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SUMMARY OF QUANTITIES

CODE NO.	ITEM	UNIT	QUANTITY
20200100	EARTH EXCAVATION	CU YD	12
20300100	CHANNEL EXCAVATION	CU YD	980
20400800	FURNISHED EXCAVATION	CU YD	54
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	1.5
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	1.5
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	1.5
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	4
28000300	TEMPORARY DITCH CHECKS	EACH	1
28000400	PERIMETER EROSION BARRIER	FOOT	206
28100709	STONE DUMPED RIPRAP, CLASS A5	SQ YD	550
28200200	FILTER FABRIC	SQ YD	550
35100700	AGGREGATE BASE COURSE, TYPE A 8"	SQ YD	115
40603315	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N70	TON	45
40800010	BITUMINOUS MATERIALS (PRIME COAT)	GAL	40
40800050	INCIDENTAL HOT-MIX ASPHALT SURFACING	TON	19
44004400	PAVEMENT REMOVAL (SPECIAL)	SQ YD	113
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50105220	PIPE CULVERT REMOVAL	FOOT	39
50300225	CONCRETE STRUCTURES	CU YD	38.4
50300280	CONCRETE ENCASEMENT	CU YD	17.6
50400305	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	SQ FT	2700
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	4480
50900205	STEEL RAILING, TYPE S1	FOOT	180
51201400	FURNISHING STEEL PILES HP10x42	FOOT	574
51202305	DRIVING PILES	FOOT	574
51203400	TEST PILE STEEL HP10x42	EACH	2
51204650	PILE SHOES	EACH	22
51500100	NAME PLATES	EACH	1
54200229	PIPE CULVERTS, CLASS C, TYPE 1 24"	FOOT	34
58100200	WATERPROOFING MEMBRANE SYSTEM	SQ YD	300
58300100	PORTLAND CEMENT MORTAR FAIRING COURSE	FOOT	810
* 63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	2
* 63100167	TRAFFIC BARRIER TERMINAL TYPE 1, SPECIAL (TANGENT)	EACH	1
63200310	GUARD RAIL REMOVAL	FOOT	287
66700205	PERMANENT SURVEY MARKERS, TYPE I	EACH	2
67100100	MOBILIZATION	L SUM	1
70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1
* 78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	2
* LR631020	TRAFFIC BARRIER TERMINAL, TYPE 1	EACH	1
X0321566	MULCH, SPECIAL	SQ YD	78
XX004446	SEEDING, CLASS 2, SPECIAL	SQ YD	78

\* SPECIALTY ITEMS

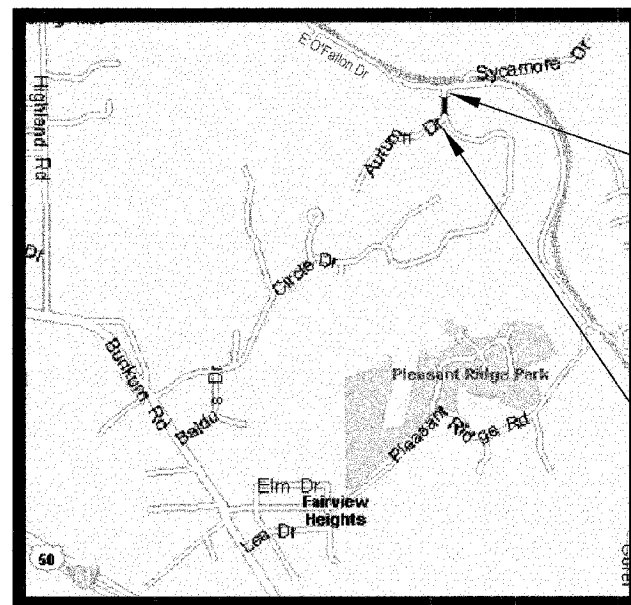
UTILITIES

AMEREN IP 1050 WEST BOULEVARD BELLEVILLE, IL 62222	AT&T ILLINOIS 203 GOETHE AVENUE COLLINSVILLE, IL 62234	CASEYVILLE WATER DEPARTMENT 909 SOUTH MAIN STREET CASEYVILLE, IL 62232
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Call Joint Utility Locating Information for Excavators (J.U.L.I.E.) before digging 800-892-0123

CASEYVILLE TOWNSHIP T.2N.R.8W.  
N.E. 1/4 OF SECTION 17

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
PLANS FOR PROPOSED  
LOCAL AGENCY IMPROVEMENT  
CH 83 CIRCLE DRIVE  
SECTION 02-00261-02-BR  
FED PROJECT NO. BROS-163(30)  
ST. CLAIR COUNTY  
CONSTRUCTION JOB NO. C-98-300-08



SECTION 02-00261-02-BR  
BEGINS STATION 11+66.03

SECTION 02-00261-02-BR INCLUDES A THREE SPAN  
(25'-40'-25') PRECAST PRESTRESSED CONCRETE  
DECK BRIDGE AT STA. 12+36.78

SECTION 02-0261-02-BR  
ENDS STATION 13+07.53

LOCATION MAP

LENGTH OF STRUCTURE = 91.50 FT. (0.017 MILES)  
LENGTH OF ROADWAY = 50.0 FT. (0.009 MILES)  
TOTAL LENGTH OF PROJECT = 141.5 FT. (0.027 MILES)



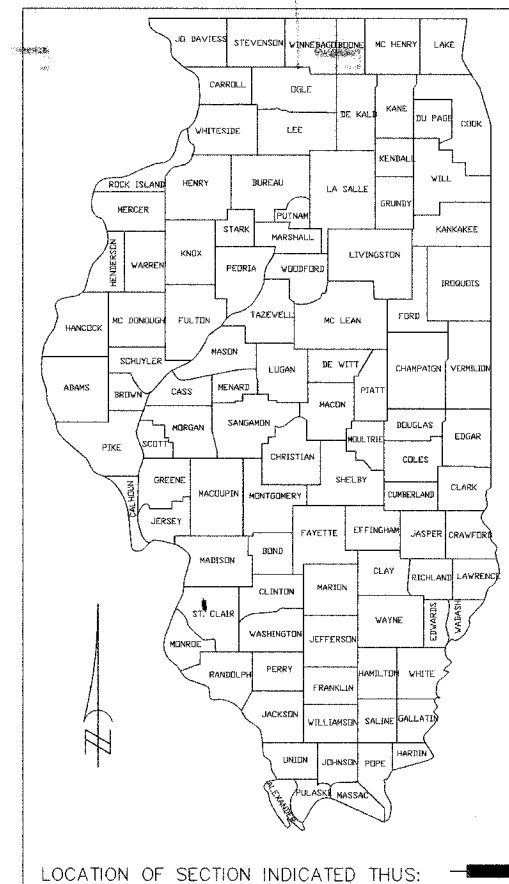
SCALE IN MILES

SCALES	PLAN	1" = 60'
	PROFILE	1" = 60'
	CROSS SECTIONS	1" = 20'

STANDARDS

000001-05	635006-02
001001-01	667101
280001-04	701901
515001-02	BLR21-7
542301-01	BLR23-2
630301-04	BLR27

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
02-00261-02-BR	83	ST. CLAIR	1 OF 14
FHWA REG. NO.	ILLINOIS	PROJ BROS-163(30)	
FEDERAL AID PROJECT	CONTRACT # 97346		
COVER SHEET			



4/1, 2008

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



*Darrell Cates*

DARRELL I. CATES, P.E.

County Engineer  
License Number 62-29109  
License Expiration Date: November 30, 2009

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

APPROVED *4/1* *Darrell Cates*, 2008  
COUNTY ENGINEER

PASSED *4/2*, 2008  
DISTRICT 8 ENGINEER OF LOCAL ROADS & STREETS

RELEASING FOR BID  
BASED ON LIMITED  
VIEW *4/2*, 2008  
DEPUTY DIRECTOR OF HIGHWAYS, REGION 5 ENGINEER

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
02-00261-02-BR	83	ST. CLAIR	2 OF 14
FHWA REG. NO.	ILLINOIS	PROJ BROS-163(30)	
FEDERAL AID PROJECT		CONTRACT # 97346	
GENERAL NOTES - TYPICAL SECTIONS			

### GENERAL NOTES

- ALL MATERIALS DEEMED SALVAGEABLE BY THE ENGINEER SHALL REMAIN THE PROPERTY OF ST. CLAIR COUNTY. ALL OTHER MATERIALS SHALL BE DISPOSED OF BY THE CONTRACTOR, AT HIS OWN EXPENSE.
- THE FOLLOWING UTILITY COMPANIES MAY HAVE FACILITIES LOCATED WITHIN THE LIMITS OF CONSTRUCTION.

AMEREN IP 1050 WEST BOULEVARD BELLEVILLE, IL 62222	AT&T ILLINOIS 203 GOETHE AVENUE COLLINSVILLE, IL 62234	CASEYVILLE WATER DEPARTMENT 909 SOUTH MAIN STREET CASEYVILLE, IL 62232
--	--	--
- THE FOLLOWING FACTORS WERE USED TO DETERMINE THE REQUIRED AMOUNT OF MATERIALS NEEDED.

INCIDENTAL HOT-MIX ASPHALT SURFACING BITUMINOUS MATERIALS (PRIME COAT)	110 LBS/SQ YD/IN THK 0.35 GAL/SQ YD
---	--
- THE FOLLOWING ITEMS AND ESTIMATED QUANTITIES SHALL BE USED THROUGHOUT THIS PROJECT:

78 SQ YD, SEEDING, CLASS 2, SPECIAL; 1.5 POUND, NITROGEN FERTILIZER NUTRIENT; 1.5 POUND, PHOSPHOROUS FERTILIZER NUTRIENT; 1.5 POUND, POTASSIUM FERTILIZER NUTRIENT; 78 SQ YD, MULCH, SPECIAL; 115 SQ. YD., AGGREGATE BASE COURSE, TYPE A, 8 INCH; 40 GALLONS, BITUMINOUS MATERIALS (PRIME COAT); 4 POUND, TEMPORARY EROSION CONTROL SEEDING; 19 TON, INCIDENTAL HOT-MIX ASPHALT SURFACING.
- THE FOLLOWING MIXTURE REQUIREMENTS ARE APPLICABLE FOR THIS PROJECT:

LOCATION(S)	BRIDGE DECK	ROADWAY
MIXTURE USE	SURFACE	INCIDENTAL SURFACE
AC/PG	PG 64-22	PG 64-22
RAP %(MAX)	10%	0%
DESIGN AIR VOIDS	4.0% @ N des = 70	4.0% @ N des = 50
MIX COMPOSITION (GRADATION MIXTURE)	IL-9.5L/IL-12.5L	IL-9.5L
FRICTION AGG	MIXTURE C	MIXTURE C
MIXTURE WEIGHT	112/ LBS/SQ.YD./INCH	110/ LBS/SQ.YD./INCH

- THE CONTRACTOR SHALL NOT BE ALLOWED TO SET THE DECK BEAMS UNTIL THE STEEL RAILING HAS BEEN DELIVERED TO THE JOB SITE OR TO THE CONTRACTORS YARD. PROOF OF SUCH DELIVERY MUST BE PRESENTED TO THE ENGINEER, AT HIS REQUEST, PRIOR TO THE PLACEMENT OF THE BEAMS.

### EARTHWORK SCHEDULE

LOCATION	EARTH EXCAVATION	CHANNEL EXCAVATION	EXCAVATION ADJUSTED FOR SHRINKAGE (25%)	EMBANKMENT	FURNISHED EXCAVATION
	CUBIC YARDS	CUBIC YARDS	CUBIC YARDS	CUBIC YARDS	CUBIC YARDS
STA.11+66.03 - STA.13+07.53	12	980	9	63	54

### EROSION CONTROL SCHEDULE

LOCATION	PERIMETER EROSION BARRIER (FOOT)	TEMPORARY DITCH CHECK (EACH)
STA.11+25 TO STA.12+05 - RIGHT	80	
STA.11+65 TO STA.12+05 - LEFT	60	
STA.12+82 TO STA.13+00 - RIGHT	23	
STA.12+82 TO STA.13+24 - LEFT	23	
STA.12+83 LEFT		1

### PAVEMENT REMOVAL SCHEDULE

LOCATION	PAVEMENT REMOVAL (SQ YD)
STA.11+66.03 TO STA.11+83.92	41
STA.12+73.77 TO STA.13+07.53	73

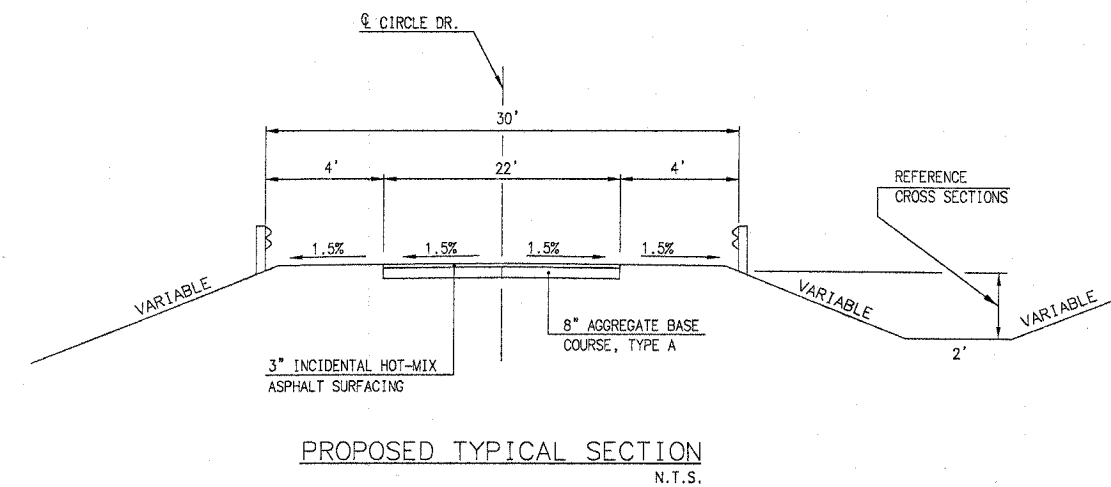
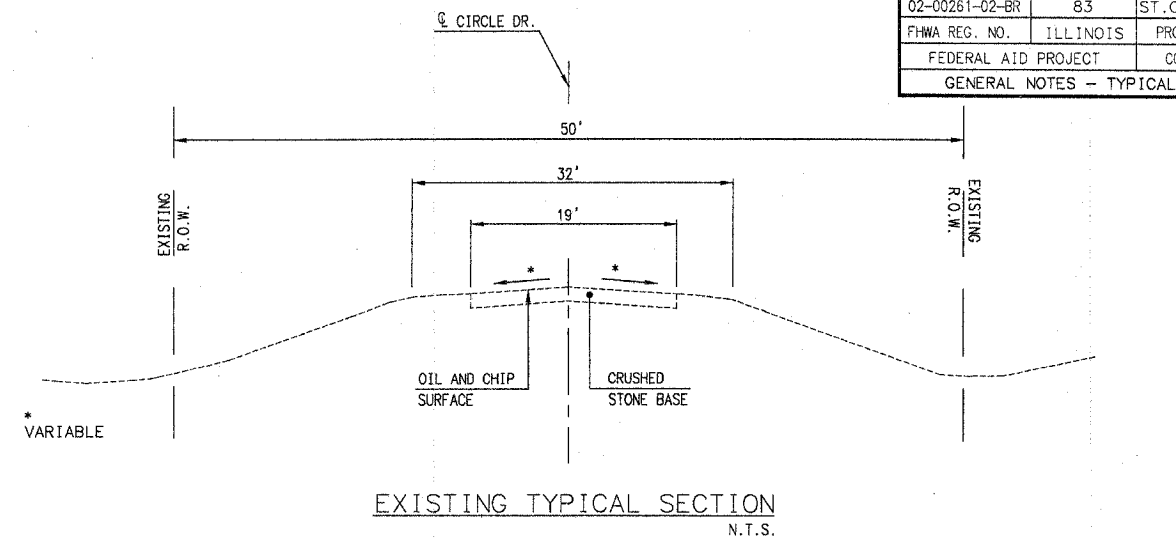
### STEEL PLATE BEAM GUARD RAIL REMOVAL SCHEDULE

LOCATION	GUARD RAIL REMOVAL (FOOT)
NORTH WEST CORNER	78
NORTH EAST CORNER	78
SOUTH WEST CORNER	78
SOUTH EAST CORNER	53

### FLEXIBLE PAVEMENT STRUCTURAL DESIGN INFORMATION

AVERAGE ESTIMATED ADT UPON COMPLETION (2008) = 423  
ROADWAY CLASSIFICATION = LOCAL ROAD

PROPOSED MATERIALS:  
AGGREGATE BASE COURSE, TYPE A, 8"  
INCIDENTAL HOT-MIX ASPHALT SURFACING

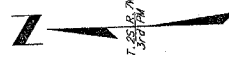
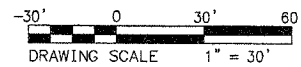


- NOTES:
- THE DIMENSIONS AND CROSS SLOPES SHOWN ARE TYPICAL OF THOSE AT THE ENDS OF THE PROPOSED STRUCTURE. THE ACTUAL DIMENSIONS VARY OVER A DISTANCE OF 25 FEET FROM THE ENDS OF THE PROPOSED STRUCTURE TO WHERE THE PROJECT TIES INTO THE EXISTING PAVEMENT.
  - INCREASE THE BASE COURSE DEPTH PER ARTICLE 351.07 OF THE STANDARD SPECIFICATIONS.
  - SEE PLAN VIEW FOR ACTUAL LOCATION OF TRAFFIC BARRIER TERMINAL.

