

T.R. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
320	03-15127-00-BR	SHELBY	15	1

CONTRACT NO. 95508

**INDEX OF SHEETS**

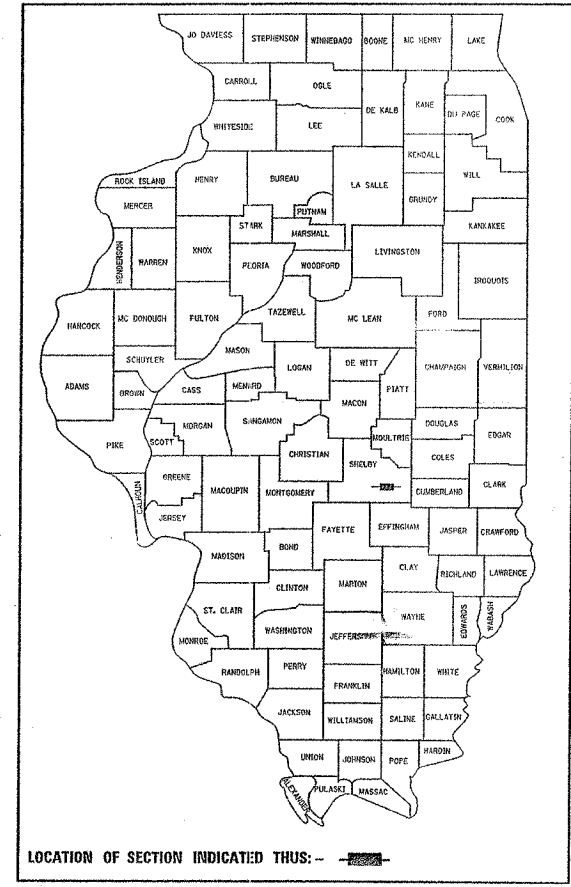
- 1 TITLE SHEET
- 2-3 DETAILS SHEETS
- 4 PLAN & PROFILE
- 5-6 CROSS SECTIONS
- 7 GENERAL PLAN & ELEVATION
- 8-14 BRIDGE DETAILS
- 15 PILE SPLICE DETAIL

**HIGHWAY STANDARDS**

- 000001-05 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
- 280001-04 TEMPORARY EROSION CONTROL SYSTEMS
- 635006-02 REFLECTOR AND TERMINAL MARKER PLACEMENT
- 701901 TRAFFIC CONTROL DEVICES
- BLR 21-7 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
- BLR 24 -1 MAIL BOX TURN OUT

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
**PLANS FOR PROPOSED  
HIGHWAY BRIDGE PROGRAM**

PRAIRIE ROAD DISTRICT  
SECTION 03-15127-00-BR  
PROJECT BROS - 173 ( 149 )  
SHELBY COUNTY  
T. R. ROUTE 320  
JOB NO. C - 97 - 058 - 07  
PROPOSED STRUCTURE NO. 087- 3542

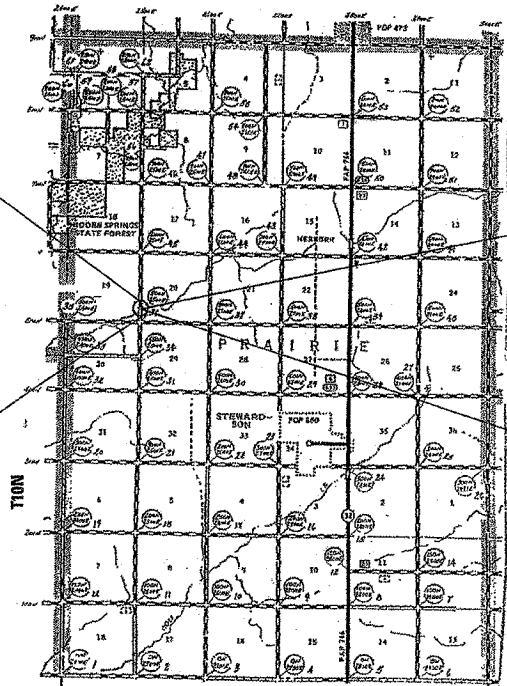


**DESIGN INFORMATION**

DESIGN CLASSIFICATION: LOCAL ROAD  
CURRENT ADT: 175  
DESIGN ADT: 225  
DESIGN YEAR: 2028  
DESIGN SPEED 30 M.P.H.

PROJECT ENDS STA 22+50

PROJECT BEGINS STA 14+00



PROJECT LOCATION MAP

850 FEET = 0.161 MILES = NET LENGTH OF SECTION

STA 18+39.50 STANDARD BRIDGE PLANS  
SINGLE SPAN 27" P.P.C. DECK BEAM BRIDGE  
61'- 6" BK - BK ABUTMENTS, 24'-0" WIDTH  
PILE BENT ABUTMENTS 0 SKEW  
PROPOSED STRUCTURE NO. 087-3542

EXISTING STRUCTURE NUMBER 087-3204  
1 SPAN DECK GIRDER WITH  
CLOSED CONCRETE ABUTMENTS  
31'-0" BK-BK ABUTMENTS, 15'-0" F-F RAIL



PLANS PREPARED BY:

*S. Alan Spesard* 2-28-2008

S. ALAN SPESARD, COUNTY ENGINEER, PE DATE  
ILLINOIS PROFESSIONAL ENGINEER 062-052965  
EXPIRES 11-30-09

J.U.L.I.E.  
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION  
1-800-892-0123 ( TOLL FREE )

CONTRACT NO. 95508

PLANS PREPARED BY:  
SHELBY CO HWY DEPT  
R. R. 3 BOX 38A  
SHELBYVILLE IL 62565  
217-774-2721

2/28 20 08  
APPROVED *Richard Shuman*  
HIGHWAY COMMISSIONER

2/28 20 08  
APPROVED *S. Alan Spesard*  
COUNTY ENGINEER, SHELBY COUNTY

3/27 20 08  
PASSED *Margaret E. Reed*  
District Seven Engineer of  
Local Roads and Streets

3/27 20 08  
RELEASING FOR  
BID BASED ON  
LIMITED REVIEW *Christal Reed*  
DEPUTY DIRECTOR OF HIGHWAYS, REGION 4 ENGINEER

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 320	*	SHELBY	15	2

PROJECT BROS-173(149)

\* 03-15127-00-BR

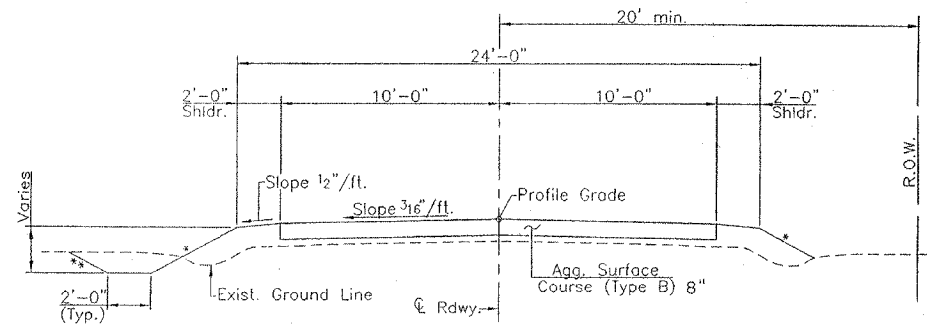
**SUMMARY OF QUANTITIES**

CODE NO.	ITEM	UNIT	QUANTITY
20100500	TREE REMOVAL, ACRES	ACRE	1.2
20200100	EARTH EXCAVATION	CU YD	1161
20300100	CHANNEL EXCAVATION	CU YD	172
20400800	FURNISHED EXCAVATION	CU YD	158
25000200	SEEDING, CLASS 2	ACRE	0.8
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	72
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	72
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	72
25100115	MULCH, METHOD 2	ACRE	0.8
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	200
28000300	TEMPORARY DITCH CHECKS	EACH	6
28000500	INLET AND PIPE PROTECTION	EACH	1.0
28100207	STONE RIPRAP, CLASS A4	TON	199
28102600	STONE RIPRAP DITCH	TON	193
28200200	FILTER FABRIC	SQ YD	285
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	880
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1.0
50200100	STRUCTURE EXCAVATION	CU YD	39
50300225	CONCRETE STRUCTURES	CU YD	18.2
50300280	CONCRETE ENCASEMENT	CU YD	2.1
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	1440
50800105	REINFORCEMENT BARS	POUND	2300
50900205	STEEL RAILING, TYPE S1	FOOT	120
51201400	FURNISHING STEEL PILES HP 10X42	FOOT	175
51202305	DRIVING PILES	FOOT	175
51203400	TEST PILE STEEL HP 10X42	EACH	1.0
51500100	NAME PLATES	EACH	1.0
542D0220	PIPE CULVERTS, CLASS D, TYPEI 15"	FOOT	128
542D0223	PIPE CULVERTS, CLASS D, TYPEI 18"	FOOT	84
67100100	MOBILIZATION	L SUM	1.0
78201000	TERMINAL MARKER- DIRECT APPLIED	EACH	4.0

**EARTHWORK SCHEDULE**

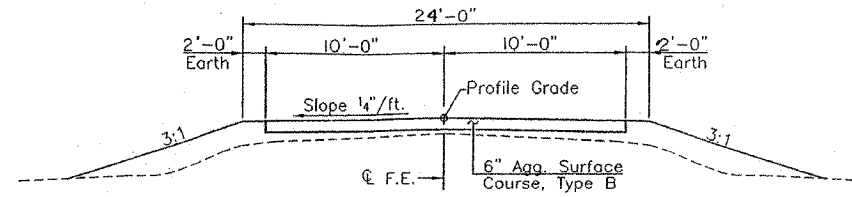
LOCATION	EARTH EXCAVATION	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE	EMBANKMENT	EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-)
	Cubic Yard	Cubic Yard	Cubic Yard	Cubic Yard
STA. 14+00 - STA. 15+00	96.3	72.2	16.7	+55.5
STA. 15+00 - STA. 16+00	292.6	219.5	31.5	+188.0
STA. 16+00 - STA. 17+00	403.7	302.8	0	+302.8
STA. 17+00 - STA. 18+00	185.2	138.9	184.7	+45.8
STA. 18+00 - STA. 18+09	0	0	23.0	-23.0
STA. 18+70 - STA. 19+00	18.9	14.2	149.0	-134.8
STA. 19+00 - STA. 20+00	61.1	45.8	324.1	-278.3
STA. 20+00 - STA. 21+00	40.7	30.5	203.7	-173.2
STA. 21+00 - STA. 22+00	38.9	29.2	75.9	-46.7
STA. 22+00 - STA. 22+50	23.1	17.3	19.4	-2.1
<b>Total</b>	<b>1160.5</b>	<b>870.4</b>	<b>1028.0</b>	<b>-157.6</b>

Embarkment required for entrances is included in embarkment quantity.  
Channel Excavation not included as suitable for use as embarkment.  
The cost of disposal of Channel Excavation shall be included in the contract unit price for Earth Excavation.

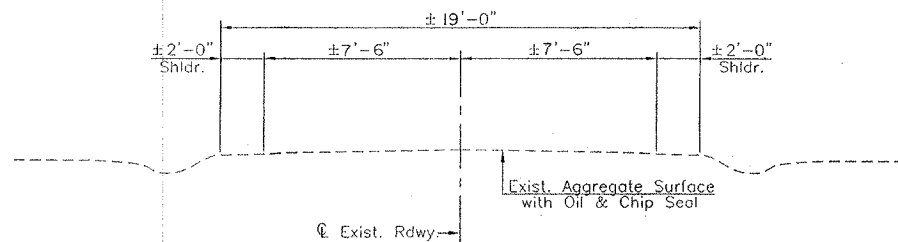


PROPOSED ROADWAY CROSS SECTION

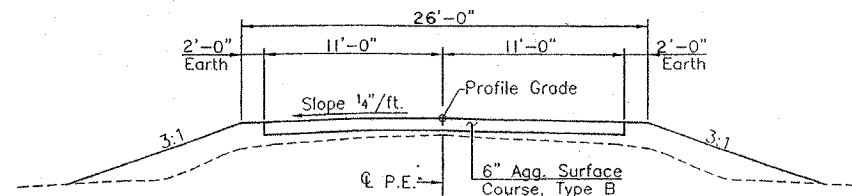
\* 3:1  
\*\* 3:1 Fill <10'  
2:1 Fill >10'



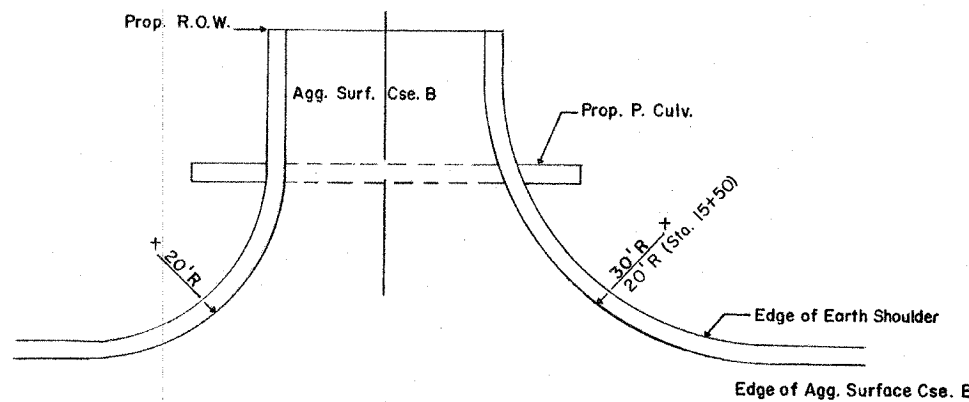
TYPICAL FIELD ENTRANCE  
(Sta. 14+82 Rt.)  
(Sta. 18+96 Lt.)



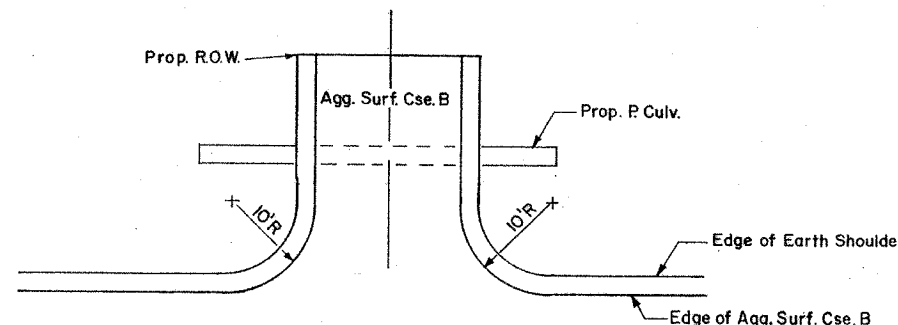
EXISTING ROADWAY CROSS SECTION



TYPICAL PRIVATE ENTRANCE  
(Sta. 17+81 Rt.)  
(Sta. 15+50 Lt.)



