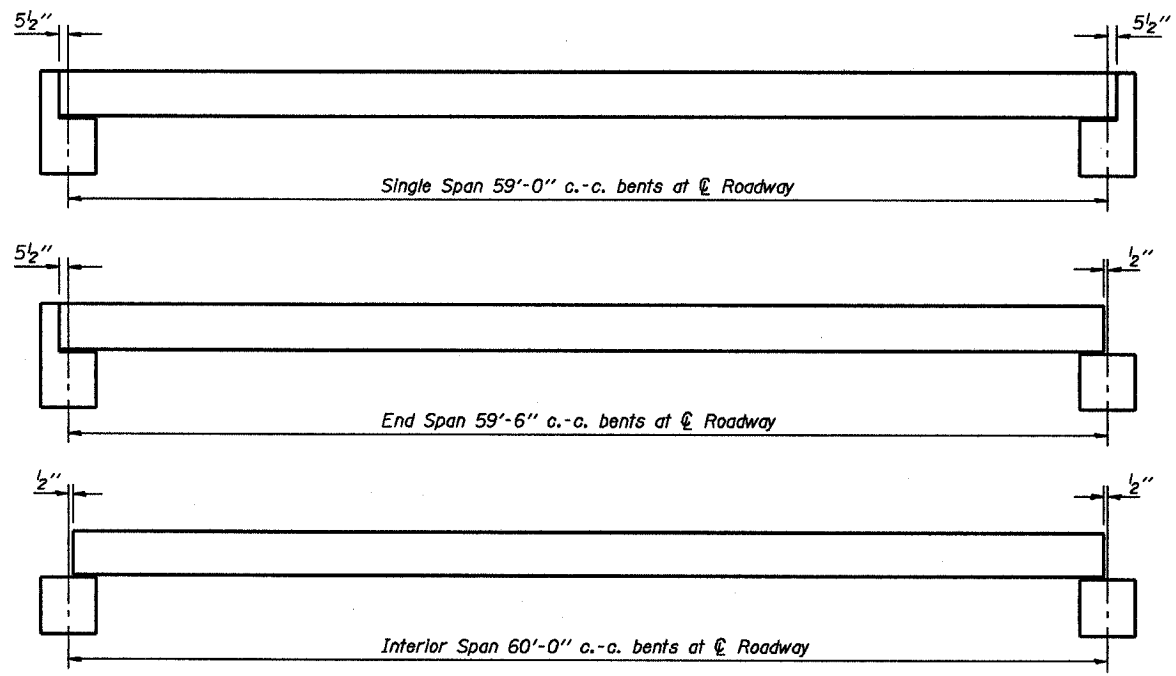
2002 AASHTO Standard Specifications - 17th ed.

**WATERWAY INFORMATION**

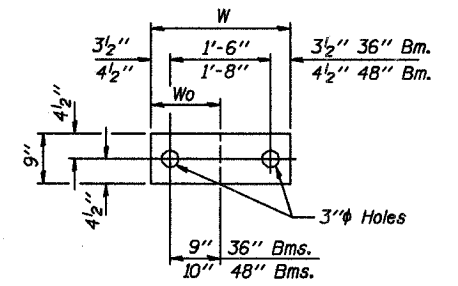
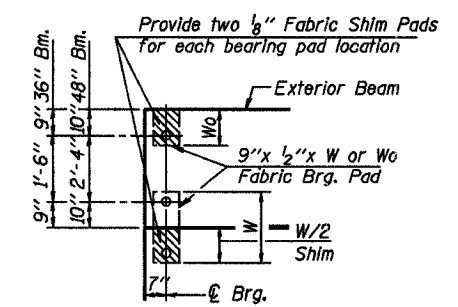
Drainage Area = 6.1 Sq. Mi.		Low Grade Elev. = 521.3 @ Sta. 4+00							
Flood	Freq. Yr.	Q ft <sup>3</sup> /s	Opening ft <sup>2</sup>		Nat. H.W.E.	Head - ft		Headwater	
Design	15	975	Exist.	Prop.	515.7	Exist.	Prop.	Exist.	Prop.
Base	100	1680	212	509	517.4	0.30	0.00	517.7	517.4
Overtopping									
Max. Calc.	500								

**GENERAL PLAN & ELEVATION**

T.R. ROUTE 284  
OVER RAMSEY CREEK  
SECTION 05-13111-00-BR  
EFFINGHAM COUNTY  
STATION 2+97.00

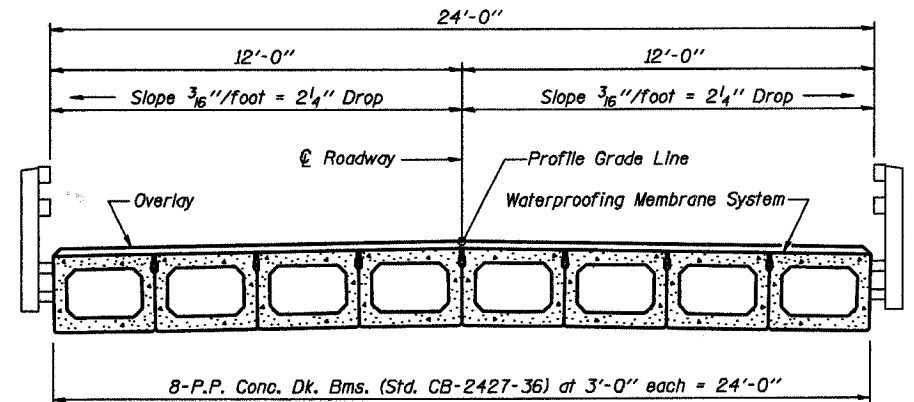


TYPICAL ELEVATIONS

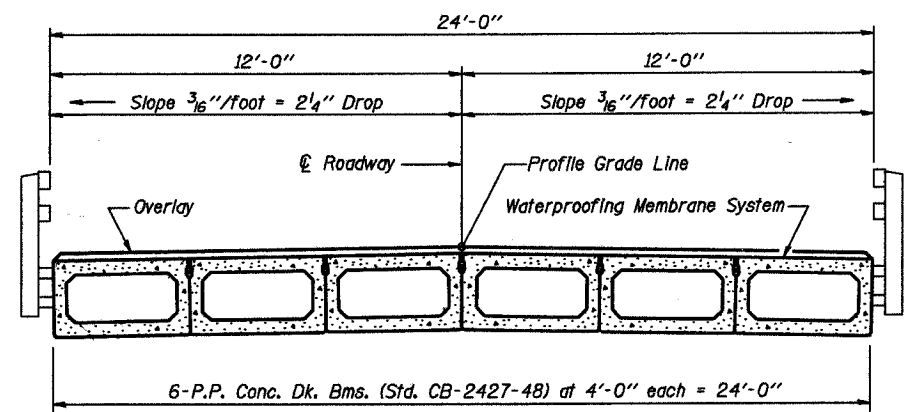


Beam	W	Wo
36"	2'-1"	1'-0 1/2"
48"	2'-5"	1'-2 1/2"