	INITIALS	DATE
DESIGNED	RGEORGEN	8/07
CHECKED		
DRAWN		
CHECKED		

PREPARED BY ST. CLAIR COUNTY HIGHWAY DEPARTMENT

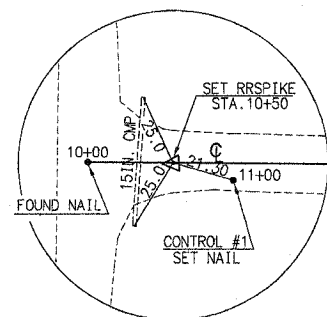
- LEGEND**
- POWER POLE
  - TELEPHONE LINE
  - WATER MAIN
  - - - EXISTING FENCE
  - ⊥ EXISTING ROAD SIGN
  - - - EXISTING CULVERT (TO BE REMOVED)
  - ▭ PROPOSED CULVERT
  - BORING LOCATION



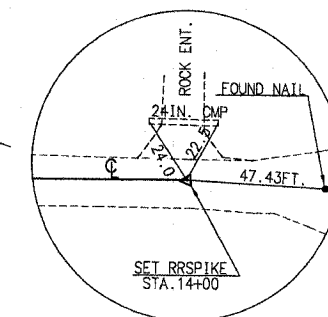
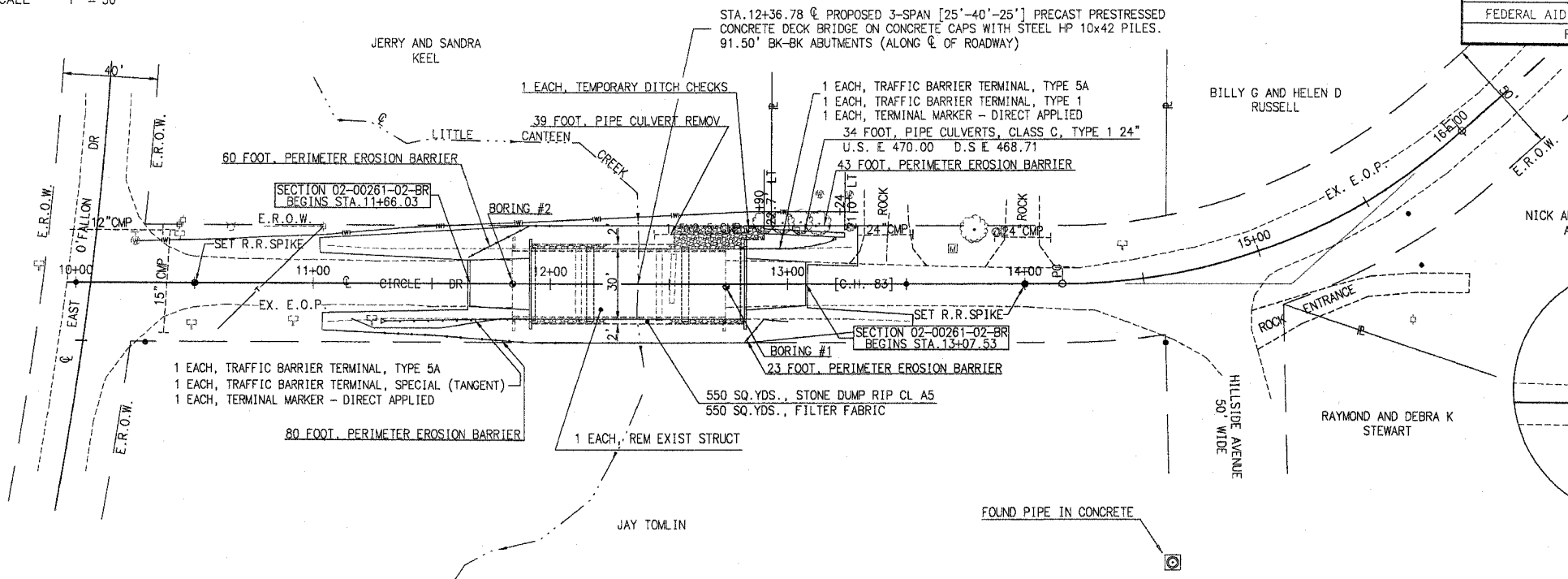
SARAH AND RANDY RUSSELL

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
02-00261-02-BR	63	ST. CLAIR	3 OF 14
FHWA REG. NO.	ILLINOIS	PROJ BROS-163(30)	
FEDERAL AID PROJECT		CONTRACT # 97346	
PLAN AND PROFILE			

PERMANENT SURVEY MARKERS, TYPE 1, SHALL BE PLACED AT THE FOLLOWING LOCATIONS:  
 STA. 11+91.42 ON C  
 STA. 12+82.13 ON C



P.O.T. 10+50  
 SET R.R. SPIKE

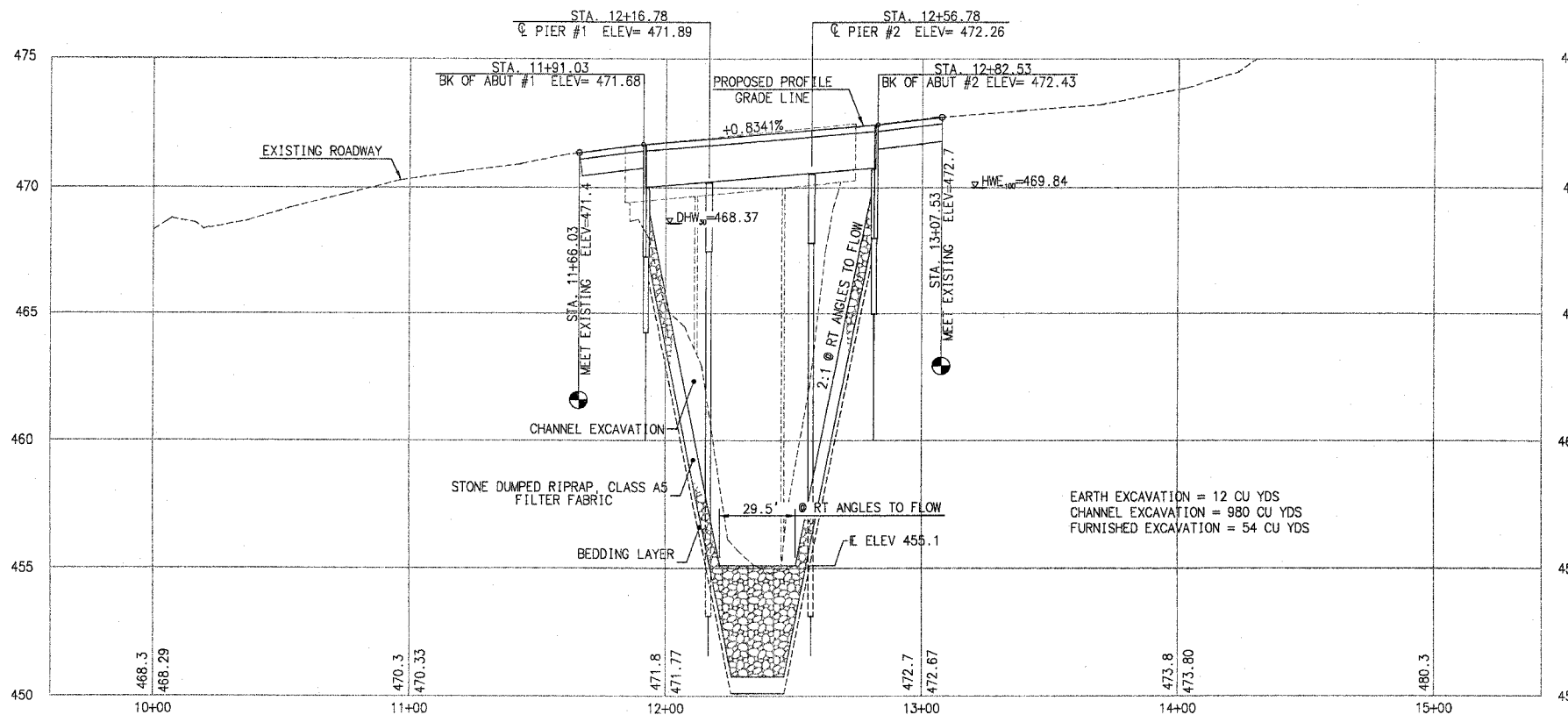


P.O.T. 14+00  
 SET R.R. SPIKE

PROFILE SCALES:  
 HORIZONTAL 1"=60'  
 VERTICAL 1"=6'

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

B.M. 2 NAILS IN  
 STA. XX+XX.XX XX' RT  
 ELEV. XXX.XX



PLOT DATE:

DESIGNED	INITIALS	DATE
CHECKED	RGEORGEN	9/06
DRAWN	RGEORGEN	9/06
CHECKED		
PREPARED BY ST. CLAIR COUNTY		
DRAWING FILE:		

DESCRIPTION: PPC DECK BEAMS,  
60' LONG, 27" DEEP,  
PILE BENT PIERS.  
SKEW: 0'

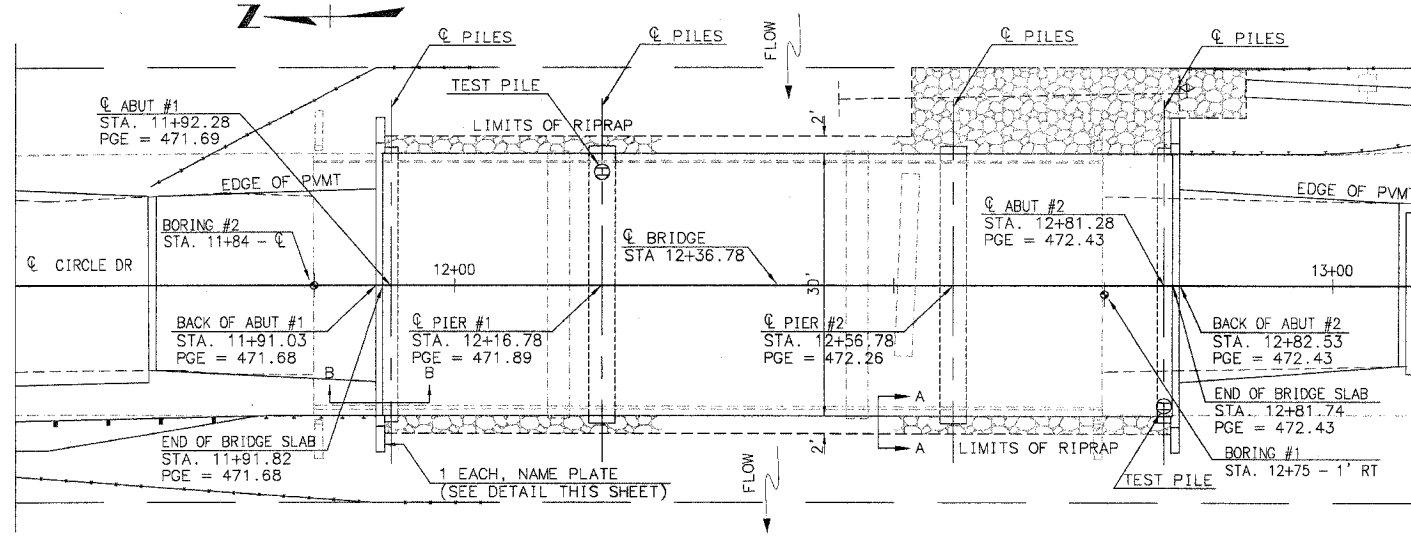
EXISTING STRUCTURE NO. 082-3002 IS A THREE SPAN (28'-34'-28') PRECAST,  
CONCRETE DECK SLAB STRUCTURE. IT IS 28 FOOT (F TO F OF CURBS) WIDE  
WITH 10 GAUGE, METAL BRIDGE RAIL ON BOTH SIDES OF THE STRUCTURE.

SALVAGE: ALL MATERIALS REQUIRED TO BE REMOVED WHICH ARE  
CONSIDERED SALVAGABLE BY THE ENGINEER SHALL REMAIN THE  
PROPERTY OF ST. CLAIR COUNTY. ALL OTHERS SHALL BE DISPOSED  
OF BY THE CONTRACTOR AT HIS OWN EXPENSE.  
SALVAGE: NO SALVAGE ANTICIPATED.

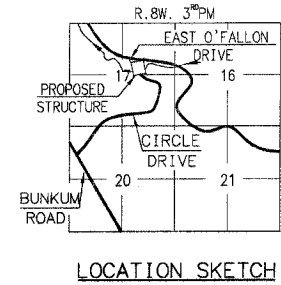
SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
02-00261-02-BR	83	ST. CLAIR	4 OF 14
FHWA REG. NO.	ILLINOIS	PROJ BROS-163(30)	
FEDERAL AID PROJECT	CONTRACT # 97346		
GENERAL PLAN AND ELEVATION			

**GENERAL NOTES**

1. THE CONTRACTOR SHALL DRIVE TEST PILES TO 110% OF THE NOMINAL REQUIRED BEARING SPECIFIED IN PRODUCTION LOCATIONS, AT THE SUBSTRUCTURES SPECIFIED, OR AS APPROVED BY THE ENGINEER, BEFORE ORDERING THE REMAINDER OF THE PILES.
2. REFER TO THE SPECIAL PROVISIONS FOR BORING LOG INFORMATION.
3. A CORROSION INHIBITOR SHALL BE USED IN THE CONCRETE FOR THE PRECAST, PRESTRESSED CONCRETE DECK BEAMS. ACCORDING TO ARTICLE 1020.05(b)(12) OF THE STANDARD SPECIFICATIONS.
4. RAILING SHALL BE IN ACCORDANCE WITH SECTION 509 OF THE STANDARD SPECIFICATIONS, EXCEPT AS NOTED ON THE PLANS, AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER FOOT FOR STEEL BRIDGE RAILING, TYPE S1 WHICH PRICE SHALL INCLUDE THE COST OF FURNISHING AND ERECTING.
5. REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706 GRADE 60 (IL MODIFIED). SEE SPECIAL PROVISIONS. THIS NOTE SUPERCEDES NOTES ON THE STANDARDS.
6. THE COST OF STRUCTURE EXCAVATION SHALL BE CONSIDERED INCLUDED IN THE COST OF CONCRETE STRUCTURES.
7. DECK BEAM 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 SAND BLASTING THE KEYWAY AREAS BETWEEN THE TOP OF THE BEAM AND THE BOTTOM EDGE OF THE KEY.
8. IN ADDITION TO ALL OTHER REQUIREMENTS OF SECTION 512 OF THE STANDARD SPECIFICATIONS, SPLICES FOR STEEL H PILES SHALL DEVELOP FULL CAPACITY OF THE STEEL'S CROSS SECTIONAL AREA OF THE PILE FOR TENSION, SHEAR AND BENDING FORCES. ONE APPROVED METHOD OF ACHIEVING THIS REQUIREMENT IS FULL PENETRATION BUTT WELDING OF THE ENTIRE CROSS SECTION. OTHER TYPES OF SPLICES MEETING THE FULL CAPACITY REQUIREMENT MAY BE ALLOWED SUBJECT TO THE APPROVAL OF THE ENGINEER. ANY PROPOSAL BY THE CONTRACTOR TO USE AN ALTERNATE SPLICE METHOD MUST INCLUDE ADEQUATE DOCUMENTATION DEMONSTRATING THAT THE FULL TENSION, SHEAR AND BENDING CAPACITIES WILL BE MET. APPROPRIATE WELDER QUALIFICATIONS WILL BE REQUIRED FOR THE POSITIONS AND PROCEDURES USED IN SPLICING ALL PILES. NONDESTRUCTIVE TESTING OF COMPLETED WELDS WILL BE LIMITED TO VISUAL INSPECTION.
9. BACKFILL BEHIND THE ABUTMENTS SHALL BE PLACED AFTER THE SUPERSTRUCTURE IS IN PLACE AND THE DOWEL RODS GROUTED.
10. THE STEEL H-PILES SHALL BE ACCORDING TO AASHTO M270 GRADE 50.