Plan  
(Private Entrance Sta. 17+81 Rt. & Sta. 15+50)

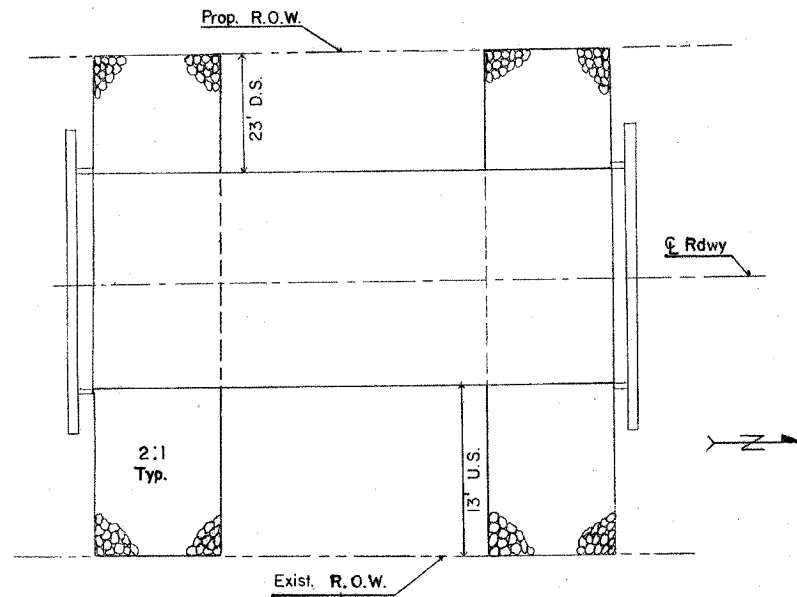


Plan  
(Field Entrance Sta. 14+82 Rt. & Sta. 18+96 Lt.)

SUMMARY OF QUANTITIES  
DETAILS & TYPICAL SECTIONS  
TR 320 OVER BRUSH CREEK  
SECTION 03-15127-00-BR  
SHELBY COUNTY

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 320	*	SHELBY	15	3

PROJECT BROS-173(149)  
\*03-15127-00-BR



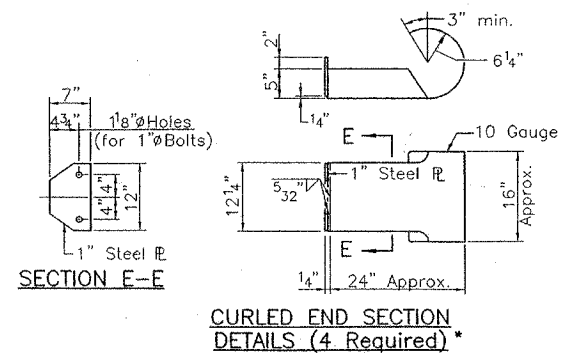
RIPRAP DETAIL

**GENERAL NOTES**

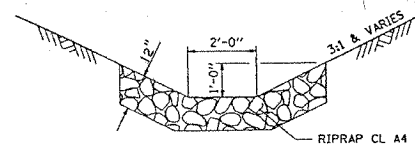
WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKS AND MONUMENTS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.

THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER IN REGARD TO THE EXACT LENGTHS OF PIPE CULVERTS PRIOR TO ORDERING THESE ITEMS.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND CONDITIONS EXISTING IN THE FIELD PRIOR TO CONSTRUCTION AND ORDERING MATERIALS.



\* THE COST OF CURLED END SECTIONS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE PER FOOT FOR STEEL RAILING, TYPE S1.



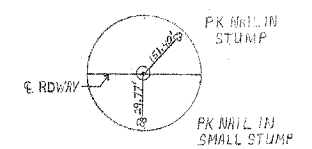
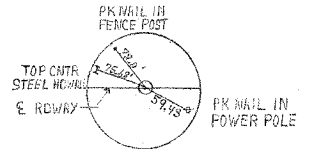
**RIP-RAP DITCH**  
(NO BEDDING OR FILTER FABRIC)  
Lt. Sta. 15+00-18+08  
Rt. Sta. 16+00-17+44

**ADDITIONAL DETAILS &  
GENERAL NOTES**  
TR 320 OVER BRUSH CREEK  
SECTION 03-15127-00-BR  
SHELBY COUNTY

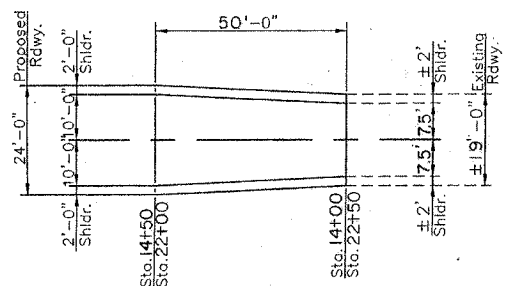
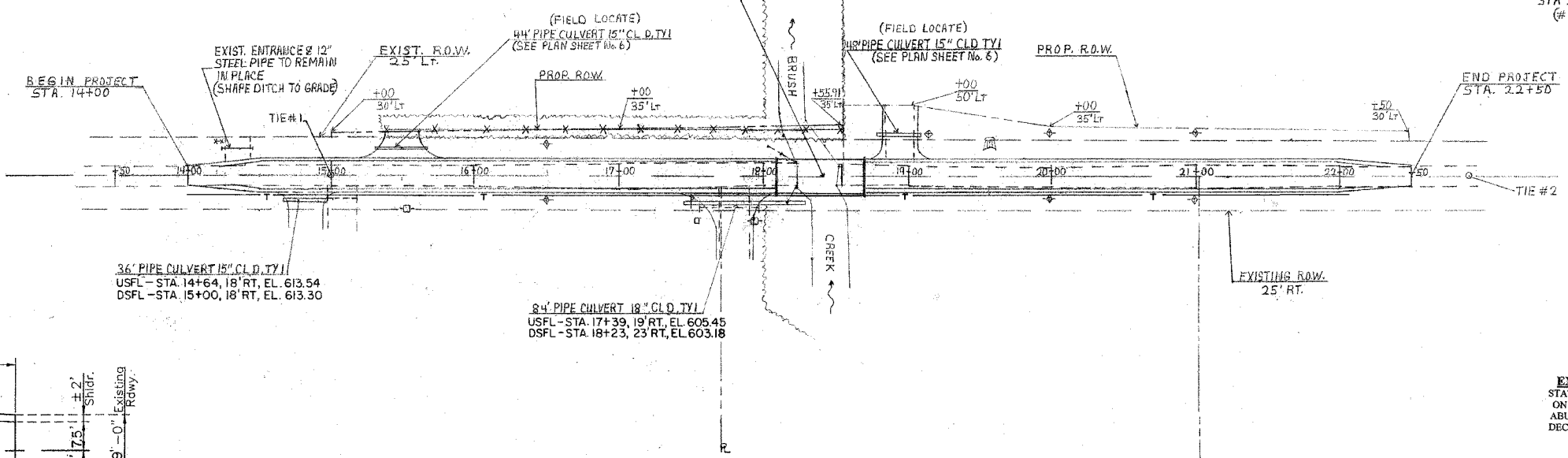
JERRY L. & MIANA R. JONES  
PARCEL NO. 4

SEC. 19 TION., R. 5E. 3<sup>rd</sup> P.M.

WITTENBERG FARMS, INC.  
PARCEL NO. 5



STATION 18+39.50 STANDARD BRIDGE PLANS  
SINGLE SPAN 27" P.P.C. DECK BEAM BRIDGE  
61' - 6" BK - BK ABUTMENTS, 24' - 0" WIDTH  
PILE BENT ABUTMENTS, 0 SKEW  
STRUCTURE NO. 087 - 3542



TEMPORARY DITCH CHECKS

STATION	OFFSET	QUANTITY
16+50	Lt.	1.0
16+50	Rt.	1.0
20+00	Lt.	1.0
20+00	Rt.	1.0
21+00	Lt.	1.0
21+00	Rt.	1.0
TOTAL		6.0

INLET AND PIPE PROTECTION

STATION	OFFSET	QUANTITY
19+20	Lt.	1.0

TREE REMOVAL

All trees between the Stations listed below and the limits of the proposed R.O.W. shall be removed only as directed by the Engineer

Begin Station 14+00  
End Station 22+50  
TREE REMOVAL, ACRES = 1.2 acres

UTILITIES

SHELBY ELECTRIC COOPERATIVE  
NORTH ROUTE 128  
SHELBYVILLE, ILLINOIS 62565  
1-217-774-3986

CONSOLIDATED COMMUNICATIONS INC.  
121 SOUTH 17<sup>TH</sup> STREET  
MATTOON, ILLINOIS 61938-3915  
1-217-235-3311

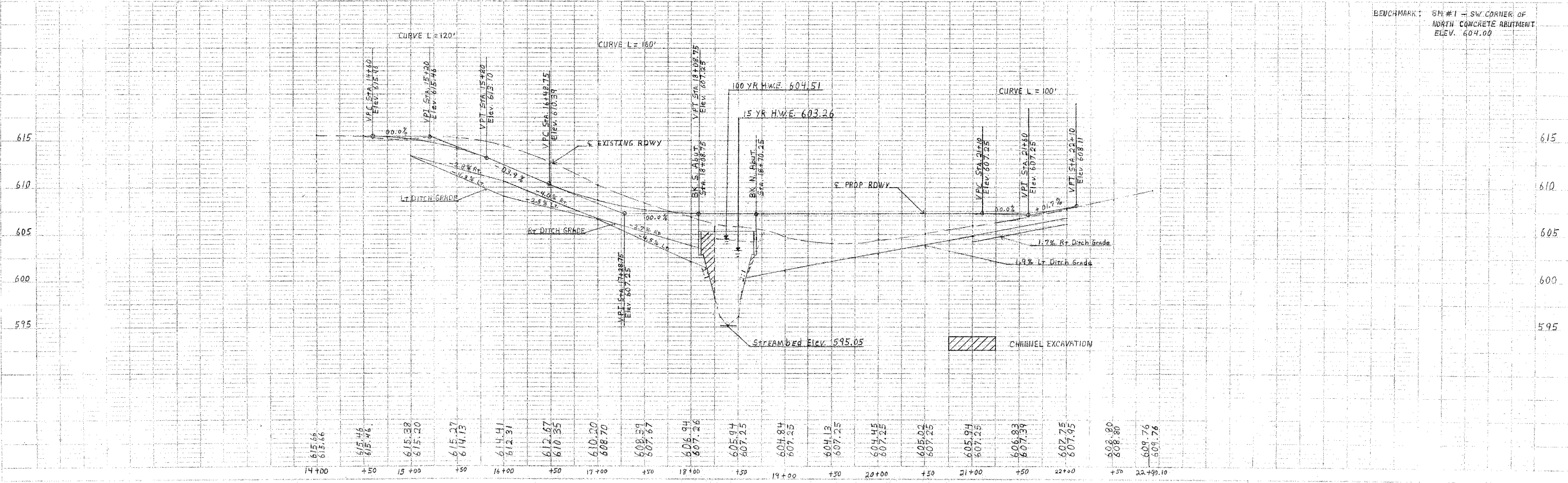
GENEVIEVE SCHMIEDERTON  
PARCEL NO. 3

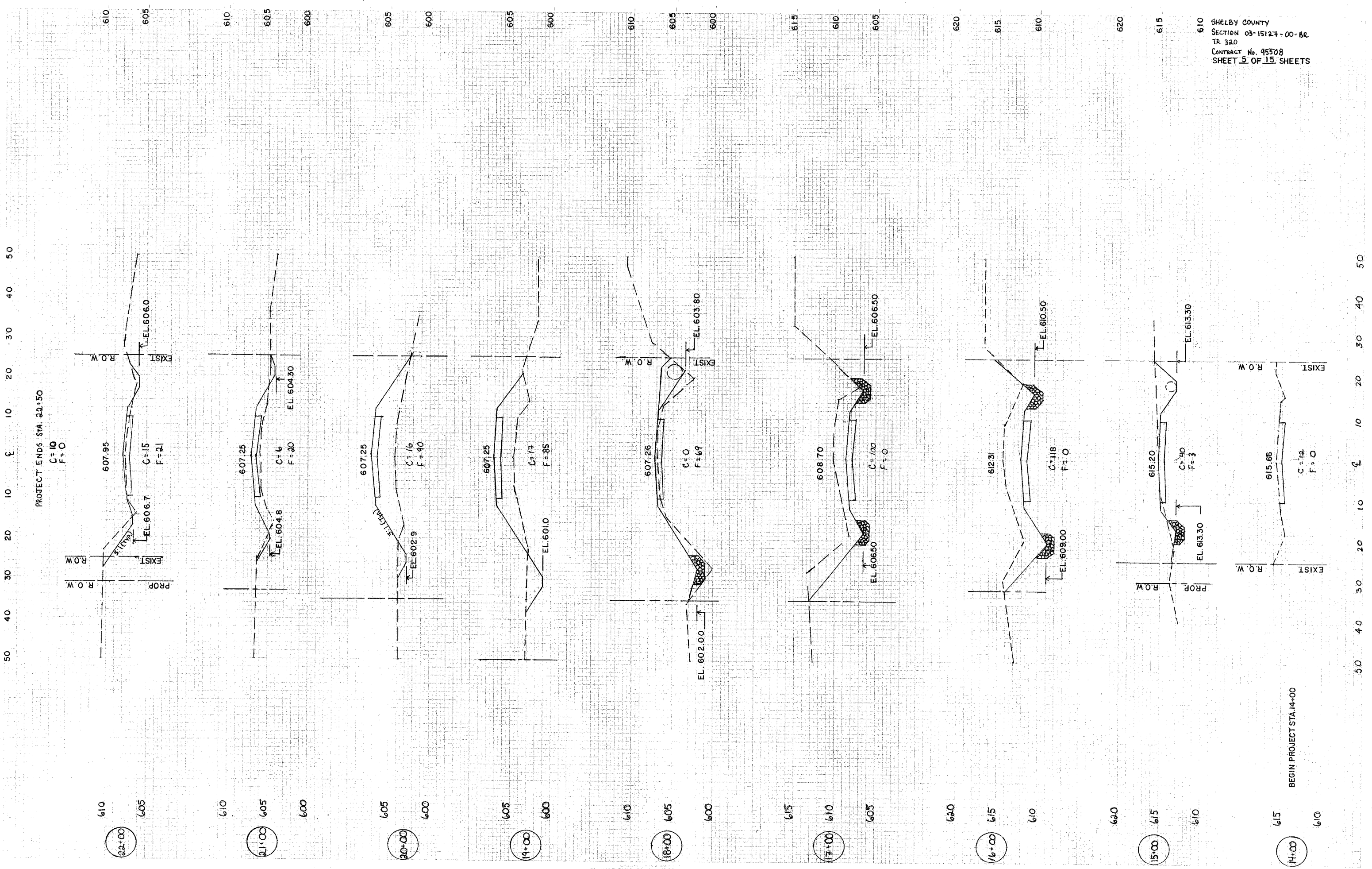
JAMES L. WINTER & MAXINE WALL  
PARCEL NO. 2

GENEVIEVE SCHMIEDERTON  
PARCEL NO. 1

ROADWAY TRANSITION DETAIL

SEC. 20 TION., R. 5E. 3<sup>rd</sup> P.M.





