

06-14-13 LETTING ITEM 126

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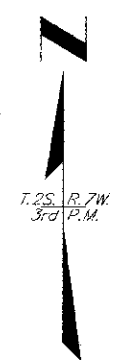
STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION PLANS FOR PROPOSED LOCAL AGENCY IMPROVEMENT FEDERAL AID H.B.P. PROJECT FIVE FORKS RD., CH 48 PROJECT NO. BROS-0163(031) JOB NO. C-98-329-09 ST. CLAIR COUNTY SECTION 08-00087-06-BR

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
08-00087-06-BR	CH 48	ST. CLAIR	1 OF 15
FEDERAL AID PROJECT	ILLINOIS	PROJECT BROS-0163(031)	
FEDERAL AID PROJECT		CONTRACT 97025	

SUMMARY OF QUANTITIES

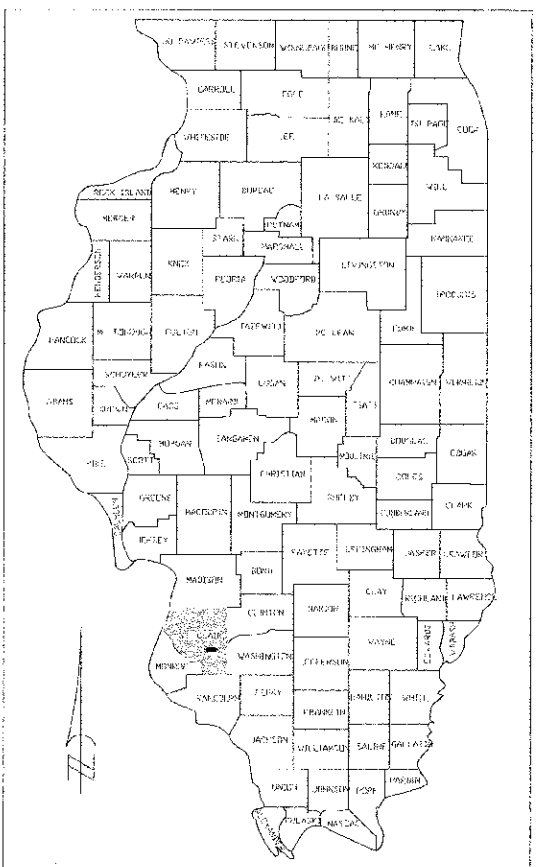
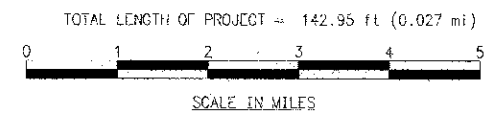
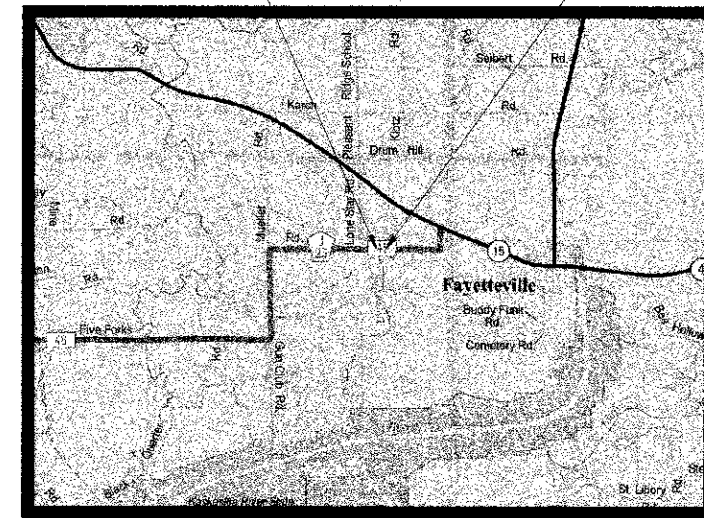
CODE NO.	ITEM	UNIT	QUANTITY
20200100	EARTH EXCAVATION	CU YD	21
20300100	CHANNEL EXCAVATION	CU YD	351
25000200	SEEDING, CLASS 2	ACRE	0.1
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	9
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	9
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	9
25100115	MULCH, METHOD 2	ACRE	0.1
28100707	STONE DUMPED RIPRAP, CLASS A4	SQ YD	427
28200200	FILTER FABRIC	SQ YD	427
35100700	AGGREGATE BASE COURSE, TYPE A B	SQ YD	45
40503315	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N70	TON	57
40800010	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	17
40800050	INCIDENTAL HOT-MIX ASPHALT SURFACING	TON	10
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	70.2
50300280	CONCRETE ENGASEMENT	CU YD	31.8
50400405	PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)	SQ FT	3600
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	6250
* 50900205	STEEL RAILING, TYPE S1	FOOT	242
51200957	FURNISHING METAL SHELL PILES 12 X 0.250	FOOT	1287
51202505	DRIVING PILES	FOOT	1287
51203200	TEST PILE METAL SHELLS	EACH	2
51500100	NAME PLATES	EACH	1
58100200	WATERPROOFING MEMBRANE SYSTEM	SQ YD	401
58300100	PORTLAND CEMENT MORTAR FAIRING COURSE	FOOT	1082
59300100	CONTROLLED LOW-STRENGTH MATERIAL	CU YD	35.4
66700205	PERMANENT SURVEY MARKERS, TYPE I	EACH	2
67100100	MORPHLIZATION	L SUM	1
70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1
* 78200530	BARRIER WALL MARKERS, TYPE C	EACH	4
* 78201300	TERMINAL MARKER - DIRECT APPLIED	EACH	4

* SPECIALTY ITEM



SECTION 08-00087-06-BR BEGINS STA. 288+19.52

SECTION 08-00087-06-BR ENDS STA. 289+62.47



LOCATION OF SECTION INDICATED THUS: [black rectangle]

SECTION 08-00087-06-BR INCLUDES A PROPOSED THREE SPAN (34 FT, 52 FT, 34 FT), PRECAST, PRESTRESSED, CONCRETE DECK BEAM BRIDGE, 21" DEEP DECK BEAMS.

ROADWAY CLASSIFICATION : RURAL MINOR COLLECTOR
CURRENT ADT: 104
DESIGN SPEED: 40 mph
DESIGN FREQUENCY: 20 YEAR STORM

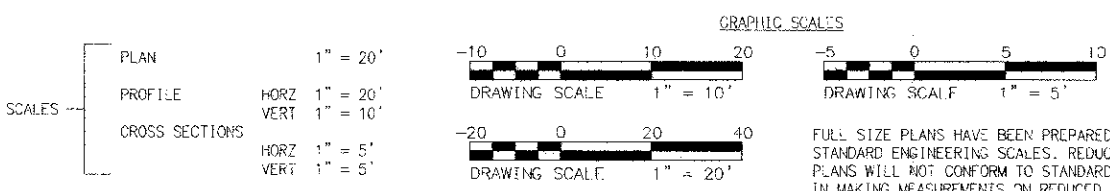


April 9, 2013

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

James V. Fields
JAMES V. FIELDS, P.E.
County Engineer
License Number 062-046517
License Expiration Date: November 30, 2013

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS	
APPROVED <u>April 9</u> , 2013 <i>James V. Fields</i> COUNTY ENGINEER	
PASSFD <u>April 11</u> , 2013 <i>Gregory</i> DISTRICT ENGINEER OF LOCAL ROADS & STREETS	
Releasing for Bid <u>April 11</u> , 2013 Based on Limited Review <i>Jeffrey K. Benning</i> DEPUTY DIRECTOR OF HIGHWAYS, REGION FIVE ENGINEER	



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

STANDARDS

000001-06	657101-02
515001-03	701901-02
635006-03	BLR 21-9
635011-02	

Call Joint Utility Locating Information for Excavators (J.U.L.I.E.) before digging 800-892-0123

NEW ATHENS TOWNSHIP T.2S., R.7W.
S.W. 1/4 OF SECTION 1
N.W. 1/4 OF SECTION 12

PRINTED BY AUTHORITY OF THE STATE OF ILLINOIS

PLOT DATE: 4/13

GENERAL NOTES

- UNDERGROUND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND THEREFORE THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. THE VERIFICATION OF THE LOCATION OF ALL UNDERGROUND UTILITIES EITHER SHOWN OR NOT SHOWN ON THESE PLANS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, AND SAID UTILITIES SHALL BE LOCATED PRIOR TO GRADING OR CONSTRUCTION OF IMPROVEMENTS.
- 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 ITEMS AND ESTIMATED QUANTITIES SHALL BE USED THROUGHOUT THIS PROJECT:
 0.1 ACRE, SEEDING CLASS 2; 9 POUND, NITROGEN FERTILIZER NUTRIENT; 9 POUND PHOSPHOROUS FERTILIZER NUTRIENT; 9 POUND, POTASSIUM FERTILIZER NUTRIENT; 0.1 ACRE, MULCH, METHOD 2; 17 GALLON, BITUMINOUS MATERIALS (PRIME COAT); 57 TON, HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N70; 10 TON, INCIDENTAL HOT-MIX ASPHALT SURFACING.
- SEEDING DATES:
 SPRING - MARCH 1 TO JUNE 1 FALL - AUGUST 1 TO NOVEMBER 15
 SEEDING WILL NOT BE PERMITTED OUTSIDE THE LIMITS SHOWN ABOVE WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER. FERTILIZER NUTRIENTS SHALL BE APPLIED AT THE RATE OF 270 POUNDS PER ACRE. THE PERCENT OF THE TOTAL WEIGHT OF THE READY MIX MATERIAL SHALL BE 33 1/3 % NITROGEN, 33 1/3 % PHOSPHORIC ACID AND 33 1/3 % WATER SOLUBLE POTASH. MULCH SHALL BE APPLIED AT THE RATE OF 2 TONS PER ACRE.
- THE FOLLOWING UTILITY COMPANIES MAY HAVE FACILITIES LOCATED WITHIN THE LIMITS OF CONSTRUCTION.

AMEREN 1050 WEST BOULEVARD BELLEVILLE, IL 62222 (618) 236-6265	AT&T 1420 FRONTAGE RD O'FALLON, IL 62269 (618) 346-7292	FRONTIER COMMUNICATIONS (309) 827-1253
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- THE FOLLOWING FACTORS WERE USED TO DETERMINE THE REQUIRED AMOUNT OF MATERIALS NEEDED.
 BITUMINOUS MATERIALS (PRIME COAT) ON AGGREGATE BASE 0.375 GAL/SQ YD
 HOT MIX ASPHALT SURFACE COURSE, MIX "C", N70 112 LBS/SQYD/IN
 INCIDENTAL HOT-MIX ASPHALT SURFACING 112 LBS/SQYD/IN
- 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.
- THE FOLLOWING MIXTURE REQUIREMENTS ARE APPLICABLE FOR THIS PROJECT.

FLEXIBLE PAVEMENT STRUCTURAL DESIGN INFORMATION

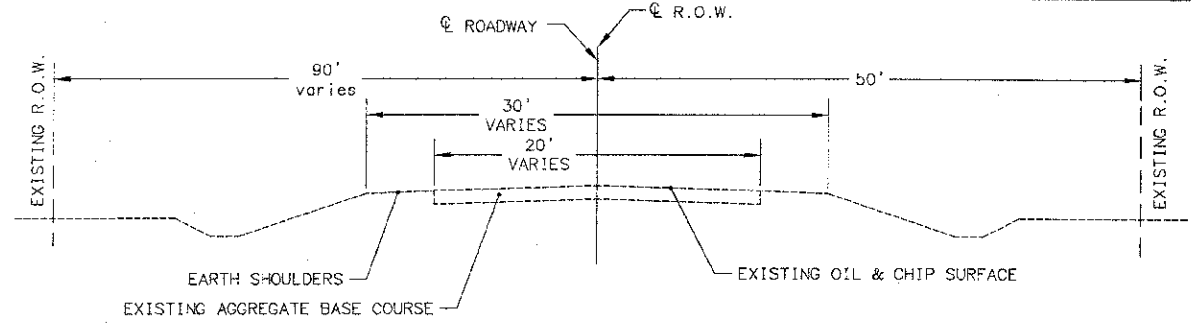
AVERAGE ESTIMATED ADT UPON COMPLETION (2013) = 105
 ROADWAY CLASSIFICATION: RURAL MINOR COLLECTOR

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

EARTHWORK SCHEDULE

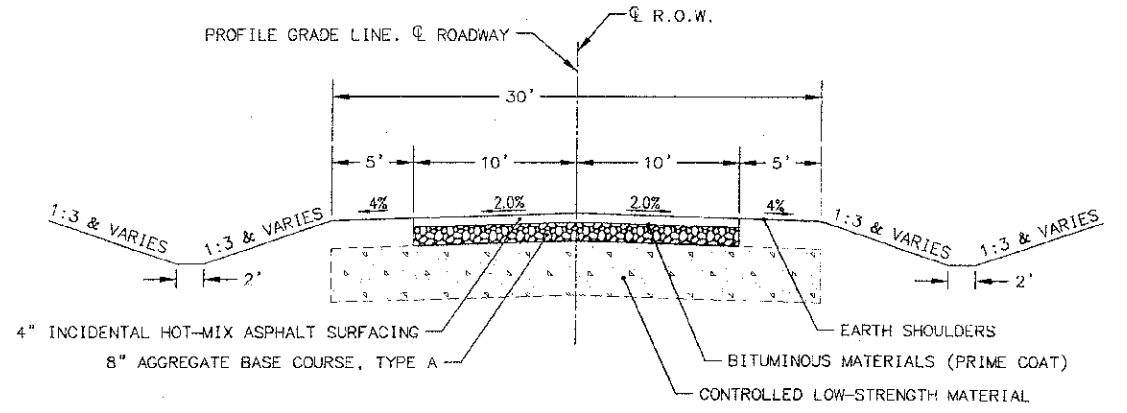
LOCATION	BRIDGE DECK	ROAD SURFACE	LOCATION	EARTH EXCAVATION	EXCAVATION ADJUSTED FOR SHRINKAGE (25%)	EMBANKMENT	CHANNEL EXCAVATION	EARTHWORK BALANCE
MIXTURE USE	SURFACE COURSE	INCIDENTAL		CUBIC YARDS	CUBIC YARDS	CUBIC YARDS	CUBIC YARDS	CUBIC YARDS
AC/PG	PG 64-22	PG 64-22	STA.288+19.52 - STA.289+62.47	21	16	2	351	+365
RAP % (MAX)	10%	10%						
DESIGN AIR VOIDS	4.0% @ Ndes=70	4.0% @ Ndes=70						
MIX COMPOSITION (GRADATION MIXTURE)	IL-9.5/IL-12.5	IL-9.5/IL-12.5						
FRICITION ACC.	MIXTURE C	MIXTURE C						
MIXTURE WEIGHT	112.0 lb/sq yd/in	112.0 lb/sq yd/in						

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
08-0009-06-BR	CH 48	ST. CLAIR	2 OF 15
FHWA REG. NO. 7 ILLINOIS		PROJ. BROS-0163(031)	
GENERAL NOTES & TYP SEC		CONTRACT 97525	



EXISTING TYPICAL SECTION
 STA. 288+00 TO STA. 290+00

ROW LT OF ϕ : STA. 288+00 TO STA. 289+50 = 90.00'
 ROW LT OF ϕ : STA. 289+50 TO STA. 290+00 = 65.00'



PROPOSED TYPICAL SECTION
 STA. 288+19.52 TO STA. 288+29.52 &
 STA. 289+52.47 TO STA. 289+62.47

NOTE: CONTROLLED LOW-STRENGTH MATERIAL SHALL BE PLACED BEHIND THE ABUTMENTS FROM THE BOTTOM OF CAP TO 1' BELOW PROFILE GRADE. THE DIMENSIONS SHALL BE 2.5' WIDE X 41' LONG OR AS DIRECTED BY THE ENGINEER.

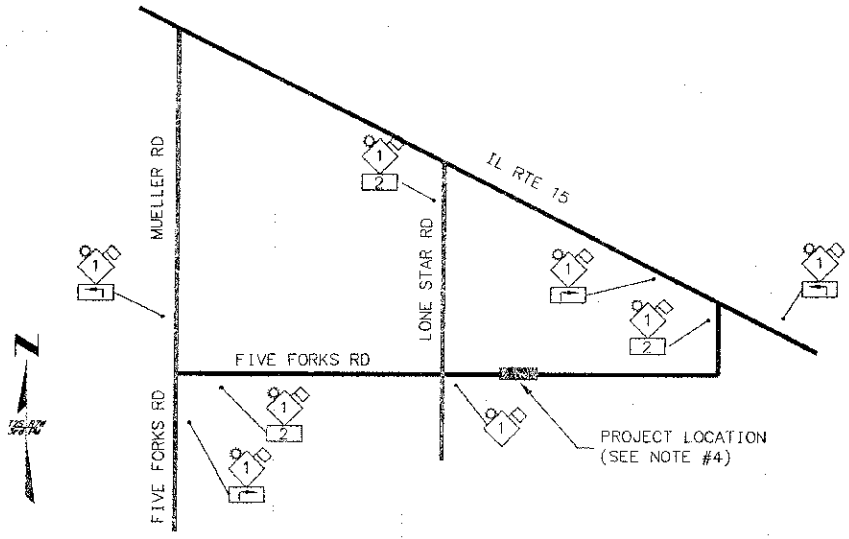
NOTES

- TYPE A FLASHING WARNING LIGHTS SHALL BE USED ON EACH ADVANCE WARNING SIGN.
- ALL ADVANCE WARNING SIGNS SHALL BE A MINIMUM OF 48" X 48" AND HAVE A BLACK LEGEND ON AN ORANGE REFLECTORIZED BACKGROUND.
- ALL TYPE III BARRICADES SHALL HAVE TWO TYPE A FLASHING WARNING LIGHTS MOUNTED ON TOP OF EACH BARRICADE.
- SEE STANDARD BLR 21 FOR TRAFFIC CONTROL DETAIL AT THE BRIDGE LOCATION.

