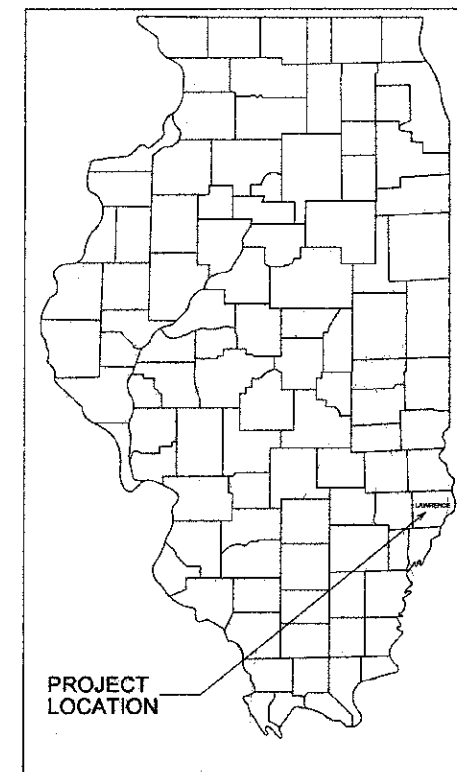


ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 87	11-09113-00-BR	LAWRENCE	15	1
CONTRACT NO. 95693		ILLINOIS	PROJECT BROS-0101(045)	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
**PLANS FOR PROPOSED  
HIGHWAY BRIDGE PROGRAM**  
SECTION 11-09113-00-BR LAWRENCE COUNTY  
PROJECT BROS-0101(045)  
JOB NO. C-97-080-12  
RUSSELL ROAD DISTRICT  
T.R. 87



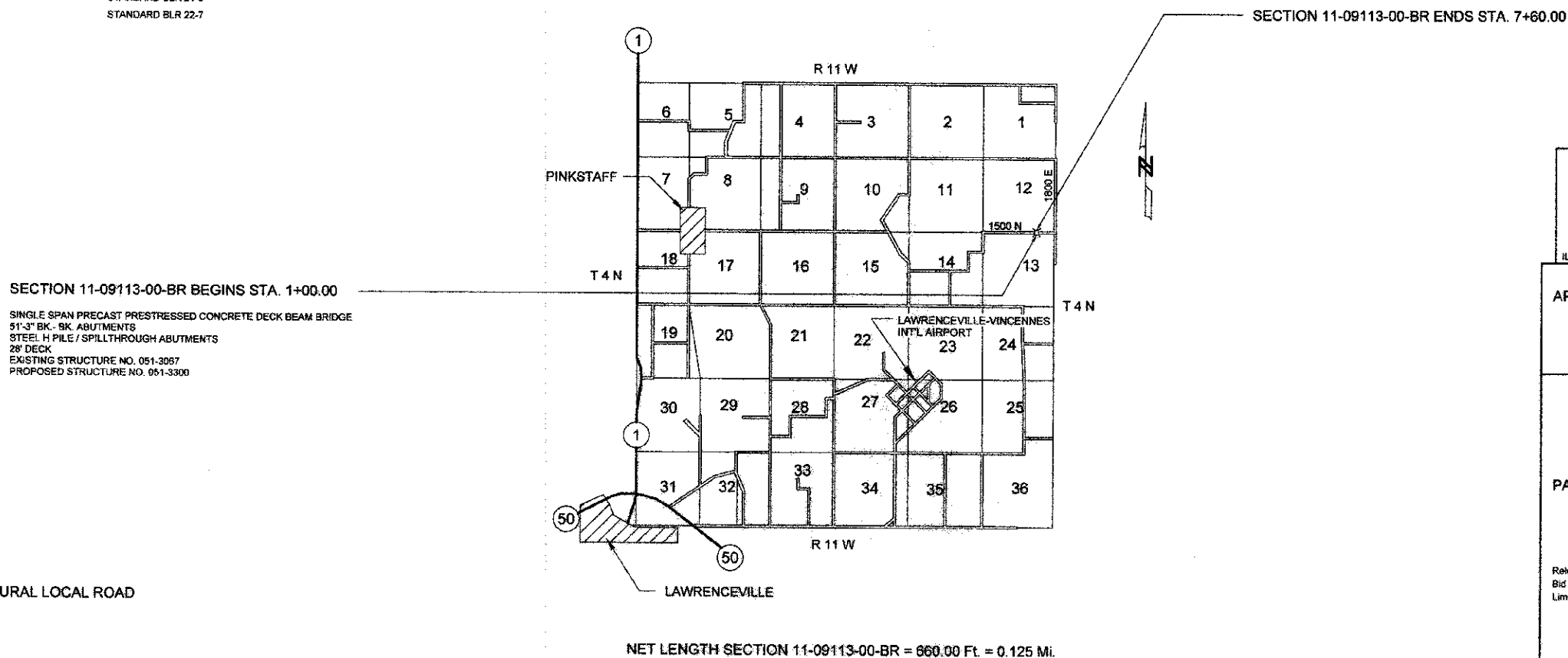
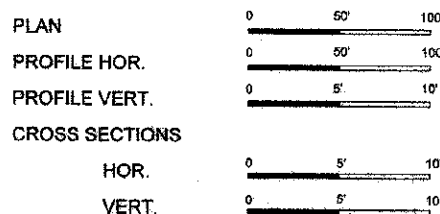
CONTRACT NO. 95693  
Joint Utility Locating Information for Excavators  
JULIE 1-800-892-0123

**INDEX OF SHEETS**

SHEET	ITEM
1	COVER SHEET
2	SUMMARY OF QUANTITIES
3	ROADWAY PLAN AND PROFILE
4	EROSION CONTROL PLAN
5	GENERAL PLAN AND ELEVATION
6	SUPERSTRUCTURE
7	SUPERSTRUCTURE DETAILS
8	STEEL RAILING, TYPE S-1
9	WEST ABUTMENT DETAILS
10	EAST ABUTMENT DETAILS
11	PILE DETAILS
12	BORING LOGS
13-15	CROSS SECTIONS

STANDARD DRAWINGS	
STANDARD 000001-06	
STANDARD 280001-07	
STANDARD 515001-03	
STANDARD 701001-02	
STANDARD BLR 21-6	
STANDARD BLR 22-7	



*Refer to Charles...*  
*11/5/12*  
*11/30/13*

**CHARLESTON ENGINEERING, INC.**  
CONSULTING ENGINEERS  
105 NORTH KITCHELL  
P.O. BOX 397  
OLNEY, ILLINOIS 62450  
(815) 392-0738  
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

APPROVED 11-5 2012  
*[Signature]*  
COUNTY ENGINEER

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PASSED 1-7 2013  
*[Signature]*  
DISTRICT SEVEN ENGINEER OF  
LOCAL ROADS AND STREETS

Releasing For  
Bid Based on  
Limited Review 1-7 2013  
*[Signature]*  
DEPUTY DIRECTOR OF HIGHWAYS  
REGION FOUR ENGINEER

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 87	11-09113-00-BR	LAWRENCE	15	2
CONTRACT NO. 95693		ILLINOIS	PROJECT BROS-0101(045)	

DESIGN DATA

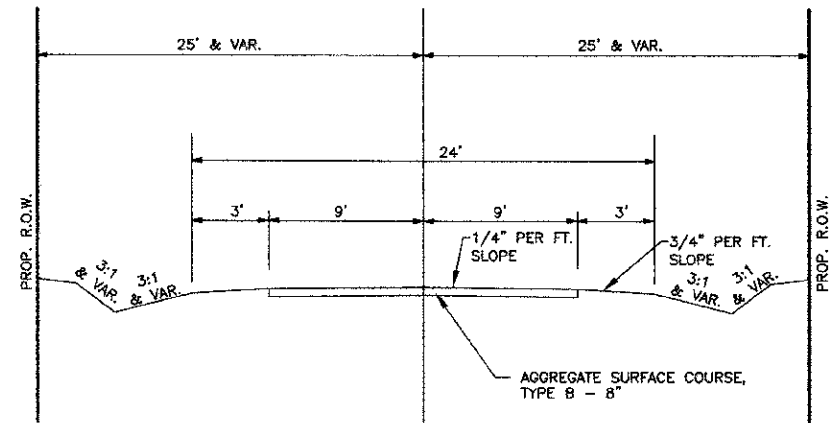
RURAL LOCAL ROAD  
ADT = 225

GENERAL NOTES

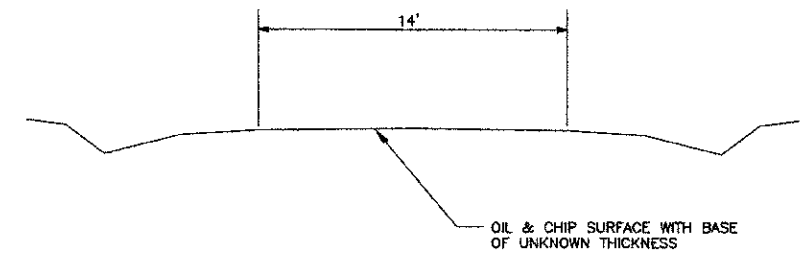
- SEEDING: THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE PORTIONS OF SECTION 250 OF THE STANDARD SPECIFICATIONS AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR SEEDING, CLASS 2 (SPECIAL).
  - SPRING SEEDING SHALL EXTEND FROM JANUARY 1 TO JUNE 30  
FALL SEEDING SHALL EXTEND FROM JULY 1 TO DECEMBER 31
  - FERTILIZER NUTRIENTS SHALL BE APPLIED AT THE RATE OF 100 LB/ACRE
  - MULCHING SHALL BE DONE IN ACCORDANCE WITH ARTICLE 251 OF THE STANDARD SPECIFICATIONS AND SHALL BE DONE BY METHOD 2, PROCEDURE 1 AT THE RATE OF 2 TONS PER ACRE.
- NO PAYMENT FOR OVERHAUL WILL BE MADE ON THIS SECTION.

SUMMARY OF QUANTITIES				
CODE NO.	ITEM	UNIT	QUANTITY	
X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.75	
Z0065000	SETTING PILES IN ROCK	EACH	6	
20200100	EARTH EXCAVATION	CU YD	260	
20300100	CHANNEL EXCAVATION	CU YD	190	
20400800	FURNISHED EXCAVATION	CU YD	1505	
28000305	TEMPORARY DITCH CHECKS	FOOT	81.0	
28000400	PERIMETER EROSION BARRIER	FOOT	272	
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	145	
28300400	AGGREGATE DITCH	TON	97	
35101400	AGGREGATE BASE COURSE, TYPE B	TON	75	
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	570	
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1	
50105220	PIPE CULVERT REMOVAL	FOOT	120	
50300225	CONCRETE STRUCTURES	CU YD	25.6	
50300280	CONCRETE ENCASEMENT	CU YD	3.1	
50400405	PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)	SQ FT	1393	
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	3546	
Δ 50900205	STEEL RAILING, TYPE S1	FOOT	100	
51201400	FURNISHING STEEL PILES HP 10X42	FOOT	96	
51500100	NAME PLATES	EACH	1	
54200220	PIPE CULVERTS, CLASS D, TYPE 1 15"	FOOT	164	
54200223	PIPE CULVERTS, CLASS D, TYPE 1 18"	FOOT	85	
54200226	PIPE CULVERTS, CLASS D, TYPE 1 21"	FOOT	92	
67100100	MOBILIZATION	L. SUM	1	

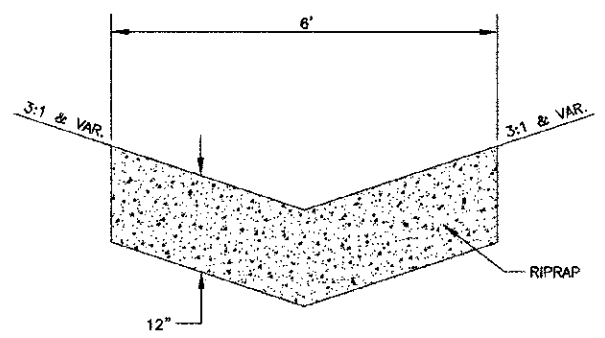
Δ SPECIFIC ITEMS



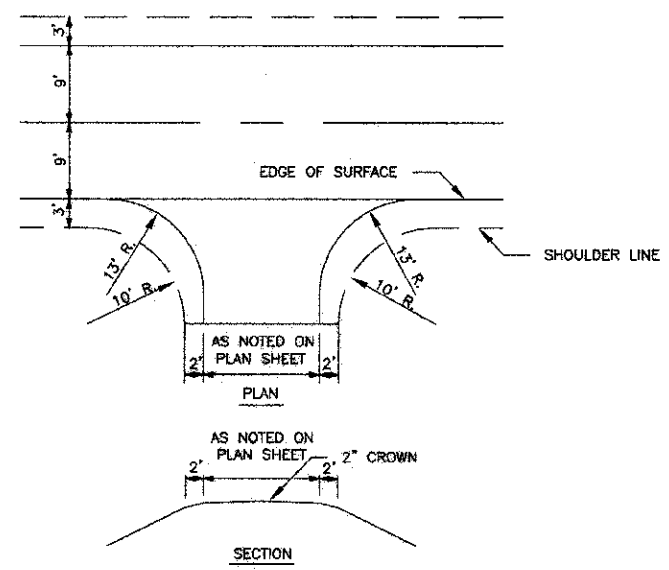
TYPICAL SECTION  
PROPOSED



TYPICAL SECTION  
EXISTING

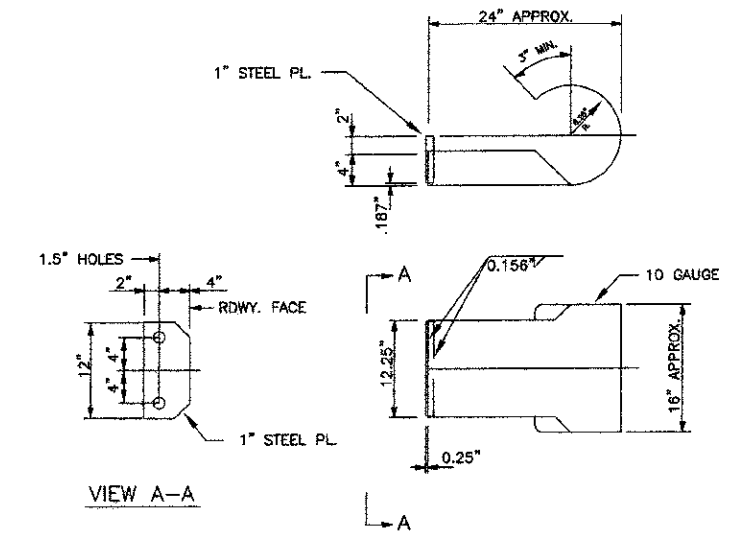


AGGREGATE DITCH DETAIL  
LT. STA. 6+00 TO 6+25  
LT. STA. 6+55 TO 7+60  
RT. STA. 6+00 TO 7+60



FIELD ENTRANCE DETAIL

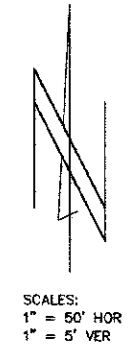
RT. STA. 2+00  
LT. STA. 2+25  
RT. STA. 5+36  
LT. STA. 6+40



