

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

**PLANS FOR PROPOSED
HIGHWAY BRIDGE PROGRAM**

MOCCASIN ROAD DISTRICT
EFFINGHAM COUNTY, ILLINOIS

SECTION 02-08110-00-BR

PROJECT BROS -0049(156)

C-97-023-08

TR. 4B

CONTRACT #95535

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
02-0810-00-BR		EFFINGHAM	14	1
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

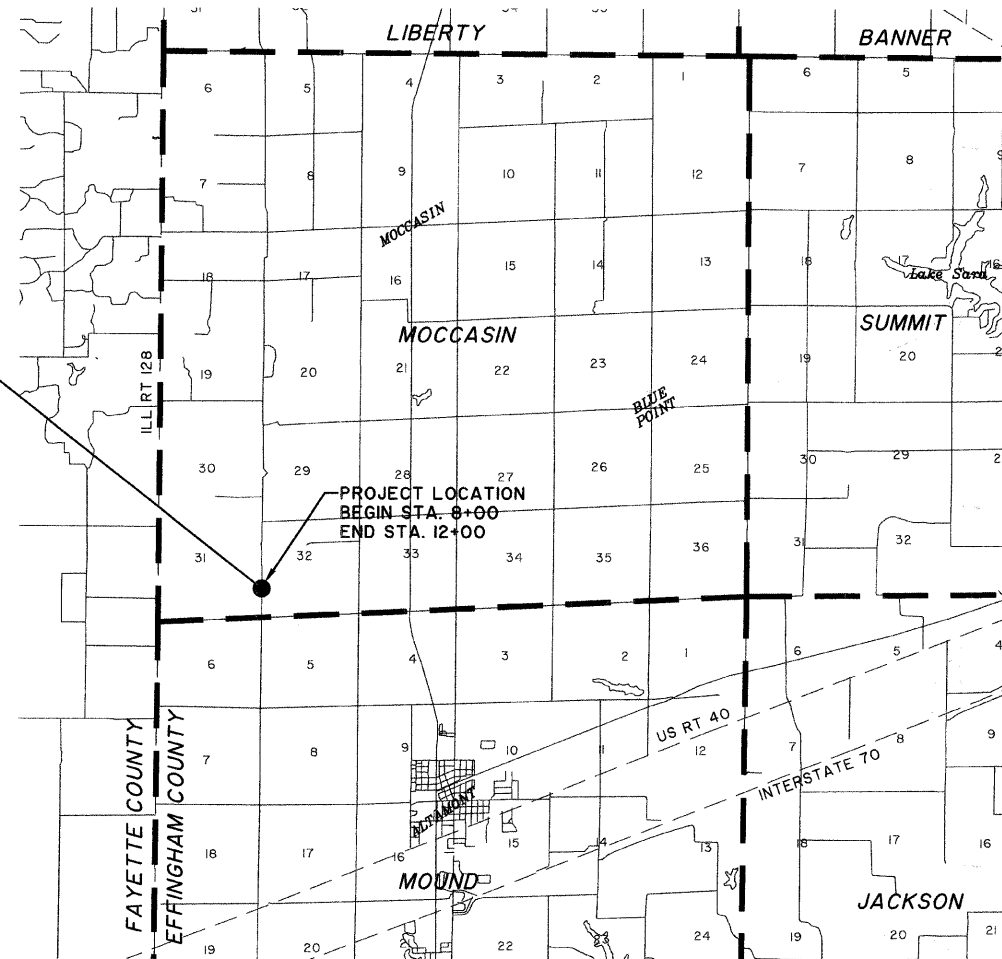


INDEX OF SHEETS

- 1 TITLE SHEET
- 2 TYPICAL SECTION, GENERAL NOTES SHEET
SUMMARY OF QUANTITIES SHEET
- 3 PLAN AND PROFILE SHEET
- 4 GENERAL PLAN AND ELEVATION
- 5 Standard CS-2427-50
- 6 Standard CB-2427-36
- 7 Standard CB-2427-48
- 8 Standard CA-2427-10
- 9 Standard CR-TSI
- 10 Standard CN
- 11 Standard CX-1
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STANDARDS

- Standard 000001-05 Standard Symbols, Abbreviations, and Patterns
- Standard 280001-04 Temporary Erosion Control Systems
- Standard 701901 Traffic Control Devices
- Standard BLR 21-7 Typical Application of Traffic Control Devices for Construction on Rural Local Highways
- Standard BLR 22-5 Typical Application of Traffic Control Devices for Construction on Rural Local Highways (Two-Lane, Two Way Rural Traffic) (Road Closed to Thru Traffic)



SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE
51'-6" BK.-BK. ABUTMENTS
STEEL PILE SPILLTHROUGH ABUTMENTS
24' DECK
EXISTING STRUCTURE NO. 025-3044
PROPOSED STRUCTURE NO. 025-3319

SCALES

PLAN	0 20 40
PROFILE (HORIZONTAL)	0 20 40
PROFILE (VERTICAL)	0 5 10
CROSS SECTIONS (HORIZONTAL)	0 10 20
CROSS SECTIONS (VERTICAL)	0 5 10

J.U.L.I.E.

JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123

UTILITY NOTE

THE LOCATIONS OF THOSE BURIED AND ABOVEGROUND UTILITIES SHOWN ARE APPROXIMATE, ARE SHOWN FOR CONTRACTOR INFORMATIONAL USE ONLY, AND ARE NOT TO BE REFERENCED FOR CONSTRUCTION PURPOSES. THE IMPLIED PRESENCE OR ABSENCE OF UTILITIES IS NOT TO BE CONSTRUED BY THE OWNER, ENGINEER, CONTRACTOR, OR SUBCONTRACTORS TO BE AN ACCURATE AND COMPLETE REPRESENTATION OF UTILITIES THAT MAY OR MAY NOT EXIST ON THE CONSTRUCTION SITE. BURIED AND ABOVEGROUND UTILITY LOCATION, IDENTIFICATION, AND MARKING ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. REROUTING, DISCONNECTION, PROTECTION, ETC. OF ANY UTILITIES MUST BE COORDINATED BETWEEN THE CONTRACTOR, UTILITY COMPANY, AND OWNER. SITE SAFETY, INCLUDING THE AVOIDANCE OF HAZARDS ASSOCIATED WITH BURIED AND ABOVEGROUND UTILITIES, REMAIN THE SOLE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR MUST CONTACT J.U.L.I.E. 48 HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION.

LOCAL ROAD
DESIGN SPEED = 30 MPH
CURRENT ADT = 100 VPD
DESIGN YEAR ADT = 125 VPD

LOCATION MAP
MOCCASIN TOWNSHIP
SECTION 31 & 32, T8N, R4E, 3rd PM

LENGTH OF PROJECT
TR 4B = 400.0 FEET (0.08 miles)

APPROVED: [Signature] 1-02 20 08
COUNTY ENGINEER

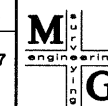
PASSED: [Signature] 1-02 20 08
DISTRICT SEVEN ENGINEER OF LOCAL ROADS & STREETS

Releasing For Bid Based on Limited Review: [Signature] 1-02 20 08
DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

Contract No. 95535

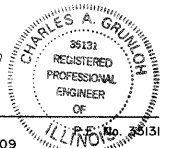
PLANS DATED:
August 23, 2007
REVISED:
November 1, 2007

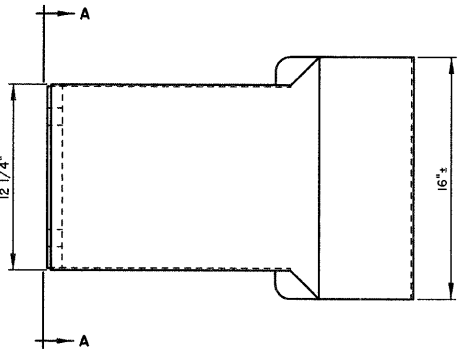
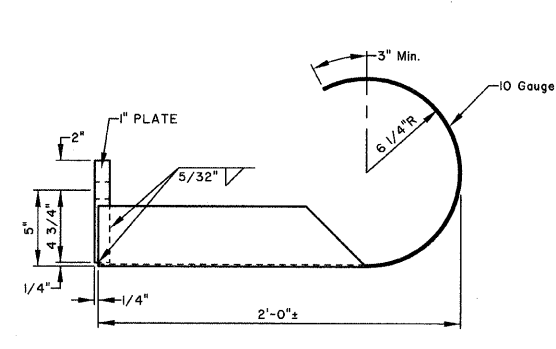
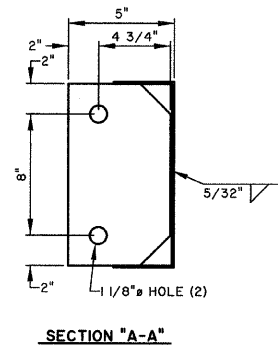
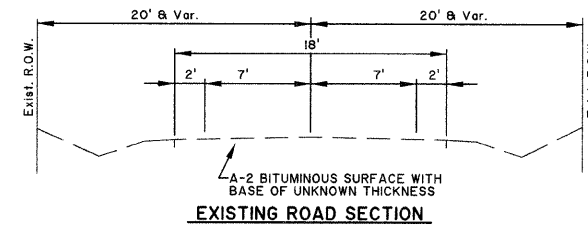
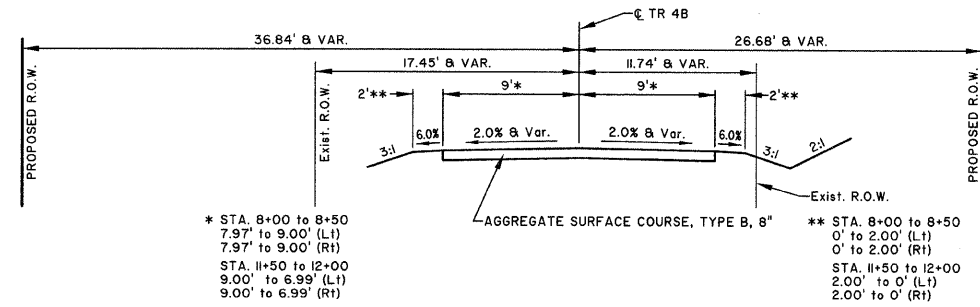


MILANO & GRUNLOH ENGINEERS, INC.
30131
REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS
30131
P.O. BOX 897
EFFINGHAM, ILLINOIS 62401
PHONE: (217) 347-7282
(800) 677-2714
FAX #: (217) 342-3433

File name: S:\DWG\03\03234\dwg\Title Sht.dwg
Plot date: 08/22/07 at 08:05

Charles A. Grunloh
My License Expires 11-30-09





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

SUMMARY OF QUANTITIES

ITEM #	ITEM	UNIT	QUANTITY
20100500	TREE REMOVAL, ACRES	ACRE	0.20
20200100	EARTH EXCAVATION	CU YD	213
20300100	CHANNEL EXCAVATION	CU YD	160
20400800	FURNISHED EXCAVATION	CU YD	117
25001000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.3
28000310	AGGREGATE DITCH CHECKS	EACH	4
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	285
35101400	AGGREGATE BASE COURSE, TYPE B	TON	60
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	320
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" DEPTH)	SQ FT	1200
50800105	REINFORCEMENT BARS	POUND	2300
* 50900205	STEEL RAILING, TYPE S1	FOOT	100
51201400	FURNISHING STEEL PILES HP 10 X 42	FOOT	149
51202305	DRIVING PILES	FOOT	149
51203400	TEST PILE STEEL HP 10 X 42	EACH	1
51500100	NAME PLATES	EACH	1
67100100	MOBILIZATION	LS	1
70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	LS	1

* SPECIALTY ITEMS

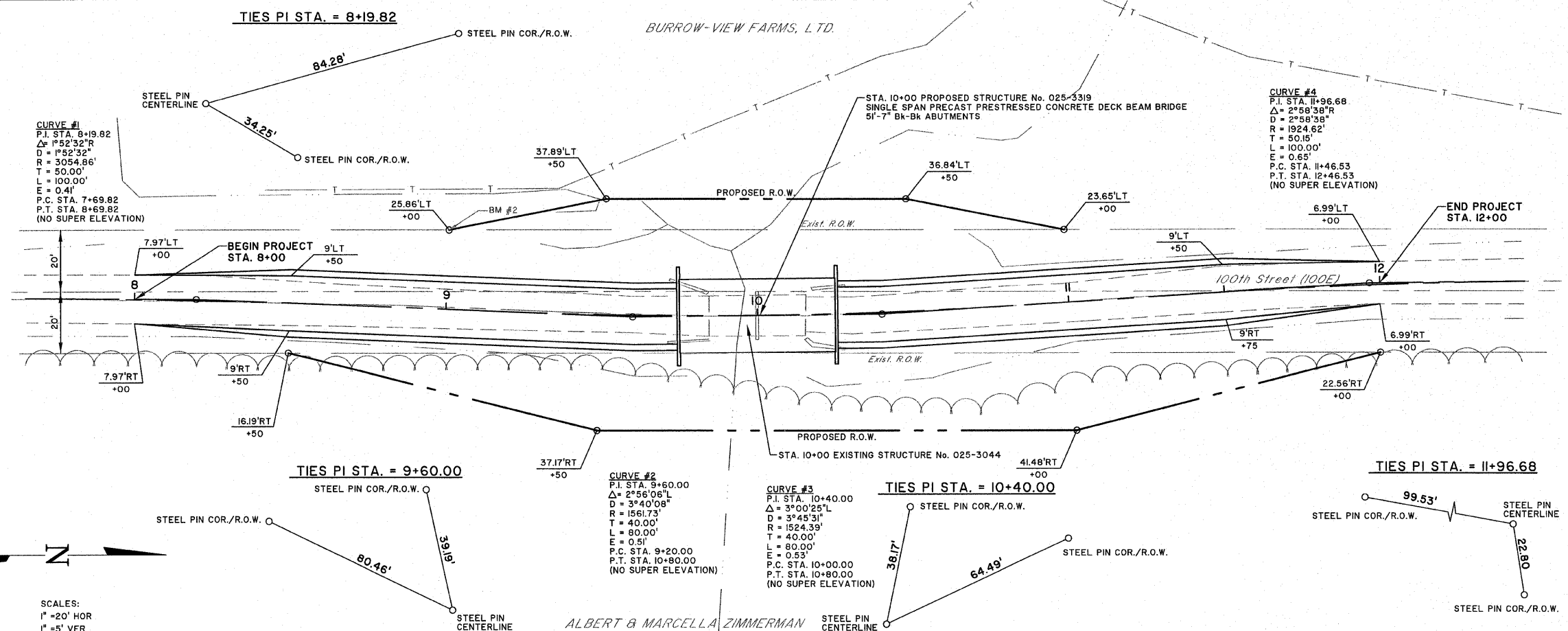
EARTHWORK SCHEDULE

Location	Earth Excavation	Adjusted	Channel Excavation	Usable	Adjusted	Embankment	Earthwork Balance	
		Earthwork (1.25 Factor)		Channel Excavation	(1.25)		Waste (+)	Shortage (-)
	CY	CY	CY	CY	CY	CY	CY	
STA 8+00 TO 9+75	36	29				112		-83
STA 9+75 TO 10+25			160	80	67	50	80	17
STA 10+25 TO 12+00	177	142				193		-51
TOTALS	213	171	160	80	67	355	80	-117

