

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 237	10-05124-00-BR	LAWRENCE	13	1
CONTRACT NO. 95642		ILLINOIS	PROJECT NO.	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
PLANS FOR PROPOSED  
HIGHWAY BRIDGE PROGRAM PROJECT  
SECTION 10-05124-00-BR LAWRENCE COUNTY  
PROJECT BROS-0101(037)  
JOB NO. C-97-024-11  
DENISON ROAD DISTRICT  
T.R. 237

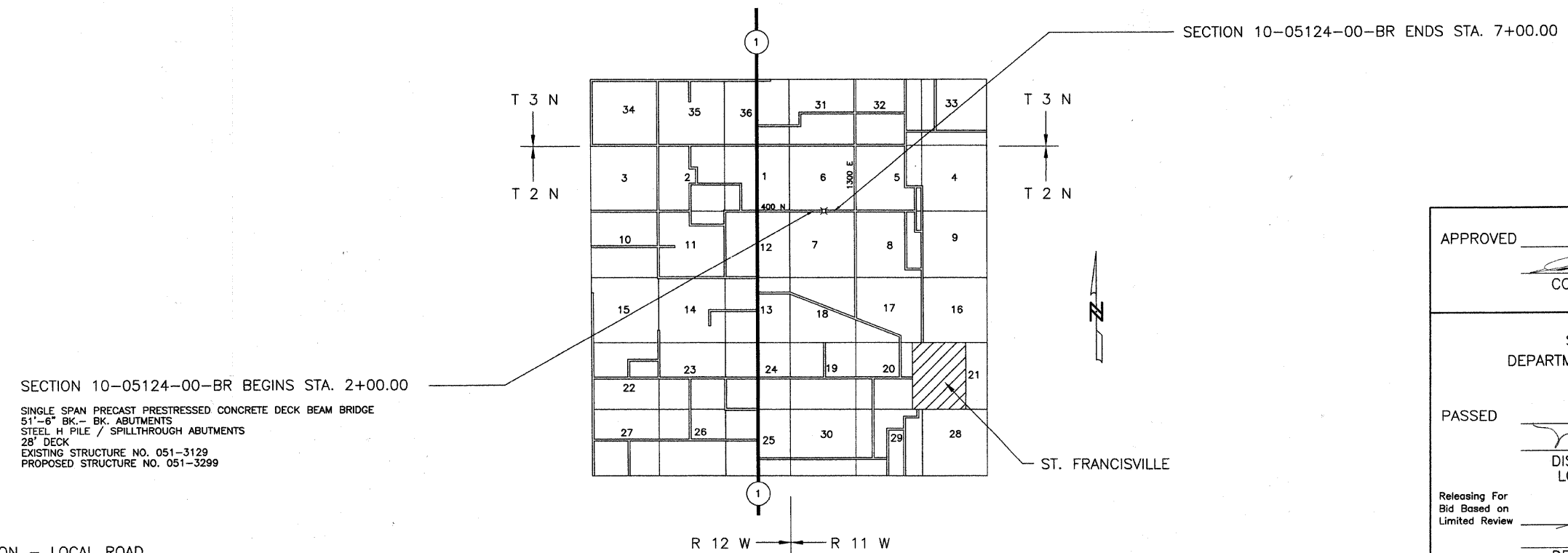
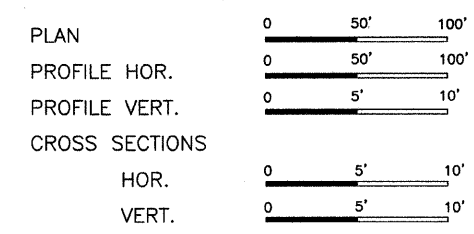
CONTRACT NO. 95642

JULIE 1-800-892-0123

INDEX OF SHEETS

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

- STANDARD DRAWINGS
- STANDARD 000001-06
  - STANDARD 280001-05
  - STANDARD 515001-03
  - STANDARD 701901-01
  - STANDARD BLR 21-8
  - STANDARD BLR 22-6



SECTION 10-05124-00-BR BEGINS STA. 2+00.00

SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE  
51'-6" BK.- BK. ABUTMENTS  
STEEL H PILE / SPILLTHROUGH ABUTMENTS  
28' DECK  
EXISTING STRUCTURE NO. 051-3129  
PROPOSED STRUCTURE NO. 051-3299

*Roger A. Charbel*  
27110 Reg. Eng. # 29195  
1/2/11  
via. Expire 11/30/11

CHARLESTON ENGINEERING INC.  
105 N. KITCHELL  
P.O. BOX 397  
OLNEY, ILLINOIS 62450  
PH. 618-392-0736

ROGER A. CHARBEL  
27110  
REGISTERED  
PROFESSIONAL  
ENGINEER  
OF  
ILLINOIS

APPROVED \_\_\_\_\_ 1-4 2011  
COUNTY ENGINEER

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PASSED \_\_\_\_\_ 1-5 2011  
District Seven Engineer of  
Local Roads and Streets

Releasing For  
Bid Based on  
Limited Review

\_\_\_\_\_ 1-5 2011  
Deputy Director of Highways  
Region Four Engineer

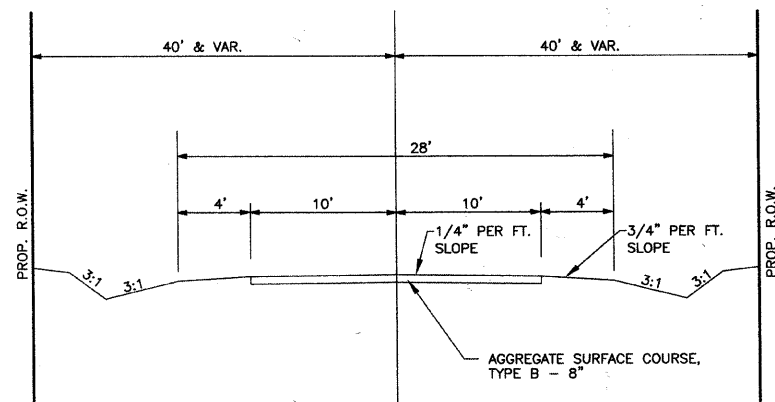
FUNCTIONAL CLASSIFICATION - LOCAL ROAD  
ADT = 125  
DESIGN SPEED = 30 MPH

NET LENGTH SECTION 10-05124-00-BR = 500.00 Ft. = 0.095 Mi.

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 237	10-05124-00-BR	LAWRENCE	13	2
CONTRACT NO. 95642		ILLINOIS		

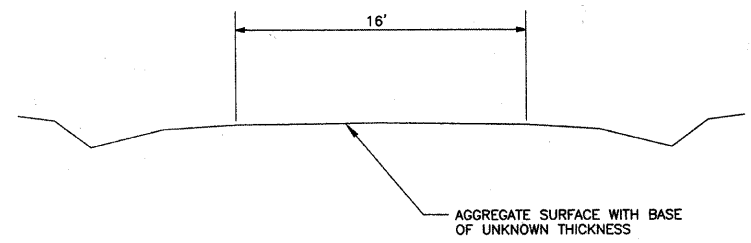
**DESIGN DATA**

LOCAL ROAD  
ADT = 125



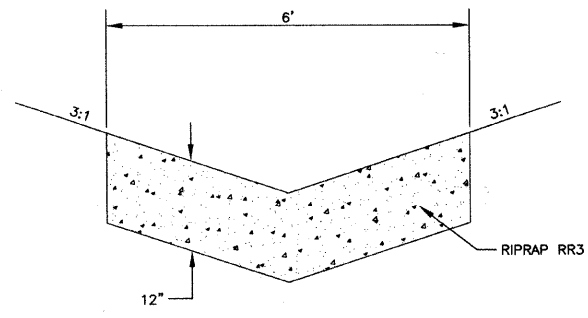
**TYPICAL SECTION**

PROPOSED



**TYPICAL SECTION**

EXISTING

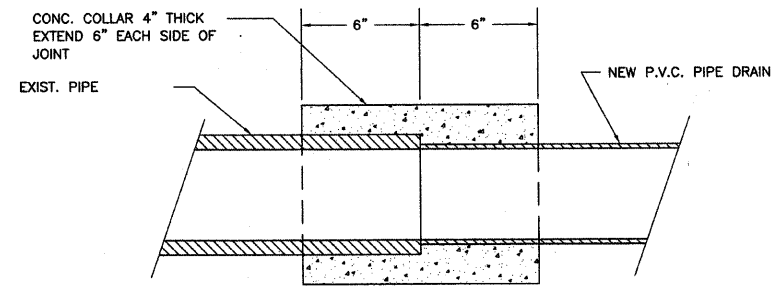


**AGGREGATE DITCH DETAIL**

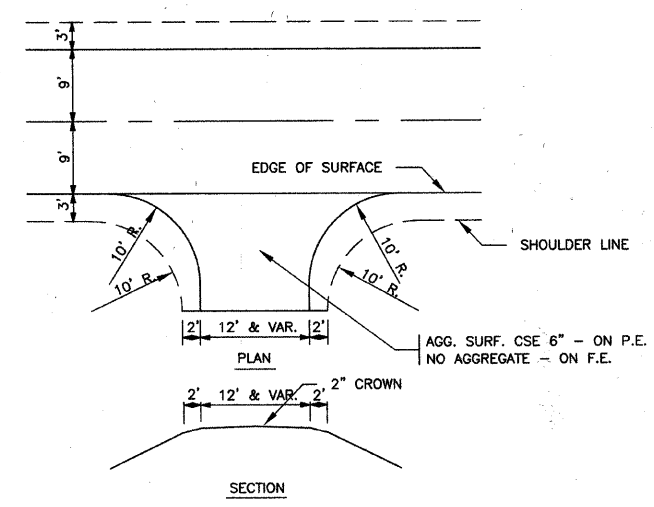
LT. STA. 2+30 TO 4+27  
RT. STA. 2+50 TO 4+27  
(FILTER FABRIC WILL NOT BE REQ.)

**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.
2. NO PAYMENT FOR OVERHAUL WILL BE MADE ON THIS SECTION.



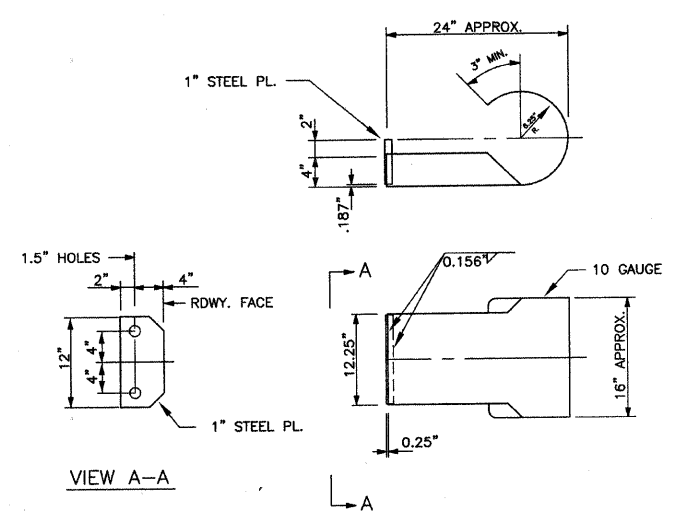
**CONCRETE COLLAR DETAIL**



**ENTRANCE DETAIL**

SUMMARY OF QUANTITIES			
CODE NO.	ITEM	UNIT	QUANTITY
20200100	EARTH EXCAVATION	CU YD	215
20300100	CHANNEL EXCAVATION	CU YD	150
20400800	FURNISHED EXCAVATION	CU YD	460
X2501000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.50
28000305	TEMPORARY DITCH CHECKS	FOOT	24
28100807	STONE DUMPED RIPRAP, CLASS A4	TON	200
28300400	AGGREGATE DITCH	TON	125
35101400	AGGREGATE BASE COURSE, TYPE B	TON	60
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	410
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50300225	CONCRETE STRUCTURES	CU YD	24.4
50300280	CONCRETE ENCASEMENT	CU YD	3.5
50400405	PRECAST PRESTRESSED CONCRETE DECK BEAMS (21" DEPTH)	SQ FT	1400
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	3000
* 50900205	STEEL RAILING, TYPE S1	FOOT	102
51201400	FURNISHING STEEL PILES HP 10X42	FOOT	315
51202305	DRIVING PILES	FOOT	315
51203400	TEST PILE STEEL HP 10 X 42	EACH	1
51500100	NAME PLATES	EACH	1
54248510	CONCRETE COLLAR	CU YD	0.25
60100985	PIPE DRAINS 24"	FOOT	185
67100100	MOBILIZATION	L SUM	1

