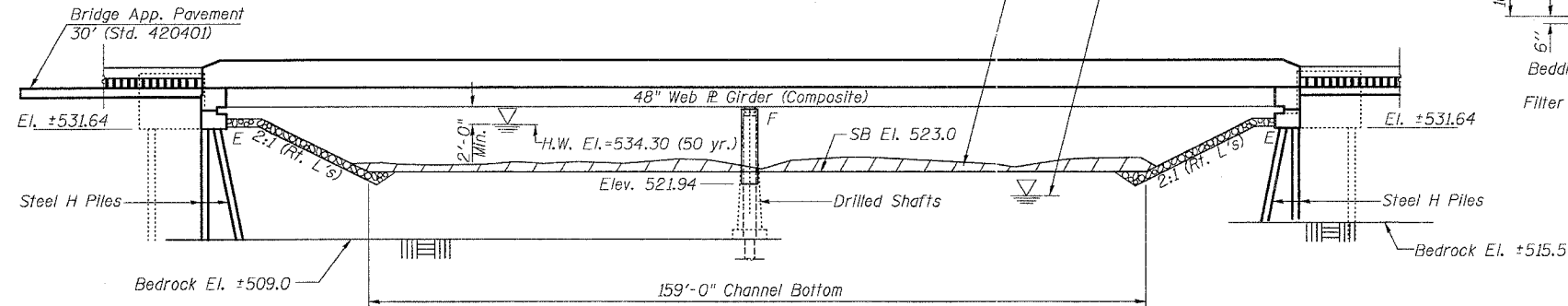
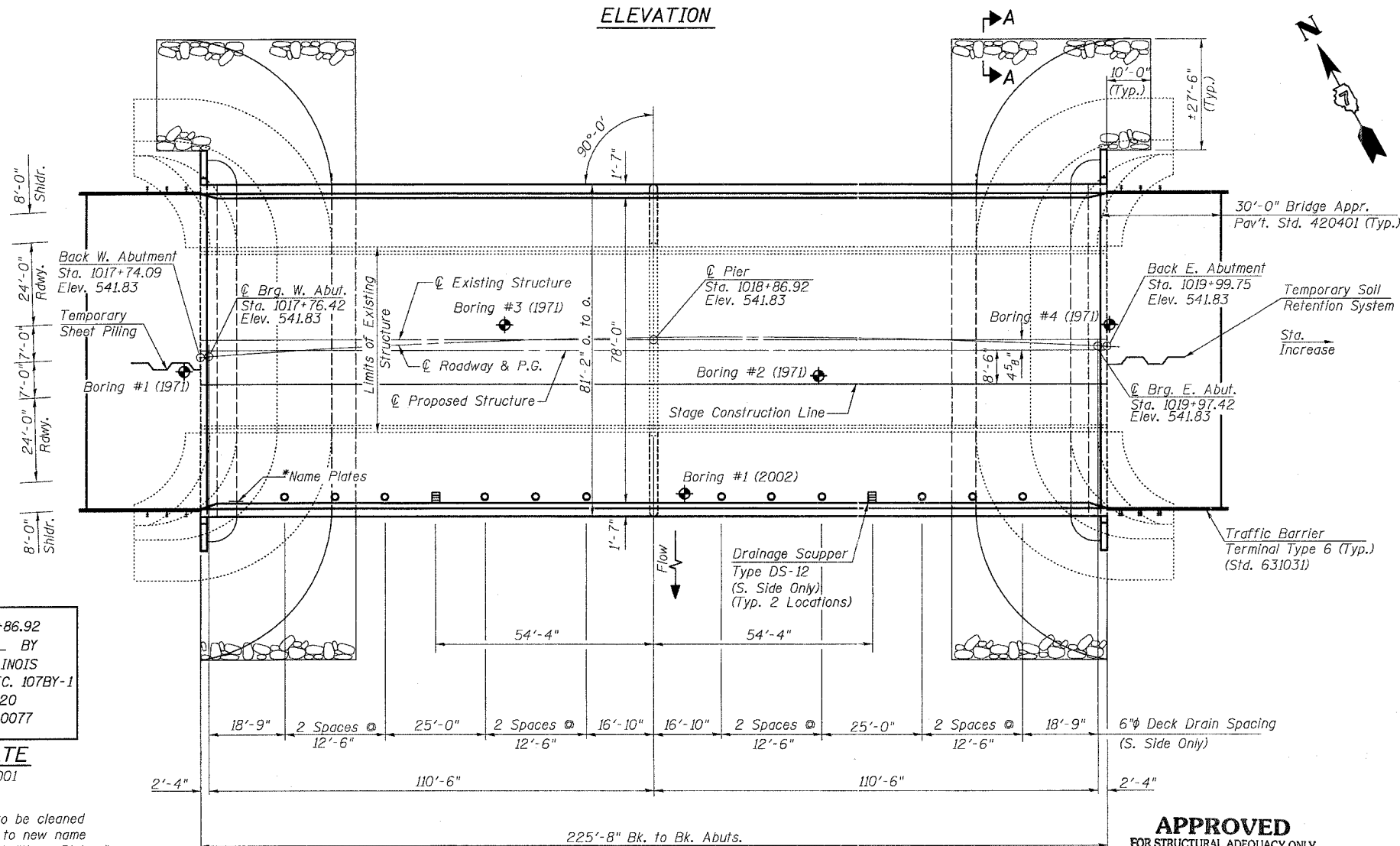