Pay Items: Earth Excavation - 213 CU YDS
Channel Excavation - 160 CU YDS
Furnished Excavation - 117 CU YDS

	MILANO & GRUNLOH ENGINEERS, LLC 14 WEST WASHINGTON P.O. BOX 897 EFFINGHAM, ILLINOIS 62401 Phone: (217) 347-7262 (800) 577-2714 Fax #: (217) 342-3433 Web Address: www.mgengineers.com Design Firm # 184-00308	TYPICAL SECTION, GENERAL NOTES AND SUMMARY OF QUANTITIES BRIDGE PROGRAM EFFINGHAM COUNTY, ILLINOIS
	File name: S:\DWG\03\03234\ewg\Typical.dwg Plot date: 11/01/07 at 07:40	

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
S.B.I.	02-0810-00-BR	EFFINGHAM	14	3
F.A.				
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-	CONTRACT #95535	



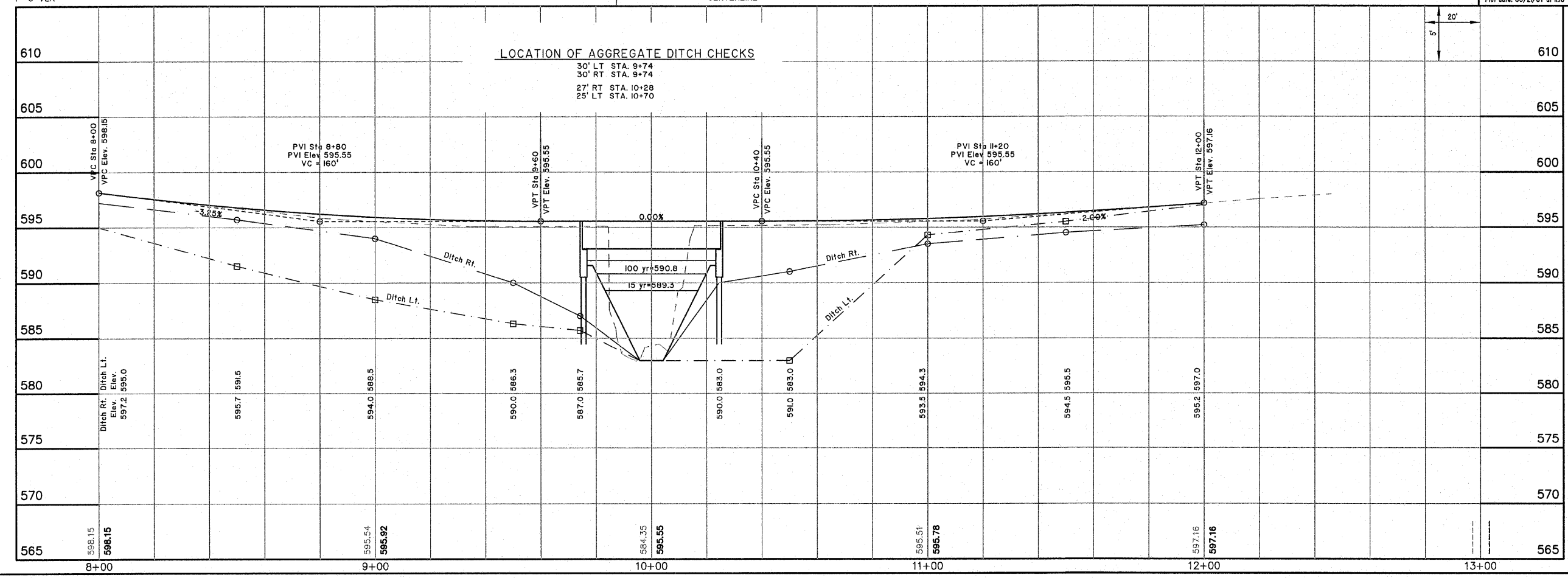
LEGEND
 UNDERGROUND TELEPHONE
 TREE/BRUSH LINE

NOTE:
 CONTRACTOR TO FIELD VERIFY BETWEEN BENCHMARKS ELEVATIONS

- BM #3**
TOP OF RAILROAD SPIKE IN POWER POLE 135' ± NORTH OF CREEK
ELEV=599.34
- BM #2**
TOP OF IRON PIN AT STATION 9+00
25.86' LT ELEV. = 592.64
- BM #1**
SE CORNER OF EXPOSED METAL ON TOP OF RETAINING WALL AT SE CORNER OF EXISTING BRIDGE. ELEV=595.14

MILANO & GRUNLOH ENGINEERS, LLC
 14 WEST WASHINGTON
 P.O. BOX 937
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 Phone: (217) 347-7262
 (800) 677-2774
 Fax #: (217) 342-3433
 Web Address: www.mgeengineers.com
 Design Firm #: 184-003108
 File name: S:\DWG\03\03234\dwg\Road Plan.dwg
 Plot date: 08/21/07 at 11:00 F.B. 558

SCALES:
 1" = 20' HOR
 1" = 5' VER



B.M. #1 - SW corner of exposed metal on top of retaining wall at the SE corner of existing bridge.
 B.M. #2 - Top of iron pin at Sta. 9+00 25.86' Lt
 B.M. #3 - Top of Railroad spike in power pole (135' ± North of Creek)
 Existing Structure - Two-span, double triangular truss steel stringers with wood decking with concrete abutments and center pier.
 Salvage - Solvable steel to become property of the township.

GENERAL NOTES

- The Contractor shall drive 1 test piles, as specified, located in Bent #1
- See Special Provisions for boring logs.
- A Calcium Nitrate Corrosion inhibitor, as covered in the Standard Specifications for Road and Bridge Construction, Article 1020.05 (b)(12) and Article 1021.06, 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.

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB.		TOTAL
			PIERS	ABUTS.	
Removal of Existing Structures	Each				1
Concrete Structures	Cu. Yd.			18.2	18.2
Precast Prestressed Concrete Deck Beams (27" Depth)	Sq. Ft.	1200			1200
Steel Railing, Type S-1	Foot	100			100
Reinforcement Bars	Pound			2300	2300
Furnishing Seel Piles HP 10 X 42	Foot			149	149
Driving Piles	Foot			149	149
Test Piles Steel HP 10 X 42	Each			1	1
Name Plates	Each			1	1
Concrete Encasement	Cu. Yd.			2.1	2.1
Channel Excavation	Cu. Yd.			160	160

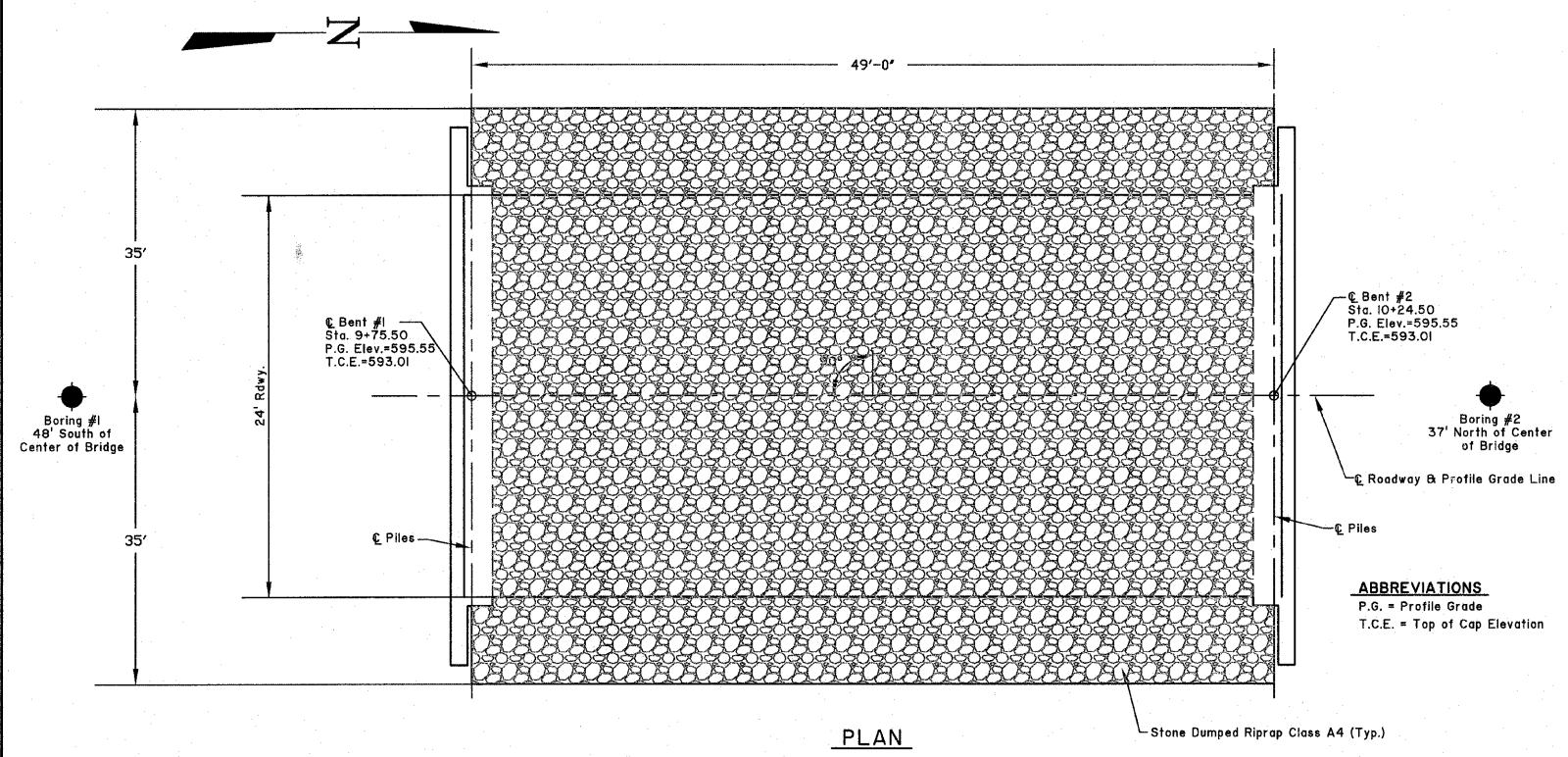
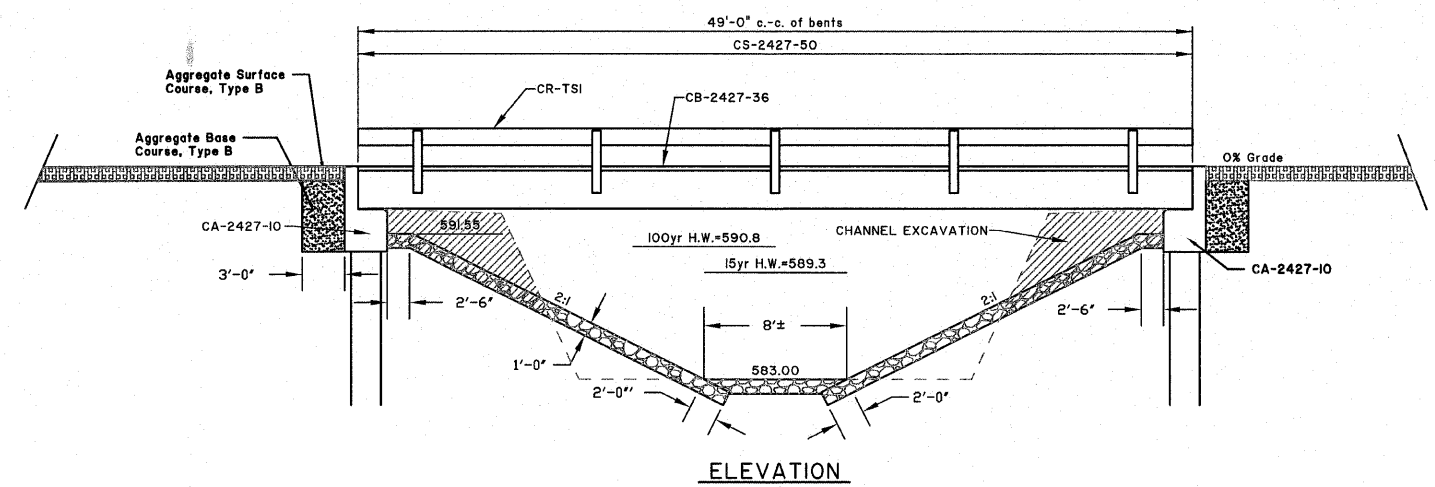
WATERWAY INFORMATION

Drainage Area = 1.6 SQ M; Low Grade Elev. = 595.55 Sta. 10+00

Flood	Freq. Yr.	O		Nat.		Head-Ft		Headwater El.	
		C.F.S.	Exist.	Prop.	H.W.E.	Exist.	Prop.	Exist.	Prop.
Design	15	795	118	125	590.4	0.2	0.0	590.2	590.0
Base	100	1305	151	180	592.0	0.6	0.3	592.0	591.7
Overtopping									
Max. Calc.	500	1757	175	229	592.5	0.9	0.4	593.4	592.9

INDEX OF SHEETS

- GENERAL PLAN & ELEVATION
- STANDARD CS-2427-50
- STANDARD CB-2427-36
- STANDARD CB-2427-48
- STANDARD CA-2427-10
- STANDARD CR-TSI
- STANDARD CN
- STANDARD CX-1

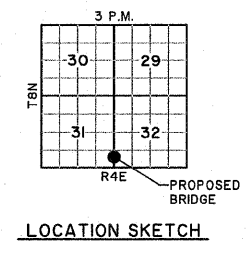


North Abutment
 Pile Type: HP 10x42
 Nominal Required Bearing: 335 kips
 Allowable Resistance Available: 112 kips
 Estimated Length: 19 feet
 Number of Production Piles: 4
 (Includes 1 Test Pile Located in Bent #1)