CURLED END SECTION DETAILS

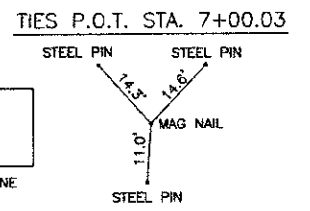
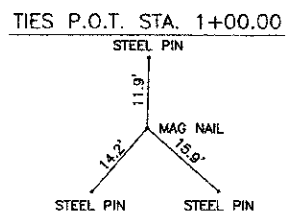
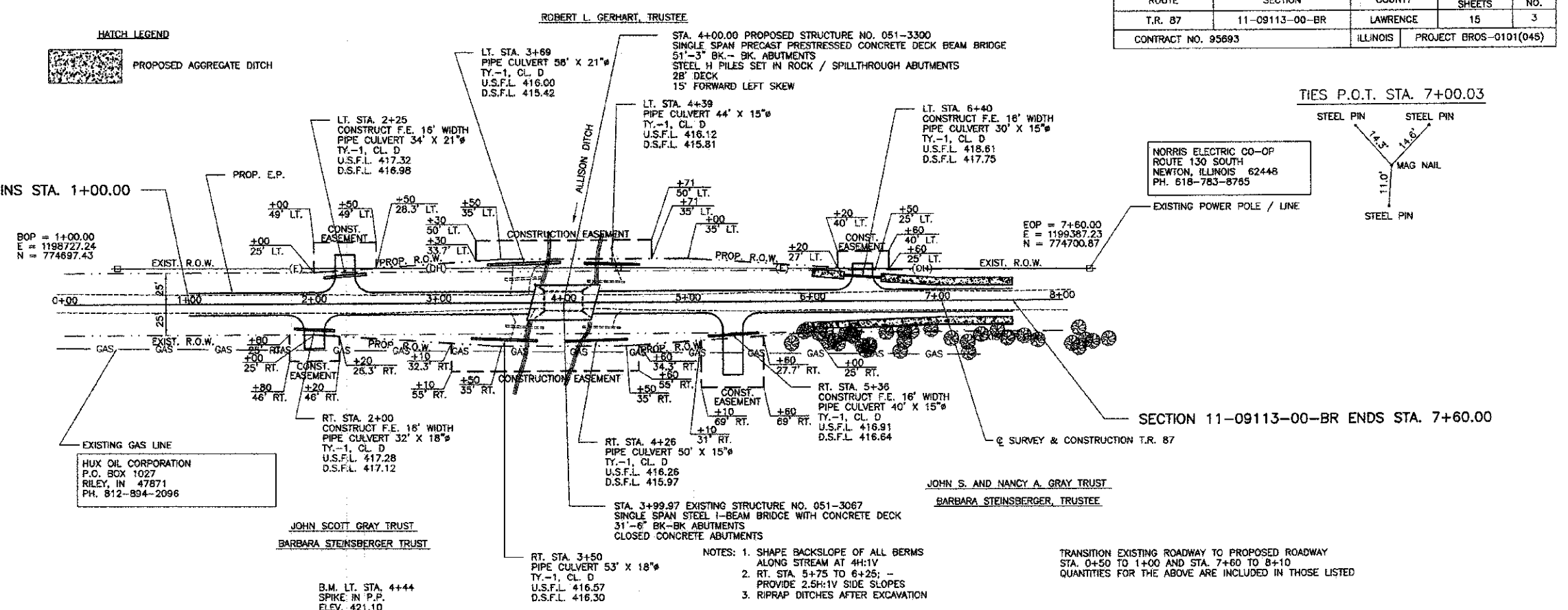
4 REQUIRED - COST INCLUDED IN  
"STEEL RAILING, TYPE S-1"

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 87	11-09113-00-BR	LAWRENCE	15	3
CONTRACT NO. 95693		ILLINOIS	PROJECT BROS-0101(045)	



SECTION 11-09113-00-BR BEGINS STA. 1+00.00

SCALES:  
1" = 50' HOR  
1" = 5' VER



NORRIS ELECTRIC CO-OP  
ROUTE 130 SOUTH  
NEWTON, ILLINOIS 62448  
PH. 618-783-8785

BOP = 1+00.00  
E = 1198727.24  
N = 774697.43

EOP = 7+60.00  
E = 1199387.23  
N = 774700.87

HUX OIL CORPORATION  
P.O. BOX 1027  
RILEY, IN 47871  
PH. 812-894-2096

JOHN SCOTT GRAY TRUST  
BARBARA STEINBERGER TRUST

JOHN S. AND NANCY A. GRAY TRUST  
BARBARA STEINBERGER, TRUSTEE

- NOTES:
1. SHAPE BACKSLOPE OF ALL BERMS ALONG STREAM AT 4H:1V
  2. RT. STA. 5+75 TO 6+25; - PROVIDE 2.5H:1V SIDE SLOPES
  3. RIPRAP DITCHES AFTER EXCAVATION

TRANSITION EXISTING ROADWAY TO PROPOSED ROADWAY  
STA. 0+50 TO 1+00 AND STA. 7+60 TO 8+10  
QUANTITIES FOR THE ABOVE ARE INCLUDED IN THOSE LISTED

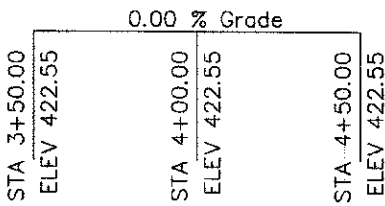
STATION	DESCRIPTION	UNIT	QUANTITY	STATION	DESCRIPTION	UNIT	QUANTITY
440	EARTHWORK	CU. YD.			PIPE CULVERTS, CLASS D, TYPE 1 15"	FOOT	440
	EARTH EXCAVATION		280		RT. STA. 4+26		50
	CHANNEL EXCAVATION		190*		RT. STA. 5+36		40
	EMBANKMENT		1770		LT. STA. 6+40		30
	FURNISHED EXCAVATION		1505		LT. STA. 4+39		44
435	*IT IS ESTIMATED THAT SOME OF THE CHANNEL EXCAVATION WILL BE SUITABLE FOR USE IN THE EMBANKMENT. UNSUITABLE MATERIAL SHALL BE DISPOSED OF BY THE CONTRACTOR.				TOTAL	164 FEET	435
430	AGG. SURF. CSE., TYPE B	TON	570		PIPE CULVERTS, CLASS D, TYPE 1 18"	FOOT	430
	STA. 1+00 TO 7+60				RT. STA. 2+00		32
					RT. STA. 3+50		53
					TOTAL	85 FEET	
425	STONE DUMPED RIPRAP, CLASS A4	TON	145		PIPE CULVERTS, CLASS D, TYPE 1 21"	FOOT	425
					LT. STA. 2+25		34
					LT. STA. 5+69		58
					TOTAL	92 FEET	
420	PIPE CULVERT REMOVAL	FOOT					420
	LT. STA. 3+88		30				
	RT. STA. 3+69		30				
	RT. STA. 4+30		30				
	LT. STA. 4+34		30				
415	TOTAL	FT	120 FT				415
410							410
405							405
400							400
395							395



B.M.-Lt. Sta. 4+44, spike in power pole, Elev. 421.10

Existing Structure - Existing structure No. 051-3067 consists of a single span steel I-beam bridge with concrete deck bearing on closed concrete abutments. The bk. to bk. of abutments length is 31.5' and the out-to-out roadway width is 14.8'. The existing structure shall be completely removed. Road closure shall be used during construction.

Salvage - Any material deemed salvageable by the Engineer shall be stockpiled on the R.O.W. and shall become the property of Russell Road District. The Contractor shall dispose of all remaining material.



**PROFILE GRADE**  
(along  $\phi$  roadway)

**DESIGN STRESSES**

**FIELD UNITS**

$f'_c = 3,500$  psi  
 $F_y = 60,000$  psi (reinforcement)

**PRECAST PRESTRESSED UNITS**

$f'_c = 6,000$  psi  
 $f'_{ci} = 5,000$  psi  
 $F'_s = 270,000$  psi ( $\frac{1}{2}$ " low relax. strands)  
 $F'_{si} = 201,960$  psi ( $\frac{1}{2}$ " low relax. strands)

**DESIGN SPECIFICATIONS**

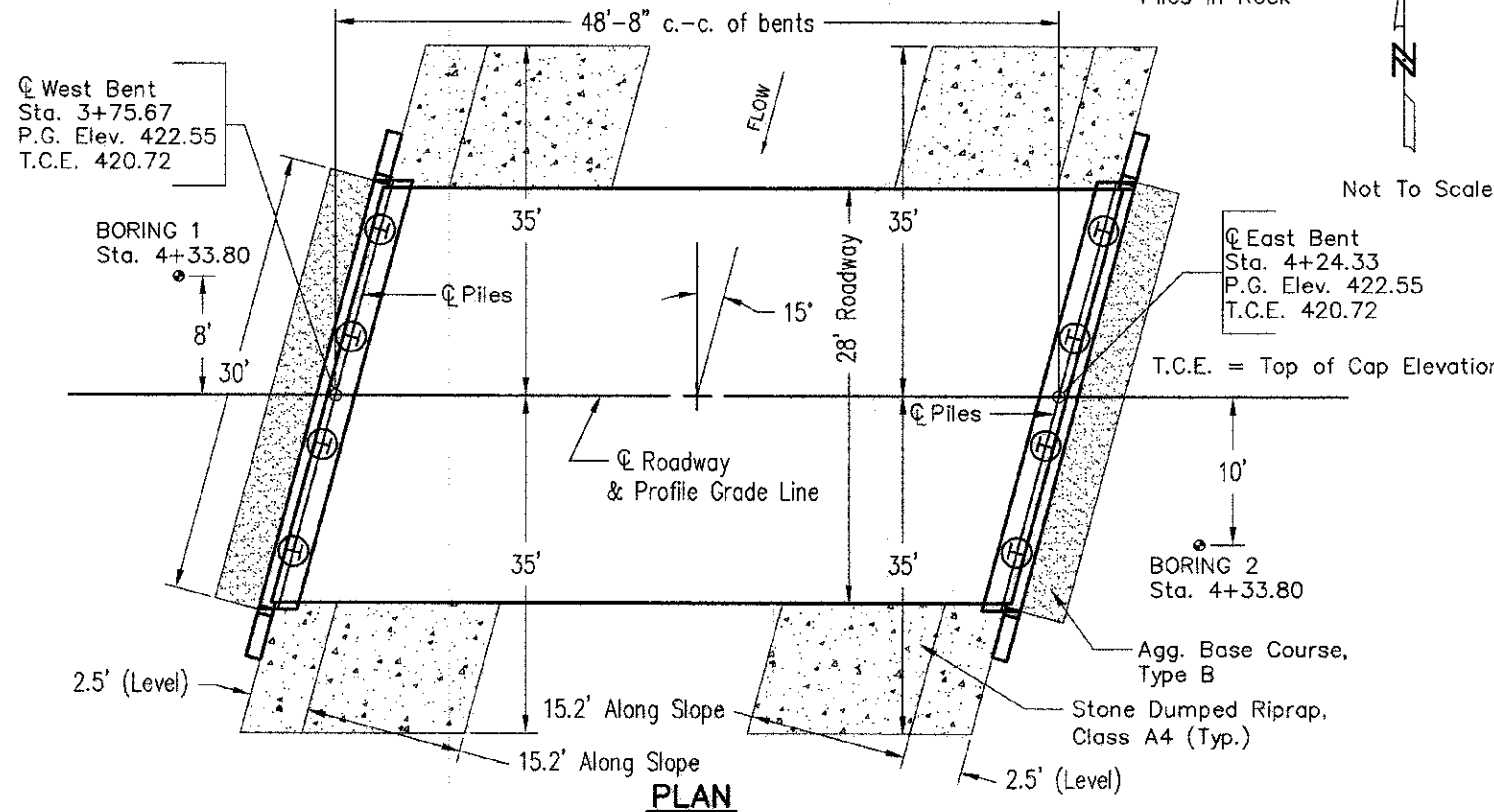
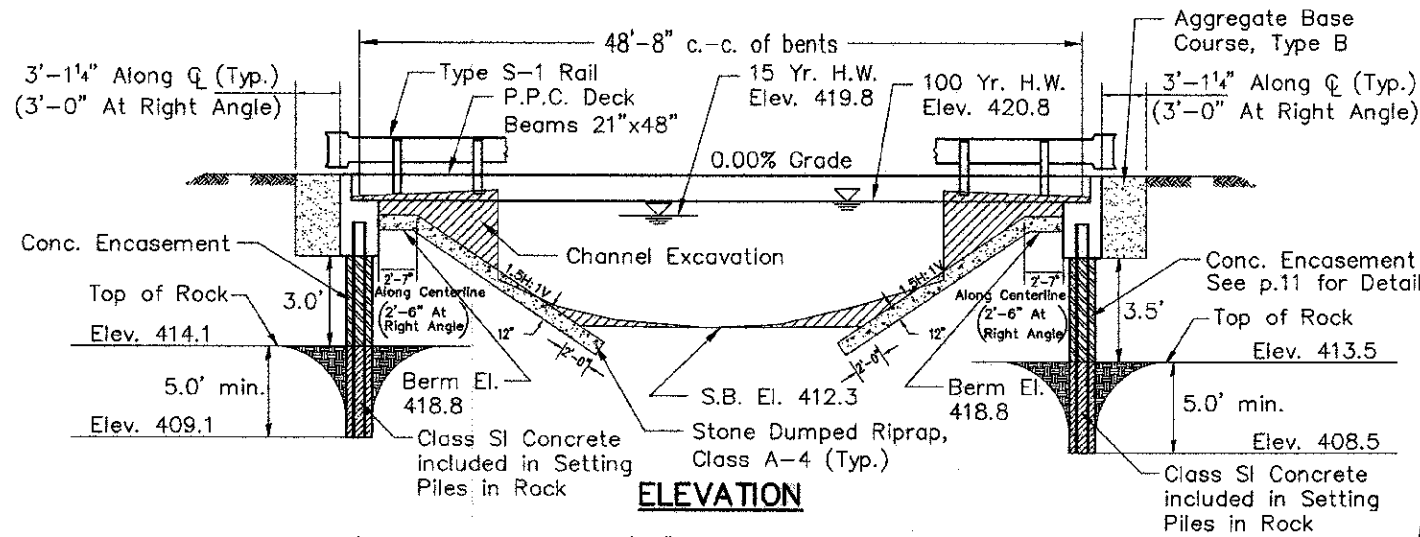
AASHTO LRFD Bridge Design Specifications - 5th ed.