**PLAN**  
SKEW ANGLE: 0'



**DESIGN SPECIFICATIONS**

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

**SEISMIC DATA**

S.P.C. = B  
A = 0.120  
S = 1/1.0

**PILE DATA**

**NORTH ABUTMENT**  
PILE TYPE: STEEL HP 10x42 WITH PILE SHOES  
ALLOWABLE RESISTANCE AVAILABLE: 50 KIPS  
NOMINAL REQUIRED BEARING: 150 KIPS  
ESTIMATED LENGTH: 29 FT.  
NUMBER OF TEST PILES: NONE

**SOUTH ABUTMENT**  
PILE TYPE: STEEL HP 10x42 WITH PILE SHOES  
ALLOWABLE RESISTANCE AVAILABLE: 50 KIPS  
NOMINAL REQUIRED BEARING: 150 KIPS  
ESTIMATED LENGTH: 28 FT.  
NUMBER OF TEST PILES: 1

**NORTH AND SOUTH PIERS**  
PILE TYPE: STEEL HP 10x42 WITH PILE SHOES  
ALLOWABLE RESISTANCE AVAILABLE: 70 KIPS  
NOMINAL REQUIRED BEARING: 210 KIPS  
ESTIMATED LENGTH: 29.0 FT.  
ONE TEST PILE REQUIRED AT NORTH PIER

NUMBER OF PRODUCTION PILES = 20  
NUMBER OF TEST PILES: 2

**DESIGN STRESSES**

FIELD UNITS  
f'c = 3500 psi  
fy = 60,000 psi

**PRECAST PRESTRESSED UNITS**

f'c = 5000 psi  
f'ci = 4000 psi  
f's = 27000 psi (1/2 ø STRESSED RELIEVED STRANDS)  
f'si = 201,960 psi (1/2 ø STRESSED RELIEVED STRANDS)  
fy = 60000 psi

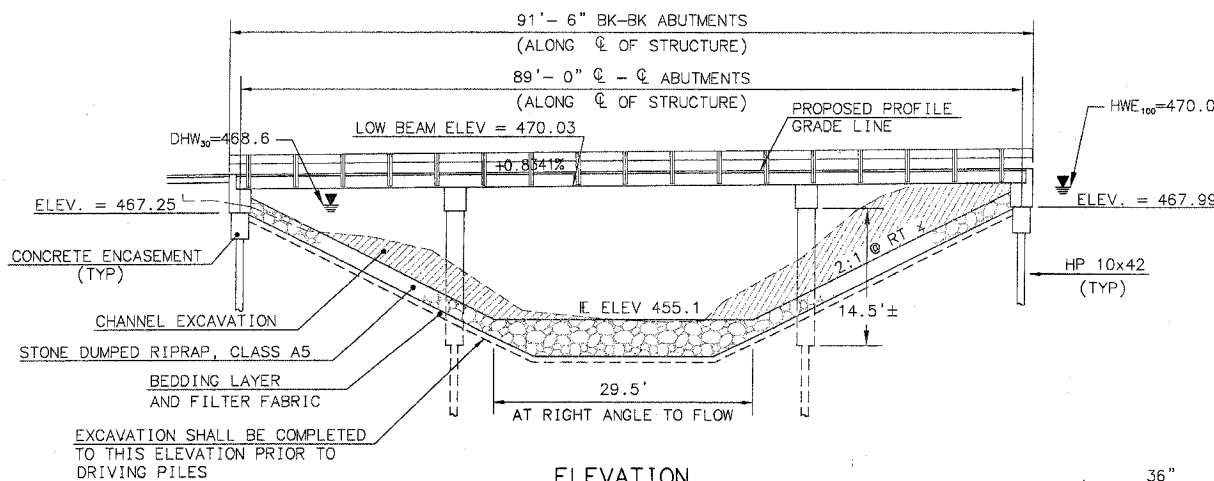
**WATERWAY INFORMATION**

DRAINAGE AREA = 6.1 sq.mi.		LOW GRADE ELEVATION = 468.34 @ STA 10+19.7								
FLOOD	FREQUENCY (year)	FLOWRATE Q (cfs)	OPENING EXISTING (sq.ft.)	OPENING PROPOSED (sq.ft.)	NATURAL H.W.E.	EXISTING PROPOSED	HEAD (ft.) EXISTING	HEAD (ft.) PROPOSED	HEADWATER ELEVATION EXISTING	HEADWATER ELEVATION PROPOSED
DESIGN	30	3128	559	716	468.37	0.21	0.22	468.58	468.59	
BASE	100	4224	665	832	469.84	0.28	0.17	470.12	470.01	
OVERTOPPING										
MAX. CALC.	500	5682	672	863	471.57	0.17	0.03	471.74	471.60	

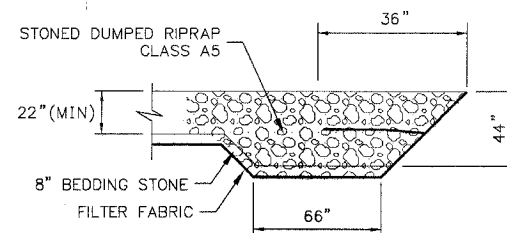
NOTE: O.T.R. FLOW OCCURS DURING THE DESIGN AND 100-YR EVENT.

**TOTAL BILL OF MATERIALS (STRUCTURE)**

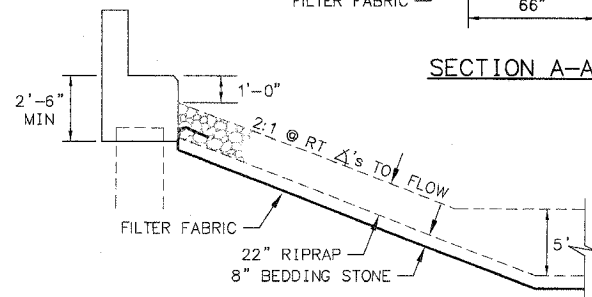
ITEM	UNIT	SUPER	SUB	TOTAL
CHANNEL EXCAVATION	CU YD			980
STONE DUMPED RIPRAP, CLASS A5	SQ YD			518
FILTER FABRIC	SQ YD			518
HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N70	TON	45.3		45.3
REMOVAL OF EXISTING STRUCTURES	EACH			1
CONCRETE STRUCTURES	CU YD		38.4	38.4
PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	SQ FT	2700		2700
REINFORCEMENT BARS, EPOXY COATED	POUND		4480	4480
STEEL BRIDGE RAILING, TYPE S1	FOOT	180		180
FURNISHING STEEL PILES HP10x42	FOOT		574	574
DRIVING PILES	FOOT		574	574
TEST PILE STEEL HP10x42	EACH		2	2
PILE SHOES	EACH		22	22
CONCRETE ENCASUREMENT	CU YD		17.6	17.6
NAME PLATES	EACH			1
WATERPROOFING MEMBRANE SYSTEM	SQ YD	300.1		300.1
PORTLAND CEMENT MORTAR FAIRING COURSE	FOOT	810		810



**ELEVATION**



**SECTION A-A**



**SECTION B-B**

LITTLE CANTEN CREEK  
BUILT 2008 BY  
ST. CLAIR COUNTY  
SEC. 02-00261-02-BR  
PROJECT NO. BROS 163(30)  
STA. 12+36.78  
STR. NO. 082-3103 LOADING HS20

**LETTERING FOR NAME PLATE**  
(STANDARD CN)  
LOCATE NAME PLATE AT N.W. WINGWALL  
OF BRIDGE (SEE STD. 515001)

**INDEX OF SHEETS**

4. GENERAL PLAN & ELEVATION
- 5-6. SUPERSTRUCTURE DETAILS
7. P.C.C. DECK BEAM DETAILS
8. ABUTMENT DETAILS
9. PIER DETAILS
10. STANDARD CR-TS1
11. STANDARD CN
12. STANDARD CX-1

	INITIALS	DATE
DESIGNED	RG	1/08
CHECKED	TH	1/08
DRAWN	DS	1/08
CHECKED	RG	1/08

PREPARED BY ST. CLAIR COUNTY  
HIGHWAY DEPARTMENT

I CERTIFY THESE STANDARD BRIDGE PLANS FOR  
SEISMIC ADEQUACY ONLY.

February 29, 2008  
NAME: Michael L. Alberswerth  
LICENSED STRUCTURAL ENGINEER  
LICENSE NO. 081-006353  
LICENSE EXPIRATION DATE: November 30, 2008

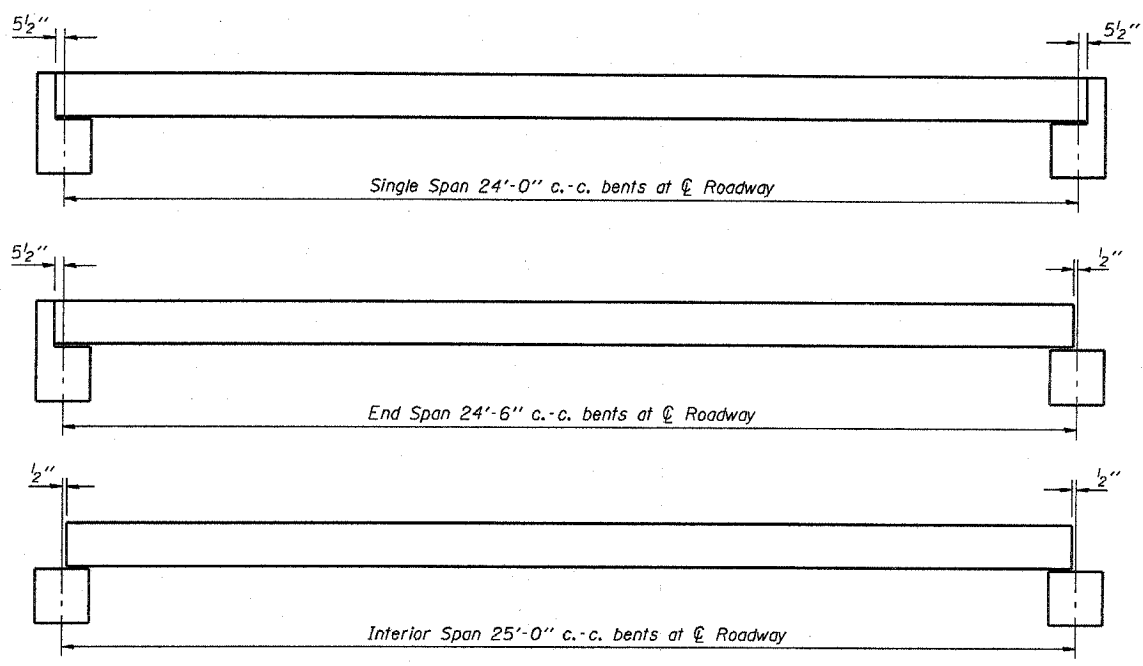
THESE PLANS WERE PREPARED BY ME OR BY A FULL-TIME MEMBER  
OF MY STAFF WORKING UNDER MY PERSONAL SUPERVISION.

Darrell I. Cates 4/1, 2008  
DARRELL I. CATES, P.E.  
COUNTY ENGINEER  
LICENSE NO. 62-29109  
LICENSE EXPIRATION DATE: NOVEMBER 30, 2009

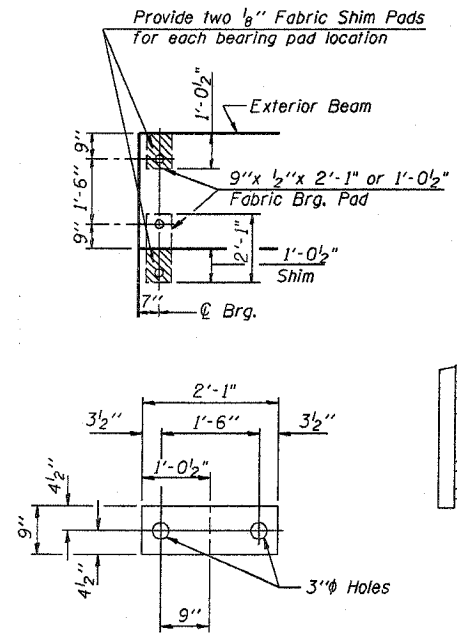
**GENERAL PLAN & ELEVATION**

CH 83  
OVER LITTLE CANTEN CREEK  
SECTION 02-00261-02-BR  
ST. CLAIR COUNTY  
STATION 12+36.78  
S.N. 082-3103

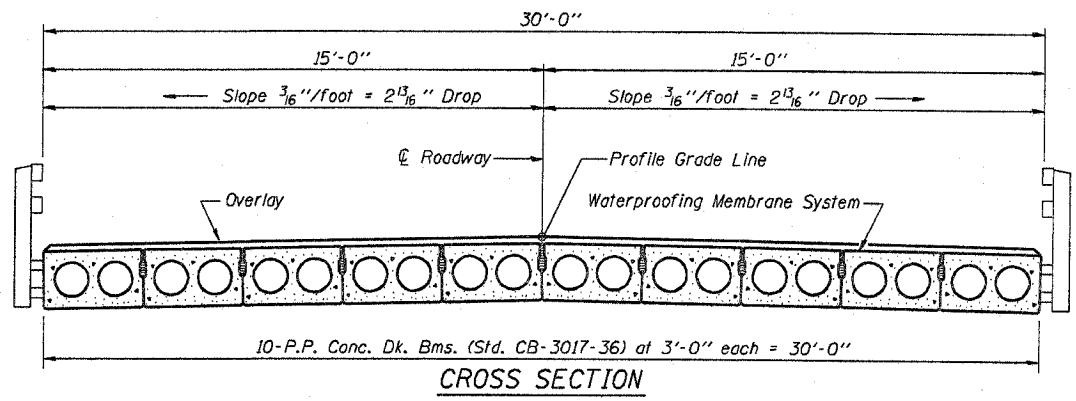
SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
00-00261-02-BR	83	ST. CLAIR	5 OF 14
FHWA REG. NO.	ILLINOIS	PROJ. BROS-163(30)	
FEDERAL AID PROJECT	CONTRACT # 97346		
SUPERSTRUCTURE DETAILS			



