

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
06-00201-02-BR	CH 58	ST. CLAIR	1 OF 13
FHWA REG. NO. 7	ILLINOIS	PROJ: BRM-5011(309)	
FEDERAL AID PROJECT		CONTRACT 97465	

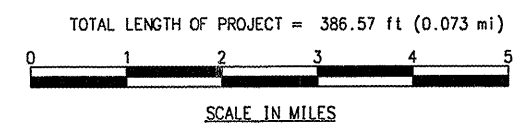
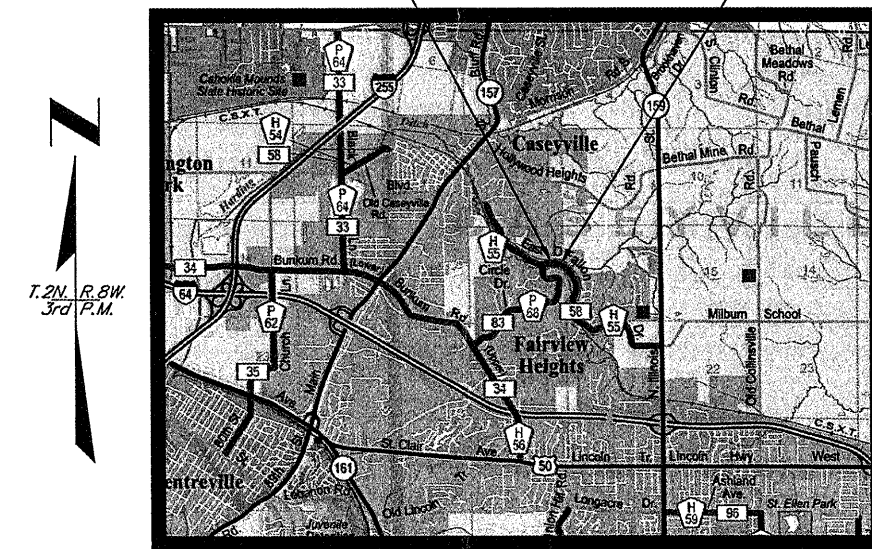
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
PLANS FOR PROPOSED  
LOCAL AGENCY IMPROVEMENT  
FEDERAL AID H.B.P. PROJECT  
EAST O'FALLON DR., CH 58, FAU 9148  
PROJECT NO. BRM-5011(309)  
JOB NO. C-98-340-10  
ST. CLAIR COUNTY  
SECTION 06-00201-02-BR

- INDEX TO SHEETS  
1 COVER SHEET  
2 GENERAL NOTES, TYPICAL SECTIONS, TRAFFIC CONTROL PLAN  
3 PLAN AND PROFILE  
4 GENERAL PLAN & ELEVATION  
5 SUPERSTRUCTURE  
6 PPC DECK BEAM  
7 PPC DECK BEAM DETAILS  
8 ABUTMENT DETAILS  
9 STEEL RAILING TYPE SM  
10 PILE DETAILS  
11-13 CROSS SECTIONS

SUMMARY OF QUANTITIES

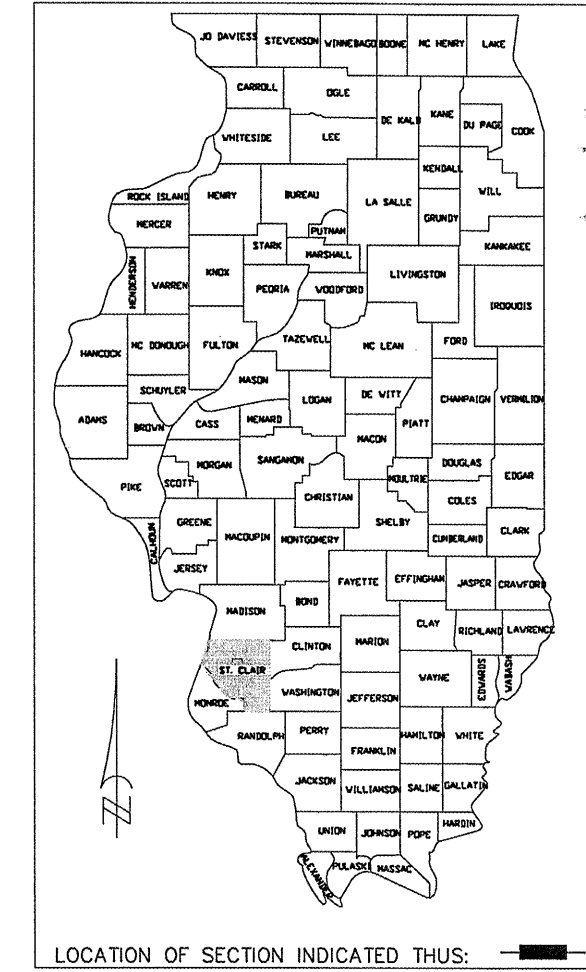
CODE NO.	ITEM	UNIT	QUANTITY
20200100	EARTH EXCAVATION	CU YD	49
20400800	FURNISHED EXCAVATION	CU YD	149
25000200	SEEDING, CLASS 2	ACRE	0.2
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	18
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	18
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	18
25100115	MULCH, METHOD 2	ACRE	0.2
28100707	STONE DUMPED RIPRAP, CLASS A4	SQ YD	270
28200200	FILTER FABRIC	SQ YD	270
35100700	AGGREGATE BASE COURSE, TYPE A 8"	SQ YD	59
40600100	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	23
40603315	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N70	TON	33
40800050	INCIDENTAL HOT-MIX ASPHALT SURFACING	TON	13
48100700	AGGREGATE SHOULDERS, TYPE A 8"	SQ YD	318
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50105220	PIPE CULVERT REMOVAL	FOOT	12
50300225	CONCRETE STRUCTURES	CU YD	32.2
50300280	CONCRETE ENCASEMENT	CU YD	4.2
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	2096
50500505	STUD SHEAR CONNECTORS	EACH	96
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	2578
50901050	STEEL RAILING, TYPE SM	FOOT	132
51201600	FURNISHING STEEL PILES HP 12 X 53	FOOT	605
51202305	DRIVING PILES	FOOT	605
51203600	TEST PILE STEEL HP 12 X 53	EACH	1
51204650	PILE SHOES	EACH	12
51500100	NAME PLATES	EACH	1
58100200	WATERPROOFING MEMBRANE SYSTEM	SQ YD	233
58300100	PORTLAND CEMENT MORTAR FAIRING COURSE	FOOT	459
63100087	TRAFFIC BARRIER TERMINAL, TYPE 6A	EACH	4
63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	4
63200310	GUARDRAIL REMOVAL	FOOT	204
66700205	PERMANENT SURVEY MARKERS, TYPE I	EACH	2
67100100	MOBILIZATION	L SUM	1
70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1
78200410	GUARDRAIL MARKERS, TYPE A	EACH	4
78200530	BARRIER WALL MARKERS, TYPE C	EACH	4
78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
X0323265	REMOVE EXISTING RIPRAP	SQYD	375
Z0018700	DRAINAGE STRUCTURE TO BE REMOVED	EACH	2
<b>20076600</b>	<b>TRAINERS</b>	<b>Hour</b>	<b>500</b>
* SPECIALTY ITEM			

SECTION 06-00201-02-BR BEGINS STA. 90+70.94  
SECTION 06-00201-02-BR ENDS STA. 94+57.51



SECTION 06-00201-02-BR INCLUDES A PROPOSED SINGLE SPAN (65.5 FT), PRECAST, PRESTRESSED, CONCRETE DECK BEAM BRIDGE, 27" DEEP DECK BEAMS.

ROADWAY CLASSIFICATION : URBAN COLLECTOR  
CURRENT ADT: 900  
DESIGN SPEED: 30 mph  
DESIGN FREQUENCY: 30 YEAR STORM



March 18, 2011

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



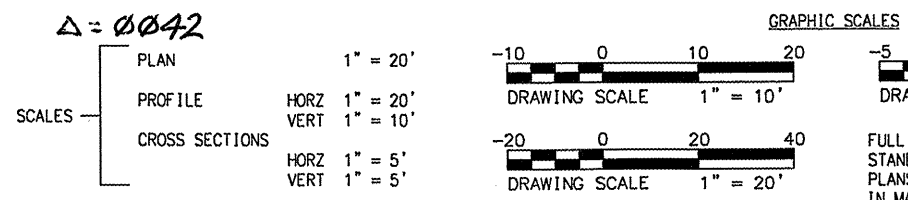
*Darrell I. Cates*  
DARRELL I. CATES, P.E.  
County Engineer  
License Number 062-042908  
License Expiration Date: November 30, 2011

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

APPROVED March 18, 2011  
*Darrell I. Cates*  
COUNTY ENGINEER

PASSED April 5, 2011  
*Mary C. Lamie*  
DISTRICT ENGINEER OF LOCAL ROADS & STREETS

Releasing for Bid April 5, 2011  
Based on Limited Review  
*Mary C. Lamie*  
Mary C. Lamie, PE  
DEPUTY DIRECTOR OF HIGHWAYS, REGION FIVE ENGINEER



STANDARDS

000001-06	635011-02
515001-03	667101-01
630301-05	701901-01
631032-06	BLR 21-8
635006-03	

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

CASEYVILLE TOWNSHIP T.2N., R.8W.  
S.E. 1/4 OF THE N.E. 1/4 SECTION 17  
S.W. 1/4 OF THE N.W. 1/4 SECTION 16

PRINTED BY AUTHORITY OF THE STATE OF ILLINOIS

PLOT DATE: 3/11

**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:  
 0.2 ACRE, SEEDING CLASS 2; 18 POUND, NITROGEN FERTILIZER NUTRIENT; 18 POUND PHOSPHOROUS FERTILIZER NUTRIENT; 18 POUND, POTASSIUM FERTILIZER NUTRIENT; 0.2 ACRE, MULCH, METHOD 2; 23 GALLON, BITUMINOUS MATERIALS (PRIME COAT); 33 TON, HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N70; 13 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.  
 CASEYVILLE WATER DEPARTMENT  
 909 SOUTH MAIN ST.  
 CASEYVILLE, IL 62232  
 (618) 344-1234
- 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
- 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 (2011) = 914	
ROADWAY CLASSIFICATION: URBAN COLLECTOR	
PROPOSED MATERIALS:	
AGGREGATE BASE COURSE, TYPE A 8"	
4" INCIDENTAL HOT-MIX ASPHALT SURFACING	

**EARTHWORK SCHEDULE**

LOCATION	EARTH EXCAVATION	EXCAVATION ADJUSTED FOR SHRINKAGE (25%)	EMBANKMENT	EARTHWORK BALANCE	FURNISHED EXCAVATION
	CUBIC YARDS	CUBIC YARDS	CUBIC YARDS	CUBIC YARDS	CUBIC YARDS
STA.90+70.94 - STA.94+57.51	49	37	186	-149	149

LOCATION	BRIDGE DECK	ROAD SURFACE
MIXTURE USE	SURFACE COURSE	INCIDENTAL
AC/PG	PG 64-22	PG 64-22
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
FRICTION AGG.	MIXTURE C	MIXTURE C
MIXTURE WEIGHT	112.0 lb/sq yd/in	112.0 lb/sq yd/in

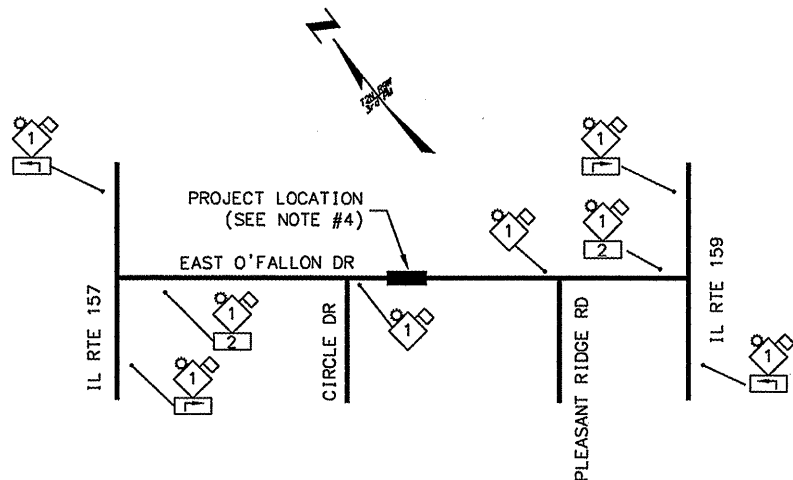
**NOTES**

- TYPE A FLASHING WARNING LIGHTS SHALL BE USED ON EACH ADVANCE WARNING SIGN.
- ALL ADVANCE WARNING SIGNS SHALL BE A MINIMUM OF 48"X48" 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: 2 MILE
- SUPPLEMENTAL PLATE: ARROW