\* SPECIALTY ITEMS

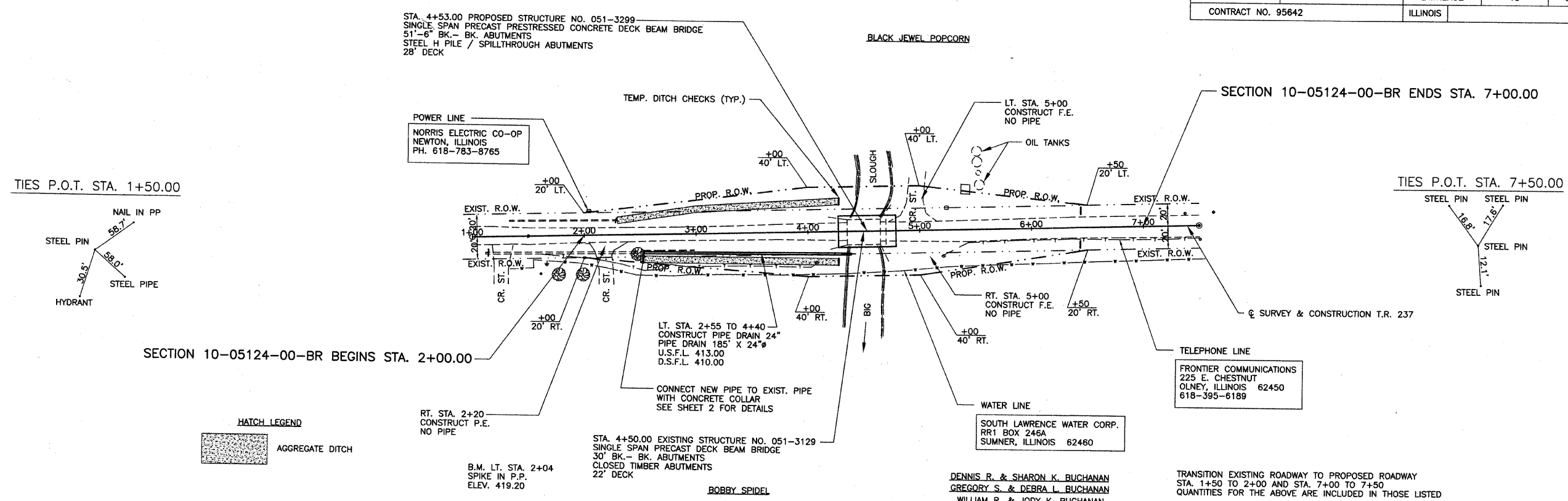


**CURLED END SECTION DETAILS**

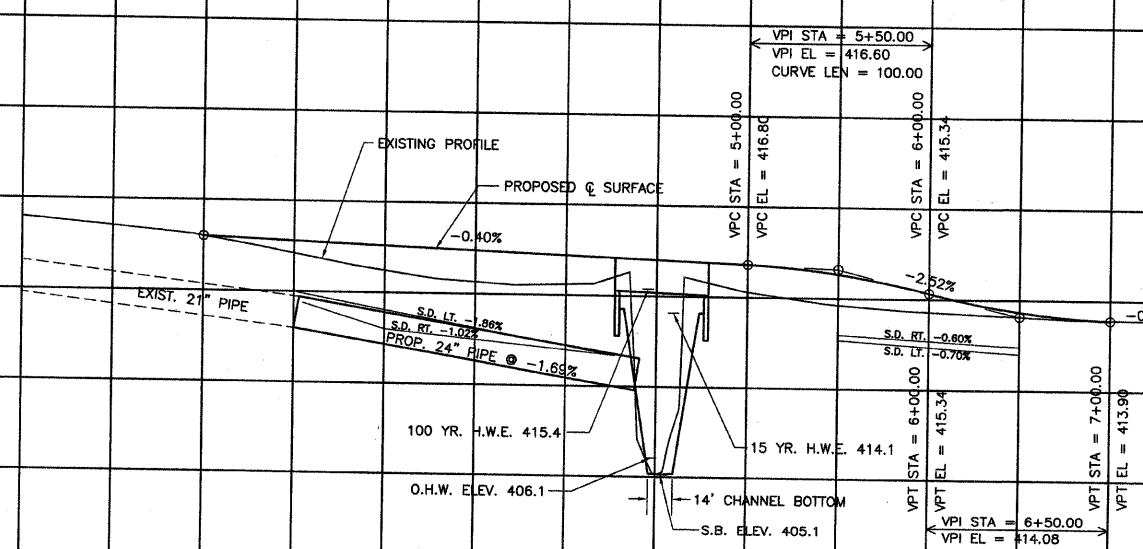
4 REQUIRED - COST INCLUDED IN  
\*STEEL RAILING, TYPE S-1\*

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 237	10-05124-00-BR	LAWRENCE	13	3
CONTRACT NO. 95642		ILLINOIS		

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

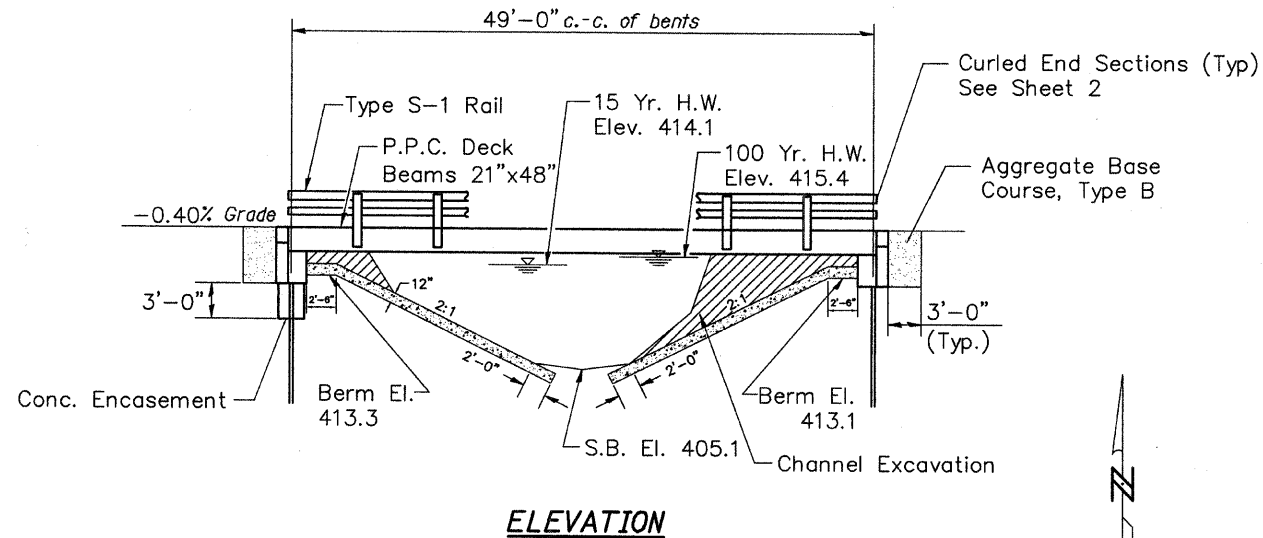


STATION	DESCRIPTION	UNIT	QUANTITY
435			
430	EARTHWORK	CU. YD.	
425	EARTH EXCAVATION	215	
	CHANNEL EXCAVATION	150	
	EMBANKMENT	735	
	FURNISHED EXCAVATION	460	
420	AGG. SURF. CSE., TYPE B	TON	410
415	TEMPORARY DITCH CHECKS	FOOT	24
410	SEEDING CLASS 2 (SPECIAL)	ACRE	0.50
405	AGGREGATE DITCH	TON	65
	LT. STA. 2+30 TO 4+27	80	
	RT. STA. 2+50 TO 4+27	60	
	TOTAL	125 TON	
400			
395			
390			

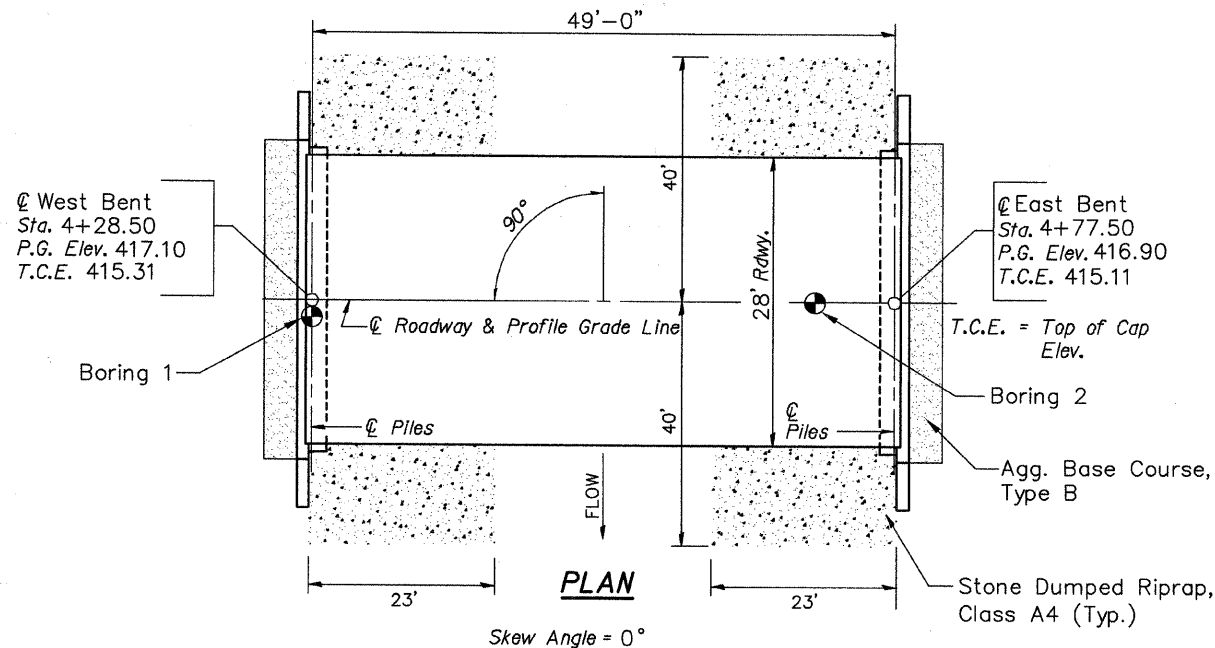


B.M.—Lt. Sta. 2+04, spike in P.P., Elev. 419.20

Existing Structure — Existing structure No. 051-3129 consists of an existing concrete deck beam Deck beams are 30' long by 3' wide by 21" deep. Deck is 30' long by 22' wide.



**ELEVATION**



**PLAN**

Station	Elevation
STA 4+28.50	ELEV 417.10
STA 4+53.00	ELEV 417.00
STA 4+77.50	ELEV 416.90

**PROFILE GRADE**  
(along @ 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**

2007 AASHTO LRFD Bridge Design Specifications — 4th ed.

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 2  
Design Spectral Acceleration at 1.0 sec. ( $S_{D1}$ ) = 0.235g  
Design Spectral Acceleration at 0.2 sec. ( $S_{D5}$ ) = 0.540g  
Soil Site Class = D

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

Type	HP 10 X 42
Nominal Required Bearing	335 kips
Factored Resistance Available	183 kips
Estimated Pile Length	35 Feet
Number of Production Piles	9
Number of Test Piles	1

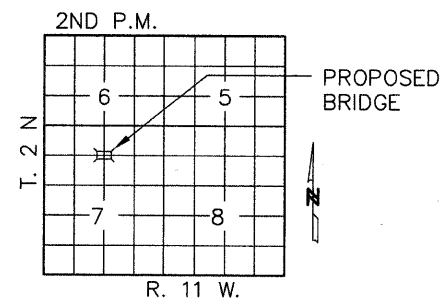
**LOADING HL-93**

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

STATION 4+53.00  
BIG SLOUGH  
SEC. 10-05124-00-BR BUILT 201  
DENISON ROAD DISTRICT  
LAWRENCE COUNTY  
LOADING HL-93  
STR. NO. 051-3299

**LETTERING FOR NAME PLATE**

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



**LOCATION SKETCH**

**WATERWAY INFORMATION**

Flood		Q.		Opening Sq. Ft.		Nat. Head - Ft.		Headwater El.	
Yr.	C.F.S.	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.
Design	15 1330	195	245	414.1	0.0	0.0	414.1	414.1	414.1
Base	100 2350	230	295	415.4	0.04	0.04	415.4	415.4	415.4
Overtopping									
Max. Calc.	500								

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 237	10-05124-00-BR	LAWRENCE	13	4
CONTRACT NO. 95642		ILLINOIS		

**GENERAL NOTES**

- The Contractor shall drive test pile to 110% of the nominal required bearing specified in production locations at the West Abutment as approved by the Engineer before ordering the remainder of piles.
- See Plan Sheet 11 for boring logs.
- A Corrosion inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.
- Concrete sealer shall be applied to exterior face of each fascia beam.
- Reinforcement bars shall conform to the requirements of AASHTO M31 or M322 Grade 60.
- The Steel H-piles shall be according to AASHTO M270 Grade 50.
- Reinforcement bars shall conform to the requirements of ASTM A 706 Fr 60 (IL Modified). See Special Provisions.
- 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.