PROJECT ENDS STA. 22+50  
C = 10  
F = 0

BEGIN PROJECT STA. 14+00

DATE: 01/15/14  
 DRAWN BY: J. B. BROWN  
 CHECKED BY: J. B. BROWN  
 PROJECT: ROADWAY  
 SHEET: 6 OF 15 SHEETS

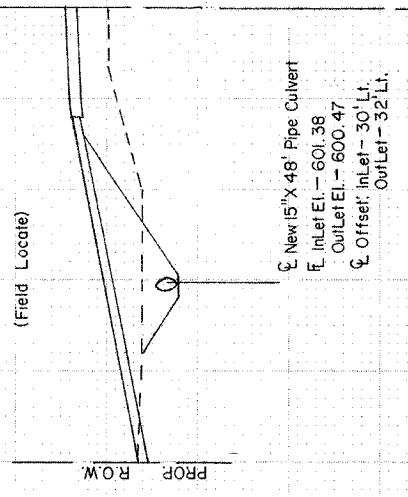
DATE: 01/15/14  
 DRAWN BY: J. B. BROWN  
 CHECKED BY: J. B. BROWN  
 PROJECT: ROADWAY  
 SHEET: 6 OF 15 SHEETS

610

FE  
18+96

605

600



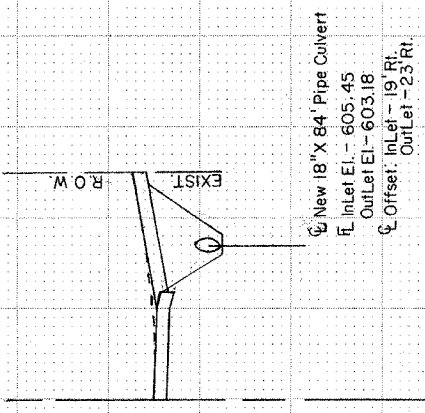
615

PE  
17+81

610

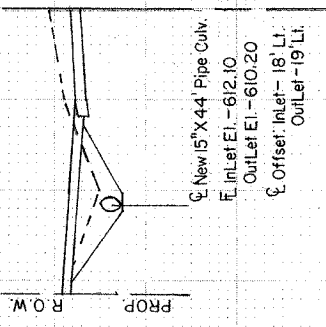
605

600



620

PE  
15+50

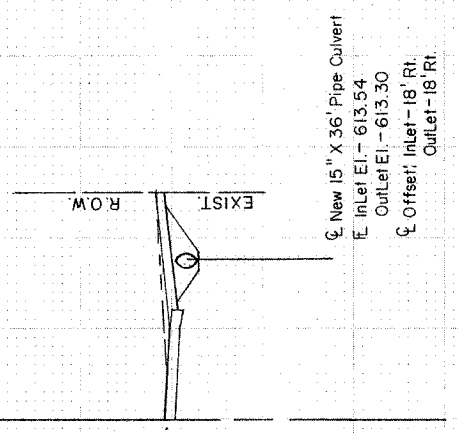


620

FE  
14+82

615

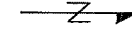
610



ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
TR320	*	SHELBY	15	7
FED. ROAD DIST. NO. 7		ILLINOIS PROJECT		

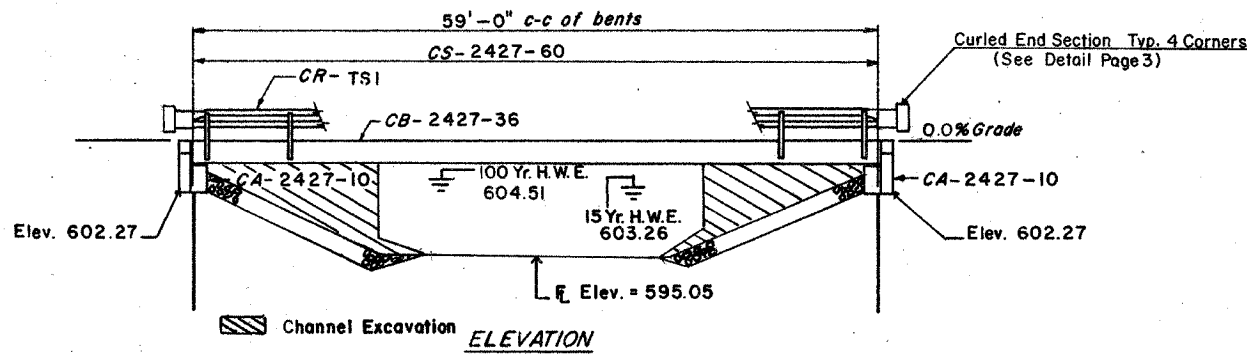
\* 03-15127-00BR

B.M.- Chiseled "□", S.W. Corner of North Concrete Abutment Elev. = 604.00



Existing Structure- 1 Span Deck Girder with Closed Concrete Abutments. 31'-0" Bk.-Bk. Abutments. 15' Face - Face Rail

Salvage - See Special Provisions

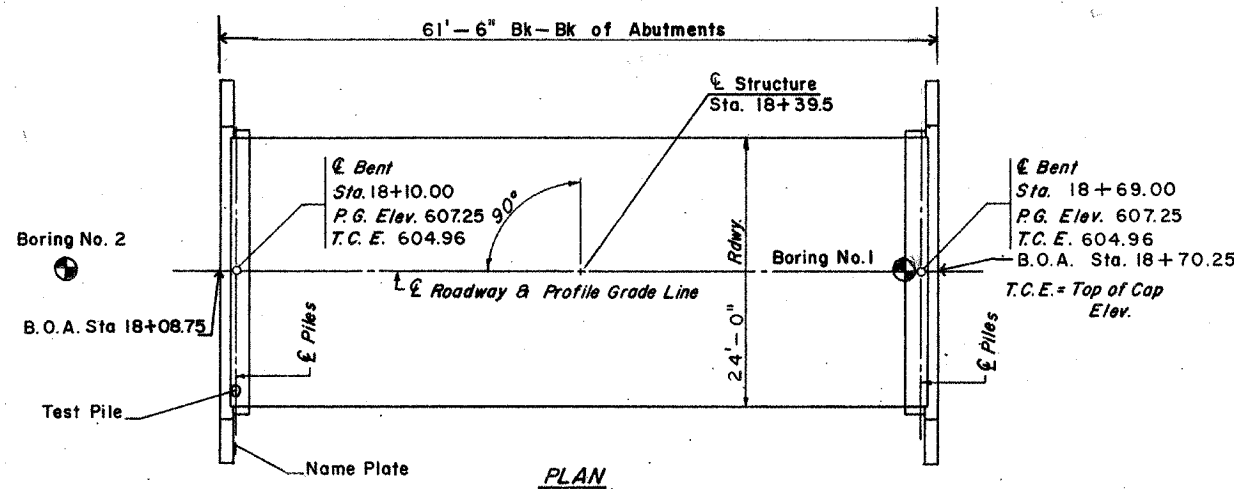


**GENERAL NOTES**

- The Contractor shall drive 1 test pile, as specified, in a permanent location as directed by the Engineer before ordering the remaining piles. See special provisions for boring logs.
- See special provisions for boring logs.
- Reinforcement bars shall conform to the requirements of ASTM A 706 Grade 60 (IL Modified). See Special Provisions.
- Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.

**TOTAL BILL OF MATERIAL**

Item	Unit	Super	Sub		Total
			Piers	Abuts.	
Removal of Existing Structure	L. Sum				1
Stone Riprap, Class A4	Tons			199	199
Filter Fabric	Sq. Yds.			285	285
Concrete Structures	Cu. Yds.			18.2	18.2
R.P. Conc. Dk. Bm. 27" Dp.	Sq. Ft.	1440			1440
Steel Rolling, Type S1	Lin. Ft.	120			120
Reinforcement Bars	Lbs.			2300	2300
Furnishing Steel Pile HP 10X42	Lin. Ft.			175	175
Driving Piles	Lin. Ft.			175	175
Test Pile	Each			1	1
Name Plates	Each	1			1
Concrete Encasement	Cu. Yds.			2.1	2.1
Structure Excavation	Cu. Yds.			39	39
Channel Excavation	Cu. Yds.			172	172

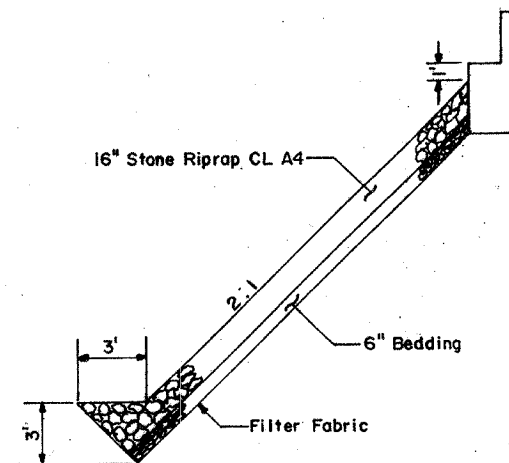


**INDEX OF SHEETS**

- 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
- Standard

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

S. Alan Spesard  
County Engineer  
Licensed Professional Engineer  
of Illinois  
Nu. 062-052065  
Expiration Date: 11-30-09



**RIPRAP DETAIL**

**ABUTMENT PILE DATA**

	N. ABUTMENT	S. ABUTMENT
PILE TYPE & SIZE:	Steel HP 10X42	Steel HP 10X42
NOMINAL REQUIRED BEARING:	336 kips	336 kips
ALLOWABLE RESISTANCE AVAILABLE:	112 kips	112 kips
ESTIMATED PILE LENGTH:	25 Ft.	25 Ft.
NUMBER OF PRODUCTION PILES:	3	4
NUMBER OF TEST PILES:	1	0

**NOTES:**

- The Steel H-Piles shall be according to A.A.S.H.T.O. M270 Grade 50.
- The Test Pile shall be driven to 110 percent of the Nominal Required Bearing indicated in the pile data information.

**DESIGN SPECIFICATIONS**

2002 A.A.S.H.T.O. STANDARD SPECIFICATIONS, 17<sup>th</sup> EDITION

**LOADING HS 20-44**

Allow 50#/sq. ft. for Future Wearing Surface

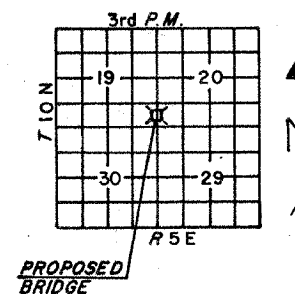
**SEISMIC DATA**

Seismic Performance Category (SPC) = A  
Bedrock Acceleration Coefficient (A) = 6% g  
Site Coefficient (S) = 1.0

STATION 18+39.5  
BRUSH CREEK  
SEC. 03-15127-00-BR BUILT 200...  
PRAIRIE ROAD DISTRICT  
SHELBY COUNTY  
LOADING HS20 TR 320  
STR. NO. 087-3542

**LETTERING FOR NAME PLATE**

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



**LOCATION SKETCH**

**WATERWAY INFORMATION**

Drainage Area = 5.7 Sq. Mi.		Low Grade Elev. = 604.81		At Sta. 18+39.50			
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.	Natural H.W.E.	Head-Ft. Exist.	Head-Ft. Prop.	Headwater El. Exist. Prop.
Design	15	1203	175.27	210.68	603.26		
Base	100	1921	218.34	276.54	604.51	0.96	0.89
Overtopping							
Max. Calc.	500	2512					

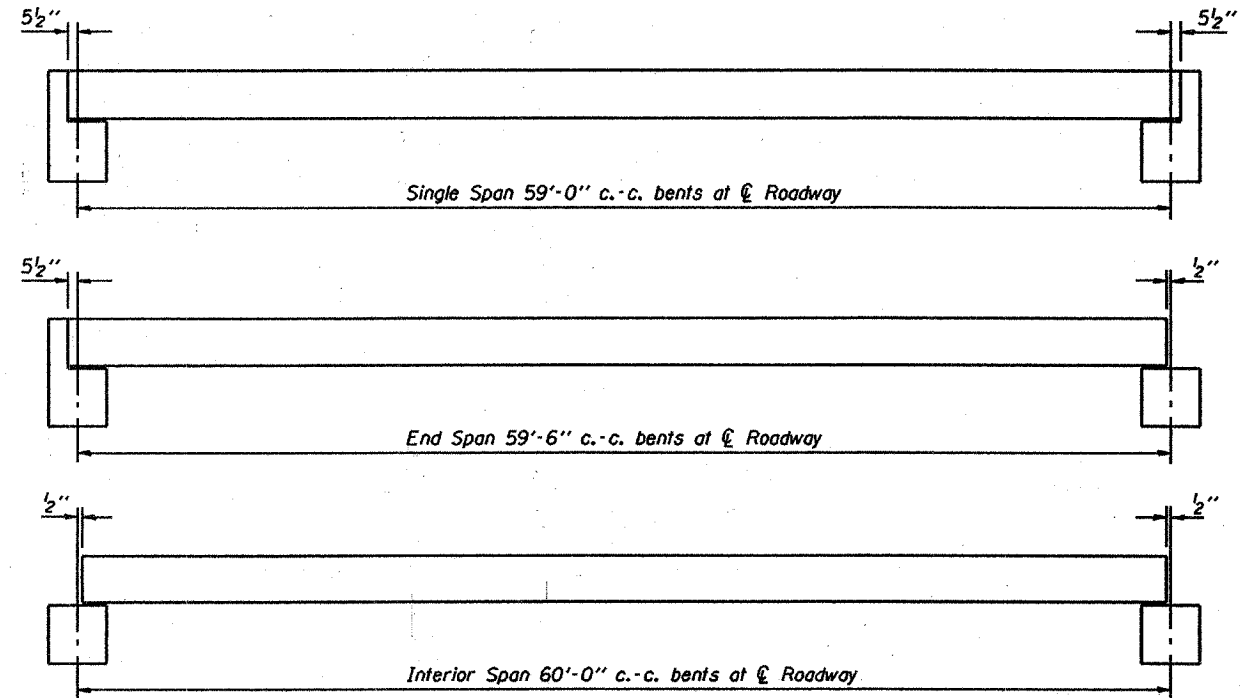
**GENERAL PLAN & ELEVATION**

TR ROUTE 320  
OVER Brush Creek

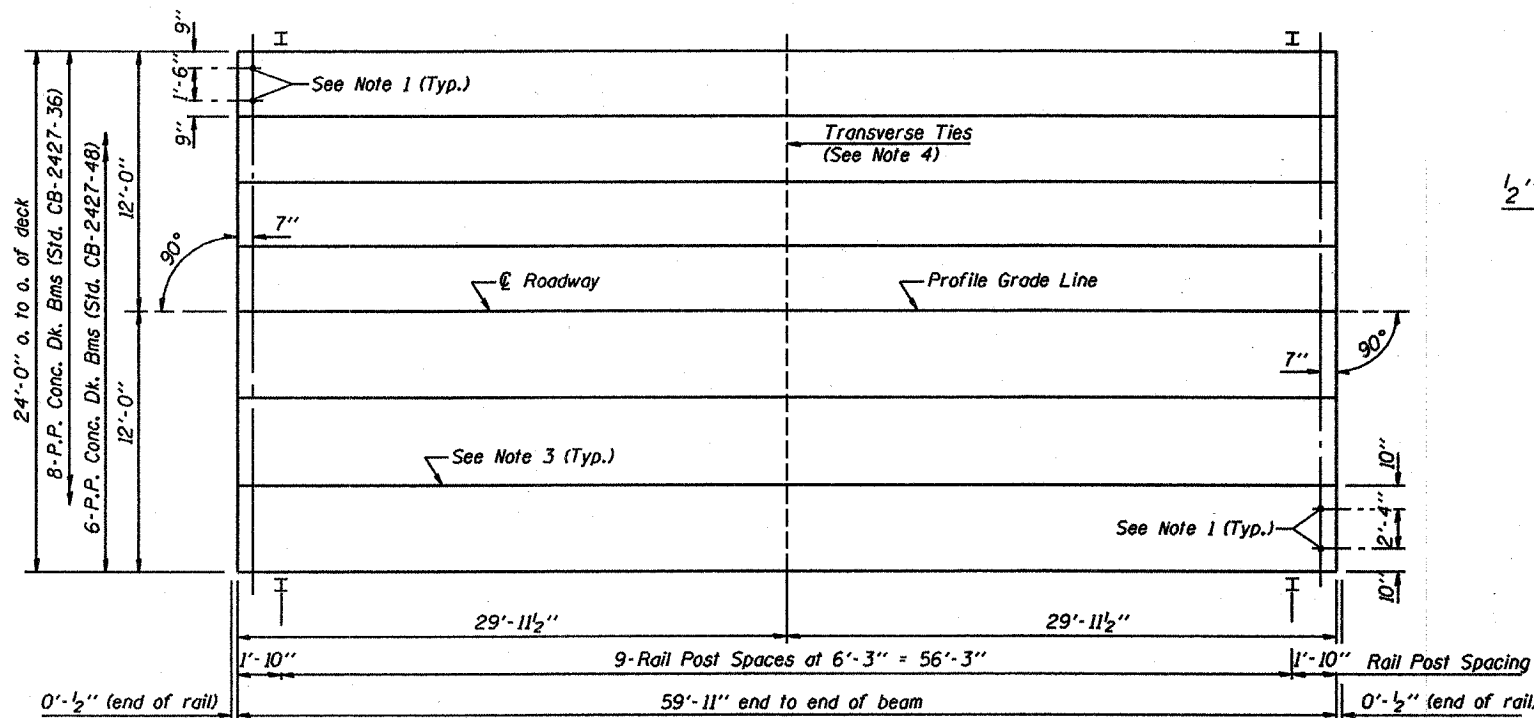
SECTION 03-15127-00-BR

SHELBY COUNTY

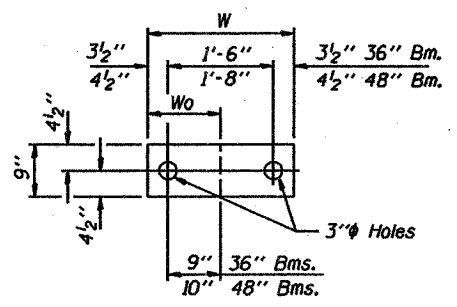
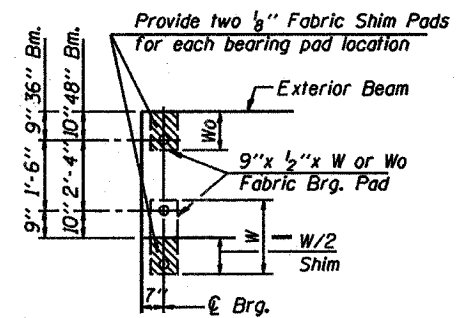
STATION 18+39.5