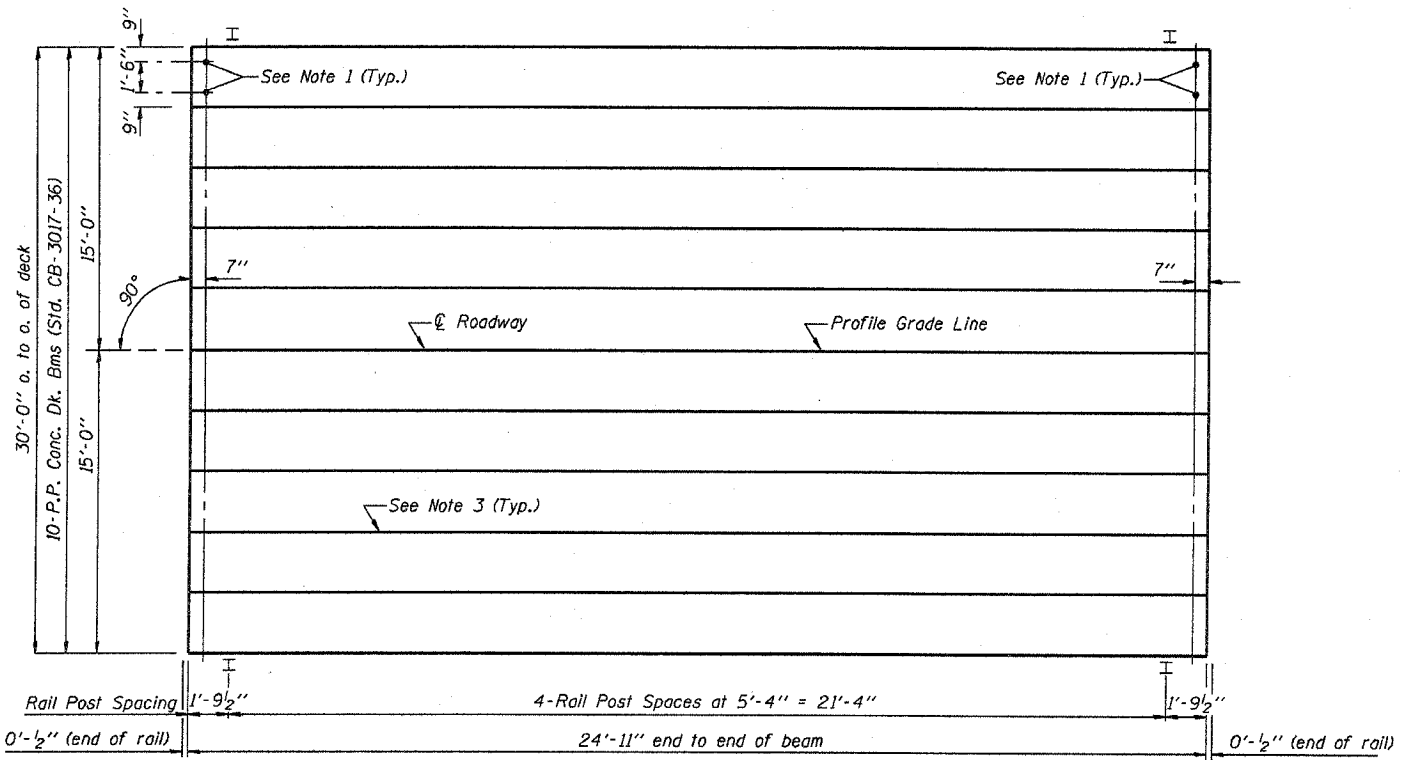
TYPICAL ELEVATIONS



1/2" FABRIC BRG. PAD DETAILS



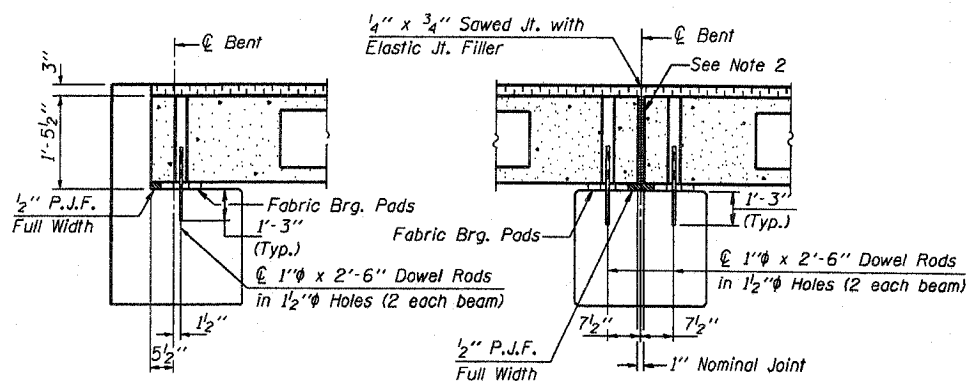
CROSS SECTION



PLAN

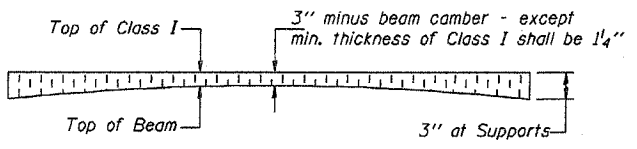
NOTES

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.



SECTION AT ABUTS.  
(Along centerline Beams)

SECTION AT PIERS  
(Along centerline Beams)



PROFILE OF OVERLAY

QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 17" Dp.	750 Sq. Ft.
Steel Railing	50 Ft.
Waterproofing Membrane System	83.4 Sq. Yds.
Portland Cement Mortar	
Fairing Course	225 Ft.

Note: Quantity of overlay for one span = 13.6 Tons

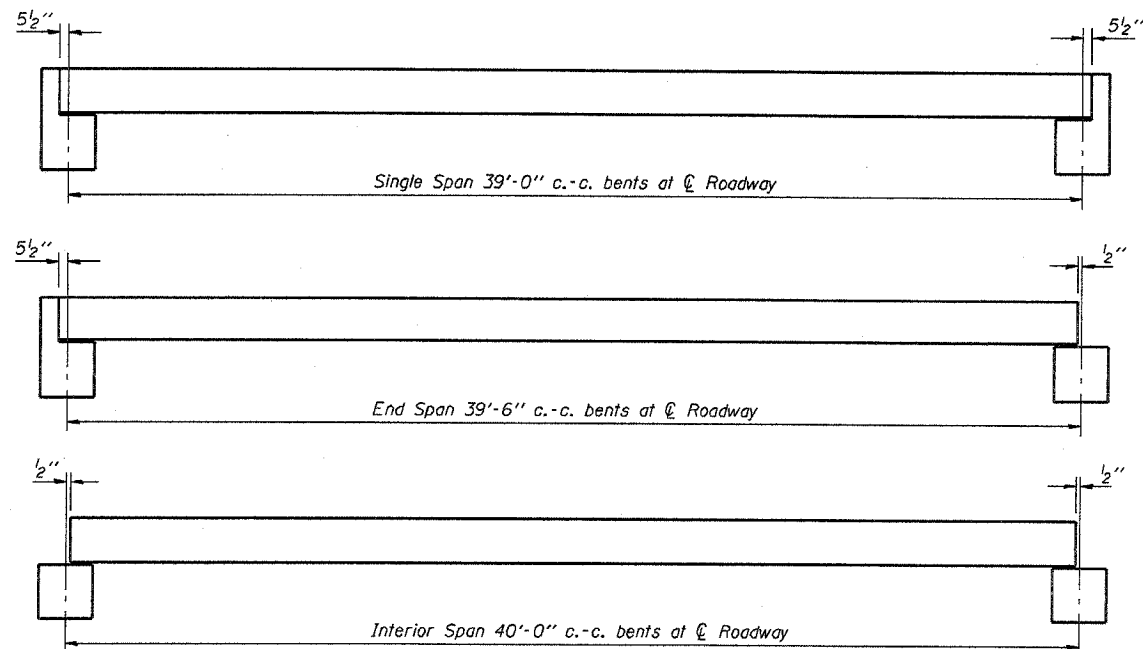
<b>P.P.C. DECK BEAM SUPERSTRUCTURE</b>			
30' RDWY.	17" BMS.	25' SPAN	0° SKEW
STANDARD CS-3017-25			

Illinois Department of Transportation

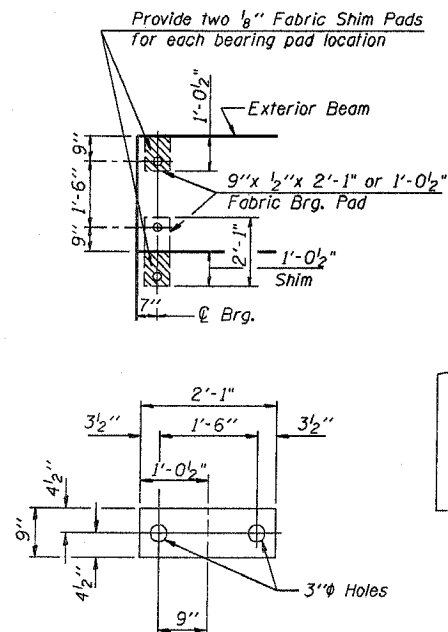
PASSED APRIL 4, 2005  
*Thomas J. Romanowski*  
 Engineer of Bridge Design

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

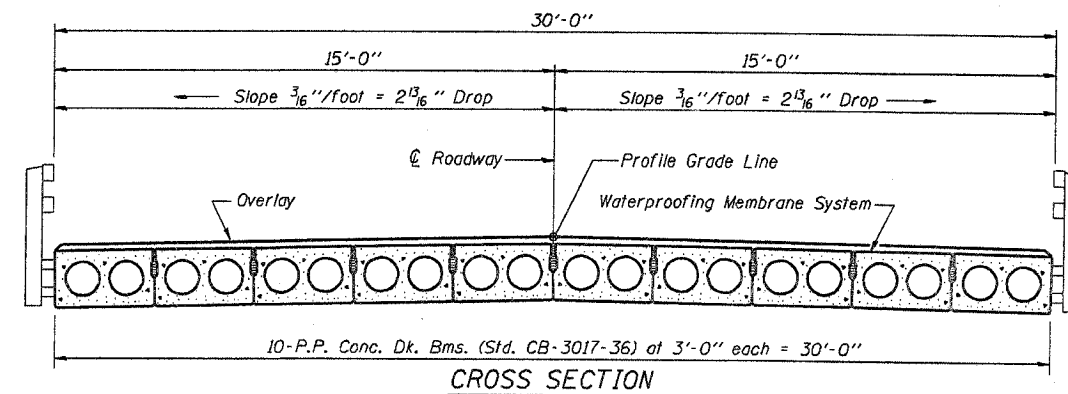
SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
00-00261-02-BR	83	ST. CLAIR	6 OF 14
FHWA REG. NO.	ILLINOIS	PROJ. BROS-163(30)	
FEDERAL AID PROJECT	CONTRACT # 97346		
SUPERSTRUCTURE DETAILS			



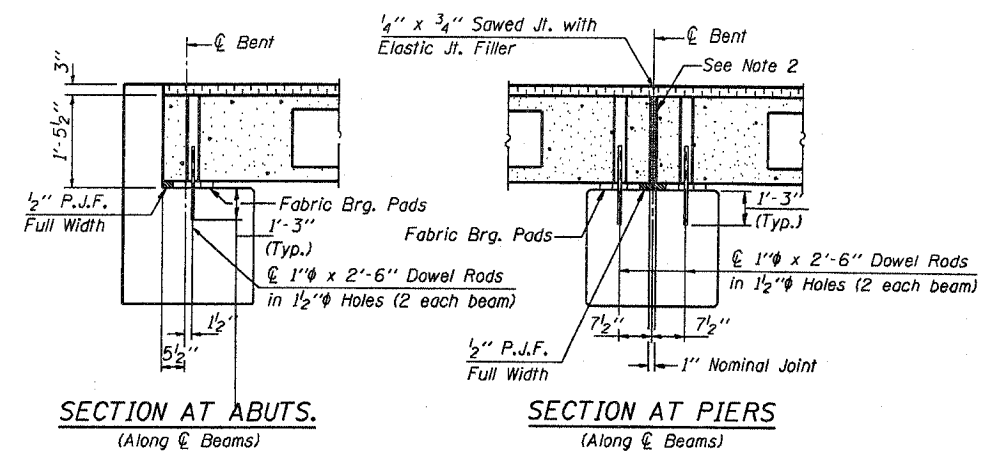
TYPICAL ELEVATIONS



1/2" FABRIC BRG. PAD DETAILS

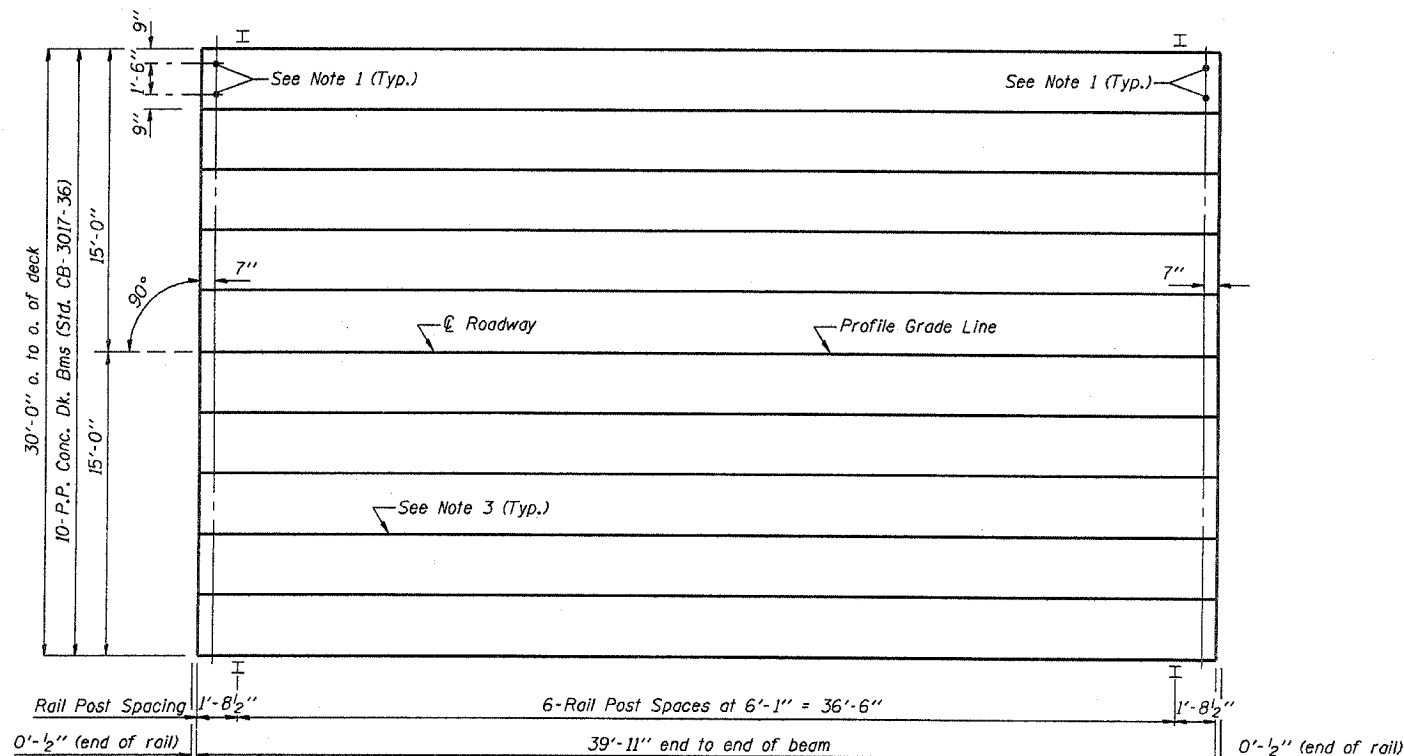


CROSS SECTION



SECTION AT ABUTS.  
(Along centerline Beams)

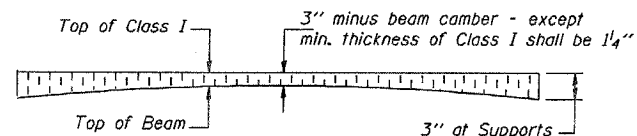
SECTION AT PIERS  
(Along centerline Beams)



PLAN

NOTES

- After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys.
- Nominal 1" joint at centerline Pier shall be filled with non-shrink grout.
- Longitudinal keys shall be grouted.