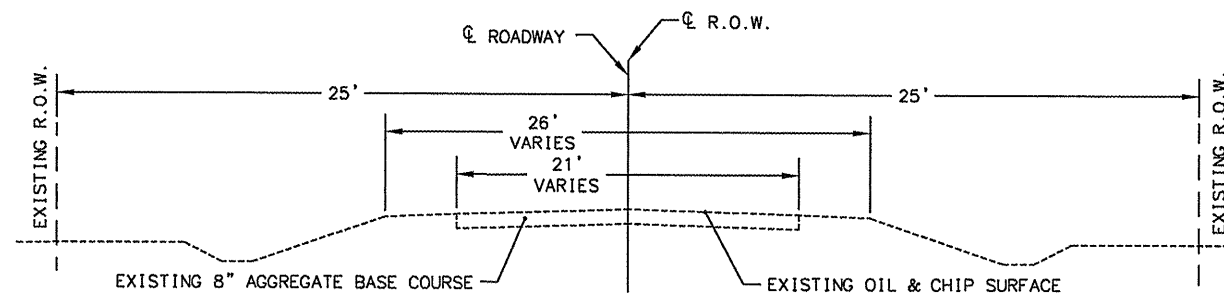
**TRAFFIC CONTROL PLAN**



DRAWING FILE: general notes and typical sections.dwg

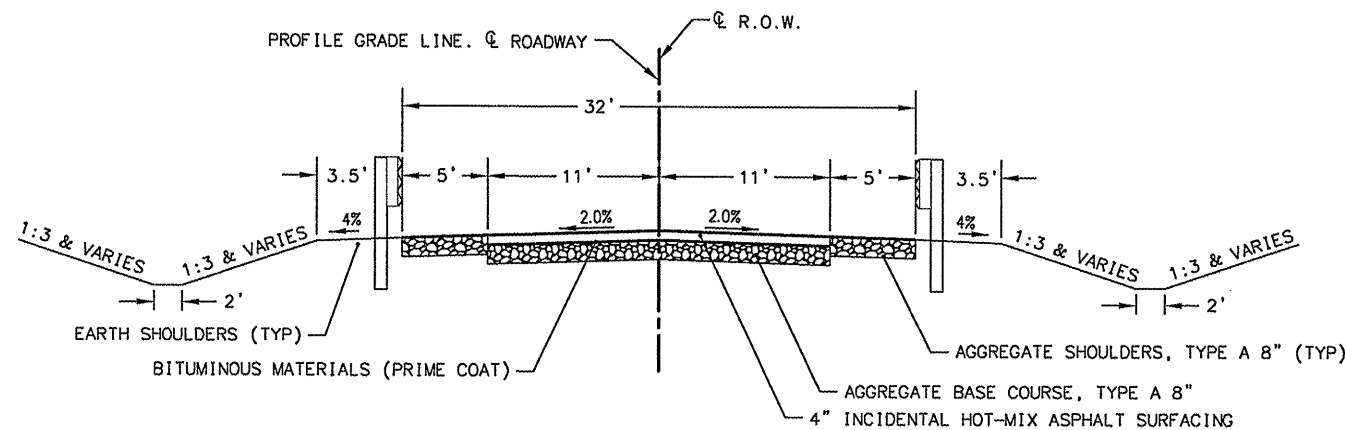
	INITIALS	DATE
DESIGNED	WES	11/10
CHECKED		
DRAWN	WES	11/10
CHECKED		
PREPARED BY ST. CLAIR COUNTY		

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
06-00201-02-BR	CH 58	ST. CLAIR	2 OF 13
FHWA REG. NO. 7		ILLINOIS	PROJ: BRM-5011(309)
GENERAL NOTES & TYP SEC		CONTRACT 97465	



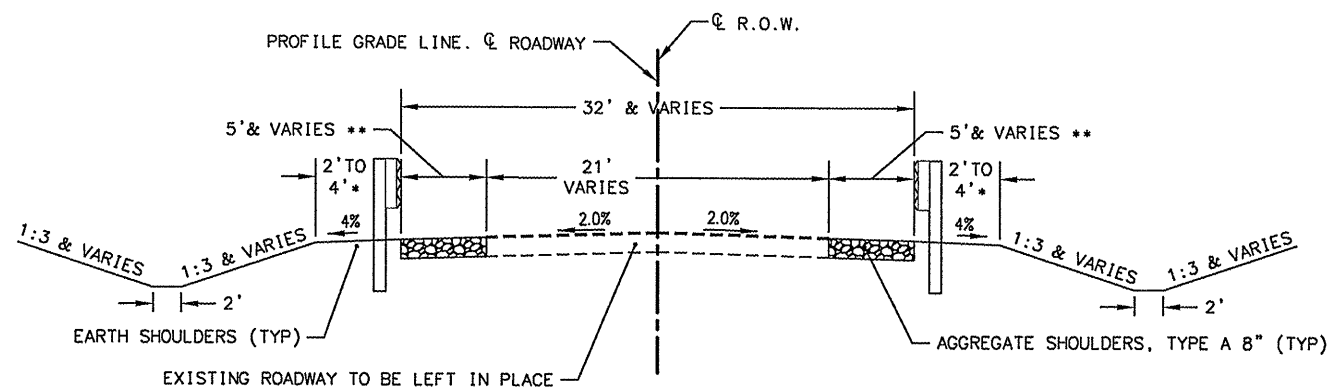
**EXISTING TYPICAL SECTION**

STA. 90+70.94 TO STA. 94+57.51



**PROPOSED TYPICAL SECTION**

STA. 92+15.01 TO STA. 92+27.06 & STA. 92+94.56 TO STA. 93+06.59

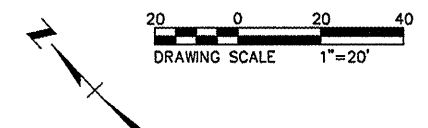


**PROPOSED TYPICAL SECTION**

STA. 90+70.94 TO STA. 92+15.01 & STA. 93+06.59 TO STA. 94+57.51

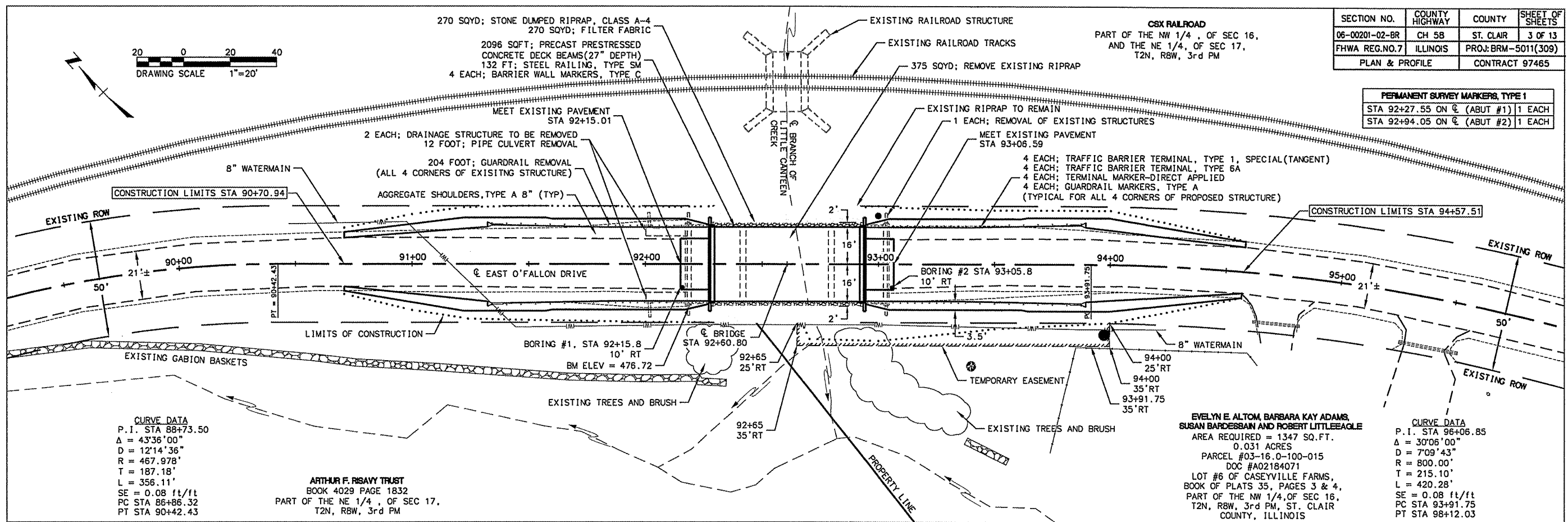
**NOTES:**

- \* TRANSITION EARTH SHOULDER FROM 2' TO 4' STA 90+70.94 TO STA 91+22.10  
 TRANSITION EARTH SHOULDER FROM 4' TO 2' STA 93+99.50 TO STA 94+57.51
- \*\* TRANSITION ROCK SHOULDER FROM 0' TO 5' STA 90+70.94 TO STA 91+32.10  
 TRANSITION ROCK SHOULDER FROM 5' TO 0' STA 93+89.50 TO STA 94+57.51
- TRAFFIC BARRIER TERMINALS ARE LOCATED FROM STA 91+32.10 TO STA 92+27.80 AND FROM STA 92+93.80 TO STA 93+89.50



SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
06-00201-02-BR	CH 58	ST. CLAIR	3 OF 13
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PLAN & PROFILE		CONTRACT 97465	

PERMANENT SURVEY MARKERS, TYPE 1	
STA 92+27.55 ON C (ABUT #1)	1 EACH
STA 92+94.05 ON C (ABUT #2)	1 EACH



**CURVE DATA**  
 P.I. STA 88+73.50  
 Δ = 43°36'00"  
 D = 12'14"36"  
 R = 467.978'  
 T = 187.18'  
 L = 356.11'  
 SE = 0.08 ft/ft  
 PC STA 86+86.32  
 PT STA 90+42.43

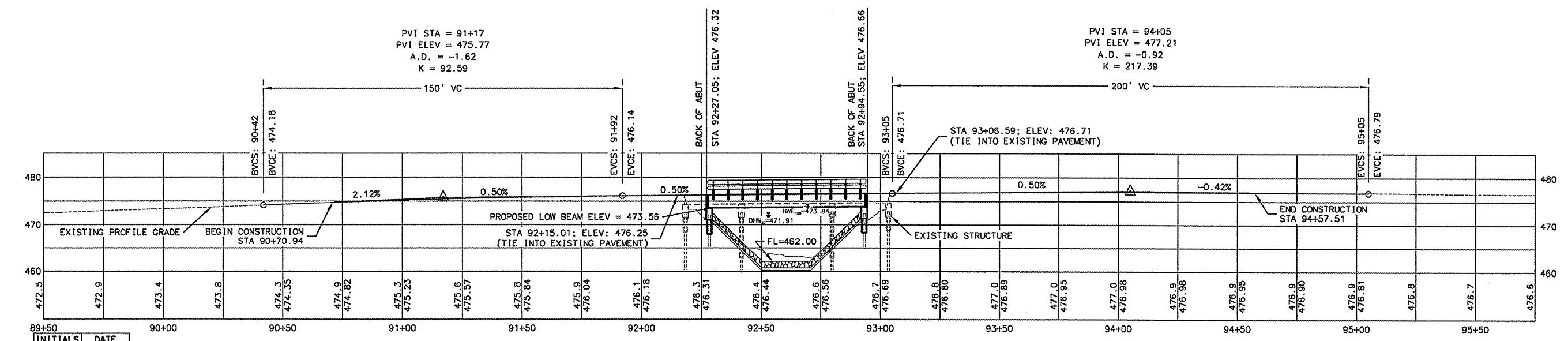
**ARTHUR F. RISAVY TRUST**  
 BOOK 4029 PAGE 1832  
 PART OF THE NE 1/4, OF SEC 17,  
 T2N, RBW, 3rd PM

**EVELYN E. ALTON, BARBARA KAY ADAMS,  
 SUSAN BARDESSAN AND ROBERT LITTLEAGLE**  
 AREA REQUIRED = 1347 SQ. FT.  
 0.31 ACRES  
 PARCEL #03-16.0-100-015  
 DOC #A02184071  
 LOT #6 OF CASEYVILLE FARMS,  
 BOOK OF PLATS 35, PAGES 3 & 4,  
 PART OF THE NW 1/4, OF SEC 16,  
 T2N, RBW, 3rd PM, ST. CLAIR  
 COUNTY, ILLINOIS

**CURVE DATA**  
 P.I. STA 96+06.85  
 Δ = 30°06'00"  
 D = 7°09'43"  
 R = 800.00'  
 T = 215.10'  
 L = 420.28'  
 SE = 0.08 ft/ft  
 PC STA 93+91.75  
 PT STA 98+12.03