TYPICAL ELEVATIONS

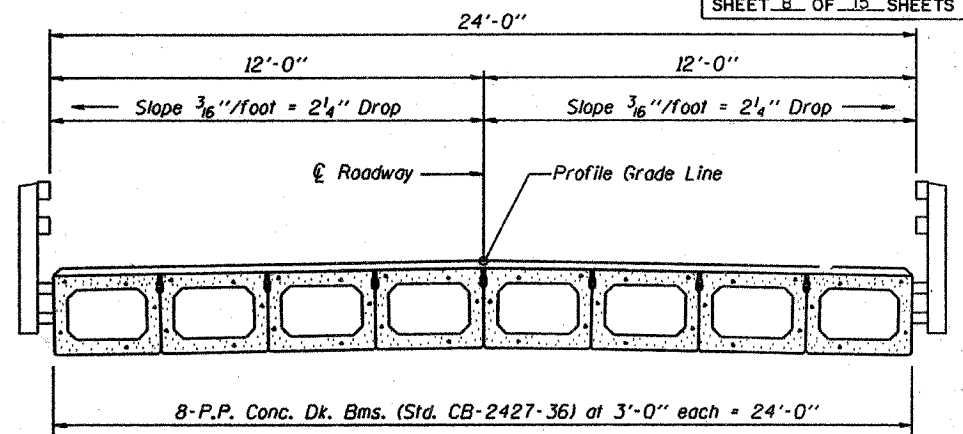


PLAN

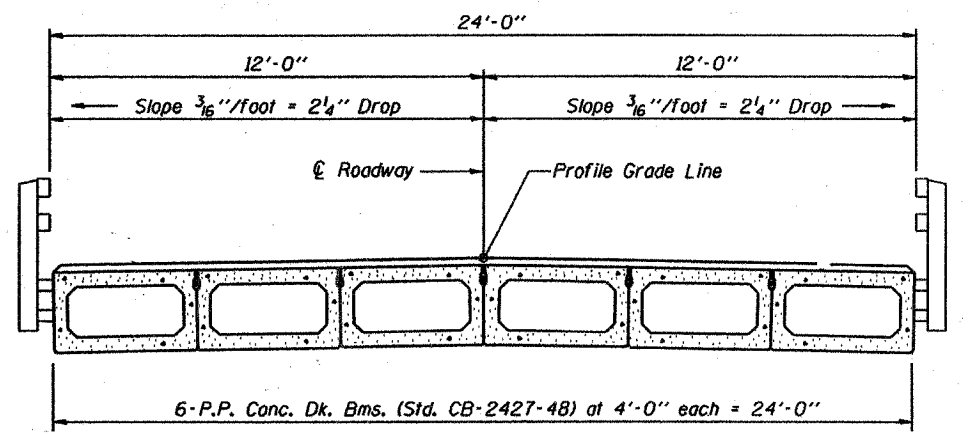


Beam	W	Wo
36"	2'-1"	1'-0 1/2"
48"	2'-5"	1'-2 1/2"

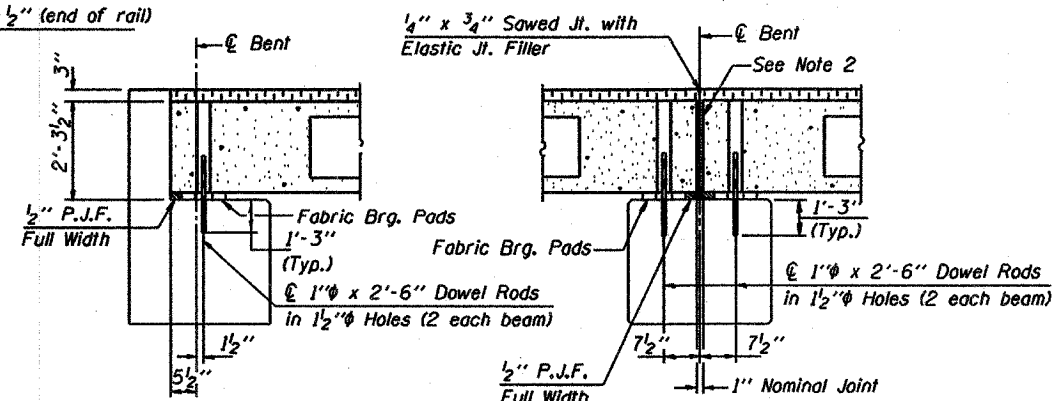
1/2" FABRIC BRG. PAD DETAILS



CROSS SECTION



CROSS SECTION



SECTION AT ABUTS.  
(Along centerline of Beams)

SECTION AT PIERS  
(Along centerline of Beams)

QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 27" Dp.	1440 Sq. Ft.
Steel Railing	120 Ft.

- 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 of 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. Romagallo  
 Engineer of Bridge Design

APPROVED APRIL 4, 2005

Ralph E. Anderson  
 Engineer of Bridges and Structures

P.P.C. DECK BEAM  
 SUPERSTRUCTURE

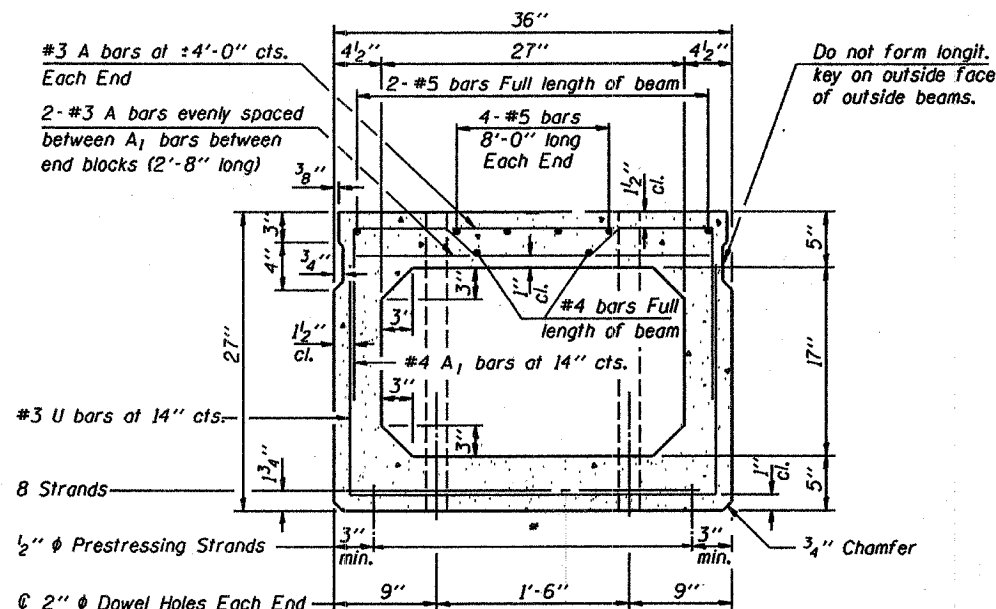
24' RDWY.	27" BMS.	60' SPAN	0° SKEW
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STANDARD CS-2427-60

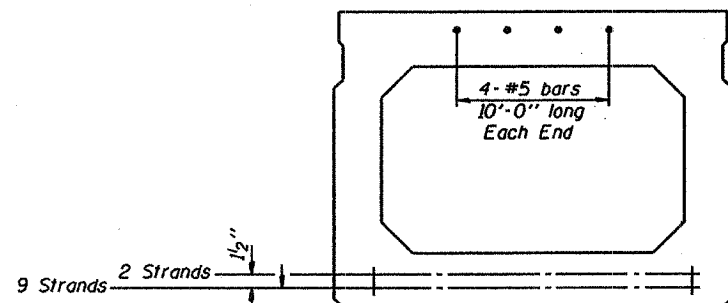


RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 320	*	SHELBY	15	9
PROJECT BROS-173(149)				

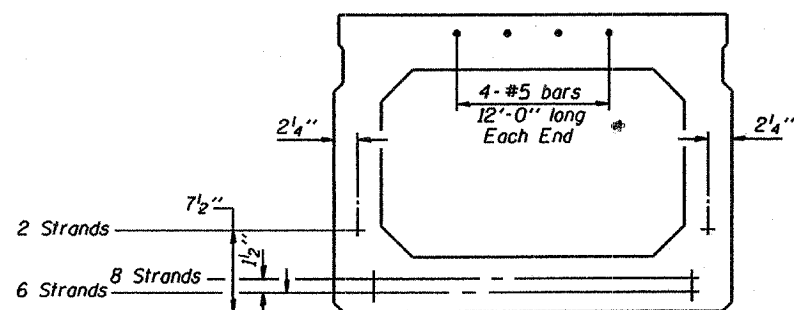
\* 03-15127-00-BR



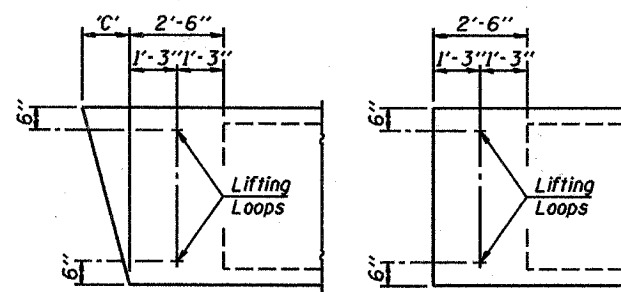
CROSS SECTION  
(40' SPAN)



CROSS SECTION  
(50' SPAN)

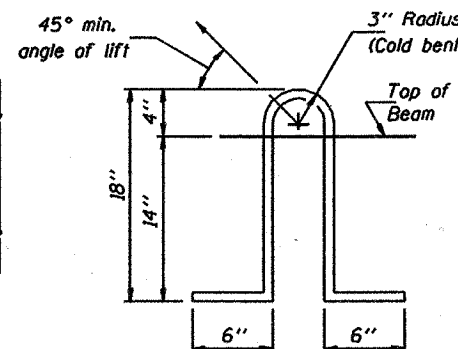


CROSS SECTION  
(60' SPAN)



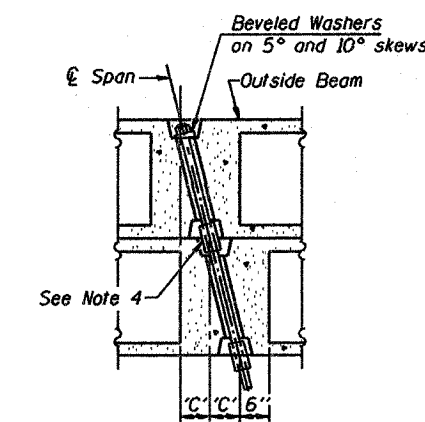
END BLOCK DETAILS

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.

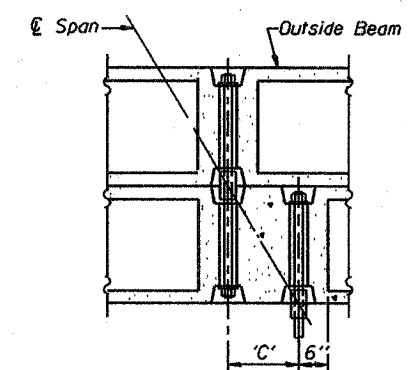


LIFTING LOOP DETAIL

Lifting loops shall be 2. 1/2" phi - 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°)

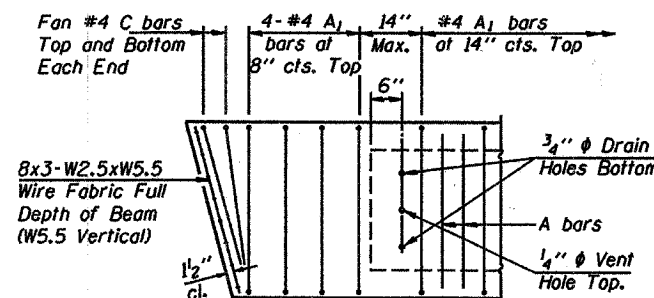
DIMENSION 'C'

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

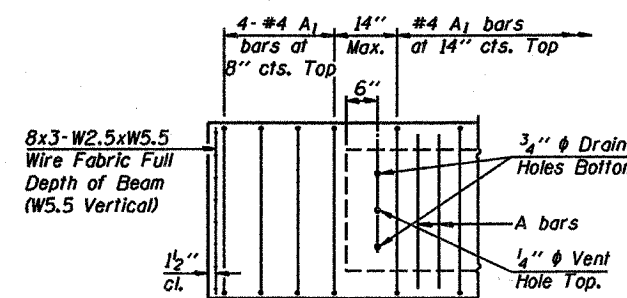
\* TRANSVERSE STRAND PLACEMENT GUIDELINES

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 1/2".

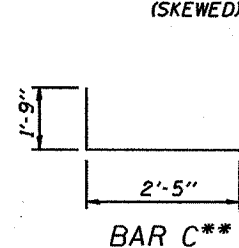
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



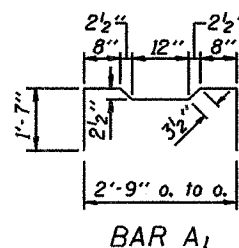
END REINFORCEMENT  
(SKEWED)



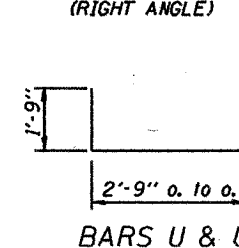
END REINFORCEMENT  
(RIGHT ANGLE)



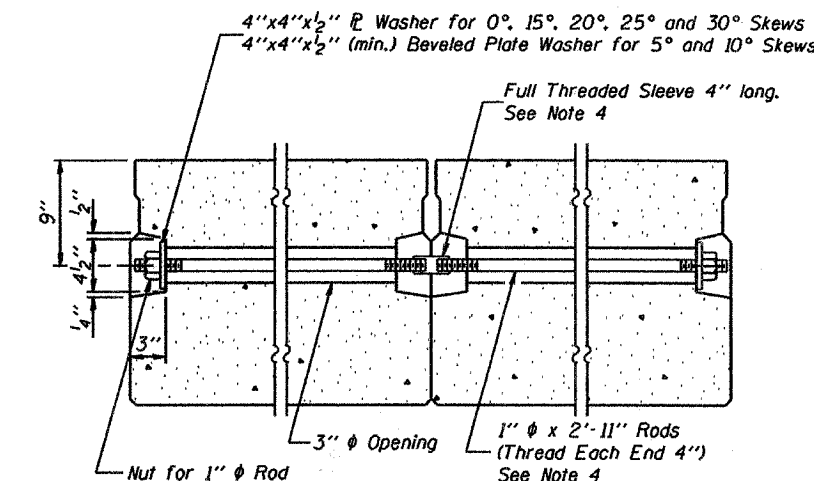
BAR C\*\*



BAR A1



BARS U & U1



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.