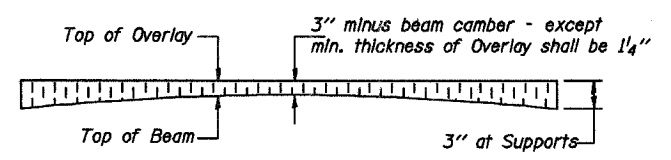
1/2" FABRIC BRG. PAD DETAILS



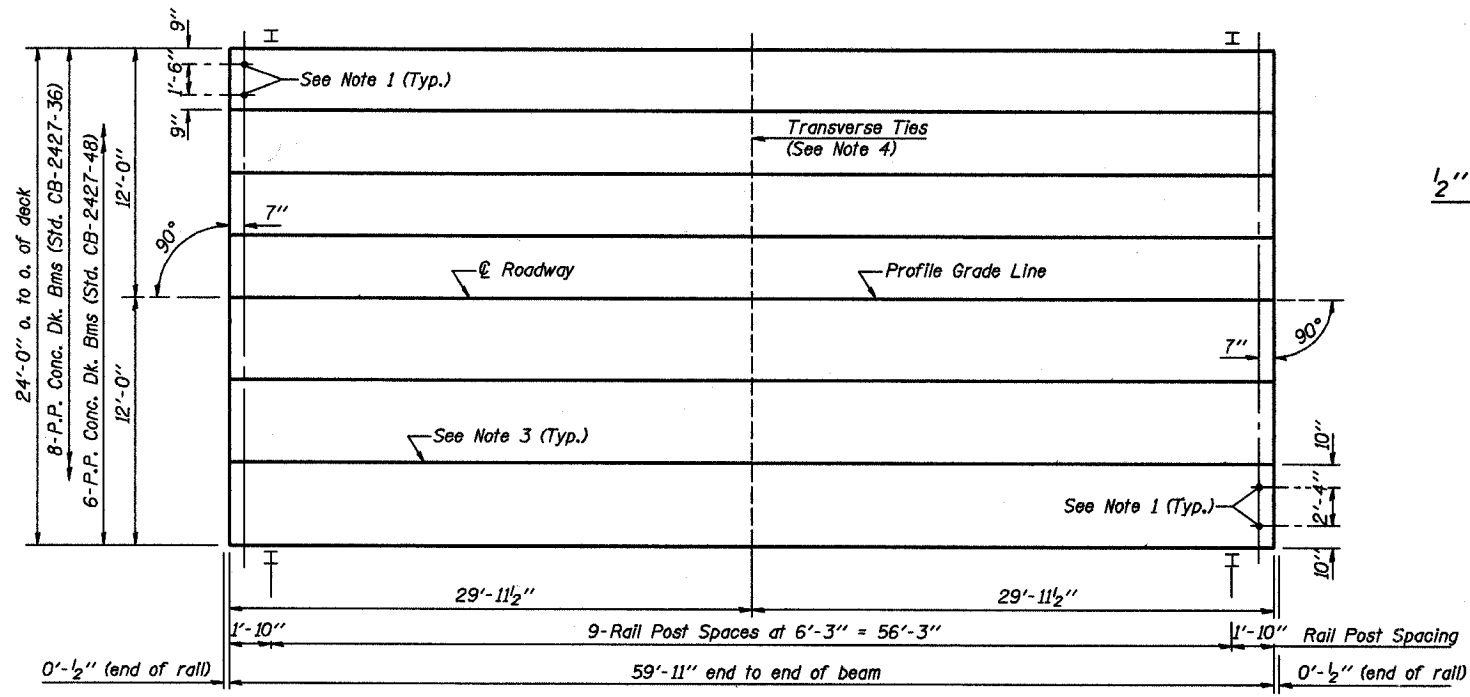
CROSS SECTION



CROSS SECTION



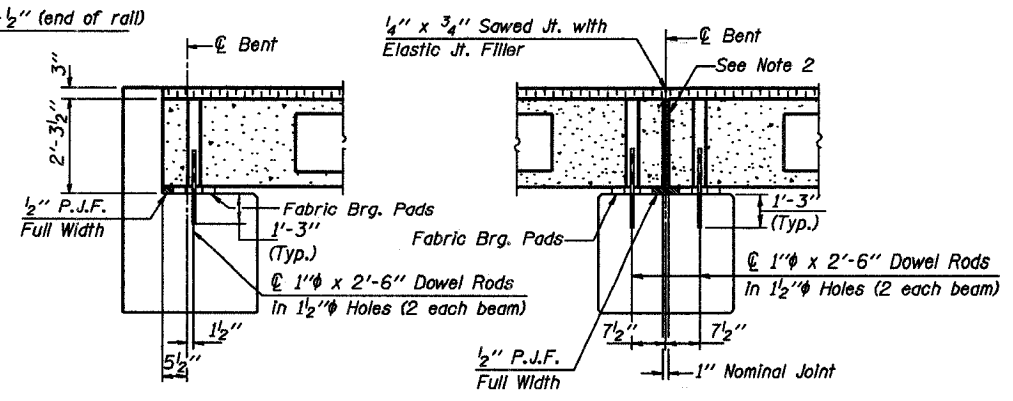
PROFILE OF OVERLAY



PLAN

NOTES

1. 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.
2. Nominal 1" joint at centerline pier shall be filled with non-shrink grout.
3. Longitudinal keys shall be grouted.
4. The 1" phi 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.



SECTION AT ABUTS. (Along centerline Beams)

SECTION AT PIERS (Along centerline Beams)

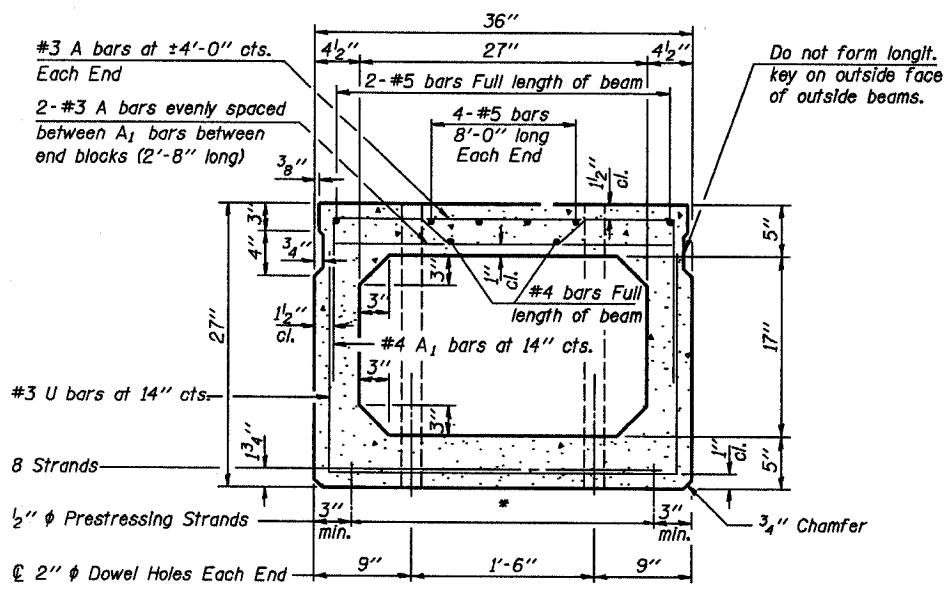
QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 27" Dp.	1440 Sq. Ft.
Steel Railing	120 Ft.
Waterproofing Membrane System	1600 Sq. Yds.
Portland Cement Mortar	400 Ft. 3/8"
Reinforcing Course	300 Ft. 48"

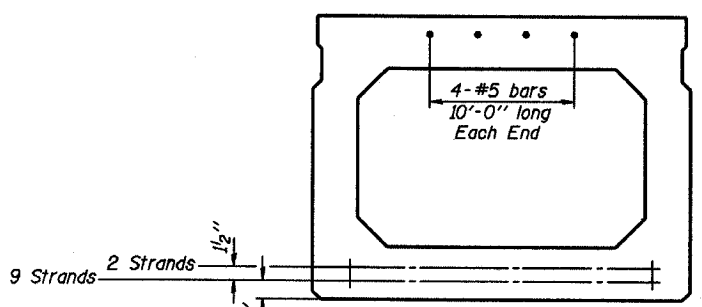
Note: Quantity of overlay for one span = 10.0 Tons

P.P.C. DECK BEAM SUPERSTRUCTURE			
24' RDWY.	27" BMS.	60' SPAN	0° SKEW
STANDARD CS-2427-60			

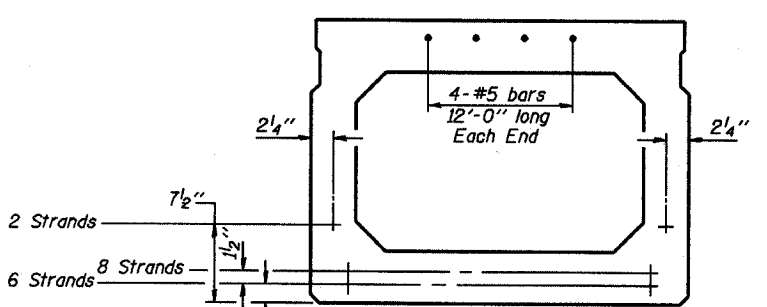
Illinois Department of Transportation  
 PASSED APRIL 4, 2005  
 Theresa J. Venna, P.E.  
 Engineer of Bridge Design  
 APPROVED APRIL 4, 2005  
 Ralph E. Anderson  
 Engineer of Bridges and Structures



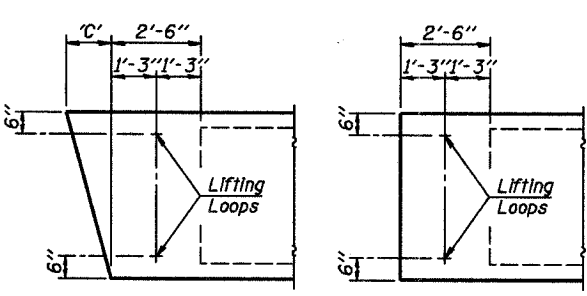
**CROSS SECTION**  
(40' SPAN)



**CROSS SECTION**  
(50' SPAN)

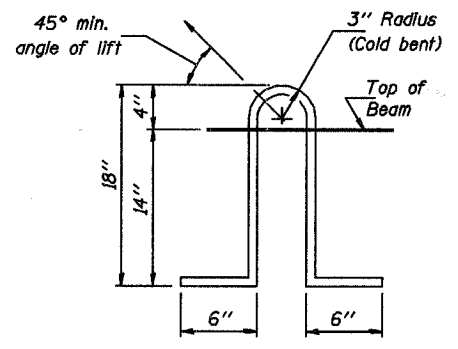


**CROSS SECTION**  
(60' SPAN)



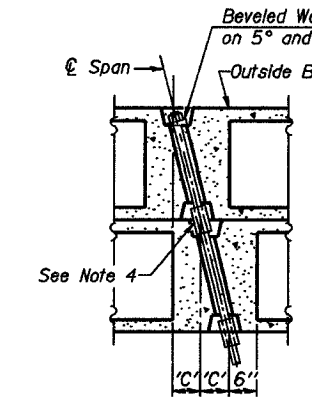
**END BLOCK DETAILS**

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.

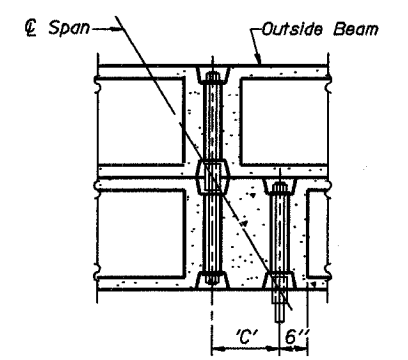


**LIFTING LOOP DETAIL**

Lifting loops shall be 2, 1/2 inch diameter-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°)

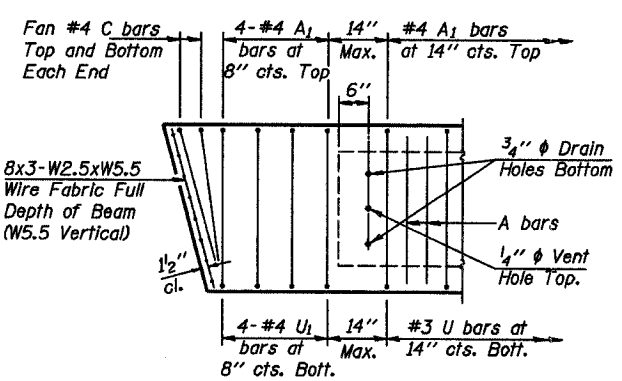
**DIMENSION 'C'**

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

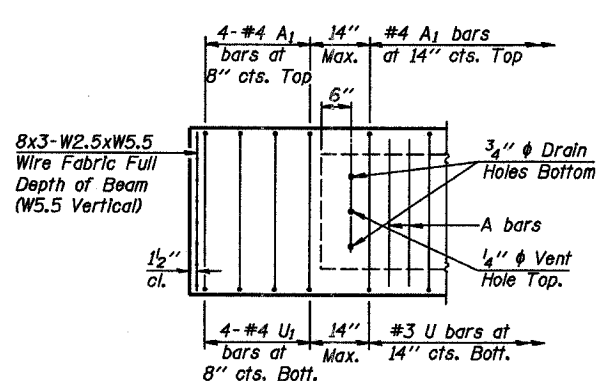
**\* TRANSVERSE STRAND PLACEMENT GUIDELINES**

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".