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

BM: CHISLED SQUARE IN THE N.W. WINGWALL  
 STA 92+18.84, 17.97' RT  
 ELEV = 476.72



	INITIALS	DATE
DESIGNED	WS	3/10
CHECKED		
DRAWN	WS	3/10
CHECKED		
PREPARED BY ST. CLAIR COUNTY		

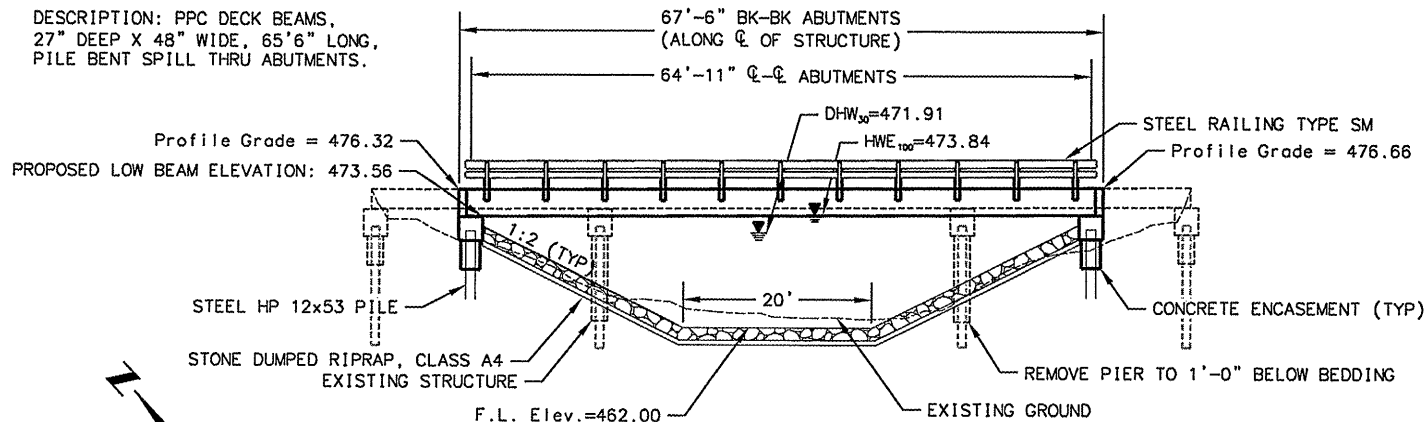
BM: CHISLED SQUARE IN NW WINGWALL OF EXISTING STRUCTURE.  
 STA 92+18.84, 17.97' RT  
 ELEV = 476.72

EXISTING STRUCTURE, NO. 082-3061, HAS THREE SPANS (24', 38' & 24'). THE SUPERSTRUCTURE HAS 9 PRECAST CONCRETE BRIDGE SLABS THAT ARE 1'-9" DEEP AND 3'-9" WIDE FOR A TOTAL WIDTH OF 33'-9". THE CAPS AT THE ABUTMENTS AND PIERS ARE REINFORCED CONCRETE AND ARE SUPPORTED BY 6 HP 10X42 STEEL 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.

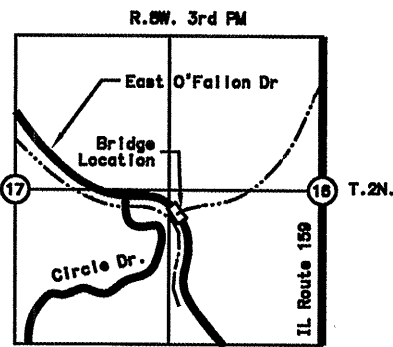
SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
06-00201-02-BR	CH 58	ST. CLAIR	4 OF 13
FHWA REG. NO. 7	ILLINOIS	PROJ: BRM-5011(309)	
GENERAL PLAN & ELEV		CONTRACT 97465	

DESCRIPTION: PPC DECK BEAMS, 27" DEEP X 48" WIDE, 65'6" LONG, PILE BENT SPILL THRU ABUTMENTS.



**ELEVATION**

PGE = PROFILE GRADE ELEVATION  
 TCE = TOP OF CAP ELEVATION



**LOCATION SKETCH**

**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 SM 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 SUPPLEMENTAL SPECIFICATIONS.
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 STEEL H-PILES SHALL BE ACCORDING TO AASHTO M270 GRADE 50

**TOTAL BILL OF MATERIALS (STRUCTURE)**

ITEM	UNIT	SUPER	SUB	TOTAL
STONE DUMPED RIPRAP, CLASS A4	SQ YD			270
FILTER FABRIC	SQ YD			270
HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N70	TON	33		33
REMOVAL OF EXISTING STRUCTURES	EACH			1
CONCRETE STRUCTURES	CU YD		32.2	32.2
CONCRETE ENCASEMENT	CU YD		4.2	4.2
PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	2096		2096
STUD SHEAR CONNECTORS	EACH		96	96
REINFORCEMENT BARS, EPOXY COATED	POUND		2578	2578
STEEL RAILING, TYPE SM	FOOT	132		132
FURNISHING STEEL PILES HP 12X53	FOOT		605	605
DRIVING PILES	FOOT		605	605
TEST PILE STEEL HP 12X53	EACH		1	1
PILE SHOES	EACH		12	12
NAME PLATES	EACH			1
WATERPROOFING MEMBRANE SYSTEM	SQ YD	233		233
PORTLAND CEMENT MORTAR FAIRING COURSE	FOOT	459		459

**DESIGN SPECIFICATIONS**

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

**PILE DATA (2-ABUTS)**

TYPE & SIZE..... STEEL HP 12X53  
 NOMINAL REQUIRED BEARING..... 418 KIPS  
 FACTORED RESISTANCE AVAILABLE..... 209 KIPS  
 ESTIMATED LENGTH..... 55 FT  
 NO. OF PRODUCTION PILES..... 11  
 NO. OF TEST PILE (ABUTMENT #2)..... 1  
 NO. OF PILE SHOES..... 12

**INDEX OF SHEETS**

4. GENERAL PLAN & ELEVATION
5. SUPERSTRUCTURE
6. P.C.C. DECK BEAM
7. P.C.C. DECK BEAM DETAILS
8. ABUTMENT DETAILS
9. STEEL RAILING TYPE SM
10. PILE DETAILS

**SEISMIC DATA**

SEISMIC PERFORMANCE ZONE (S.P.Z.) = 2  
 DESIGN SPECTRAL ACCELERATION AT 1.0 SEC ( $S_{D1}$ ) = 0.26g  
 DESIGN SPECTRAL ACCELERATION AT 0.2 SEC ( $S_{D0.2}$ ) = 0.60g  
 SOIL SITE CLASS = D

**DESIGN STRESSES**

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

BRANCH OF LITTLE CANTOEN CREEK BUILT 201\_ BY ST. CLAIR COUNTY SEC. 06-00201-02-BR STA. 92+60.80 STR. NO. 082-3104 LOADING HL93

**LETTERING FOR NAME PLATE**

LOCATE NAME PLATE AT N.W. WINGWALL OF BRIDGE (SEE STD. 515001)

**WATERWAY INFORMATION**

DRAINAGE AREA = 2.83 sq.mi.		LOW GRADE ELEVATION = 474.30 @ STA 90+50.00				
FLOOD	FREQUENCY (year)	FLOWRATE Q (cfs)	OPENING (sq.ft.)	NATURAL H.W.E.	HEAD (ft.)	HEADWATER ELEVATION
DESIGN	30	1524	352	471.91	-0.02	471.89
BASE	100	2120	485	473.84	-0.03	473.81

ADDITIONAL OVER-THE-ROAD FLOW AREA:

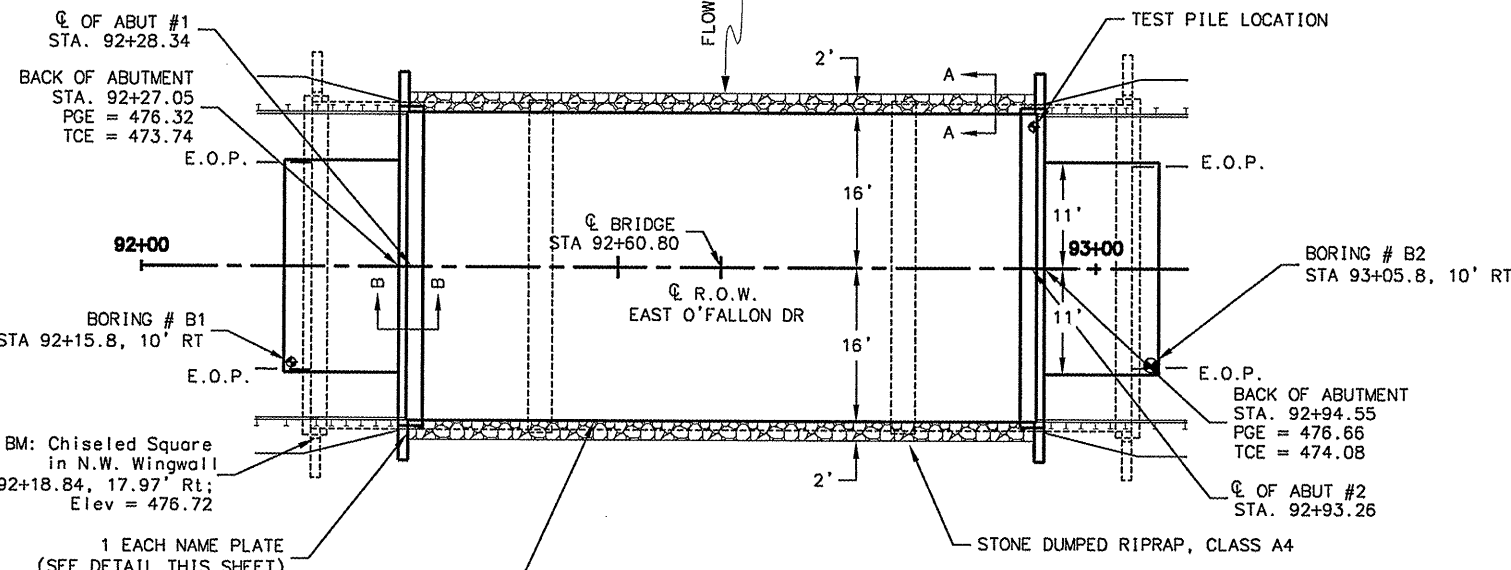


I certify that to the best of my knowledge, information and belief, this bridge is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements for the current "AASHTO LRFD Bridge Design Specifications".

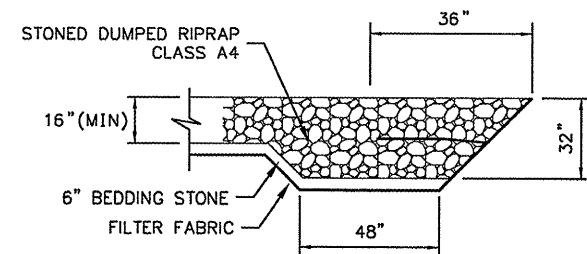
*Robert A. Bruckner*  
 MARCH 23, 2011  
 LICENSE NO. 081-004669  
 LICENSE EXPIRATION DATE: 11/30/2012

**GENERAL PLAN & ELEVATION**

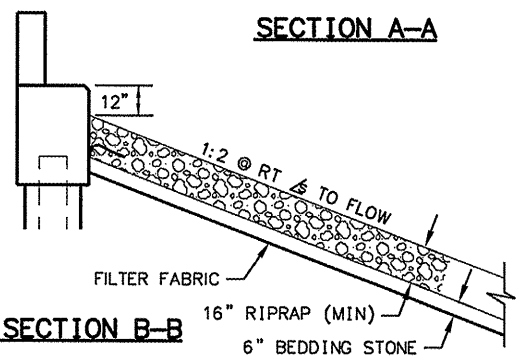
EAST O'FALLON DR (CH 58)  
 OVER BRANCH OF LITTLE CANTOEN CREEK  
 SECTION 06-00201-02-BR  
 ST. CLAIR COUNTY  
 STATION 92+60.80  
 S.N. 082-3104