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" phi Strand)
- f'si = 201,960 p.s.i. (1/2" phi 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. Romagnolo  
Engineer of Bridge Design

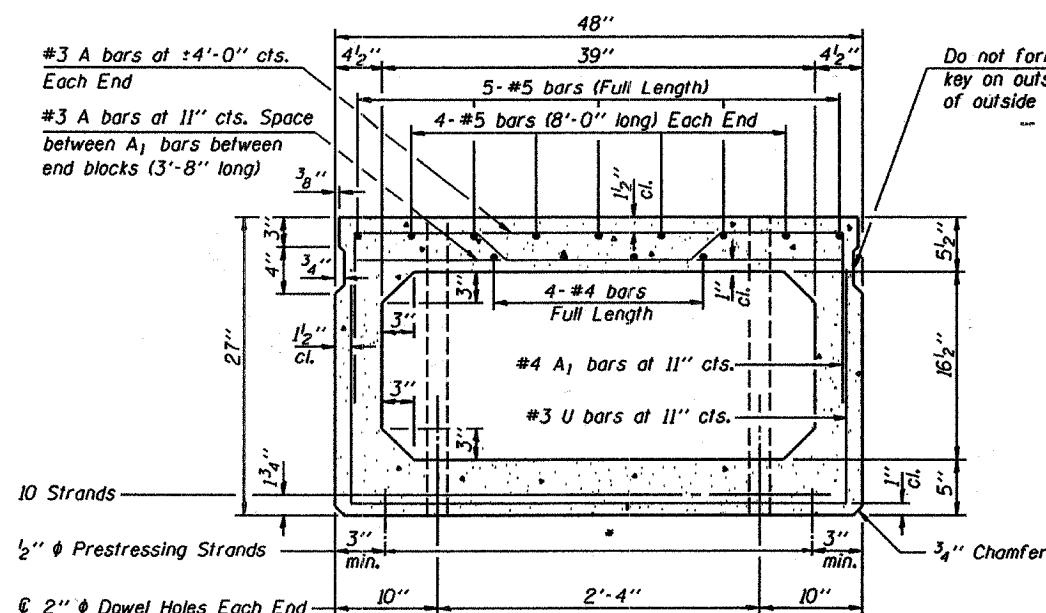
APPROVED APRIL 4, 2005

Rudolph E. Gauderman  
Engineer of Bridges and Structures

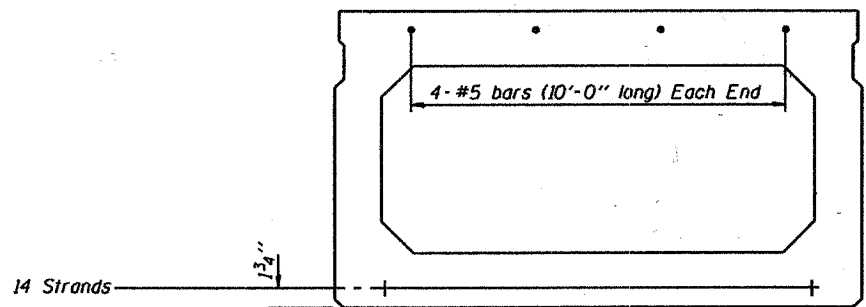
P.P.C. DECK BEAM DETAILS

24' ROADWAY	27" x 36" BEAMS
STANDARD CB-2427-36	

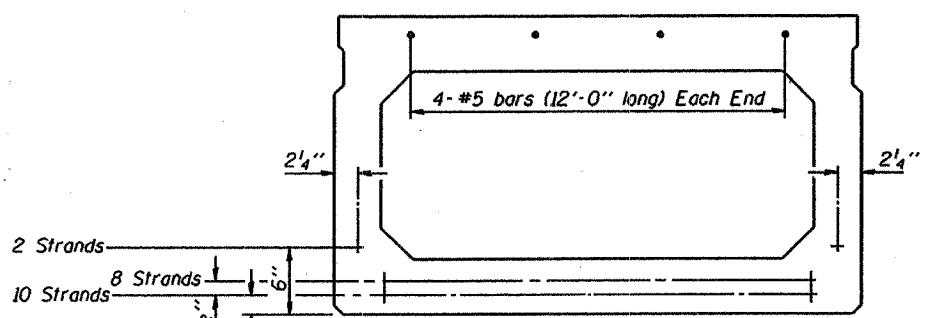
RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 320	*	SHELBY	15	10
PROJECT BROS-173(149)				
* 03-15127-00-BR				



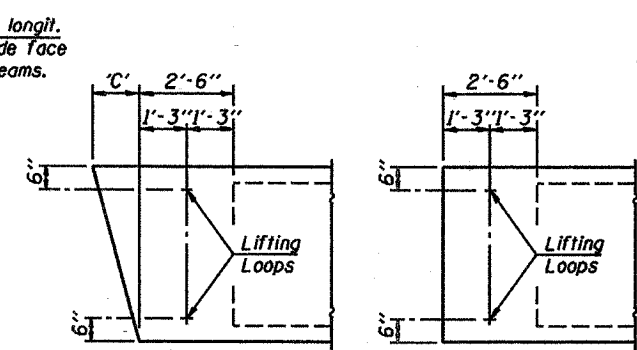
**CROSS SECTION**  
(40' SPAN)



**CROSS SECTION**  
(50' SPAN)

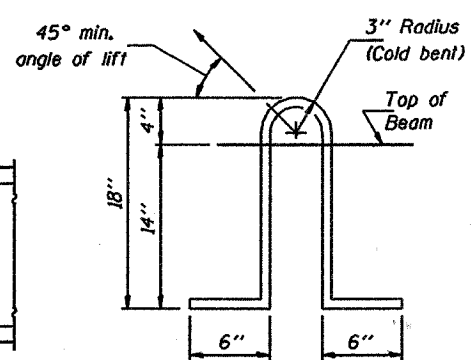


**CROSS SECTION**  
(60' SPAN)



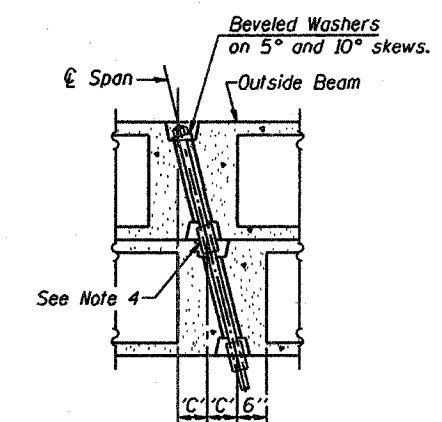
**END BLOCK DETAILS**

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.

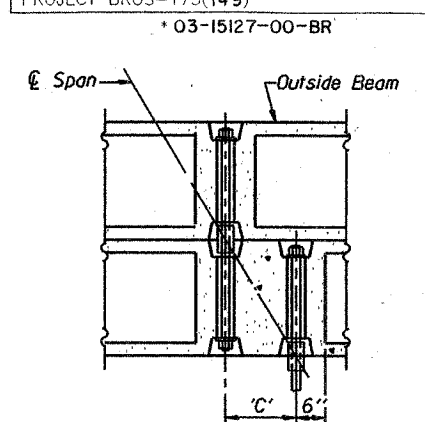


**LIFTING LOOP DETAIL**

Lifting loops shall be 3. 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°)

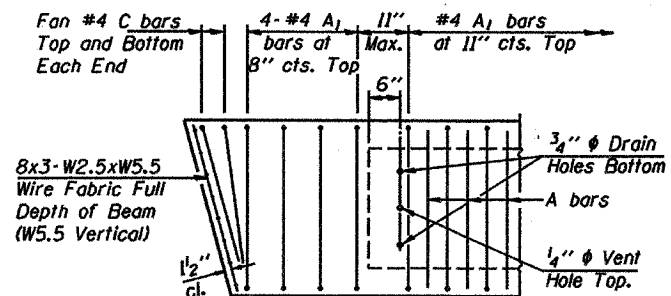
**DIMENSION 'C'**

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

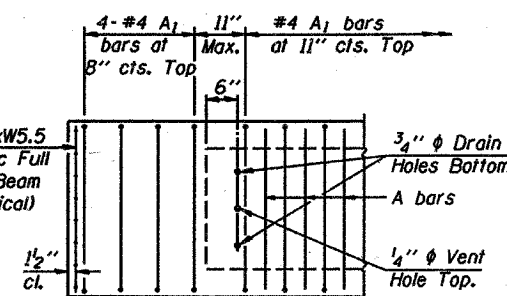
**\* TRANSVERSE STRAND PLACEMENT GUIDELINES**

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".

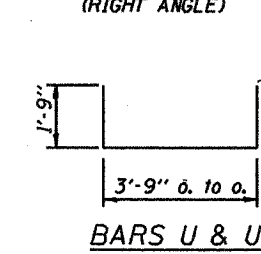
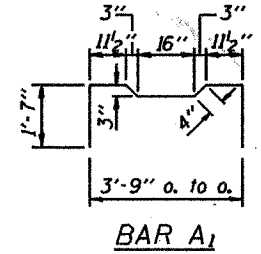
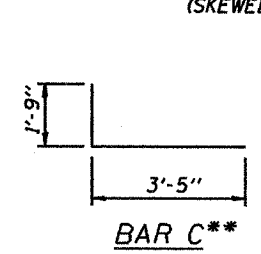
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



**END REINFORCEMENT**  
(SKEWED)



**END REINFORCEMENT**  
(RIGHT ANGLE)

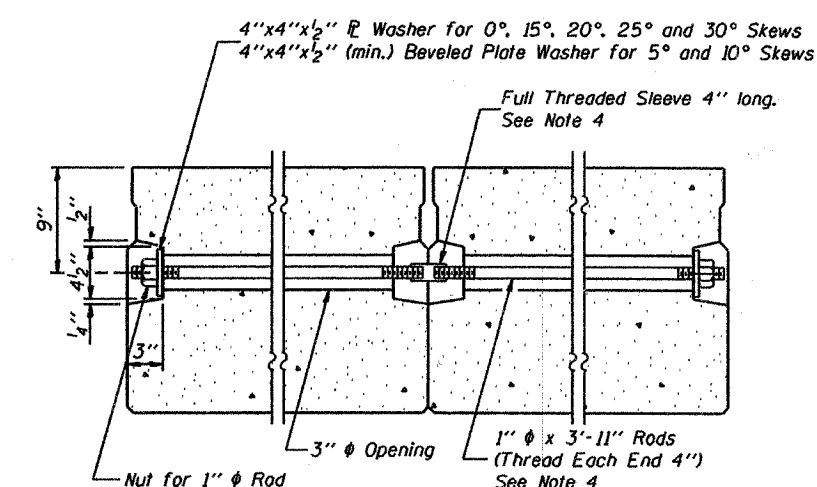


**DESIGN STRESSES**

- $f_c = 5,000$  p.s.i.
- $f_{ci} = 4,000$  p.s.i.
- $f_s = 270,000$  p.s.i. (1/2 inch diameter Strand)
- $f_{si} = 201,960$  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"



**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 inch 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 inch.
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.

**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

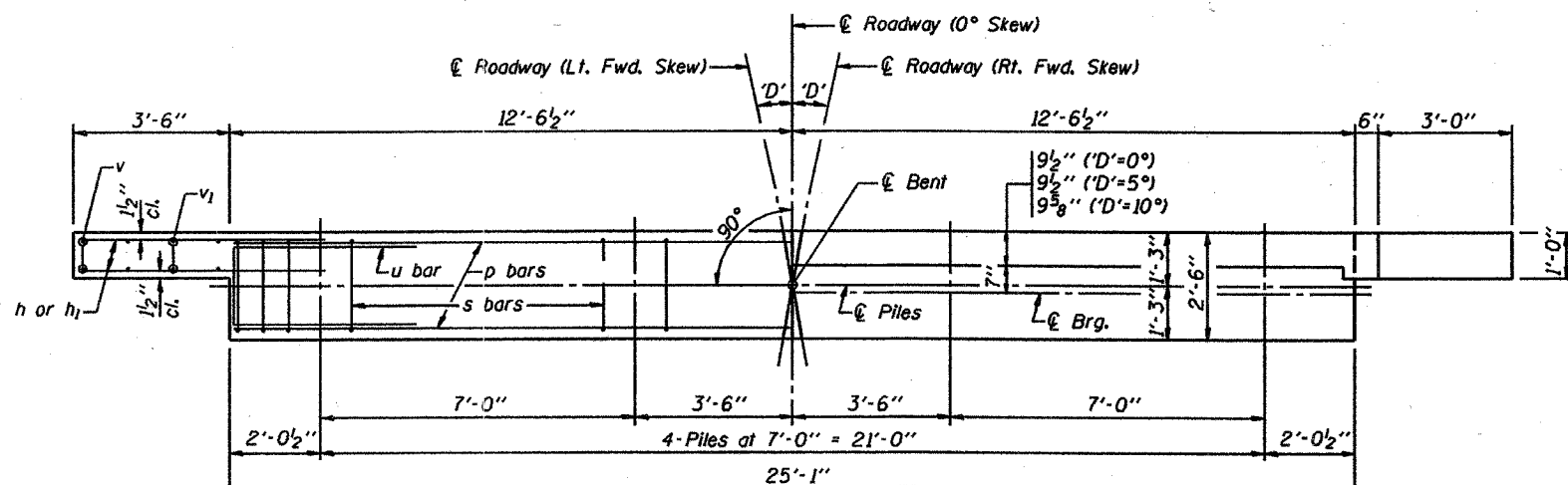
Illinois Department of Transportation  
 PASSED APRIL 4, 2005  
 Thomas J. Demagala  
 Engineer of Bridge Design  
 APPROVED APRIL 4, 2005  
 Ralph E. Anderson  
 Engineer of Bridges and Structures  
 ISSUED 7-1-98

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

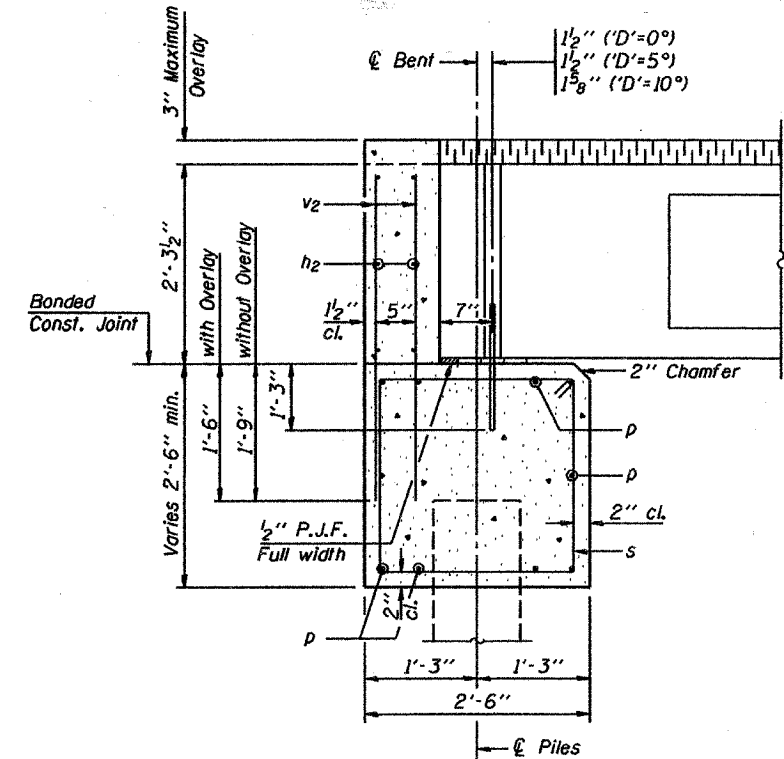
RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 320	*	SHELBY	15	11