South Abutment
 Pile Type: HP 10x42
 Nominal Required Bearing: 335 kips
 Allowable Resistance Available: 112 kips
 Estimated Length: 23 feet
 Number of Production Piles: 4

ROCK CREEK
 SEC. 02-0810-00-BR BUILT 2008
 MOCCASIN ROAD DISTRICT
 EFFINGHAM COUNTY
 STR. NO. 025-3319 LOADING HS20
 PROJECT BROS - 049(156)

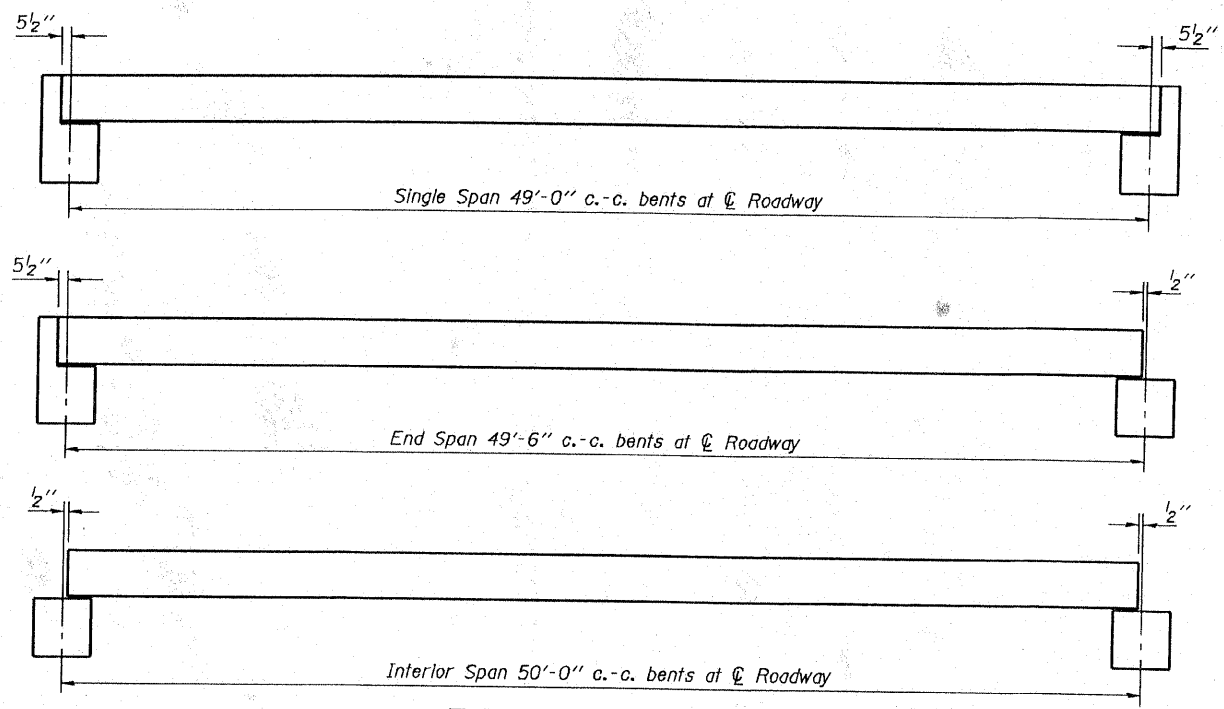
LETTERING FOR NAME PLATE
 Locate Name Plate at the SE Corner of Bridge (See Std. CN)



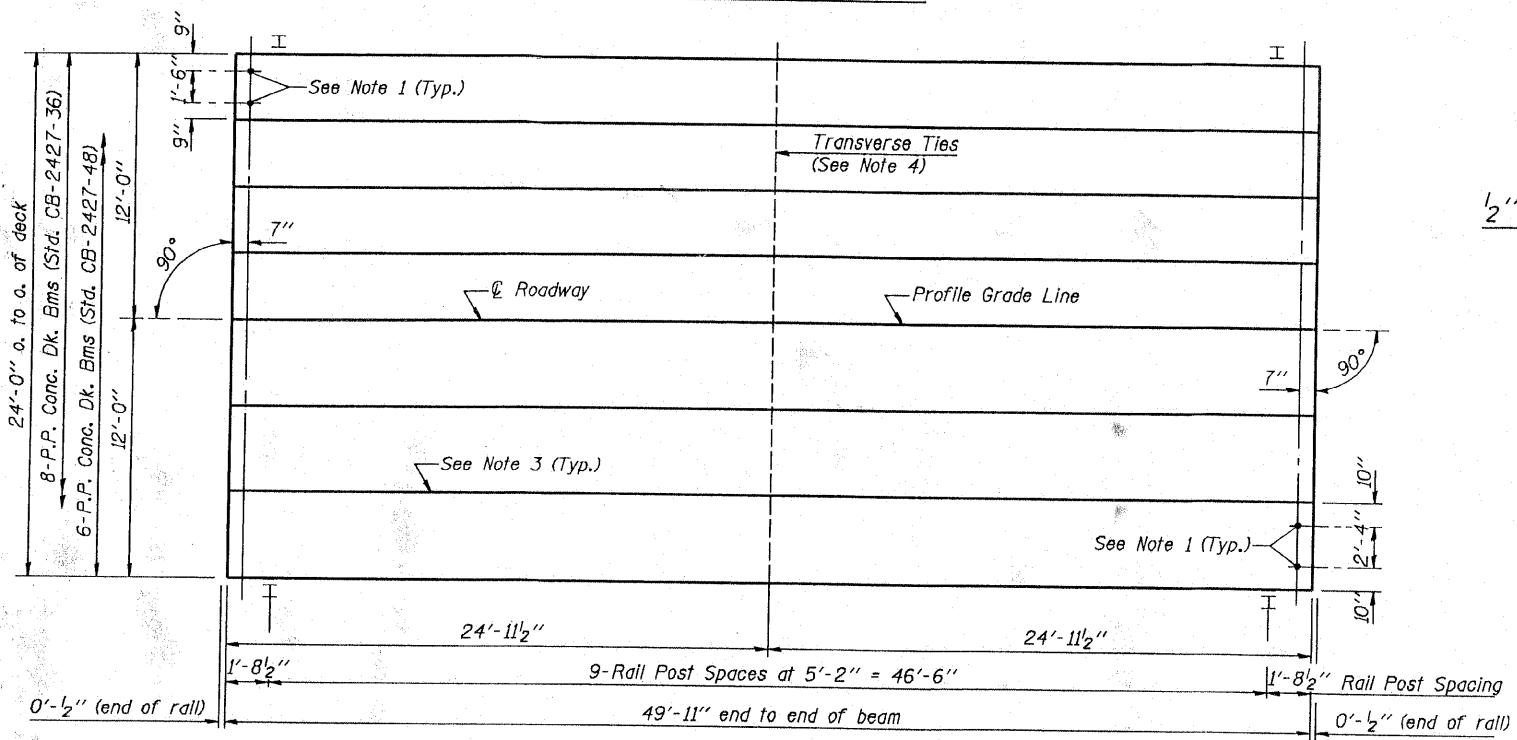
DESIGN SPECIFICATIONS
 2002 AASHTO SPECIFICATION
 HS20-44 Loading, # Load Factor Design.

MILANO & GRUNLOH ENGINEERS, LLC
 84 WEST WASHINGTON
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 EFFINGHAM, ILLINOIS 62401
 Phone: (217) 347-7262
 (800) 577-2214
 Fax #: (217) 342-3433
 Web Address: www.mgengineers.com
 Design Firm #: 184-00308
 File name: S:\DWG\03\03234\dwg\bridge Plan.dwg
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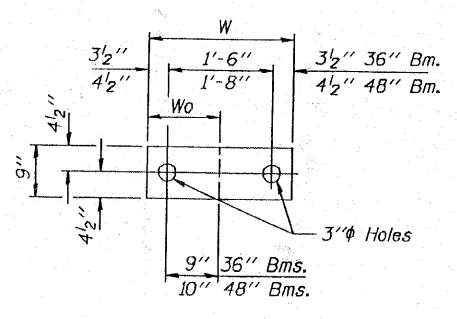
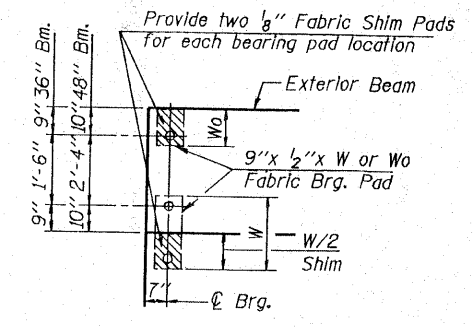
GENERAL PLAN AND ELEVATION
 TR ROUTE 4B
 ROCK CREEK
 SECTION 02-0810-00-BR
 EFFINGHAM COUNTY, ILLINOIS



TYPICAL ELEVATIONS

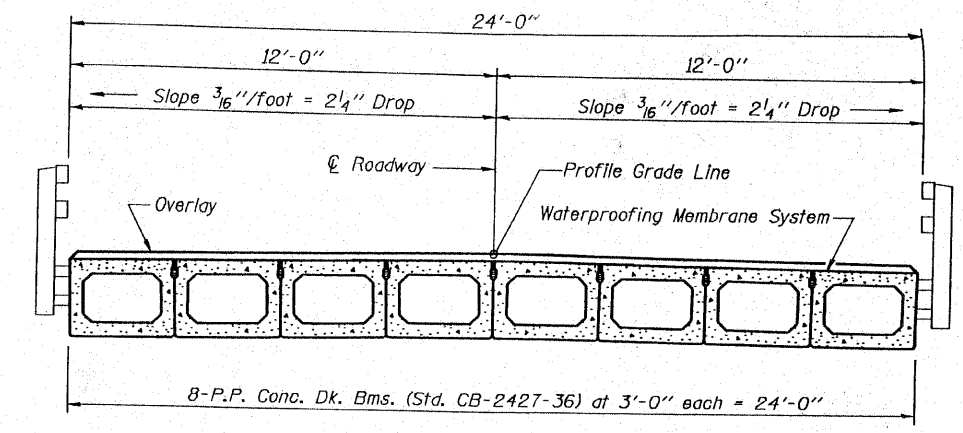


PLAN

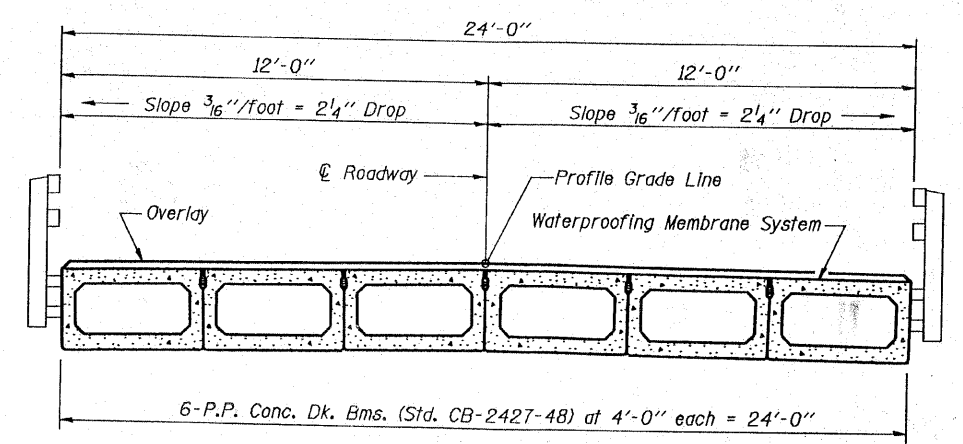


Beam	W	W ₀
36"	2'-1"	1'-0 1/2"
48"	2'-5"	1'-2 1/2"

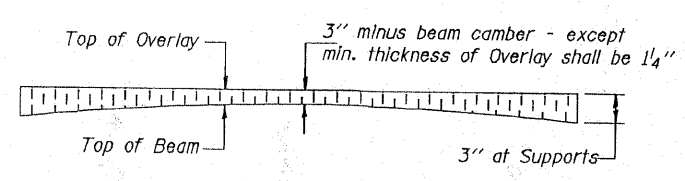
1/2" FABRIC BRG. PAD DETAILS



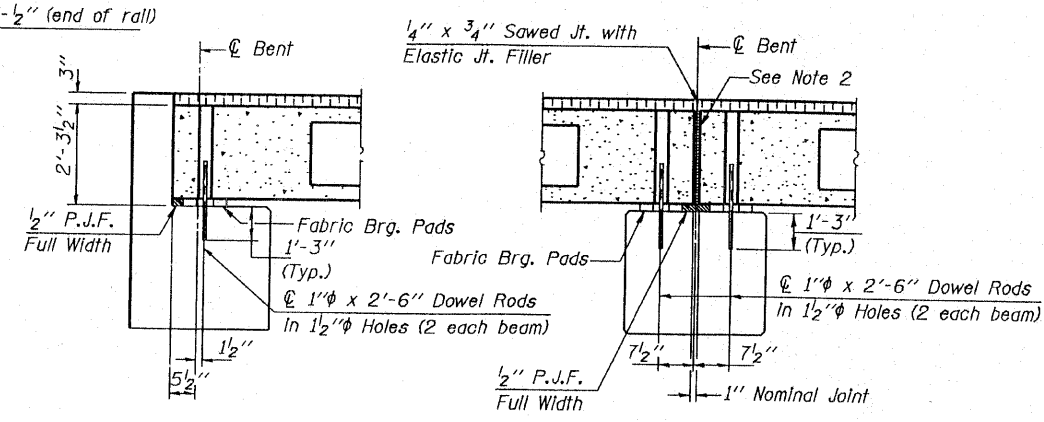
CROSS SECTION



CROSS SECTION



PROFILE OF OVERLAY



SECTION AT ABUTS.
(Along centerline Beams)

SECTION AT PIERS
(Along centerline Beams)

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" diameter 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.

QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 27" Dp.	1200 Sq. Ft.
Steel Railing	100 Ft.
Waterproofing Membrane System	133.3 Sq. Yds.
Portland Cement Mortar	350 Ft. 3/4"
Fairing Course	258 Ft. 1/4"

Note: Quantity of overlay for one span = 18.8 Tons

P.P.C. DECK BEAM
SUPERSTRUCTURE

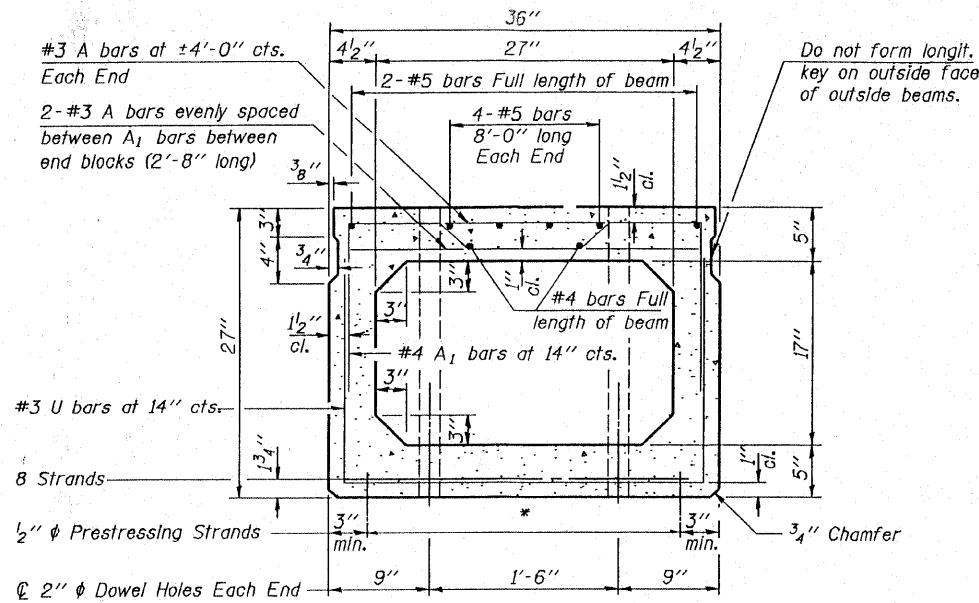
24' RDWY.	27" BMS.	50' SPAN	0° SKEW
STANDARD CS-2427-50			

Illinois Department of Transportation

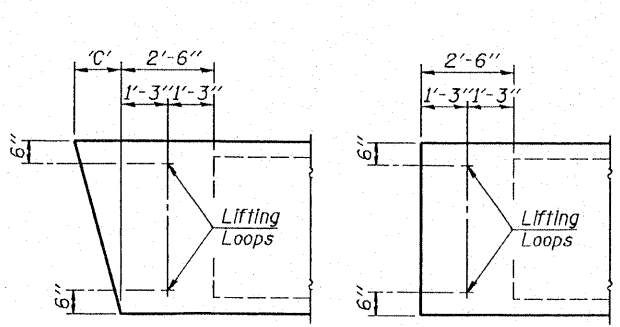
PASSED APRIL 4, 2005
 Thomas S. Romagosa
 Engineer of Bridge Design

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

ISSUED 1-1-89

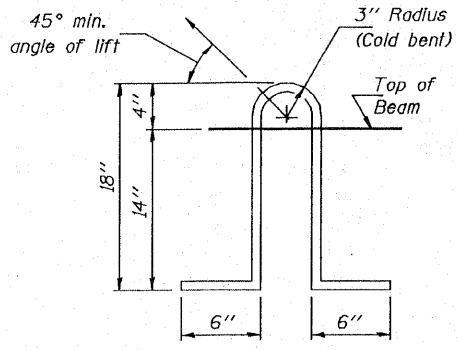


CROSS SECTION
(40' SPAN)



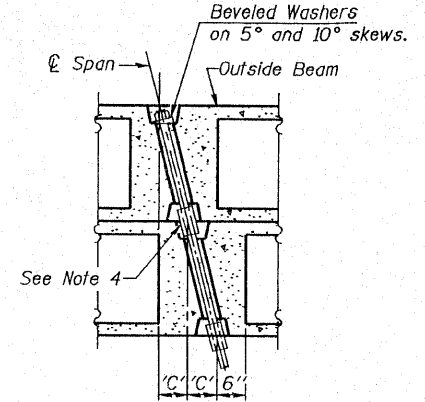
END BLOCK DETAILS

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

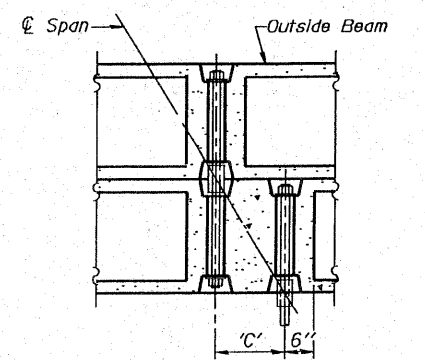


LIFTING LOOP DETAIL

Lifting loops shall be 2, 1/2" 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°)

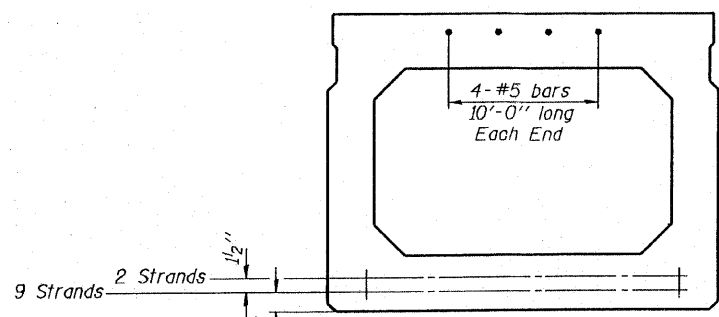
DIMENSION 'C'

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

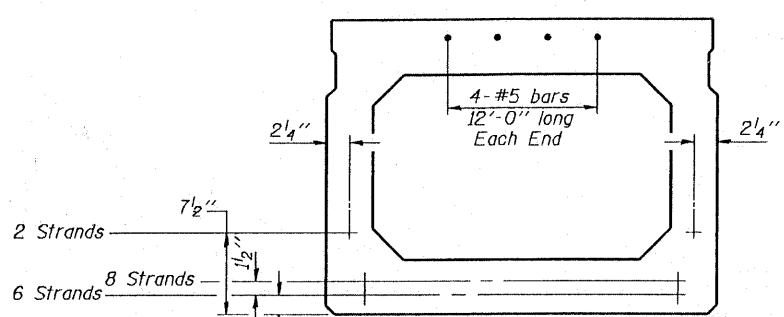
*** TRANSVERSE STRAND PLACEMENT GUIDELINES**

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 1/2".

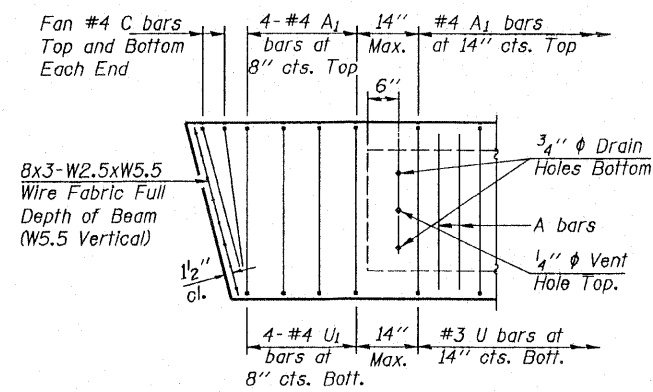
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



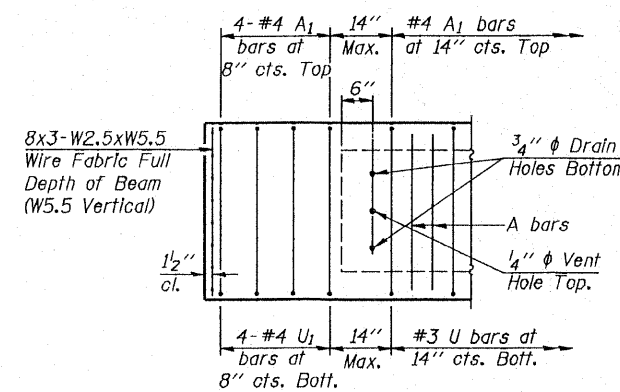
CROSS SECTION
(50' SPAN)



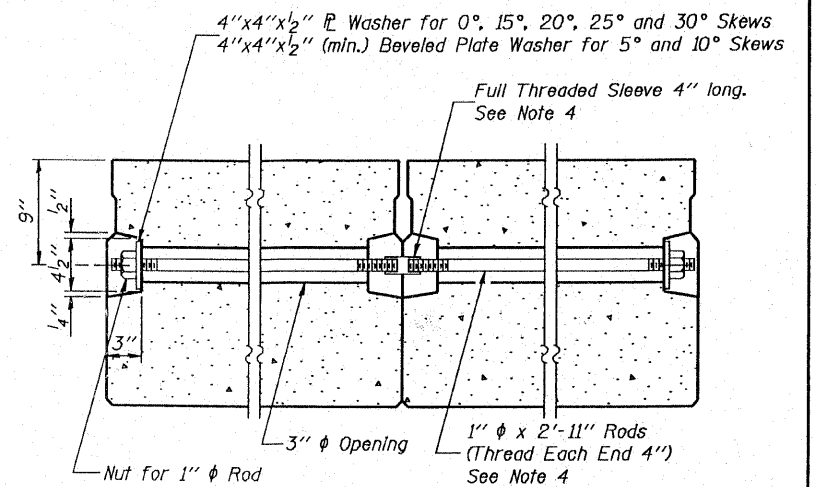
CROSS SECTION
(60' SPAN)



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° skew, 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" diameter Strand)
- f'si = 201,960 p.s.i. (1/2" diameter Strand)
- f'y = 60,000 p.s.i.

MIN. BAR LAP

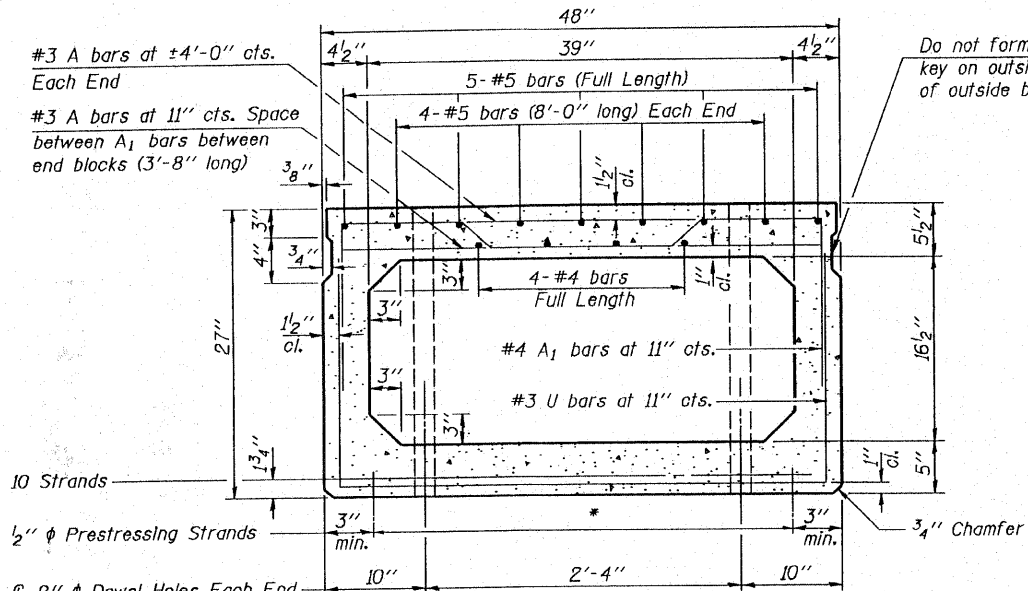
- #4 bars = 1'-4"
- #5 bars = 1'-8"

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

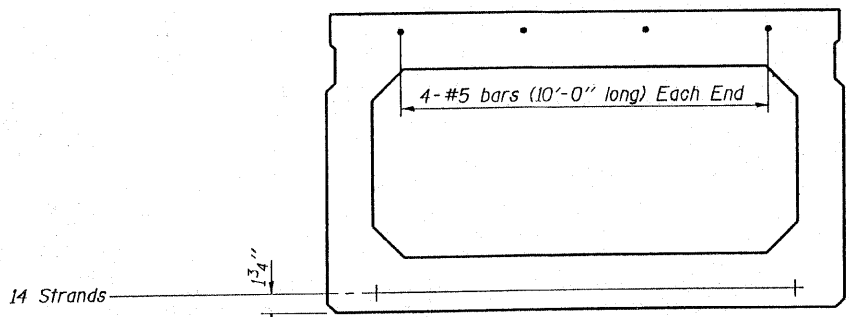
NOTE:
The std. reinf. and dimensions shown on the 40' span cross section is typical for all spans, except as shown.