PROFILE OF OVERLAY

QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 17" Dp.	1200 Sq. Ft.
Steel Railing	80 Ft.
Waterproofing Membrane System	133.3 Sq. Yds.
Portland Cement Mortar	360 Ft.
Fairing Course	

Note: Quantity of overlay for one span = 18.1 Tons

P.P.C. DECK BEAM  
SUPERSTRUCTURE

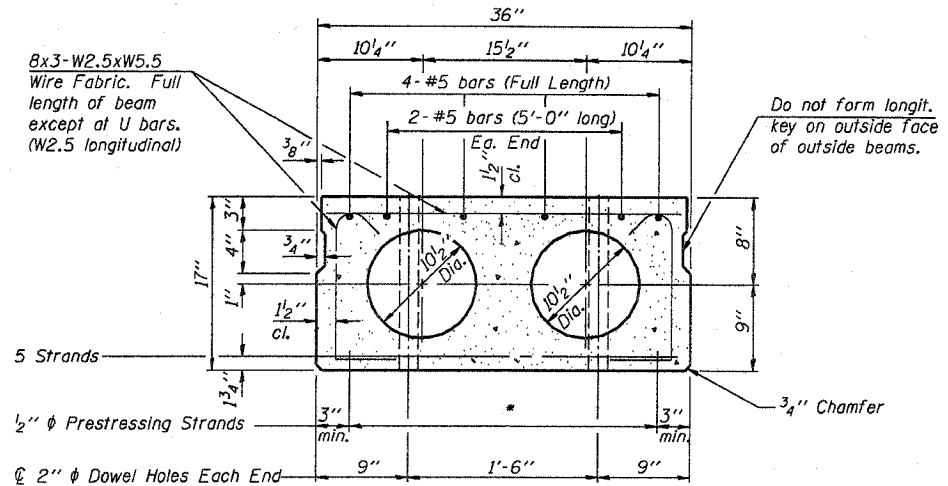
30' RDWY.	17" BMS.	40' SPAN	0° SKEW
STANDARD CS-3017-40			

Illinois Department of Transportation

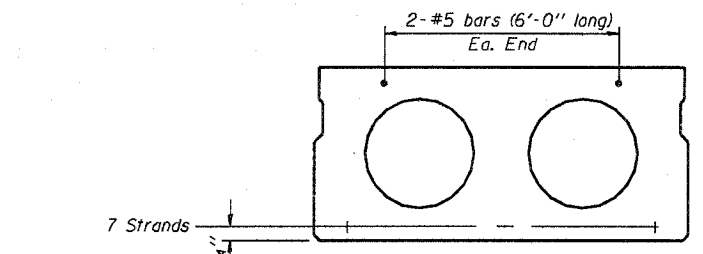
PASSED APRIL 4, 2005  
*Thomas J. Semagala*  
 Engineer of Bridge Design

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

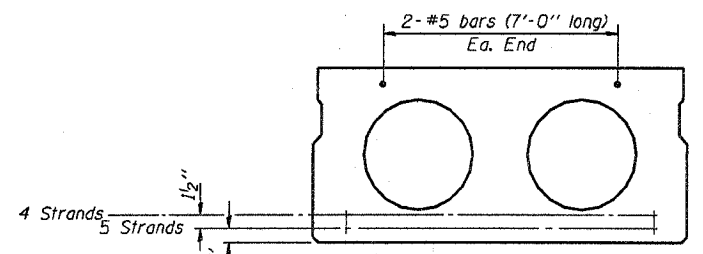
ISSUED 4-4-2005



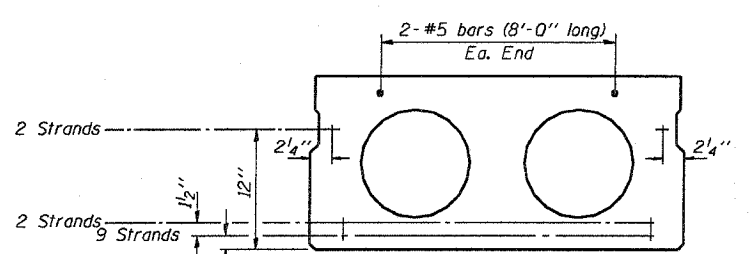
**CROSS SECTION**  
(25' SPAN)



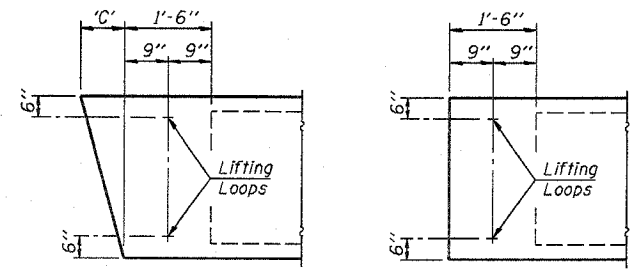
**CROSS SECTION**  
(30' SPAN)



**CROSS SECTION**  
(35' SPAN)

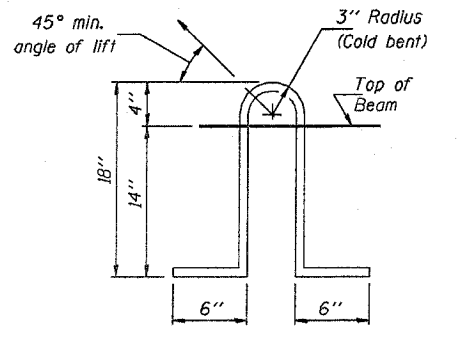


**CROSS SECTION**  
(40' SPAN)



**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 inch diameter-270 ksi strands, as shown. Alternate approved lifting devices are also acceptable.

**DIMENSION 'C'**

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

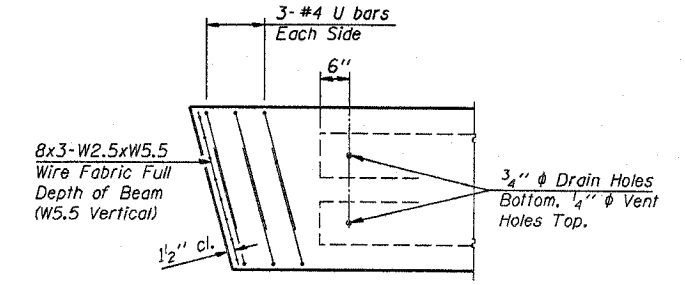
**\* TRANSVERSE STRAND PLACEMENT GUIDELINES**

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".

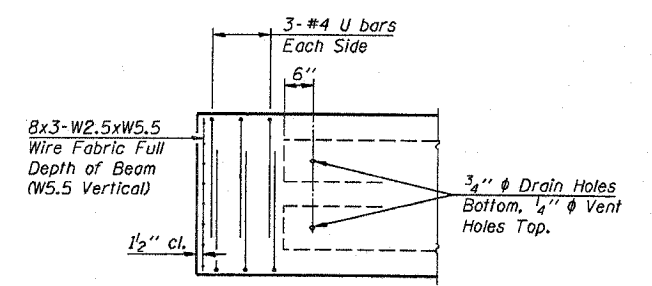
Vertical placement of strands shall not be adjusted to satisfy the above guidelines.

**NOTES**

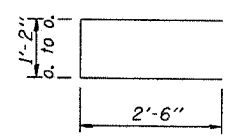
1. Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270.
2. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 square inches.
3. Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-322, Grade 60.
4. Rail Post anchor devices shall be cast into outside beam as elsewhere specified.
5. 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".
6. 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.



**END REINFORCEMENT**  
(SKEWED)



**END REINFORCEMENT**  
(RIGHT ANGLE)



**BAR U**

**MIN. BAR LAP**

#5 bars = 1'-8"

**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)
- $f_{st} = 201,960$  p.s.i. (1/2" diameter Strand)
- $f_y = 60,000$  p.s.i.

Illinois Department of Transportation

PASSED APRIL 4, 2005

Thomas J. Romanelli  
Engineer of Bridge Design

APPROVED APRIL 4, 2005

Ralph E. Anderson  
Engineer of Bridges and Structures

**NOTE**

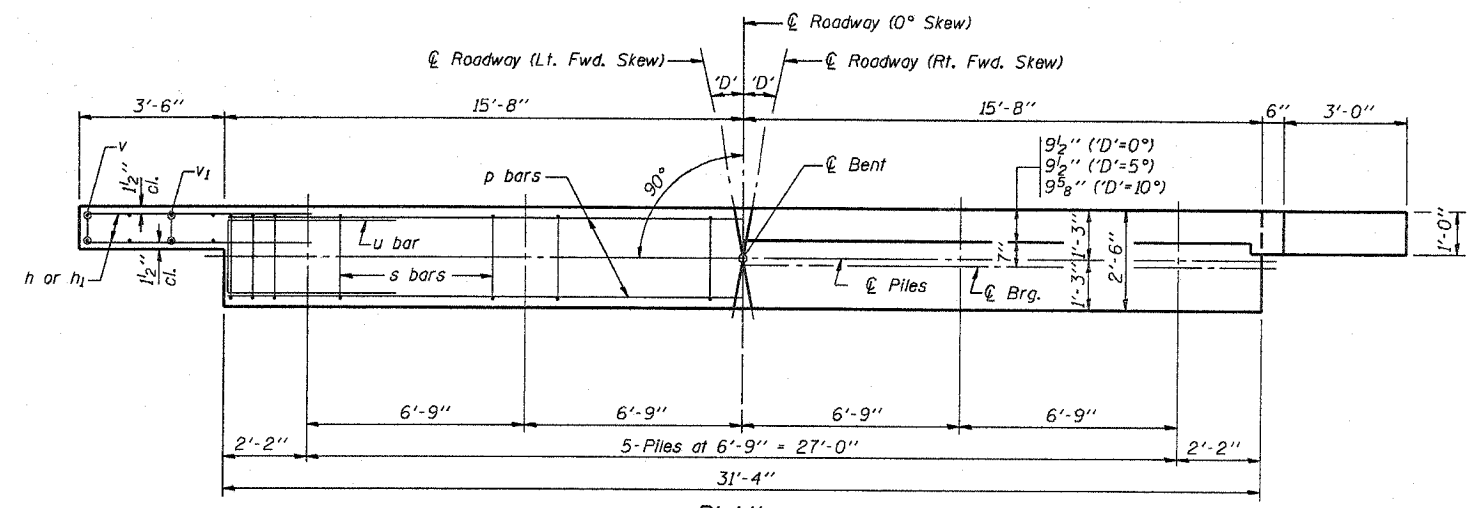
The std. reinf. and dimensions shown on the 25' span cross section is typical for all spans, except as shown.

**P.P.C. DECK BEAM DETAILS**

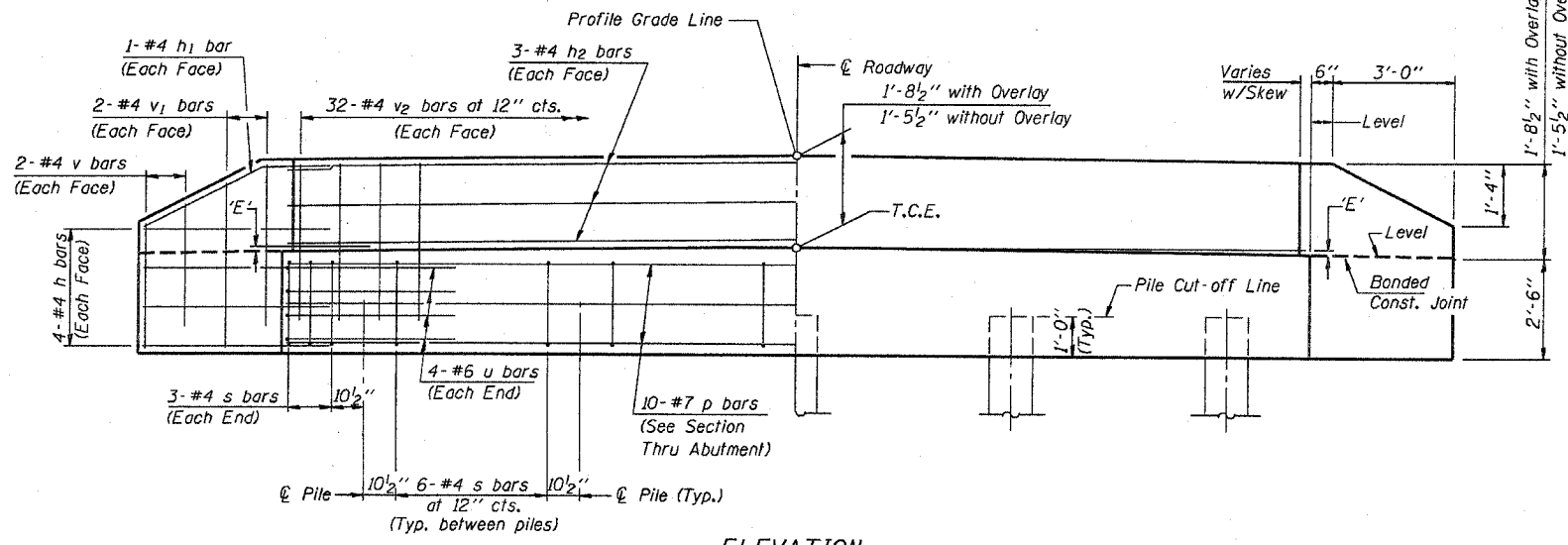
30' ROADWAY | 17" x 36" BEAMS

STANDARD CB-3017-36

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
00-00261-02-BR	83	ST. CLAIR	8 OF 14
FHWA REG. NO.	ILLINOIS	PROJ. BROS-163(30)	
FEDERAL AID PROJECT	CONTRACT # 97346		
ABUTMENT DETAILS			



**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 <sup>7</sup> / <sub>8</sub> "	2 <sup>7</sup> / <sub>8</sub> "	2 <sup>7</sup> / <sub>8</sub> "	2 <sup>7</sup> / <sub>8</sub> "	2 <sup>7</sup> / <sub>8</sub> "	2 <sup>7</sup> / <sub>8</sub> "
Over 0% to 1%	2 <sup>7</sup> / <sub>8</sub> "	2 <sup>7</sup> / <sub>8</sub> "	2 <sup>7</sup> / <sub>8</sub> "	3"	2 <sup>3</sup> / <sub>4</sub> "	3"
Over 1% to 2%	2 <sup>7</sup> / <sub>8</sub> "	2 <sup>7</sup> / <sub>8</sub> "	2 <sup>5</sup> / <sub>8</sub> "	3 <sup>1</sup> / <sub>8</sub> "	2 <sup>3</sup> / <sub>8</sub> "	3 <sup>3</sup> / <sub>8</sub> "
Over 2% to 3%	2 <sup>7</sup> / <sub>8</sub> "	2 <sup>7</sup> / <sub>8</sub> "	2 <sup>1</sup> / <sub>2</sub> "	3 <sup>3</sup> / <sub>8</sub> "	2 <sup>1</sup> / <sub>8</sub> "	3 <sup>3</sup> / <sub>4</sub> "
Over 3% to 4%	2 <sup>7</sup> / <sub>8</sub> "	2 <sup>7</sup> / <sub>8</sub> "	2 <sup>3</sup> / <sub>8</sub> "	3 <sup>1</sup> / <sub>2</sub> "	1 <sup>3</sup> / <sub>4</sub> "	4"

**NOTES**

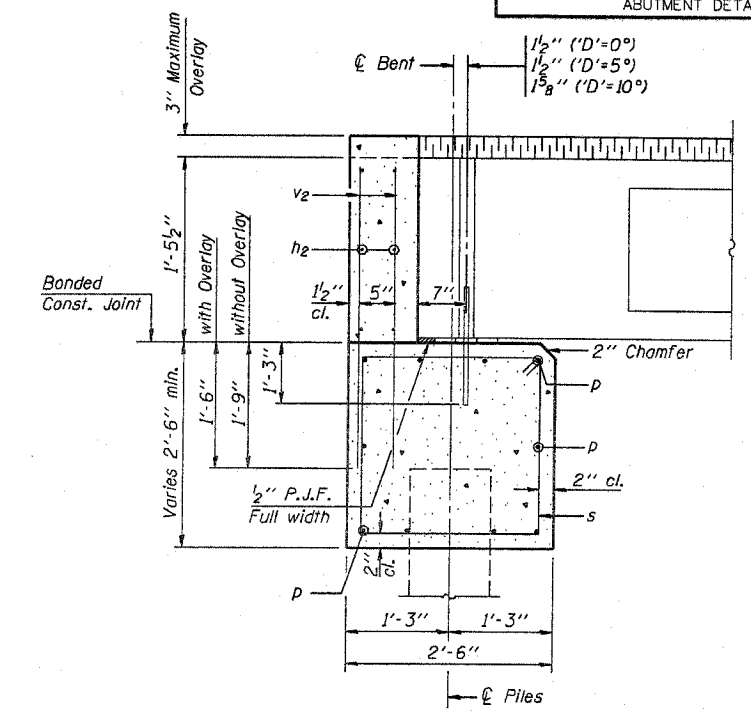
- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
- Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M-322, Grade 60.
- Space reinforcement in cap to miss anchor bolts.