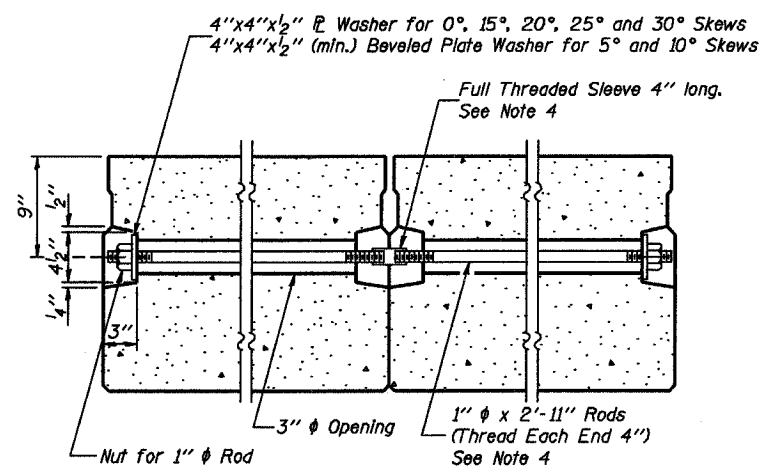
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



**END REINFORCEMENT**  
(SKEWED)



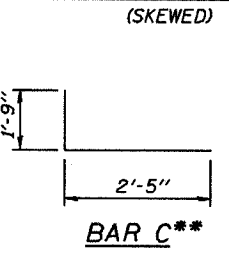
**END REINFORCEMENT**  
(RIGHT ANGLE)



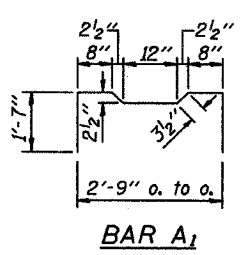
**SECTION ALONG TRANSVERSE TIE ASSEMBLY**  
(REQUIRED FOR 50' & 60' SPANS ONLY)

**NOTES**

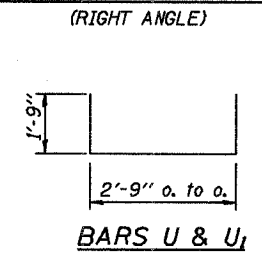
1. Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270.
2. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 square inches.
3. Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-322, Grade 60.
4. On 0°, 5° and 10° skews, 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.



**BAR C\*\***



**BAR A1**



**BARS U & U1**

**DESIGN STRESSES**

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

**MIN. BAR LAP**

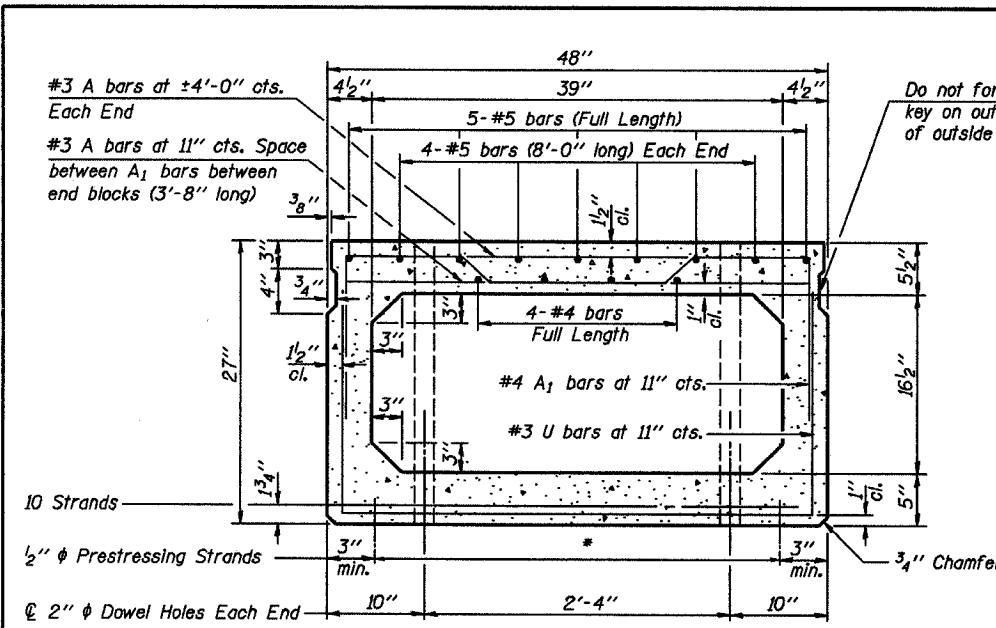
- #4 bars = 1'-4"
- #5 bars = 1'-8"

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

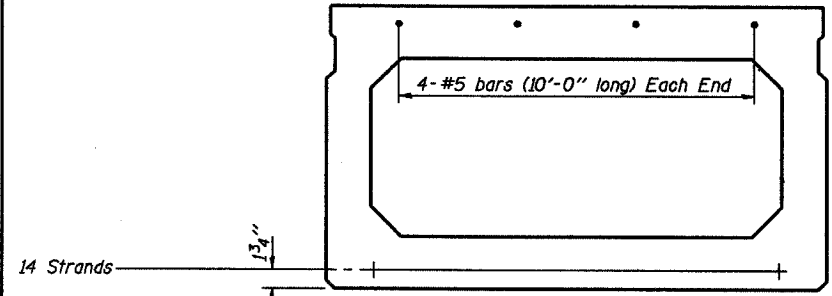
**\*\*NOTE:**  
The following number of C bars shall be used:  
Skew No.  
5° and 10° — 1  
15° and 20° — 2  
25° and 30° — 3

Illinois Department of Transportation  
PASSED APRIL 4, 2005  
Theresa J. ...  
Engineer of Bridge Design  
APPROVED APRIL 4, 2005  
Ralph E. ...  
Engineer of Bridges and Structures

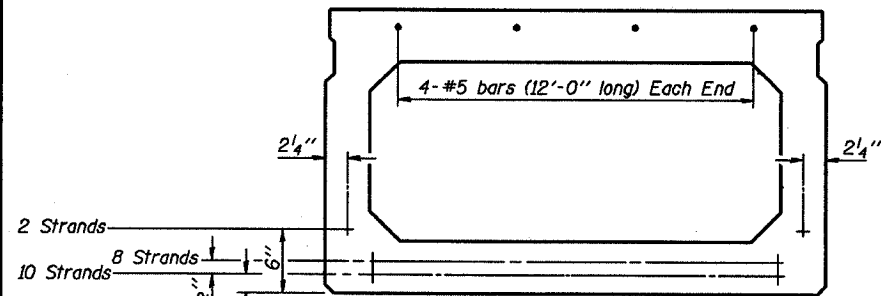
**P.P.C. DECK BEAM DETAILS**  
24' ROADWAY | 27" x 36" BEAMS  
STANDARD CB-2427-36



**CROSS SECTION**  
(40' SPAN)

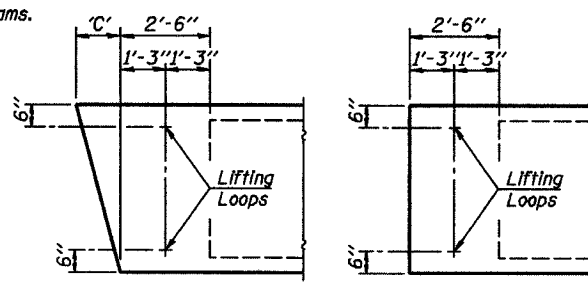


**CROSS SECTION**  
(50' SPAN)



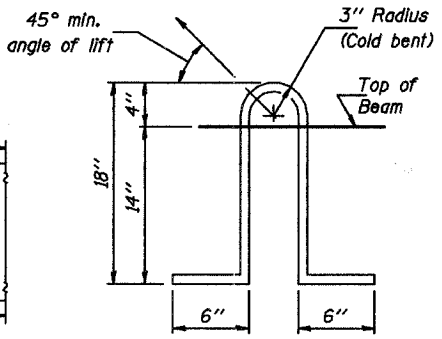
**CROSS SECTION**  
(60' SPAN)

Do not form longit. key on outside face of outside beams.



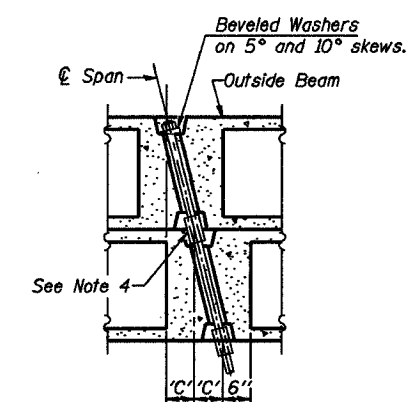
**END BLOCK DETAILS**

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.