**TOTAL BILL OF MATERIAL**

Item	Unit	Super	Sub.		Total
			Piers	Abuts.	
Removal of Existing Structures	Each	-	-	-	1
Concrete Structures	Cu. Yd.	-	-	24.4	24.4
Precast Prestressed Concrete Deck Beams (21" Depth)	Sq. Ft.	1400	-	-	1400
Steel Railing, Type S-1	Foot	102	-	-	102
Reinforcement Bars, Epoxy Coated	Pound	-	-	3000	3000
Furnishing Steel Piles HP 10x42	Foot	-	-	315	315
Driving Piles	Foot	-	-	315	315
Test Pile Steel HP 10x42	Each	-	-	1	1
Name Plates	Each	-	-	1	1
Concrete Encasement	Cu. Yd.	-	-	3.5	3.5
Aggregate Base Course, Type B	Tons	-	-	60	60
Stone Dumped Riprap, Class A4	Tons	-	-	200	200
Channel Excavation	Cu. Yd.	-	-	150	150

I certify that to the best of 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.



**CHARLESTON ENGINEERING, INC.**  
CONSULTING ENGINEERS  
105 NORTH KITCHELL  
P.O. BOX 397  
OLNEY, ILLINOIS 62450  
(618) 392-0736  
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184 003513

**GENERAL PLAN & ELEVATION**

**STRUCTURE NO. 051-3299**

**T.R. 237**

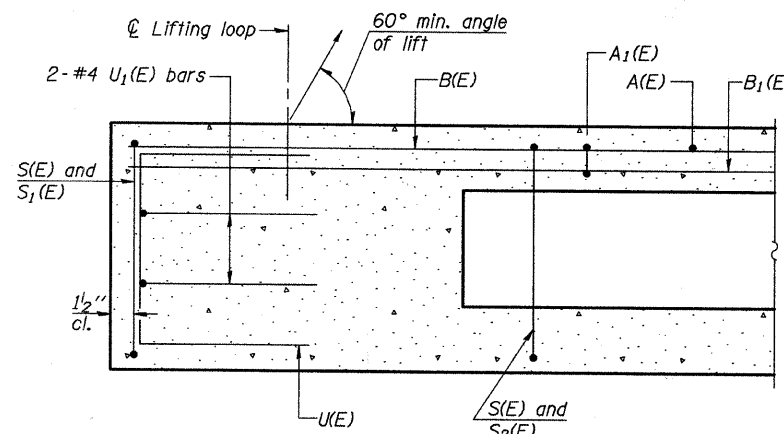
**OVER BIG SLOUGH**

**SECTION 10-05124-00-BR**

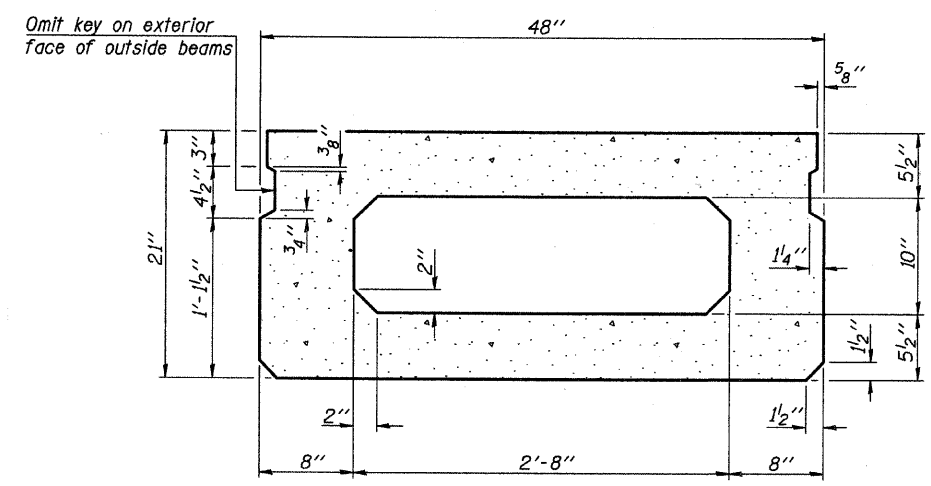
**LAWRENCE COUNTY**

**STATION 4+53.00**

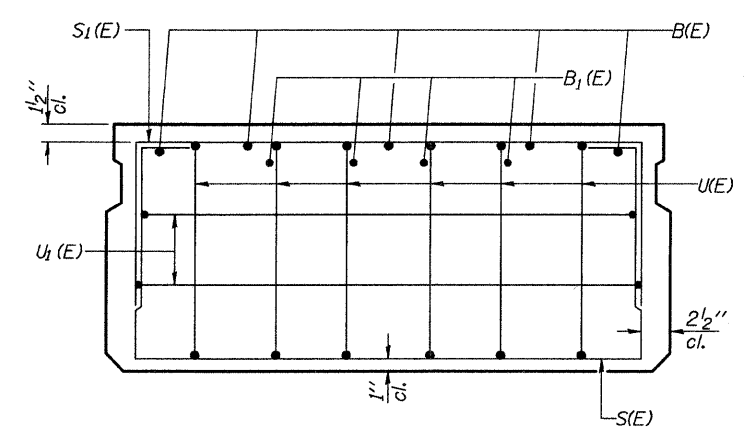
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 237	10-05124-00-BR	LAWRENCE	13	5
CONTRACT NO. 95642		ILLINOIS		



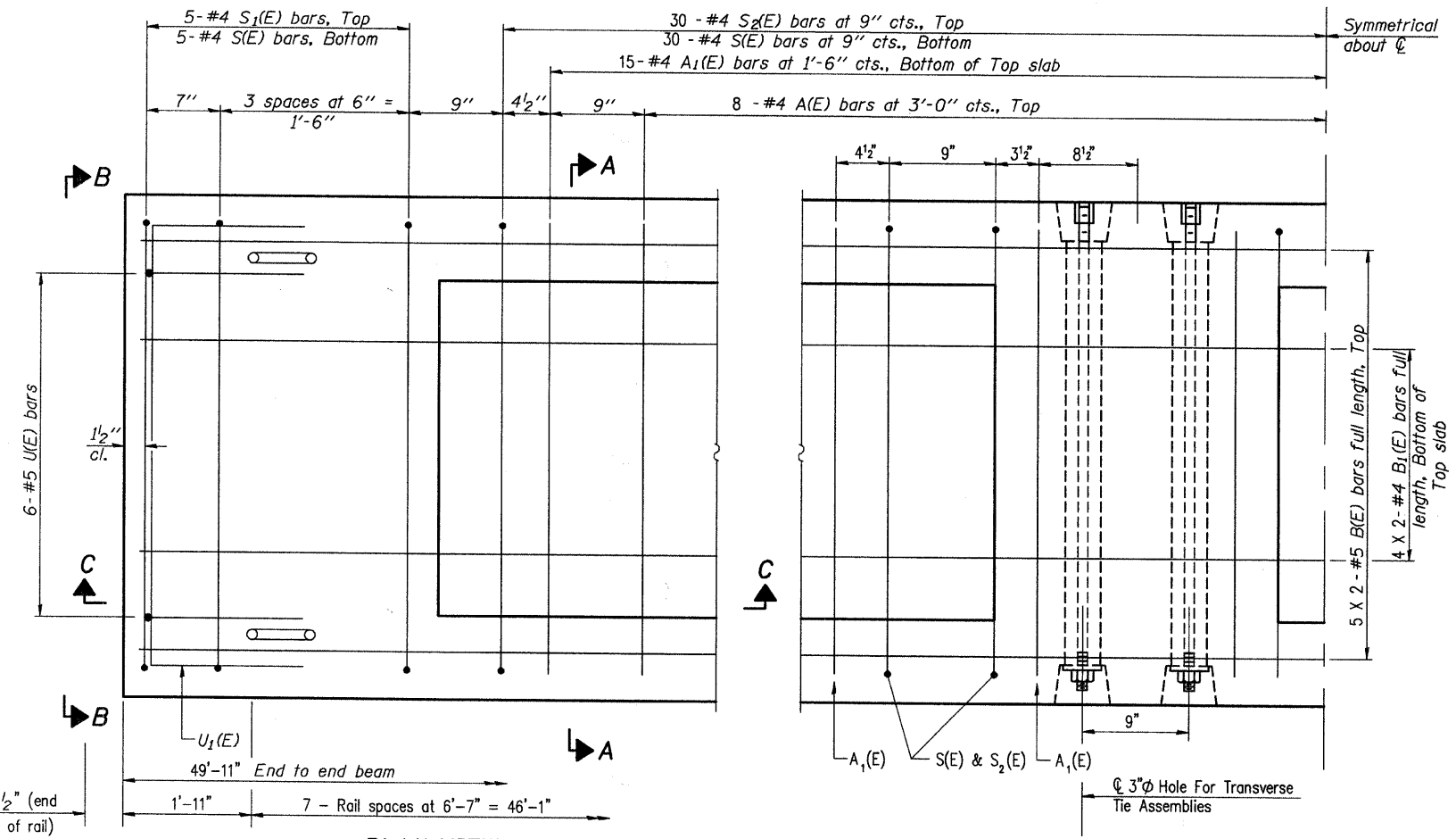
**SECTION C-C**



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



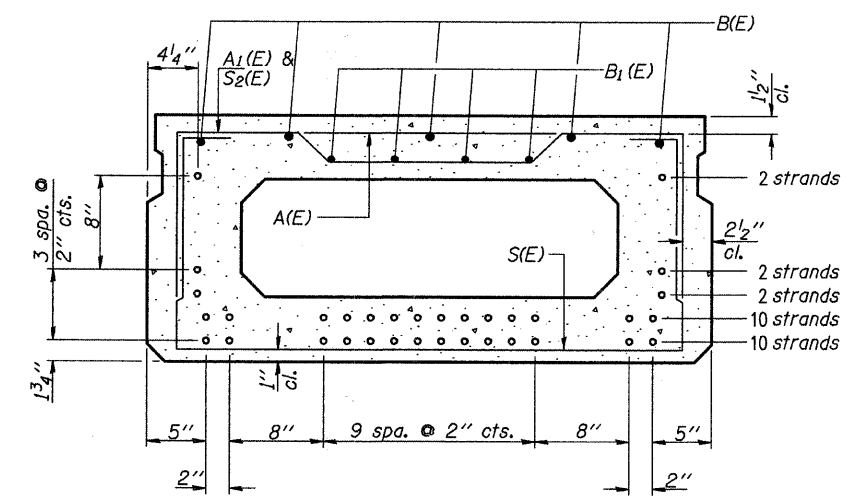
**VIEW B-B**



**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)  
Note: 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)	16	#4	3'-7"	—
A1(E)	30	#4	3'-10"	~
B(E)	10	#5	27'-1"	—
B1(E)	8	#4	28'-7"	—
S(E)	70	#4	7'-5"	□
S1(E)	10	#4	5'-11"	□
S2(E)	60	#4	6'-2"	□
U(E)	12	#5	4'-0"	□
U1(E)	4	#4	6'-0"	□

Note: See sheet 6 of 13 for additional details and Bill of Material.