PROJECT BROS-173(149)

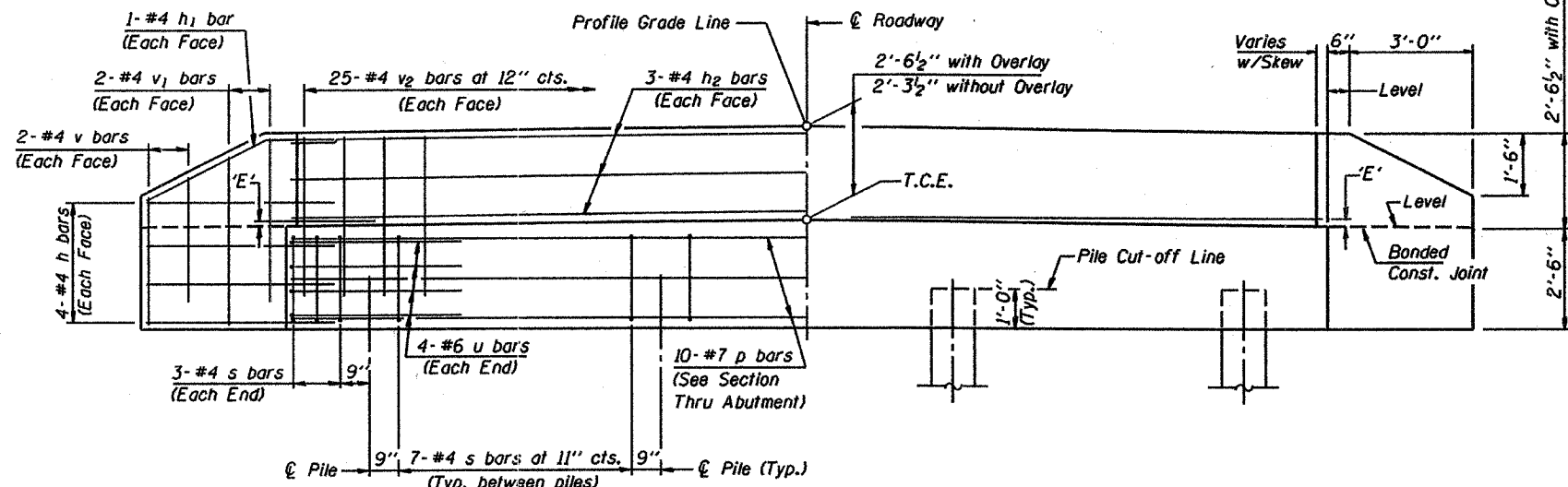
\* 03-15127-00-BR



PLAN  
(D=Designated Skew Angle)



SECTION THRU ABUTMENT  
(At Right Angles)



ELEVATION

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

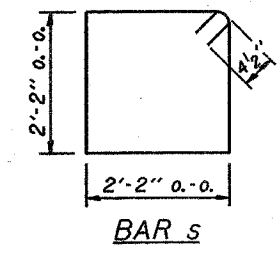
- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
- Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M-322, Grade 60.
- Space reinforcement in cap to miss anchor bolts.

MAXIMUM PILE LOADS

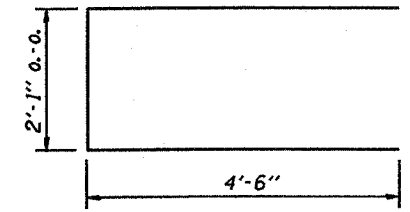
SPAN	TONS
40'	34
50'	38
60'	43

DESIGN STRESSES

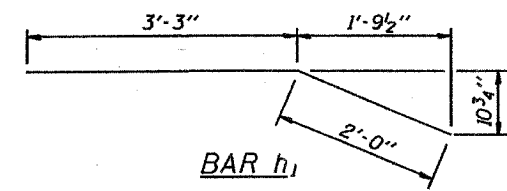
f'c = 3,500 psi  
fy = 60,000 psi



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	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.	

Illinois Department of Transportation  
 PASSED APRIL 4, 2005  
 Themas S. Nomanaleki  
 Engineer of Bridge Design  
 APPROVED APRIL 4, 2005  
 Ralph E. Anderson  
 Engineer of Bridges and Structures

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

**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.

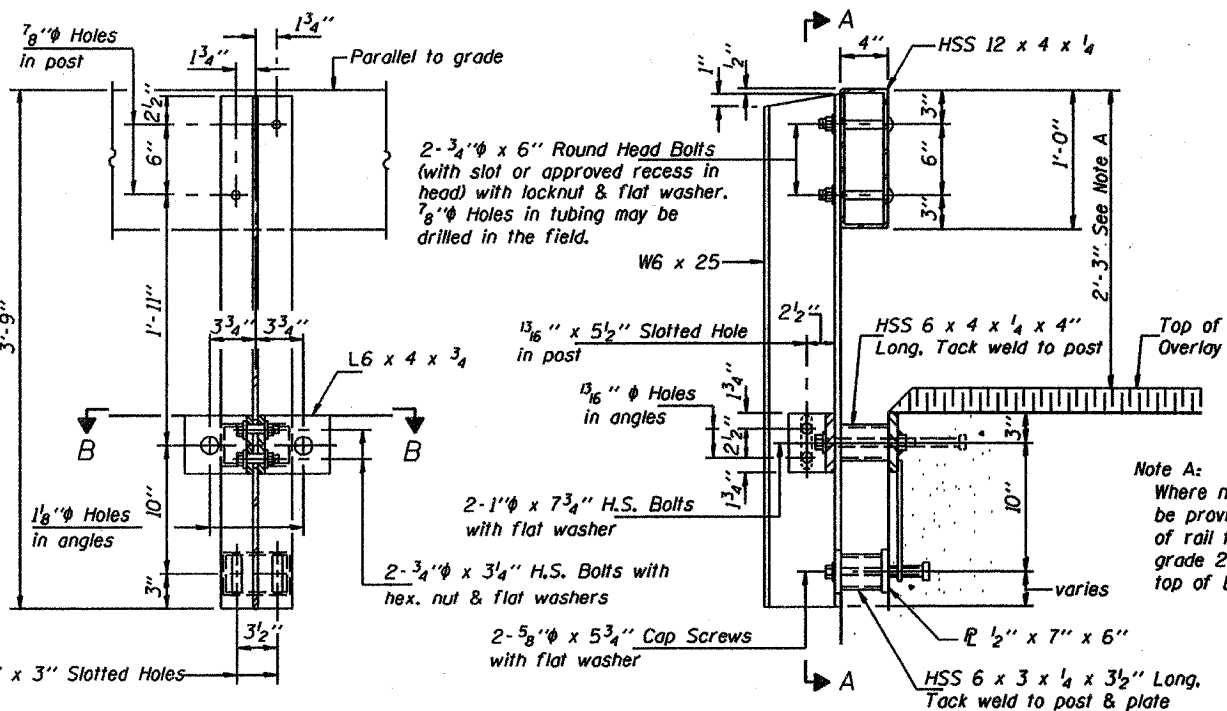
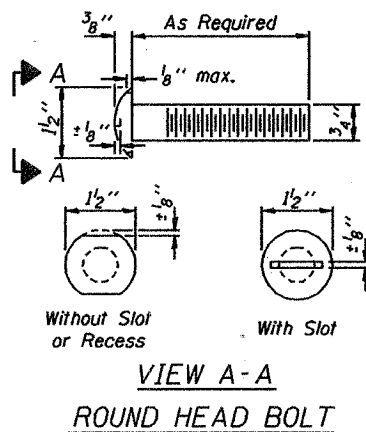
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with STEEL RAILING, TYPE S-1.

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

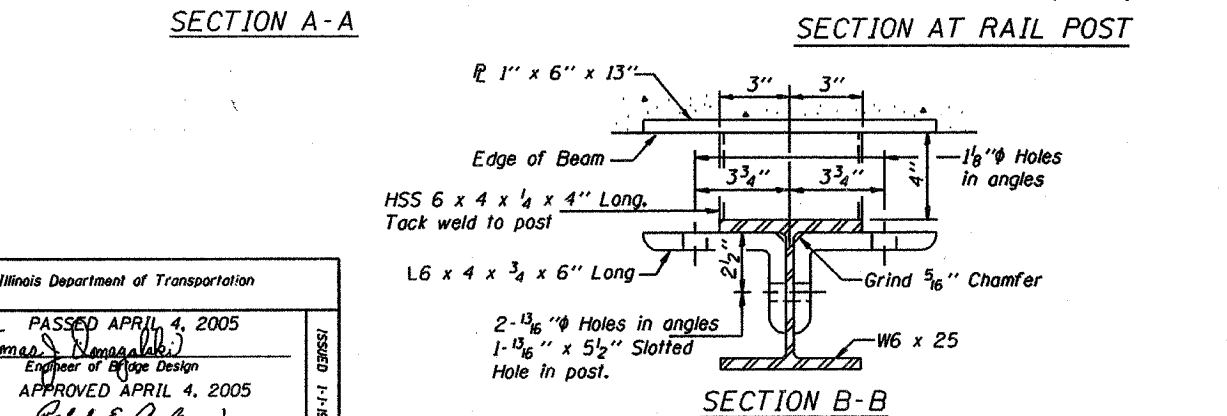
The 1/2" x 7" x 6" plates that come in contact with concrete shall either receive two coats of asphalt paint conforming to Section 1060.07 Type II, or 1/8" fabric bearing pads shall be placed between the plates and concrete.

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 (IX2) 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.

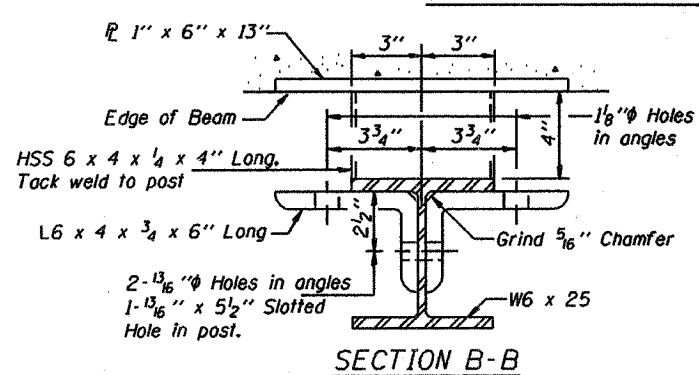
The maximum allowable rail post spacing shall be 10'-6". The rail post spacing shown elsewhere in the plans is based on the allowable spacing for another type of rail. When this type of rail is used, the number of posts may be decreased and the post spacing increased to provide equal post spaces of 10'-6"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