**MAXIMUM PILE LOADS**

SPAN	TONS
25'	25
30'	25
35'	27
40'	29

**DESIGN STRESSES**

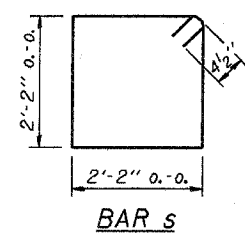
f'c = 3,500 psi  
fy = 60,000 psi



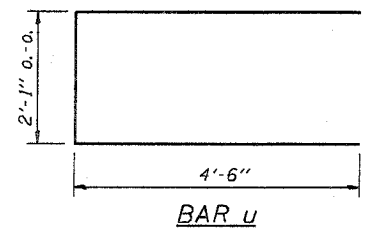
**SECTION THRU ABUTMENT**  
(At Right Angles)

**BILL OF MATERIAL FOR ONE ABUTMENT**

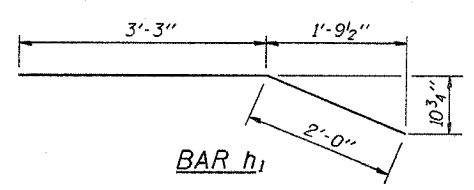
Bar	No.	Size	Length	Shape
h	16	#4	5'-0"	—
h1	4	#4	5'-3"	—
h2	6	#4	31'-0"	—
p	10	#7	31'-0"	—
s	30	#4	9'-5"	□
u	8	#6	11'-1"	□
v	8	#4	2'-6"	—
v1	8	#4	3'-5"	—
v2	64	#4	3'-1"	—
Concrete Structures			10.1 Cu. Yds.	
Reinforcement Bars			1310 Lb.	



**BAR s**



**BAR u**



**BAR h1**

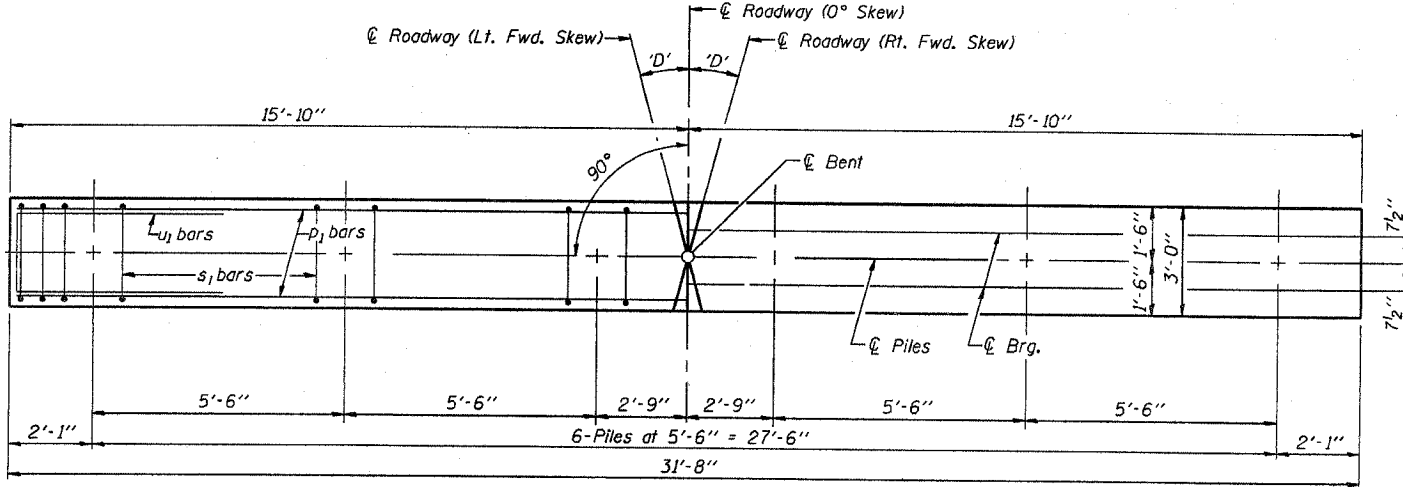
P.P.C. DECK BEAMS  
PILE BENT ABUTMENT  
30' RDWY. 17" BMS. 'D'=0°, 5° OR 10°  
STANDARD CA-3017-10

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

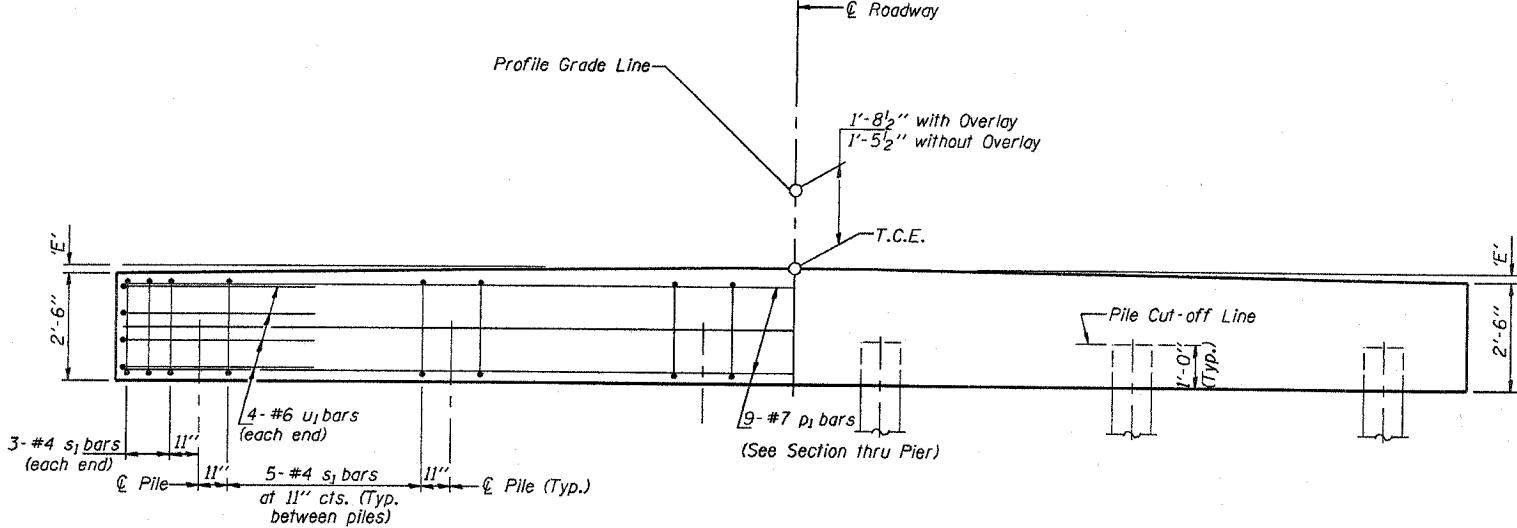


SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
00-00261-02-BR	83	ST. CLAIR	9 OF 14
FHWA REG. NO.	ILLINOIS	PROJ BROS-163(30)	
FEDERAL AID PROJECT	CONTRACT # 97346		

PIER DETAILS



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 7/8"	2 7/8"	2 7/8"	2 7/8"	2 7/8"	2 7/8"
Over 0% to 1%	2 7/8"	2 7/8"	2 7/8"	3"	2 3/4"	3"
Over 1% to 2%	2 7/8"	2 7/8"	2 5/8"	3 1/2"	2 3/8"	3 3/8"
Over 2% to 3%	2 7/8"	2 7/8"	2 1/2"	3 3/8"	2 1/2"	3 3/4"
Over 3% to 4%	2 7/8"	2 7/8"	2 3/8"	3 1/2"	1 3/4"	4"

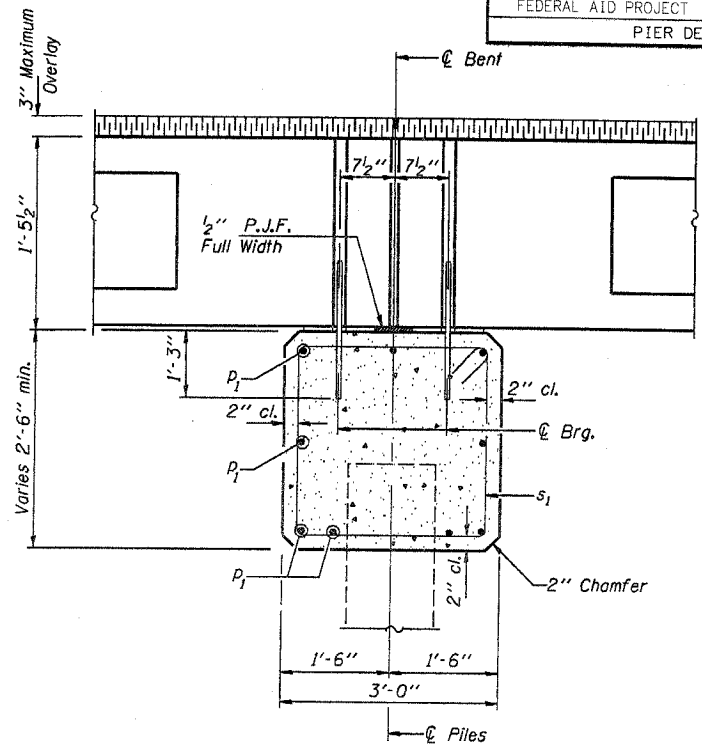
MAXIMUM PILE LOADS

SPAN	TONS
25'	25
30'	29
35'	32
40'	35

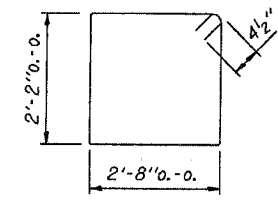
Longer of Either Span Supported by Pier.

DESIGN STRESSES

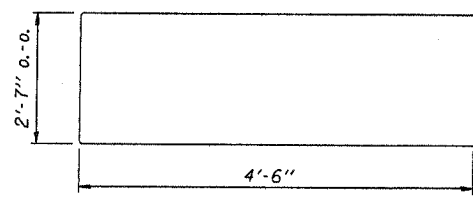
f'c = 3,500 psi  
fy = 60,000 psi



SECTION THRU PIER  
(At Right Angles)



BAR s1



BAR u1

BILL OF MATERIAL FOR ONE PIER

Bar	No.	Size	Length	Shape
p1	9	#7	31'-4"	—
s1	31	#4	10'-5"	□
u1	8	#6	11'-7"	—
Concrete Structures			9.1 Cu. Yds.	
Reinforcement Bars			930 Lb.	

NOTE

Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M-322, Grade 60.

P.P.C. DECK BEAMS  
PILE BENT PIER

30' RDWY.	17" BMS.	'D'=0°, 5° OR 10°
-----------	----------	-------------------

STANDARD CP-3017-10

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

**NOTES**

Hollow structural steel tubing shall conform to the requirements of ASTM designation A500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft.-lbs. at 0° F.

All other steel shapes and plates shall conform to the requirements of AASHTO M 270 Grade 36 except posts and angles shall conform to AASHTO M 270 Grade 50.

Bolts, cap screws, and nuts shall conform to the requirement of ASTM designation A307 except for high strength bolts, nuts and washers noted which shall conform to AASHTO M 164.

All bolts, nuts, cap screws, washers and lock washers shall be galvanized according to AASHTO M 232.

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

Railing shall be according to Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for STEEL RAILING, TYPE S-1.

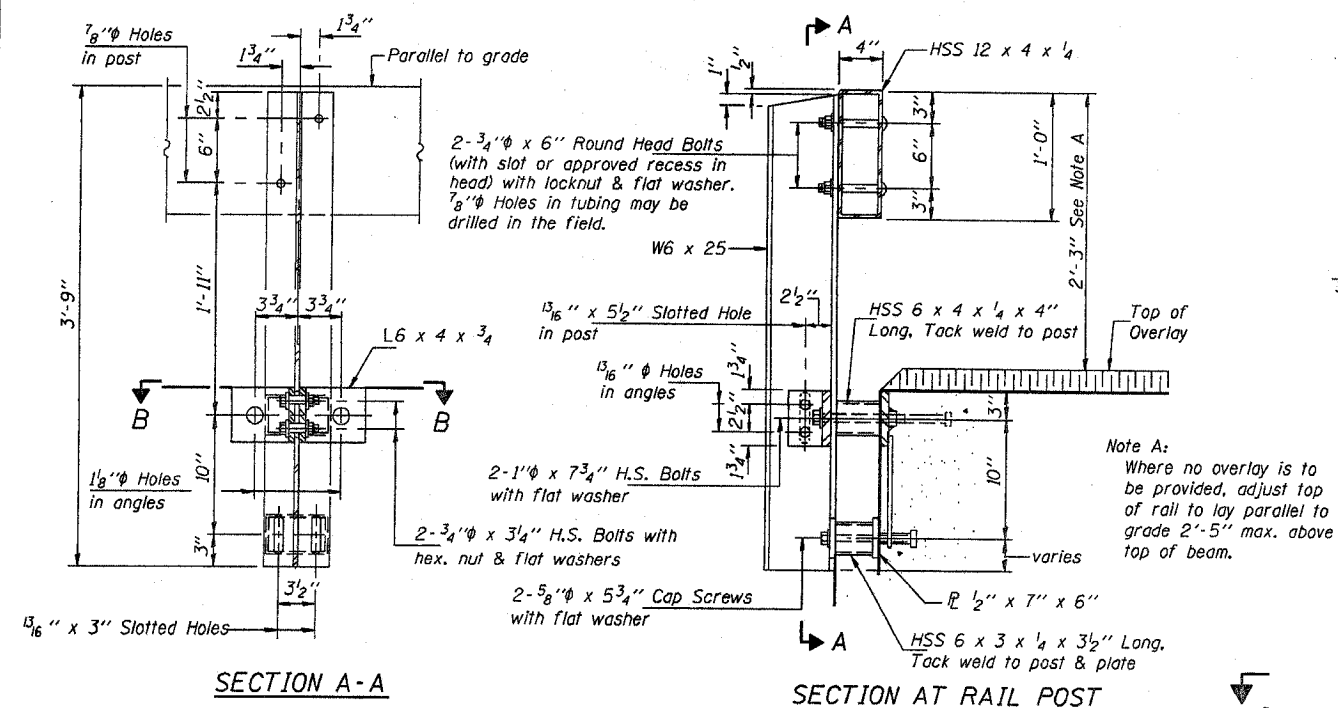
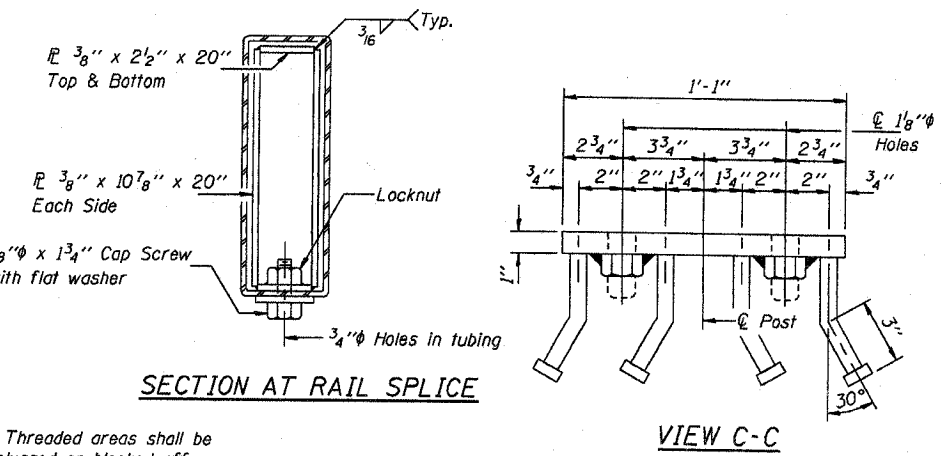
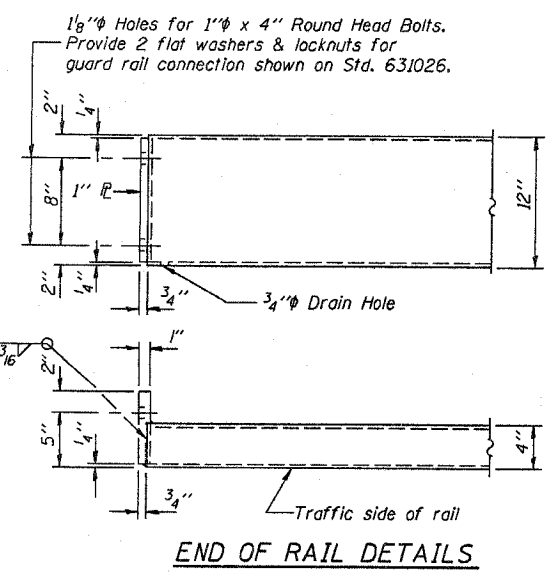
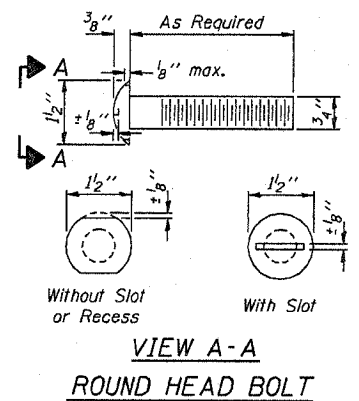
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with STEEL RAILING, TYPE S-1.