**MIN. BAR LAP**

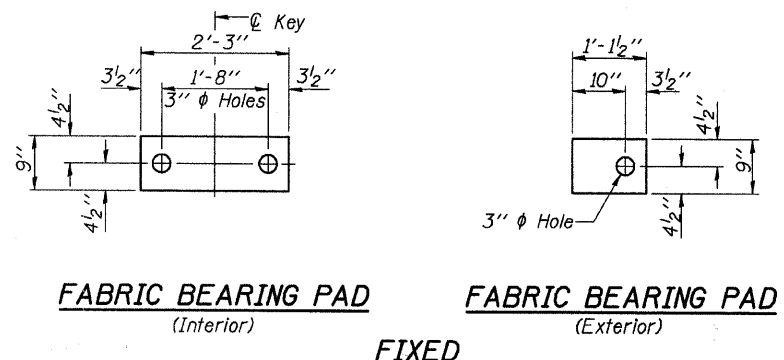
- #4 1'-8"
- #5 2'-2"

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

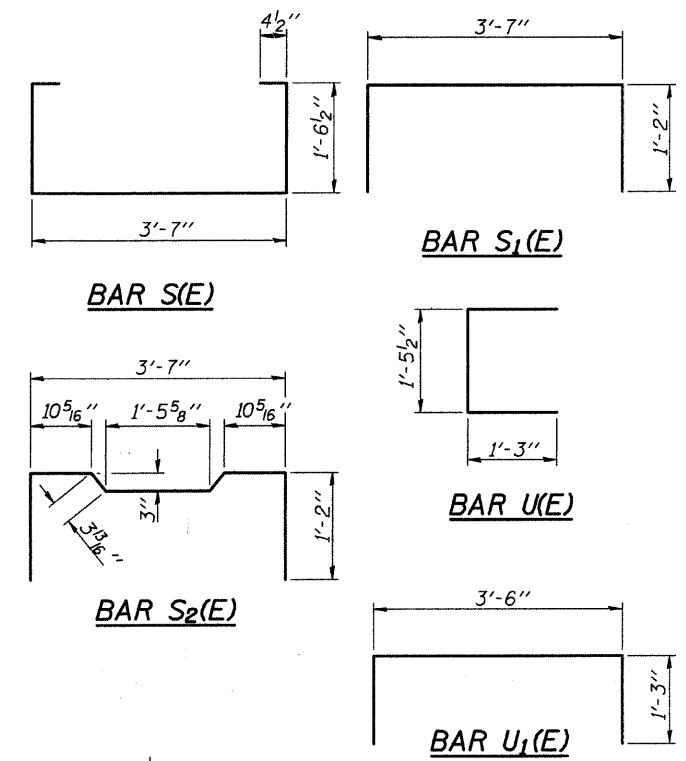
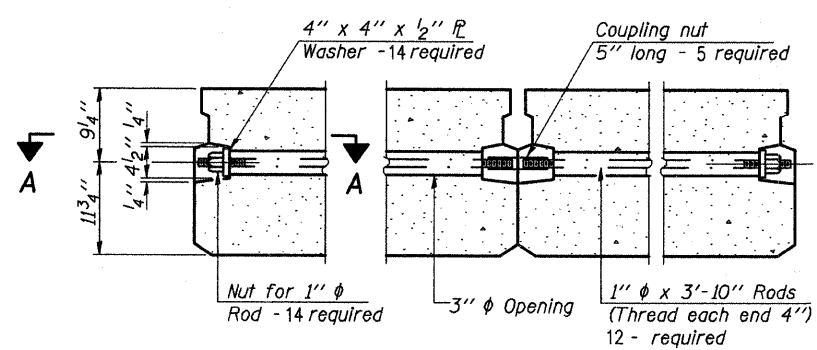
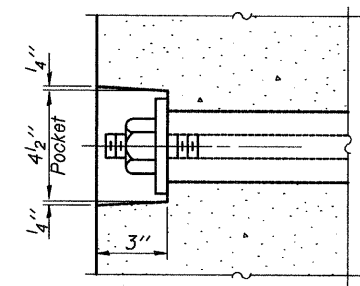
**CHARLESTON ENGINEERING, INC.**  
CONSULTING ENGINEERS  
105 NORTH KITCHELL  
P.O. BOX 387  
OLNEY, ILLINOIS 62450  
(618) 392-0736  
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #194.003513

**SUPERSTRUCTURE**  
**STRUCTURE NO. 051-3299**  
**T.R. 237**  
**OVER BIG SLOUGH**  
**SECTION 10-05124-00-BR**  
**LAWRENCE COUNTY**  
**STATION 4+53.00**

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 237	10-05124-00-BR	LAWRENCE	13	6
CONTRACT NO. 95642		ILLINOIS		



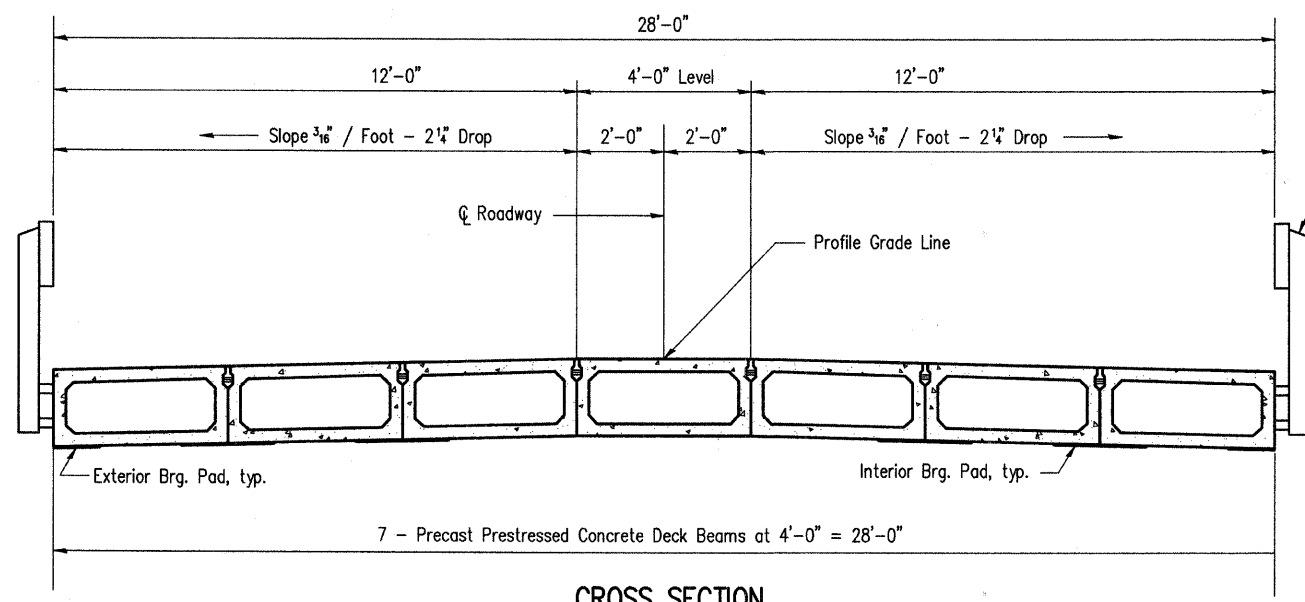
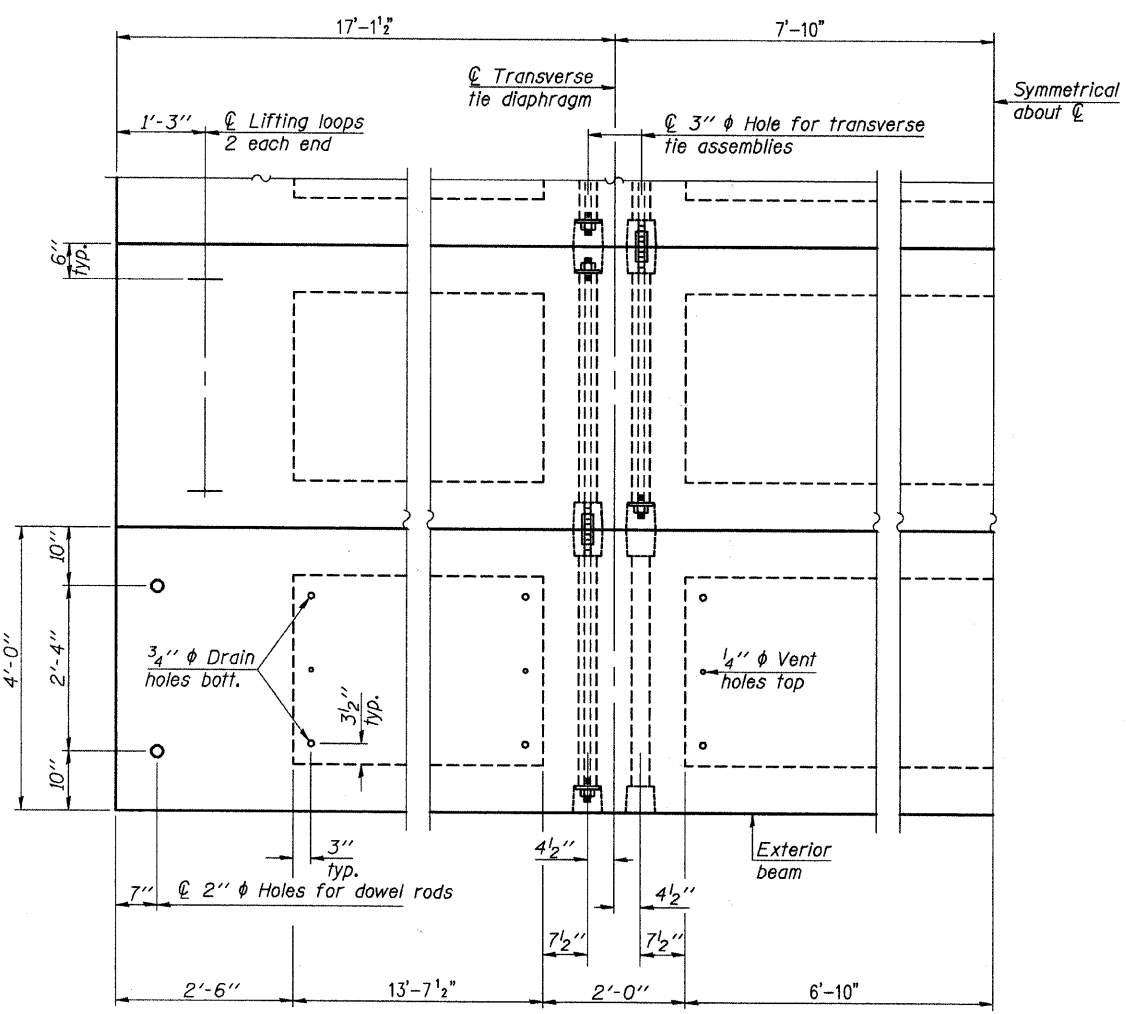
**FIXED**



**BILL OF MATERIAL**

Precast Prestressed Conc. Deck Bms. (21" depth)	Sq. Ft.	1400
---	---------	------

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



Steel Bridge Rail, Type S-1, See Sheet 7 of 13 for details

**NOTES**

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" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge assembly shall be filled with grout after transverse tie assembly is in place.

Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions).

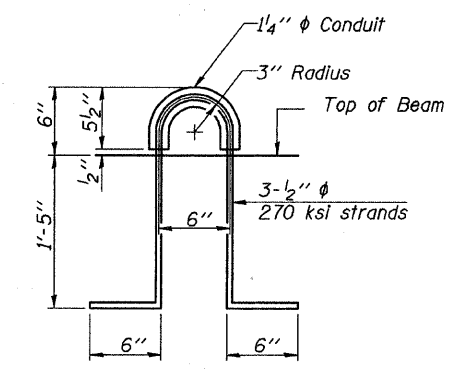
Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2 1/2" diameter 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.

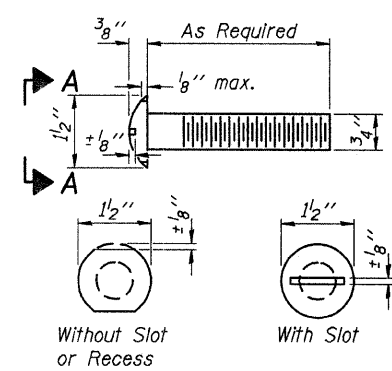
Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.



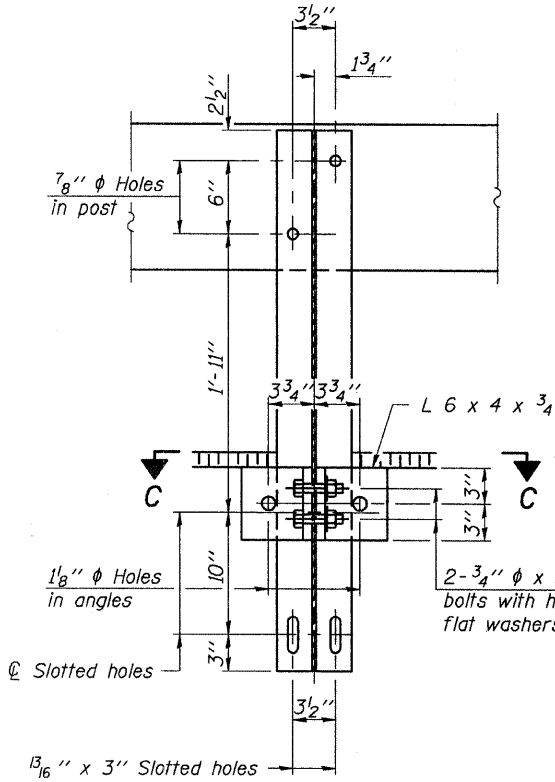
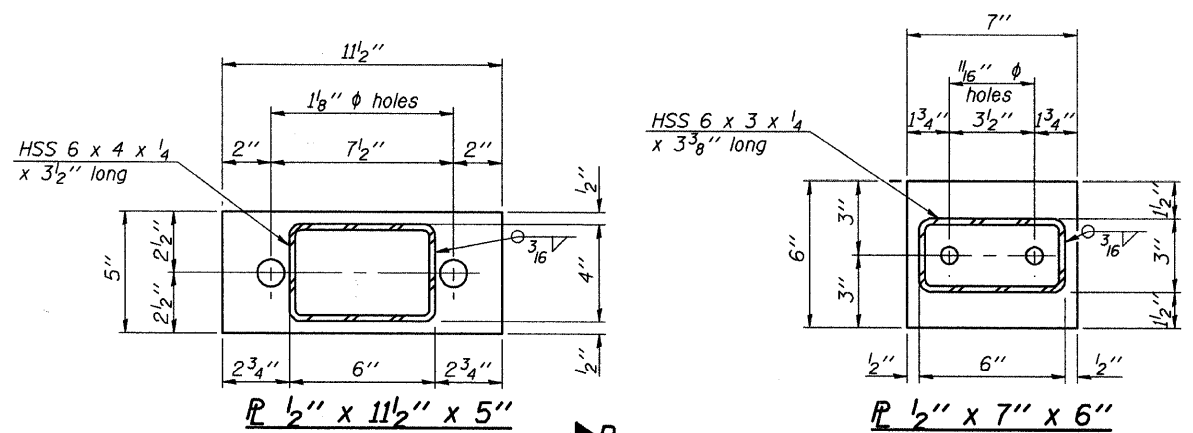
**CHARLESTON ENGINEERING, INC.**  
 CONSULTING ENGINEERS  
 105 NORTH KITCHELL  
 P.O. BOX 397  
 OLNEY, ILLINOIS 62450  
 (618) 392-0736  
 ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