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

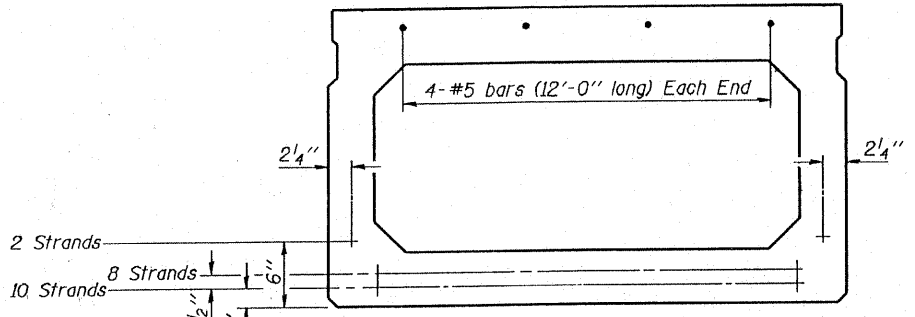
P.P.C. DECK BEAM DETAILS
24' ROADWAY | 27" x 36" BEAMS
STANDARD CB-2427-36



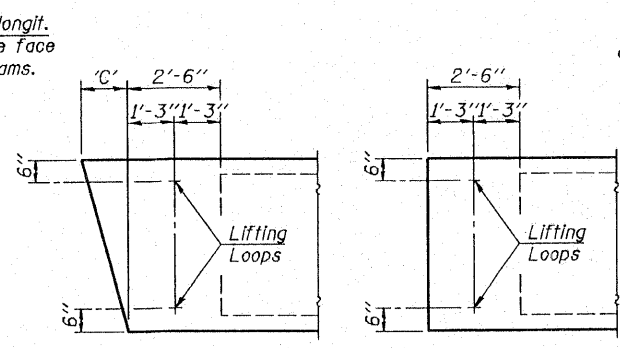
CROSS SECTION
(40' SPAN)



CROSS SECTION
(50' SPAN)

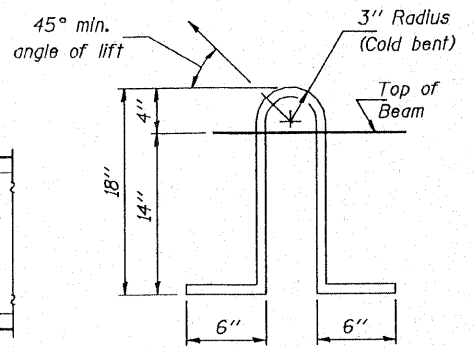


CROSS SECTION
(60' SPAN)



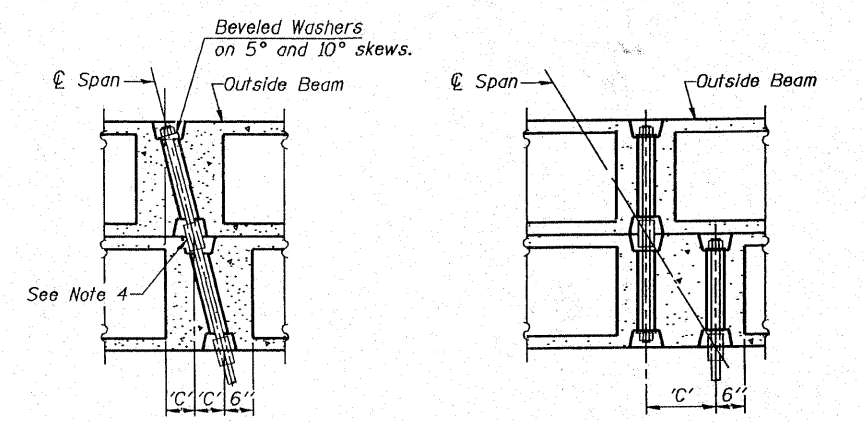
END BLOCK DETAILS

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°)

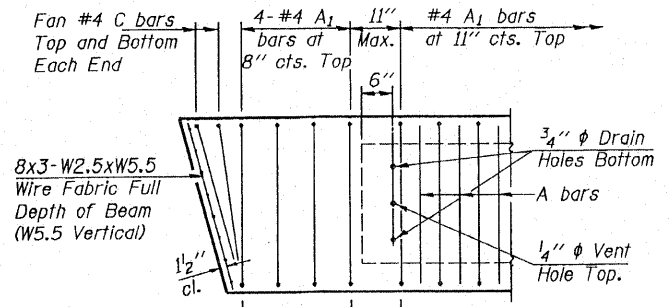
DIMENSION 'C'

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

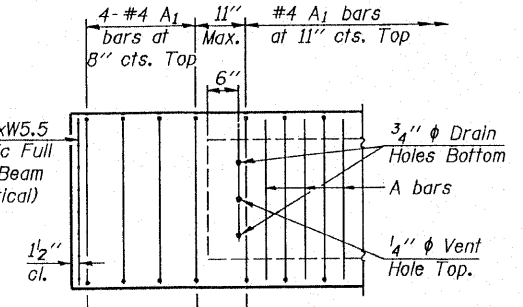
* TRANSVERSE STRAND PLACEMENT GUIDELINES

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".

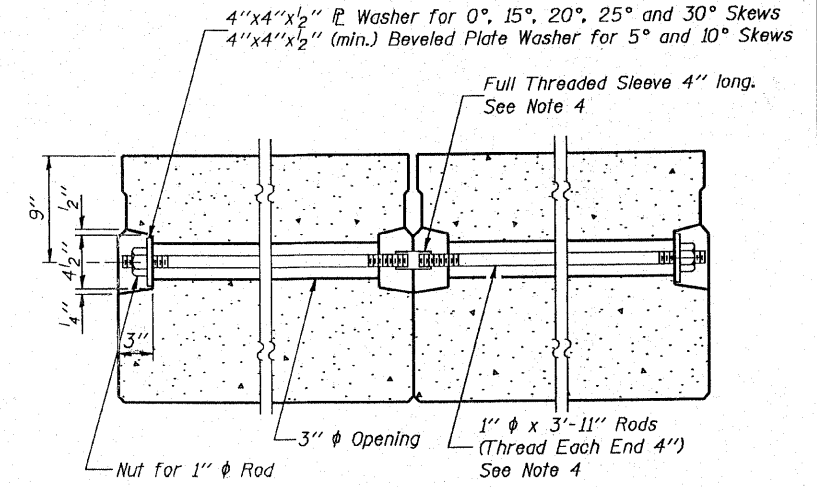
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



END REINFORCEMENT
(SKEWED)



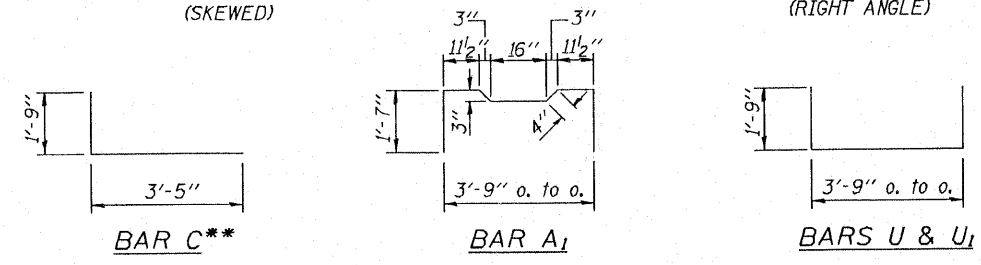
END REINFORCEMENT
(RIGHT ANGLE)



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.



DESIGN STRESSES

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

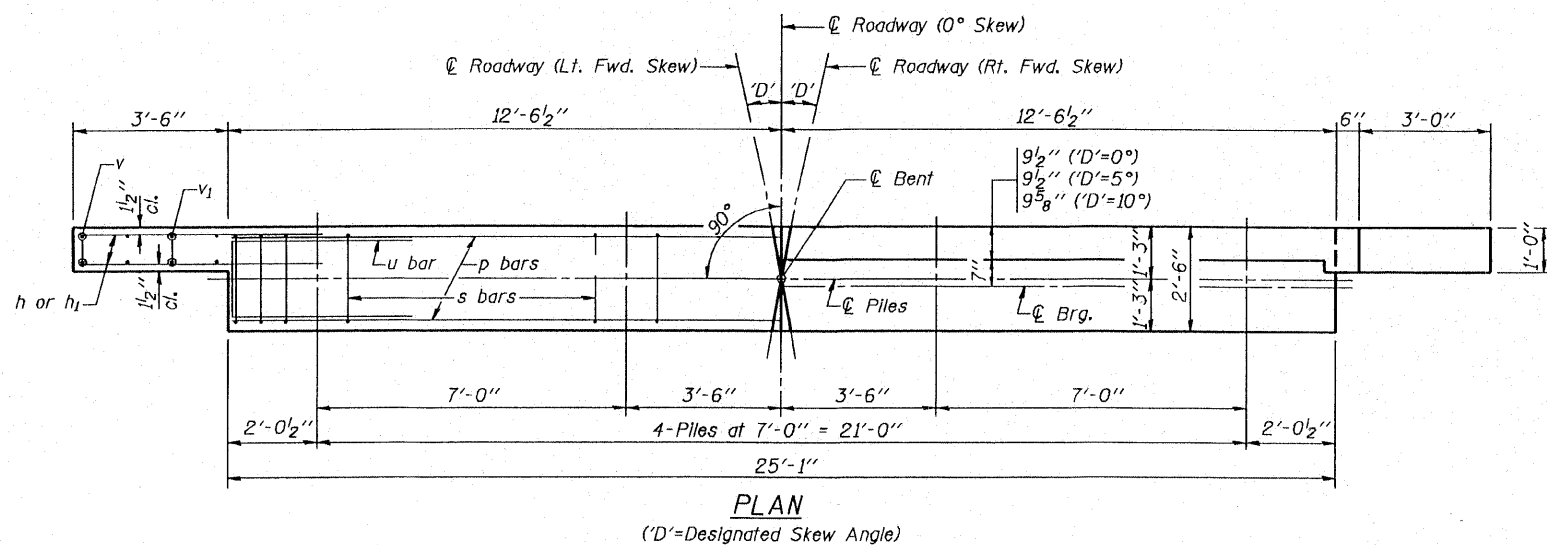
MIN. BAR LAP
 #4 bars = 1'-4"
 #5 bars = 1'-8"

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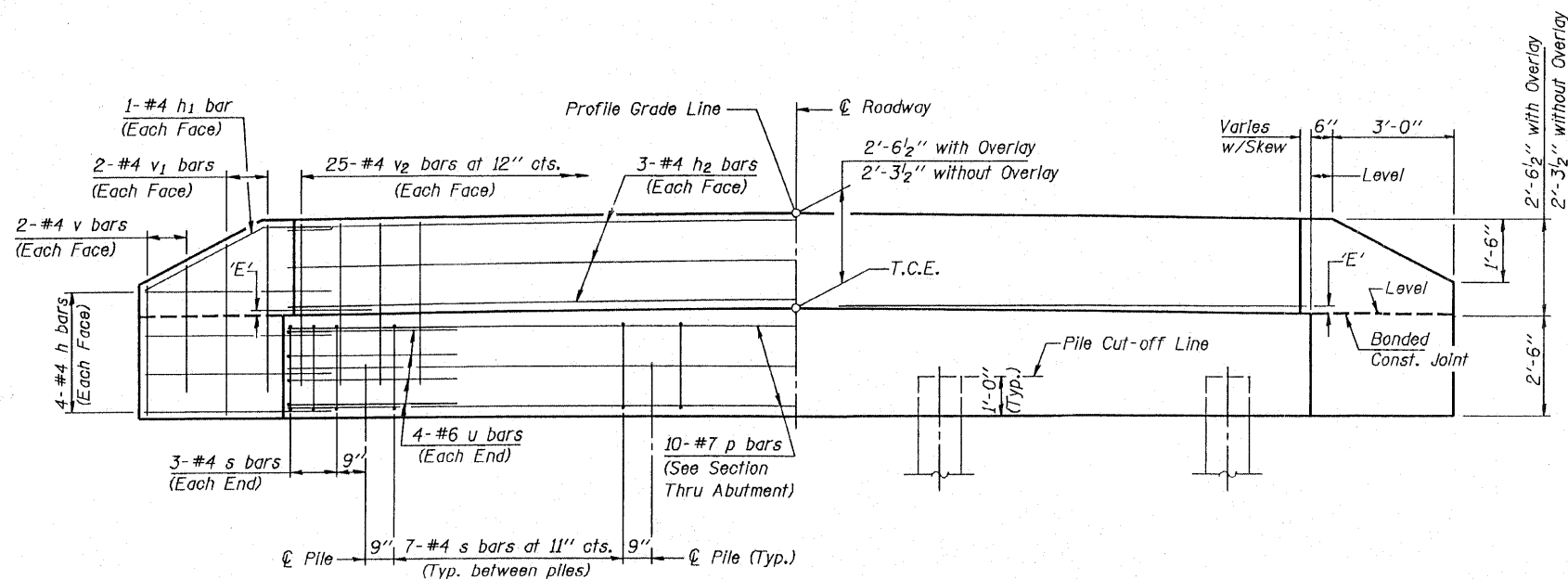
NOTE
 The std. reinf. and dimensions shown on the 40' span cross section is typical for all spans, except as shown.

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

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



PLAN
(D'=Designated Skew Angle)



ELEVATION

DIMENSION 'E'

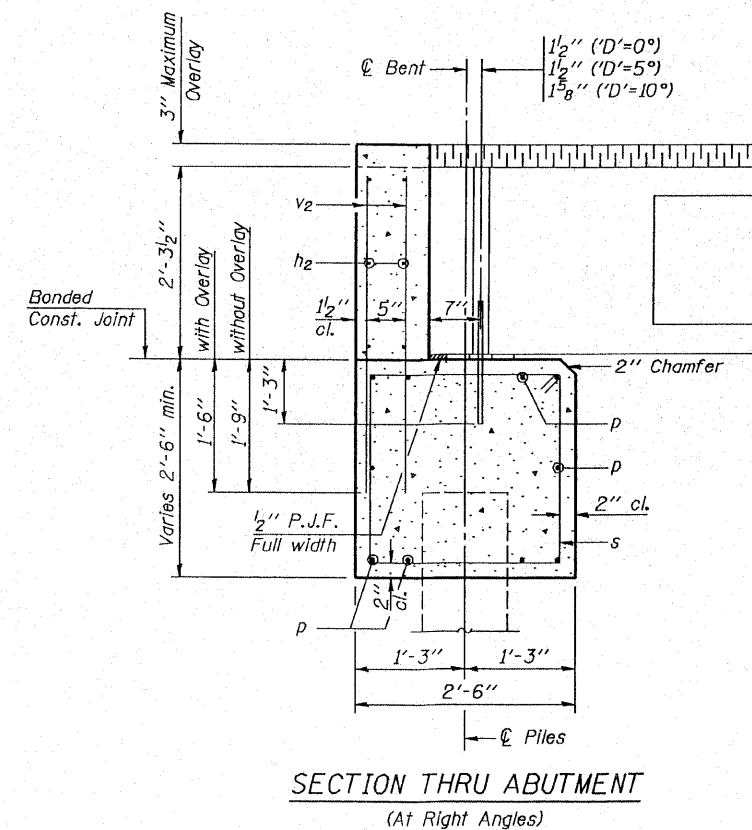
GRADE	'D'=0°		'D'=5°		'D'=10°	
	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END
0%	2 ³ / ₈ "	2 ³ / ₈ "	2 ³ / ₈ "	2 ³ / ₈ "	2 ³ / ₈ "	2 ³ / ₈ "
Over 0% to 1%	2 ³ / ₈ "	2 ³ / ₈ "	2 ¹ / ₄ "	2 ³ / ₈ "	2 ¹ / ₈ "	2 ¹ / ₂ "
Over 1% to 2%	2 ³ / ₈ "	2 ³ / ₈ "	2 ¹ / ₈ "	2 ¹ / ₂ "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

MAXIMUM PILE LOADS

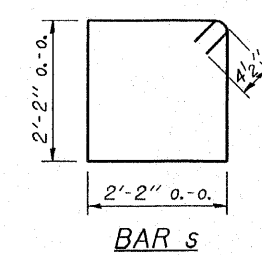
SPAN	TONS
40'	34
50'	38
60'	43

DESIGN STRESSES

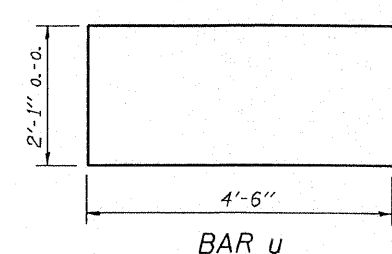
f'c = 3,500 psi
fy = 60,000 psi



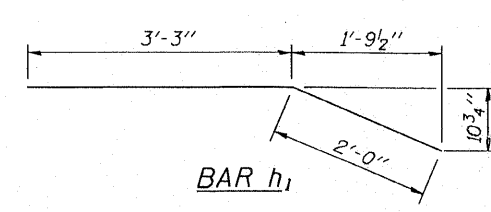
SECTION THRU ABUTMENT
(At Right Angles)



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.	