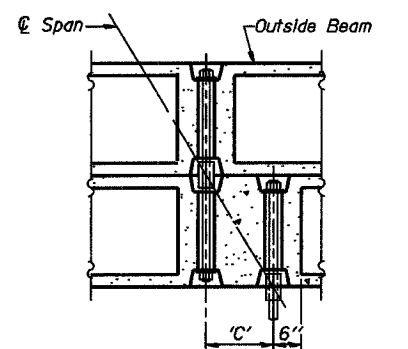


**LIFTING LOOP DETAIL**

Lifting loops shall be 3/2 inch diameter 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°)

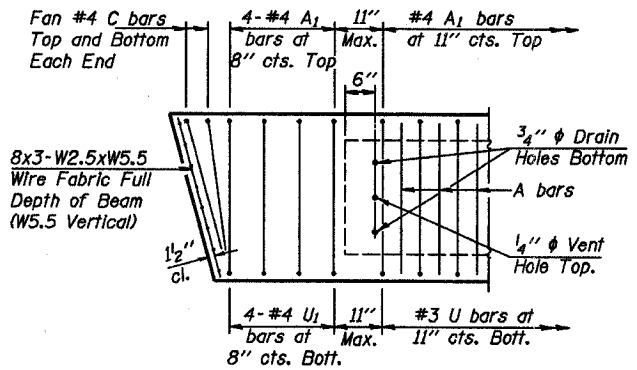
**DIMENSION 'C'**

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

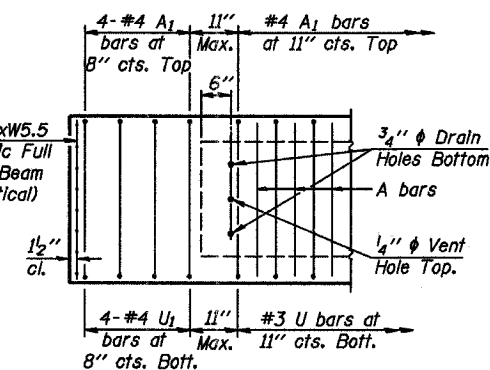
**\* TRANSVERSE STRAND PLACEMENT GUIDELINES**

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

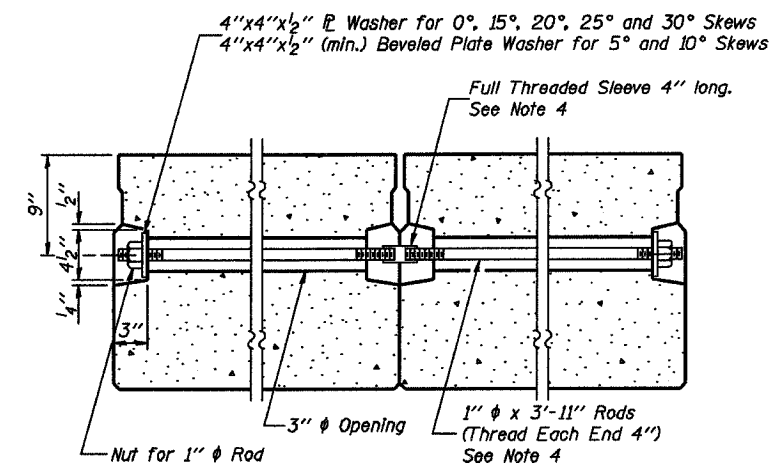
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



**END REINFORCEMENT**  
(SKEWED)



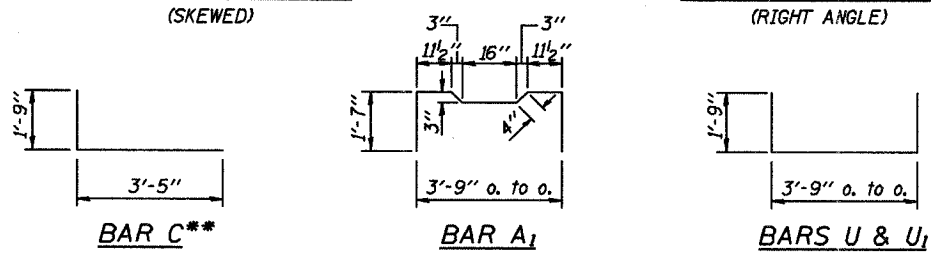
**END REINFORCEMENT**  
(RIGHT ANGLE)



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

**NOTES**

- Prestressing steel shall be uncoated high strength, low relaxation 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 the requirements of AASHTO M-31 or M-322, Grade 60.
- On 0°, 5° and 10° skews, alternate approved transverse tie rods of increased segmental length are acceptable.
- Roll Post anchor devices shall be cast into outside beam as elsewhere specified.
- 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 inch.
- 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.  
 $f_{ti} = 4,000$  p.s.i.  
 $f_s = 270,000$  p.s.i. (1/2 inch diameter Strand)  
 $f_{ed} = 201,960$  p.s.i. (1/2 inch diameter Strand)  
 $f_y = 60,000$  p.s.i.

**MIN. BAR LAP**

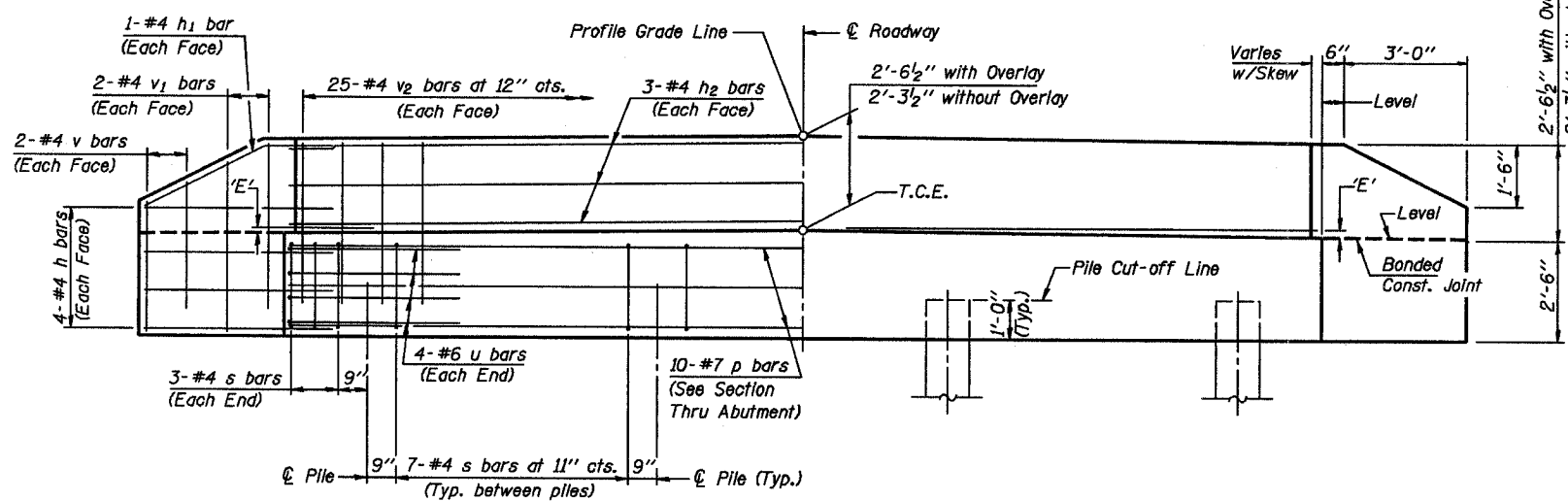
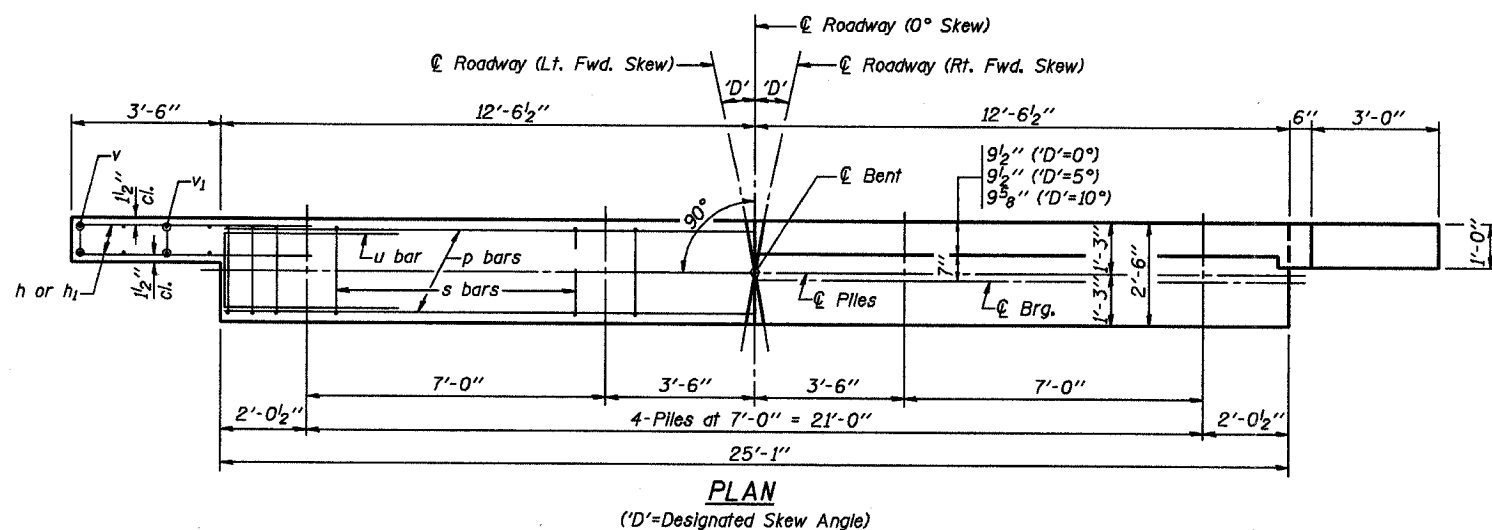
#4 bars = 1'-4"  
 #5 bars = 1'-8"

**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

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

**P.P.C. DECK BEAM DETAILS**  
 24' ROADWAY | 27" x 48" BEAMS  
 STANDARD CB-2427-48



**DIMENSION 'E'**

GRADE	'D'=0°		'D'=5°		'D'=10°	
	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END
0%	2 3/8"	2 3/8"	2 3/8"	2 3/8"	2 3/8"	2 3/8"
Over 0% to 1%	2 3/8"	2 3/8"	2 1/4"	2 3/8"	2 1/8"	2 1/2"
Over 1% to 2%	2 3/8"	2 3/8"	2 1/8"	2 1/2"	1 7/8"	2 3/4"
Over 2% to 3%	2 3/8"	2 3/8"	2"	2 5/8"	1 5/8"	3"
Over 3% to 4%	2 3/8"	2 3/8"	1 7/8"	2 3/4"	1 3/8"	3 1/4"