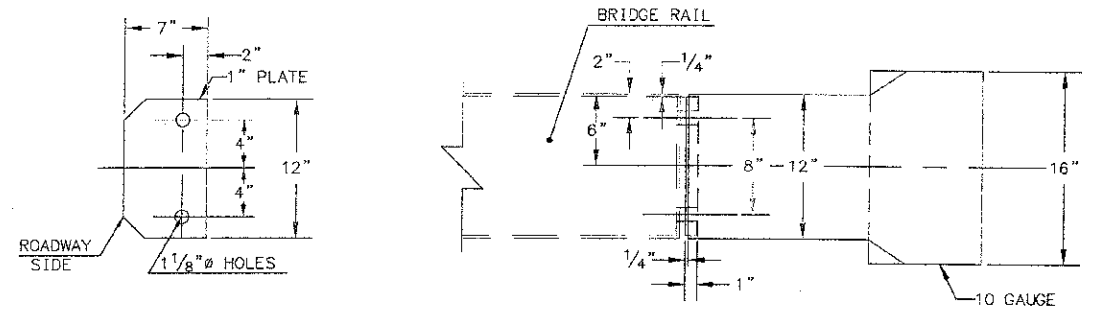
LEGEND

- ROAD CLOSED AHEAD W20-3(0)
- SUPPLEMENTAL PLATE: 1 MILE
- SUPPLEMENTAL PLATE: ARROW

TRAFFIC CONTROL PLAN



INITIALS	DATE
DESIGNED WES	10/12
CHECKED	
DRAWN WES	10/12
CHECKED	
PREPARED BY ST. CLAIR COUNTY	



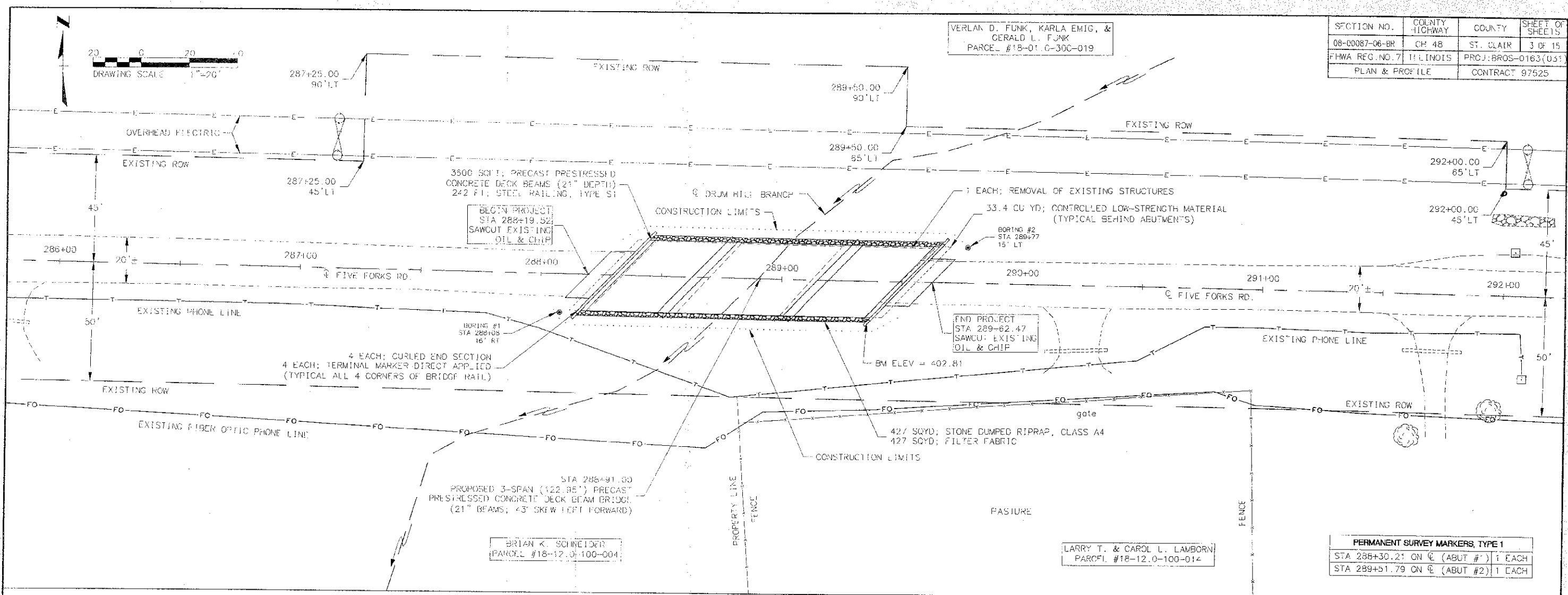
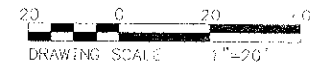
- NOTE: 1. THE CURLLED END SECTIONS SHALL BE PLACED AT THE NE, NW, SE, AND SW CORNERS OF THE PROPOSED BRIDGE.
 2. THE CURLLED END SECTIONS SHALL BE CONSIDERED INCIDENTAL TO THE COST OF STEEL RAILING, TYPE S1 AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

CURLLED END SECTION DETAILS

DRAWING FILE: general notes and typical sections.dwg
 PLOT DATE: 4/13

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
08-0087-06-BR	CH 48	ST. CLAIR	3 OF 15
FHWA REG. NO. 7 ILLINOIS		PROJ: BROS-0163(05)	
PLAN & PROFILE		CONTRACT 97525	

VERLAN D. FUNK, KARLA EMIG, &
GERALD L. FUNK
PARCEL #18-01-C-300-019

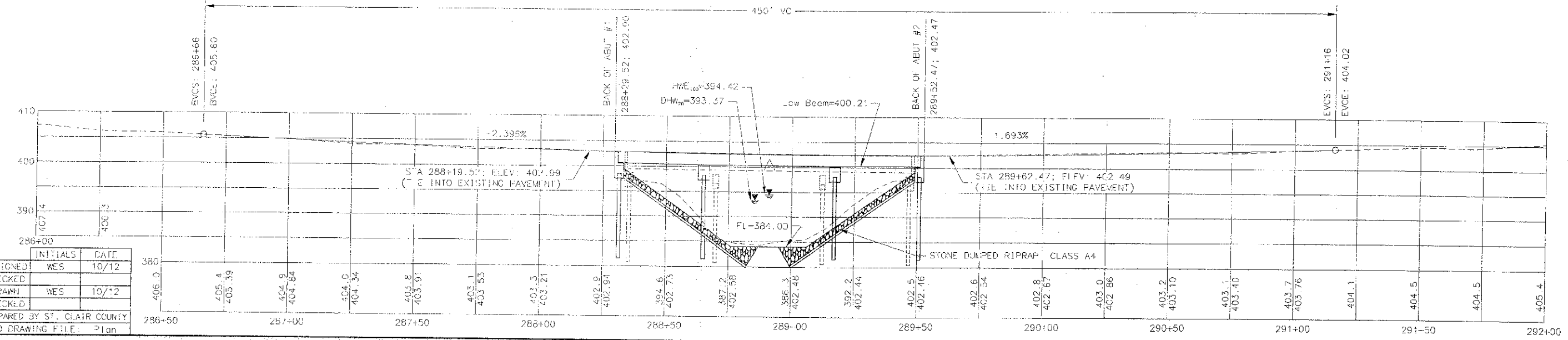


PROFILE SCALE: VERTICAL: 1"=10'
HORIZONTAL: 1"=20'

BM: CHISELED SQUARE IN THE S.E. WINDOW
STA 289+32.15, 18.15' RT
ELEV = 402.81

BM: RR SPIKE IN POWERPOLE
STA 287+13.88, 47.08' LT
ELEV = 406.54

PVI STA = 289+91.00
PVI ELEV = 400.21
A.D. = 4.089
K = 110.05



PLOT DATE: 4/7/13

	INITIALS	DATE
DESIGNED	WES	10/12
CHECKED		
DRAWN	WES	10/12
CHECKED		

PREPARED BY ST. CLAIR COUNTY
CADD DRAWING FILE: Plan

PERMANENT SURVEY MARKERS, TYPE 1
STA 288+30.21 ON C (ABUT #1) 1 EACH
STA 289+51.79 ON C (ABUT #2) 1 EACH

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
08-00087-06-BR	CH 48	ST. CLAIR	4 OF 5
FHWA PROJECT #	ILLINOIS	PROJ. BROS-0:63(03)	
GENERAL PLAN & ELEV.		CONTRACT 97525	

BM: CHISELED SQUARE IN THE S.E. WINGWALL OF EXISTING STRUCTURE. STA 289+32.15, 18.15' RT. ELEV = 402.81

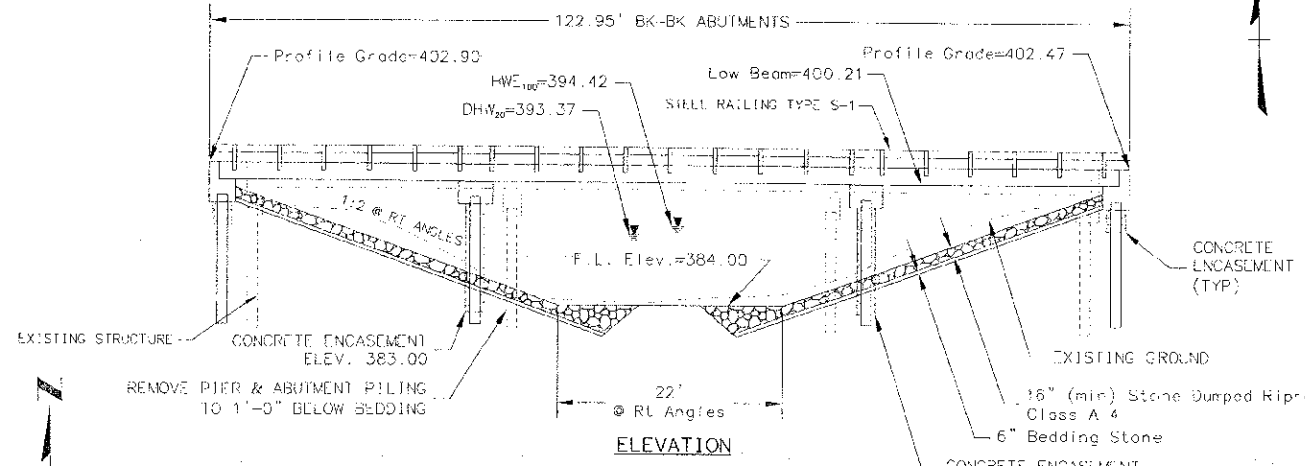
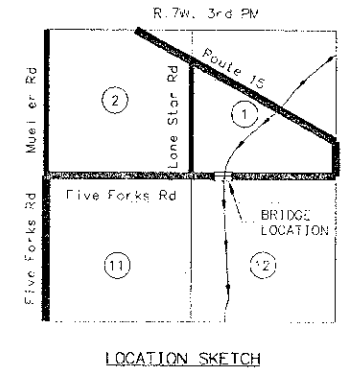
EXISTING STRUCTURE, NO. 082-3040, HAS THREE SPANS (35'3", 42'6" & 35'3"). THE SUPERSTRUCTURE HAS 6 STEEL I-BEAMS WHICH ARE 24" WF 76# SECTIONS. THE CONCRETE DECK IS 6 3/4" THICK AND 34"4" WIDE OUT TO OUT. THE CAPS AT THE ABUTMENTS AND PIERS ARE REINFORCED CONCRETE AND ARE SUPPORTED BY 6-16" PRECAST CONCRETE PILING.

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.

DESCRIPTION: PPC DECK BEAMS, 21" DEEP X 36" WIDE, (34', 52', 34') LONG, PILE BENT SPILL THRU ABUTMENTS AND PIERS.

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 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 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 (1L MODIFIED).
6. THE COST OF STRUCTURE EXCAVATION SHALL BE CONSIDERED INCLUDED IN THE COST OF CONCRETE STRUCTURES.
7. LAYOUT OF SLOPE PROTECTION SYSTEM MAY BE VARIED IN THE FIELD TO SUIT GROUND CONDITIONS AS DIRECTED BY THE ENGINEER.
8. BACKFILL BEHIND THE ABUTMENTS SHALL BE PLACED AFTER THE SUPERSTRUCTURE IS IN PLACE AND THE DOWEL RODS GROUTED.
9. THE METAL SHELL PILES SHALL BE ACCORDING TO ASTM A 252 GRADE 3.



DESIGN SPECIFICATIONS

2007 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS WITH 2008 INTERIMS. LOADING HL-93 ALLOW 50 PSF FOR FUTURE WEARING SURFACE.

PILE DATA

TYPE & SIZE: METAL SHELL 12X0.250
 NOMINAL REQUIRED BEARING:
 ... ABUT #1 & #4: 158 KIPS
 ... PIER #2 & #3: 326 KIPS
 FACTORED RESISTANCE AVAILABLE:
 ... ABUT #1 & #4: 87 KIPS
 ... PIER #2 & #3: 179 KIPS
 ESTIMATED LENGTH: ... ABUT #1 & #4: 51 FT
 ... PIER #2 & #3: 66 FT
 NO. OF PRODUCTION PILES: 22
 NO. OF TEST PILE: (ABUTMENT #1 & #4) 2

INDEX OF SHEETS

4. GENERAL PLAN & ELEVATION
5. 34' BEAM SUPERSTRUCTURE
6. 52' BEAM SUPERSTRUCTURE
7. 34' P.C.C. DECK BEAM
8. 34' P.C.C. DECK BEAM DETAILS
9. 52' P.C.C. DECK BEAM
10. 52' P.C.C. DECK BEAM DETAILS
11. ABUTMENT #1 & #4 DETAILS
12. PIER #2 & #3 DETAILS
13. STEEL RAILING TYPE S1
14. METAL SHELL PILE DETAILS

TOTAL BILL OF MATERIALS (STRUCTURE)

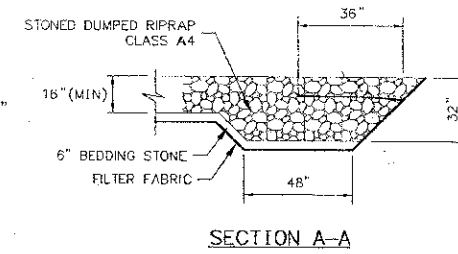
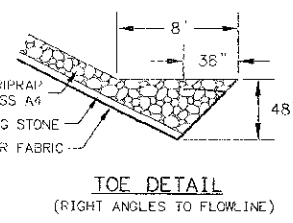
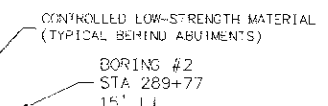
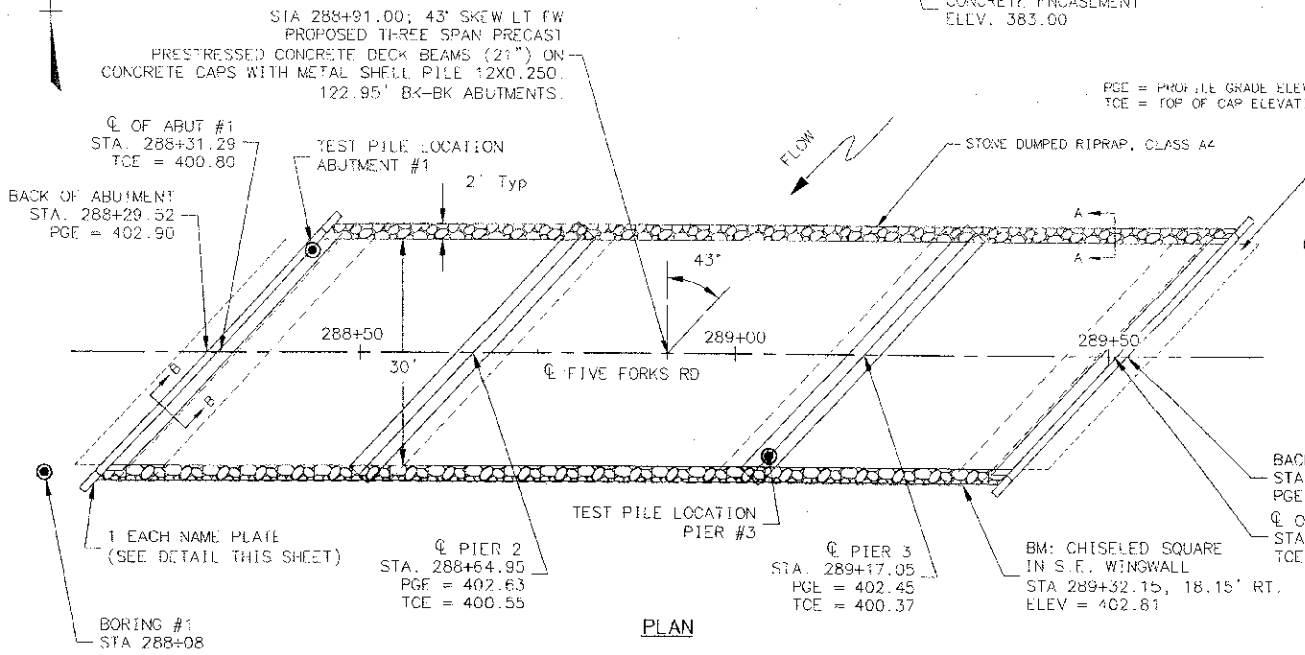
ITEM	UNIT	SUPER	SUB	TOTAL
STONE DUMPED RIPRAP, CLASS A4	SQ YD			427
FILTER FABRIC	SQ YD			427
HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N70	TON	57		57
REMOVAL OF EXISTING STRUCTURES	EACH			1
CONCRETE STRUCTURES	CU YD		70.2	70.2
CONCRETE ENCASMENT	CU YD		32	32
PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)	SO FT	3600		3600
REINFORCEMENT BARS, EPOXY COATED	POUND		6250	6250
STEEL RAILING, TYPE S1	FOOT	242		242
FURNISHING METAL SHELL PILES 12X0.250	FOOT		1287	1287
DRIVING PILES	FOOT		1287	1287
TEST PILE METAL SHELLS	EACH		2	2
NAME PLATES	EACH			1
WATERPROOFING MEMBRANE SYSTEM	SQ YD	401		401
PORTLAND CEMENT MORTAR FAIRING COURSE	FOOT	1082		1082
CONTROLLED LOW-STRENGTH MATERIAL	CU YD	33.4		33.4