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

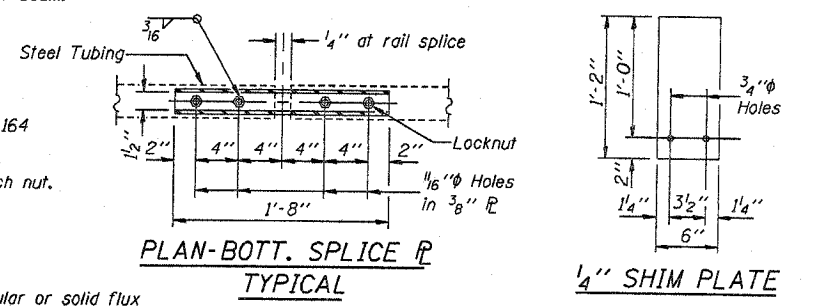
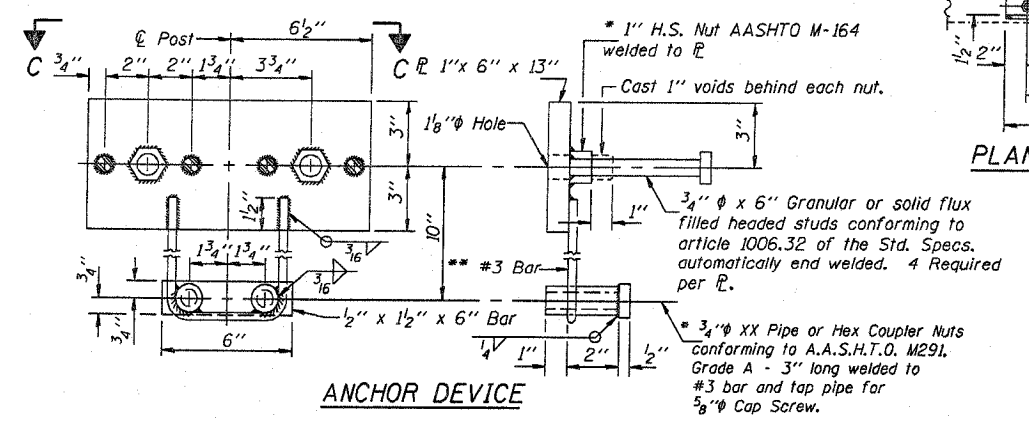
The 1/2" x 7" x 6" plates that come in contact with concrete shall either receive two coats of asphalt paint conforming to Section 1060.07 Type II, or 1/8" fabric bearing pads shall be placed between the plates and concrete.

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



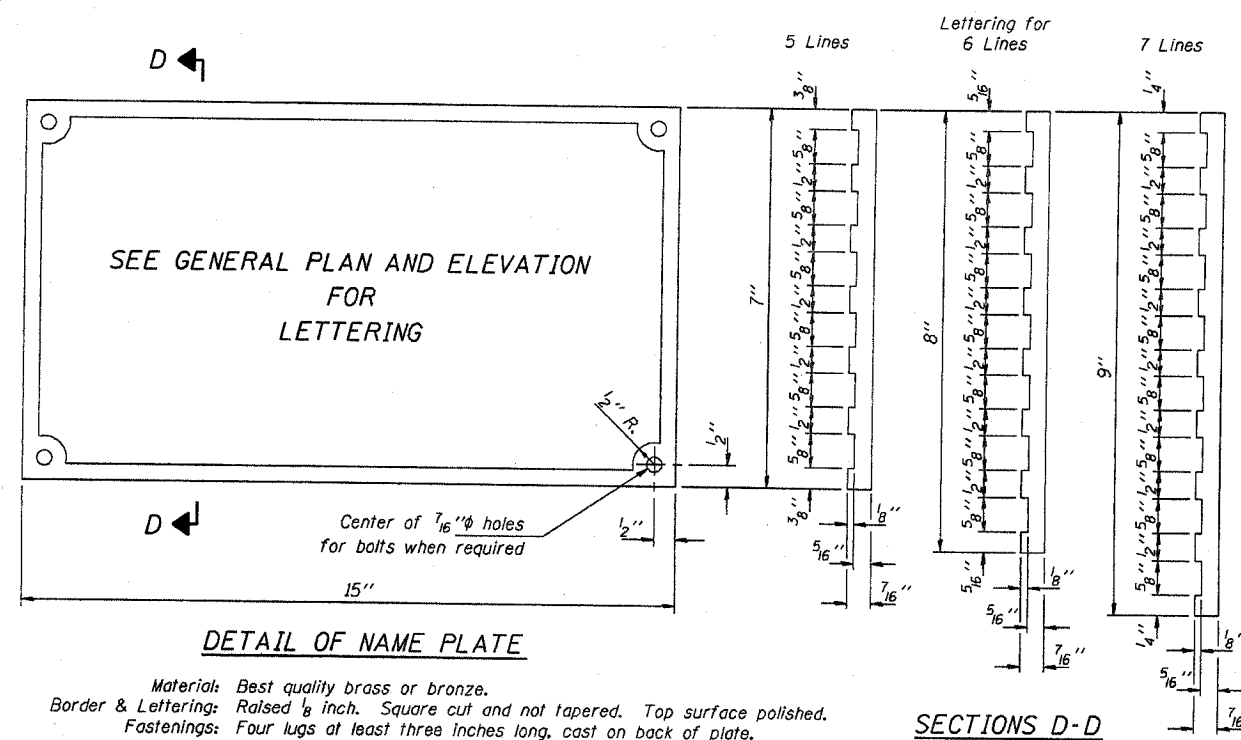
\* Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".



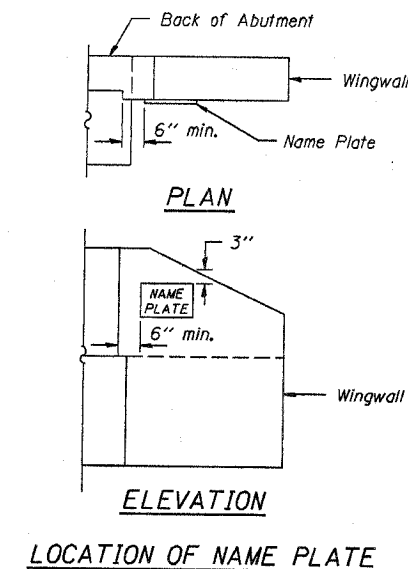
Illinois Department of Transportation  
 PASSED APRIL 4, 2005  
 Thomas J. Hanna, Jr.  
 Engineer of Bridge Design  
 APPROVED APRIL 4, 2005  
 Ralph E. Anderson  
 Engineer of Bridges and Structures

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

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
00-00261-02-BR	83	ST. CLAIR	11 OF 14
FHWA REG. NO.	ILLINOIS	PROJ	BROS-163(30)
FEDERAL AID PROJECT		CONTRACT #	97346
NAME PLATE DETAILS			



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.



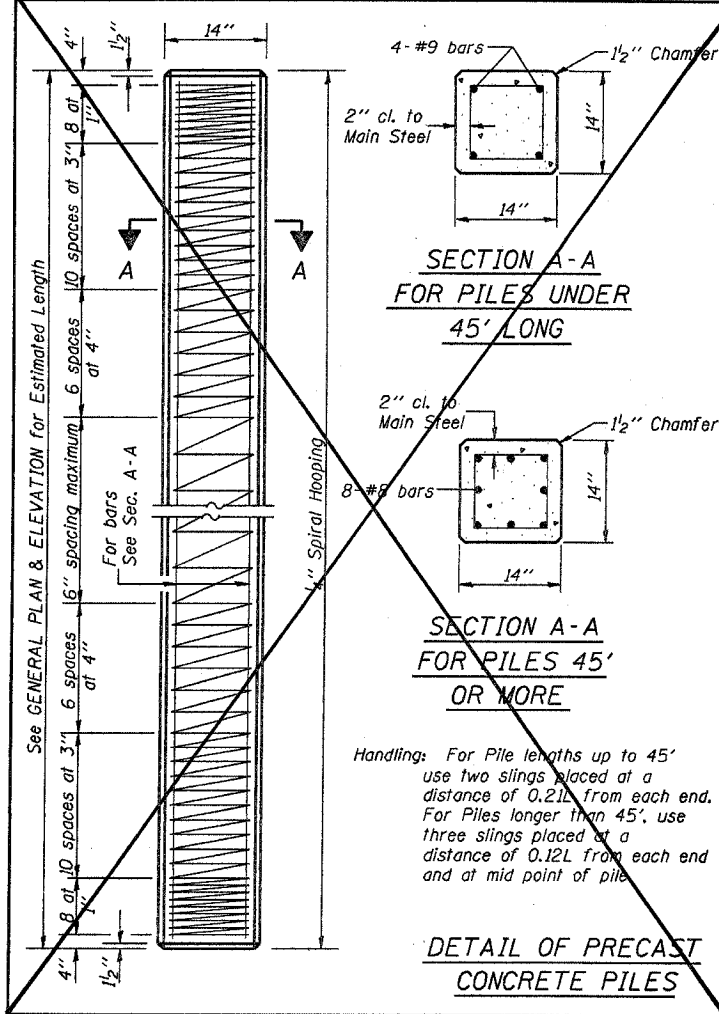
Illinois Department of Transportation

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

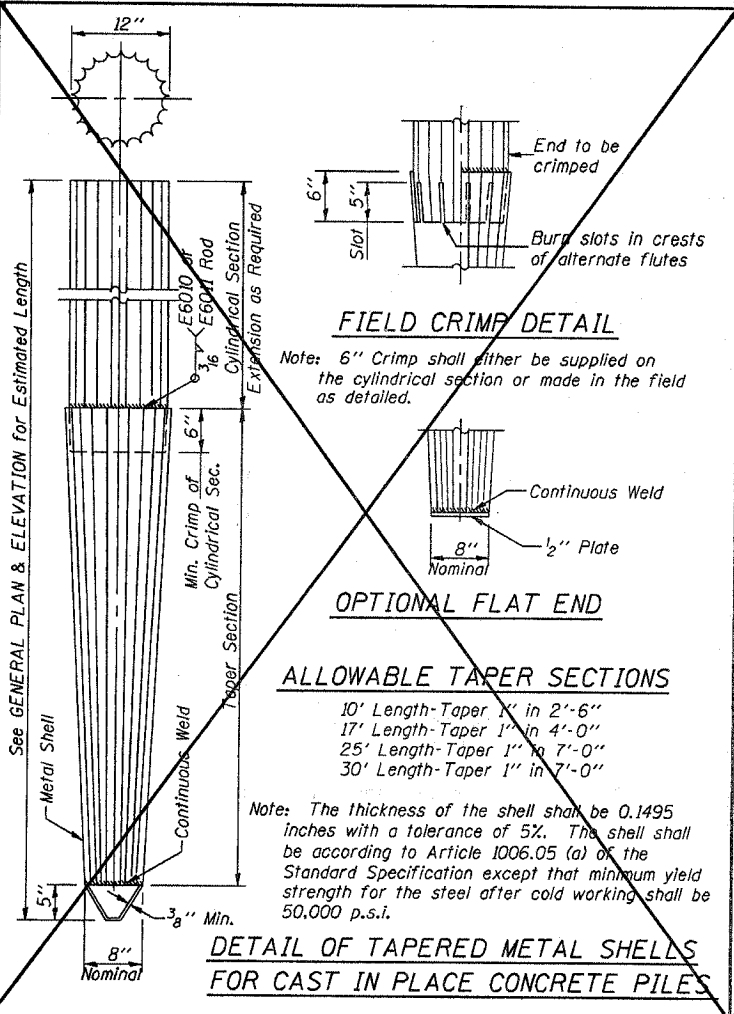
APPROVED APRIL 4, 2005  
*Ralph E. Anderson*  
 Engineer of Bridges and Structures

ISSUED 7-1-85

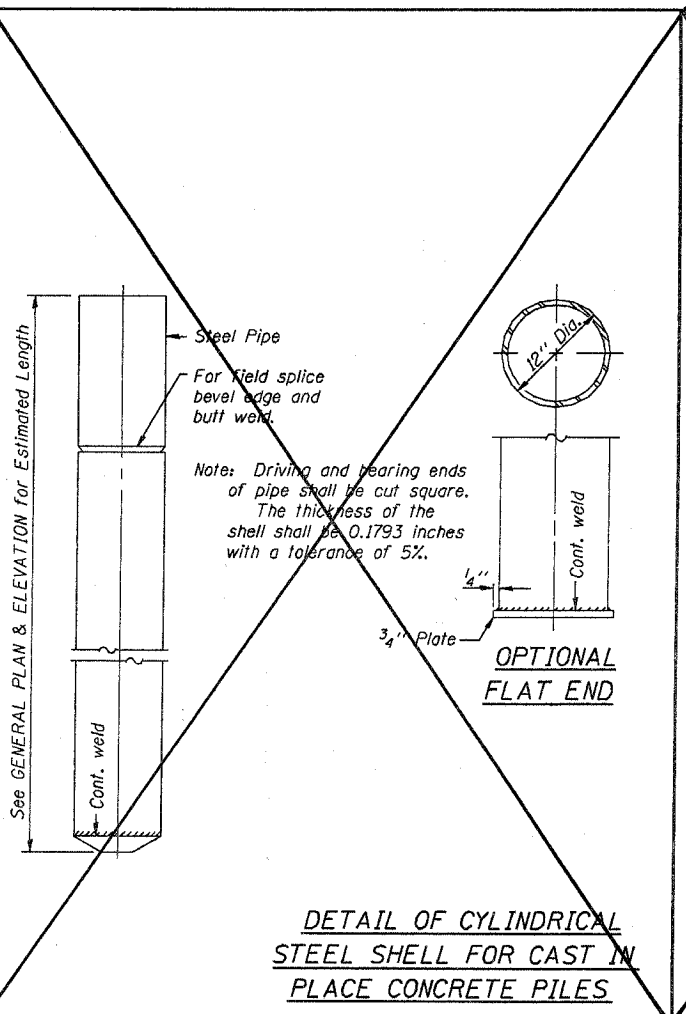
NAME PLATE  
 STANDARD CN



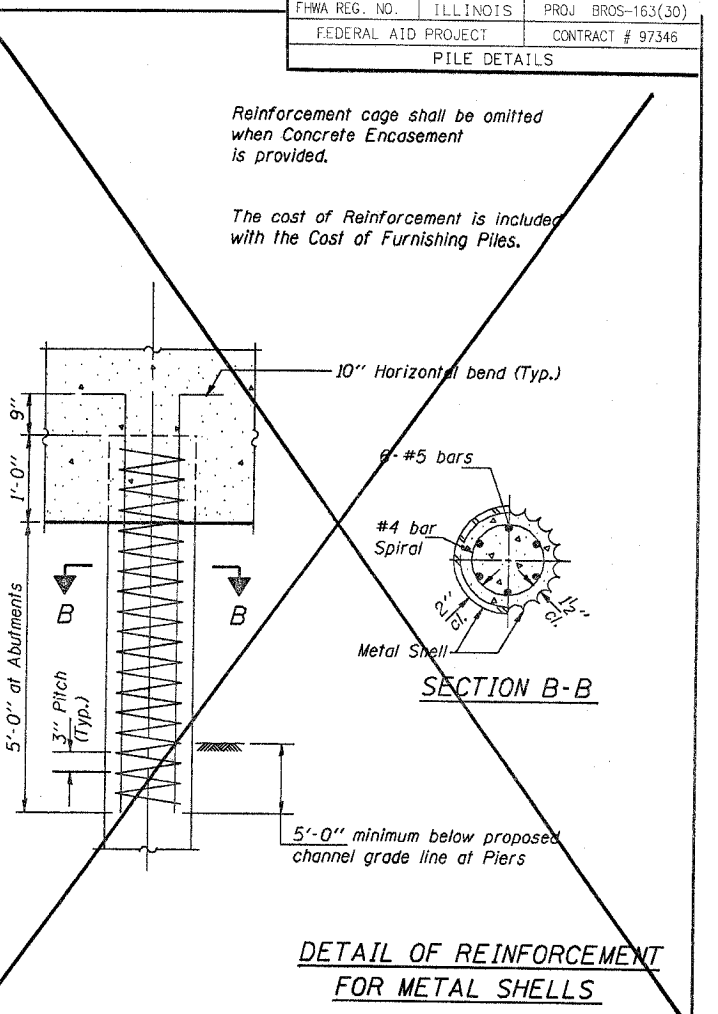
Handlings: For Pile lengths up to 45' use two slings placed at a distance of 0.21L from each end. For Piles longer than 45', use three slings placed at a distance of 0.12L from each end and at mid point of pile.