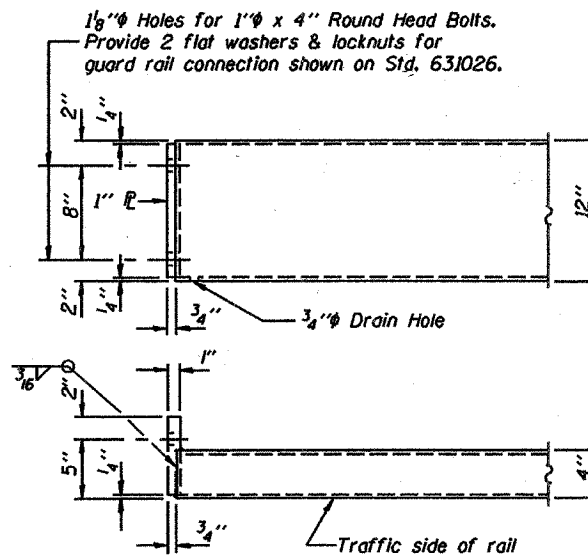
SECTION A-A



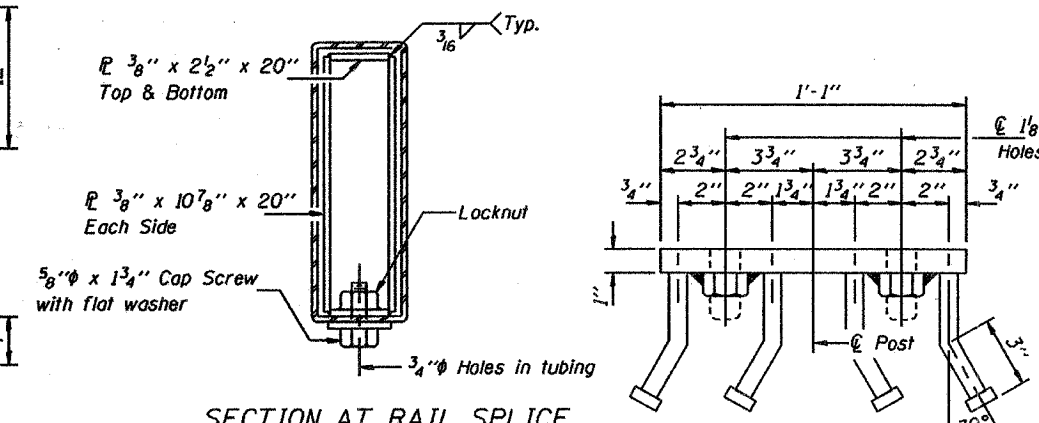
SECTION AT RAIL POST



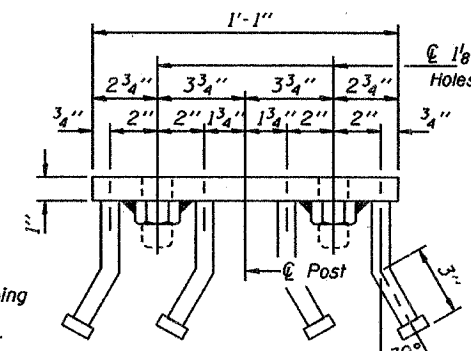
SECTION B-B



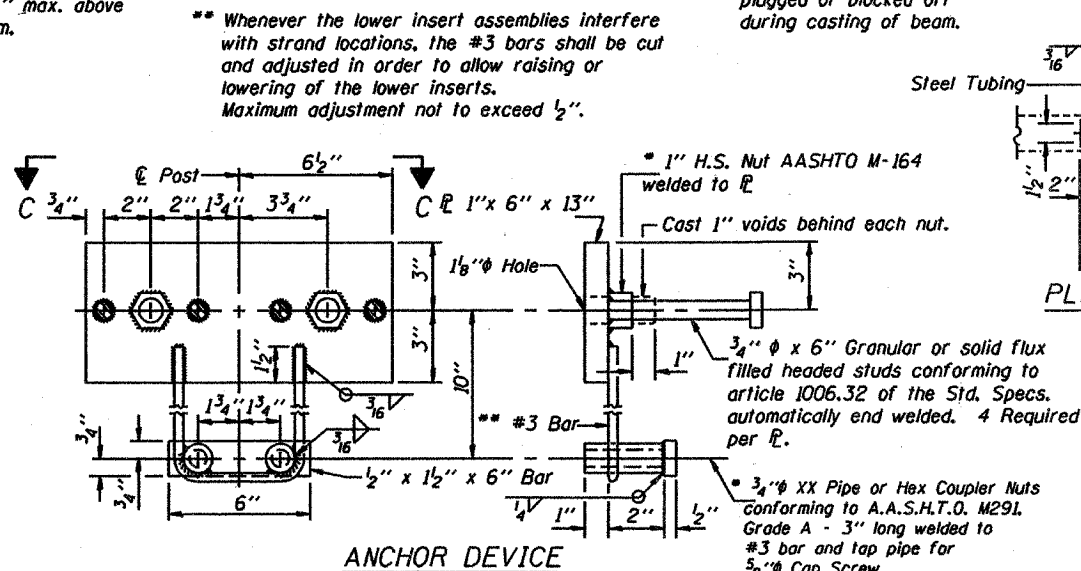
END OF RAIL DETAILS



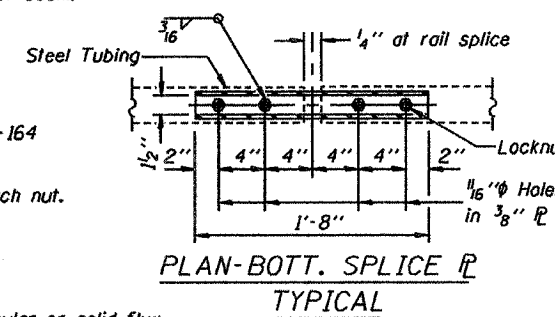
SECTION AT RAIL SPLICE



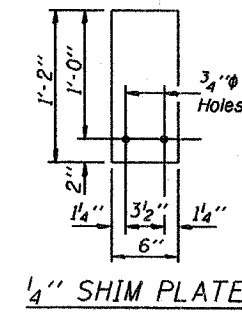
VIEW C-C



ANCHOR DEVICE



PLAN-BOTT. SPLICE TYPICAL

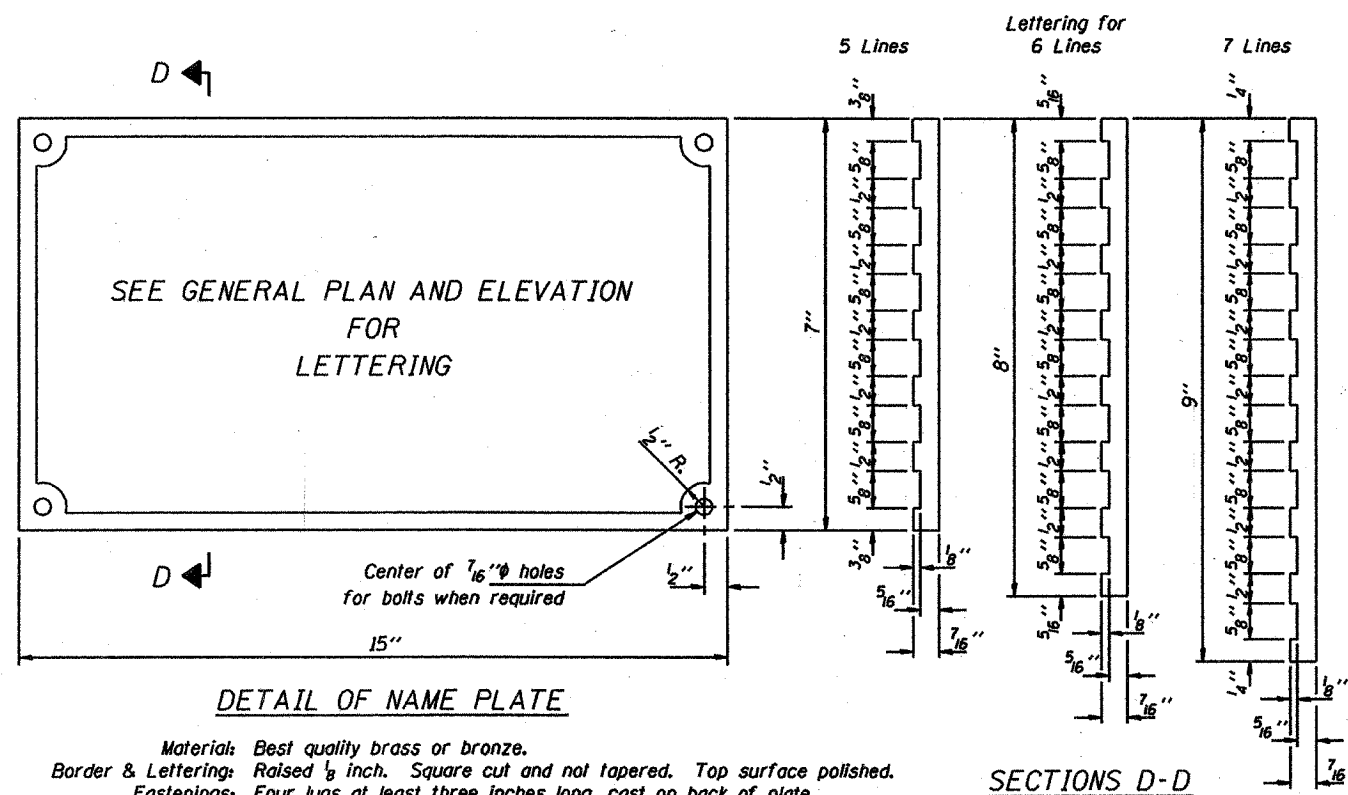


1/4\"/>

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

STEEL RAILING, TYPE S-1  
 STANDARD CR-TS1

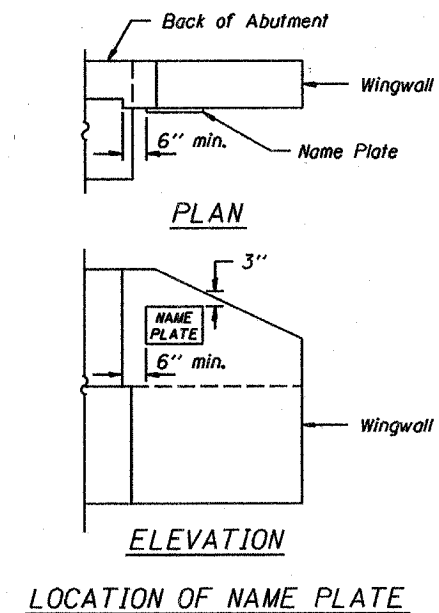
RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 320	*	SHELBY	15	13
PROJECT BROS-173(149)				
* 03-15127-00-BR				



**DETAIL OF NAME PLATE**

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

**SECTIONS D-D**



**LOCATION OF NAME PLATE**

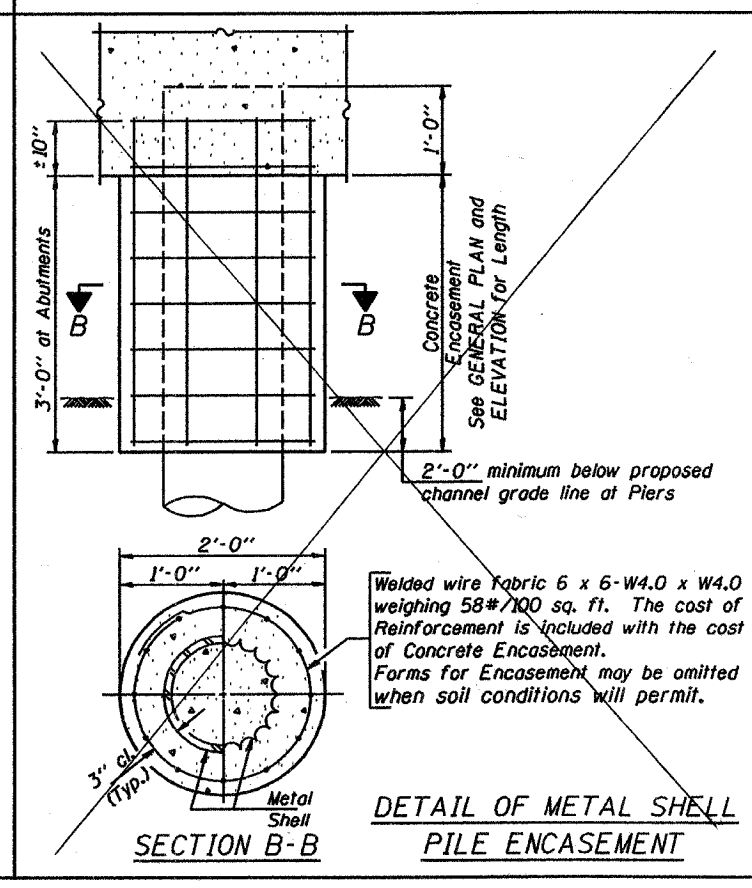
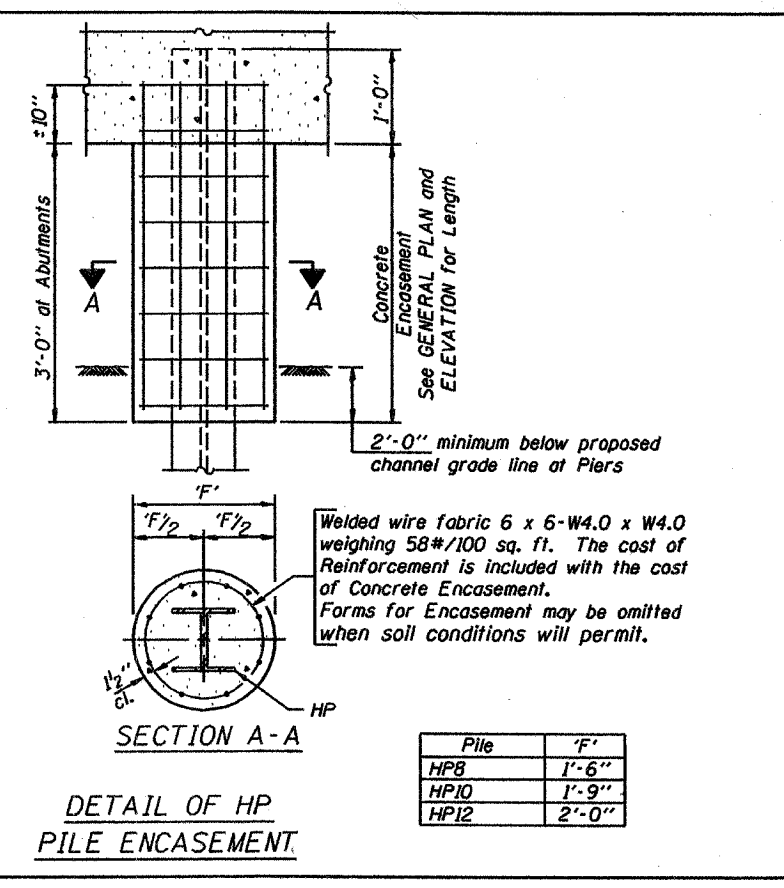
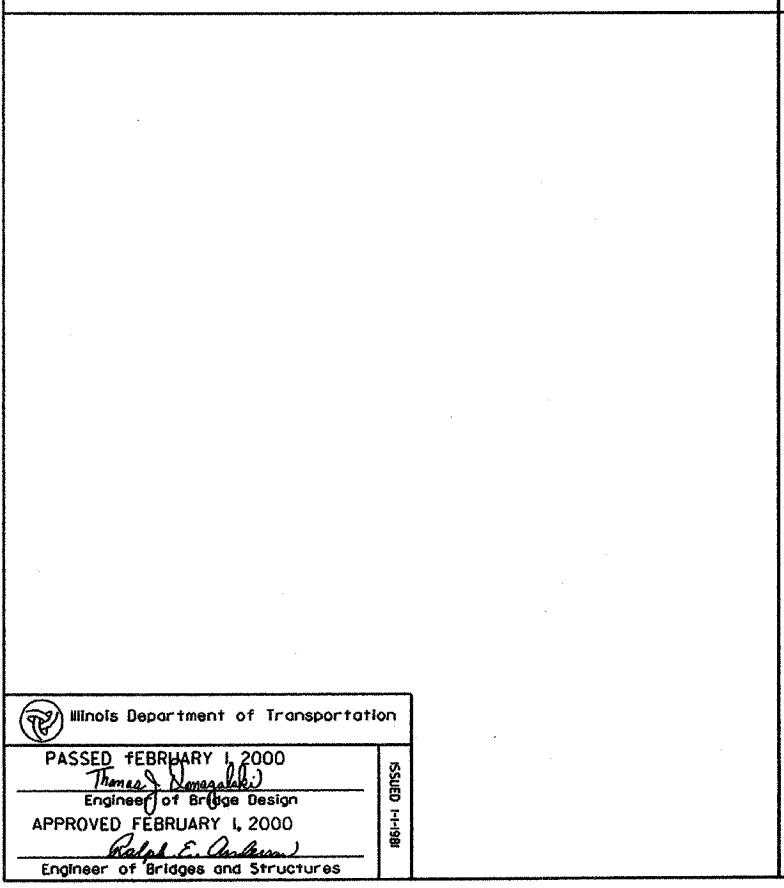
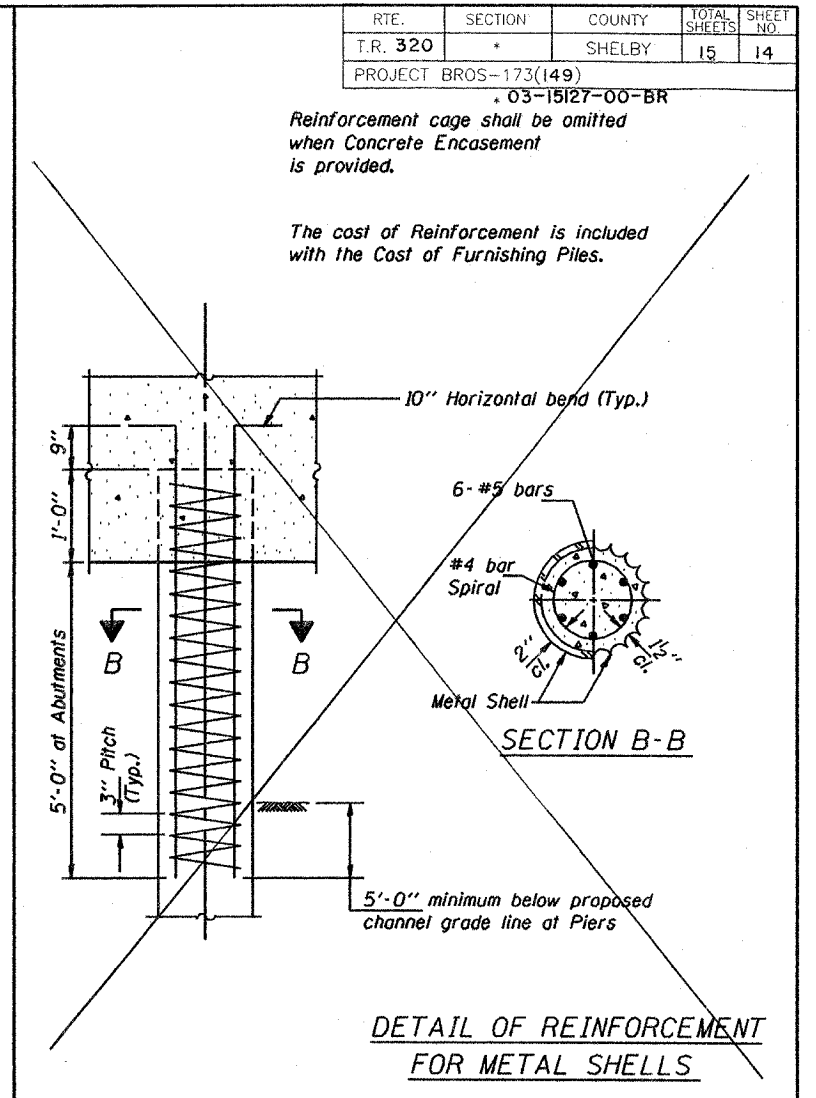
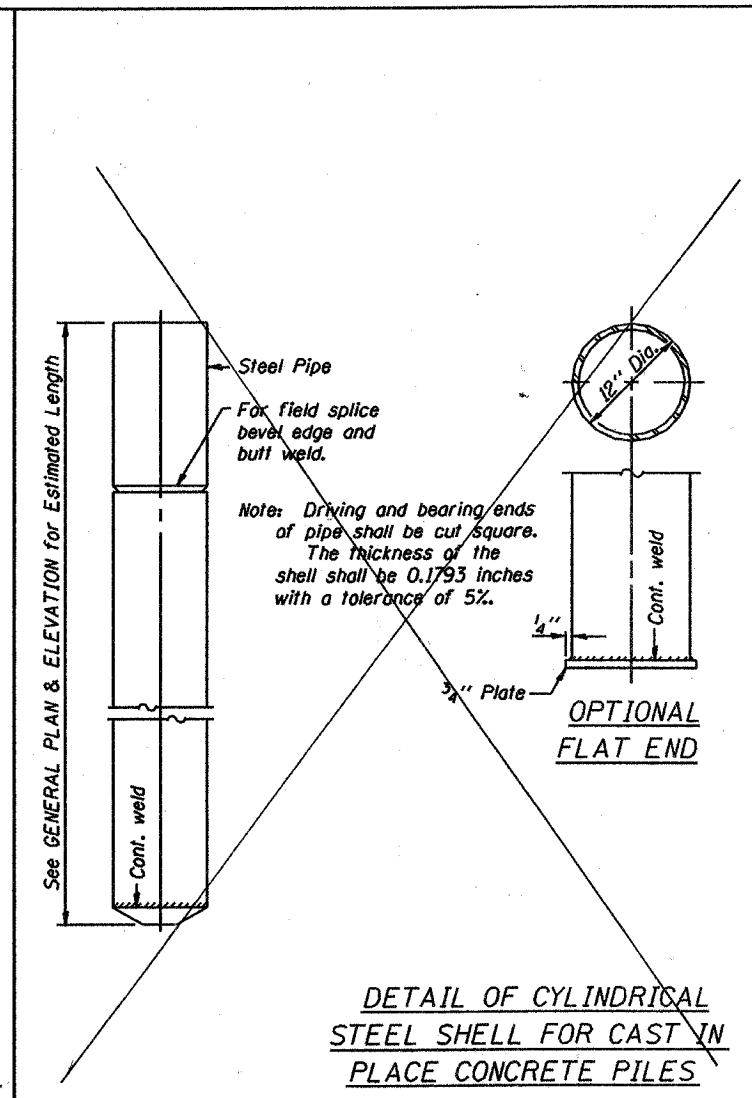
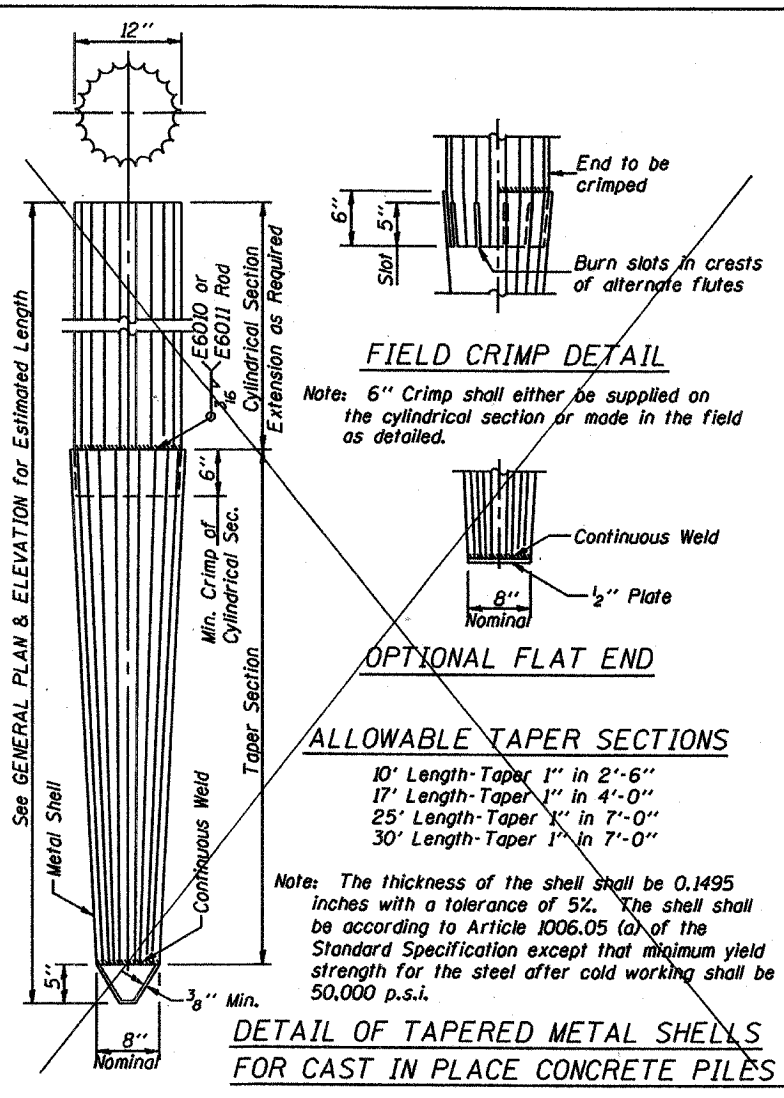
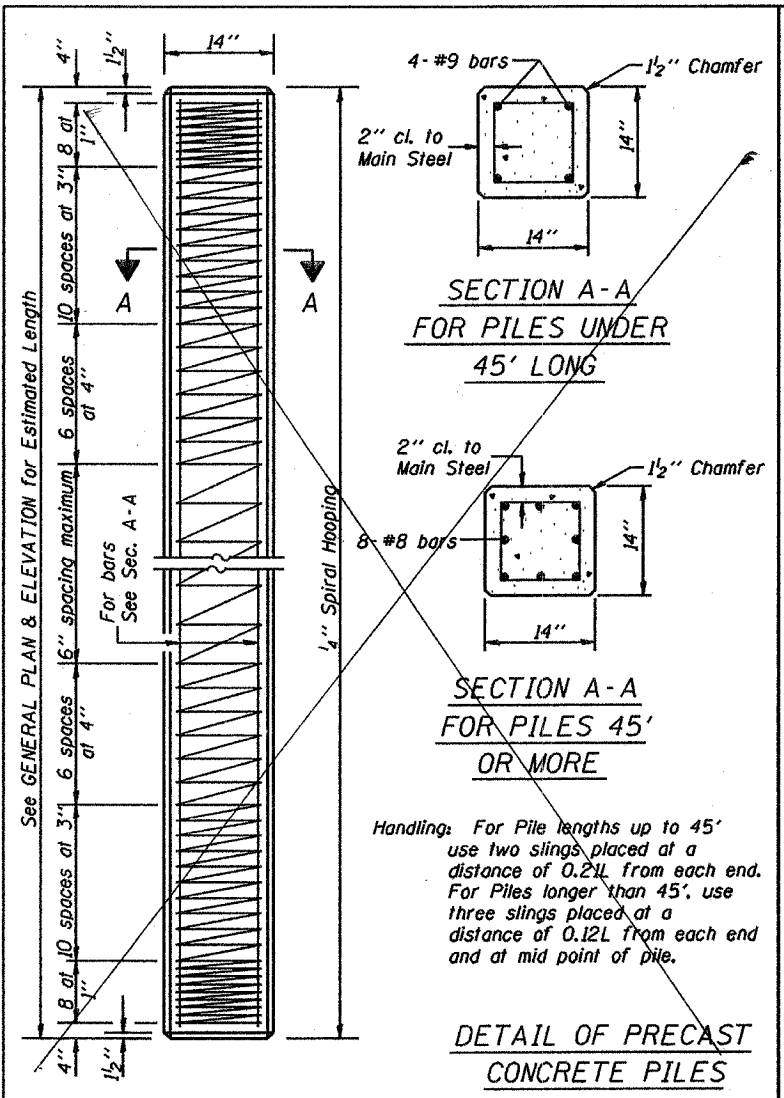
Illinois Department of Transportation