SEISMIC DATA

SEISMIC PERFORMANCE ZONE (S.P.Z.) = 2
 DESIGN SPECTRAL ACCELERATION AT 1.0 SEC (S_m) = 0.25g
 DESIGN SPECTRAL ACCELERATION AT 0.2 SEC ($S_{0.2}$) = 0.57g
 SOIL SITE CLASS = D

DESIGN STRESSES

f'_c = 3500 psi
 f_y = 60,000 psi



DRUM HILL BRANCH BUILT 2011 BY ST. CLAIR COUNTY SEC. 08-00087-06-BR STA. 288+91.00 STR. NO. 082-3107 LOADING HL93

LETTERING FOR NAME PLATE
 LOCATE NAME PLATE AT S.W. WINGWALL OF BRIDGE (SEE STD. 515001)

WATERWAY INFORMATION

DRAINAGE AREA = 7.02 sq.mi.		LOW GRADE ELEVATION = 402.44 @ STA 289+29.64					
FLOOD FREQUENCY (year)	FLOWRATE Q (cfs)	OPENING (sq.ft.)	NATURAL H.W.E.	EXISTING HEAD (ft.)	PROPOSED HEAD (ft.)	EXISTING HEADWATER ELEVATION	PROPOSED HEADWATER ELEVATION
DESIGN 20	1320	324	393.37	0.26	0.13	393.63	393.50
BASE 100	2000	381	394.42	0.53	0.35	394.95	394.77
MAX CALC. 500	2680	429	395.28	0.78	0.56	396.06	395.84

ADDITIONAL OVER-THE-ROAD FLOW AREA:

I certify that to the best of my knowledge, information and belief, this bridge is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements for the current "AASHTO LRFD Bridge Design Specifications".

Robert Bruckner 4/8, 2015
 LICENSE NO. 21-004669
 LICENSE EXPIRATION DATE: 11/30/14



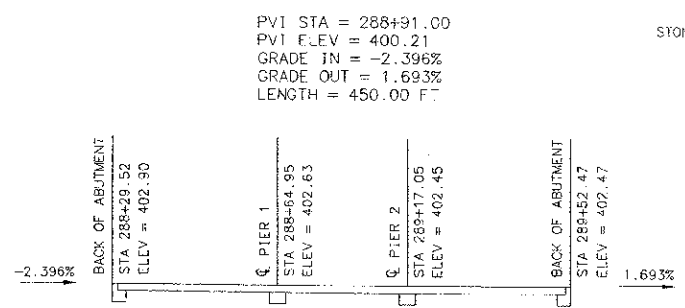
GENERAL PLAN & ELEVATION

FIVE FORKS RD (CH 48) OVER DRUM HILL BRANCH
 SECTION 08-00087-06-BR
 ST. CLAIR COUNTY
 STATION 288+91.00
 S.N. 082-3107

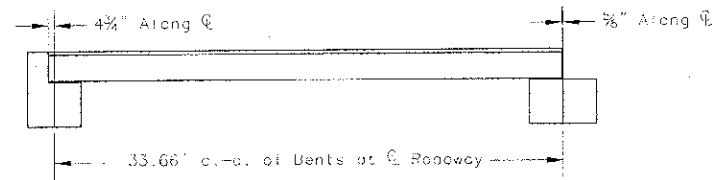
DRAWING FILE: Gen Plan and Elev.cwg

INITIALS	DATE
DESIGNED: WS	10/12
CHECKED: AMC	3/13
DRAWN: WS	10/12
CHECKED: AMC	3/13
PREPARED BY ST. CLAIR COUNTY	

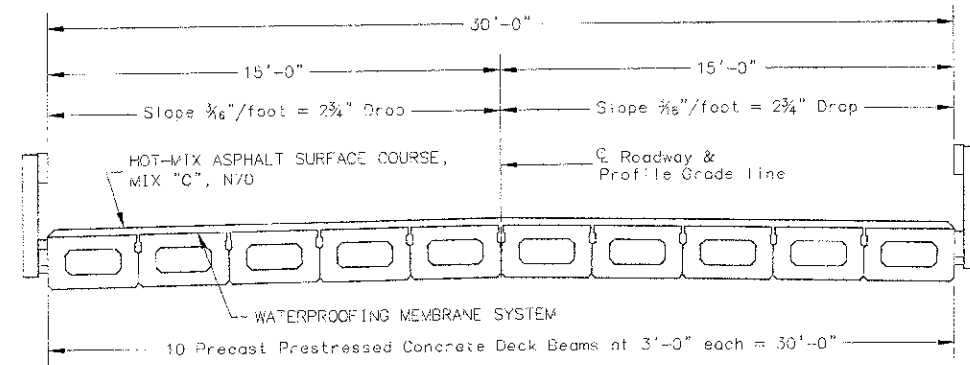
PROPOSED PROFILE ALONG Q OF STRUCTURE



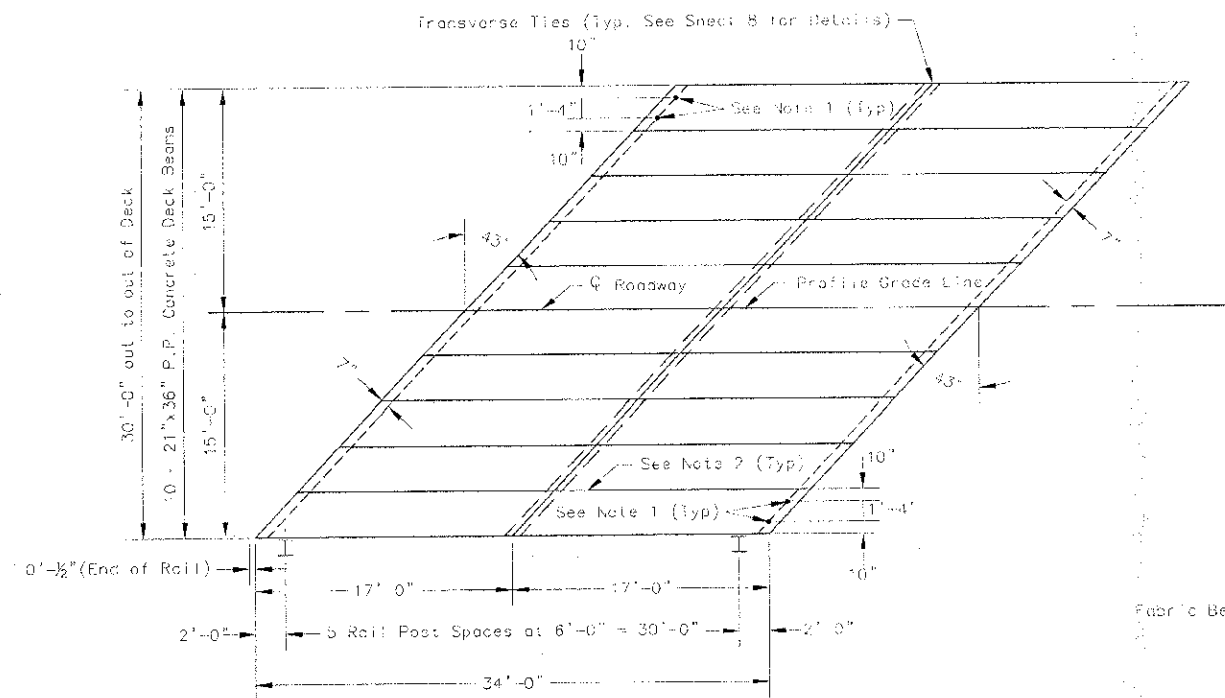
SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
08-00087-06-8R	CH 48	ST. CLAIR	11 OF 15
FHWA REG. NO. 7	ILLINOIS	PROJ.: BR08-0163(631)	
34' BEAM SUPERSTRUCTURE		CONTRACT 97525	



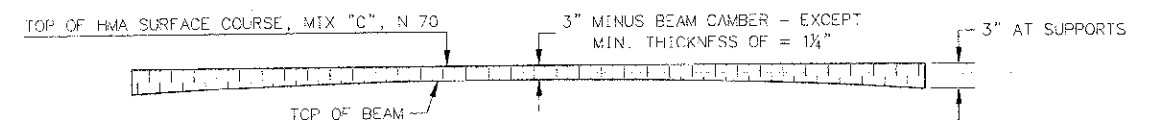
TYPICAL ELEVATION



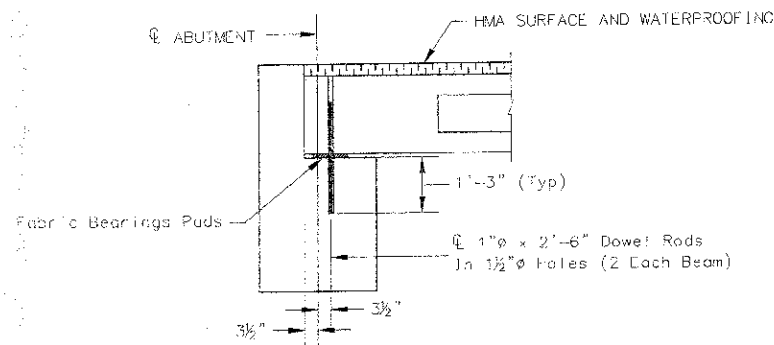
CROSS SECTION



PLAN

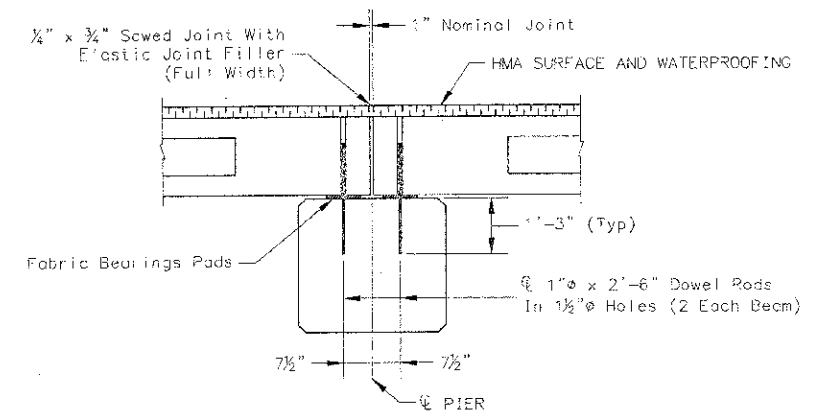


PROFILE OF OVERLAY



SECTION AT ABUTMENTS

(DIMENSIONS ARE AT RIGHT ANGLES)



SECTION AT PIERS

(DIMENSIONS ARE AT RIGHT ANGLES)

NOTES

1. AFTER BEAMS HAVE BEEN ERECTED, JOINTS SHALL BE ORDERED 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. LONGITUDINAL KEYS SHALL BE GROUTED.
3. NOMINAL 1" JOINT AT PIER SHALL BE FILLED WITH NON-SHRINK GROUT.

QUANTITIES FOR 1 END SPAN

F.P. CONC. DK. BM. 21" DP.	1020 SQ FT
STEEL RAILING, TYPE S1	69 FT
HMA SC "C" N70	16 TONS
WATERPROOFING MEMBRANE SYSTEM	113.5 SQ YD
PORTLAND CEMENT MORTAR	306.5 FT
PAVING COURSE	

P.P.C. DECK BEAM SUPERSTRUCTURE

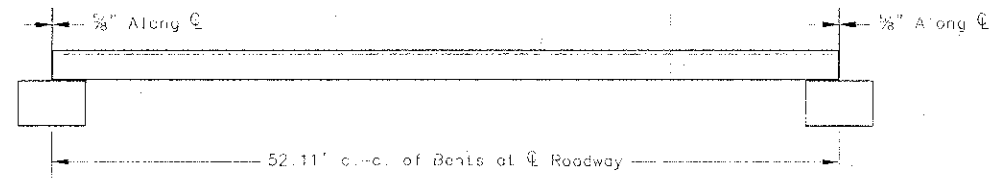
30' RDWY.	21" x 36" BMS.
34' BEAM	43' LT SKEW

PLOT DATE: 4/13

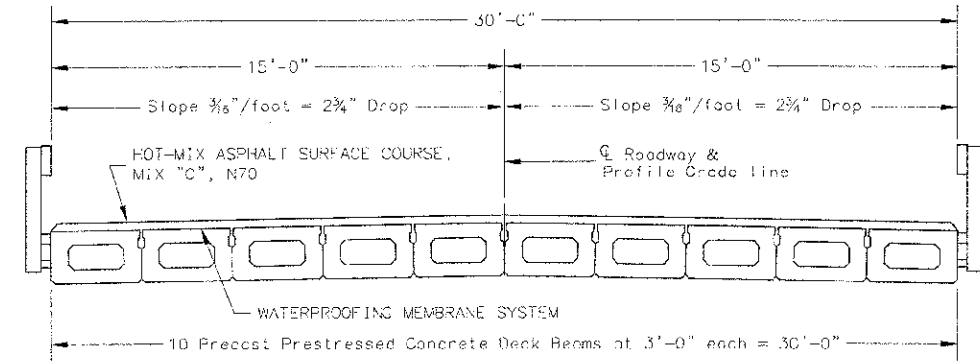
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DESIGNED	WLS	10/12
CHECKED	AMC	3/13
DRAWN	WFS	10/12
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PREPARED BY ST. CLAIR COUNTY
CADD DRAWING FILE: superstr

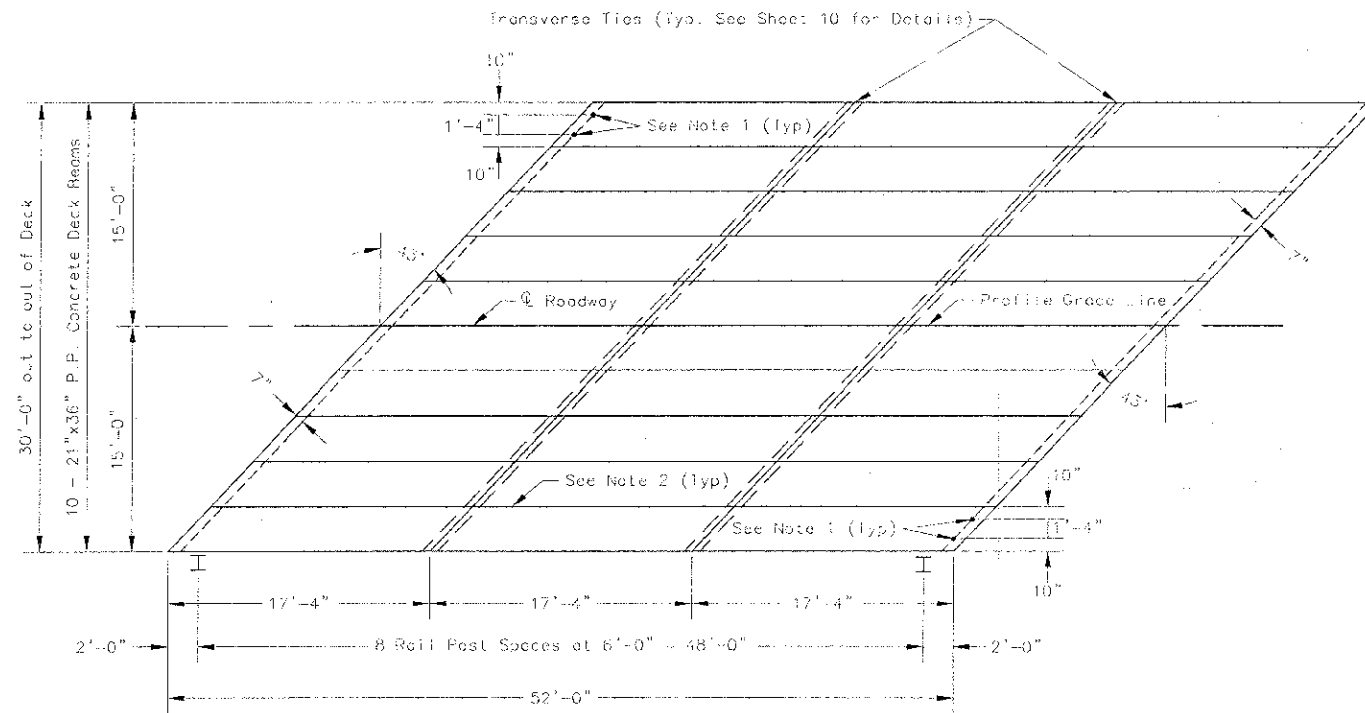
SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
08-00087-06-BR	CH 48	ST. CLAIR	6 OF 15
FHWA REG. NO. 7	ILLINOIS	PROJ. BROS. 0163(031)	
52' BEAM SUPERSTRUCTURE		CONTRACT 97525	