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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.

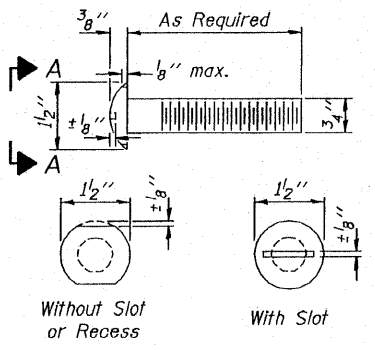
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with STEEL RAILING, TYPE S-1.

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.

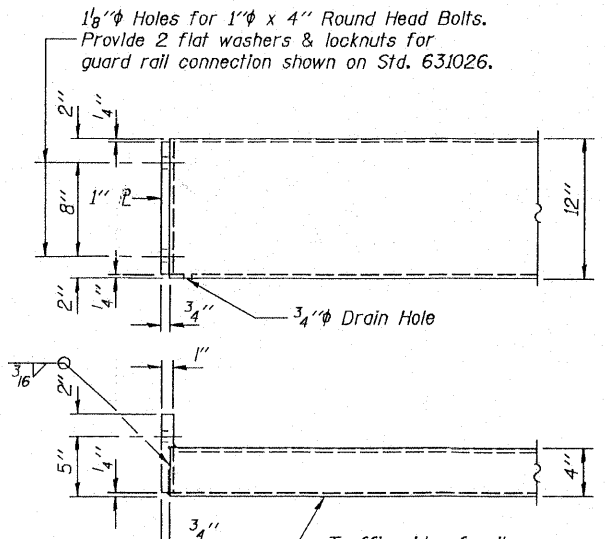
The 3/4" high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened according to Article 505.04 (F)(2) of the Standard Specifications. The 1" high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/8 turn. The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

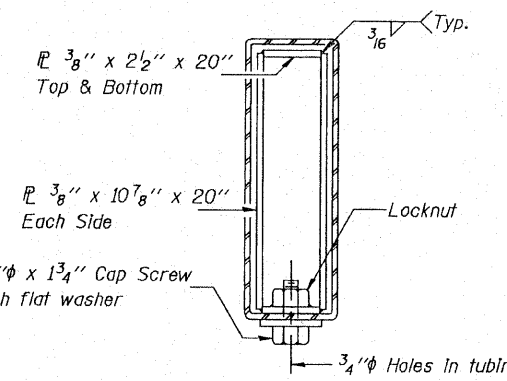


VIEW A-A
ROUND HEAD BOLT

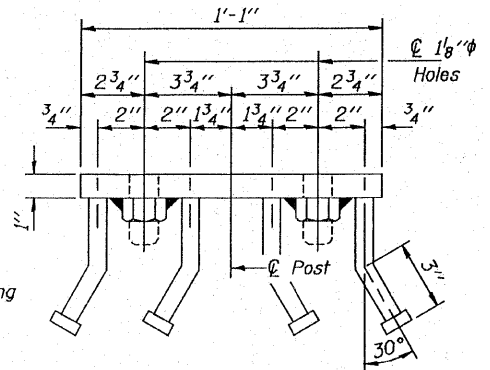
1/8" Holes for 1" x 4" Round Head Bolts. Provide 2 flat washers & locknuts for guard rail connection shown on Std. 631026.



END OF RAIL DETAILS



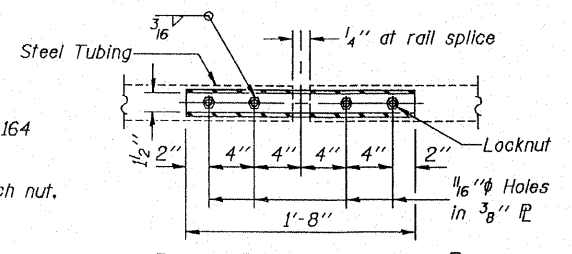
SECTION AT RAIL SPLICE



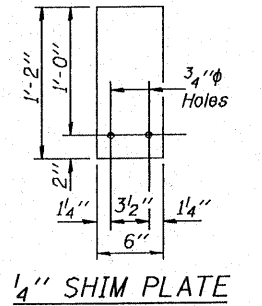
VIEW C-C

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

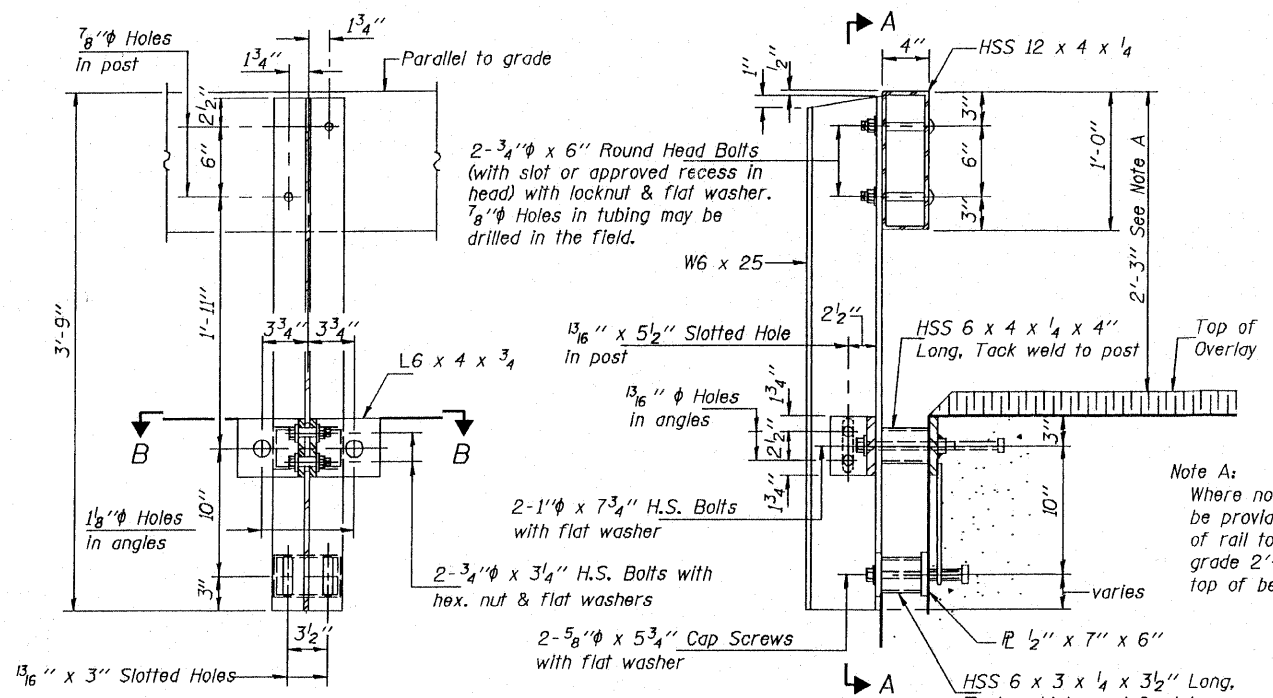
** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".



PLAN-BOTT. SPLICE TYPICAL



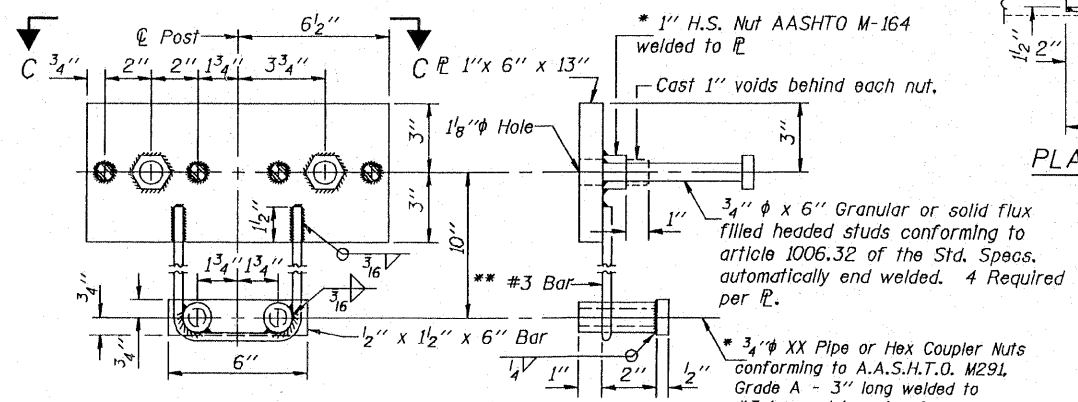
1/4 SHIM PLATE



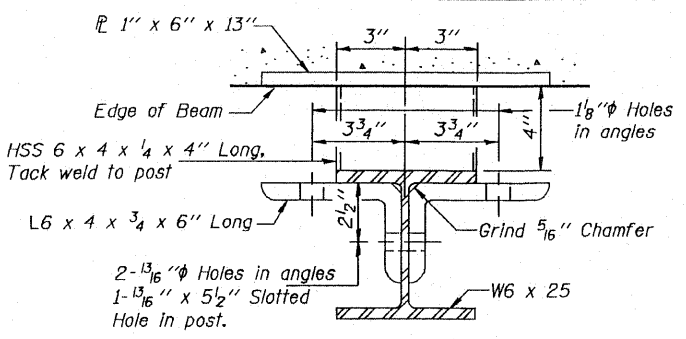
SECTION A-A

SECTION AT RAIL POST

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



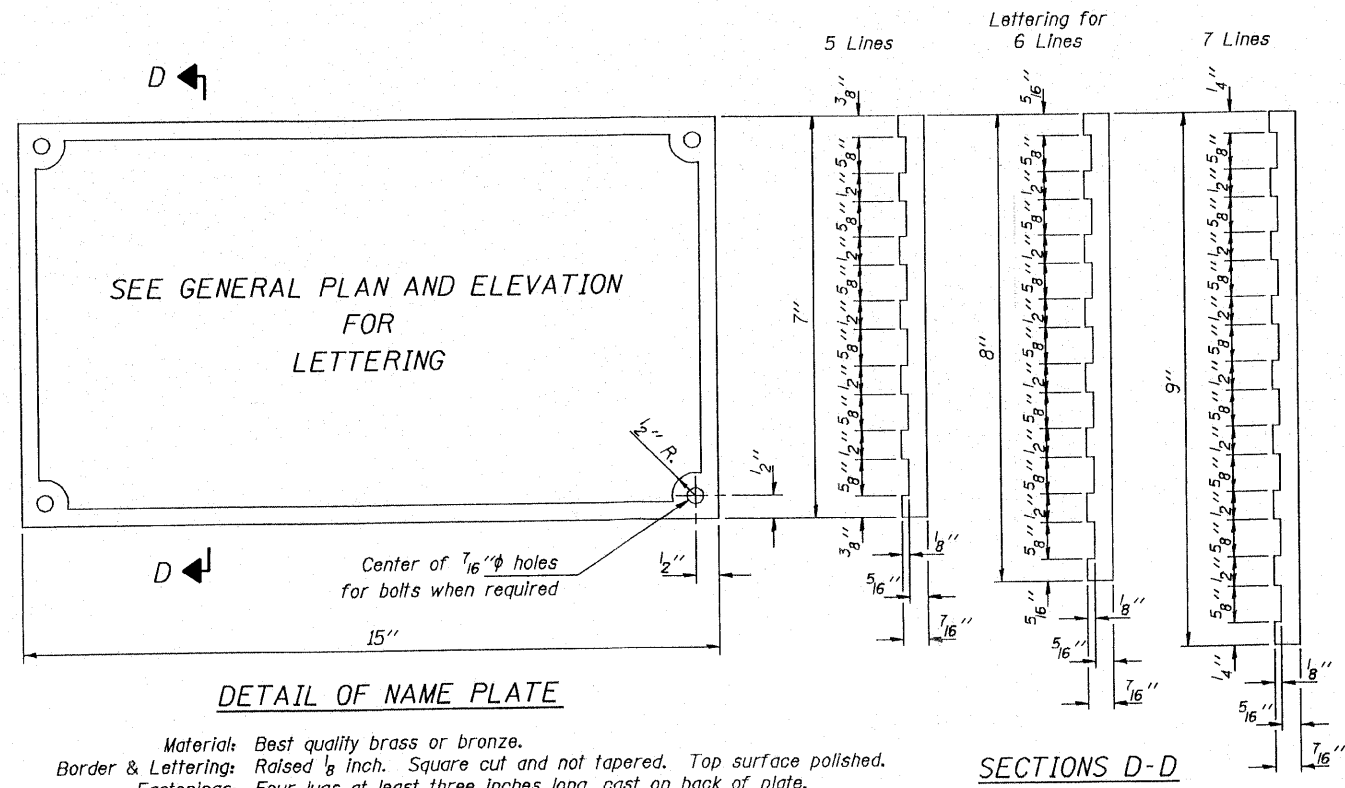
ANCHOR DEVICE



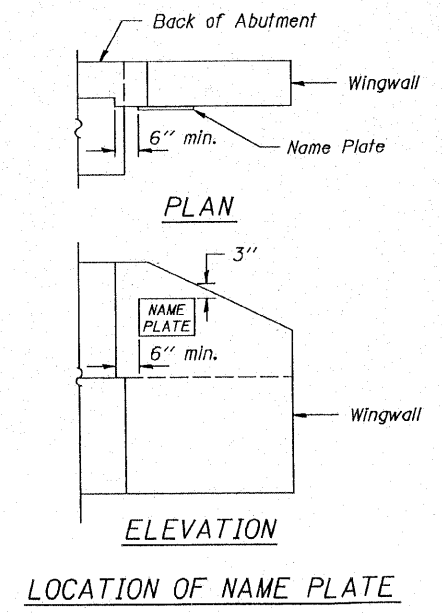
SECTION B-B

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 Thomas S. Romagosa
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 APPROVED APRIL 4, 2005
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STEEL RAILING, TYPE S-1
STANDARD CR-TS1