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

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

ISSUED 7-1-1995

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.

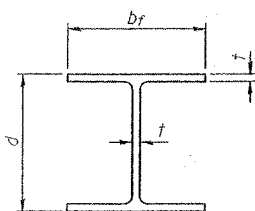
**PILE DETAILS**

STANDARD CX-1

Illinois Department of Transportation  
 PASSED FEBRUARY 1, 2000  
 Thomas J. Demagala  
 Engineer of Bridge Design  
 APPROVED FEBRUARY 1, 2000  
 Ralph E. Coulburn  
 Engineer of Bridges and Structures

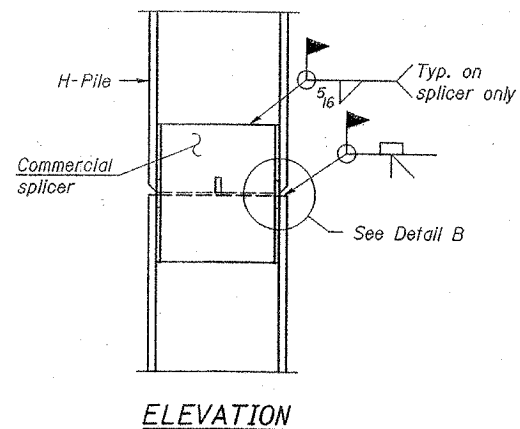
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 320	*	SHELBY	15	15
FED. ROAD DIST. NO.	ILLINOIS PROJECT			

\*03-15127-00-BR

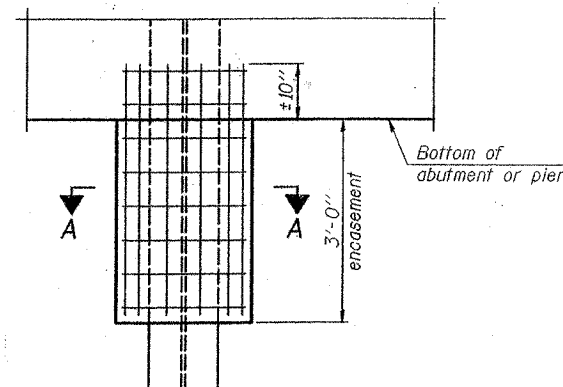


STEEL PILE TABLE

Designation	Depth d	Flange width b <sub>f</sub>	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	1 3/16"	30"
x102	14"	14 3/4"	1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11 3/4"	12"	7/16"	24"
HP 10x57	10"	10 1/4"	9/16"	24"
x42	9 3/4"	10 1/8"	7/16"	24"
HP 8x36	8"	8 1/8"	7/16"	18"

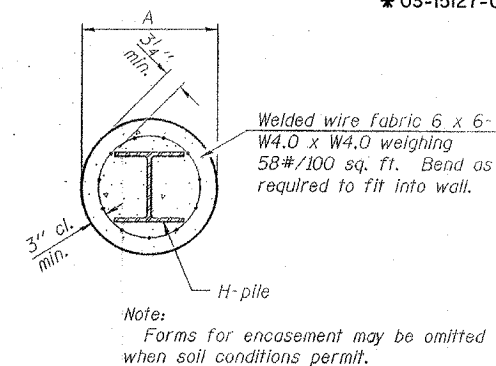


ELEVATION

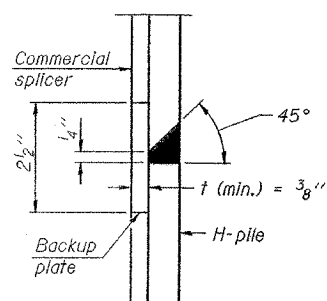


ELEVATION

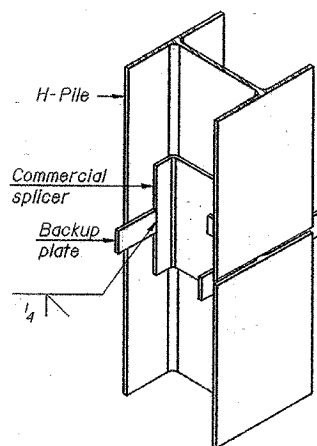
PILE ENCASEMENT



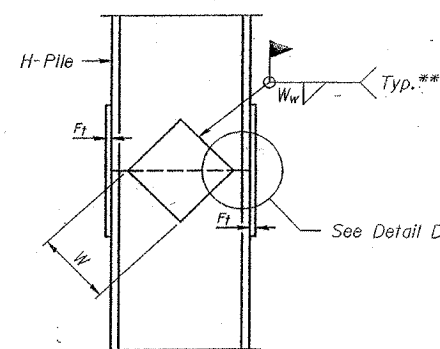
SECTION A-A



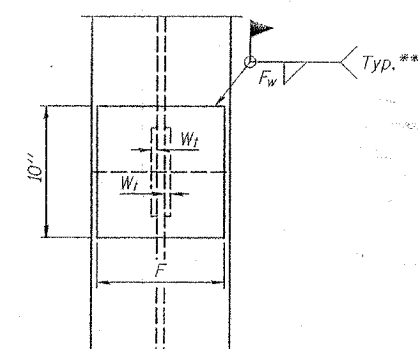
DETAIL "B"



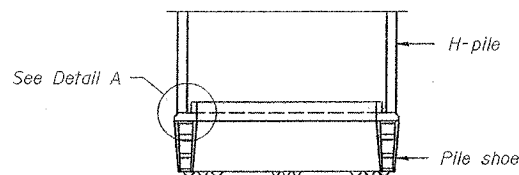
ISOMETRIC VIEW



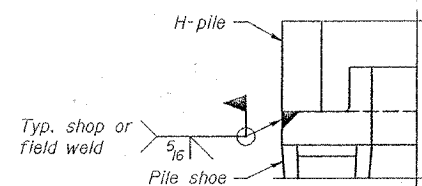
ELEVATION



END VIEW

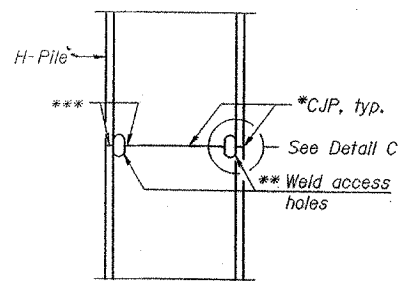


ELEVATION

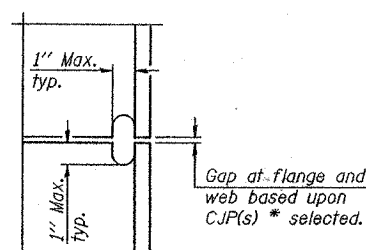


DETAIL A

H-PILE SHOE ATTACHMENT

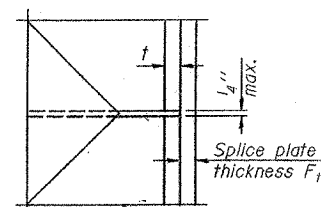


ELEVATION



DETAIL C

COMPLETE PENETRATION WELD SPLICE



DETAIL D

WELDED PLATE FIELD SPLICE

Designation	F	F <sub>t</sub>	F <sub>w</sub>	W	W <sub>t</sub>	W <sub>w</sub>
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5 8/8"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5 8/8"	1/2"
x89	12 1/2"	3/4"	1/16"	7 3/4"	5 8/8"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5 8/8"	1/2"
HP 12x84	10"	7/8"	1/16"	6 1/2"	5 8/8"	1/2"
x74	10"	7/8"	1/16"	6 1/2"	5 8/8"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

STEEL H PILE DETAILS

- \* Use joint conforming to Figure 3.4 in AWS D1.1, Structure Welding Code - Steel.
- \*\* Preparation per Fig. 5.2 in AWS D1.1, Structure Welding Code - Steel.
- \*\*\* Interrupt welds 1/4" from end of each pile.

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