**PLAN**

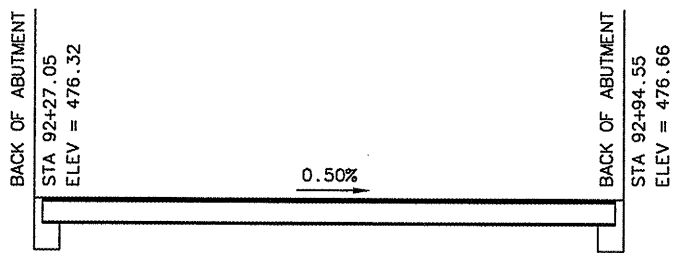


**SECTION A-A**



**SECTION B-B**

**PROPOSED PROFILE ALONG CL OF STRUCTURE**

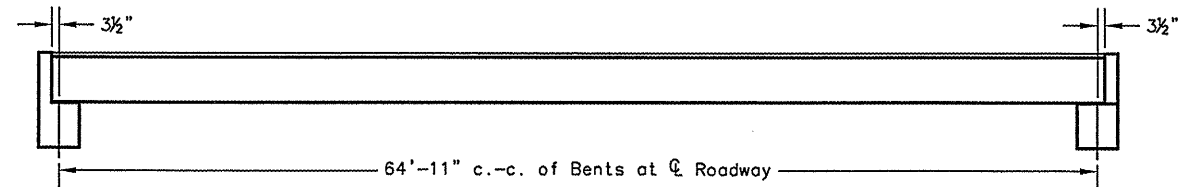


INITIALS	DATE
DESIGNED WS	11/10
CHECKED RAB	3/11
DRAWN WS	11/10
CHECKED RAB	3/11
PREPARED BY ST. CLAIR COUNTY	

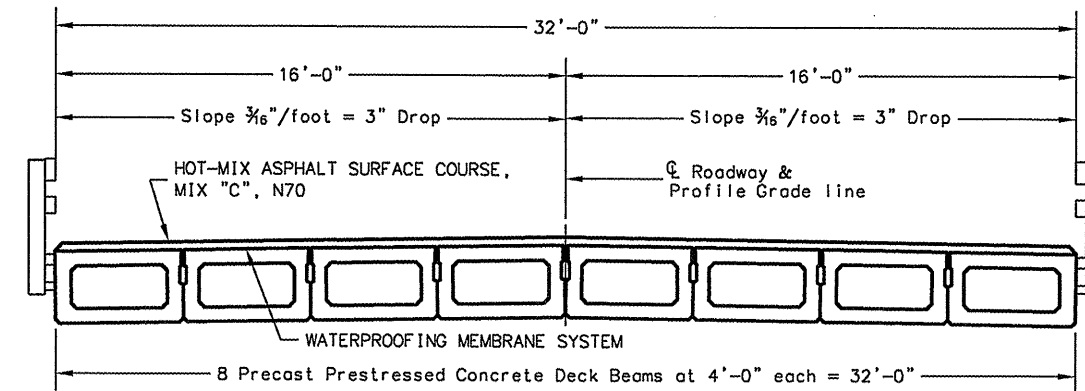
DRAWING FILE: Gen Plan and Elev.dwg

PLOT DATE: 3/11

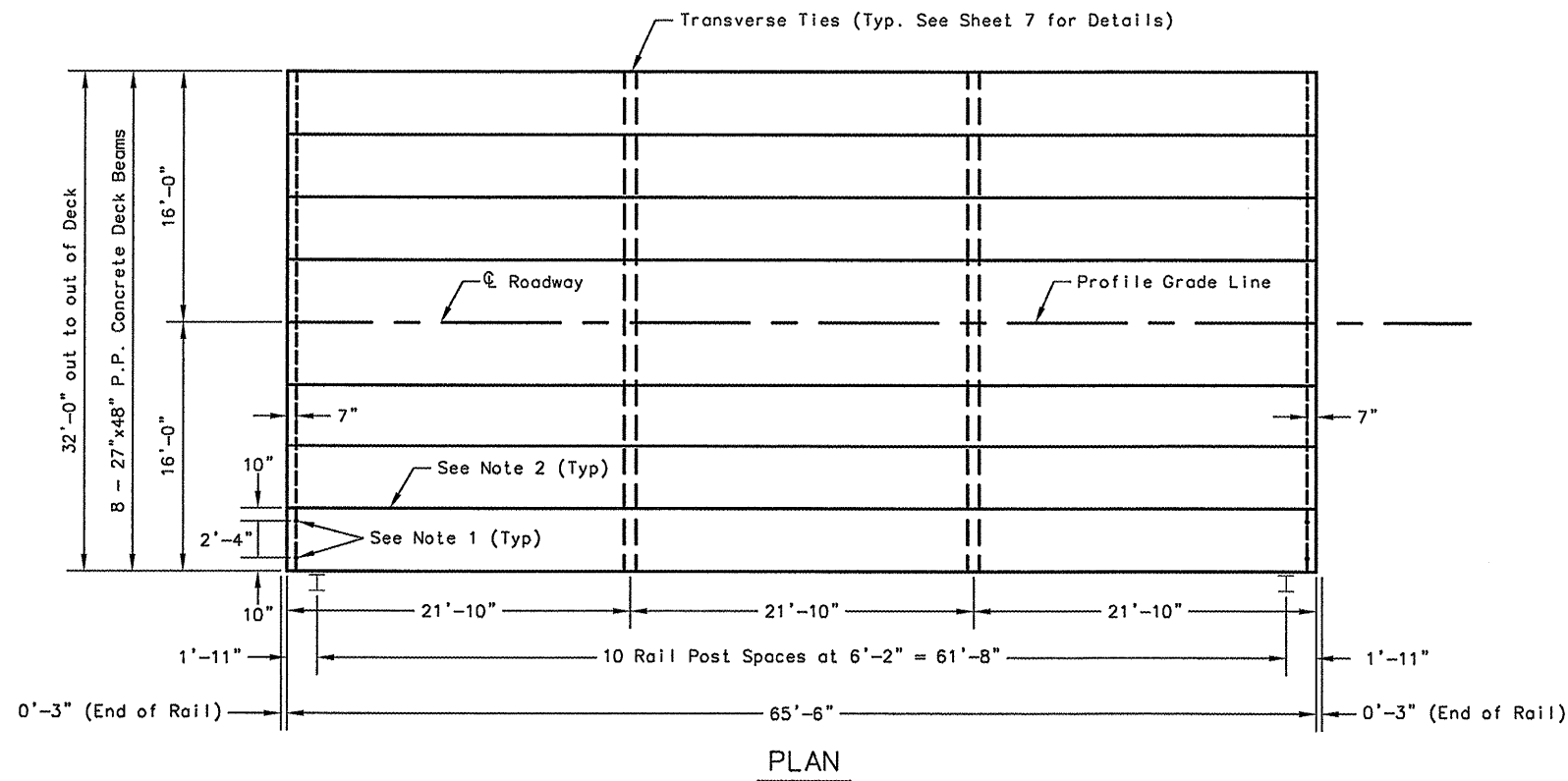
SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
06-00201-02-BR	CH 58	ST. CLAIR	5 OF 13
FHWA REG. NO. 7	ILLINOIS	PROJ: BRM-5011 (309)	
SUPERSTRUCTURE		CONTRACT 97465	



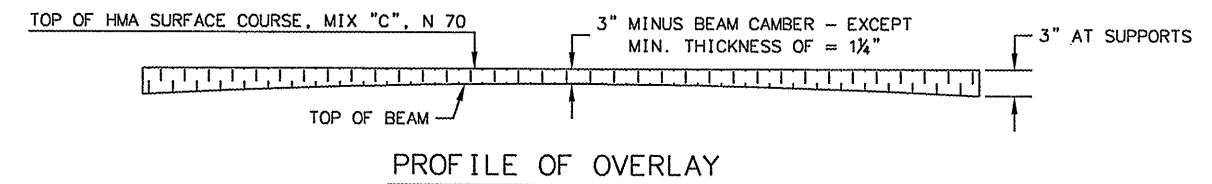
TYPICAL ELEVATION



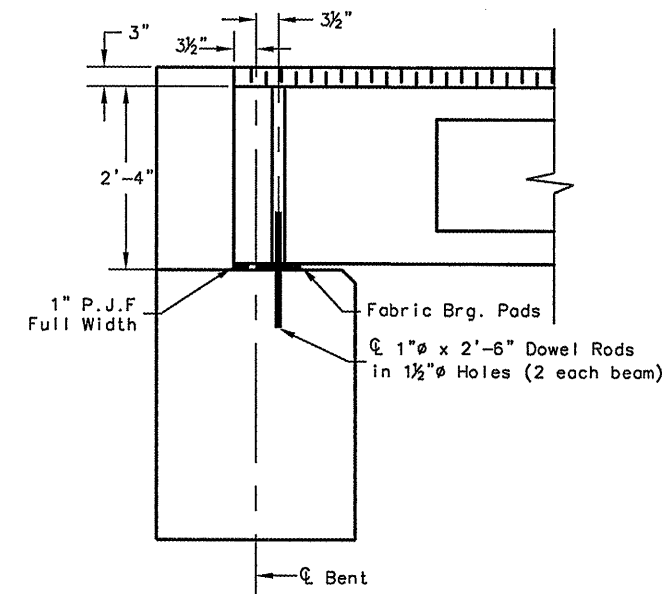
CROSS SECTION



PLAN



PROFILE OF OVERLAY



SECTION AT ABUTMENTS  
(ALONG  $\phi$  BEAMS)

QUANTITIES FOR ONE SPAN

P.P. CONC. DK. BM. 27" DP.	2096 SQ FT
STEEL RAILING, TYPE SM	132 FT
HMA SC "C" N70	33 TONS
WATERPROOFING MEMBRANE SYSTEM	233 SQ YD
PORTLAND CEMENT MORTAR	459 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 SHEAR KEYS.
- LONGITUDINAL KEYS SHALL BE GROUTED.