**SUPERSTRUCTURE**  
**STRUCTURE NO. 051-3299**  
**T.R. 237**  
**OVER BIG SLOUGH**  
**SECTION 10-05124-00-BR**  
**LAWRENCE COUNTY**  
**STATION 4+53.00**

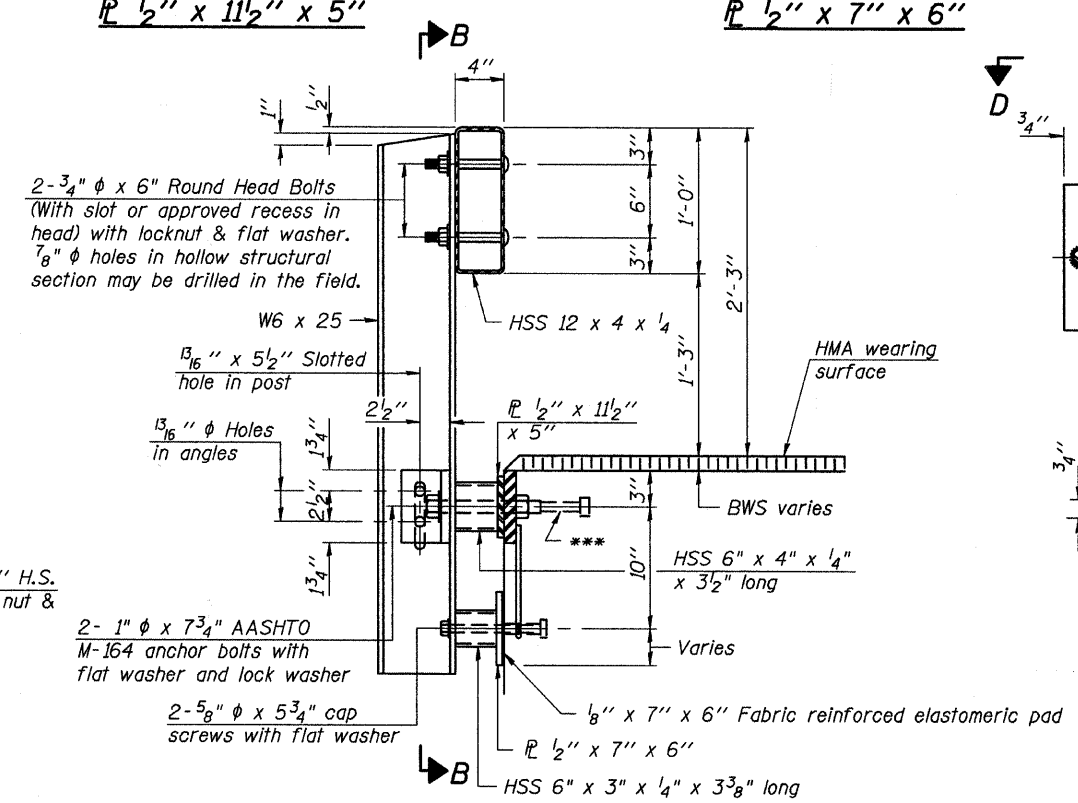
ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 237	10-05124-00-BR	LAWRENCE	13	7
CONTRACT NO. 95642		ILLINOIS		



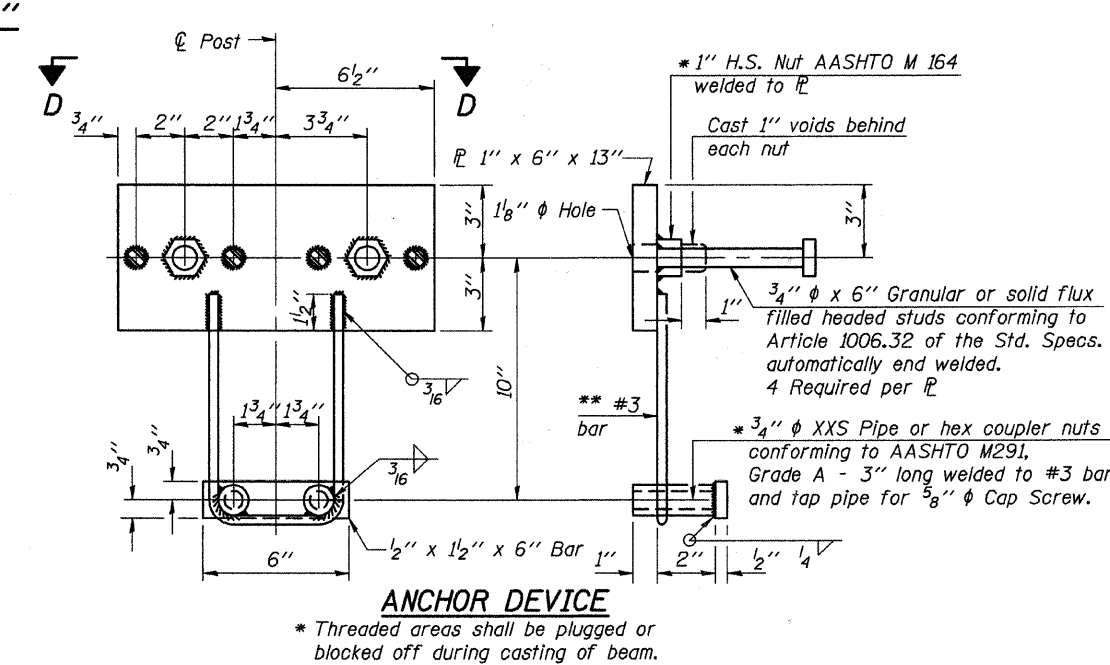
**VIEW A-A  
ROUND HEAD BOLT**



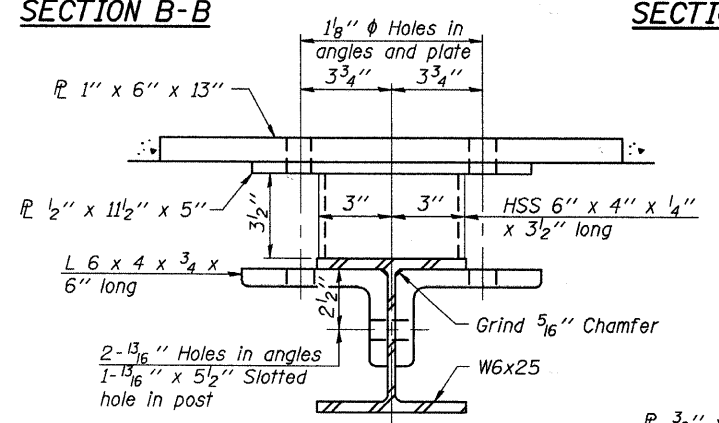
**SECTION B-B**



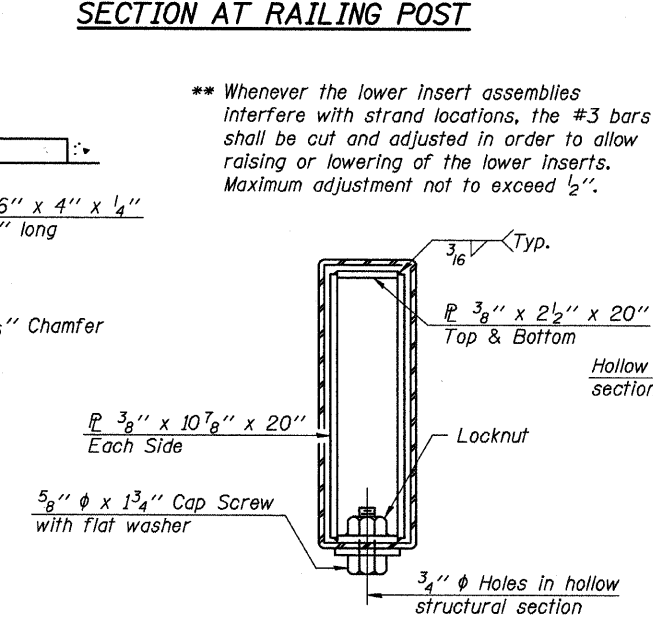
**SECTION AT RAILING POST**



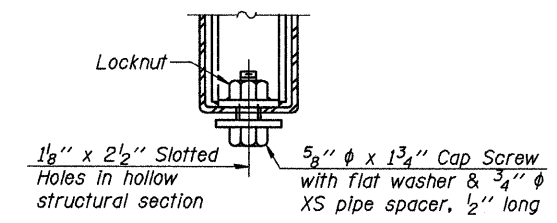
**ANCHOR DEVICE**



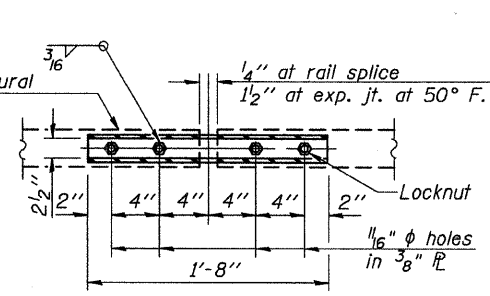
**SECTION C-C**



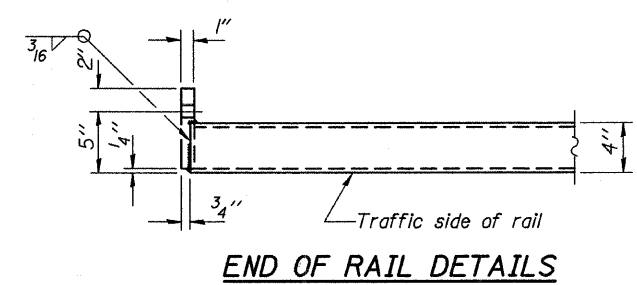
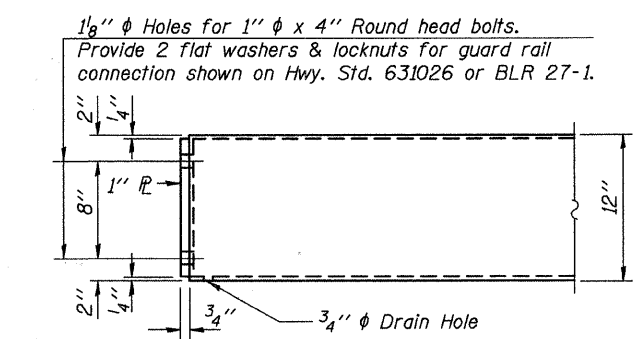
**SECTIONS AT RAIL SPLICE**