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 2  
Design Spectral Acceleration at 1.0 sec. ( $S_{D1}$ ) = 0.152g  
Design Spectral Acceleration at 0.2 sec. ( $S_{D5}$ ) = 0.378g  
Soil Site Class = C

**PILE DATA (2-ABUTS.)**

Type HP 10 X 42 - Set in Rock  
Nominal Required Bearing 331 kips  
Factored Resistance Available 182 kips  
Estimated Pile Length 12 Feet  
Number of Production Piles 8



**PLAN**

Skew Angle = 15° Forward Left

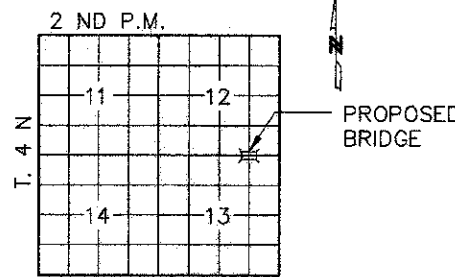
**LOADING HL-93**

Allow 50#/sq. ft. for future wearing surface.

STATION 4+00.00  
ALLISON DRAINAGE DITCH #1  
SEC. 11-09113-00-BR BUILT 201  
RUSSELL ROAD DISTRICT  
LAWRENCE COUNTY  
LOADING HL-93  
STR. NO. 051-3300

**LETTERING FOR NAME PLATE**

Locate Name Plate at S.W. Corner of Bridge (See Std. 515001)



**LOCATION SKETCH**

**WATERWAY INFORMATION**

Drainage Area = 5.31 SQ MI		Low Grade Elev = 420.28 @ Sta. 1+55				
Flood	Freq. Yr.	Q. C.F.S.	Opening Sq. Ft.	Not. H.W.E.	Head - Ft. Exist.	Headwater El. Prop.
Design	15	600	175	211	419.8	419.9
Base	100	975	175	256	420.8	420.9
Overtopping						
Max. Calc.	500					

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 87	11-09113-00-BR	LAWRENCE	15	5
CONTRACT NO. 95693		ILLINOIS	PROJECT BROS-0101(045)	

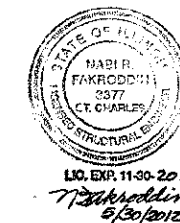
**GENERAL NOTES**

- See Bridge Plan Sheet 12 for boring logs.
- Concrete sealer shall be applied to exterior face of each fascia beam.
- The Steel H-Piles shall be according to AASHTO M270 Grade 50.
- Reinforcement bars shall conform to the requirements of ASTM A 706 Grade 60.
- Reinforcement bars designated (E) shall be epoxy coated.
- Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
- All proposed construction activities shall be in accordance with Nationwide Permit number 14 of the Department of the Army authorized under Section 404 of the Clean Water Act. The IEPA has issued Section 401 Water Quality Certification for this activity.

**TOTAL BILL OF MATERIAL**

Item	Unit	Super	Sub.		Total
			Piers	Abuts.	
Channel Excavation	Cu. Yd.	-	-	190	190
Stone Dumped Riprap, Class A4	Tons	-	-	145	145
Aggregate Base Course, Type B	Tons	-	-	75	75
Removal of Existing Structures	Each	-	-	-	1
Concrete Structures	Cu. Yd.	-	-	25.6	25.6
Concrete Encasement	Cu. Yd.	-	-	3.1	3.1
Precast Prestressed Concrete Deck Beams (21" Depth)	Sq. Ft.	1393	-	-	1393
Reinforcement Bars, Epoxy Coated	Pound	-	-	3546	3546
Steel Railing, Type S-1	Foot	100	-	-	100
Furnishing Steel Piles HP 10 X 42	Foot	-	-	96	96
Name Plates	Each	-	-	1	1
Setting Piles in Rock	Each	-	-	8	8

I certify that to the best of my knowledge, information and belief, this bridge design 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 of the current AASHTO Standard Specifications for Highway Bridges.



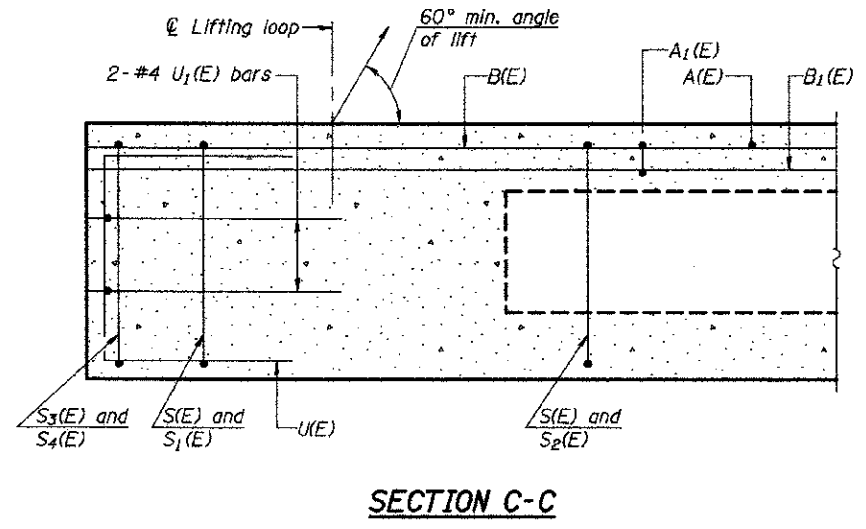
**INDEX OF SHEETS**

- General Plan & Elevation
- Superstructure
- Superstructure Details
- Steel Railing, Type S-1
- West Abutment Details
- East Abutment Details
- Pile Details
- Boring Logs

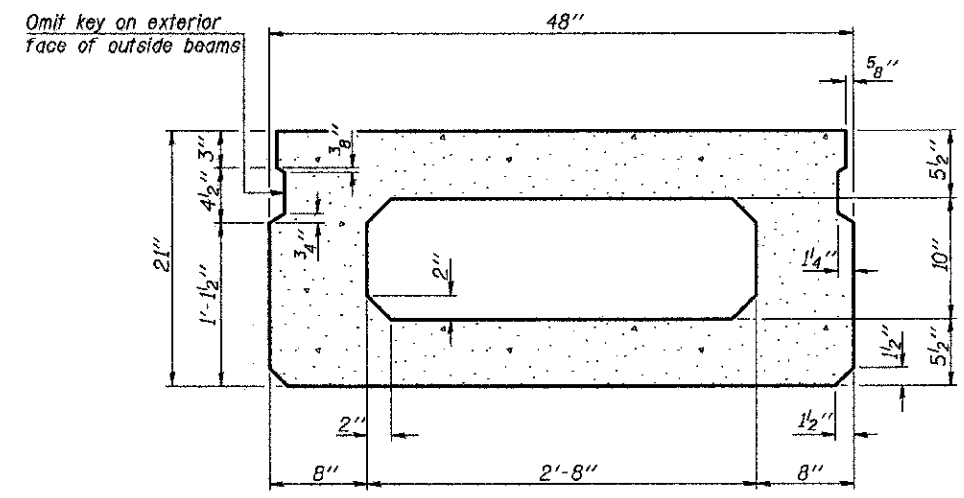
**CHARLESTON ENGINEERING, INC.**  
CONSULTING ENGINEERS  
105 NORTH KITCHELL  
P.O. BOX 397  
OLNEY, ILLINOIS 62450  
(618) 392-0736  
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #104 003513

**GENERAL PLAN & ELEVATION**  
**STRUCTURE NO. 051-3300**  
**T.R. 87**  
**OVER ALLISON DITCH #1**  
**SECTION 11-09113-00-BR**  
**LAWRENCE COUNTY**  
**STATION 4+00.00**

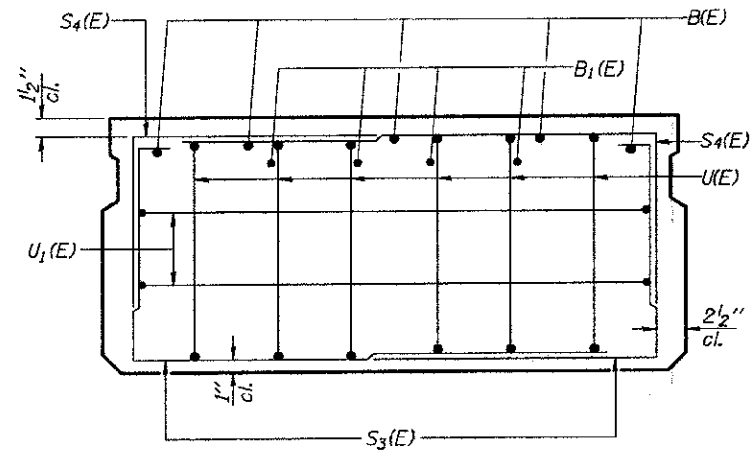
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 87	11-09113-00-BR	LAWRENCE	15	6
CONTRACT NO. 95693		ILLINOIS	PROJECT BROS-010(048)	



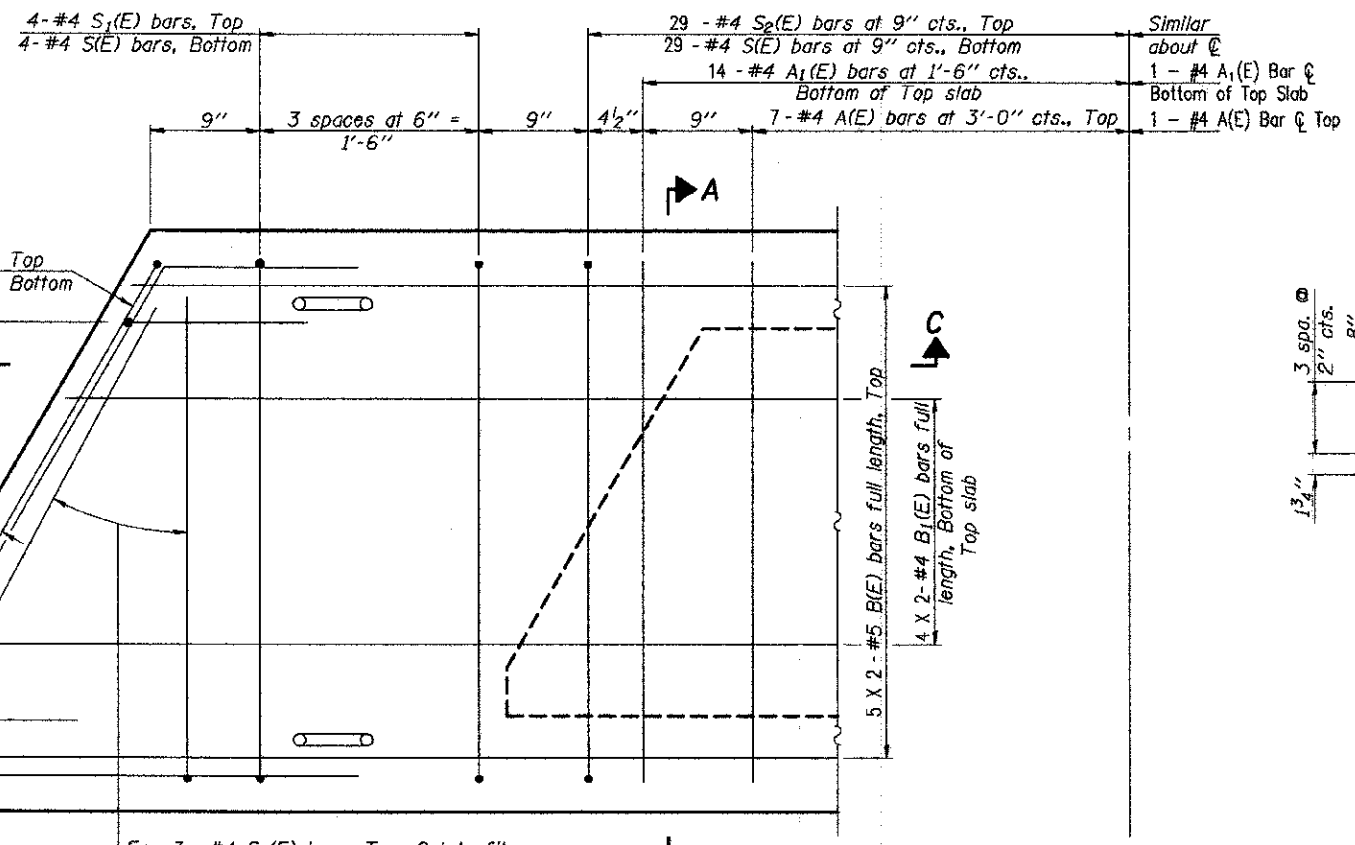
**SECTION C-C**



**SECTION A-A**  
(Showing dimensions)



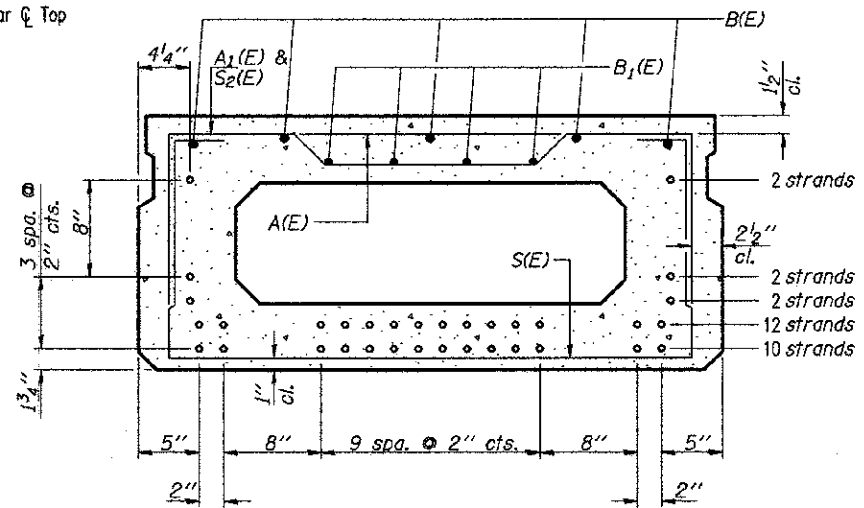
**VIEW B-B**



**PLAN VIEW**

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.