P.P.C. DECK BEAM  
SUPERSTRUCTURE

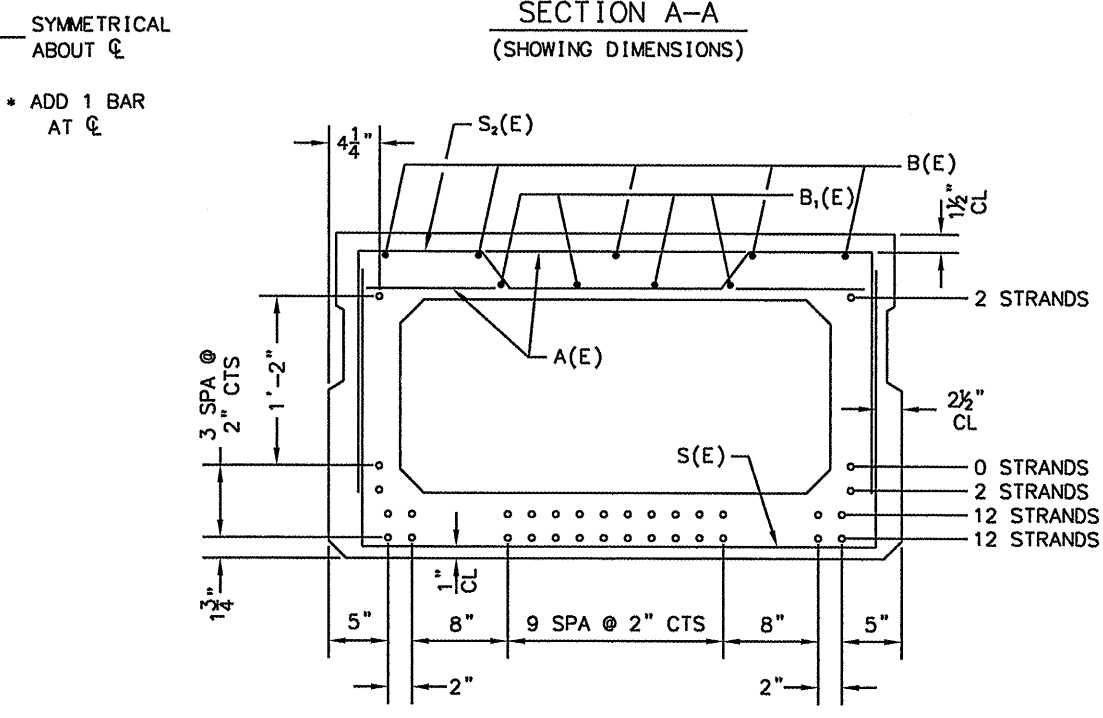
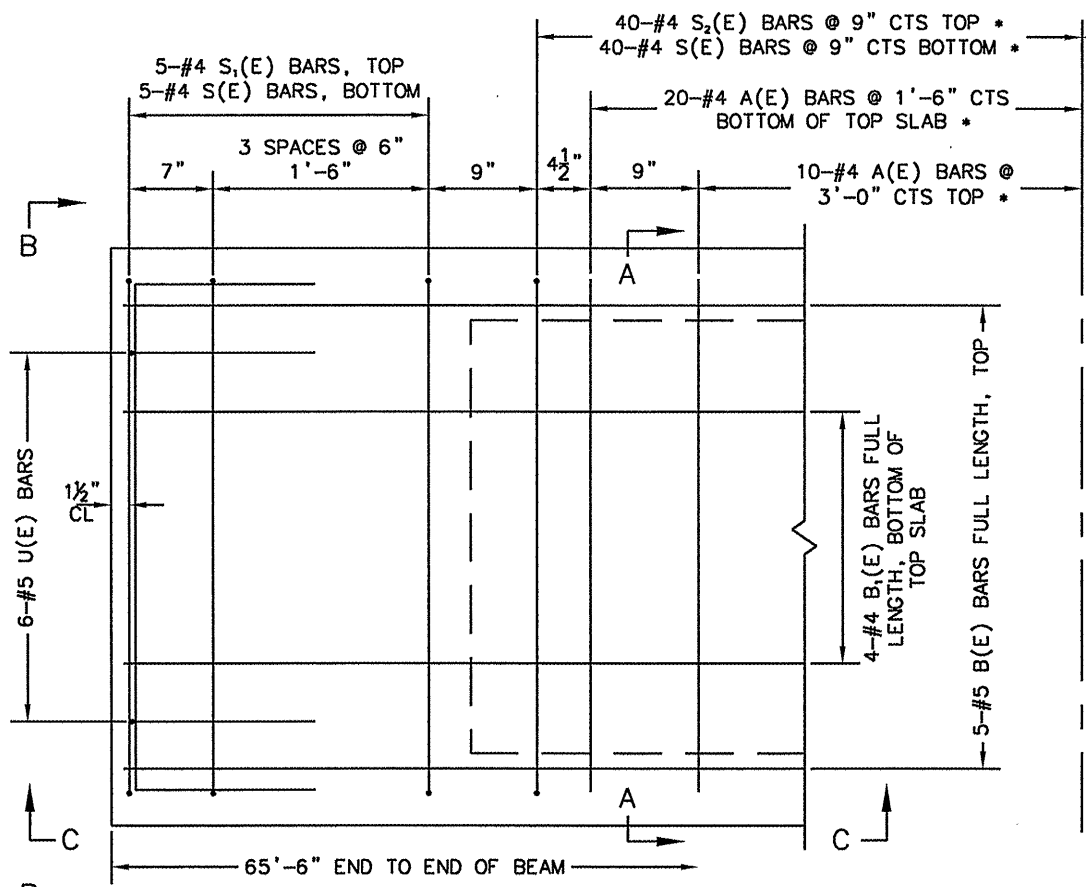
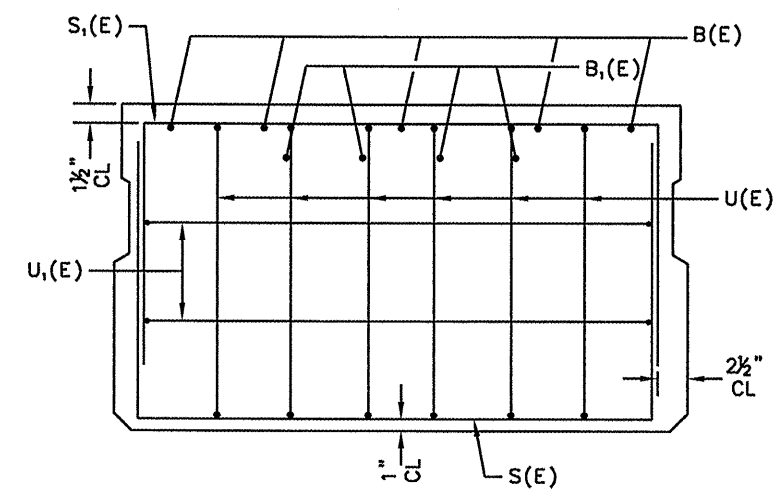
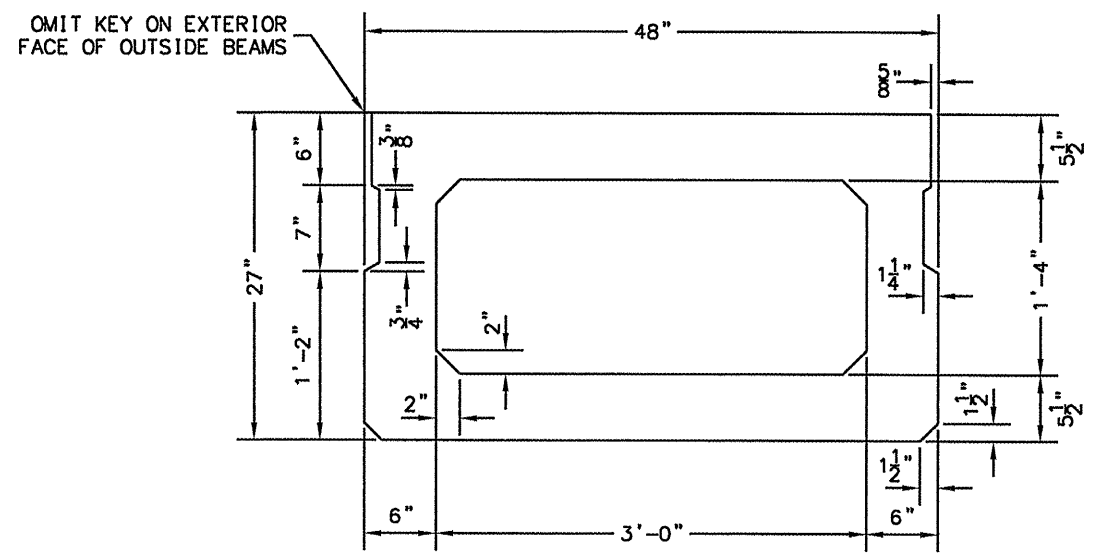
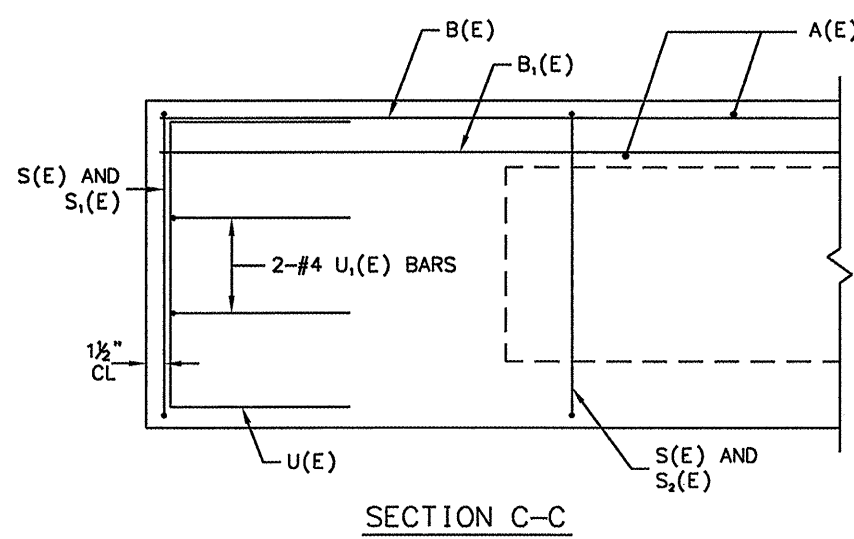
32' RDWY.	27" x 48" BMS.
65'6" SPAN	0° SKEW

DESIGNED	WES	11/10
CHECKED	RAB	3/11
DRAWN	WES	11/10
CHECKED	RAB	3/11
PREPARED BY ST. CLAIR COUNTY		
CADD DRAWING FILE: superstr		

PLOT DATE: 3/11



SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
06-00201-02-BR	CH 58	ST. CLAIR	6 OF 13
FHWA REG. NO. 7	ILLINOIS	PROJ: BRM-5011(309)	
DECK BEAM		CONTRACT 97465	

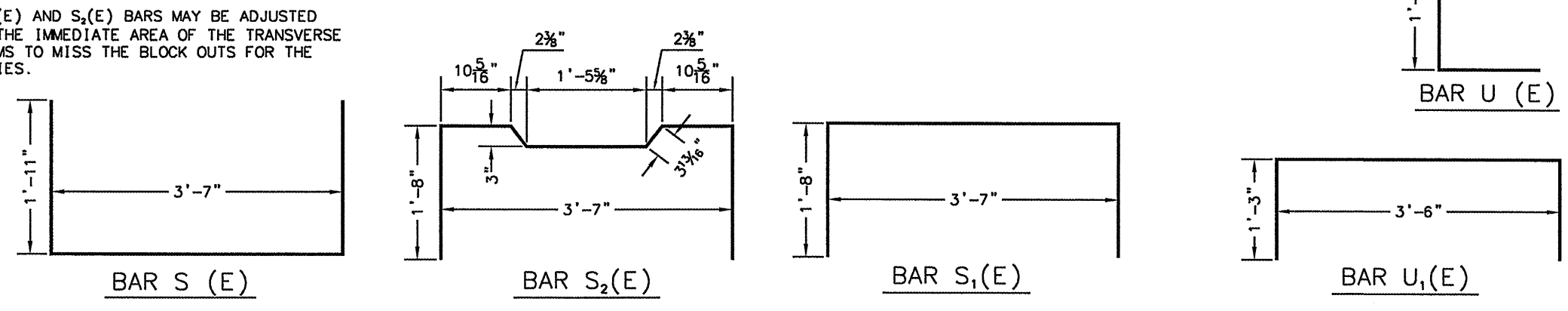


MINIMUM BAR LAP  
#4 BAR = 2'-0"  
#5 BAR = 2'-6"

BAR LIST  
ONE BEAM ONLY  
(FOR INFORMATION ONLY)

BAR	NO.	SIZE	LENGTH	SHAPE
A(E)	62	#4	3'-7"	—
B(E)	5	#5	65'-3"	—
B <sub>1</sub> (E)	4	#4	65'-3"	—
S(E)	91	#4	7'-5"	U
S <sub>1</sub> (E)	10	#4	6'-11"	U
S <sub>2</sub> (E)	81	#4	7'-2"	U
U(E)	12	#5	4'-6"	U
U <sub>1</sub> (E)	4	#4	6'-0"	U

NOTE: SEE SHEET 7 FOR ADDITIONAL DETAILS.  
NOTE: ALL REBAR SHOWN ARE TO BE EPOXY COATED



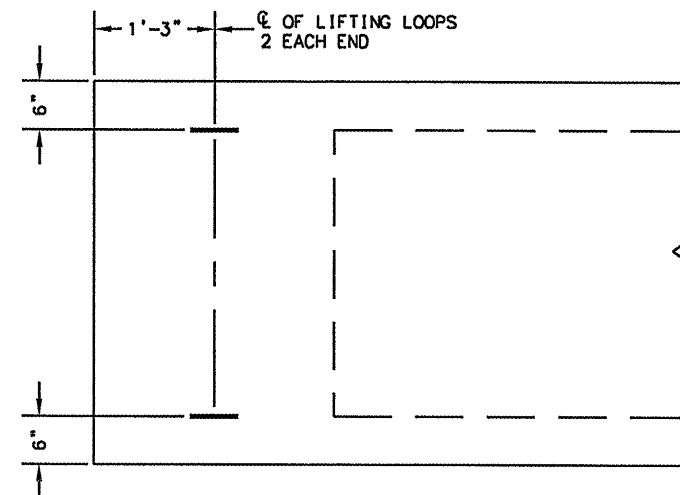
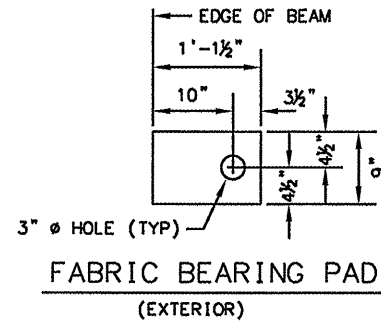
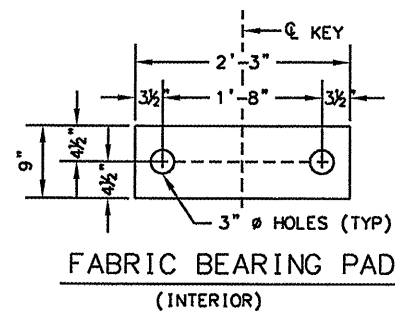
PLOT DATE: 3/11

INITIALS	DATE
DESIGNED WES	11/10
CHECKED RAB	3/11
DRAWN WES	11/10
CHECKED RAB	3/11

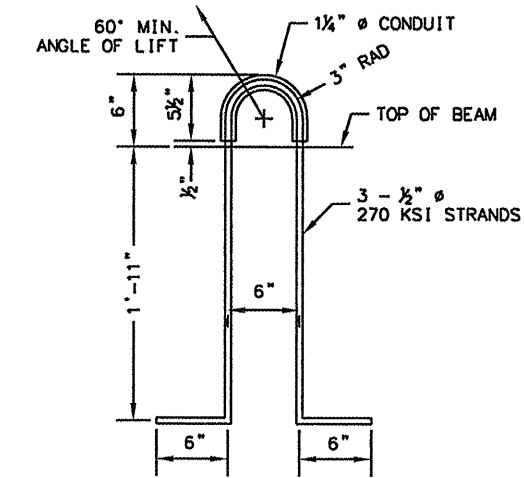
PREPARED BY ST. CLAIR COUNTY  
CADD DRAWING FILE: BEAM