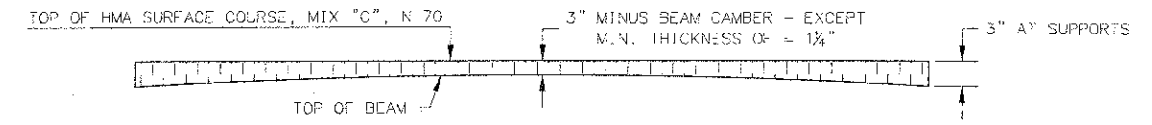
TYPICAL ELEVATION



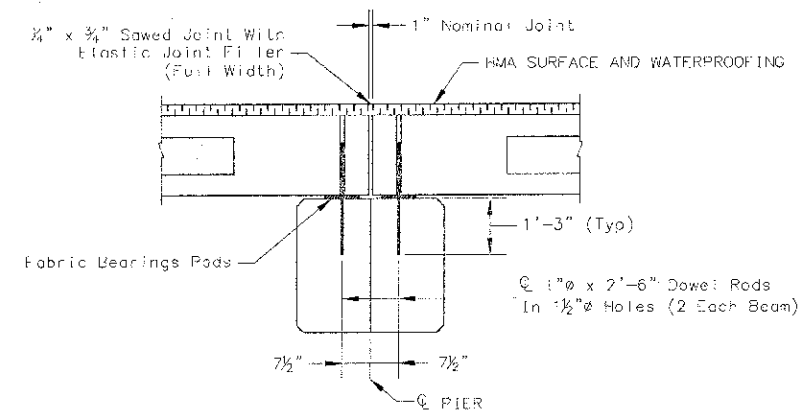
CROSS SECTION



PLAN



PROFILE OF OVERLAY



SECTION AT PIERS
(DIMENSIONS ARE AT RIGHT ANGLES)

QUANTITIES FOR INTERIOR SPAN

P.P. CONC. DK. BW. 21" DP.	1560 SQ FT
STEEL RAILING, TYPE S1	104 FT
HMA SC "C" N70	25 TONS
WATERPROOFING MEMBRANE SYSTEM	174 SQ YD
PORTLAND CEMENT MORTAR	469 FT
FAIRING COURSE	

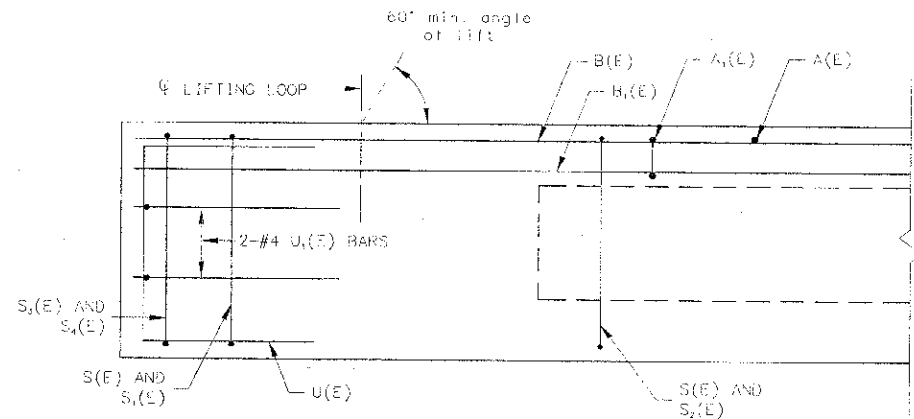
NOTES

- 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 SKEW KEYS.
- LONGITUDINAL KEYS SHALL BE CROUTED.
- NOMINAL 1" JOINT AT PIER SHALL BE FILLED WITH NON-SHRINK GROUT.

DESIGNED	WCS	10/12
CHECKED	AMC	3/13
DRAWN	WCS	10/12
CHECKED	AMC	3/13
PREPARED BY ST. CLAIR COUNTY		
CADD DRAWING FILE: superstr		

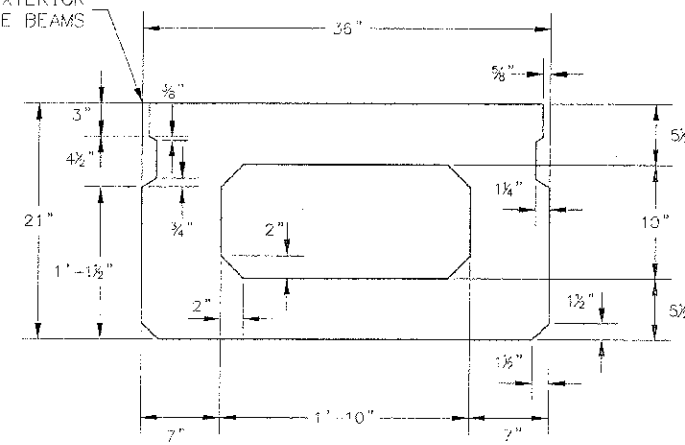
P.P.C. DECK BEAM SUPERSTRUCTURE	
30' RDWY.	21" x 36" BMS.
52' BEAM	43' LT SKEW

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
08-00087-06-BR	CH 48	ST. CLAIR	7 OF 15
FHWA REG. NO. 7	ILLINOIS	PROJ: BROS-C163(031)	
34' DECK BEAM		CONTRACT 97525	

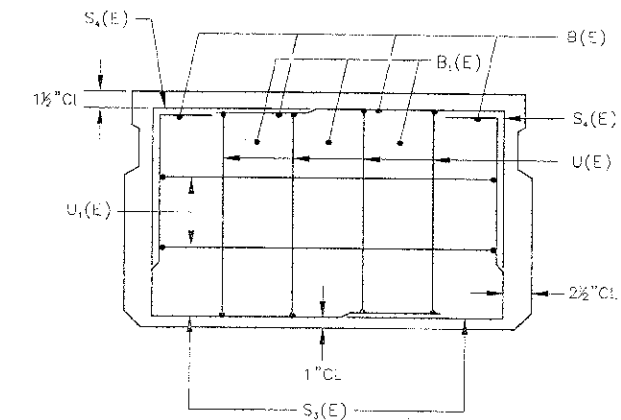


SECTION A-A

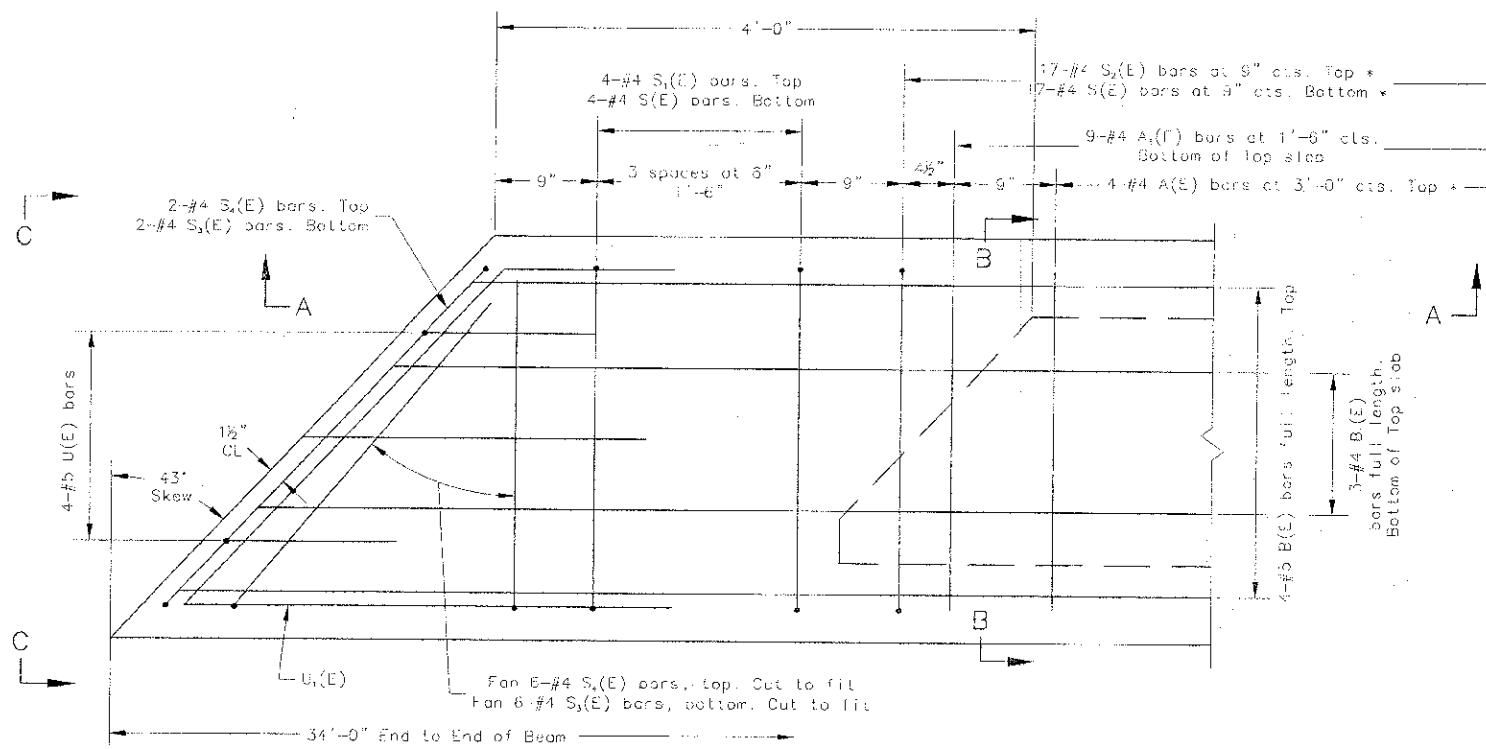
OVIT KEY ON EXTERIOR FACE OF OUTSIDE BEAMS



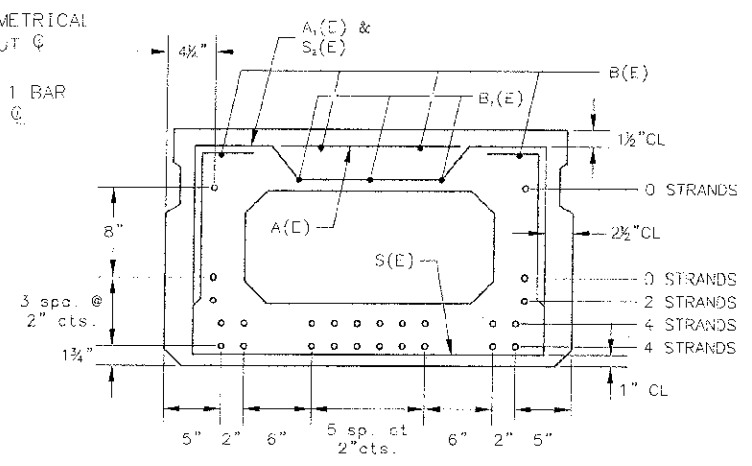
SECTION B-B
(SHOWING DIMENSIONS)



VIEW C-C



SYMMETRICAL ABOUT \bar{C}
ADD 1 BAR AT \bar{C}



SECTION B-B
(SHOWING REINFORCEMENT AND PERMISSIBLE STRAND LOCATIONS)

NOTE: PLACE THE NUMBER OF STRANDS SPECIFIED IN EACH ROW SYMMETRICALLY ABOUT THE CENTERLINE OF BEAM IN THE PERMISSIBLE STRAND LOCATIONS SHOWN.

MINIMUM BAR LAP

- #4 BAR = 2'-0"
- #5 BAR = 2'-6"

BAR LIST
ONE BEAM ONLY

(FOR INFORMATION ONLY)

BAR	NO.	SIZE	LENGTH	SHAPE
A(E)	9	#4	2'-7"	—
A1(E)	18	#4	2'-10"	—
B(E)	4	#5	33'-8"	—
B1(E)	3	#4	33'-8"	—
S(E)	43	#4	6'-5"	□
S1(E)	8	#4	4'-11"	□
S2(E)	35	#4	5'-2"	□
S3(E)	16	#4	5'-4"	□
S4(E)	16	#4	4'-7"	□
U(E)	8	#5	4'-0"	□
U1(E)	4	#4	8'-3"	□

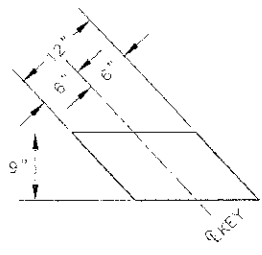
NOTE: SEE SHEET 8 FOR ADDITIONAL DETAILS.
NOTE: ALL REBAR SHOWN ARE TO BE EPOXY COATED

NOTE: SPACING OF S(E) AND S1(E) BARS MAY BE ADJUSTED UP TO 4" IN THE IMMEDIATE AREA OF THE TRANSVERSE TIE DIAPHRAGMS TO MISS THE BLOCK OUTS FOR THE TRANSVERSE TIES.

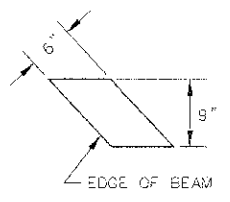
INITIALS	DATE
DESIGNED: WES	10/12
CHECKED: AMC	3/13
DRAWN: WES	10/12
CHECKED: AMC	3/13
PREPARED BY ST. CLAIR COUNTY	
CADD DRAWING FILE: DIFAM	

P.P.C. DECK BEAM
21" x 36" x 34' BEAMS
30' ROADWAY

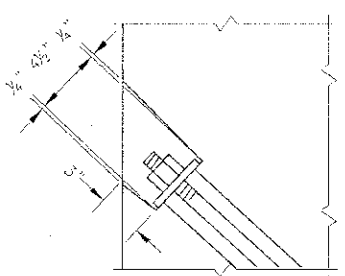
SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
08-0087-06-BR	CH 48	ST. CLAIR	8 OF 15
FHWA REG. NO. 7	ILLINOIS	PROJ. BROS-0163(031)	
34' BEAM DETAILS		CONTRACT 97525	



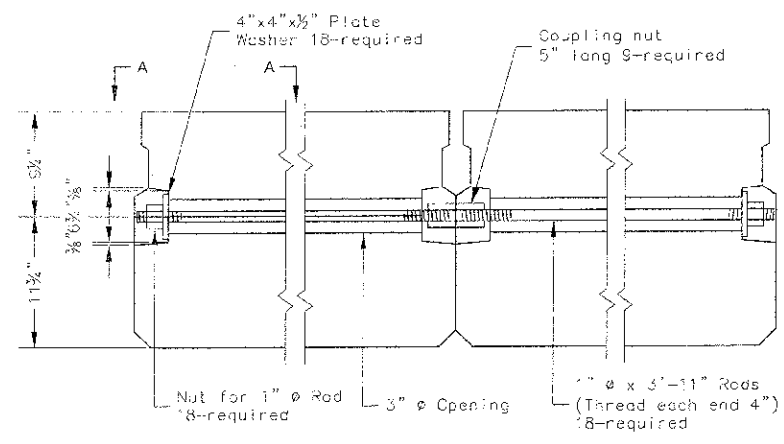
FABRIC BEARING PAD
(INTERIOR)



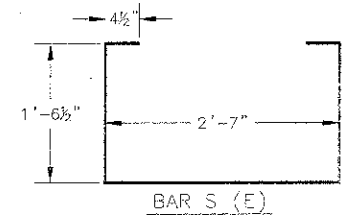
FABRIC BEARING PAD
(EXTERIOR)



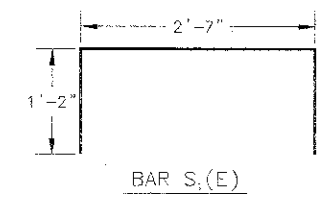
SECTION A-A



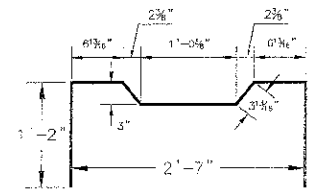
TYPICAL TRANSVERSE TIE ASSEMBLY



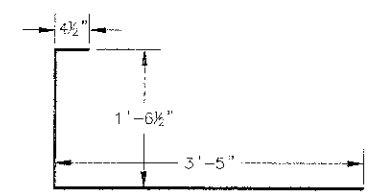
BAR S₁(E)



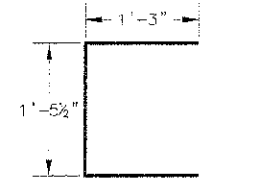
BAR S₂(E)



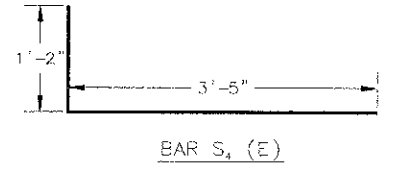
BAR S₃(E)



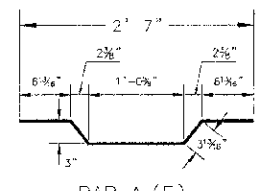
BAR S₄(E)



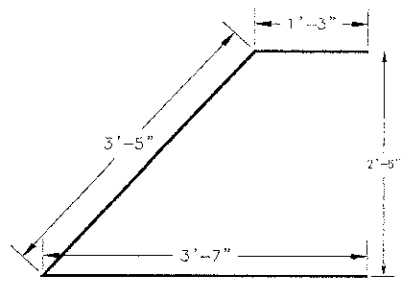
BAR U(E)