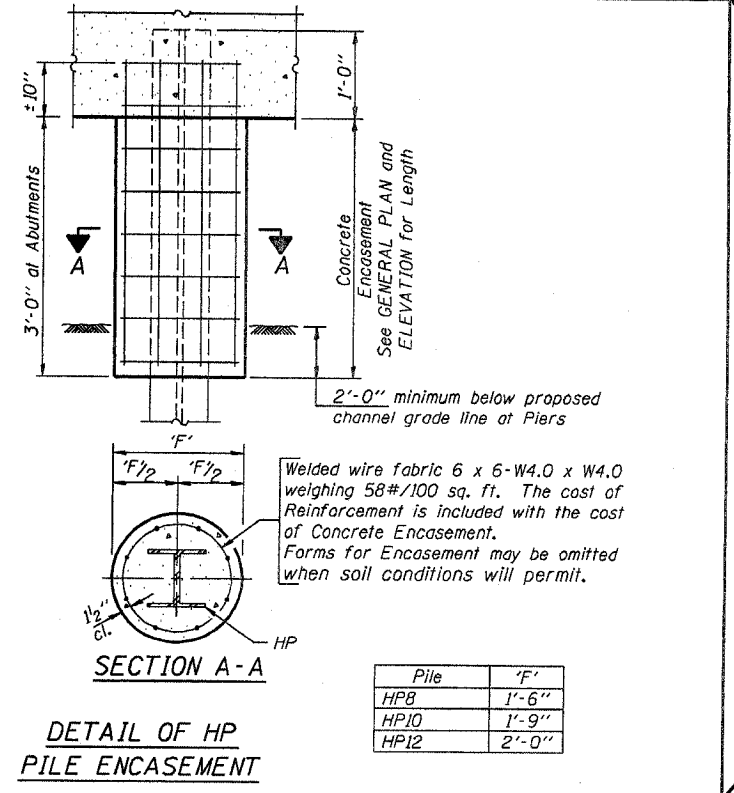
Note: The thickness of the shell shall be 0.1495 inches with a tolerance of 5%. The shell shall be according to Article 1006.05 (a) of the Standard Specification except that minimum yield strength for the steel after cold working shall be 50,000 p.s.i.



Note: Driving and bearing ends of pipe shall be cut square. The thickness of the shell shall be 0.1793 inches with a tolerance of 5%.

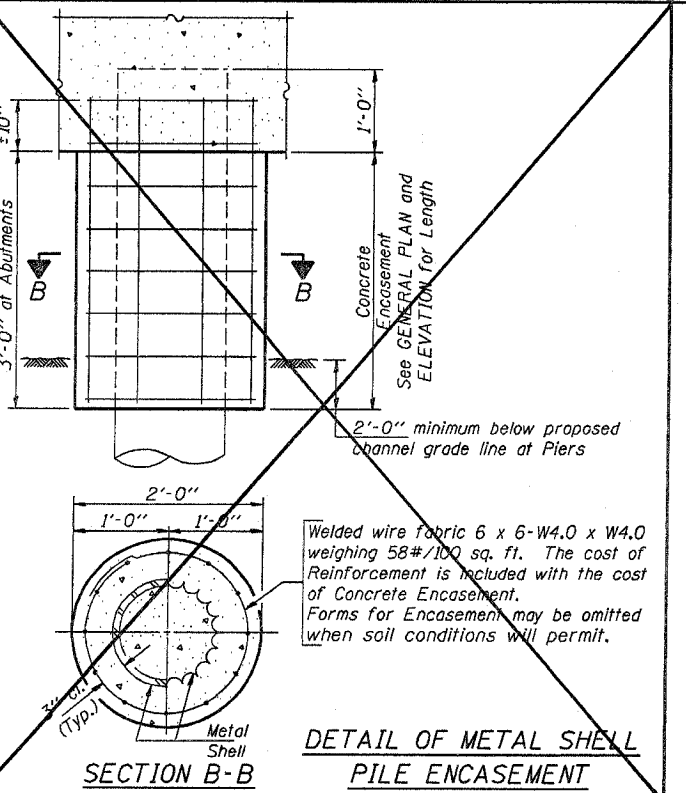


Reinforcement cage shall be omitted when Concrete Encasement is provided.  
The cost of Reinforcement is included with the Cost of Furnishing Piles.



Welded wire fabric 6 x 6-W4.0 x W4.0 weighing 58#/100 sq. ft. The cost of Reinforcement is included with the cost of Concrete Encasement. Forms for Encasement may be omitted when soil conditions will permit.

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



Welded wire fabric 6 x 6-W4.0 x W4.0 weighing 58#/100 sq. ft. The cost of Reinforcement is included with the cost of Concrete Encasement. Forms for Encasement may be omitted when soil conditions will permit.

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.

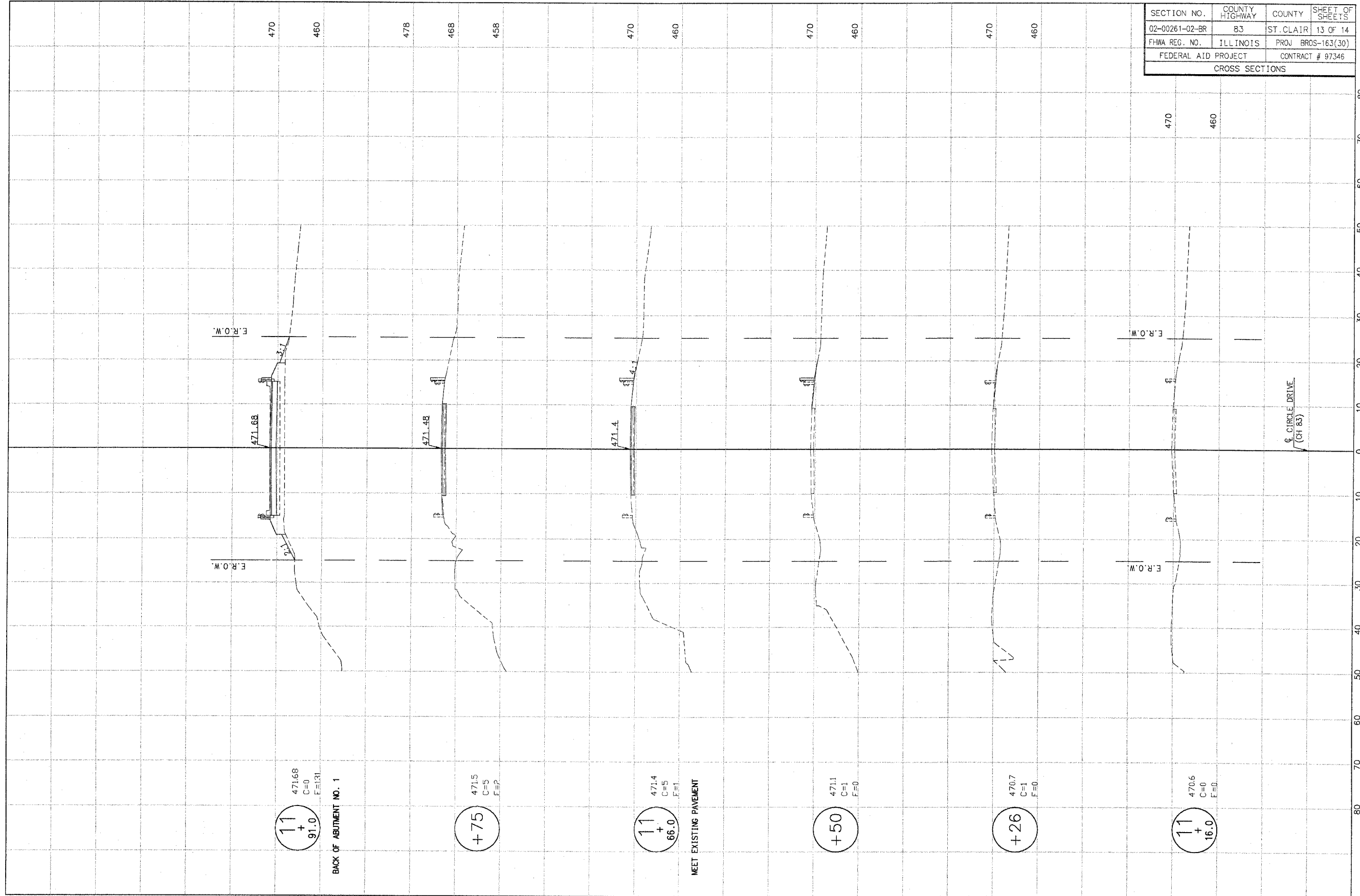
(METAL SHELL PILES)

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

Illinois Department of Transportation  
PASSED FEBRUARY 1, 2000  
Approved by: *Thomas J. Nemanick*  
Engineer of Bridge Design  
APPROVED FEBRUARY 1, 2000  
Approved by: *Ralph E. Anderson*  
Engineer of Bridges and Structures

PILE DETAILS  
STANDARD CX-1

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
02-00261-02-BR	83	ST. CLAIR	13 OF 14
FHWA REG. NO.	ILLINOIS	PROJ	BROS-163(30)
FEDERAL AID PROJECT		CONTRACT # 97346	
CROSS SECTIONS			



11  
 +  
 91.0  
 471.68  
 C=0  
 E=131

BACK OF ABUTMENT NO. 1

75  
 +  
 75  
 471.5  
 C=5  
 F=2

11  
 +  
 66.0  
 471.4  
 C=5  
 F=1

MEET EXISTING PAVEMENT

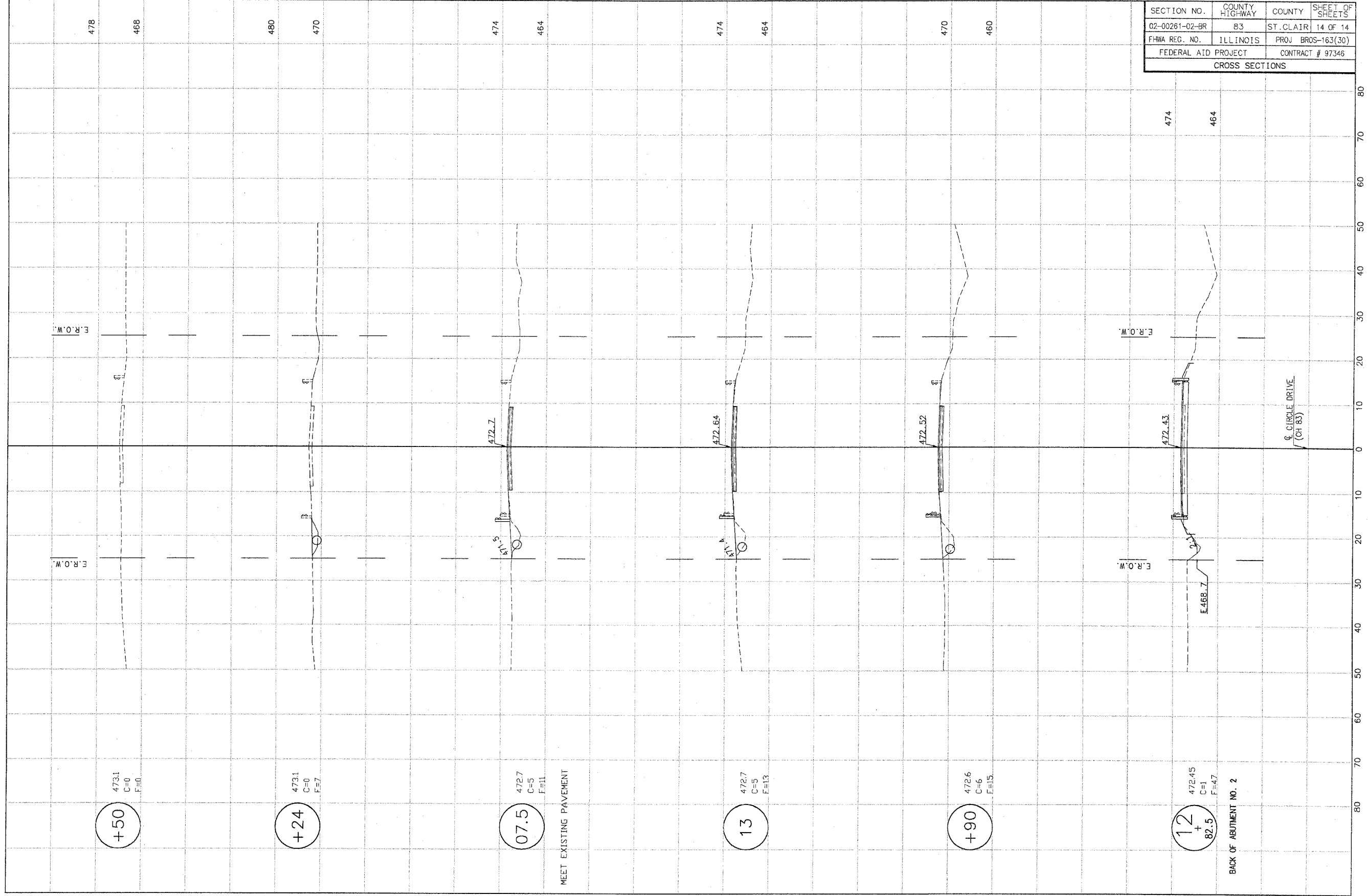
50  
 +  
 50  
 471.1  
 C=1  
 F=0

26  
 +  
 26  
 470.7  
 C=1  
 F=0

11  
 +  
 16.0  
 470.6  
 C=0  
 F=0

E. CIRCLE DRIVE  
(CH 83)

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
02-00261-02-BR	83	ST. CLAIR	14 OF 14
FHWA REG. NO.	ILLINOIS	PROJ BROS-163(30)	
FEDERAL AID PROJECT		CONTRACT # 97346	
CROSS SECTIONS			



+50  
473.1  
C=0  
F=0

+24  
473.1  
C=0  
F=7

07.5  
472.7  
C=5  
F=11

MEET EXISTING PAVEMENT

13  
472.7  
C=5  
F=13

+90  
472.6  
C=6  
F=15

12  
+  
82.5  
472.45  
C=1  
F=47

BACK OF ABUTMENT NO. 2