**NOTES**

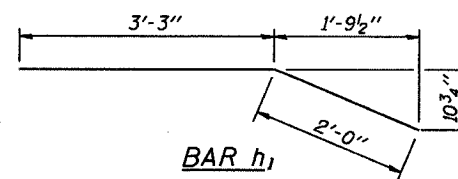
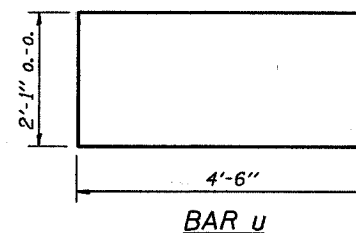
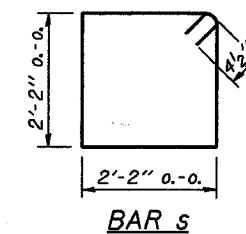
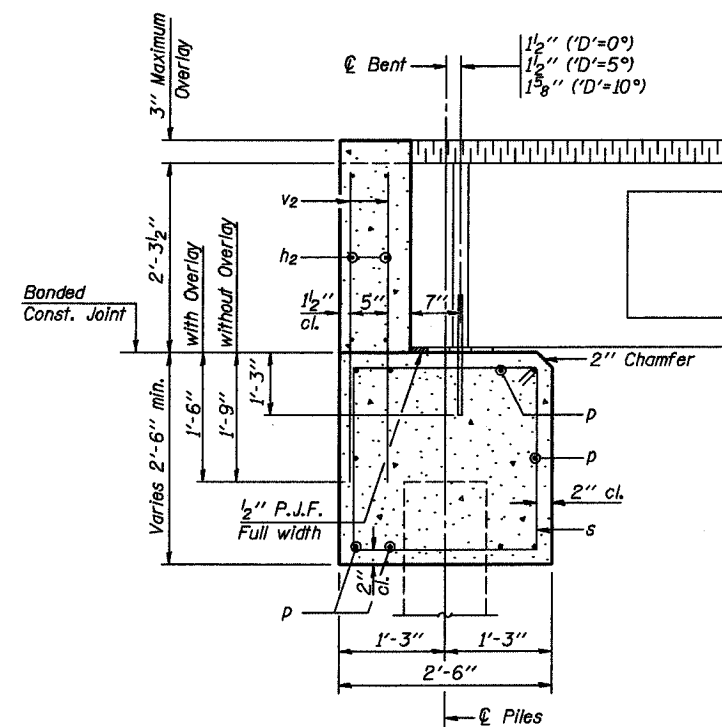
- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
- Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M-322, Grade 60.
- Space reinforcement in cap to miss anchor bolts.

**MAXIMUM PILE LOADS**

SPAN	TONS
40'	34
50'	38
60'	43

**DESIGN STRESSES**

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



**BILL OF MATERIAL FOR ONE ABUTMENT**

Bar	No.	Size	Length	Shape
h	16	#4	5'-0"	—
h1	4	#4	5'-3"	—
h2	6	#4	24'-9"	—
p	10	#7	24'-9"	—
s	27	#4	9'-5"	□
u	8	#6	11'-1"	□
v	8	#4	3'-2"	—
v1	8	#4	4'-2"	—
v2	50	#4	3'-11"	—
Concrete Structures			9.1 Cu. Yds.	
Reinforcement Bars			1150 Lb.	

P.P.C. DECK BEAMS	
PILE BENT ABUTMENT	
24' RDWY.	27" BMS. 'D'=0°, 5° OR 10°
STANDARD CA-2427-10	

Illinois Department of Transportation

PASSED APRIL 4, 2005  
*Thomas S. Demagala*  
 Engineer of Bridge Design

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

ISSUED 7-1-04



**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.

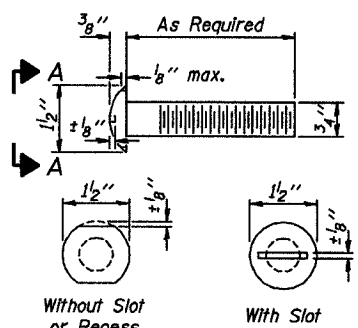
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with STEEL RAILING, TYPE S-1.

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

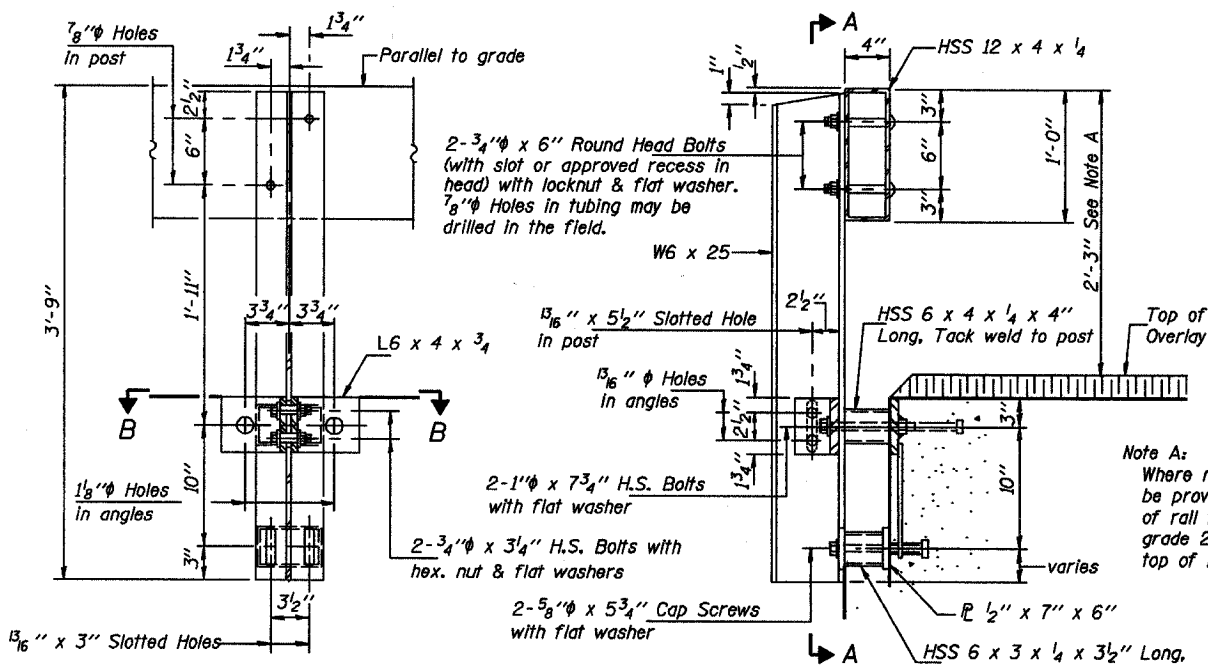
The 1/2" x 7" x 6" plates that come in contact with concrete shall either receive two coats of asphalt paint conforming to Section 1060.07 Type II, or 1/8" fabric bearing pads shall be placed between the plates and concrete.

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 (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.

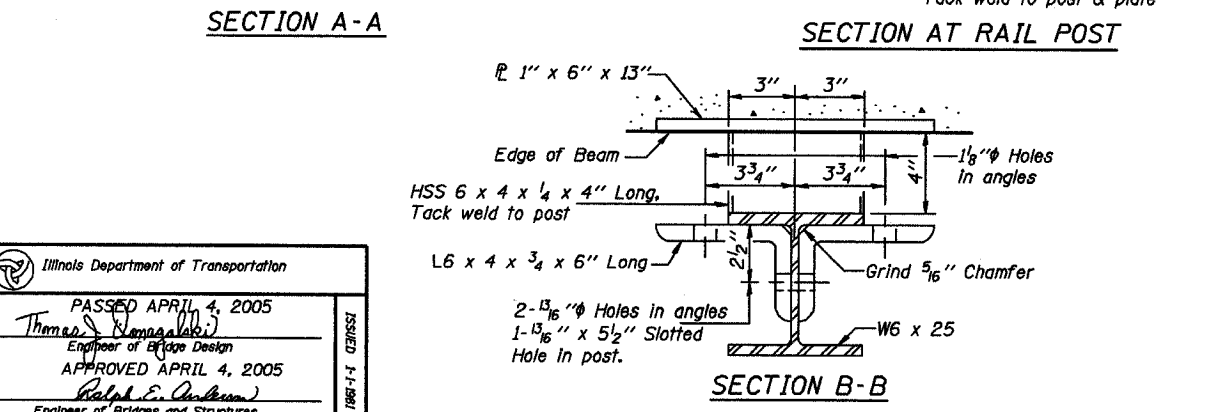
The maximum allowable rail post spacing shall be 10'-6". The rail post spacing shown elsewhere in the plans is based on the allowable spacing for another type of rail. When this type of rail is used, the number of posts may be decreased and the post spacing increased to provide equal post spaces of 10'-6"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