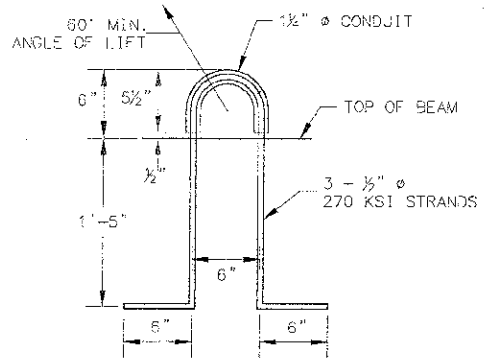
BAR S₅(E)



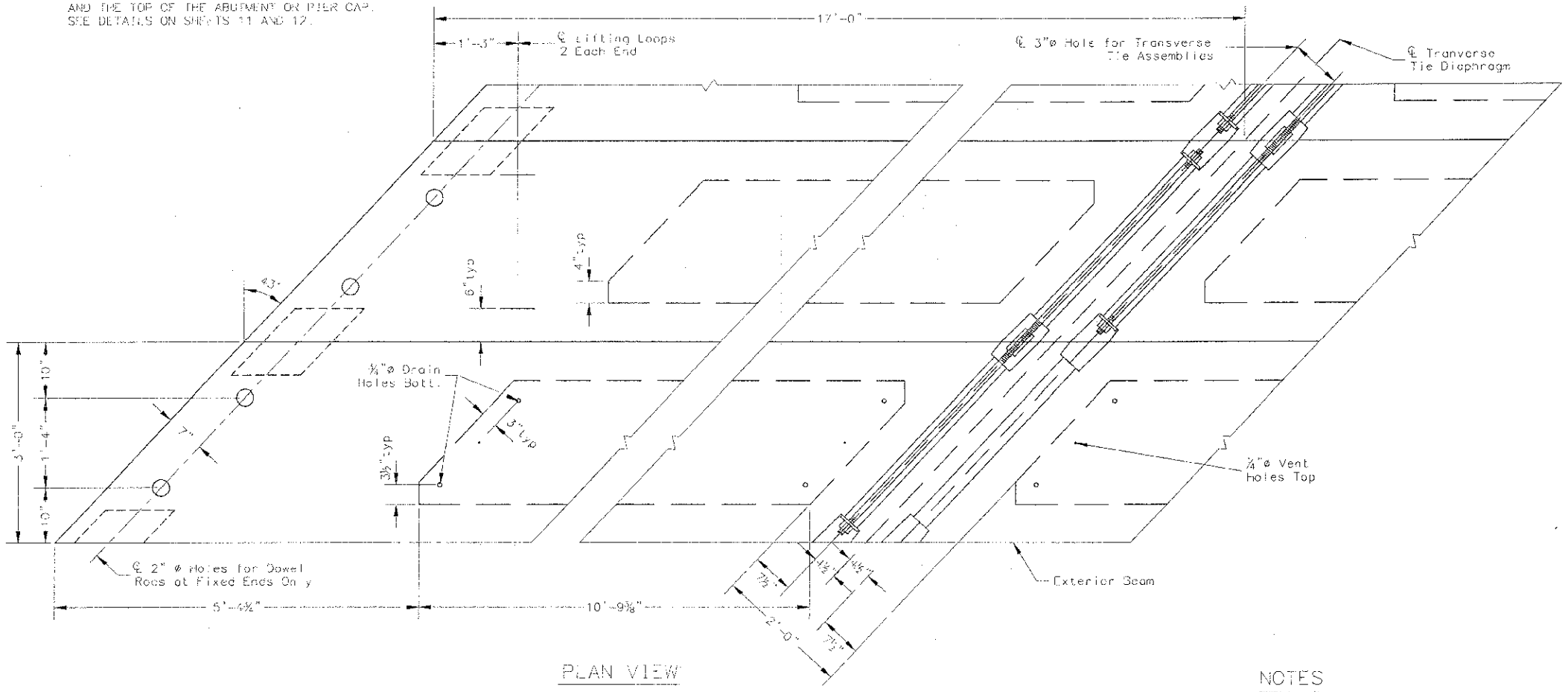
BAR A₁(E)



BAR U₁(E)



NOTES:
1. ALL BEARING PADS SHALL BE 1" THICK
2. BEARING PADS ARE SMALLER TO ALLOW FOR NON-SHRINK GROUT BETWEEN THE BOTTOM OF BEAMS AND THE TOP OF THE ABUTMENT OR PIER CAP. SEE DETAILS ON SHEETS 11 AND 12.



PLAN VIEW

NOTES

1. Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 square inches.
2. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.
3. Reinforcement bars shall conform to ASTM A 706, grade 60.
4. Two 3/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.
5. A minimum 2 1/2" Ø lifting pin shall be used to engage the lifting loops during handling.
6. Corrosion inhibitor, per article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.
7. Rail post anchor devices shall be cast into outside beam as elsewhere specified.
8. 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.
9. Compressive strength of prestressed concrete, f'c, shall be 6000 psi.
10. Compressive strength of prestressed concrete at release, f'ci shall be 5000 psi.
11. Connect beams in pairs with the transverse tie configuration shown.

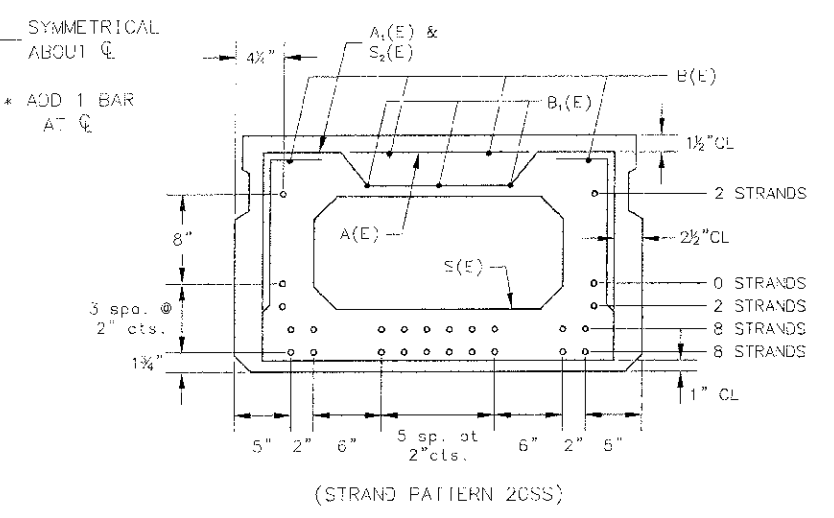
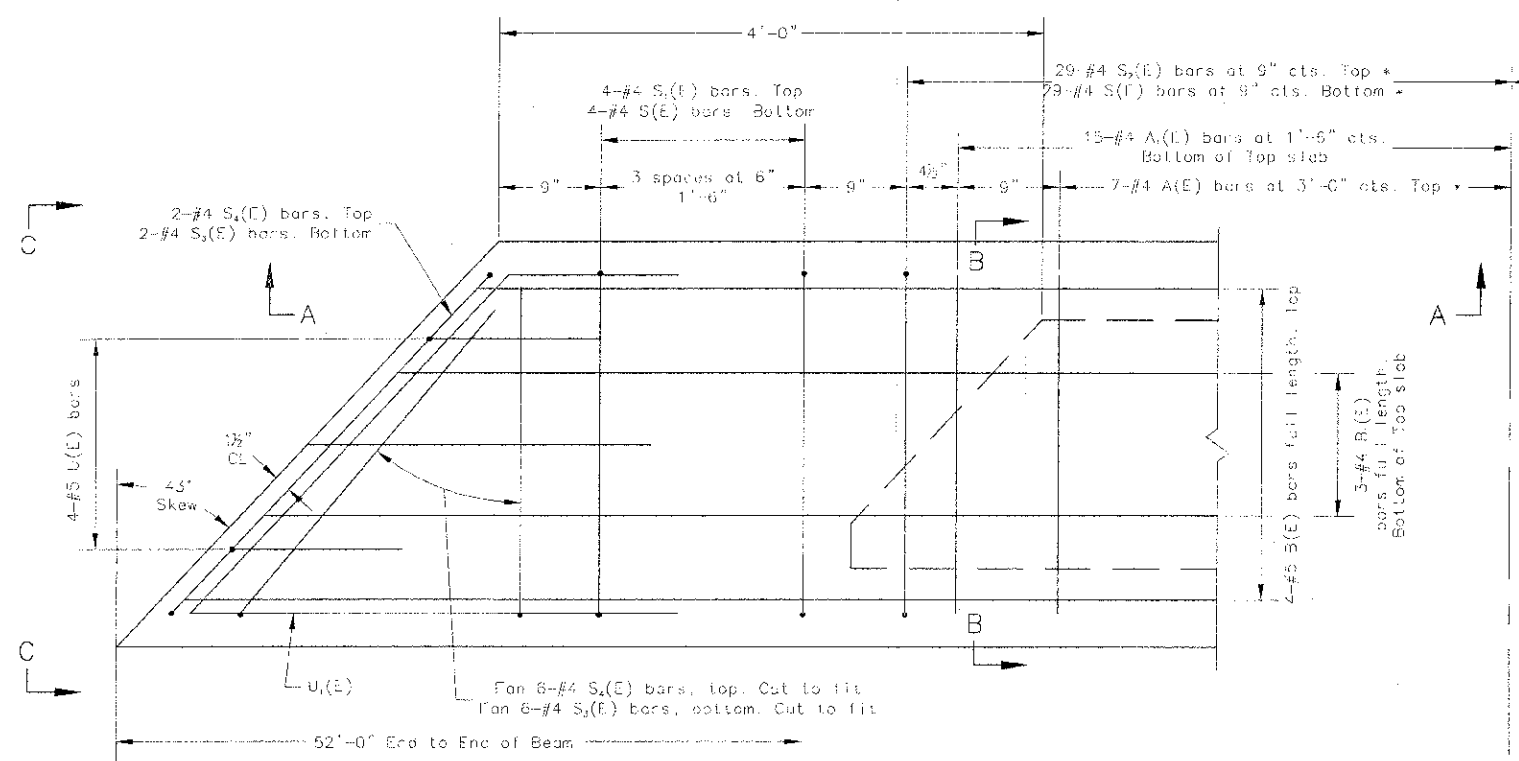
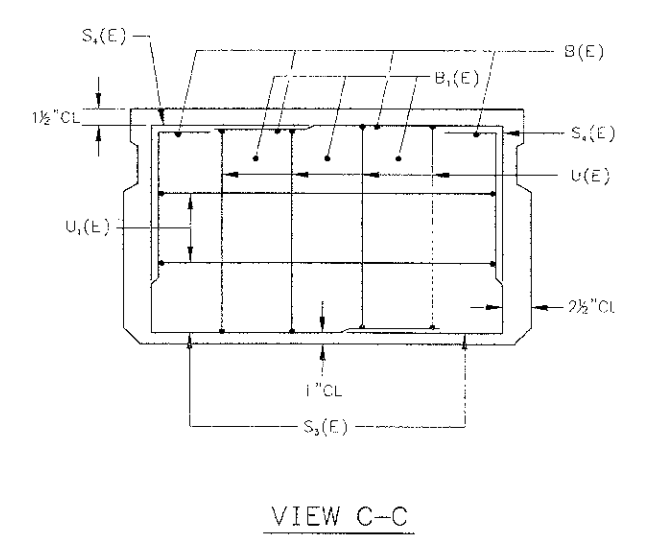
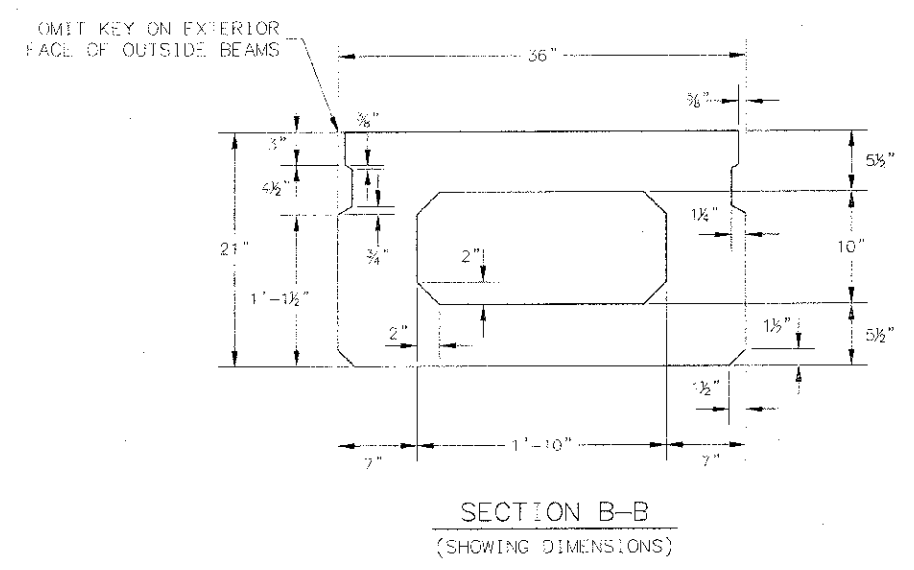
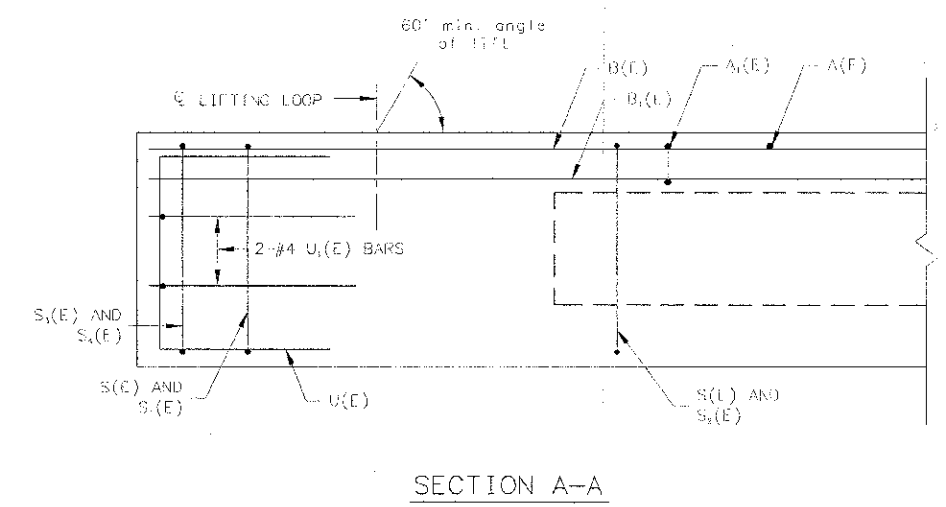
DESIGN STRESSES

f'c = 6000 psi
f'ci = 5000 psi
f's = 270000 psi (1/2" Ø STRAND)
f'si = 189000 psi (1/2" Ø STRAND)
fy = 60000 psi

	INITIALS	DATE
DESIGNED	WES	10/12
CHECKED	AMC	3/13
DRAWN	WES	10/12
CHECKED	AMC	3/13
PREPARED BY ST. CLAIR COUNTY		
CADD DRAWING FILE: BEAM DETAIL		

P.P.C. DECK BEAM DETAILS
21" x 36" x 34' BEAMS
30' ROADWAY

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
08-00087-06-BR	CH 48	ST. CLAIR	9 OF 15
FHWA REG. NO. 7	ILLINOIS	PROJ. BROS-0163(031)	
52' DECK BEAM		CONTRACT 97525	



MINIMUM BAR LAP
 #4 BAR = 2'-0"
 #5 BAR = 2'-8"

**BAR LIST
 ONE BEAM ONLY
 (FOR INFORMATION ONLY)**

BAR	NO.	SIZE	LENGTH	SHAPE
A(E)	15	#4	2'-7"	—
A1(E)	30	#4	2'-10"	—
B(E)	4	#5	51'-8"	—
B1(E)	3	#4	51'-8"	—
S(E)	67	#4	6'-5"	□
S1(E)	8	#4	4'-11"	□
S2(E)	59	#4	5'-2"	□
S3(C)	16	#4	5'-4"	□
S4(E)	16	#4	4'-7"	□
U(E)	8	#5	4'-0"	□
U1(E)	4	#4	8'-3"	□

NOTE: SEE SHEET 10 FOR ADDITIONAL DETAILS.
 NOTE: ALL REBAR SHOWN ARE TO BE EPOXY COATED

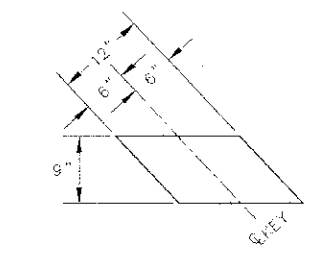
NOTE: PLACE THE NUMBER OF STRANDS SPECIFIED IN EACH ROW SYMMETRICALLY ABOUT THE CENTERLINE OF BEAM IN THE PERMISSIBLE STRAND LOCATIONS SHOWN.

NOTE: SPACING OF S(E) AND S2(E) BARS MAY BE ADJUSTED UP TO 4" IN THE IMMEDIATE AREA OF THE TRANSVERSE TIE DIAPHRAGMS TO MISS THE BLOCK OUTS FOR THE TRANSVERSE TIES.