**RAIL SPLICE CONNECTION  
AT EXPANSION JT.**

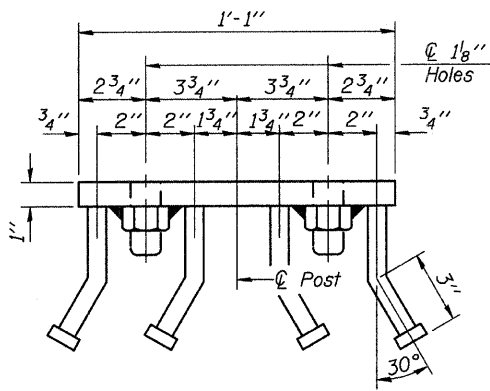


**PLAN-BOTT. SPLICE R  
TYPICAL**



**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. Cast 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	102

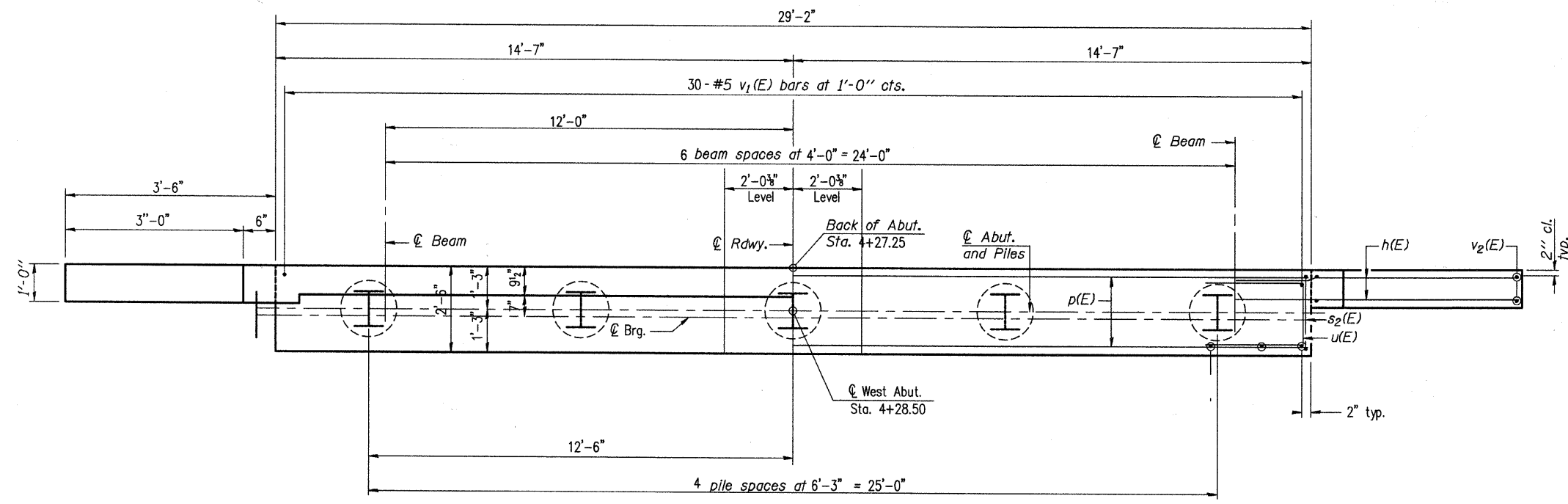
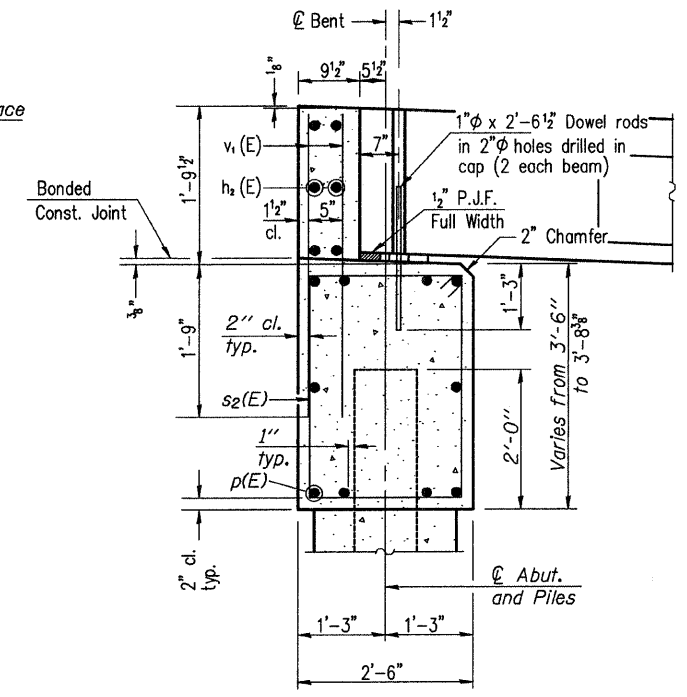
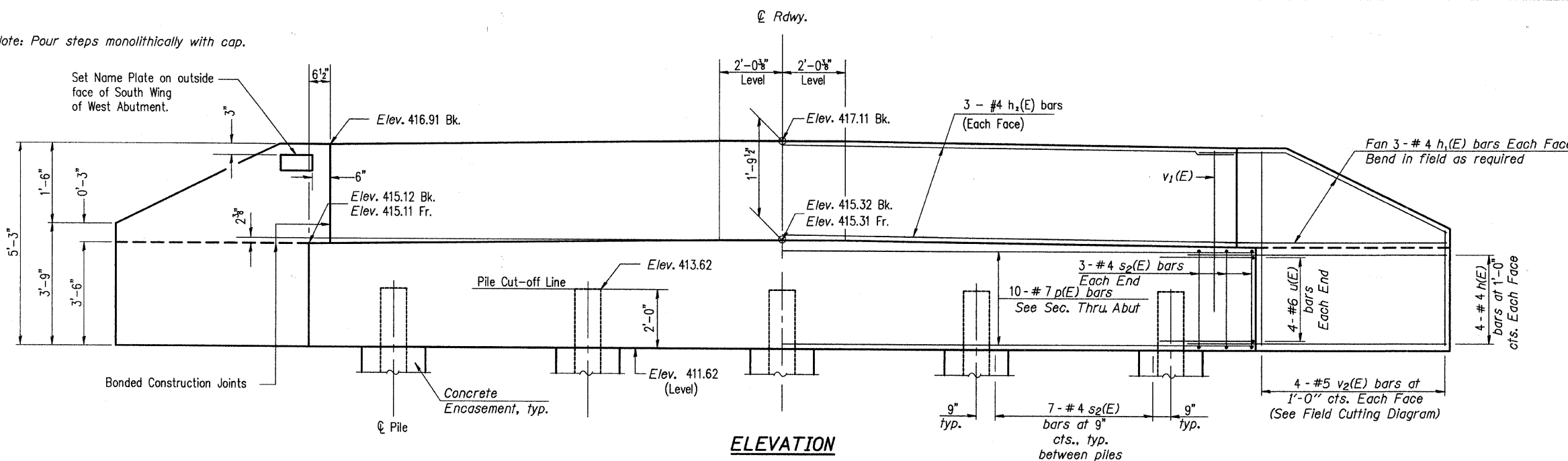
**STEEL RAILING, TYPE S-1**

**CHARLESTON ENGINEERING, INC.**  
 CONSULTING ENGINEERS  
 105 NORTH KITCHELL  
 P.O. BOX 397  
 OLNEY, ILLINOIS 62450  
 (618) 392-0736  
 ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

**STEEL RAILING, TYPE S-1**  
 STRUCTURE NO. 051-3299  
 T.R. 237  
 OVER BIG SLOUGH  
 SECTION 10-05124-00-BR  
 LAWRENCE COUNTY  
 STATION 4+53.00

ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 237	10-05124-00-BR	LAWRENCE	13	8
CONTRACT NO. 95642		ILLINOIS		

Note: Four steps monolithically with cap.



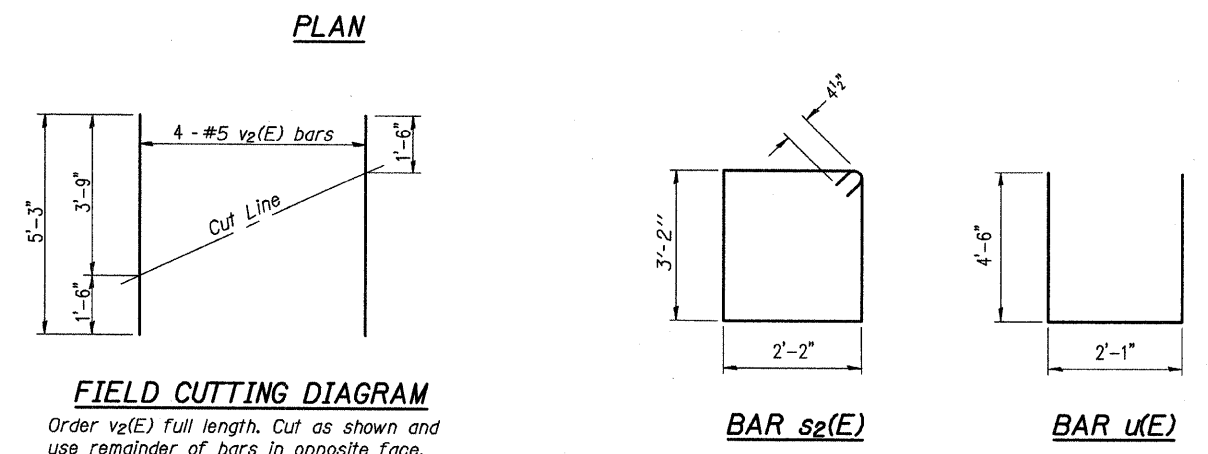
**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h(E)	16	#4	5'-0"	—
h <sub>1</sub> (E)	12	#4	5'-3"	—
h <sub>2</sub> (E)	6	#4	28'-9"	—
p(E)	10	#7	28'-9"	—
s <sub>2</sub> (E)	34	#4	11'-5"	□
u(E)	8	#6	11'-1"	□
v <sub>1</sub> (E)	60	#5	3'-6"	—
v <sub>2</sub> (E)	16	#5	5'-3"	—
Concrete Structures		Cu. Yd.	12.2	
Reinforcement Bars, Epoxy Coated		Pound	1500	
Furnishing Steel Piles HP 10X42		Foot	140	
Driving Piles		Foot	140	
Test Pile		Each	1	
Concrete Encasement		Cu. Yd.	1.75	

**PILE DATA**

Type: HP 10X42  
 Nominal Required Bearing: 335 kips  
 Factored Resistance Available: 183 kips  
 Est. Length: 35 Feet  
 No. Production Piles: 4  
 No. Test Piles: 1

Notes: The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.  
 Space reinforcement in cap to miss anchor bolts.



**ABUTMENTS**

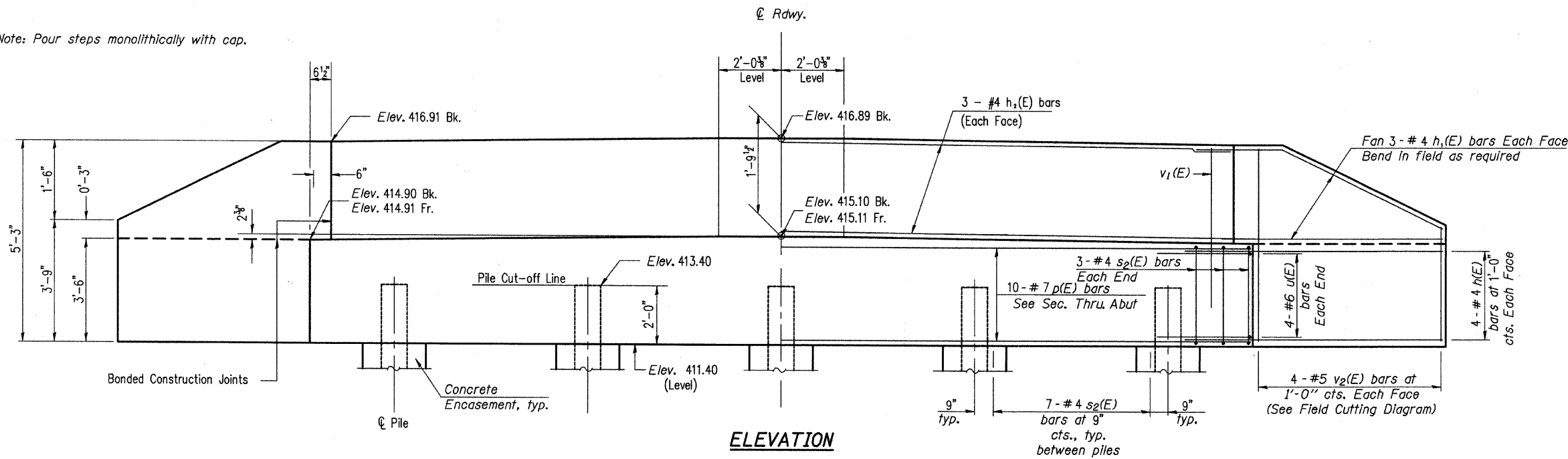
**CHARLESTON ENGINEERING, INC.**  
 CONSULTING ENGINEERS  
 105 NORTH KITCHELL  
 P.O. BOX 387  
 OLNEY, ILLINOIS 62450  
 (618) 392-0736  
 ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184-002513

**WEST ABUTMENT DETAILS**  
 STRUCTURE NO. 051-3299  
 T.R. 237  
 OVER BIG SLOUGH  
 SECTION 10-05124-00-BR  
 LAWRENCE COUNTY  
 STATION 4+53.00

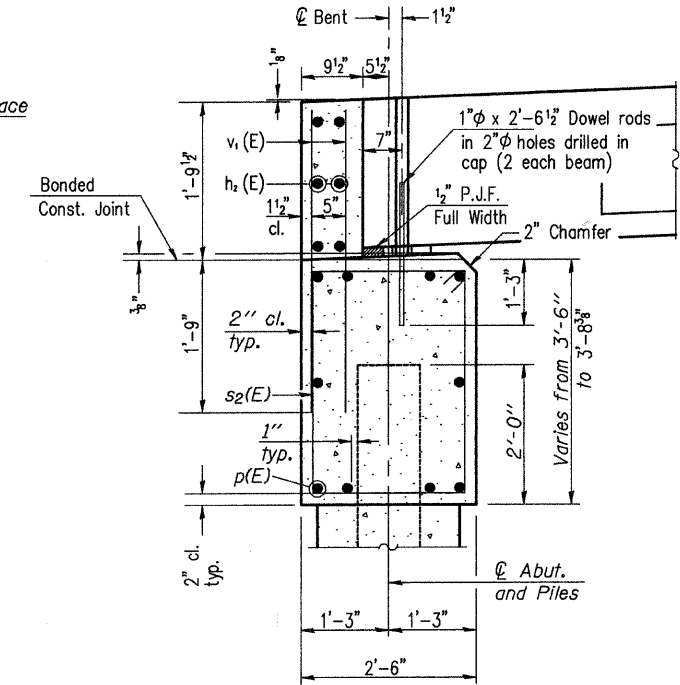


ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 237	10-05124-00-BR	LAWRENCE	13	9
CONTRACT NO. 95642		ILLINOIS		