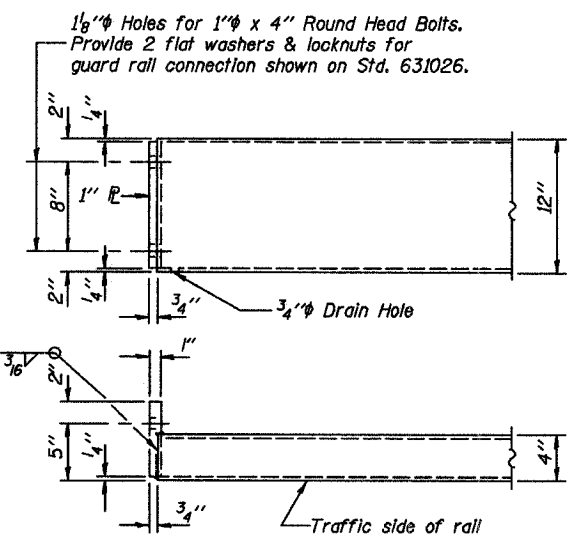
**VIEW A-A  
ROUND HEAD BOLT**



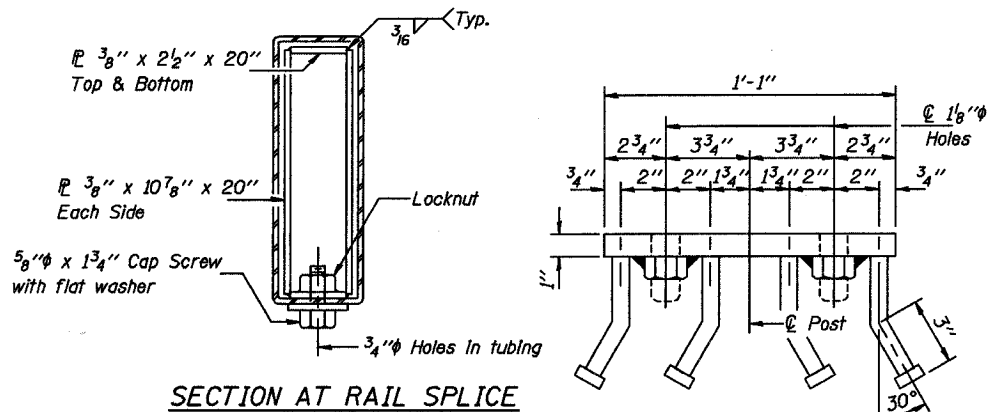
**SECTION A-A**



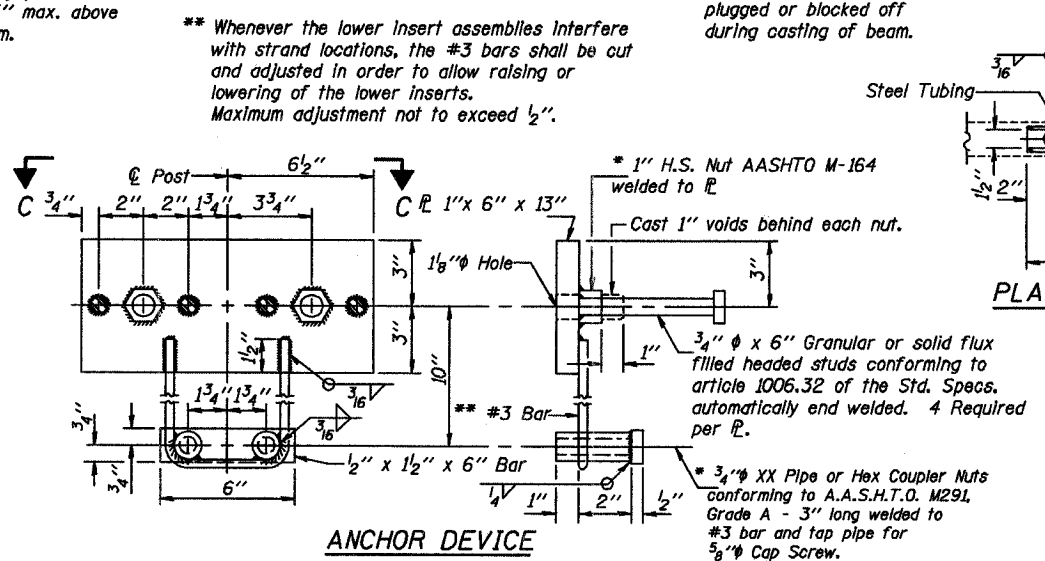
**SECTION B-B**



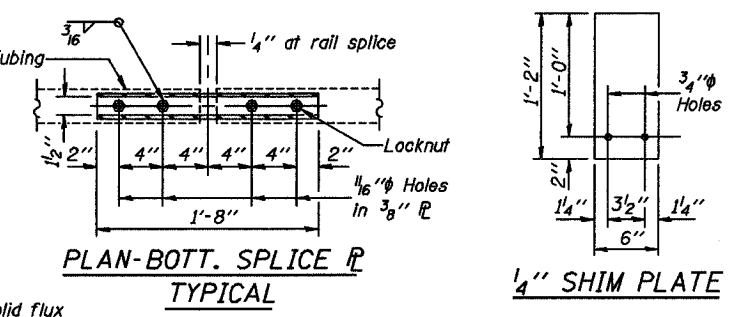
**END OF RAIL DETAILS**



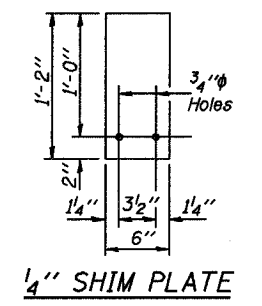
**SECTION AT RAIL SPLICE**



**ANCHOR DEVICE**



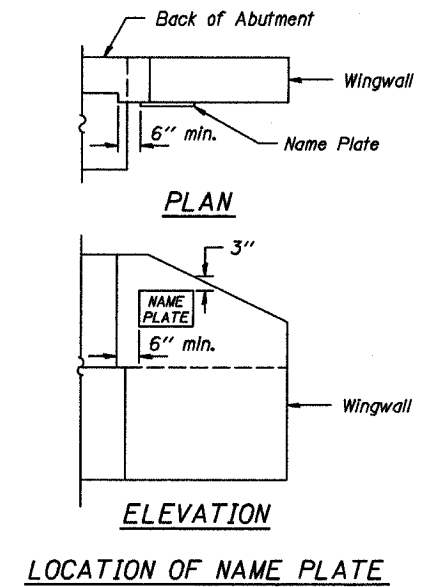
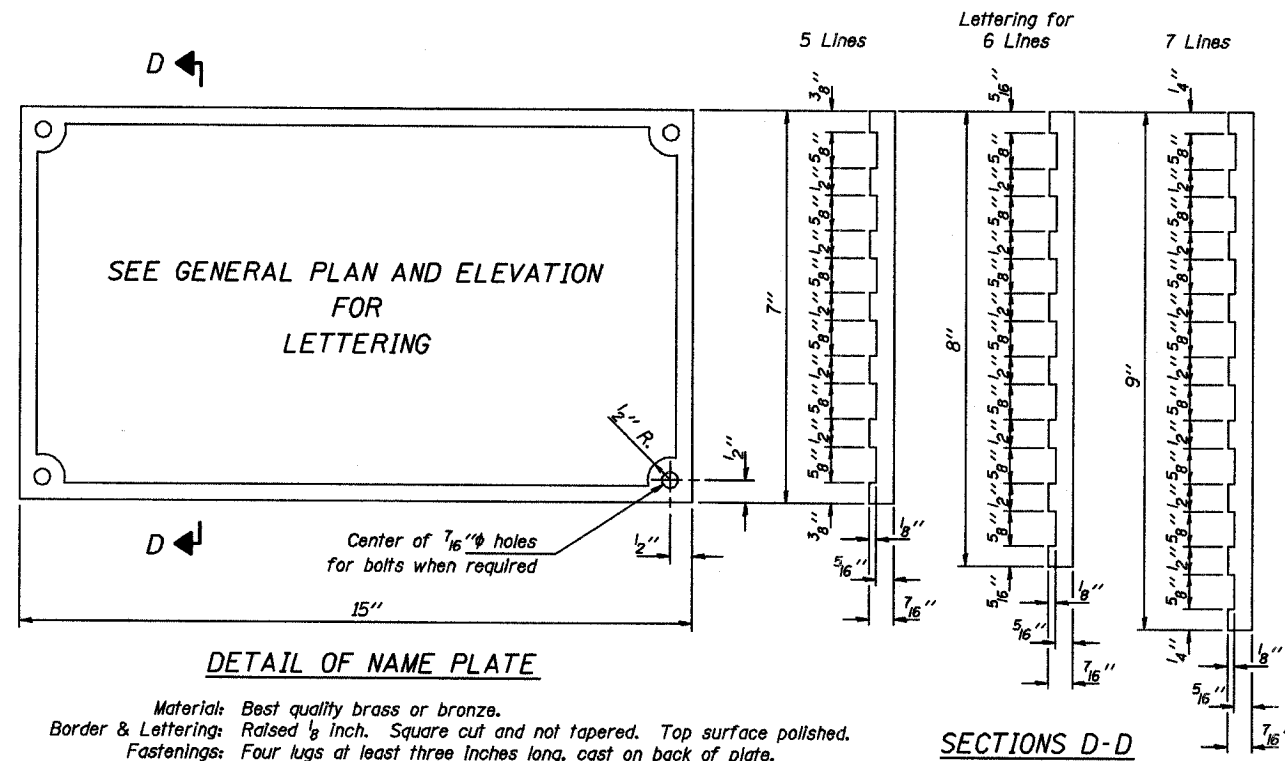
**PLAN-BOTT. SPLICE TYPICAL**



**1/4 SHIM PLATE**

Illinois Department of Transportation  
 PASSED APRIL 4, 2005  
 Approved by: [Signature]  
 Engineer of Bridge Design  
 APPROVED APRIL 4, 2005  
 Approved by: [Signature]  
 Engineer of Bridges and Structures