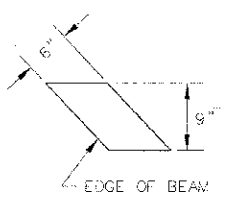
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PREPARED BY ST. CLAIR COUNTY		
CADD DRAWING FILE: BEAM		

P.P.C. DECK BEAM
21" x 36" x 52' BEAMS
30' ROADWAY

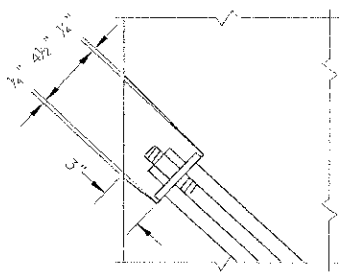
SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
08-00087-06-08	CH 48	ST. CLAIR	10 OF 15
FHWA REG. NO. 7	ILL. NOTES	PROJ. BROS-0163(03)	
52' BEAM DETAILS		CONTRACT 97525	



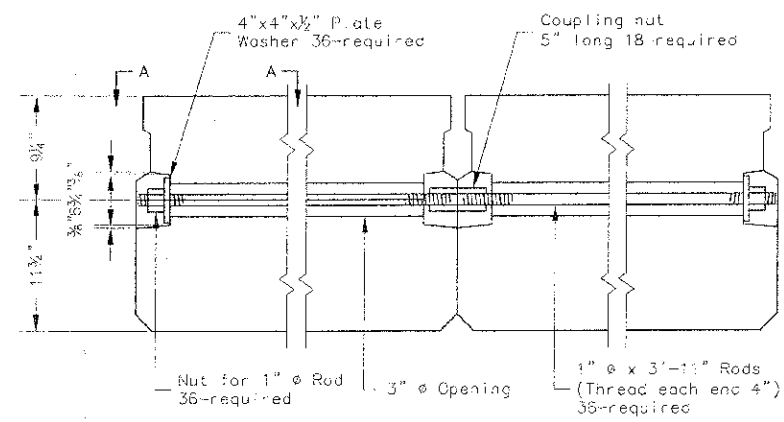
FABRIC BEARING PAD
(INTERIOR)



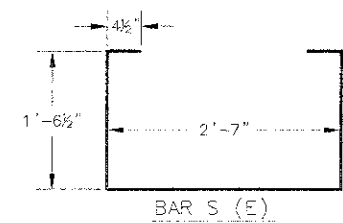
FABRIC BEARING PAD
(EXTERIOR)



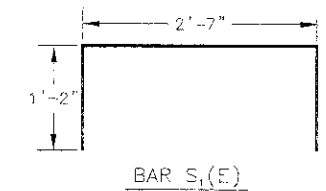
SECTION A-A



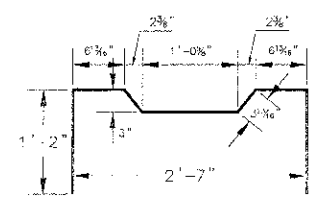
TYPICAL TRANSVERSE TIE ASSEMBLY



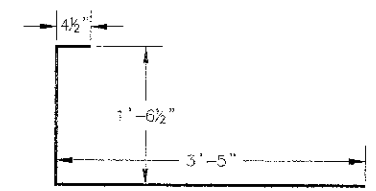
BAR S (E)



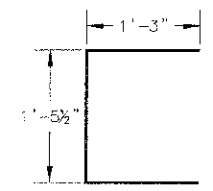
BAR S1 (E)



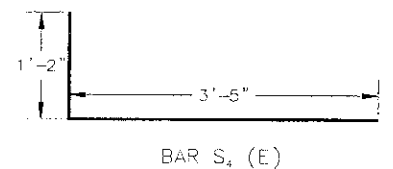
BAR S2 (E)



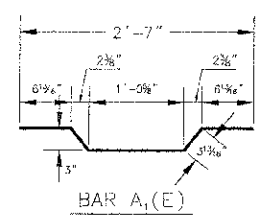
BAR S3 (E)



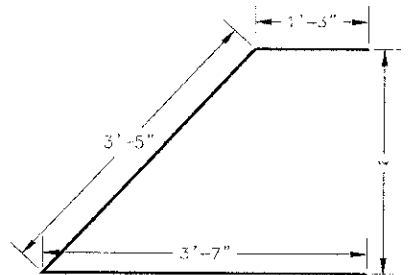
BAR U (E)



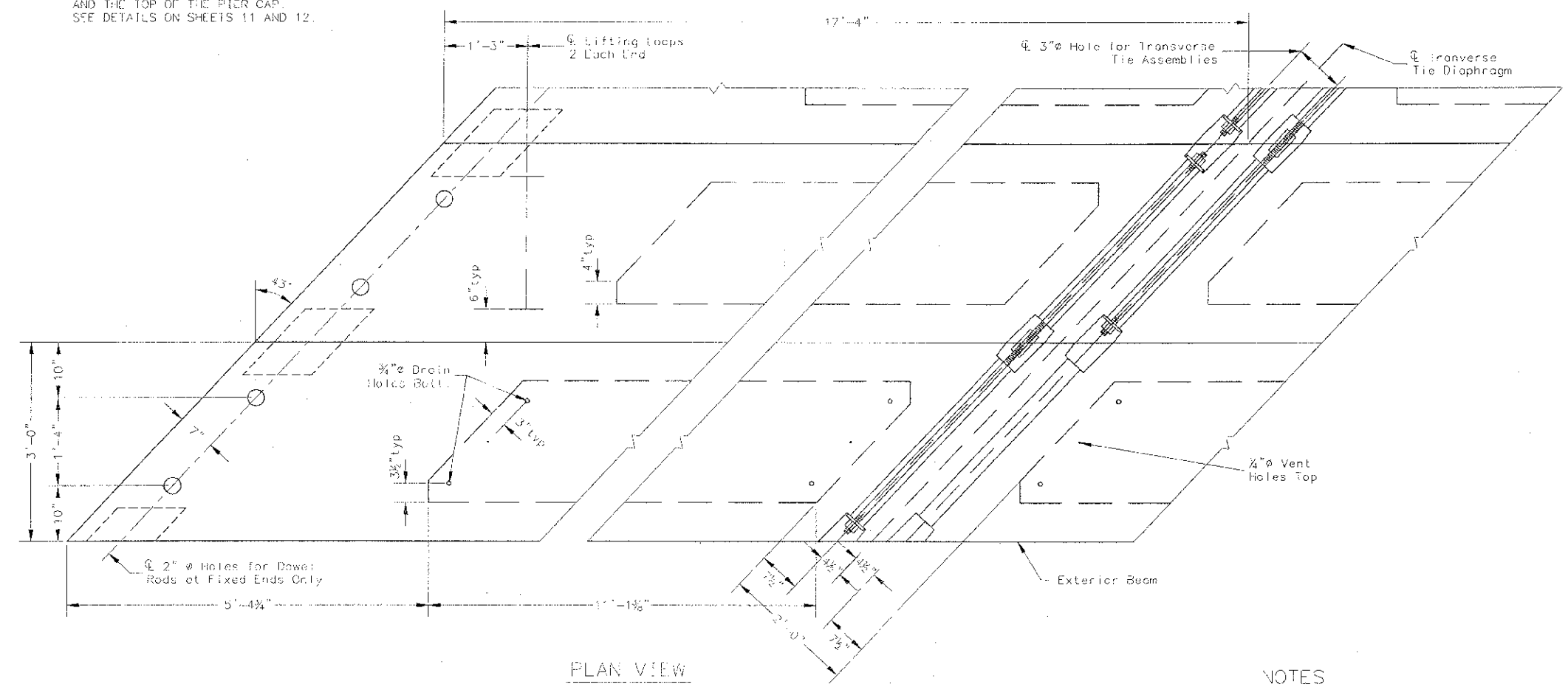
BAR S4 (E)



BAR A1 (E)



BAR U1 (E)



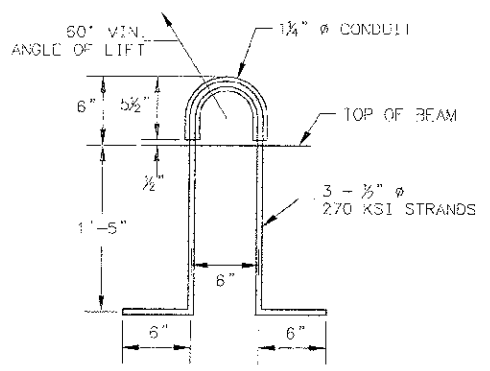
PLAN VIEW

NOTES

1. Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 square inches.
2. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.
3. Reinforcement bars shall conform to ASTM A 706, grade 60.
4. Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.
5. A minimum 2 1/2" lifting pin shall be used to engage the lifting loops during handling.
6. Corrosion inhibitor, per article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.
7. Rail post anchor devices shall be cast into outside beam as elsewhere specified.
8. 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.
9. Compressive strength of prestressed concrete, f'c, shall be 6000 psi.
10. Compressive strength of prestressed concrete at release, f'ci shall be 5000 psi.
11. Connect beams in pairs with the transverse tie configuration shown.

DESIGN STRESSES

f'c = 6000 psi
 f'ci = 5000 psi
 f's = 270000 psi (1/2" STRAND)
 fsi = 185000 psi (1/2" STRAND)
 fy = 60000 psi

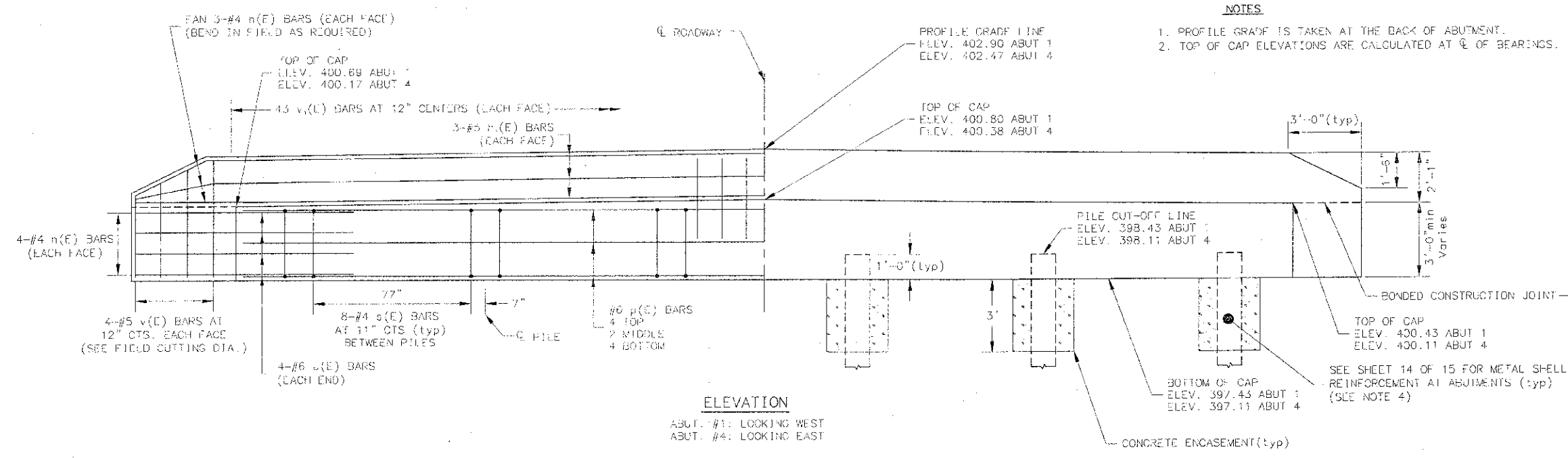


P.P.C. DECK BEAM DETAILS
 21" x 36" x 52' BEAMS
 30' ROADWAY

DESIGNED	WES	10/12
CHECKED	AMC	3/13
DRAWN	WES	10/12
CHECKED	AMC	3/13
PREPARED BY ST. CLAIR COUNTY CADD DRAWING FILE BEAM DETAIL		

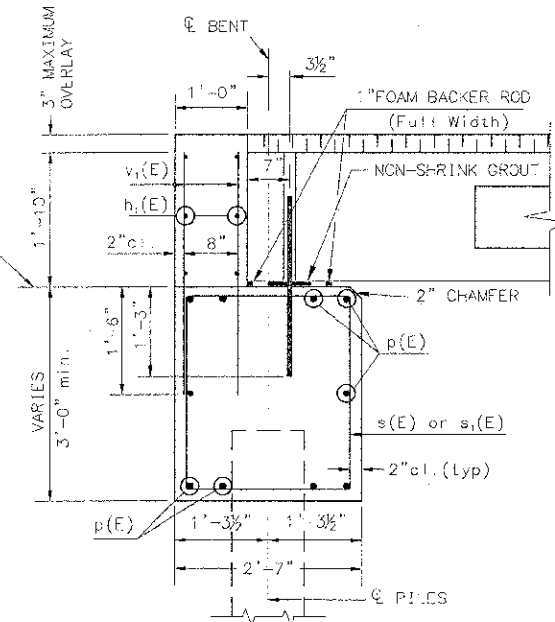
SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
88-0087-06-BR	CH 48	ST. CLAIR	11 OF 15
FHWA REG. NO. 7	ILLINOIS	PROJ. BROS-0163(031)	
ABUTMENT DETAILS		CONTRACT 97525	

- NOTES**
1. PROFILE GRADE IS TAKEN AT THE BACK OF ABUTMENT.
 2. TOP OF CAP ELEVATIONS ARE CALCULATED AT ϕ OF BEARINGS.



ELEVATION

ABUT. #1: LOOKING WEST
ABUT. #4: LOOKING EAST



SECTION THRU ABUTMENT
(AT RIGHT ANGLES)

BILL OF MATERIAL FOR ONE ABUTMENT

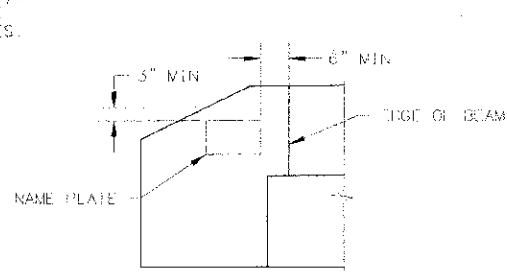
BAR	NO.	SIZE	LENGTH	SHAPE
h(E)	28	#4	5'-9"	---
n ₁ (E)	6	#5	42'-7"	---
p(E)	10	#6	42'-7"	---
s(F)	44	#4	10'-7"	□
s ₁ (E)	2	#4	12'-1"	□
u(E)	8	#6	12'-0"	---
v(E)	8	#5	8'-1"	---
v ₁ (E)	56	#4	3'-4"	---
CONCRETE ENCASMENT			2.8 CU YD	
CONCRETE STRUCTURES			17.8 CU YD	
REINFORCEMENT BARS, EPOXY COATED			1744 LBS	

NOTE: ALL REINFORCEMENT BARS SHOWN SHALL BE EPOXY COATED

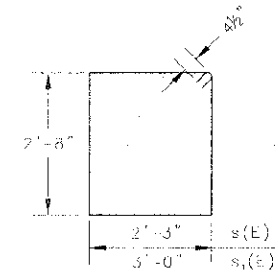
- NOTES**
1. THE BACKWALL AND THE PORTION OF THE WINGWALLS ABOVE THE BONDED CONSTRUCTION JOINT SHALL BE CAST AGAINST THE IN-PLACE BEAMS.
 2. REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706 GRADE 60 (UL MODIFIED).
 3. THE AREA BETWEEN THE BOTTOM OF THE DECK BEAMS AND TOP OF THE ABUTMENT CAPS SHALL BE FILLED WITH NON-SHRINK GROUT TO PREVENT THE BEAMS FROM ROCKING. THE COST OF THIS WORK SHALL BE INCIDENTAL TO THE COST OF PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH).
 4. THE COST OF REINFORCEMENT OF ABUTMENT PILING SHALL BE INCIDENTAL TO THE COST OF FURNISHING METAL SHELL PILES.

PILE DATA

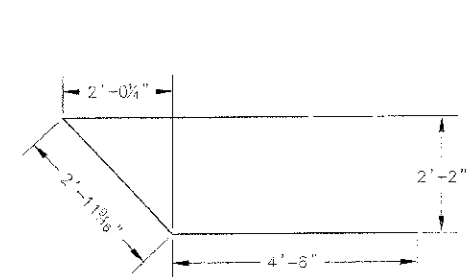
TYPE & SIZE: METAL SHELL 12X0.250
 NOMINAL REQUIRED BEARING: 158 KIPS
 FACTORED RESISTANCE AVAILABLE: 87 KIPS
 ESTIMATED LENGTH (ABUT #1 & #4): 51 FT
 NO. OF PRODUCTION PILES: 11
 NO. OF TEST PILE (ABUTMENT #1): 1



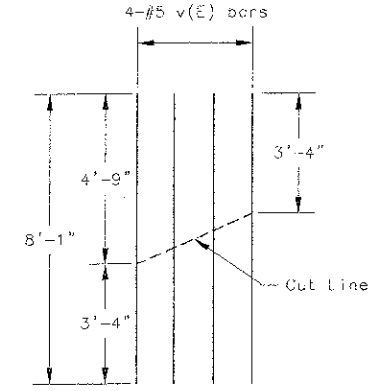
NAME PLATE LOCATION
(LOCATE AT SW WINGWALL OF BRIDGE)



BAR s(E) & s₁(E)



BAR u(E)



FIELD CUTTING DIAGRAM

Order v(E) full length. Cut as shown and use remainder of bars in opposite face.