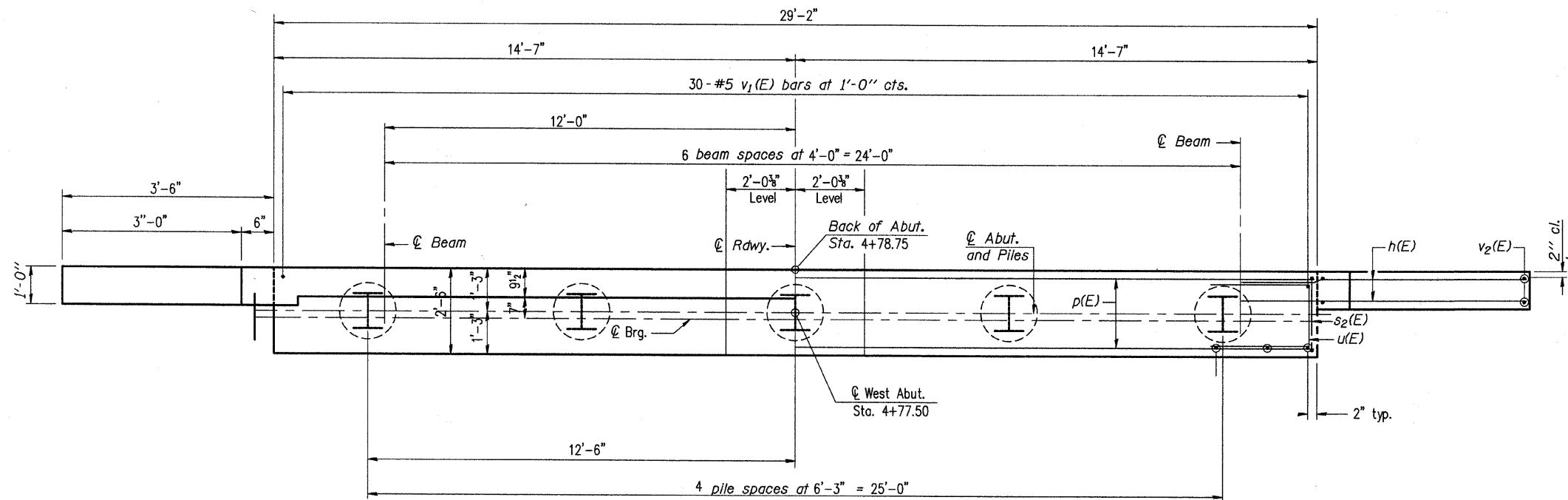
Note: Pour steps monolithically with cap.



**ELEVATION**



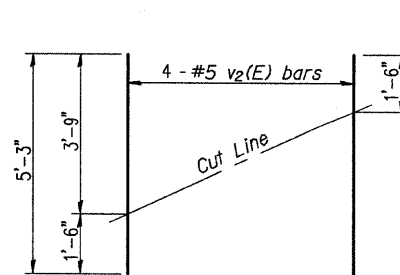
**SEC. THRU ABUT.**



**PLAN**

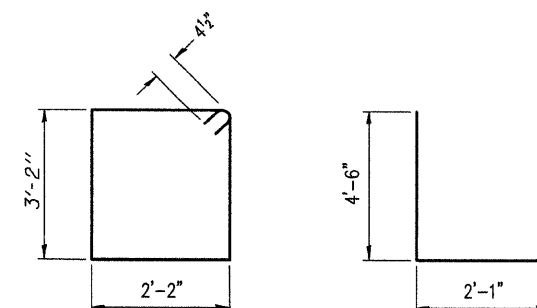
**PILE DATA**

Type: HP 10X42  
 Nominal Required Bearing: 335 kips  
 Factored Resistance Available: 183 kips  
 Est. Length: 35 Feet  
 No. Production Piles: 5



**FIELD CUTTING DIAGRAM**

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



**BAR s2(E)**

**BAR u(E)**

Notes: The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.  
 Space reinforcement in cap to miss anchor bolts.

**BILL OF MATERIAL**

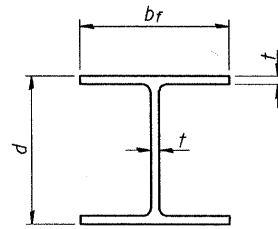
Bar	No.	Size	Length	Shape
h(E)	16	#4	5'-0"	—
h1(E)	12	#4	5'-3"	—
h2(E)	6	#4	28'-9"	—
p(E)	10	#7	28'-9"	—
s2(E)	34	#4	11'-5"	□
u(E)	8	#6	11'-1"	—
v1(E)	60	#5	3'-6"	—
v2(E)	16	#5	5'-3"	—
Concrete Structures		Cu. Yd.	12.2	
Reinforcement Bars, Epoxy Coated		Pound	1500	
Furnishing Steel Piles HP 10X42		Foot	175	
Driving Piles		Foot	175	
Concrete Encasement		Cu. Yd.	1.75	

For details of piles and Concrete Encasement, see sheet 10 of 13.

**CHARLESTON ENGINEERING, INC.**  
 CONSULTING ENGINEERS  
 105 NORTH KITCHELL  
 P.O. BOX 597  
 OLNEY, ILLINOIS 62450  
 (618) 392-0736  
 ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184 003513

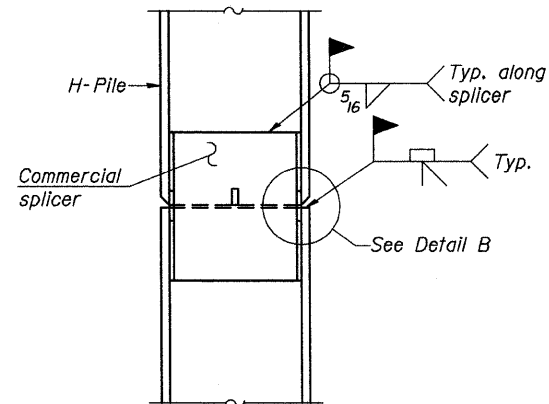
**EAST ABUTMENT DETAILS**  
 STRUCTURE NO. 051-3299  
 T.R. 237  
 OVER BIG SLOUGH  
 SECTION 10-05124-00-BR  
 LAWRENCE COUNTY  
 STATION 4+53.00

**ABUTMENTS**

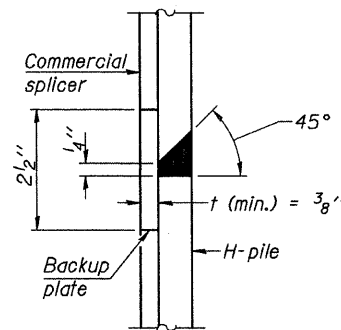


**STEEL PILE TABLE**

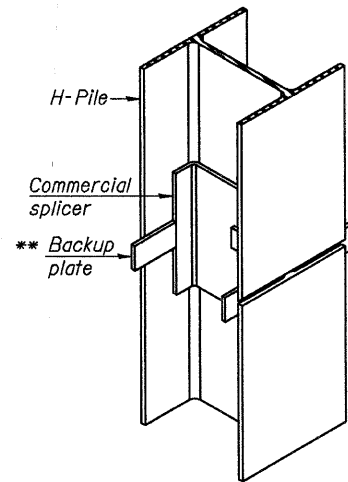
Designation	Depth d	Flange width br	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11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



**ELEVATION**

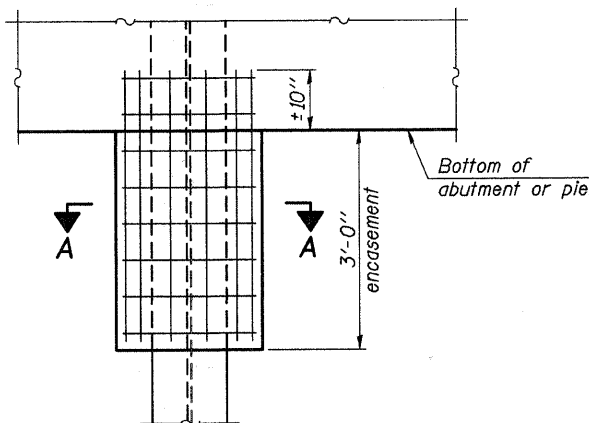


**DETAIL "B"**

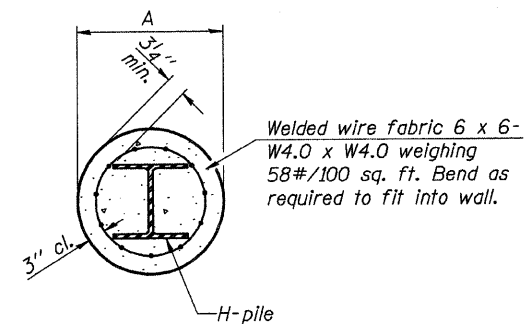


**ISOMETRIC VIEW**

**WELDED COMMERCIAL SPLICE**



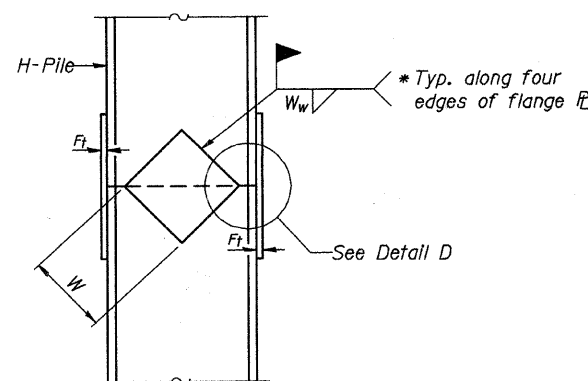
**ELEVATION**



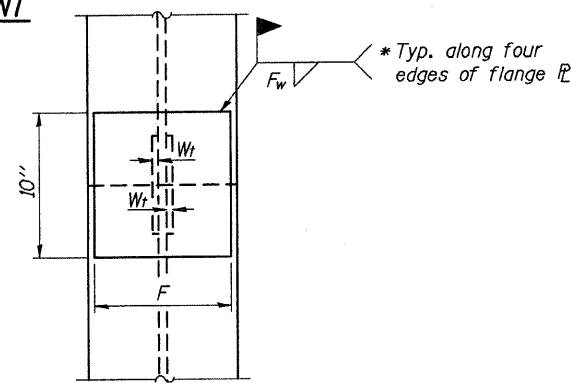
**SECTION A-A**

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

**PILE ENCASEMENT**

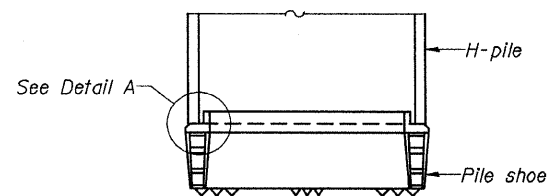


**ELEVATION**

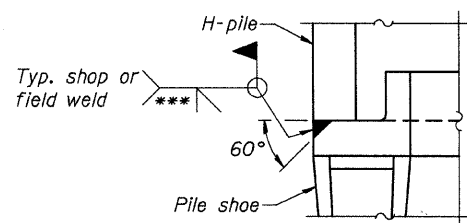


**END VIEW**

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"
HP 10 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"