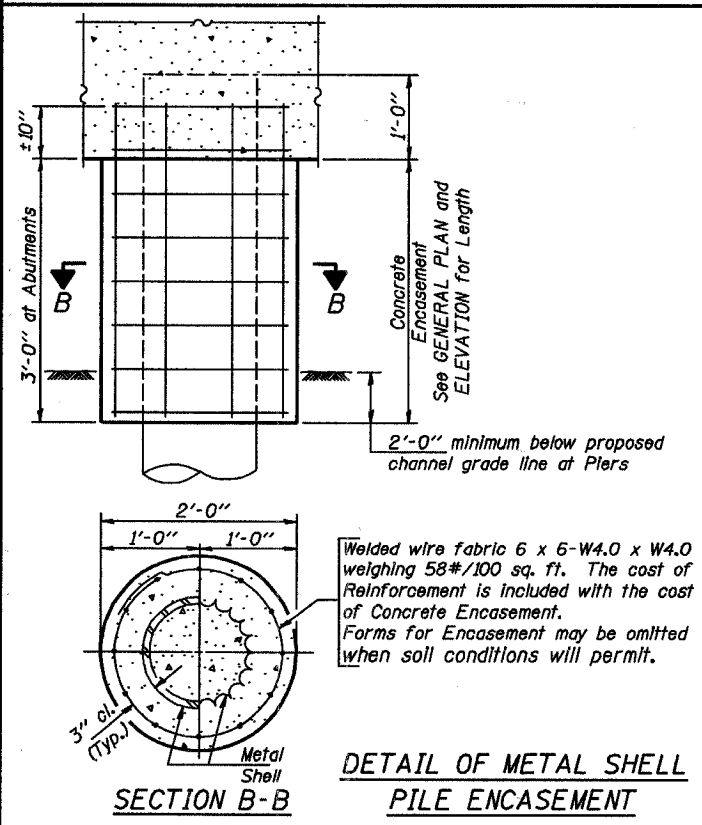
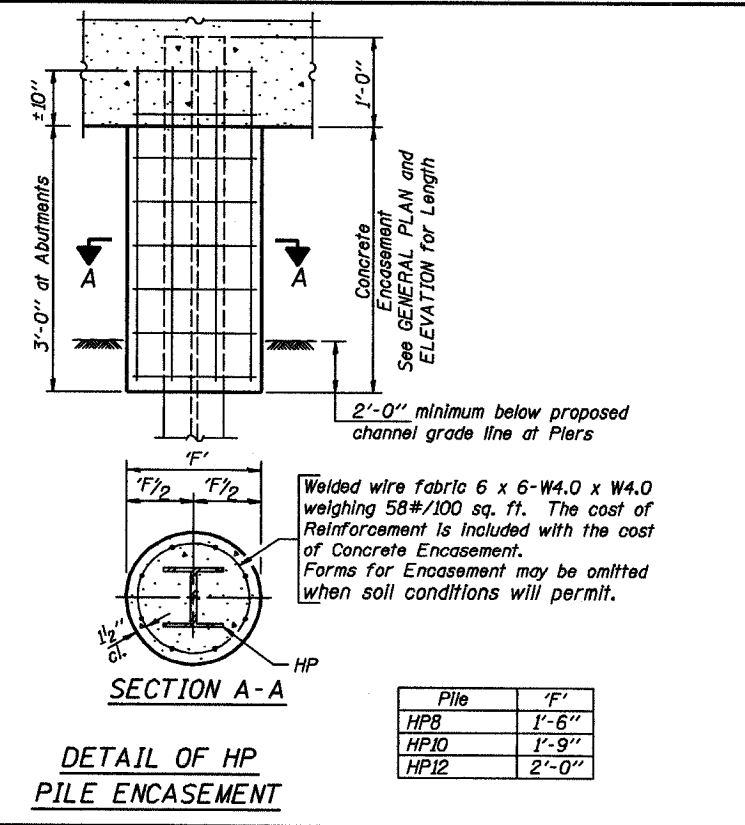
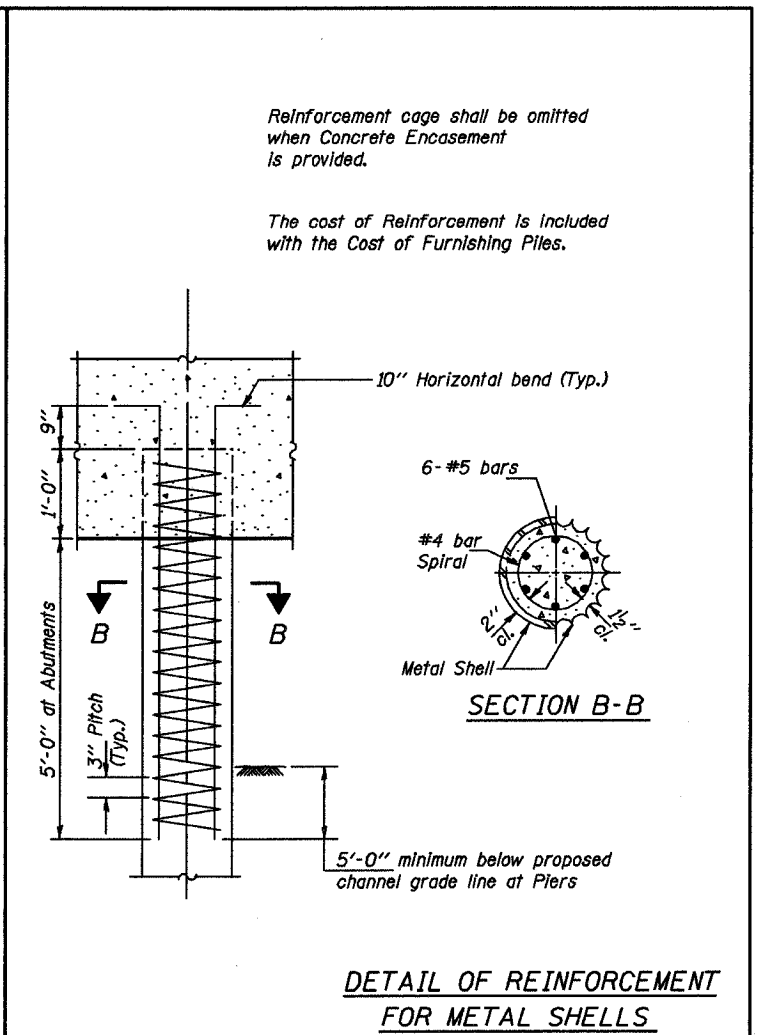
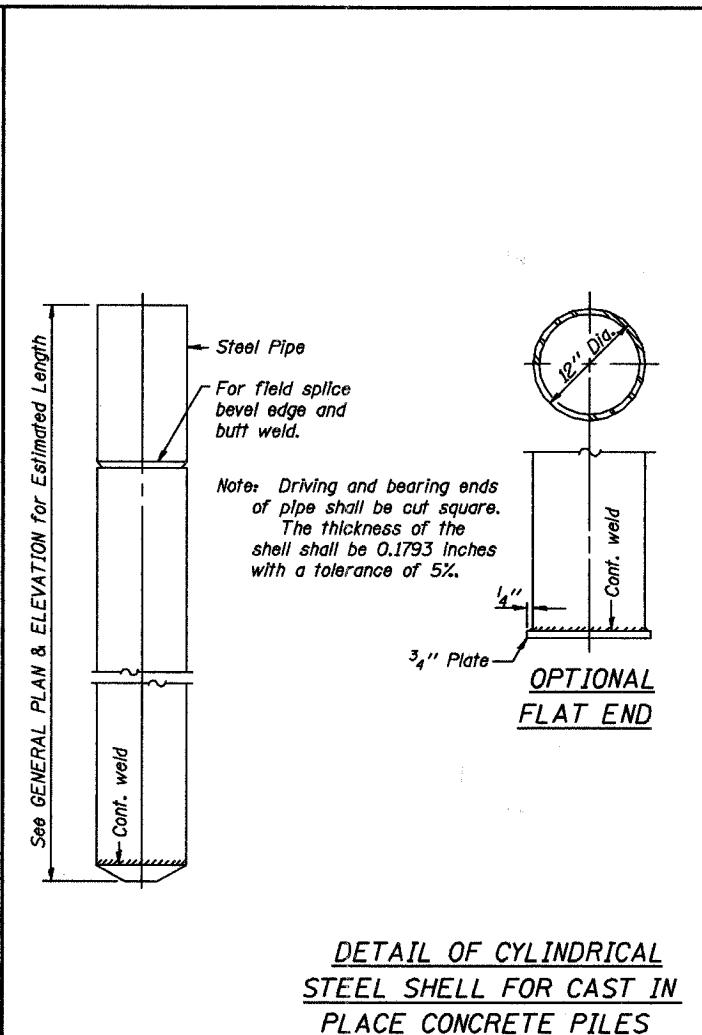
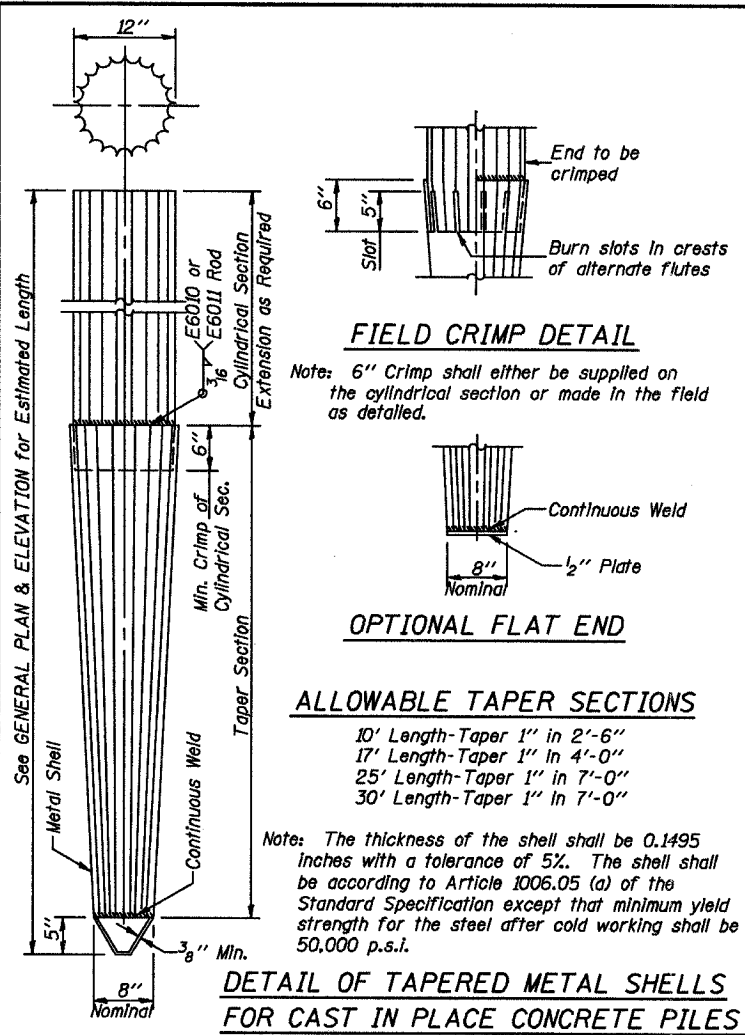
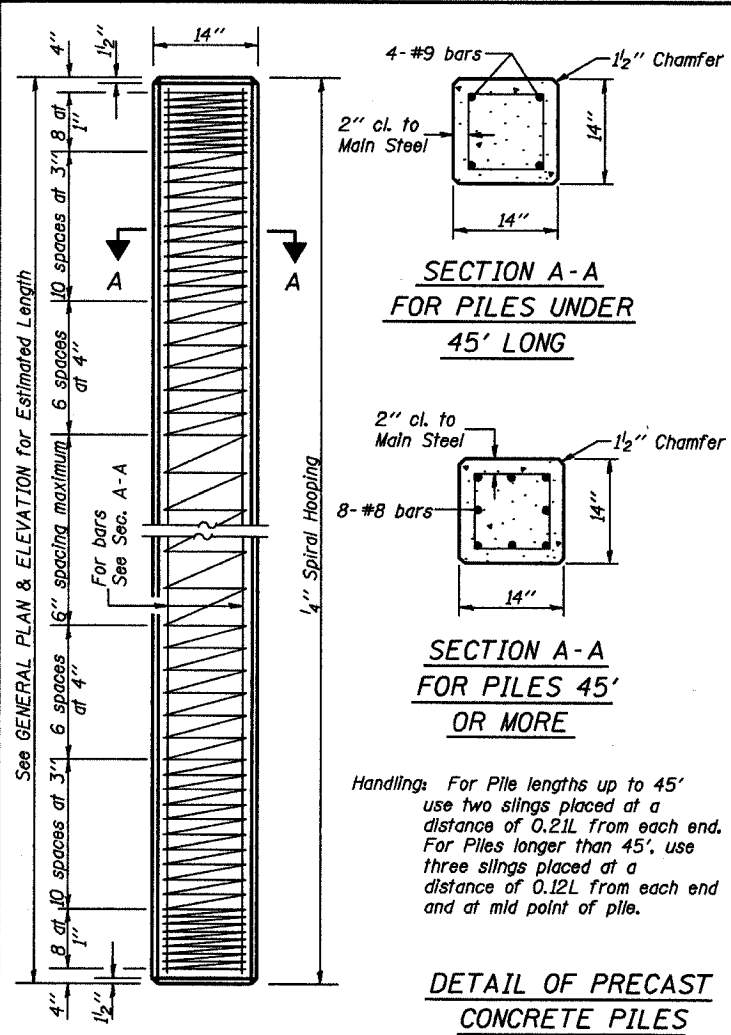
**STEEL RAILING, TYPE S-1  
 STANDARD CR-TS1**