Bars indicated thus 5 X 2-#5 etc. indicates 5 lines of bars with 2 lengths per line.



**SECTION A-A**  
(Showing reinforcement and permissible strand locations)

- Notes:
- 28 Total Strands
  - Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

**BAR LIST**  
**ONE BEAM ONLY**  
(For information only)

Bar	No.	Size	Length	Shape
A(E)	15	#4	3'-7"	—
A1(E)	29	#4	3'-10"	—
B(E)	10	#5	26'-0"	—
B1(E)	8	#4	26'-0"	—
S(E)	66	#4	7'-5"	—
S1(E)	8	#4	5'-11"	—
S2(E)	58	#4	6'-2"	—
S3(E)	10	#4	5'-7"	—
S4(E)	10	#4	4'-10"	—
U(E)	12	#5	4'-0"	—
U1(E)	4	#4	7'-2"	—

Note: See sheet 7 of 15 for additional details and Bill of Material.

**MINIMUM BAR LAP**

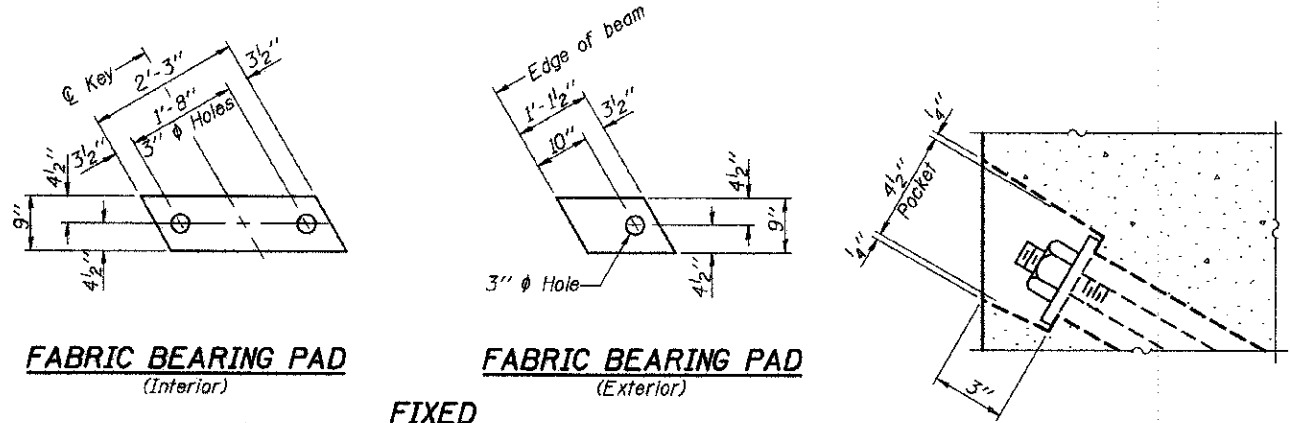
- #4 bar = 2'-0"
- #5 bar = 2'-6"

**21" X 48" PPC DECK BEAM**

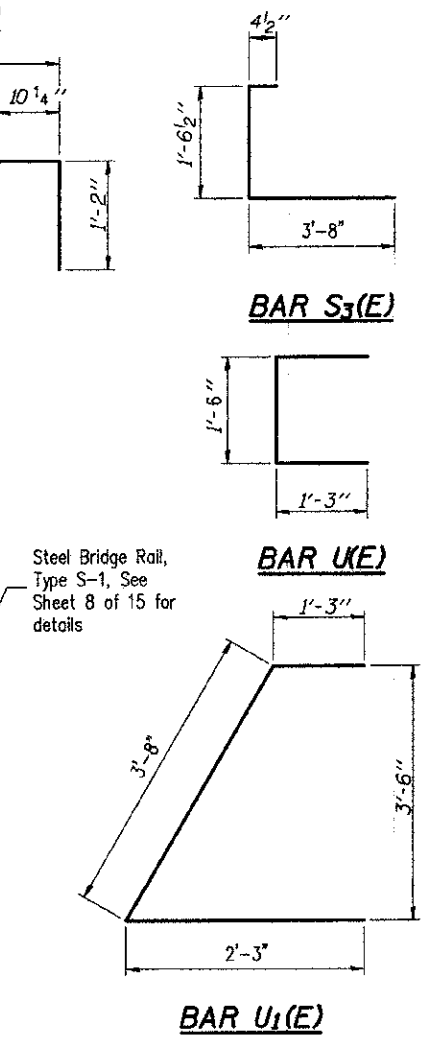
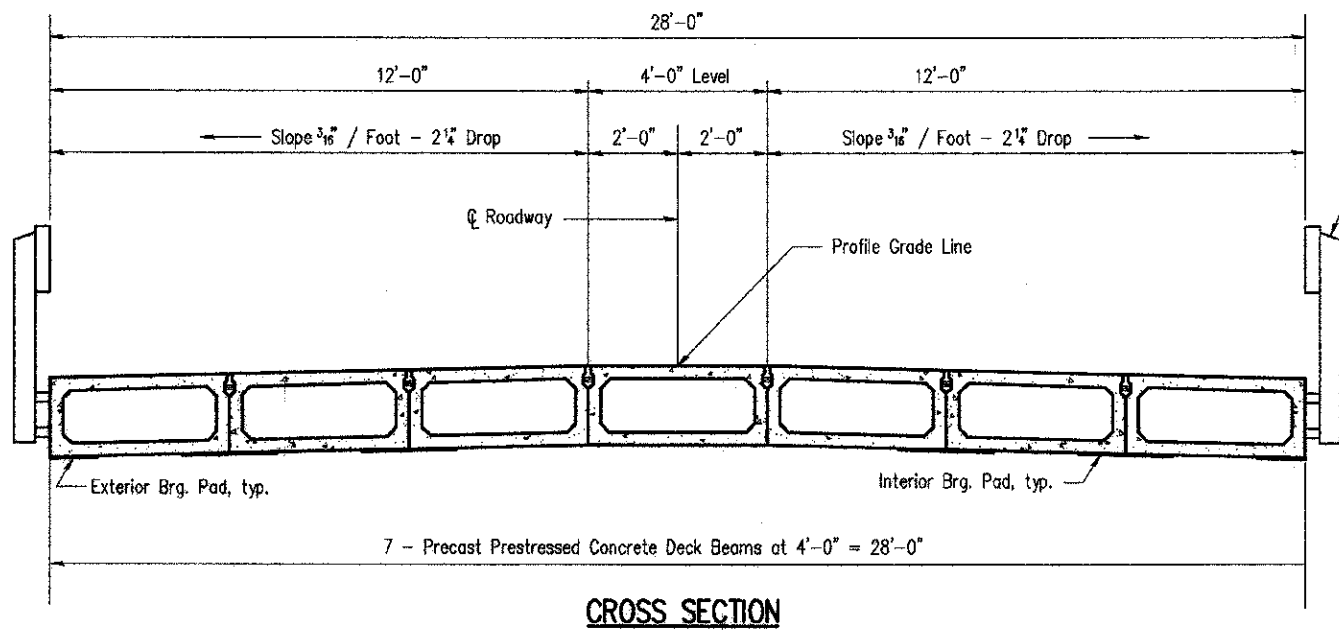
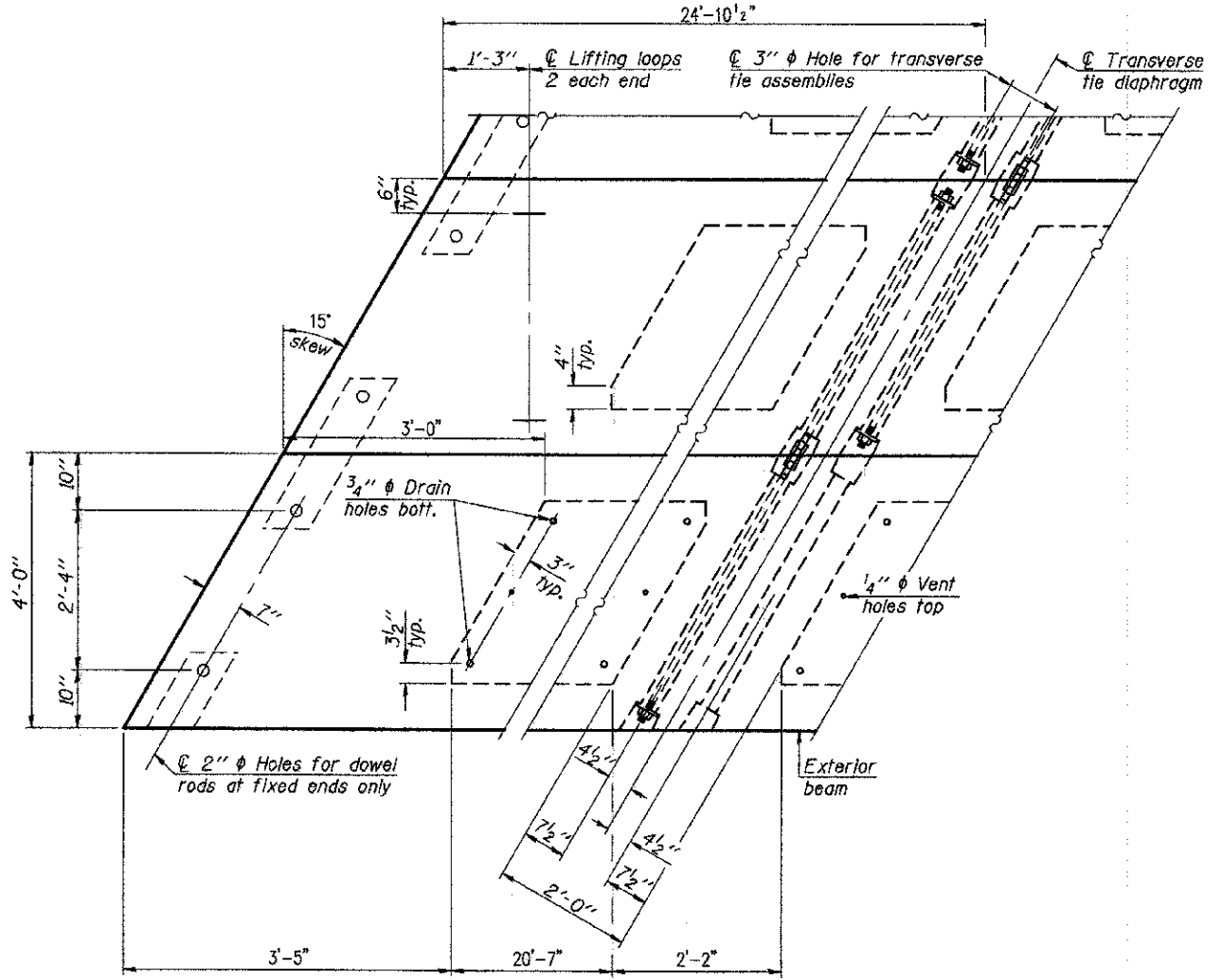
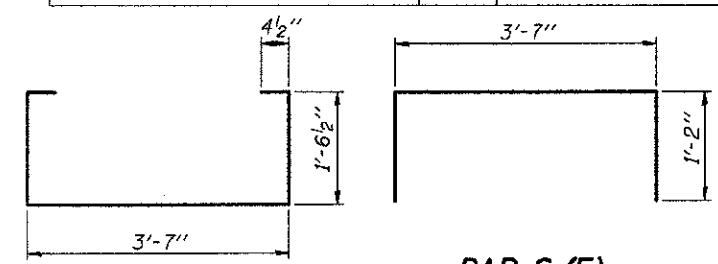
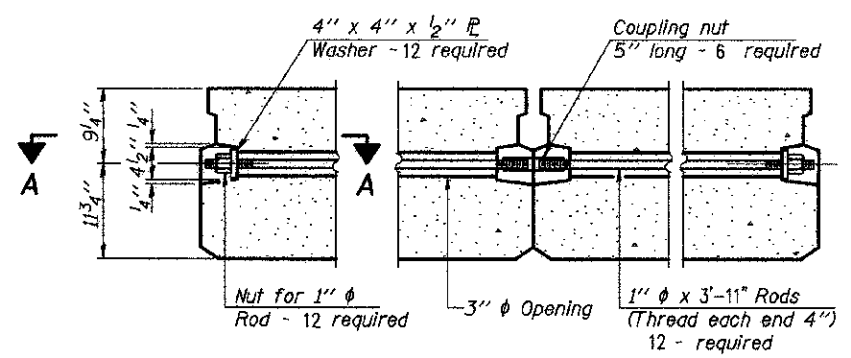
**CHARLESTON ENGINEERING, INC.**  
CONSULTING ENGINEERS  
105 NORTH KITCHELL  
P.O. BOX 387  
OLNEY, ILLINOIS 62450  
(618) 392-0726  
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #154.008513

**SUPERSTRUCTURE**  
**STRUCTURE NO. 051-3300**  
**T.R. 87**  
**OVER ALLISON DITCH #1**  
**SECTION 11-09113-00-BR**  
**LAWRENCE COUNTY**  
**STATION 4+00.00**

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 87	11-09113-00-BR	LAWRENCE	15	7
CONTRACT NO. 95693		ILLINOIS	PROJECT BROS-0101(045)	



**Notes:**  
 All bearing pads shall be 1" thick.  
 Omit holes when using expansion bearings.  
 Expansion bearing pad shall be bonded to the substructure.