P.P.C. DECK BEAM
27" x 48" BEAMS
32' ROADWAY

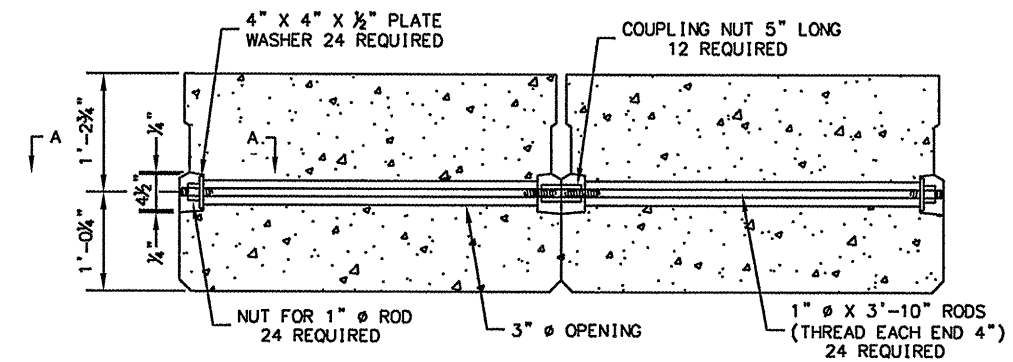
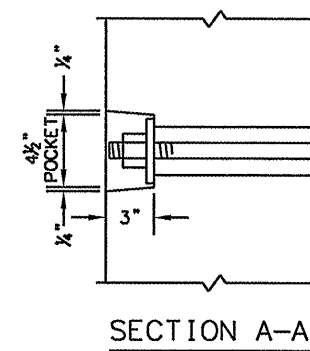
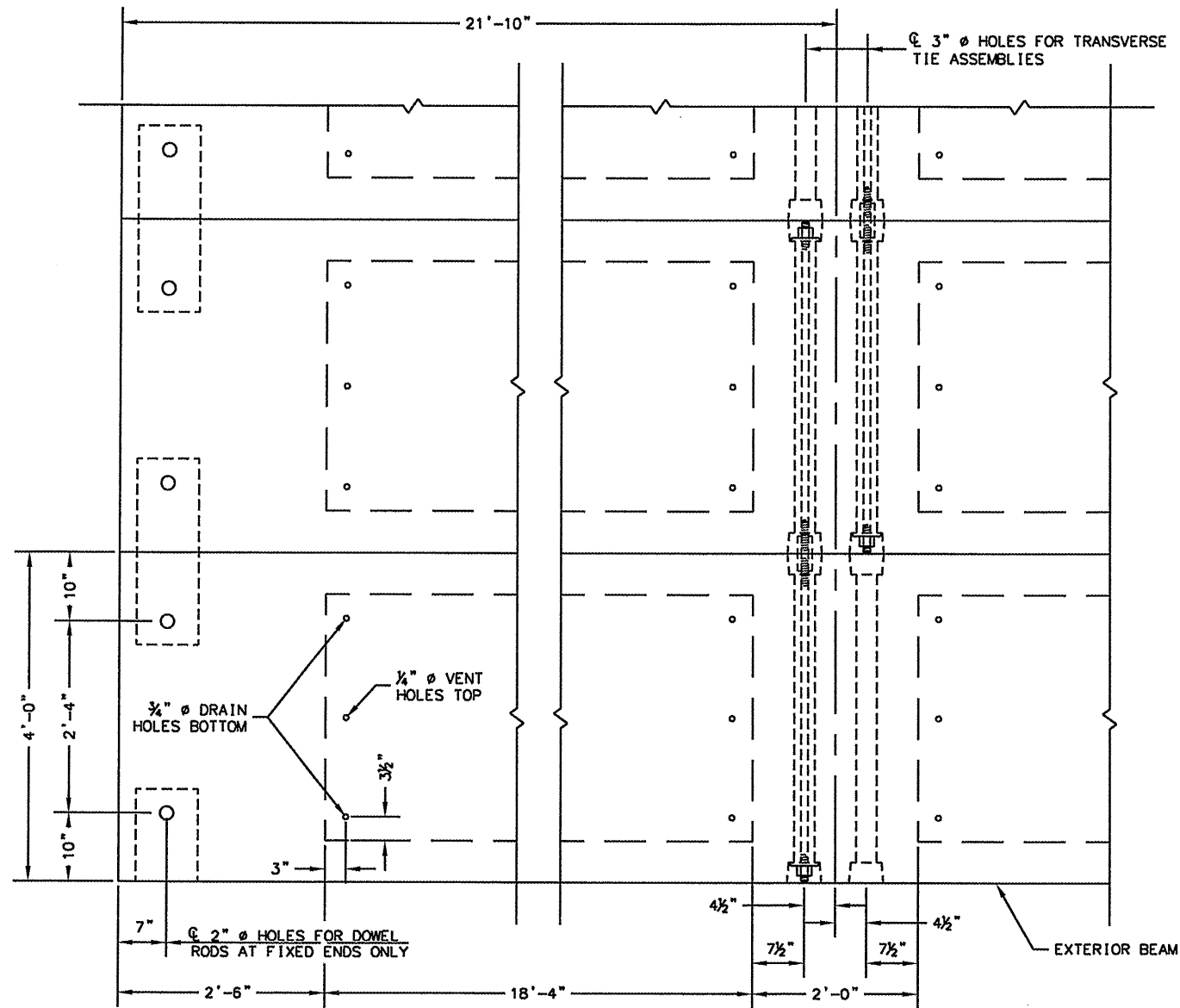
SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
06-00201-02-BR	CH 58	ST. CLAIR	7 OF 13
FHWA REG. NO. 7	ILLINOIS	PROJ: BRM-5011(309)	
DECK BEAM DETAILS		CONTRACT 97465	



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 LOOPS SHALL BE 3 - 1/2" Ø - 270 ksi STRANDS, AS SHOWN. ALTERNATE APPROVED LIFTING DEVICES ARE ALSO ACCEPTABLE.



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" Ø 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" 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.

DESIGN STRESSES

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

P.P.C. DECK BEAM DETAILS

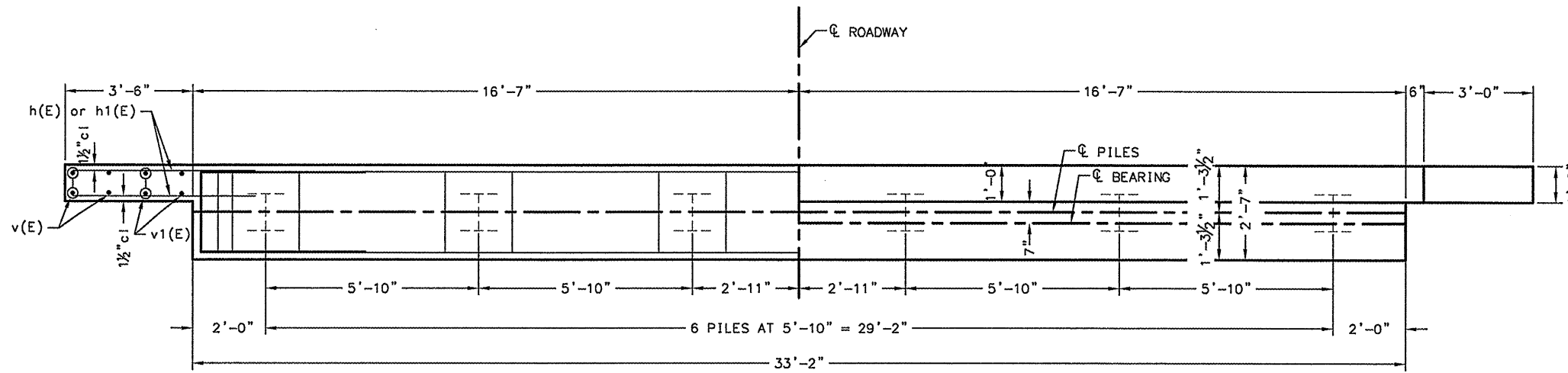
27" x 48" BEAMS

32' ROADWAY

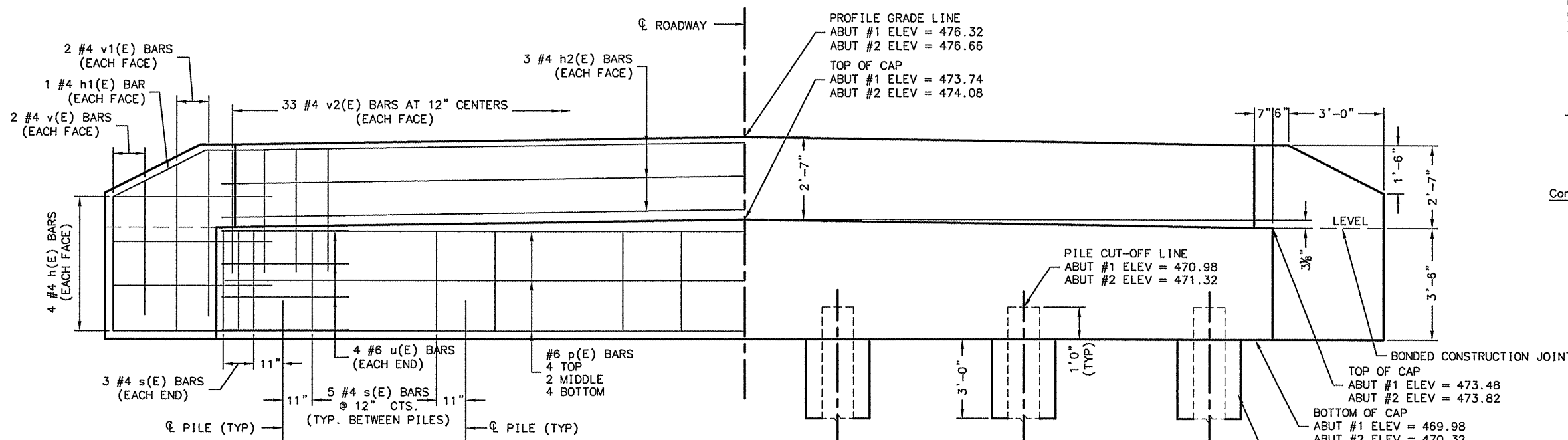
INITIALS	DATE
DESIGNED WES	11/10
CHECKED RAB	3/11
DRAWN WES	11/10
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PREPARED BY ST. CLAIR COUNTY	
CADD DRAWING FILE: superstr	

PLOT DATE: 3/11

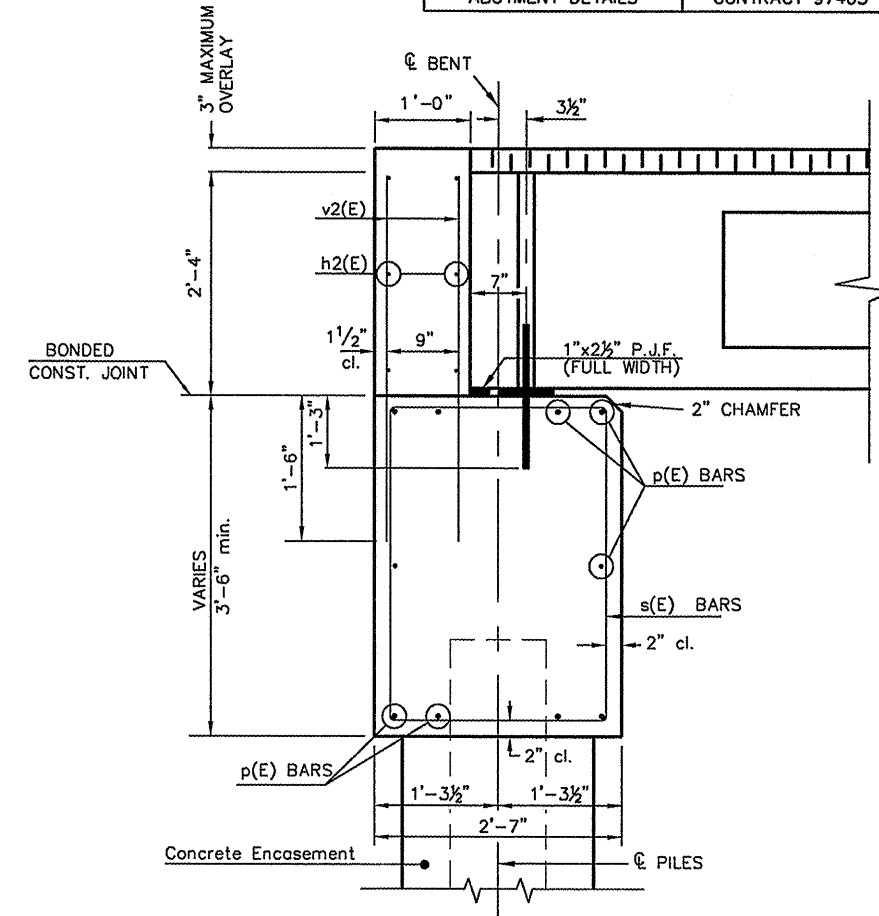
SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
06-00201-02-BR	CH 58	ST. CLAIR	8 OF 13
FHWA REG.NO.7	ILLINOIS	PROJ: BRM-5011(309)	
ABUTMENT DETAILS		CONTRACT 97465	