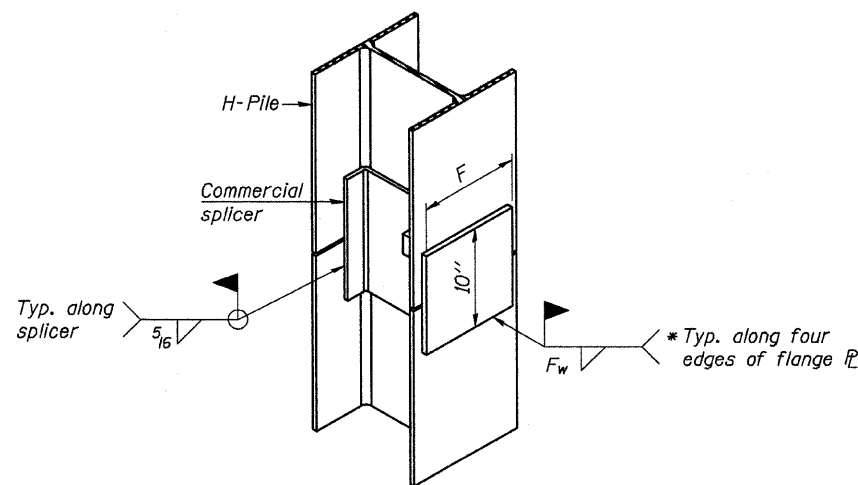


**ELEVATION**



**DETAIL A**

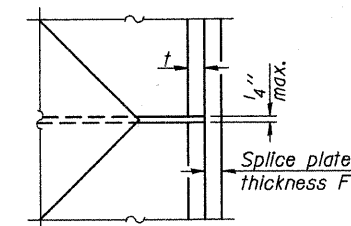
**H-PILE SHOE ATTACHMENT**



**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.).



**DETAIL D**

**WELDED PLATE FIELD SPLICE**

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

CHARLESTON ENGINEERING, INC.  
CONSULTING ENGINEERS  
106 NORTH KITCHELL  
P.O. BOX 387  
OLNEY, ILLINOIS 62450  
(618) 392-0738  
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184.003513

**PILE DETAILS**

STRUCTURE NO. 051-3299  
T.R. 237  
OVER BIG SLOUGH  
SECTION 10-05124-00-BR  
LAWRENCE COUNTY  
STATION 4+53.00

HOLCOMB FOUNDATION ENGINEERING INC.  
P.O. Box 88 618-529-5262  
Carbondale, Il. 62903 618-457-8991 fax

Bridge Foundation Boring Log

Project: H-10150 Bridge Co Rd 400N Date: 7/14/2010  
Section: 10-05124-00-BR Station \_\_\_\_\_ Bored by: J. Carter  
Structure: 051-3129 Checked By: I. Holcomb  
County: Lawrence

Boring No.	Station	Offset	Elevation	N	Qu	tsf	w	%	Soil Description	Ground Water Elev.	Surface Water Elev.
1			415.7	0					(clay cont.)	386.7	
				5	1.25	19					
				3	0.88	24			Gray Mottled Brown Clayey SAND (A-2-4)	389.2	
			409.2	2	0.78	23			Gray Silty CLAY (A-6) with sand	386.7	
				1	0.28	23			Gray SANDSTONE	384.7	
			404.2	4	1.28	24			Gray Mottled Brown Silty CLAY (A-6)		
			401.7	5	1.45	25			Gray Mottled Brown CLAY (A-6) with sand	379.2	
			399.2	12	2.05	21			Gray CLAY (A-6) with sand and trace organics		
				19	5.18	19					
				19	5.88	17					

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

Bridge Foundation Boring Log

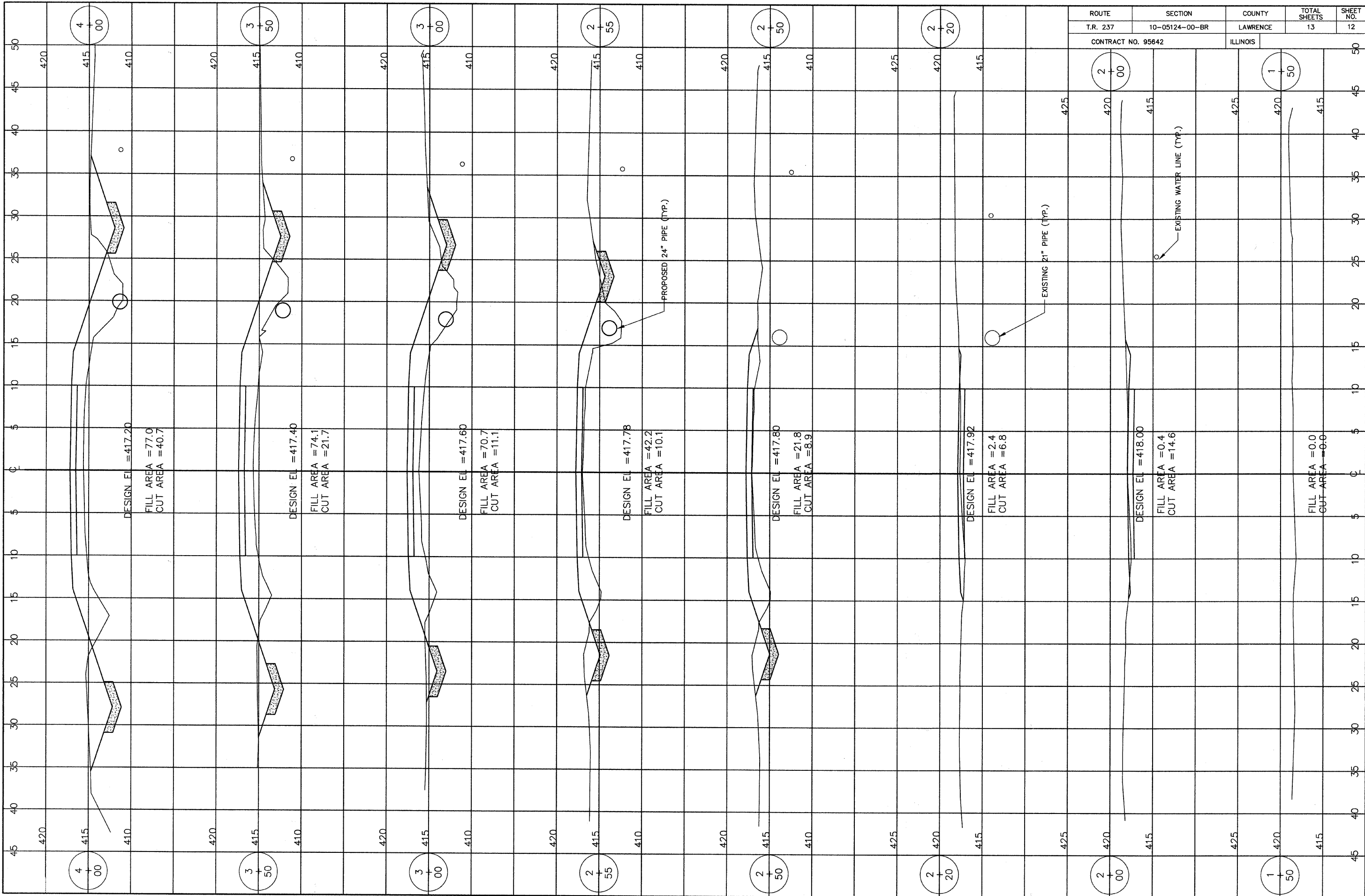
Project: H-10150 Bridge Co Rd 400N Date: 7/14/2010  
Section: 10-05124-00-BR Station \_\_\_\_\_ Bored by: J. Carter  
Structure: 051-3129 Checked By: I. Holcomb  
County: Lawrence

Boring No.	Station	Offset	Elevation	N	Qu	tsf	w	%	Soil Description	Ground Water Elev.	Surface Water Elev.
2			416.0	0					(clay cont.)	386.0	
				5	1.25	17			Gray Mottled Brown Sandy CLAY (A-6)	392.0	
				6	2.15	16			Gray CLAY (A-6)		
			410.0	3	1.45	24			Dark Gray Mottled Brown CLAY (A-6)	387.0	
				2	0.78	25			Gray SANDSTONE		
				2	0.85	69			End of Boring @ -34.0'		
			402.0	3	1.28	20			Gray Mottled Brown CLAY (A-6) with sand		
				13	5.55	17					
				20	4.28	17					
				18	5.05	18					

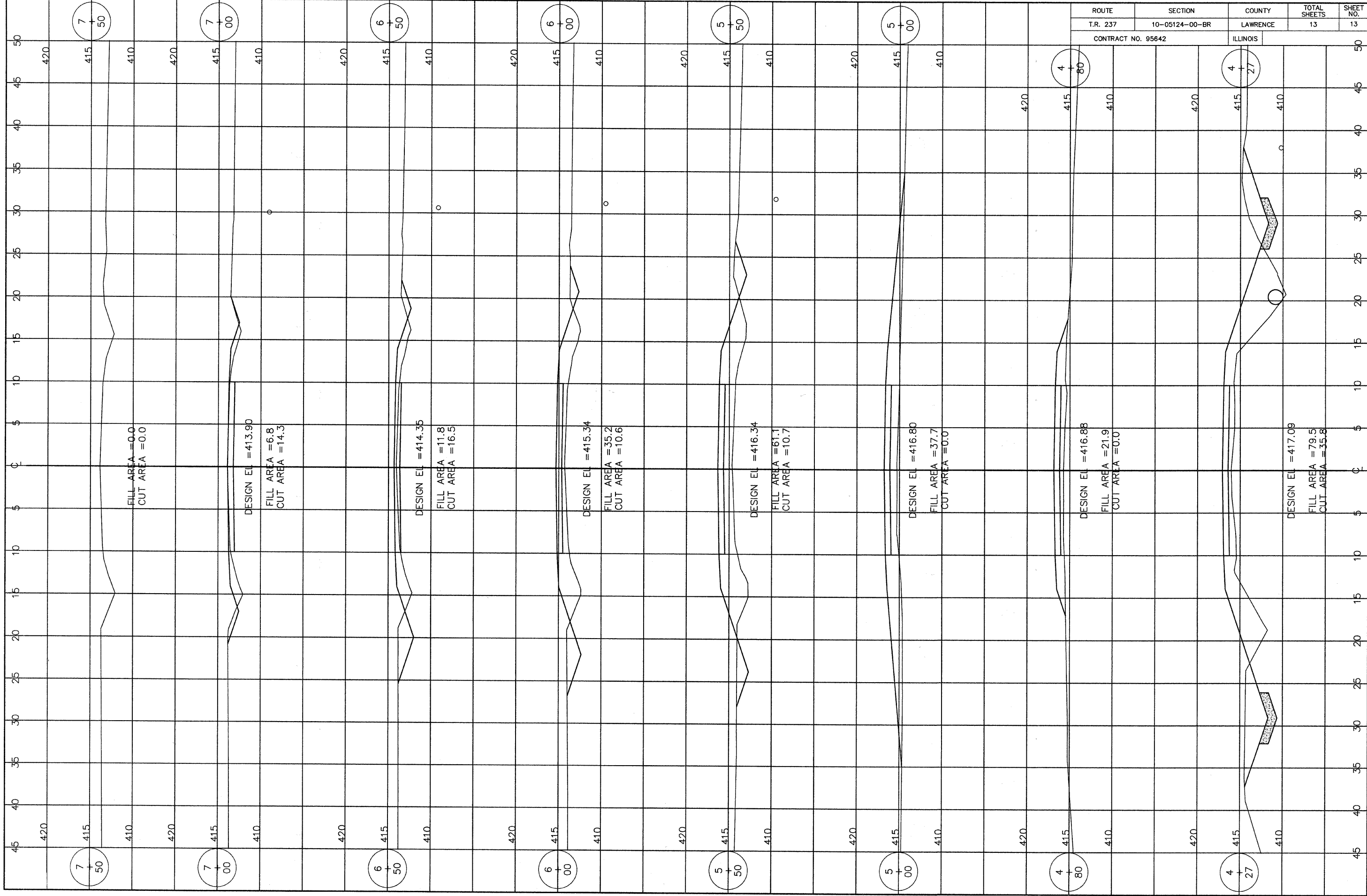
N = Standard Penetration Test Blows per foot to drive 2" O.D. Split Spoon Sampler 12" with a 140 lbs. hammer falling 30"  
Qu - Unconfined Compressive Strength in tons/sq.ft.  
w - Water Content - percentage of oven dry weight-%  
B = Bulge Failure  
S = Shear Failure  
E = Estimated Value  
P = Penetrometer

CHARLESTON ENGINEERING, INC.  
CONSULTING ENGINEERS  
105 NORTH KITCHELL  
P.O. BOX 397  
OLNEY, ILLINOIS 62450  
(618) 392-0736  
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184-003515

**BORING LOGS**  
**STRUCTURE NO. 051-3299**  
**T.R. 237**  
**OVER BIG SLOUGH**  
**SECTION 10-05124-00-BR**  
**LAWRENCE COUNTY**  
**STATION 4+53.00**



ROUTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
T.R. 237	10-05124-00-BR	LAWRENCE	13	12
CONTRACT NO. 95642		ILLINOIS		



FILL AREA = 0.0  
CUT AREA = 0.0

DESIGN EL = 413.90  
FILL AREA = 6.8  
CUT AREA = 14.3

DESIGN EL = 414.35  
FILL AREA = 11.8  
CUT AREA = 16.5

DESIGN EL = 415.34  
FILL AREA = 35.2  
CUT AREA = 10.6

DESIGN EL = 416.34  
FILL AREA = 61.1  
CUT AREA = 10.7

DESIGN EL = 416.80  
FILL AREA = 37.7  
CUT AREA = 0.0

DESIGN EL = 416.88  
FILL AREA = 21.9  
CUT AREA = 0.0

DESIGN EL = 417.09  
FILL AREA = 79.5  
CUT AREA = 35.8