**BILL OF MATERIAL**

Precast Prestressed Conc. Deck Bms. (21" depth)	Sq. Ft.	1393
-------------------------------------------------	---------	------

**21" X 48" PPC DECK BEAM DETAILS**

**CHARLESTON ENGINEERING, INC.**  
 CONSULTING ENGINEERS  
 105 NORTH KITCHELL  
 P.O. BOX 297  
 CLNEY, ILLINOIS 62450  
 (618) 292-1739  
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.005112

**SUPERSTRUCTURE DETAILS**  
 STRUCTURE NO. 051-3300  
 T.R. 87  
 OVER ALLISON DITCH #1  
 SECTION 11-09113-00-BR  
 LAWRENCE COUNTY  
 STATION 4+00.00

**NOTES**

Note: Connect beams in pairs with the transverse tie configuration shown.

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 sq. in. The 1" φ 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.

Reinforcement bars shall conform to ASTM A 706, Grade 60.

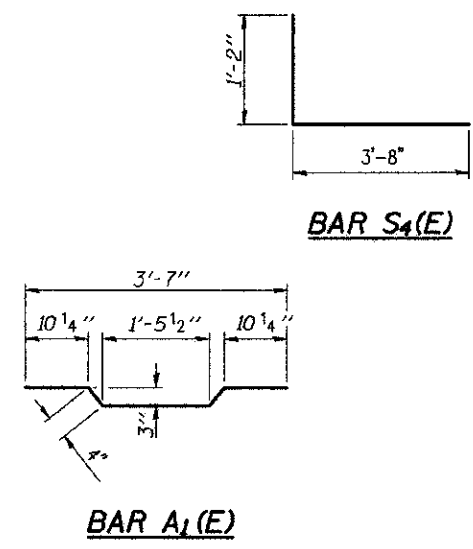
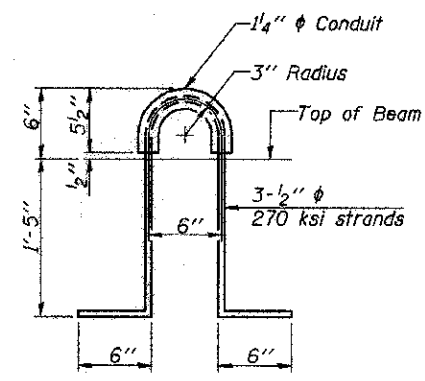
Two 3/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

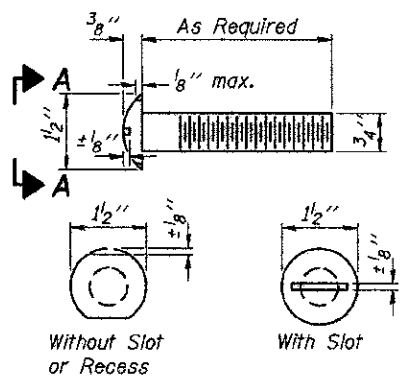
A minimum 2 1/2" φ lifting pin shall be used to engage the lifting loops during handling.

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.

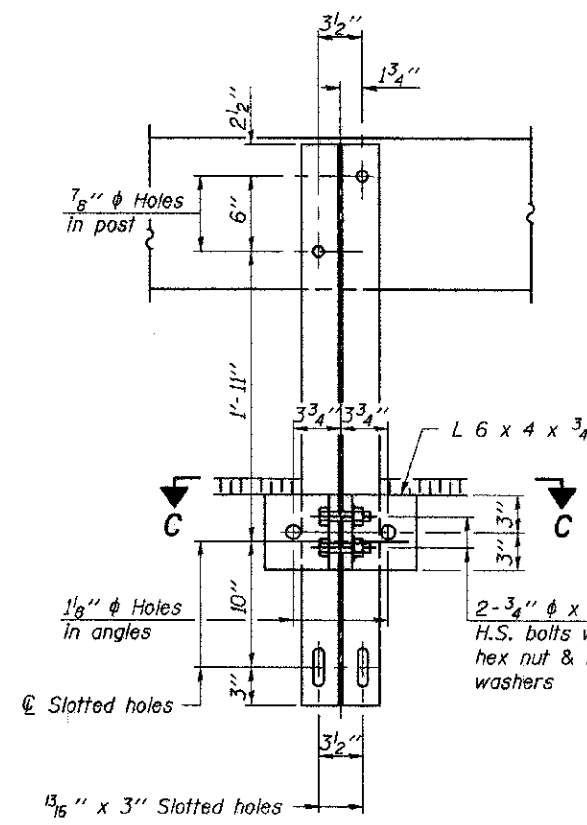
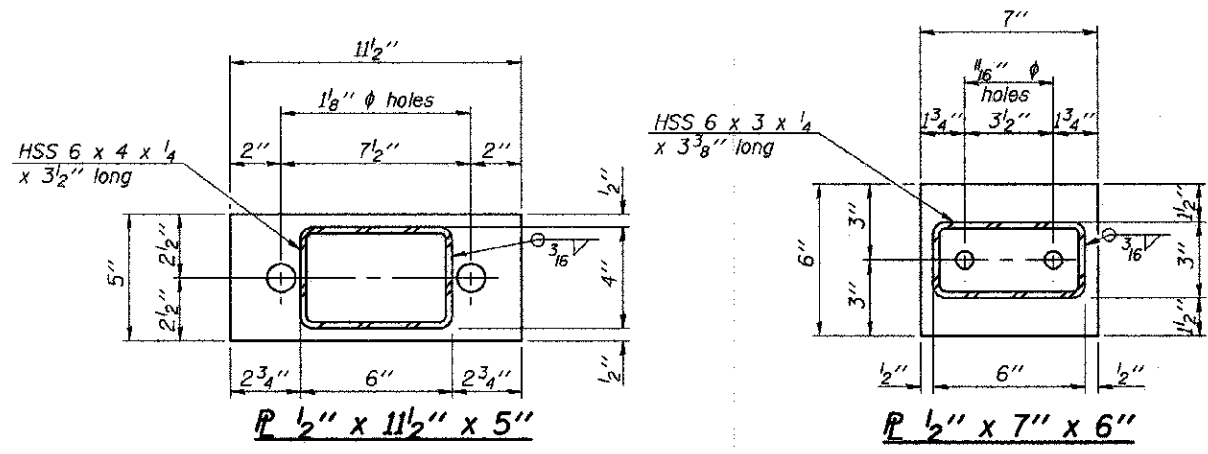
Compressive strength of prestressed concrete, f'c, shall be 6000 psi.

Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

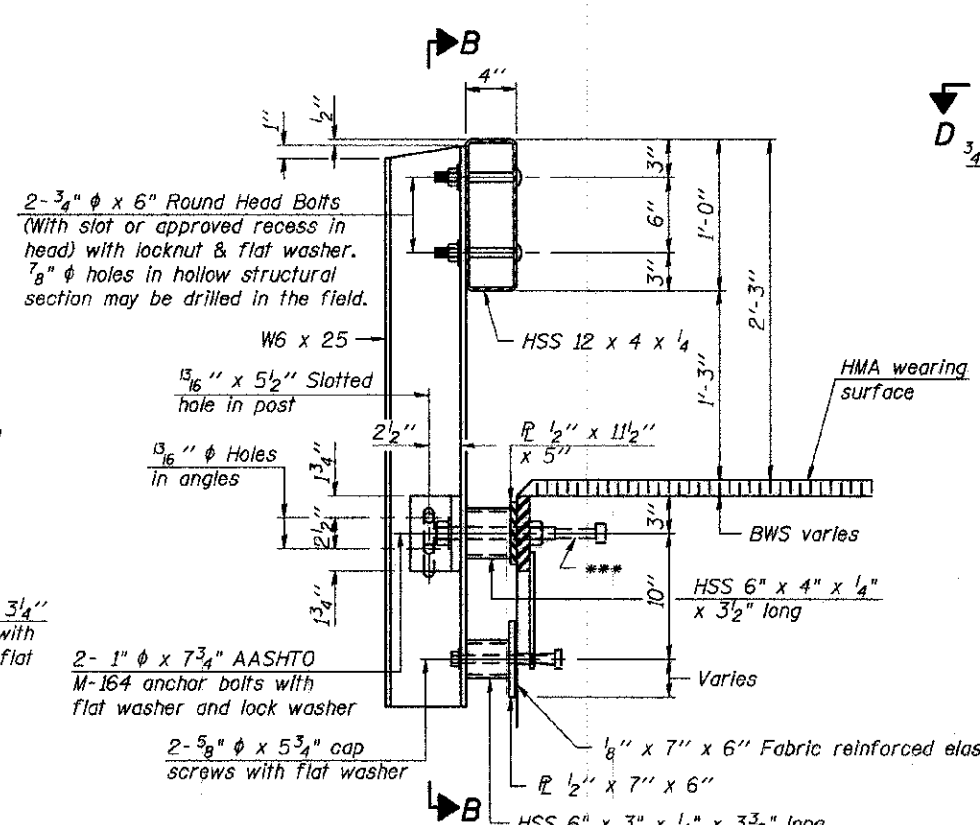




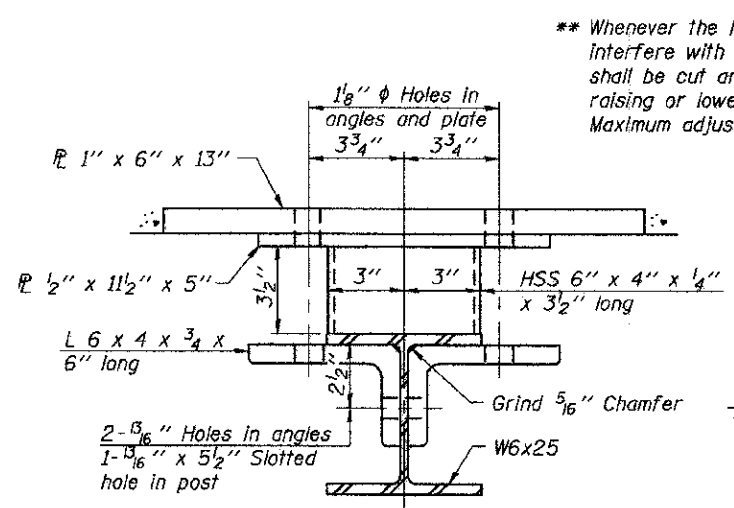
**VIEW A-A  
ROUND HEAD BOLT**



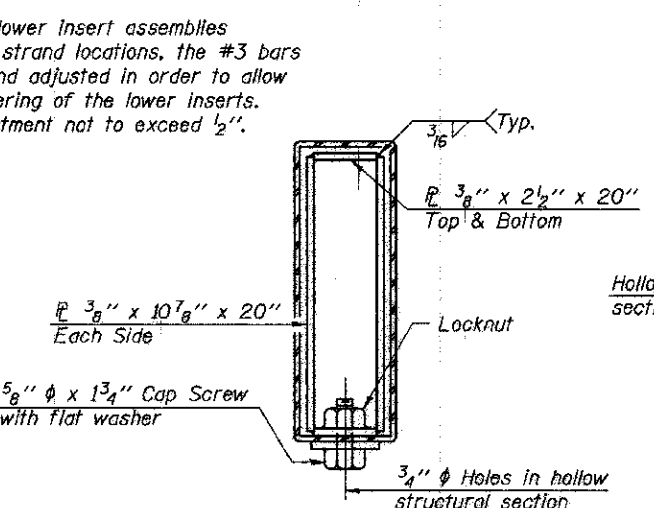
**SECTION B-B**



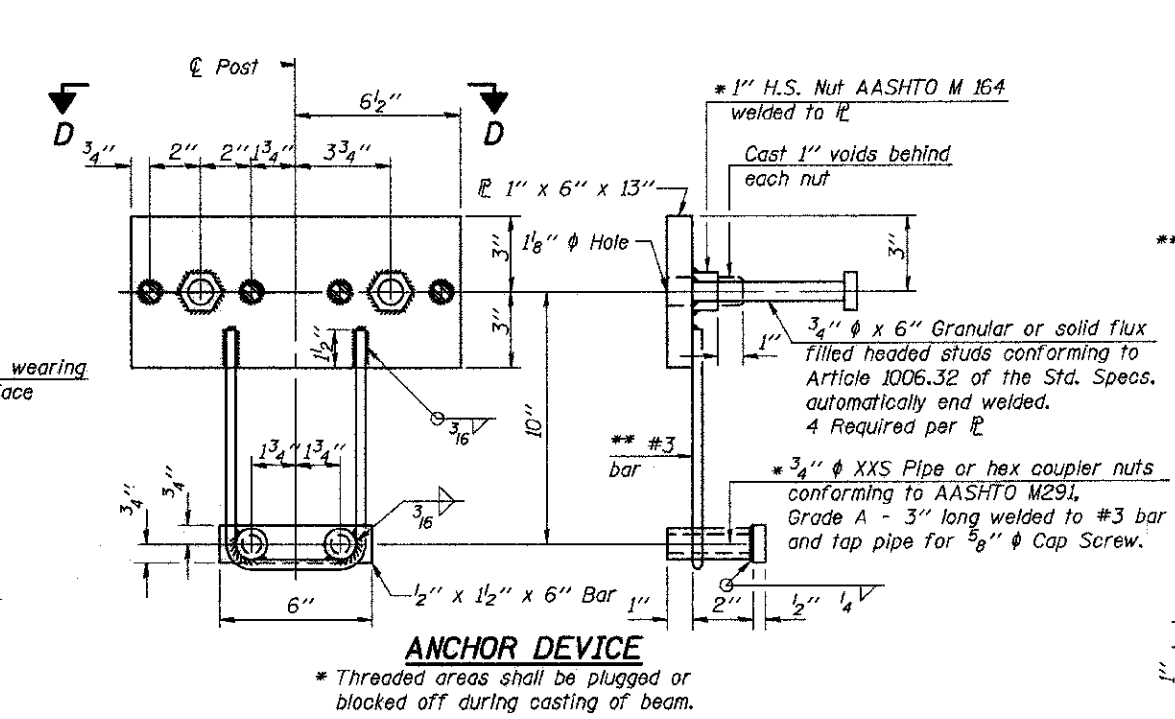
**SECTION AT RAILING POST**



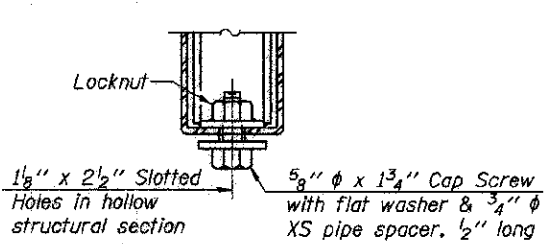
**SECTION C-C**



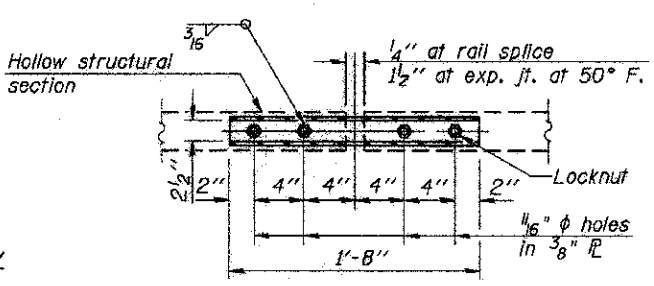
**SECTIONS AT RAIL SPLICE**



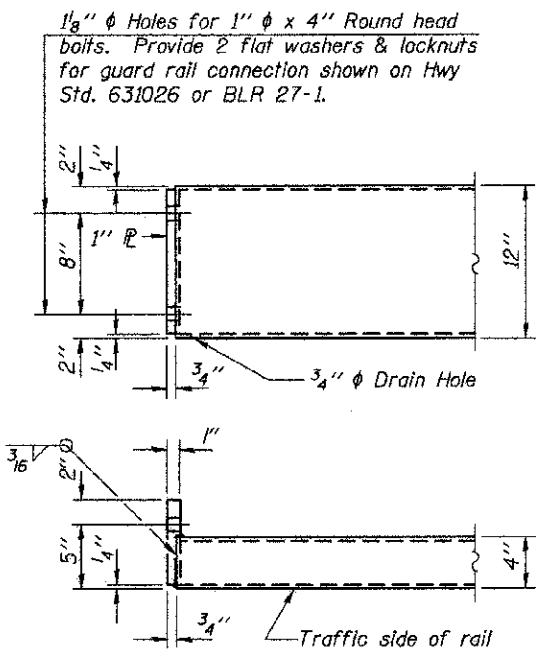
**ANCHOR DEVICE**



**RAIL SPLICE CONNECTION  
AT EXPANSION JT.**

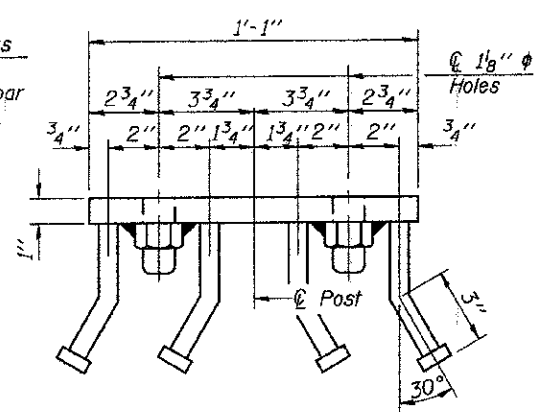


**PLAN-BOTT. SPLICE R  
TYPICAL**



**END OF RAIL DETAILS**

**Notes:**  
 All field drilled holes shall be coated with an approved zinc rich paint before erection.  
 For multi-span bridges, sufficient 1/4 inch x 6 inch x 1-2 inch 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.



**VIEW D-D**

**BILL OF MATERIAL**

Item	Unit	Quantity
Steel Railing, Type S-1	Foot	100

**STEEL RAILING, TYPE S-1**

**CHARLESTON ENGINEERING, INC.**  
 CONSULTING ENGINEERS  
 105 NORTH WITCHELL  
 P.O. BOX 397  
 OLNEY, ILLINOIS 62450  
 (618) 362-0736  
 ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #014.023513

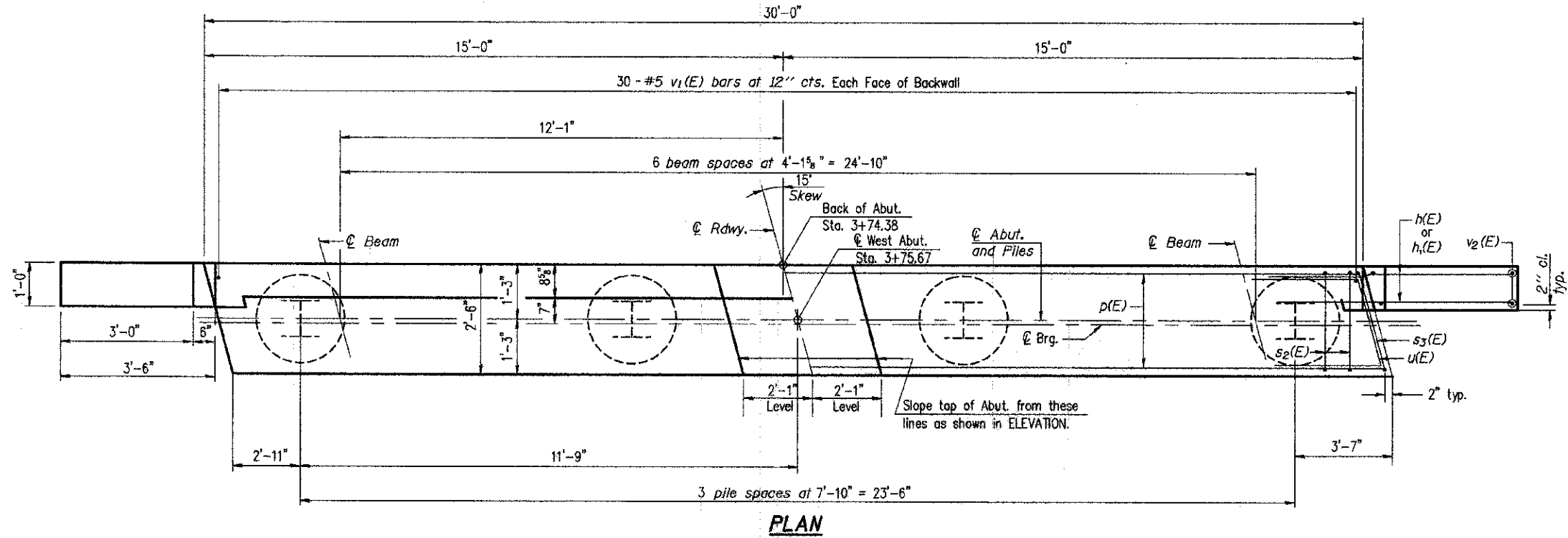
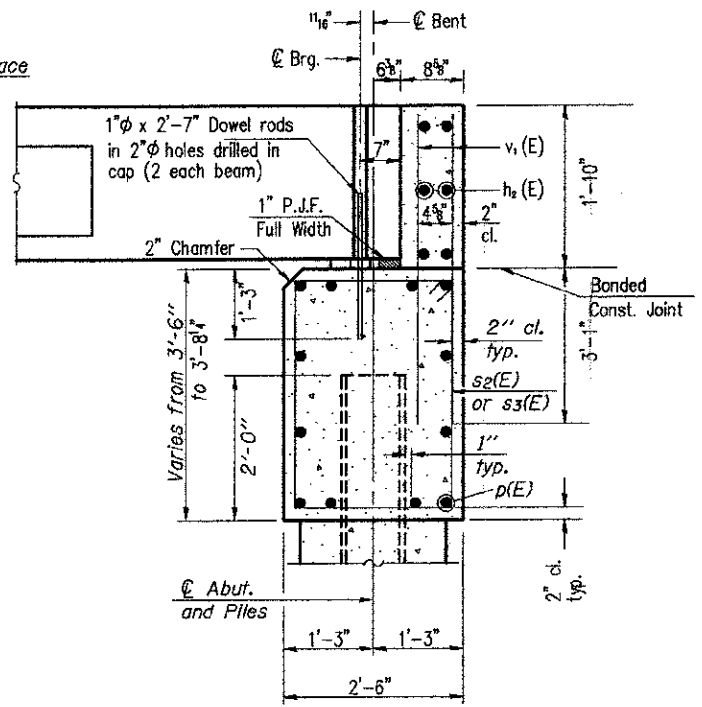
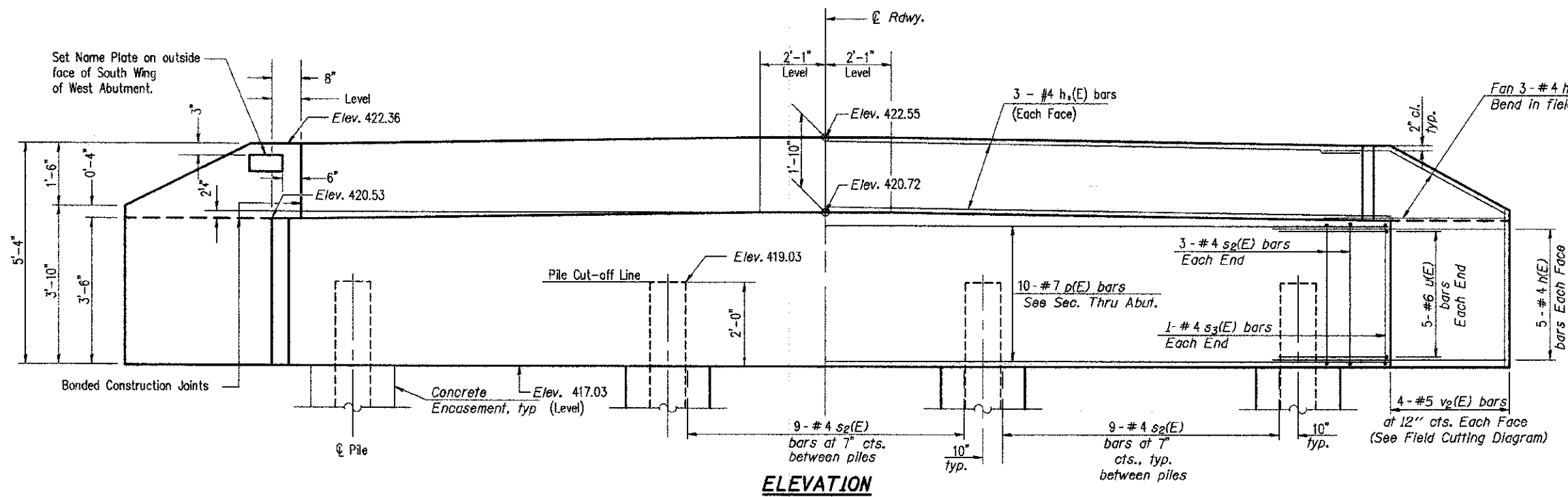
**STEEL RAILING, TYPE S-1  
STRUCTURE NO. 051-3300**

**T.R. 87  
OVER ALLISON DITCH #1**

**SECTION 11-09113-00-BR  
LAWRENCE COUNTY  
STATION 1+00.00**



ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 87	11-09113-00-BR	LAWRENCE	15	9
CONTRACT NO. 95693		ILLINOIS	PROJECT BROS-0101(045)	



**SEC. THRU ABUT.**  
(At Right Angles)

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h(E)	20	#4	5'-0"	—
h1(E)	12	#4	5'-3"	—
h2(E)	6	#4	29'-8"	—
p(E)	12	#7	29'-8"	—
s2(E)	33	#4	11'-5"	□
s3(E)	2	#4	11'-7"	□
u(E)	10	#6	11'-3"	┌
v1(E)	60	#5	4'-11"	—
v2(E)	8	#5	8'-4"	—
Concrete Structures			Cu. Yd.	12.8
Reinforcement Bars, Epoxy Coated			Pound	1773
Furnishing Steel Piles HP 10 X 42			Foot	48
Setting Piles in Rock			Each	4
Concrete Encasement			Cu. Yd.	1.4

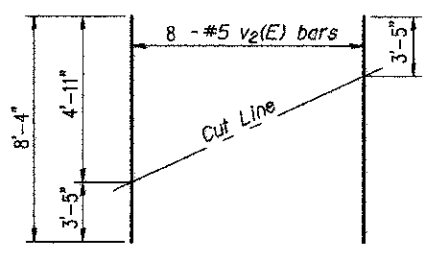
For details of piles and Concrete Encasement, see sheet 11 of 15.