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.

Illinois Department of Transportation	
PASSED APRIL 4, 2005 <i>Thomas J. Kamaal</i> Engineer of Bridge Design	ISSUED 7-1-898
APPROVED APRIL 4, 2005 <i>Ralph E. Anderson</i> Engineer of Bridges and Structures	

NAME PLATE
STANDARD CN



**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**

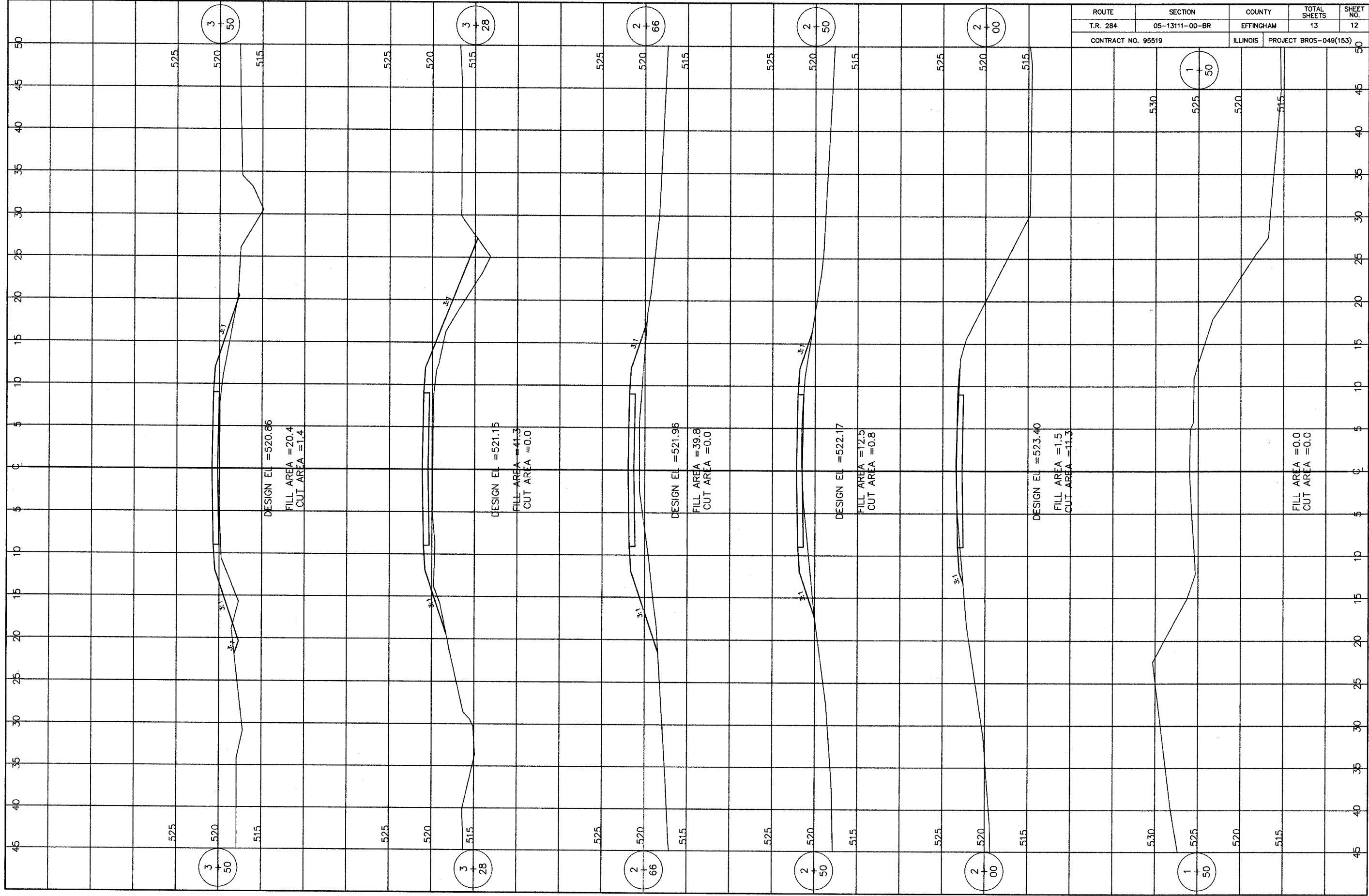
Illinois Department of Transportation

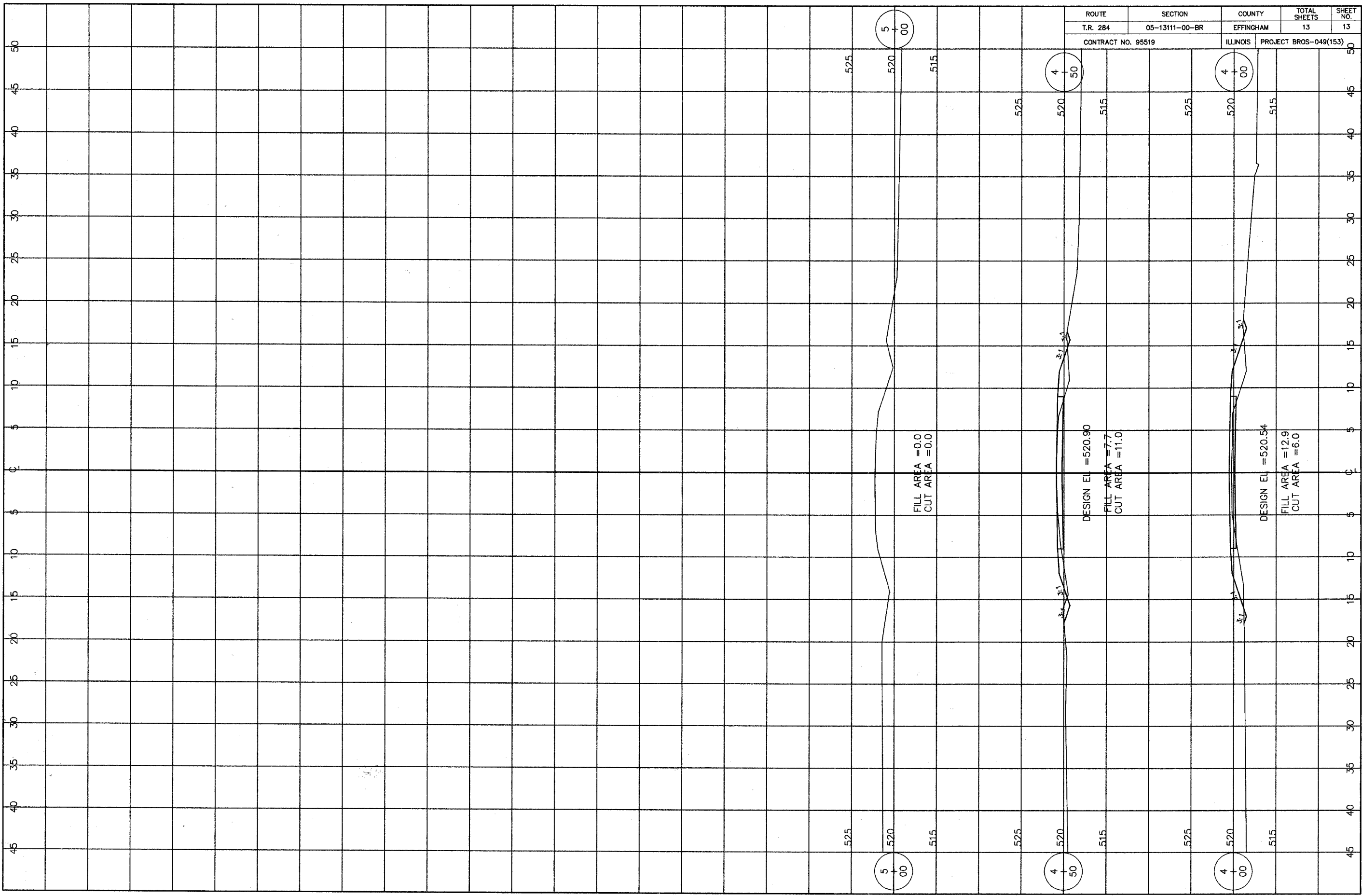
PASSED FEBRUARY 1, 2000

Thomas J. Demagala  
Engineer of Bridge Design

APPROVED FEBRUARY 1, 2000

Ralph E. Anderson  
Engineer of Bridges and Structures





ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 284	05-13111-00-BR	EFFINGHAM	13	13
CONTRACT NO. 95519		ILLINOIS	PROJECT BROS-049(153)	

5  
|  
00

4  
|  
50

4  
|  
00

5  
|  
00

4  
|  
50

4  
|  
00