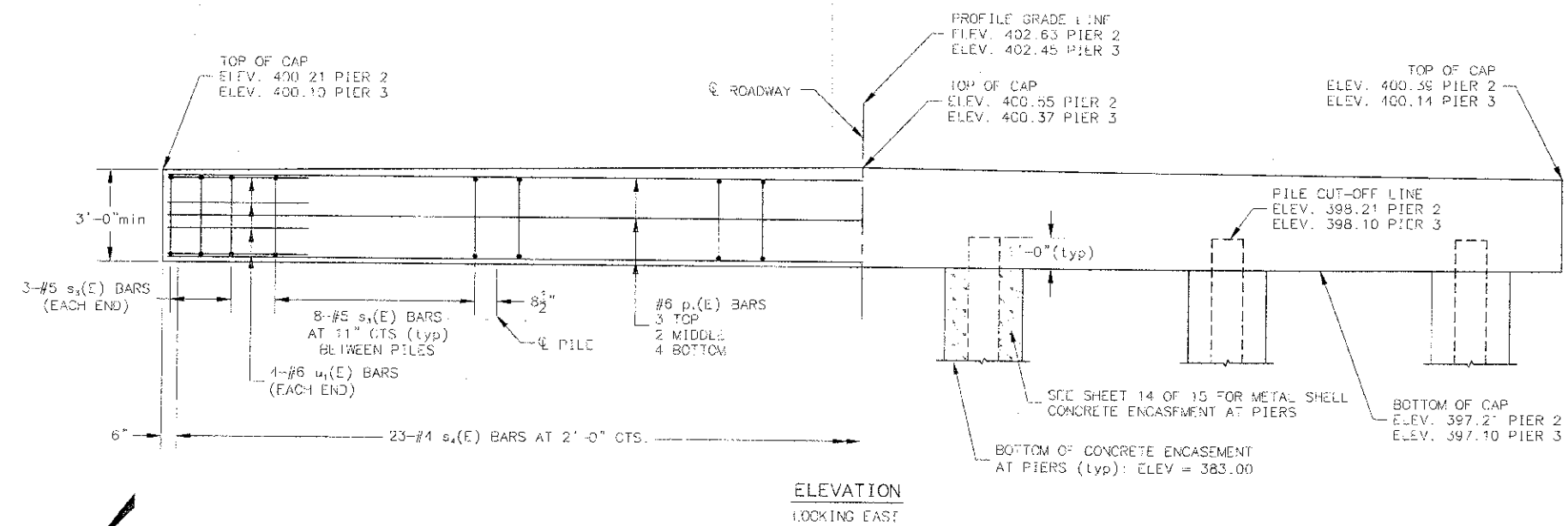
	INITIALS	DATE
DESIGNED	WES	10/12
CHECKED	AMC	3/13
DRAWN	WES	10/12
CHECKED	AMC	3/13
PREPARED BY ST. CLAIR COUNTY		
CADD DRAWING FILE: ABUTMENT		

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

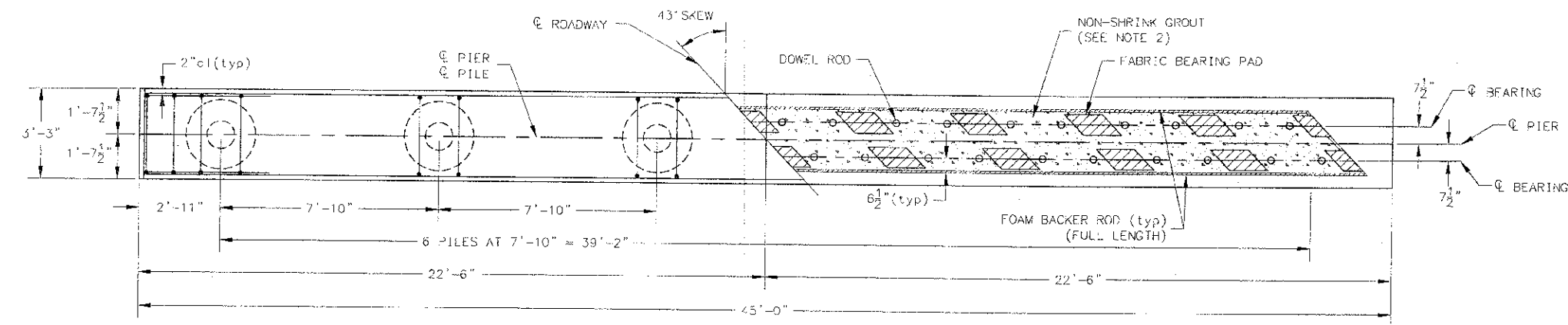
ABUTMENT DETAILS

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
08-00087-05-BR	CH 48	ST. CLAIR	12 OF 15
FHWA REG. NO. 7	ILLINOIS	PROJ: BROS-0163(051)	
PIER DETAILS		CONTRACT 97525	

- NOTES**
1. PROFILE GRADE IS TAKEN AT THE ϕ OF PIER.
 2. TOP OF CAP ELEVATIONS ARE CALCULATED AT ϕ OF PIER.



ELEVATION
LOOKING EAST



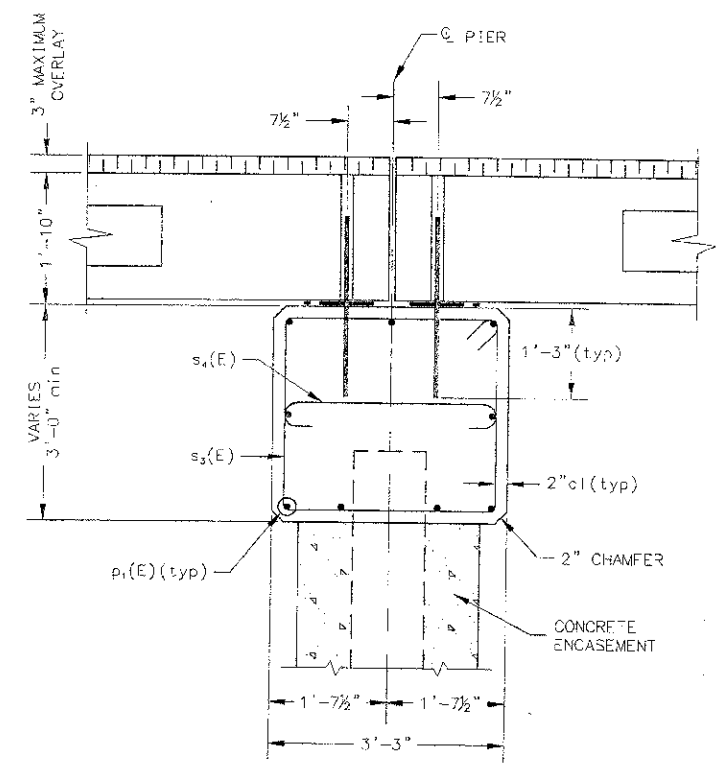
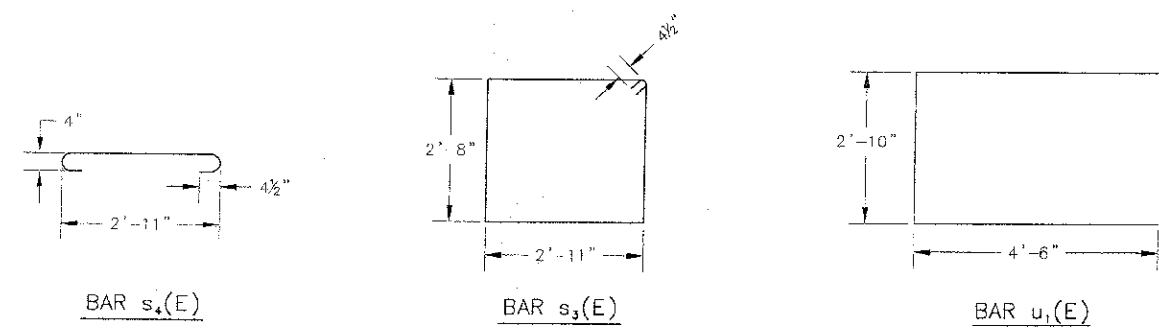
PLAN

- NOTES**
1. REINFORCEMENT BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706 GRADE 60 (1L MODIFIED)
 2. THE AREA BETWEEN THE BOTTOM OF THE DECK BEAMS AND TOP OF THE PIER CAPS SHALL BE FILLED WITH NON-SHRINK GROUT TO PREVENT THE BEAMS FROM ROCKING. THE COST OF THIS WORK SHALL BE INCIDENTAL TO THE COST OF PRECAST PRESTRESSED CONCRETE DECK BEAMS (21\"/>

PILE DATA

TYPE & SIZE	METAL SHELL 12X0.250
NOMINAL REQUIRED BEARING	328 KIPS
FACTORED RESISTANCE AVAILABLE	179 KIPS
ESTIMATED LENGTH (PIER #2 & #3)	66 FT
NO. OF PRODUCTION PILES	11
NO. OF TEST PILE (PIER #3)	1

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



SECTION THRU PIER
(AT RIGHT ANGLES)

BILL OF MATERIAL FOR ONE PIER

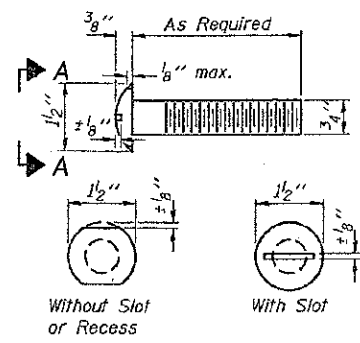
BAR	NO.	SIZE	LENGTH	SHAPE
$u_1(E)$	9	#6	44'-8"	—
$s_3(E)$	46	#5	11'-11"	□
$s_4(E)$	23	#4	4'-1"	—
$u_1(E)$	8	#6	11'-10"	—
CONCRETE STRUCTURES			17.3	CU YD
REINFORCEMENT BARS, EPOXY COATED			1381	LBS
CONCRETE ENCASMENT			13.0	CJ YD

NOTE: ALL REINFORCEMENT BARS SHOWN SHALL BE EPOXY COATED

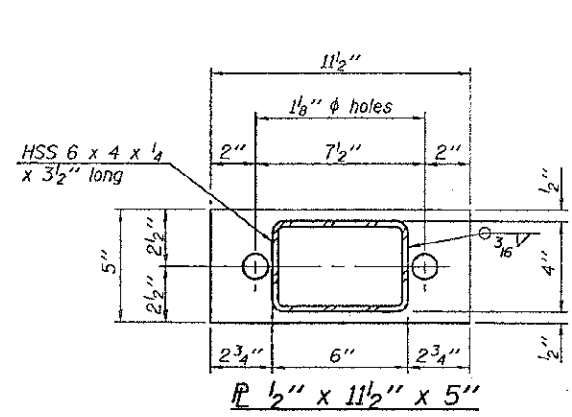
DESIGNED	WFS	10/12
CHECKED	AMC	3/13
DRAWN	WES	10/12
CHECKED	AMC	3/13
PREPARED BY ST. CLAIR COUNTY		
CADD DRAWING FILE: ABUTMENT		

PIER DETAILS

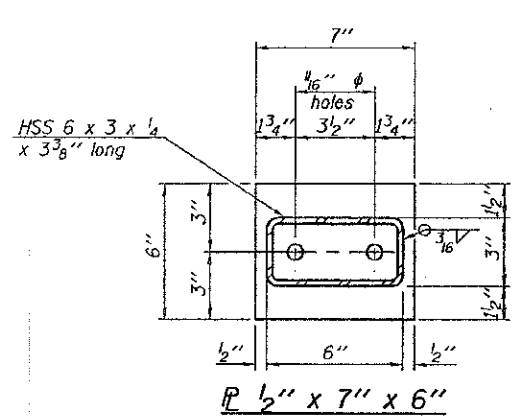
SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
08-00087-06-BR	C.H. 48	ST. CLAIR	13 of 15
FHWA REG. NO. 7	ILLINOIS	PROJ: BROS-0163(031)	
STEEL RAILING TYPE S-1	CONTRACT 97525		



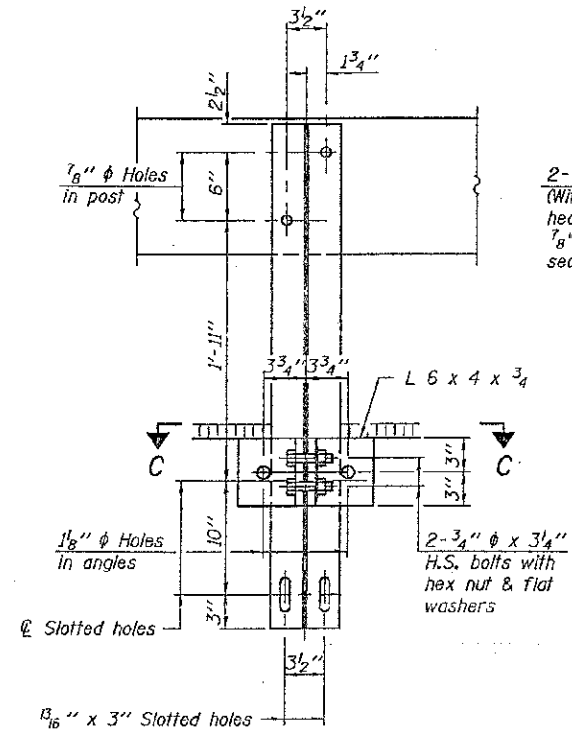
VIEW A-A
ROUND HEAD BOLT



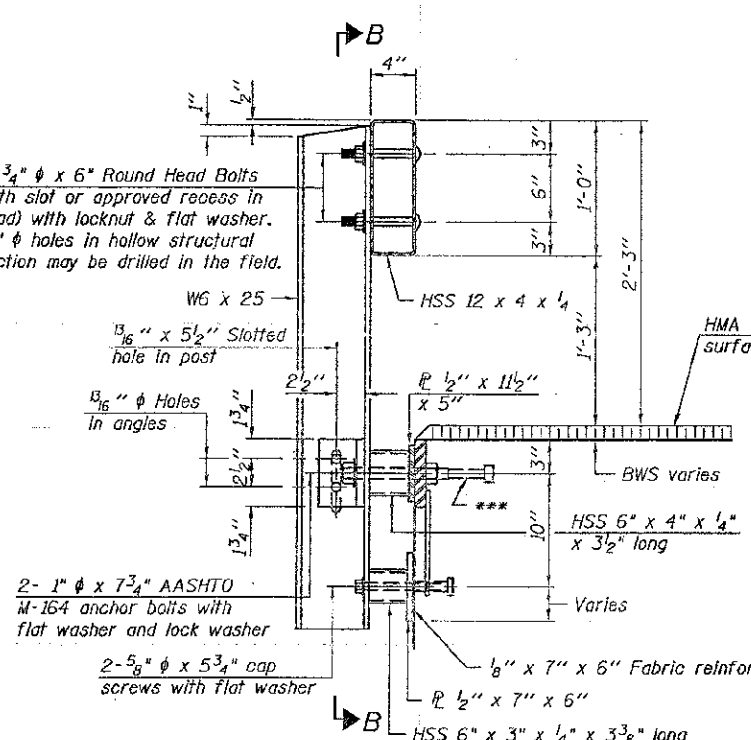
SECTION B-B
P 1/2" x 1 1/2" x 5"



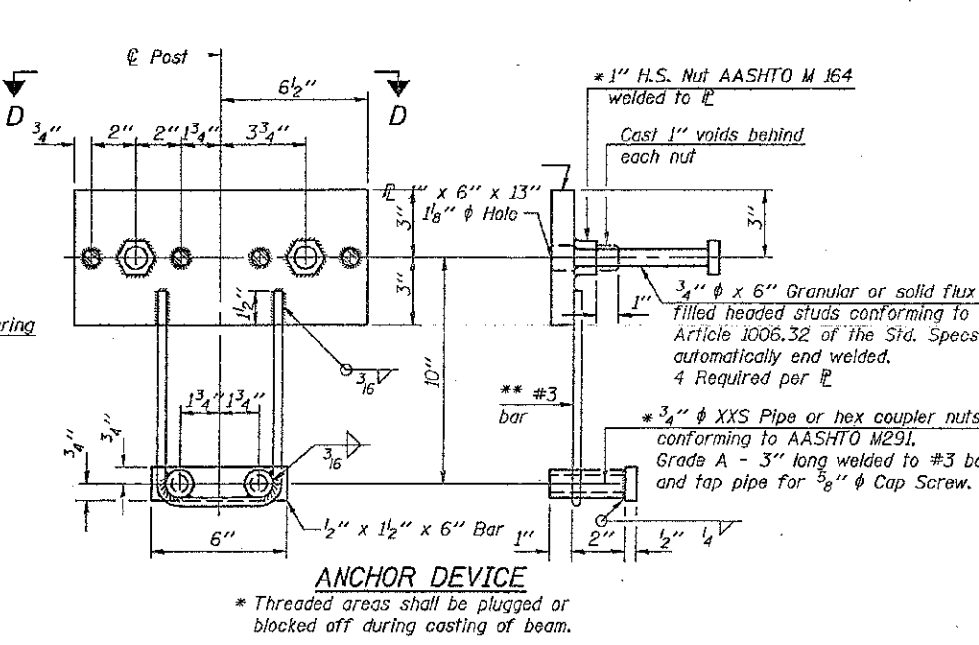
SECTION AT RAILING POST
P 1/2" x 7" x 6"



SECTION C-C

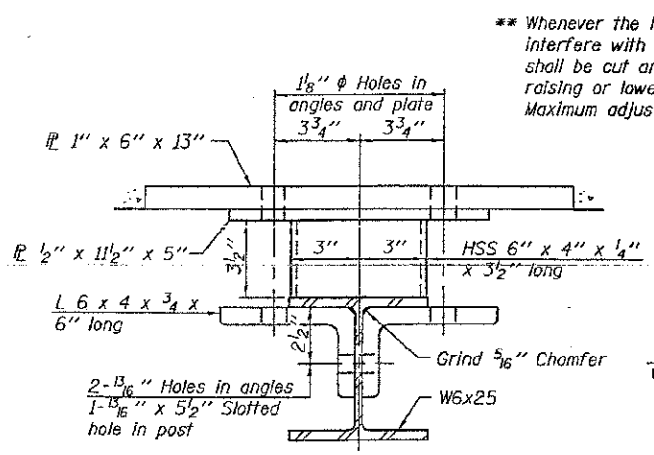


SECTION AT RAILING POST

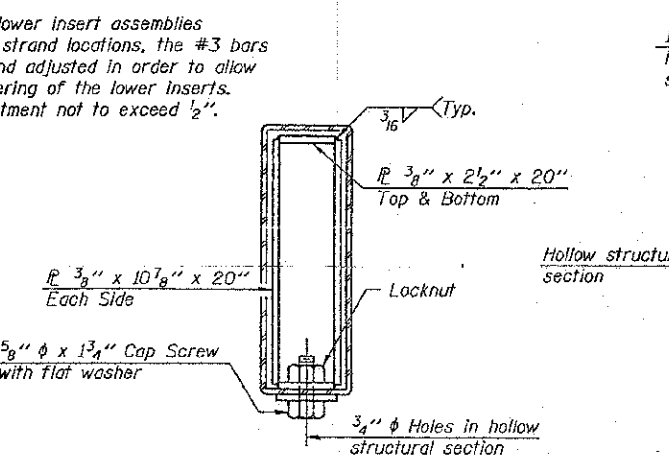


ANCHOR DEVICE

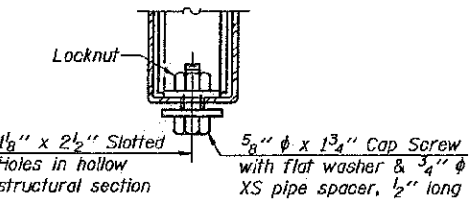
Notes:
All field drilled holes shall be coated with an approved zinc rich paint before erection. For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1. All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.
*** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.