PLAN



ELEVATION



SECTION THRU ABUTMENT  
(AT RIGHT ANGLES)

BILL OF MATERIAL  
FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape
h(E)	16	#4	5'-0"	—
h1(E)	4	#4	5'-3"	—
h2(E)	6	#4	32'-10"	—
p(E)	10	#6	32'-10"	—
s(E)	31	#4	11'-7"	□
u(E)	8	#6	11'-2"	□
v(E)	8	#4	4'-2"	—
v1(E)	8	#4	5'-2"	—
v2(E)	66	#4	3'-11"	—
CONCRETE STRUCTURES			16.1 CU YD	
REINFORCEMENT BARS, EPOXY COATED			1289 LBS	
CONCRETE ENCASEMENT			2.1 CU YD	
STUD SHEAR CONNECTORS			48 EACH	

NOTE: ALL REINFORCEMENT BARS SHOWN SHALL BE EPOXY COATED

ABUTMENT DETAILS

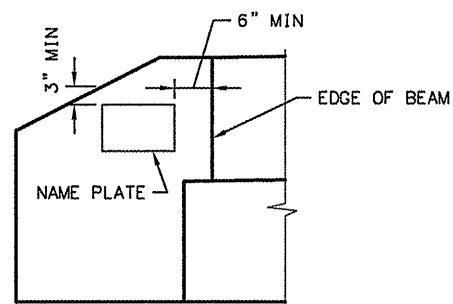
NOTES

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 (IL MODIFIED)

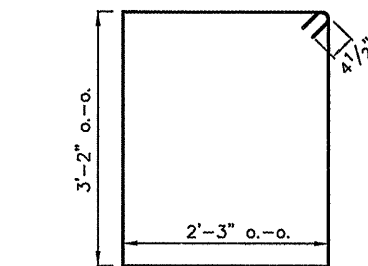
PILE DATA

TYPE & SIZE	STEEL HP 12X53 WITH PILE SHOES
NOMINAL REQUIRED BEARING	418 KIPS
FACTORED RESISTANCE AVAILABLE	209 KIPS
ESTIMATED LENGTH	55 FT
NO. OF PRODUCTION PILES	11
NO. OF TEST PILE (WEST ABUTMENT)	1
NO. OF PILE SHOES	12

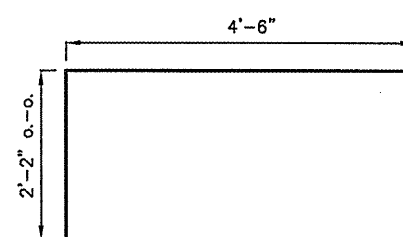
DESIGN STRESS  
f'c = 3,500 psi  
fy = 60,000 psi



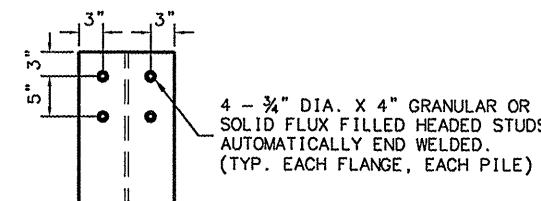
NAME PLATE LOCATION  
(LOCATE AT SW WINGWALL OF BRIDGE)



BAR s(E)



BAR u(E)



BAR h1(E)

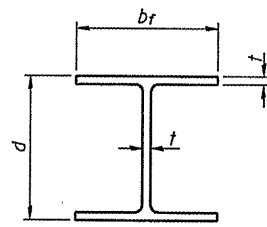
PLOT DATE: 3/11

	INITIALS	DATE
DESIGNED	WES	11/10
CHECKED	RAB	3/11
DRAWN	WES	11/10
CHECKED	RAB	3/11

PREPARED BY ST. CLAIR COUNTY  
CADD DRAWING FILE: ABUTMENT

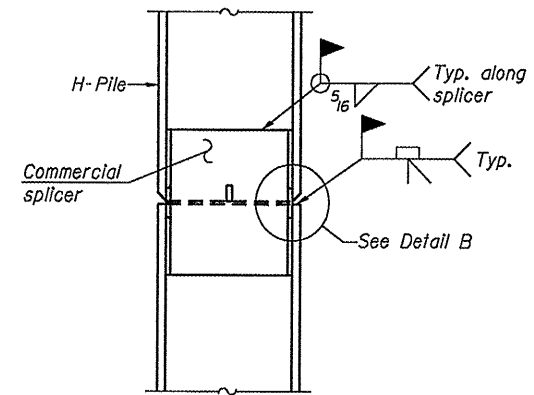




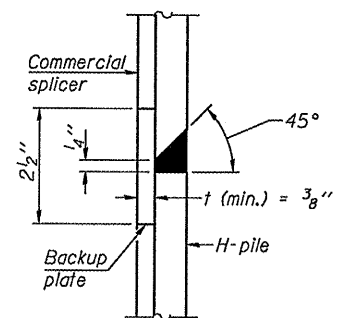


**STEEL PILE TABLE**

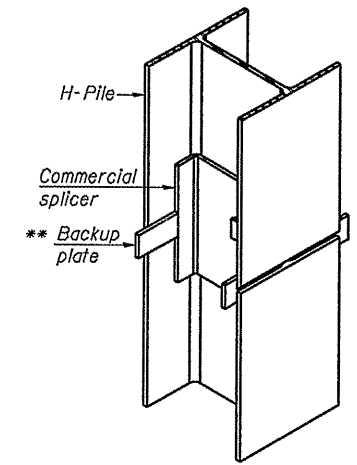
Designation	Depth d	Flange width br	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	1 3/16"	30"
x102	14"	14 3/4"	1 1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1 1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"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



**ELEVATION**

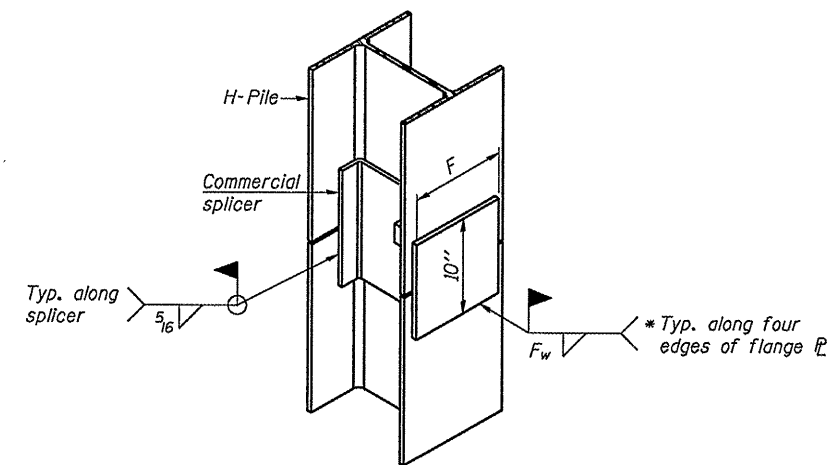


**DETAIL "B"**



**ISOMETRIC VIEW**

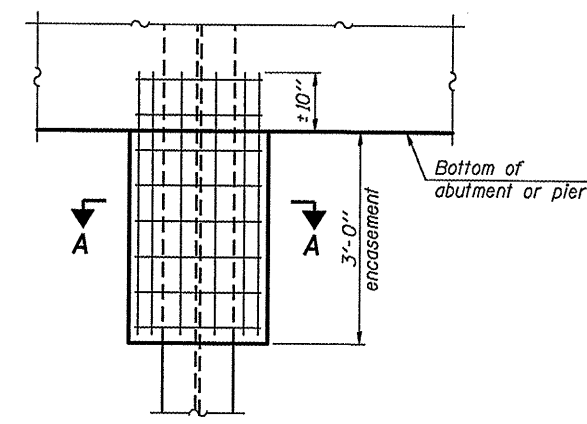
**WELDED COMMERCIAL SPLICE**



**ISOMETRIC VIEW**

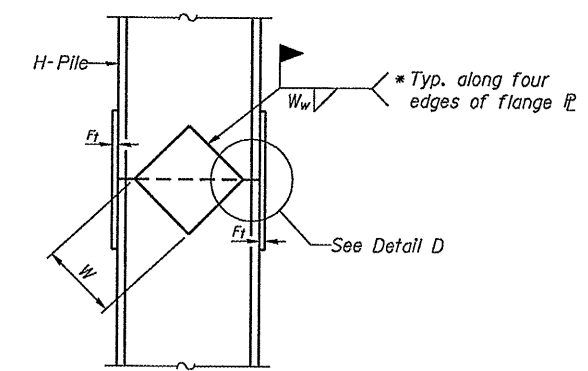
**WELDED COMMERCIAL SPLICE ALTERNATE**

- \* Interrupt welds 1/4" from end of web and/or each flange.
- \*\* Remove portions of backup plates that extend outside the flanges.
- \*\*\* Weld size per pile shoe manufacturer (5/16" min.).

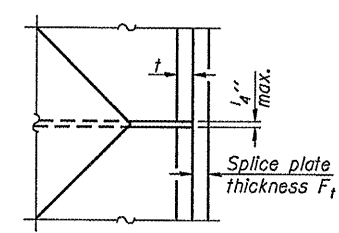


**ELEVATION**

**PILE ENCASEMENT**

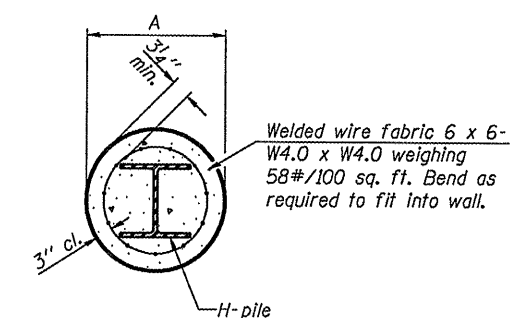


**ELEVATION**



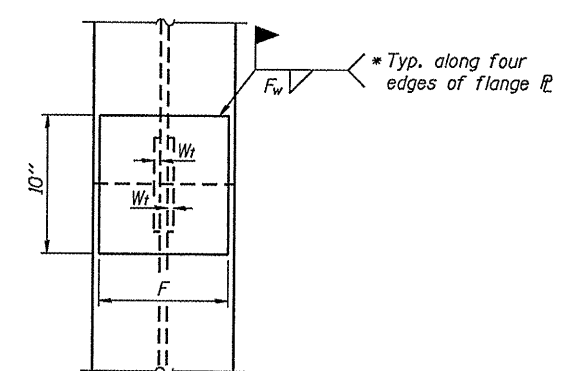
**DETAIL D**

**WELDED PLATE FIELD SPLICE**



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

**SECTION A-A**



**END VIEW**

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

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

F-HP 7-1-10

FILE NAME =	USER NAME =	DESIGNED -	REVISED -
		CHECKED -	REVISED -
	PLOT SCALE =	DRAWN -	REVISED -
	PLOT DATE =	CHECKED -	REVISED -