**CHARLESTON ENGINEERING, INC.**  
CONSULTING ENGINEERS  
105 NORTH KITCHELL  
P.O. BOX 297  
OLNEY, ILLINOIS 62450  
(618) 352-0738  
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #194.003513

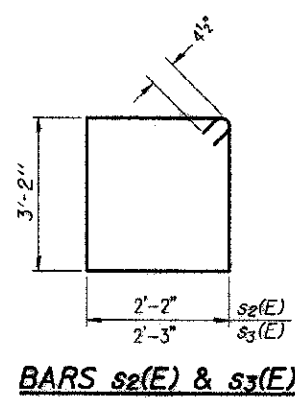
**WEST ABUTMENT DETAILS**  
STRUCTURE NO. 051-3300  
T.R. 87  
OVER ALLISON DITCH #1  
SECTION 11-09113-00-BR  
LAWRENCE COUNTY  
STATION 4+00.00

**PILE DATA**

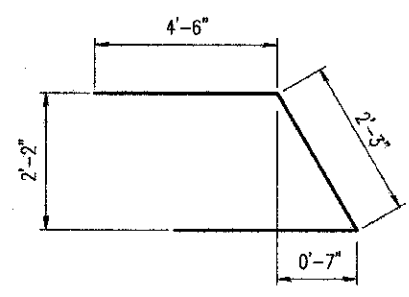
Type: HP 10 X 42  
Nominal Required Bearing: 331 kips  
Factored Resistance Available: 182 kips  
Est. Length: 12 Feet  
No. Production Piles: 4



**FIELD CUTTING DIAGRAM**  
Order v2(E) full length. Cut as shown and use remainder of bars in opposite face.



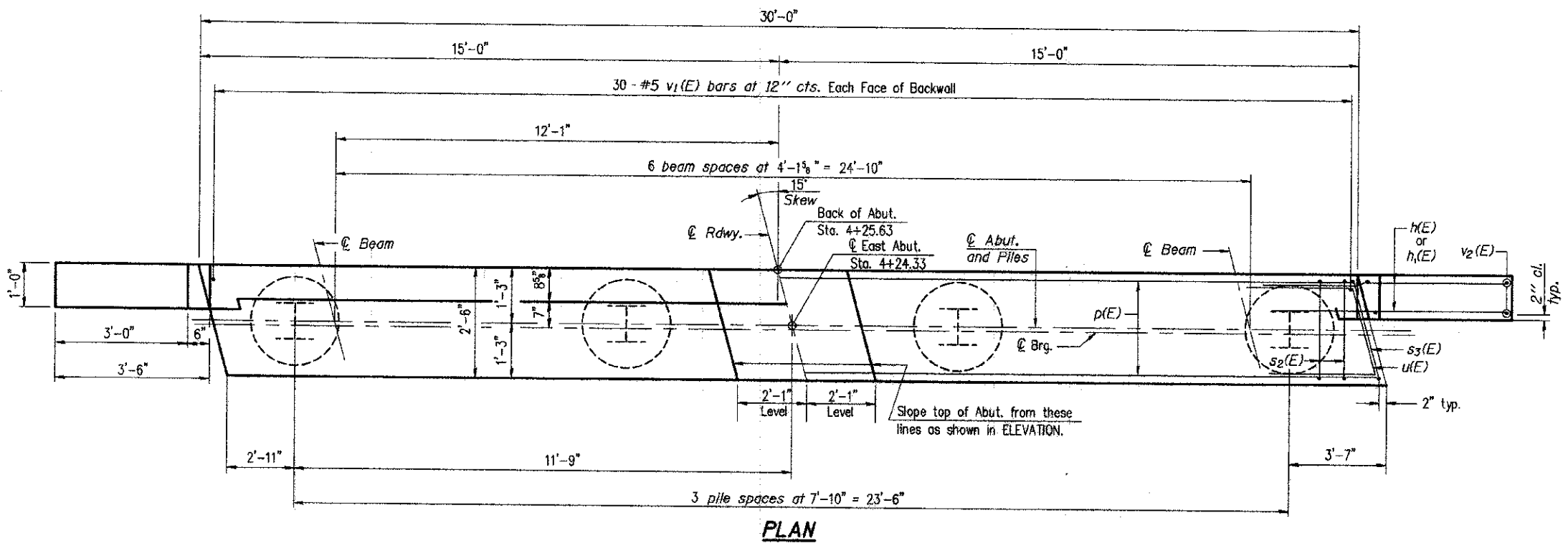
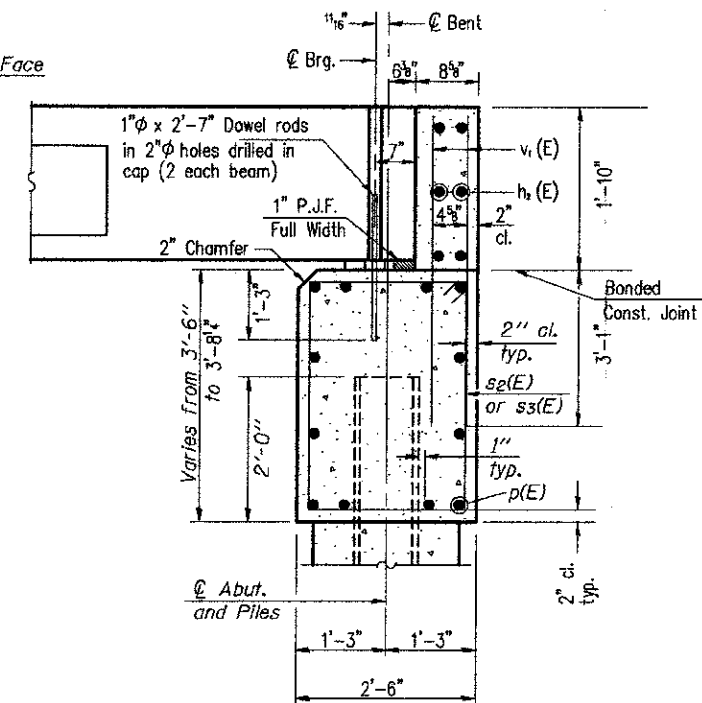
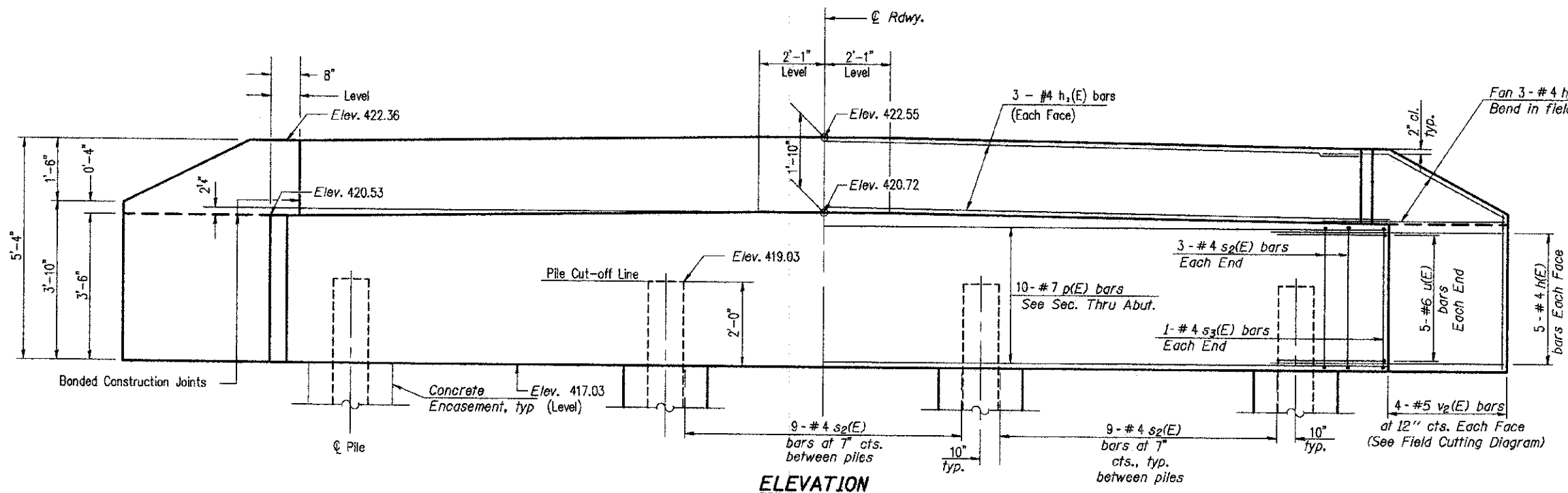
**BAR s2(E) & s3(E)**



**BAR u(E)**

Note: 1. The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 87	11-09113-00-BR	LAWRENCE	15	10
CONTRACT NO. 95693		ILLINOIS	PROJECT BROS-0101(045)	



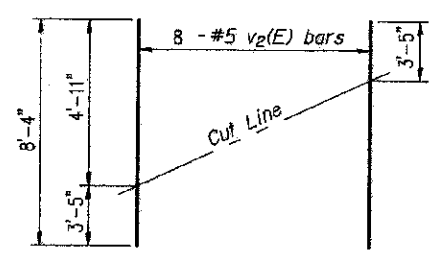
**SEC. THRU ABUT.**  
(At Right Angles)

**BILL OF MATERIAL**

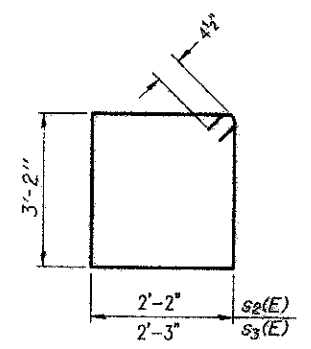
Bar	No.	Size	Length	Shape
h(E)	20	#4	5'-0"	—
h1(E)	12	#4	5'-3"	—
h2(E)	6	#4	29'-8"	—
p(E)	12	#7	29'-8"	—
s2(E)	33	#4	11'-5"	□
s3(E)	2	#4	11'-7"	□
u(E)	10	#6	11'-3"	┘
v1(E)	60	#5	4'-11"	—
v2(E)	8	#5	8'-4"	—
Concrete Structures		Cu. Yd.	12.8	
Reinforcement Bars, Epoxy Coated		Pound	1773	
Furnishing Steel Piles HP 10 X 42		Foot	48	
Setting Piles in Rock		Each	4	
Concrete Encasement		Cu. Yd.	1.7	

**PILE DATA**

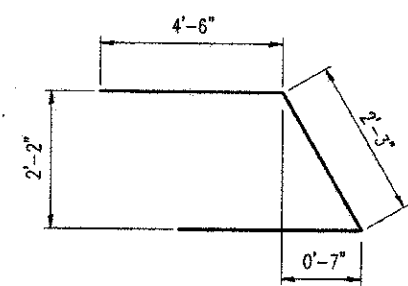
Type: HP 10 X 42  
 Nominal Required Bearing: 331 kips  
 Factored Resistance Available: 182 kips  
 Est. Length: 12 Feet  
 No. Production Piles: 4



**FIELD CUTTING DIAGRAM**  
Order v2(E) full length. Cut as shown and use remainder of bars in opposite face.



**BARS s2(E) & s3(E)**



**BAR u(E)**

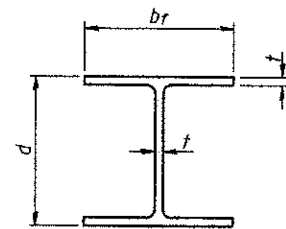
Note: 1. The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.

For details of piles and Concrete Encasement, see sheet 11 of 15.

**CHARLESTON ENGINEERING, INC.**  
 CONSULTING ENGINEERS  
 105 NORTH KITCHELL  
 P.O. BOX 387  
 CLINEY, ILLINOIS 62450  
 (618) 392-0736  
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184-002813

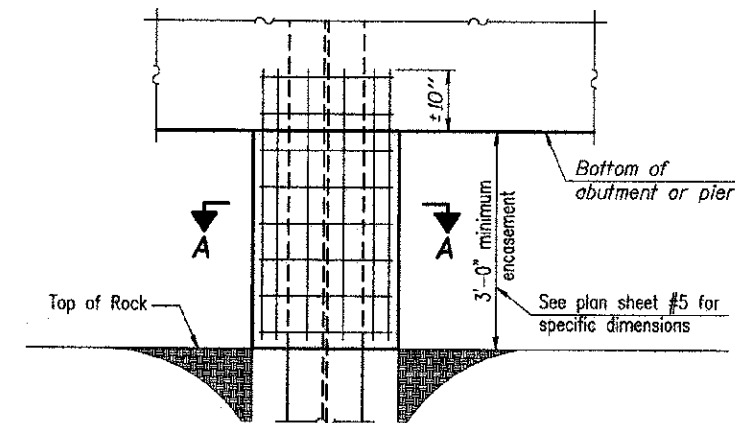
**EAST ABUTMENT DETAILS**  
**STRUCTURE NO. 051-3300**  
**T.R. 87**  
**OVER ALLISON DITCH #1**  
**SECTION 11-09113-00-BR**  
**LAWRENCE COUNTY**  
**STATION 4+00.00**

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 87	11-09113-00-BR	LAWRENCE	15	11
CONTRACT NO. 95693		ILLINOIS	PROJECT BROS-0101(045)	



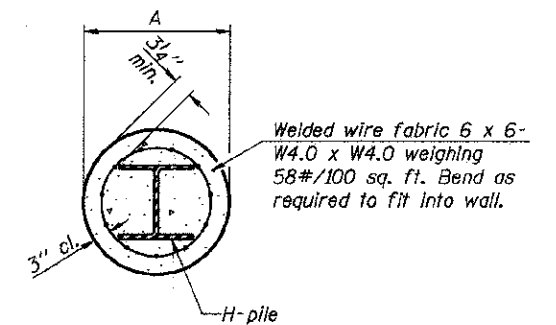
**STEEL PILE TABLE**

Designation	Depth <i>d</i>	Flange width <i>b<sub>f</sub></i>	Web and Flange thickness <i>t</i>	Encasement diameter <i>A</i>
HP 10 x42	9 <sup>3</sup> / <sub>4</sub> "	10 <sup>1</sup> / <sub>8</sub> "	7 <sup>1</sup> / <sub>16</sub> "	24"



**ELEVATION**

**PILE ENCASEMENT**



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

**SECTION A-A**

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

**CHARLESTON ENGINEERING, INC.**  
CONSULTING ENGINEERS  
105 NORTH KITCHELL  
P.O. BOX 367  
OLNEY, ILLINOIS 62450  
(618) 292-0736  
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #194.020513

**PILE DETAILS**

**STRUCTURE NO. 051-3300**  
**T.R. 87**  
**OVER ALLISON DITCH #1**  
**SECTION 11-09113-00-BR**  
**LAWRENCE COUNTY**  
**STATION 4+00.00**

HOLCOMB FOUNDATION ENGINEERING INC.  
P.O. Box 88 618-529-5262  
Carbondale, IL 62903 618-457-8991 fax Page 1 of 1

Bridge Foundation Boring Log

Project: H-11247 Bridge Co Rd 1500N Date: 1/9/2012  
Section: 11-09113-00-BR Station \_\_\_\_\_ Bored by: B. Schwartz  
Structure: \_\_\_\_\_ Checked By: T. Holcomb  
County: Lawrence

Boring No:	Station:	Offset:	Elevation	N	Qu	tsf	%	Surface Water Elev.	Elevation	N	Qu	tsf	%
1	3+85.11	8' LT.											
			420.6	0									
			419.9										
				9	1.78	23							
				5	1.68	27							
			414.1										
				100									
				7/5"			9						
			412.1										
				100									
				7/5"			9						
			409.1										
			408.6										
				100									
				7/4"			7						

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"  
Qu - Unconfined Compressive Strength in tons/sq.ft. w - Water Content - percentage of oven dry weight - %  
B = Bulge Failure S = Shear Failure E = Estimated Value P = Penetrometer

HOLCOMB FOUNDATION ENGINEERING INC.  
P.O. Box 88 618-529-5262  
Carbondale, IL 62903 618-457-8991 fax Page 1 of 1