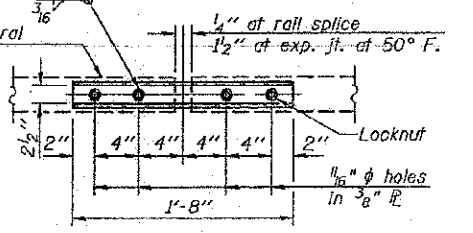
SECTION C-C



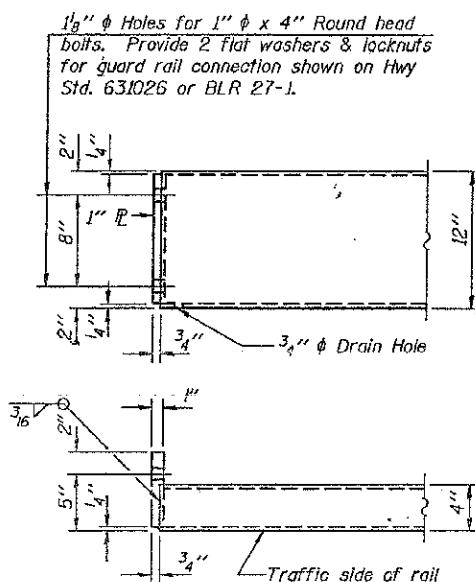
SECTIONS AT RAIL SPLICE



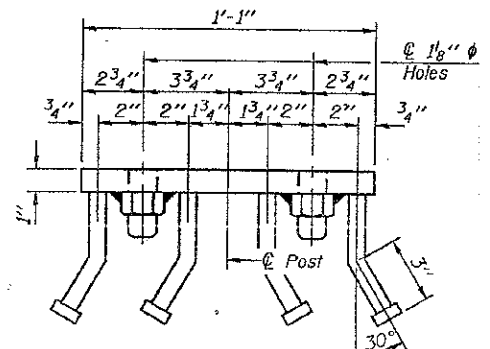
RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTT. SPLICE P TYPICAL



END OF RAIL DETAILS



VIEW D-D

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	242

R-23A 7-1-10 (10'-9" Maximum Post Spacing)

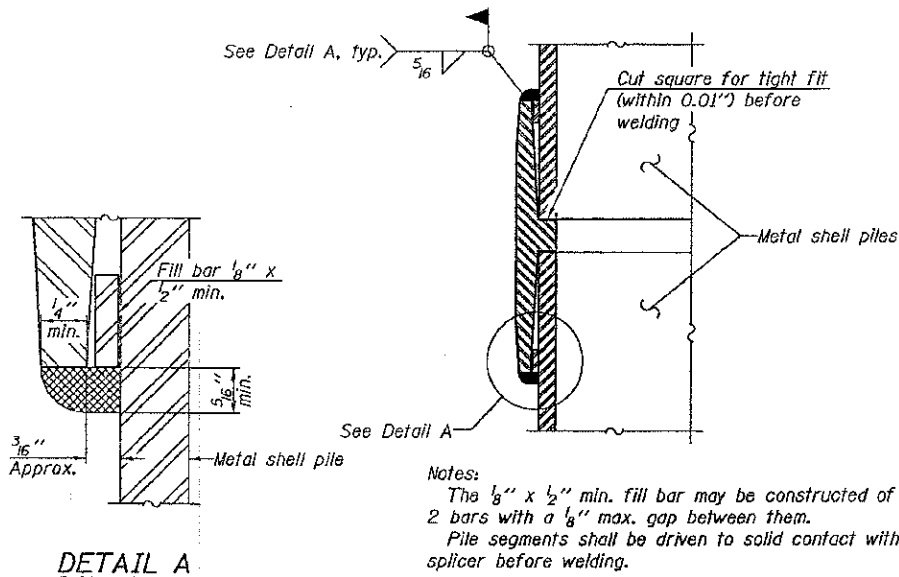
FILE NAME	USER NAME	DESIGNED	REVISOR	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	STEEL RAILING, TYPE S-1 STRUCTURE NO.	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED	REVISOR							
		DRAWN	REVISOR							
		CHECKED	REVISOR							
						SHEET NO. OF SHEETS		CONTRACT NO.		
						ILLINOIS FED. AID PROJECT				



SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
08-0087-06-BR	C.H.48	ST. CLAIR	14 of 15
FHWA REG. NO. 7	ILLINOIS	PROJ: BROS-0163(031)	
METAL SHELL PILE		CONTRACT 97525	

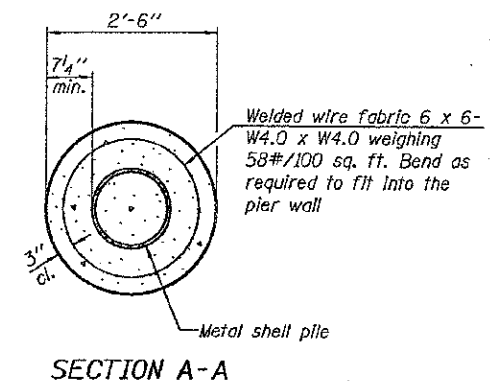
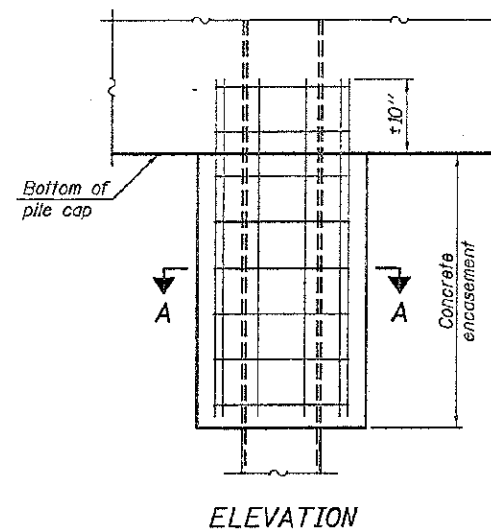
METAL SHELL PILE TABLE

Designation and outside diameter	Wall thickness t	Weight per foot (Lbs./ft.)	Inside volume (yd. ³ /ft.)
PP12	0.179"	22.60	0.0274
PP12	0.250"	31.37	0.0267
PP14	0.250"	36.71	0.0368
PP14	0.312"	45.61	0.0361



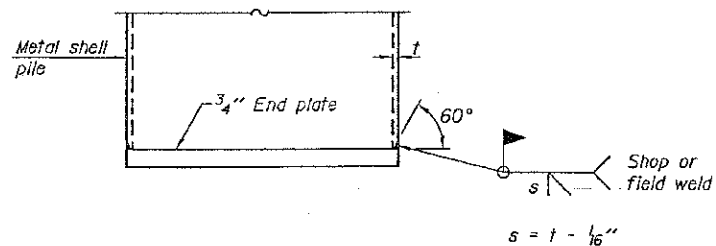
Notes:
 The 1/8" x 1/2" min. fill bar may be constructed of 2 bars with a 1/8" max. gap between them.
 Pile segments shall be driven to solid contact with splicer before welding.

WELDED COMMERCIAL SPLICE

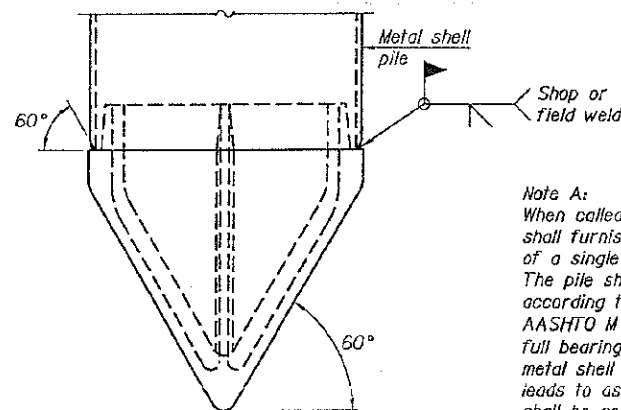


Note:
 Forms for encasement may be omitted when soil conditions permit.

CONCRETE ENCASEMENT AT PIERS



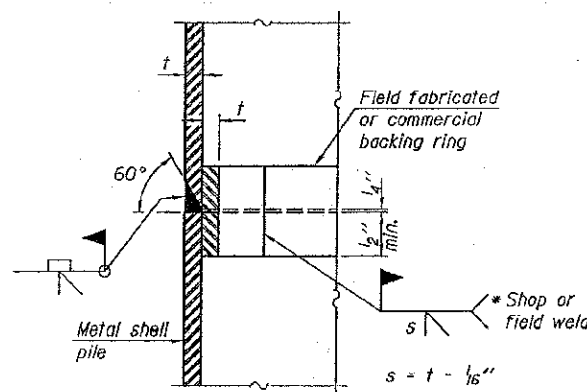
END PLATE ATTACHMENT



METAL SHELL PILE SHOE ATTACHMENT

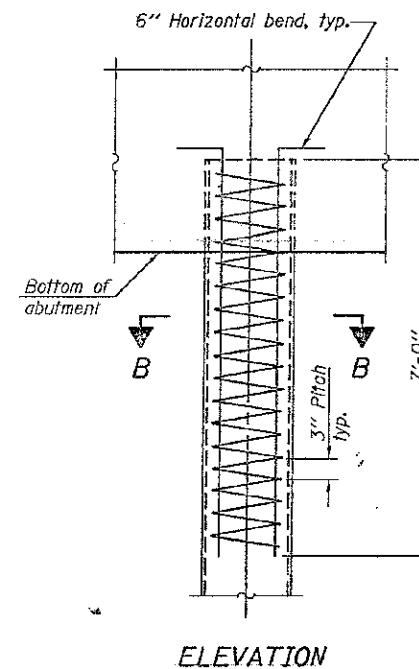
(See Note A)

Note A:
 When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 90-60 or AASHTO M 103 Grade 65-35 and shall provide full bearing over the full circumference of the metal shell pile. The pile shoe shall have tapered leads to assure proper alignment and fitting and shall be secured to the pile with a circumferential weld.

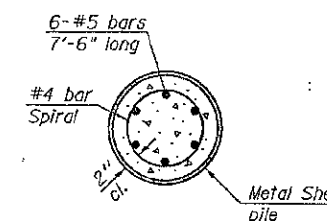


COMPLETE PENETRATION WELD SPLICE

* Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.



METAL SHELL REINFORCEMENT AT ABUTMENTS



SECTION B-B

Note:
 The metal shell piles shall be according to ASTM A 252 Grade 3.

F-MS 1-27-12

FILE NAME =	USER NAME =	DESIGNED -	REVISIONS
		CHECKED -	REVISIONS
	PLUT SCALE =	DRAWN -	REVISIONS
	PLUT DATE =	CHECKED -	REVISIONS

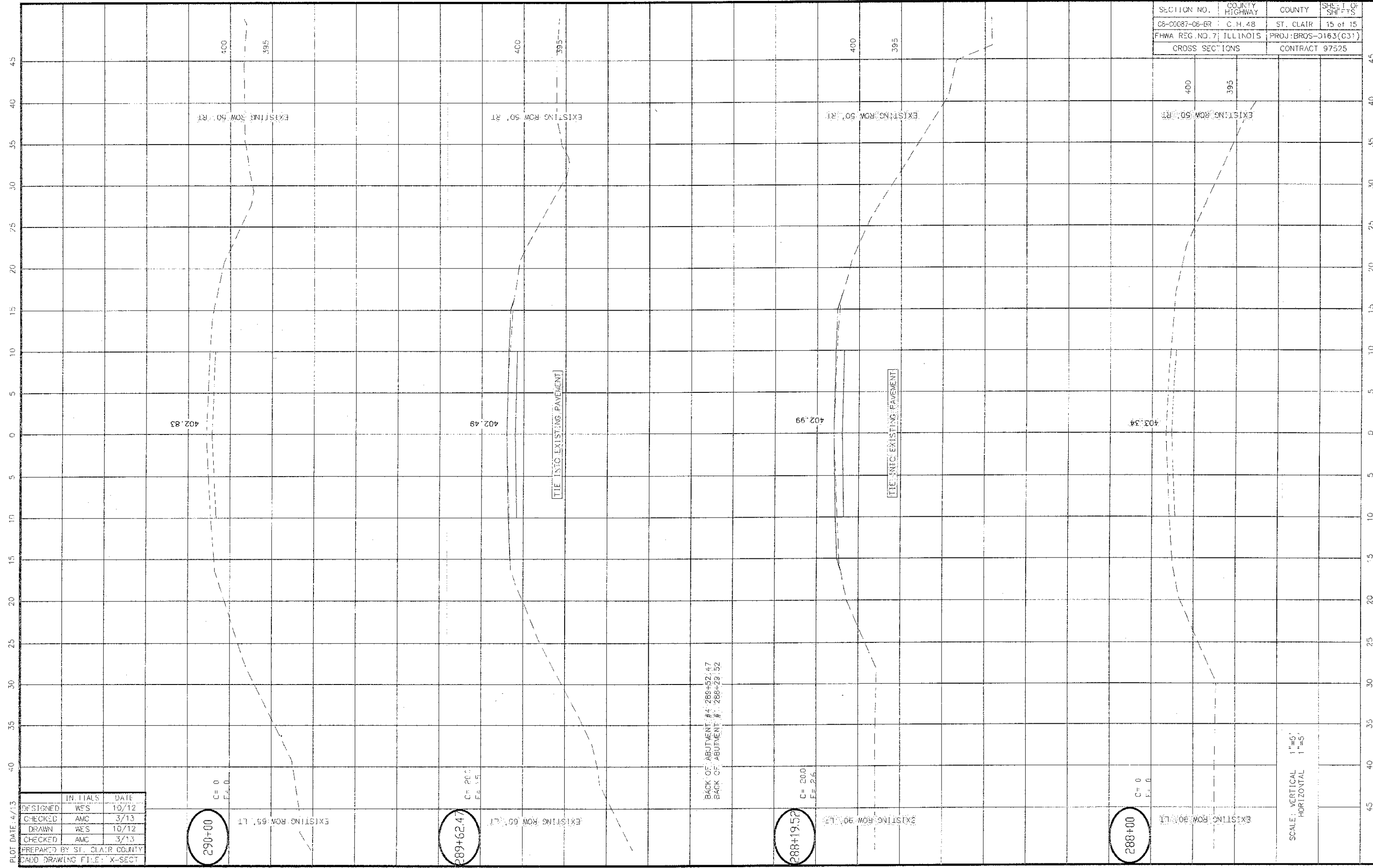
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

METAL SHELL PILE DETAILS
 STRUCTURE NO.

SHEET NO. OF SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
				CONTRACT NO.
[ILLINOIS] FED. AID PROJECT				

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
C6-00087-06-0R	C. H. 48	ST. CLAIR	15 of 15
FHWA REG. NO. 7	ILLINOIS	PROJ: BROS-0163(031)	
CROSS SECTIONS		CONTRACT 97525	



PLOT DATE: 4/13

	INITIALS	DATE
DESIGNED	WES	10/12
CHECKED	AMC	3/13
DRAWN	WES	10/12
CHECKED	AMC	3/13

PREPARED BY ST. CLAIR COUNTY
CADD DRAWING FILE: X-SECT

290+00
C=0
F=0

289+62.47
C=20.0
F=2.5

288+19.52
C=20.0
F=2.6

288+00
C=0
F=0

SCALE: VERTICAL 1"=5'
HORIZONTAL 1"=5'