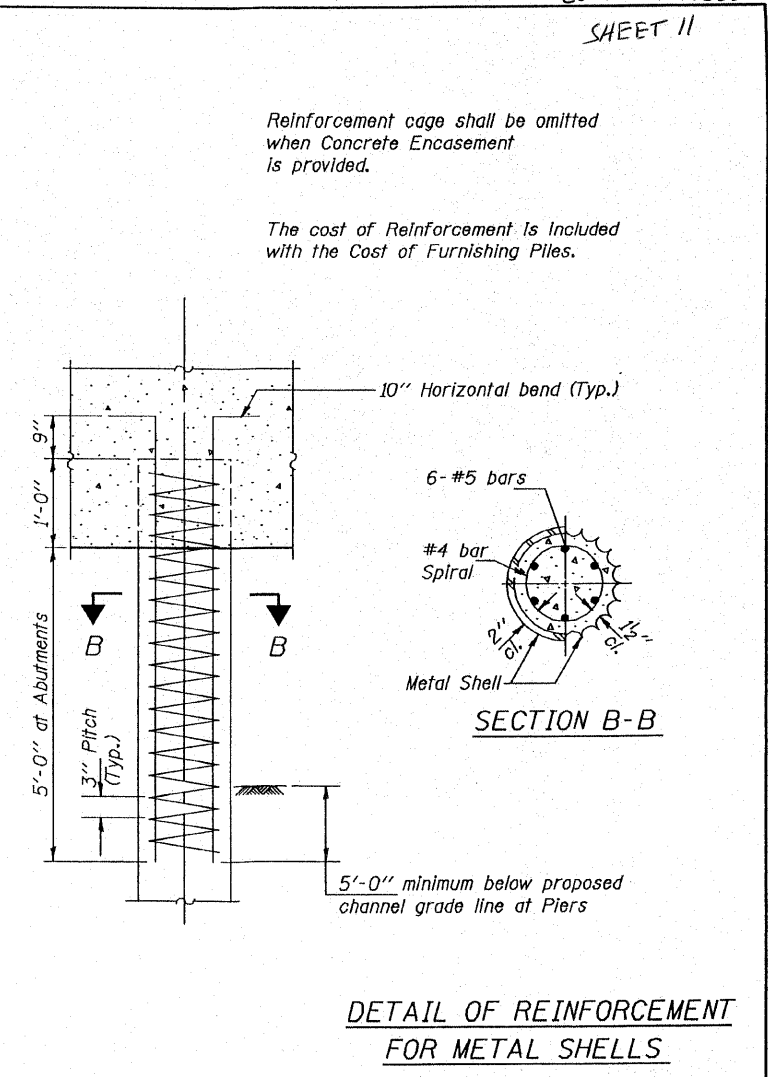
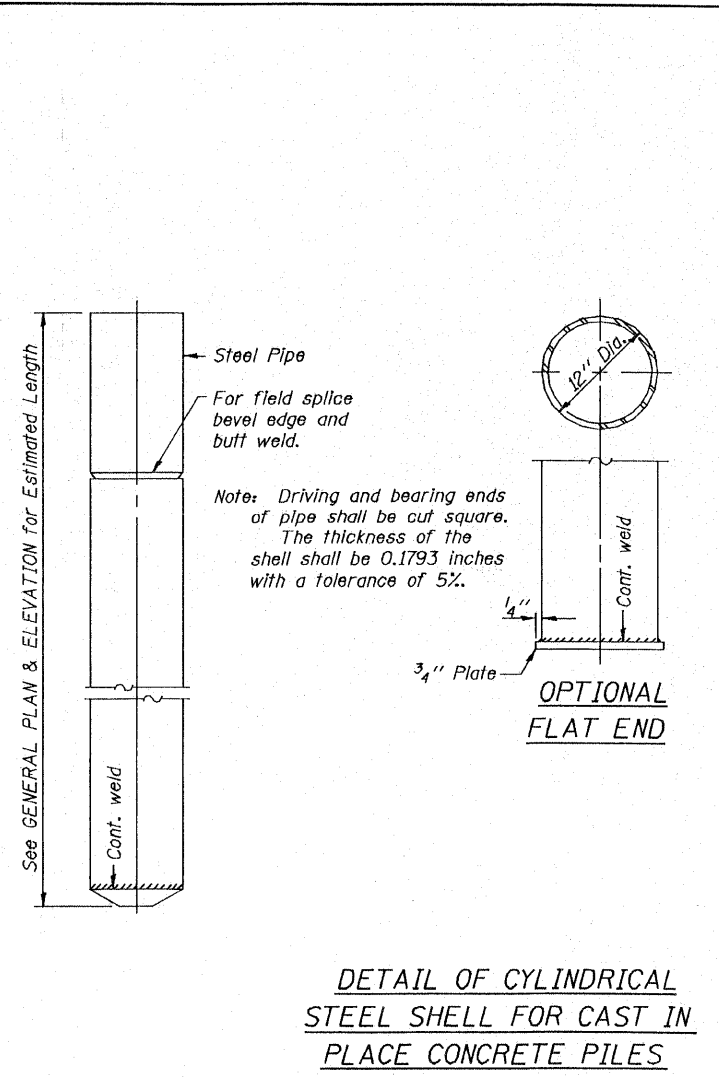
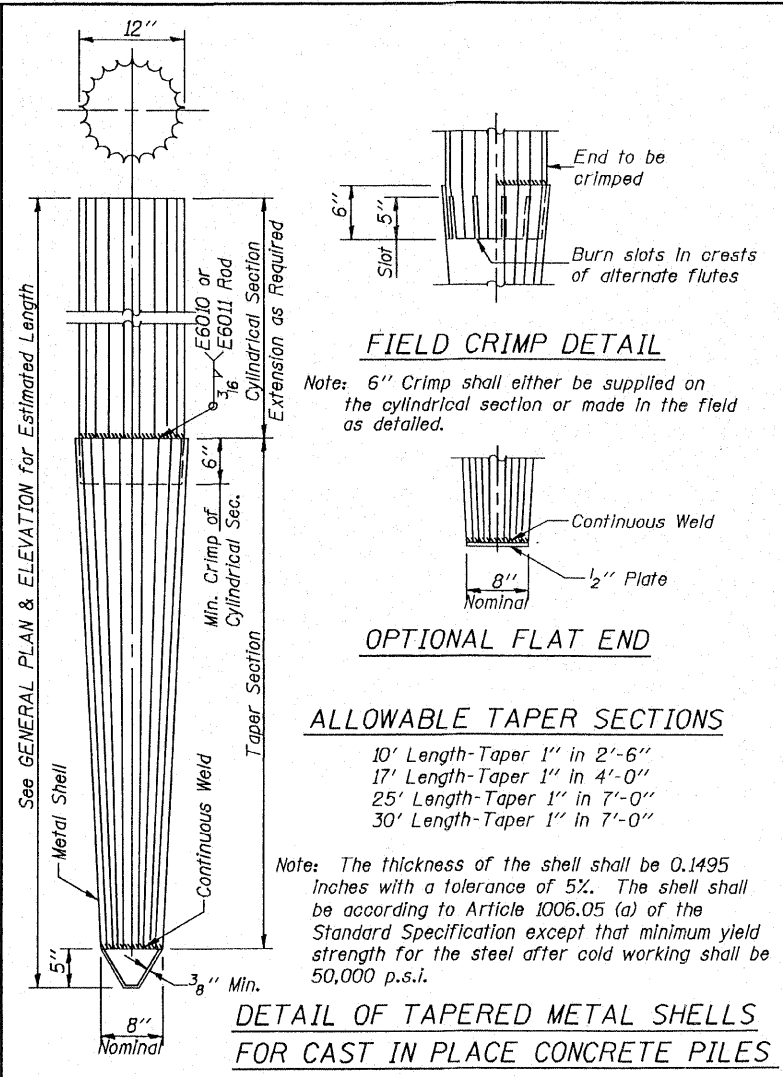
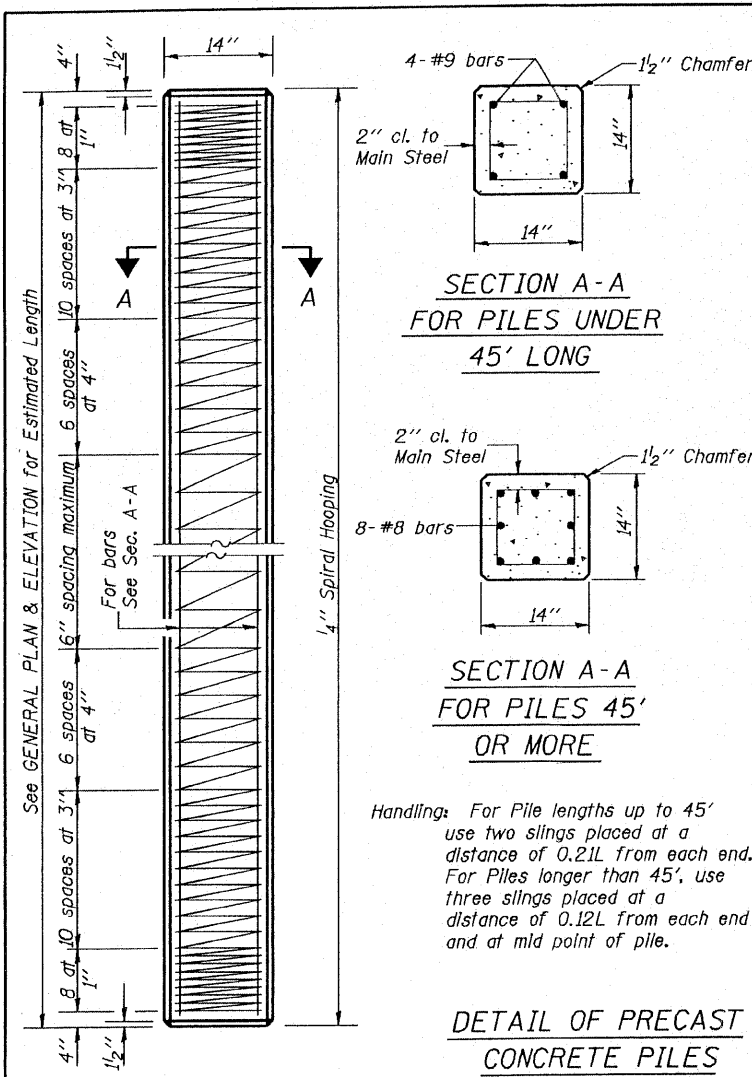


Material: Best quality brass or bronze.
 Border & Lettering: Raised $\frac{1}{8}$ inch. Square cut and not tapered. Top surface polished.
 Fastenings: Four lugs at least three inches long, cast on back of plate.



Illinois Department of Transportation	
PASSED APRIL 4, 2005 <i>Thomas S. Magallon</i> Engineer of Bridge Design	ISSUED 7-1-995
APPROVED APRIL 4, 2005 <i>Ralph E. Anderson</i> Engineer of Bridges and Structures	
ENGINEER	

NAME PLATE
STANDARD CN



Illinois Department of Transportation

PASSED FEBRUARY 1, 2000

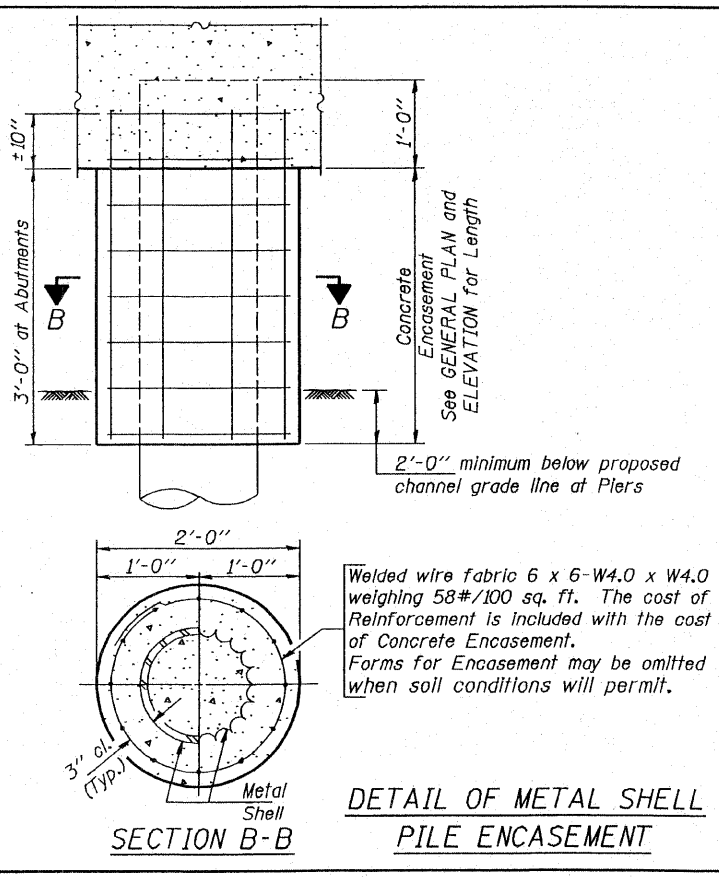
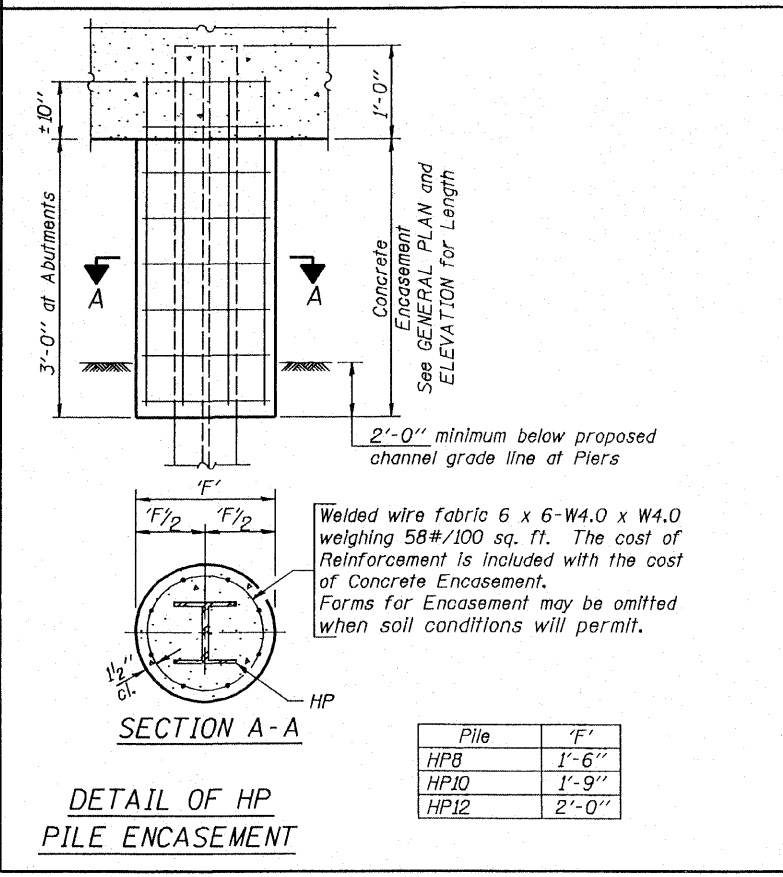
Theresa J. Demasak