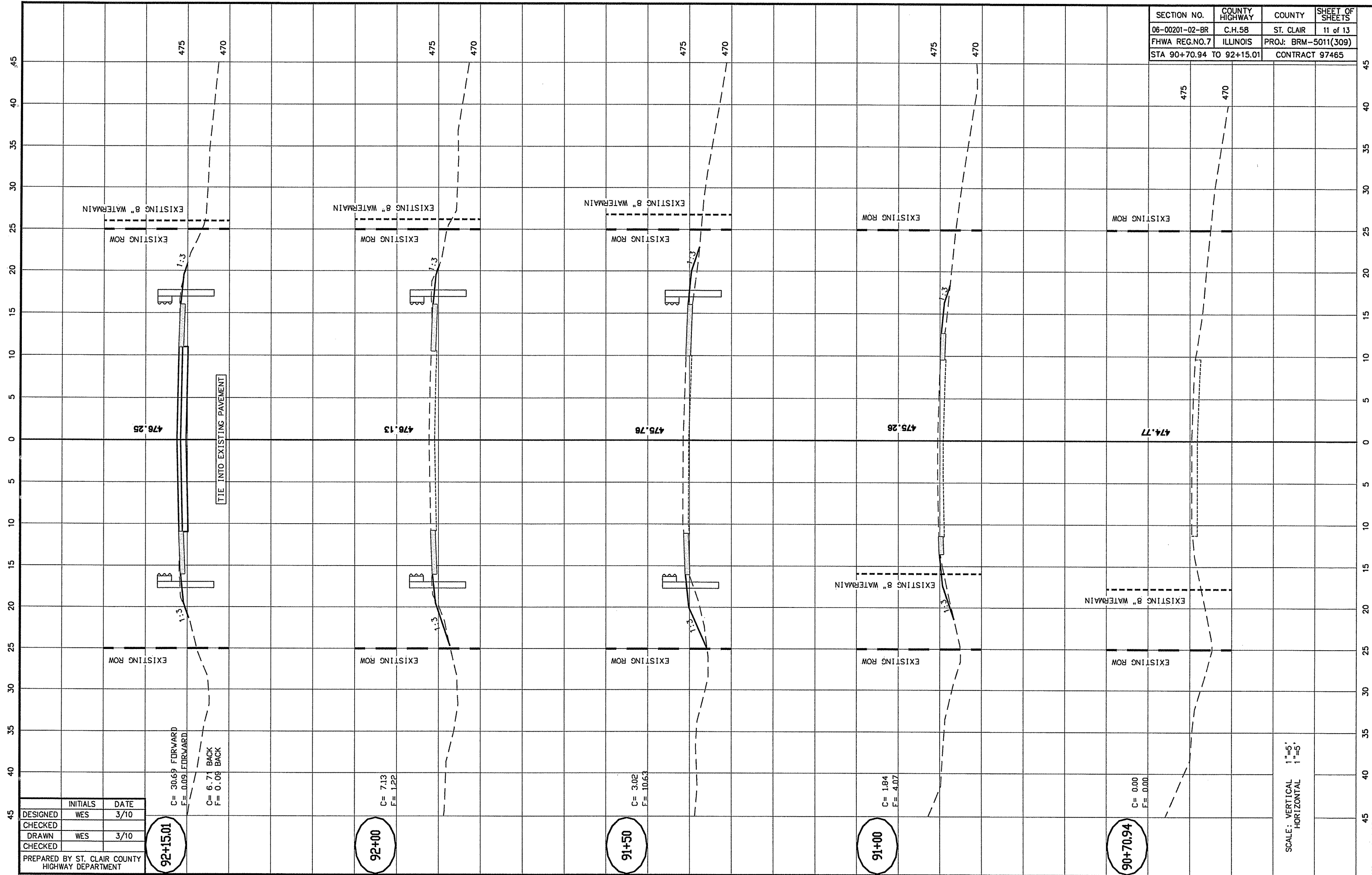
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**HP PILE DETAILS  
STRUCTURE NO.**

SHEET NO. OF SHEETS

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
06-00201-02-BR	CH 58	ST. CLAIR	10 OF 13
FHWA REG.NO.7	ILLINOIS	PROJ: BRM-5011(309)	
STEEL PILES		CONTRACT 97465	

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
06-00201-02-BR	C.H.58	ST. CLAIR	11 of 13
FHWA REG.NO.7	ILLINOIS	PROJ: BRM-5011(309)	
STA 90+70.94 TO 92+15.01		CONTRACT 97465	



C= 30.69 FORWARD  
 F= 0.09 FORWARD  
 C= 6.71 BACK  
 F= 0.08 BACK

C= 7.13  
 F= 1.22

C= 3.02  
 F= 10.63

C= 1.84  
 F= 4.07

C= 0.00  
 F= 0.00

92+15.01

92+00

91+50

91+00

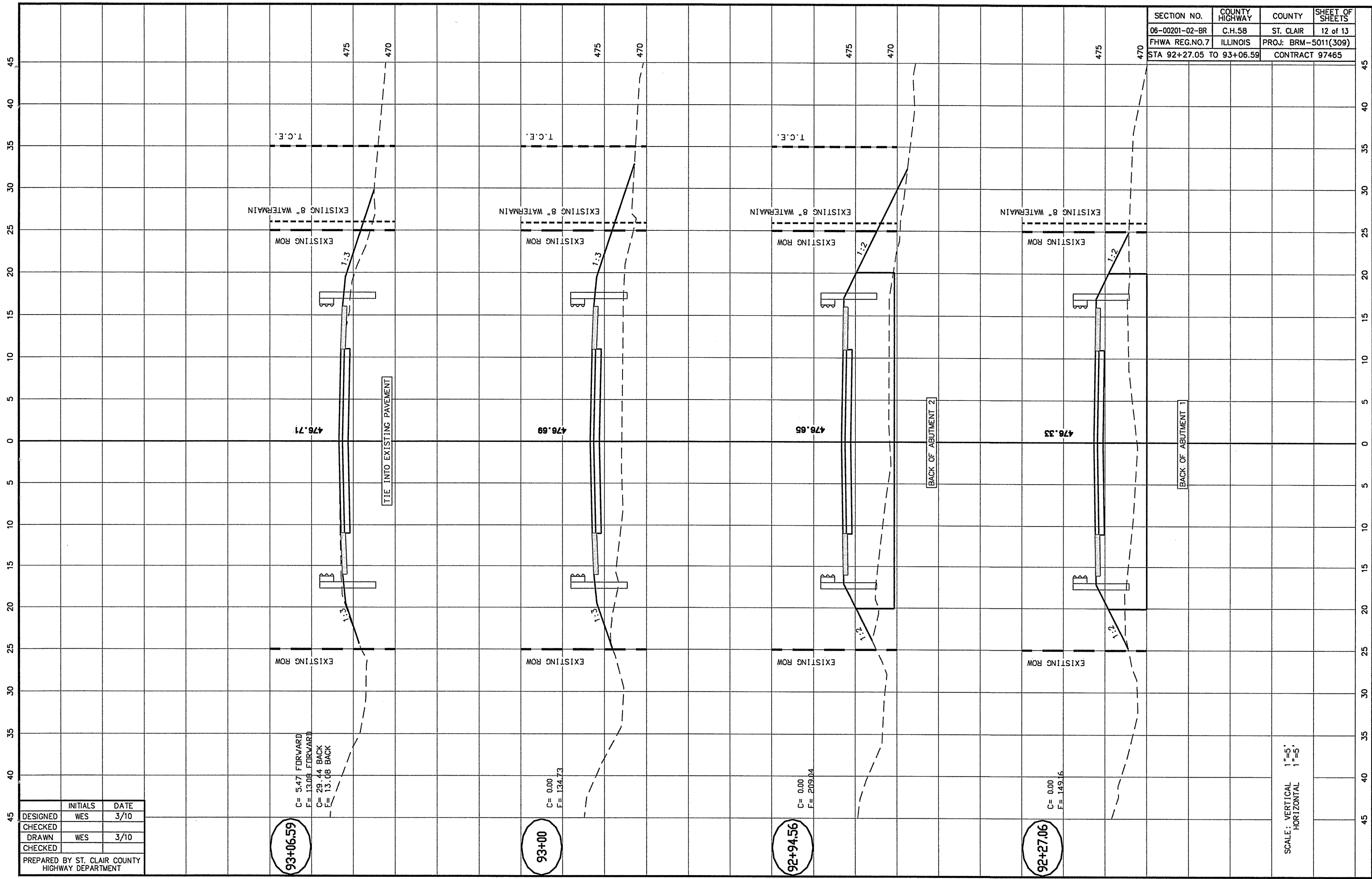
90+70.94

	INITIALS	DATE
DESIGNED	WES	3/10
CHECKED		
DRAWN	WES	3/10
CHECKED		

PREPARED BY ST. CLAIR COUNTY  
 HIGHWAY DEPARTMENT

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

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
06-00201-02-BR	C.H.58	ST. CLAIR	12 of 13
FHWA REG.NO.7	ILLINOIS	PROJ: BRM-5011(309)	
STA 92+27.05 TO 93+06.59		CONTRACT 97465	



93+06.59  
 C= 5.47 FORWARD  
 F= 13.08 FORWARD  
 C= 29.44 BACK  
 F= 13.08 BACK

93+00  
 C= 0.00  
 F= 134.73

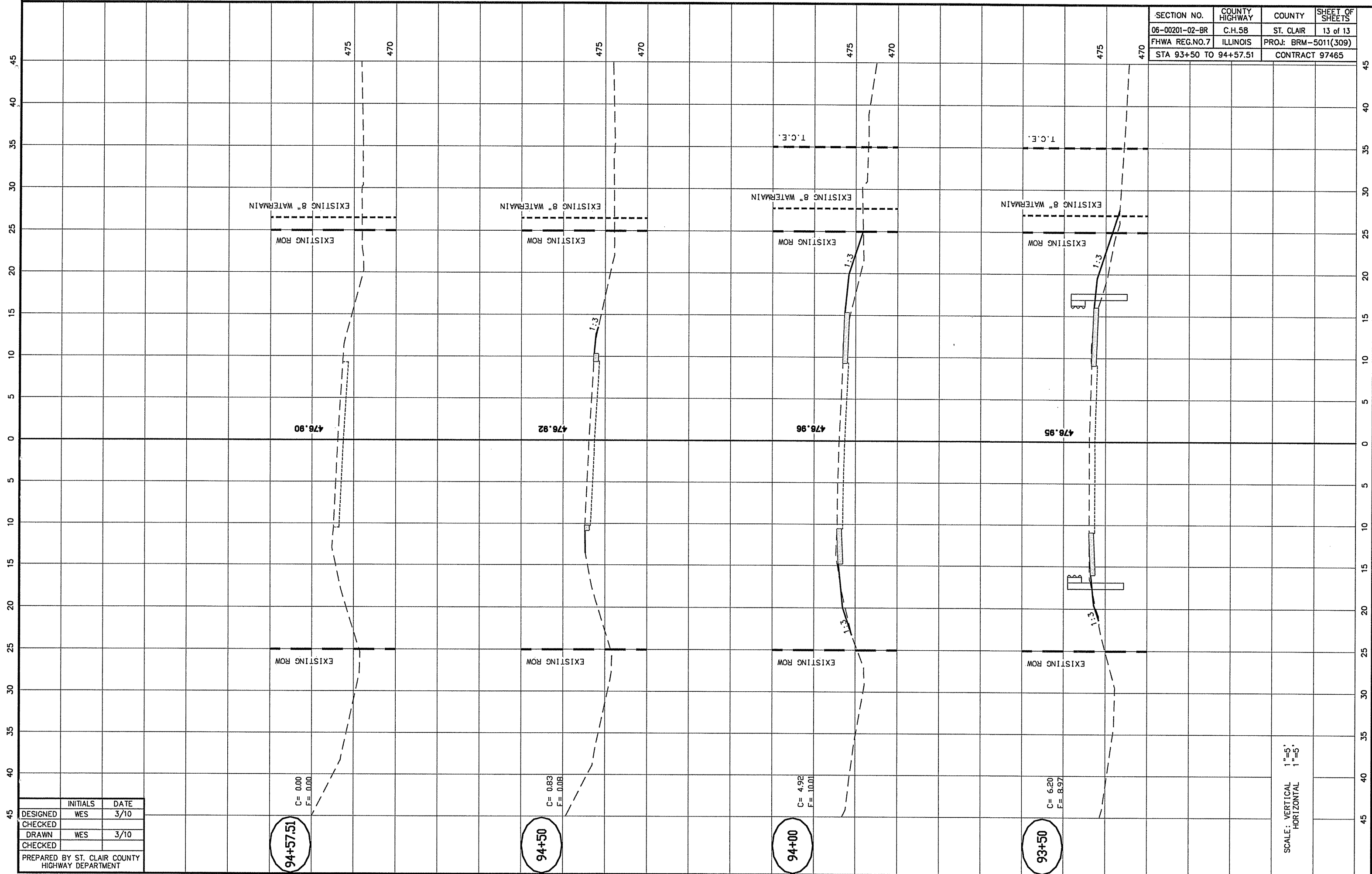
92+94.56  
 C= 0.00  
 F= 209.04

92+27.06  
 C= 0.00  
 F= 149.16

	INITIALS	DATE
DESIGNED	WES	3/10
CHECKED		
DRAWN	WES	3/10
CHECKED		
PREPARED BY ST. CLAIR COUNTY HIGHWAY DEPARTMENT		

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

SECTION NO.	COUNTY HIGHWAY	COUNTY	SHEET OF SHEETS
06-00201-02-BR	C.H.58	ST. CLAIR	13 of 13
FHWA REG.NO.7	ILLINOIS	PROJ: BRM-5011(309)	
STA 93+50 TO 94+57.51		CONTRACT 97465	



94+57.51  
 C= 0.00  
 F= 0.00

94+50  
 C= 0.83  
 F= 0.08

94+00  
 C= 4.92  
 F= 10.01

93+50  
 C= 6.20  
 F= 8.97

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

	INITIALS	DATE
DESIGNED	WES	3/10
CHECKED		
DRAWN	WES	3/10
CHECKED		
PREPARED BY ST. CLAIR COUNTY HIGHWAY DEPARTMENT		