Bridge Foundation Boring Log

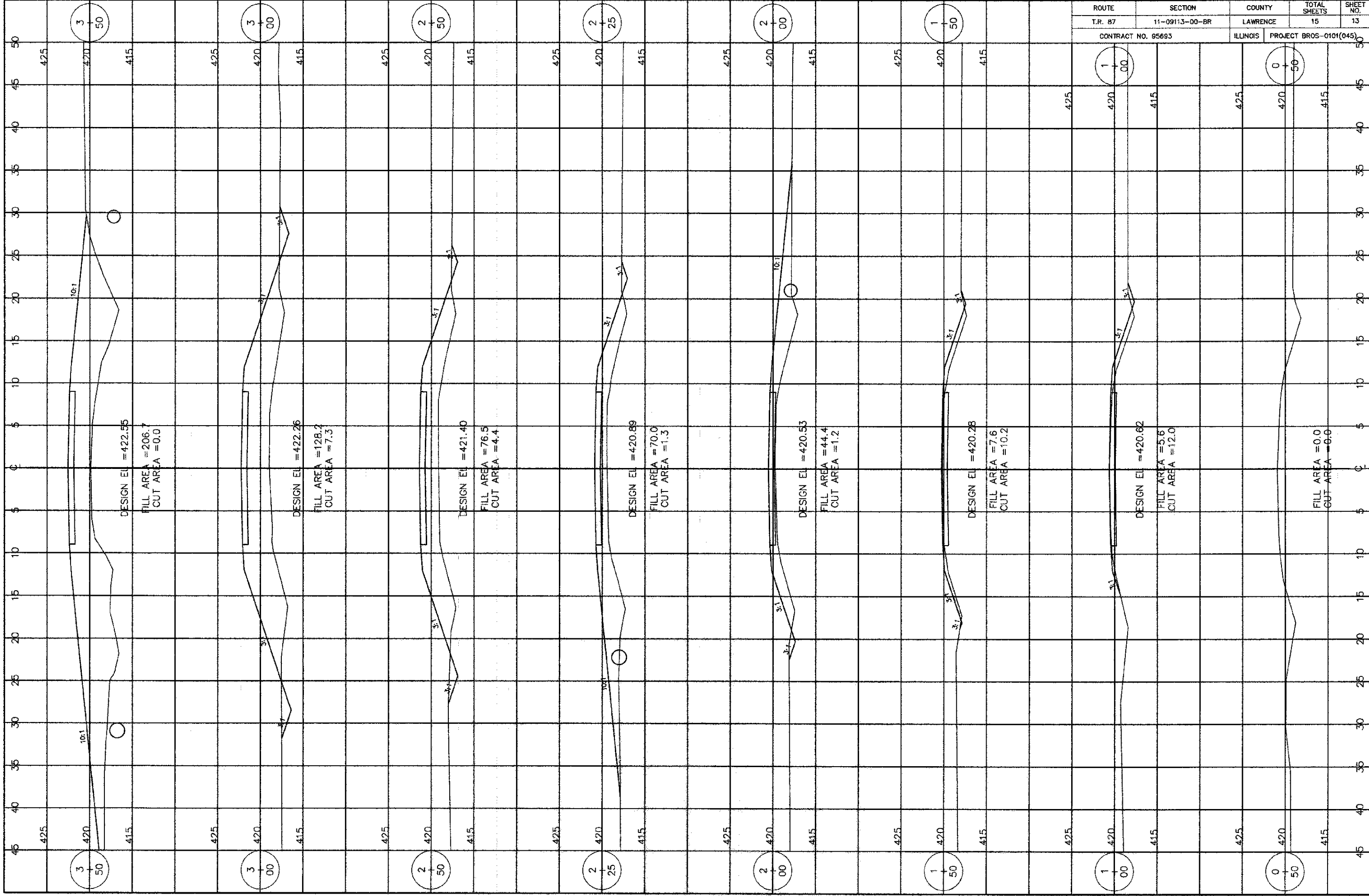
Project: H-11247 Bridge Co Rd 1500N Date: 1/9/2012  
Section: 11-09113-00-BR Station \_\_\_\_\_ Bored by: B. Schwartz  
Structure: \_\_\_\_\_ Checked By: T. Holcomb  
County: Lawrence

Boring No:	Station:	Offset:	Elevation	N	Qu	tsf	%	Surface Water Elev.	Elevation	N	Qu	tsf	%
2	4+39.80	10' RT.											
			420.0	0									
				7	1.45	21							
			416.0										
				5	1.55	25							
			413.5										
				100									
				7/4"			9						
			411.5										
				100									
				7/8"			11						
			408.5										
				100									
				7/5"			9						

N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"  
Qu - Unconfined Compressive Strength in tons/sq.ft. w - Water Content - percentage of oven dry weight - %  
B = Bulge Failure S = Shear Failure E = Estimated Value P = Penetrometer

CHARLESTON ENGINEERING, INC.  
CONSULTING ENGINEERS  
105 NORTH KITCHELL  
P.O. BOX 387  
CLNEY, ILLINOIS 62450  
(618) 392-0736  
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184-008512

**BORING LOGS**  
STRUCTURE NO. 051-3300  
T.R. 87  
OVER ALLISON DITCH #1  
SECTION 11-09113-00-BR  
LAWRENCE COUNTY  
STATION 4+00.00



DESIGN EL = 422.55  
 FILL AREA = 206.7  
 CUT AREA = 0.0

DESIGN EL = 422.26  
 FILL AREA = 128.2  
 CUT AREA = 7.3

DESIGN EL = 421.40  
 FILL AREA = 76.5  
 CUT AREA = 4.4

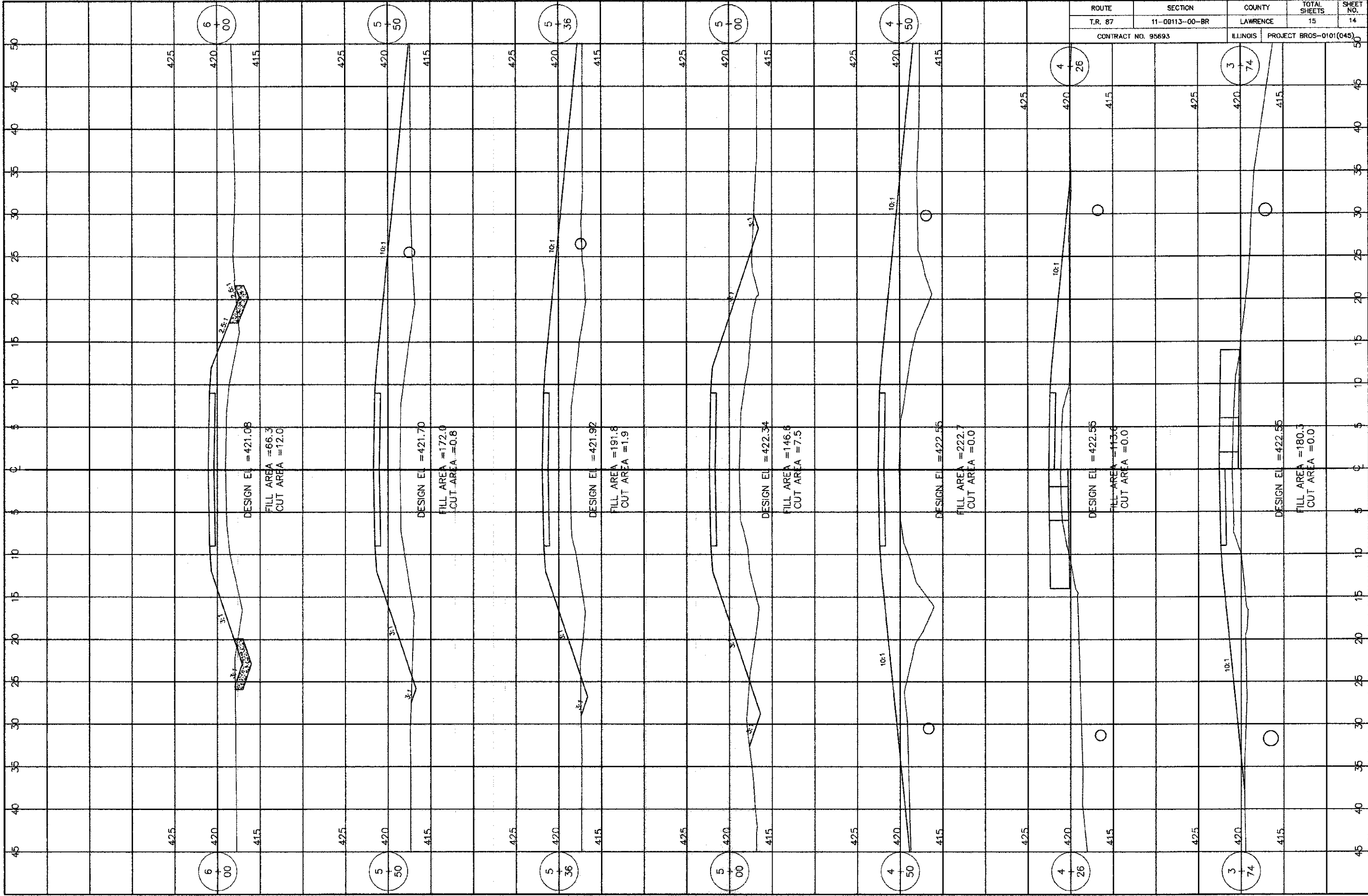
DESIGN EL = 420.89  
 FILL AREA = 70.0  
 CUT AREA = 1.3

DESIGN EL = 420.53  
 FILL AREA = 44.4  
 CUT AREA = 1.2

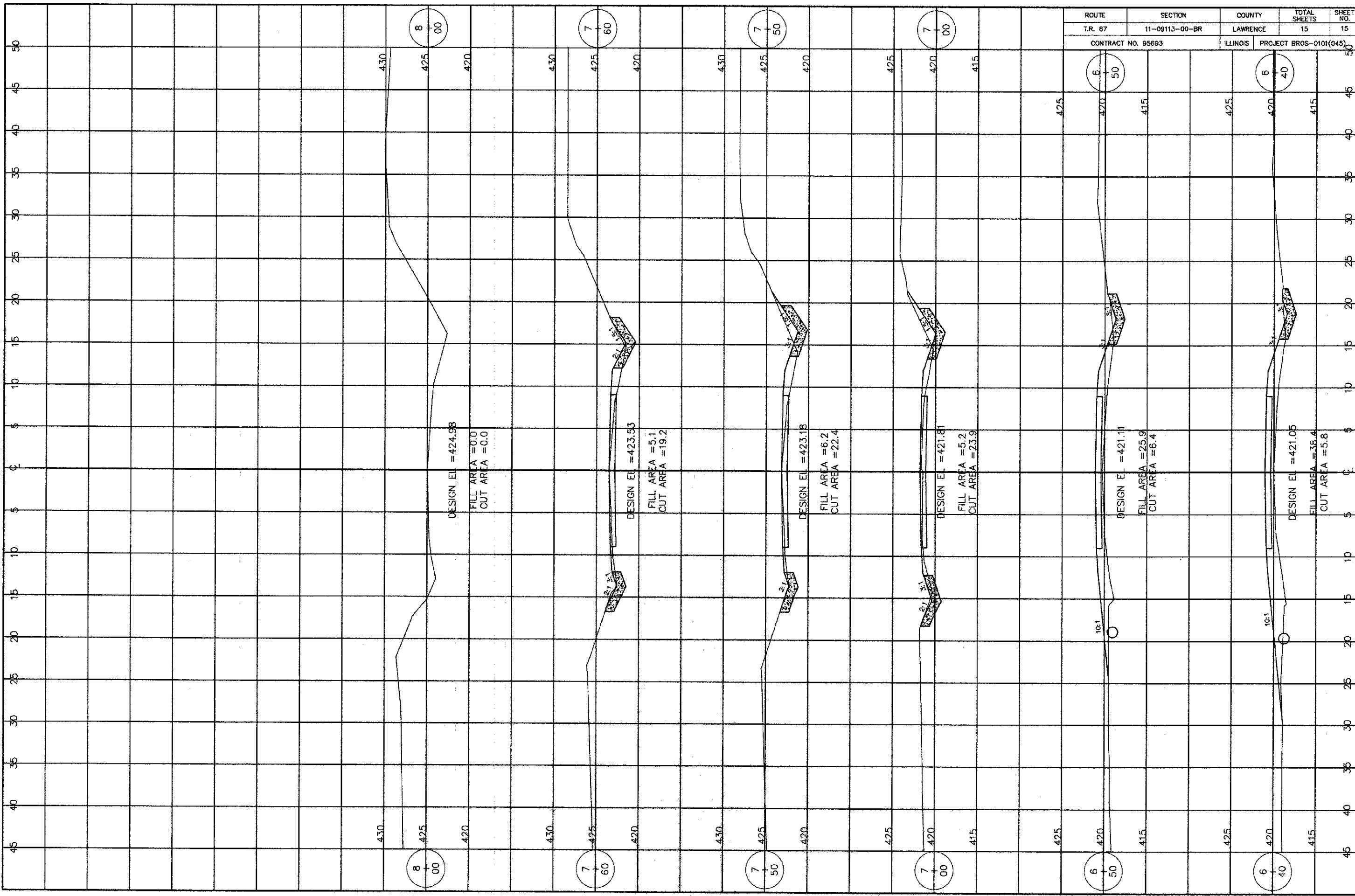
DESIGN EL = 420.28  
 FILL AREA = 7.6  
 CUT AREA = 10.2

DESIGN EL = 420.62  
 FILL AREA = 5.8  
 CUT AREA = 12.0

FILL AREA = 0.0  
 CUT AREA = 0.0



ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 87	11-08113-00-BR	LAWRENCE	15	14
CONTRACT NO. 95693		ILLINOIS	PROJECT BROS-0101(045)	



ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 87	11-09113-00-BR	LAWRENCE	15	15
CONTRACT NO. 95693		ILLINOIS	PROJECT BROS-0101(045)	

DESIGN EL = 424.98  
 FILL AREA = 0.0  
 CUT AREA = 0.0

DESIGN EL = 423.53  
 FILL AREA = 5.1  
 CUT AREA = 19.2

DESIGN EL = 423.18  
 FILL AREA = 6.2  
 CUT AREA = 22.4

DESIGN EL = 421.81  
 FILL AREA = 5.2  
 CUT AREA = 23.9

DESIGN EL = 421.11  
 FILL AREA = 25.9  
 CUT AREA = 6.4

DESIGN EL = 421.05  
 FILL AREA = 38.4  
 CUT AREA = 5.8