Engineer of Bridge Design

APPROVED FEBRUARY 1, 2000

Ralph E. Anderson

Engineer of Bridges and Structures



QUANTITIES/FT. OF ENCASEMENT (STEEL PILES)

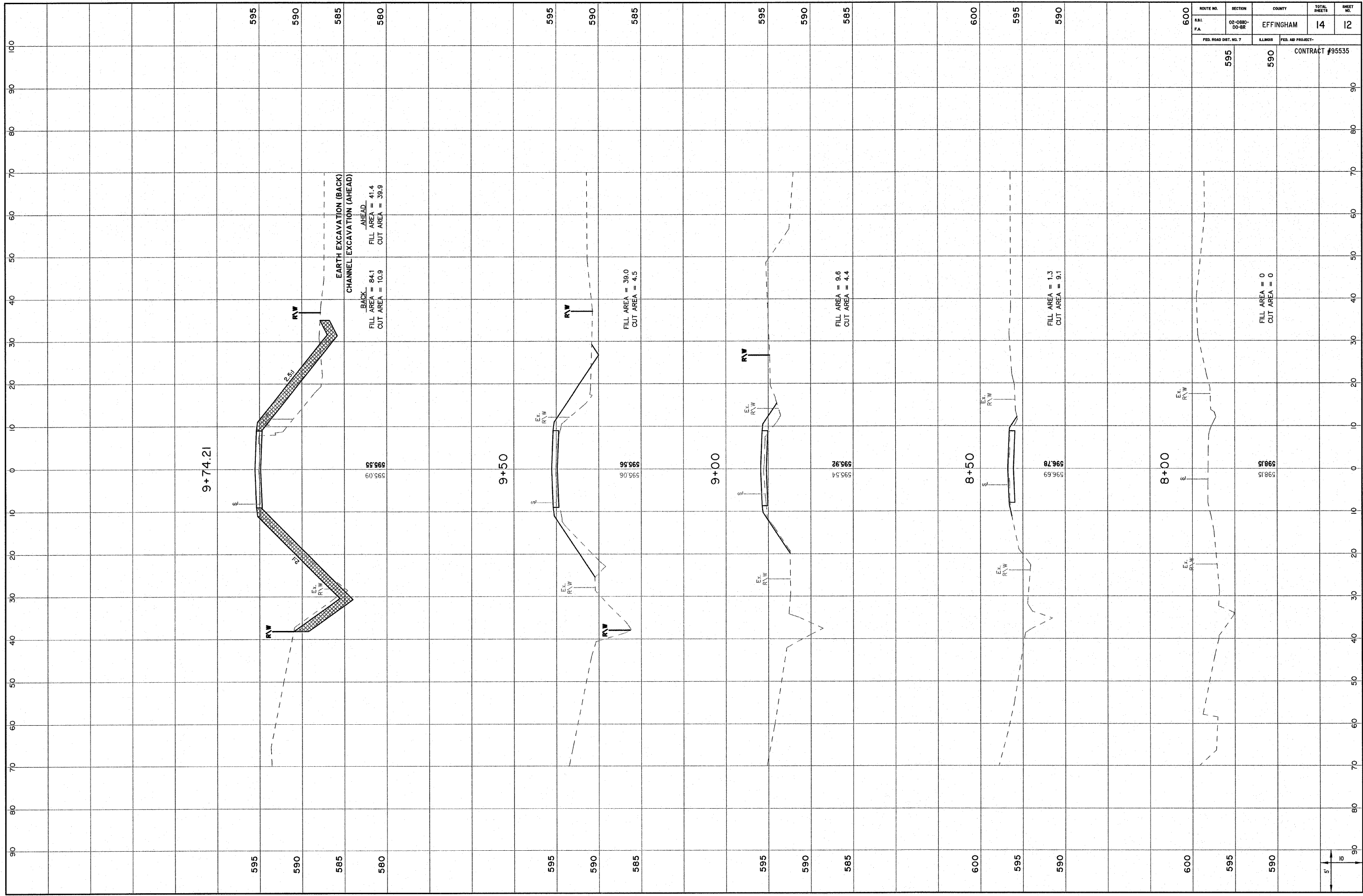
Pile Size	Item	Quantity
HP8	Concrete Encasement	0.063 C.Y.
HP10	Concrete Encasement	0.086 C.Y.
HP12	Concrete Encasement	0.112 C.Y.

(METAL SHELL PILES)

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

PILE DETAILS

STANDARD CX-1



9+74.21

CHANNEL EXCAVATION (AHEAD)
 BACK: FILL AREA = 84.1, CUT AREA = 10.9
 AHEAD: FILL AREA = 41.4, CUT AREA = 39.9

595.09
595.55

9+50

FILL AREA = 39.0
CUT AREA = 4.5

595.06
595.56

9+00

FILL AREA = 9.6
CUT AREA = 4.4

595.54
595.92

8+50

FILL AREA = 1.3
CUT AREA = 9.1

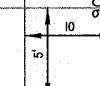
596.69
596.78

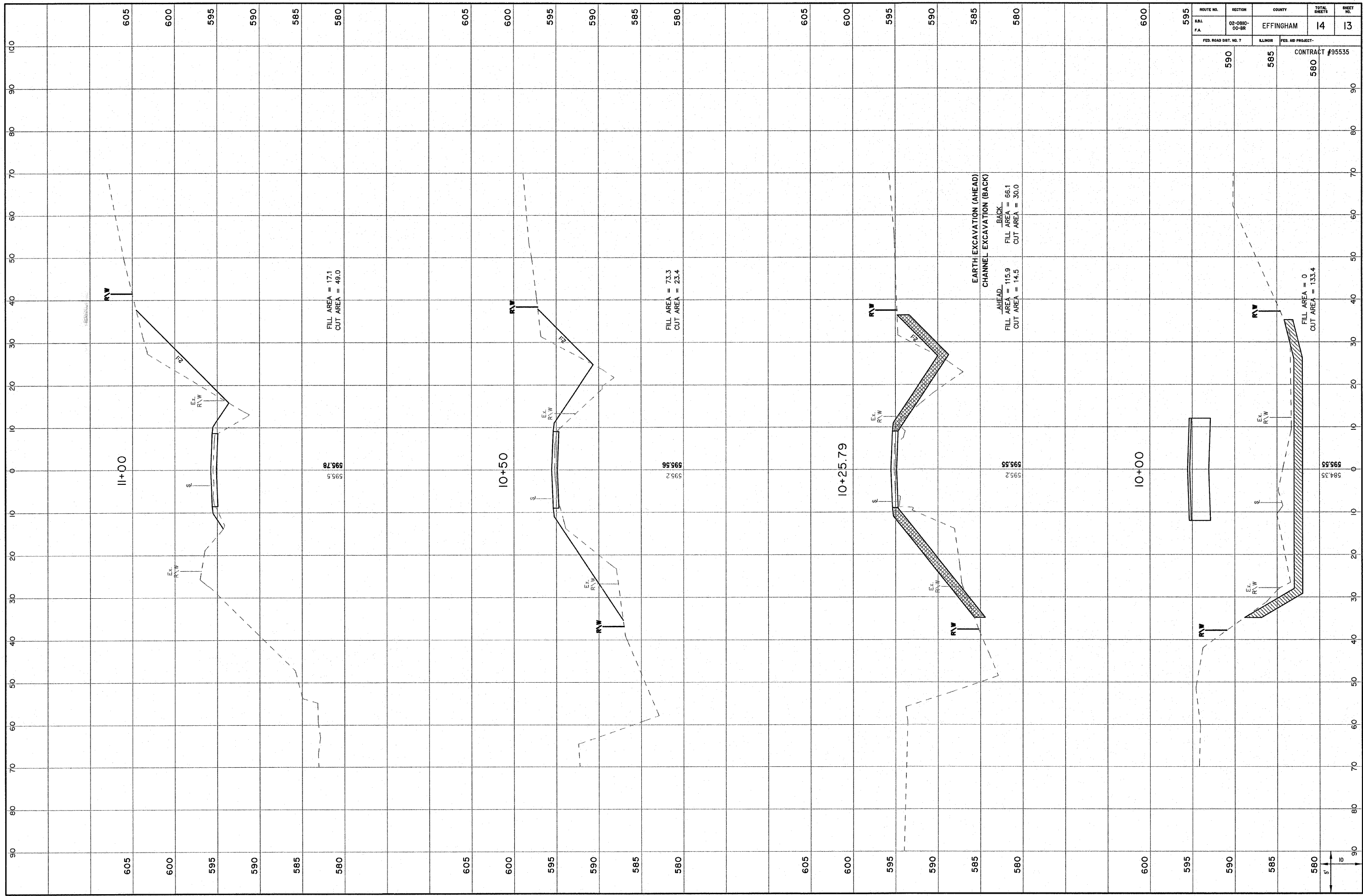
8+00

FILL AREA = 0
CUT AREA = 0

598.15
598.15

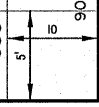
ROUTE NO. S&L P.A.	SECTION 02-0880- 00-8R	COUNTY EFFINGHAM	TOTAL SHEETS 14	SHEET NO. 12
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT- CONTRACT #95535	

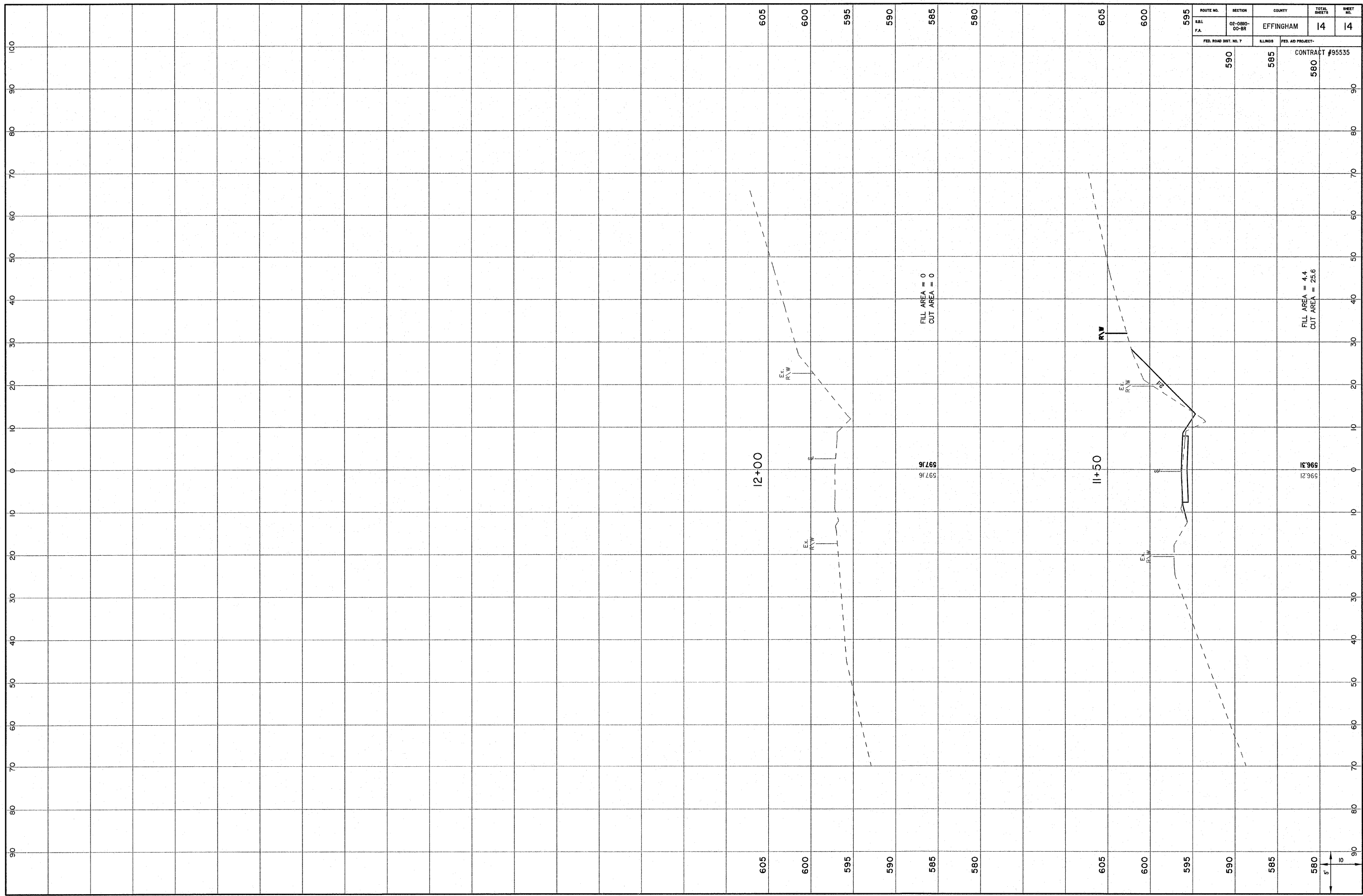




ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
581	02-0810-00-BR	EFFINGHAM	14	13
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

CONTRACT #95535





ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
590	02-0880-00-BR	EFFINGHAM	14	14
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	
			CONTRACT #95535	