Bench Mark: Chiseled "□" above bridge name plate Elev. = 543.66

Existing Structure: SN 025-0077 built in 1971 as Ill Rte. 32/33 (FAP 774) Sec. 107(BR, BR-1)  
 The superstructure consists of RC deck 225'-8" long by 46'-0" wide out to out supported on a two span R girder.  
 Traffic shall be maintained during the rehabilitation of the structure by Staged Construction.

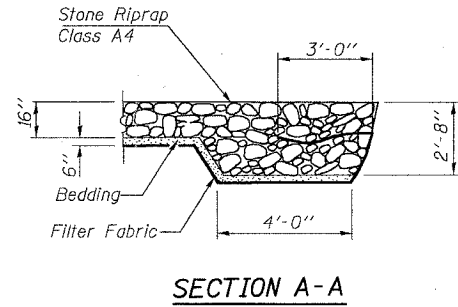


**ELEVATION**

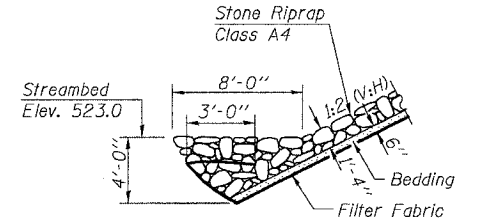


**PLAN**

**PROPOSED PROFILE GRADE**



**SECTION A-A**



**STONE RIPRAP ANCHOR DETAIL**

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 1
F.A.P. RTE. 774	107BY-1	EFFINGHAM	273	201	26 SHEETS
FED. ROAD DIST. NO. 7	ILLINOIS FED. AID PROJECT-				

CONTRACT NO. 94827

**@ Rdwy. Curve Data**

P.I. = Sta. 1014+09.68  
 $\Delta = 25^{\circ}19'45''$  (RT)  
 $D = 0^{\circ}30'00''$   
 $R = 11,456.75'$   
 $L = 5,064.76'$   
 $T = 2,574.44'$   
 $E = 285.69'$   
 $S.E. = 1.56\%$   
 $P.C. = Sta. 988+35.24$   
 $P.T. = Sta. 1039+00.00$   
 SE Attained Sta. 985+68.57 to Sta. 989+68.57  
 SE Removed Sta. 1037+66.67 to Sta. 1041+66.67

**LOADING HS20-44**

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

**DESIGN SPECIFICATIONS**

AASHTO 1996 and Interims 1997 Thru 2002 and 1995 Seismic Retrofitting Manual for Highway Bridges FHWA-RD-94-052.

**DESIGN STRESSES**

NEW CONSTRUCTION	EXISTING CONSTRUCTION
$f'c = 3,500$ psi	$f_y = 36,000$ psi St. Steel
$f_y = 60,000$ psi (reinf.)	
$f_y = 36,000$ psi (M270 Grade 36)	

**SEISMIC DATA**

Seismic Performance Category (SPC) = A  
 Bedrock Acceleration Coefficient (A) = 0.07g  
 Site Coefficient (S) = 1.0

STATION 1018+86.92  
 REBUILT 20\_\_ BY  
 STATE OF ILLINOIS  
 F.A.P. RTE. 774 SEC. 107BY-1  
 LOADING HS20  
 STR. NO. 025-0077

**NAME PLATE**  
 See Std. 515001

\*Exist. name plate is to be cleaned and relocated adjacent to new name plate. Cost included with "Name Plates."

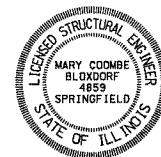
**WATERWAY INFORMATION**

Drainage Area=220 Sq. Miles Low Grade Elev.=541.3 @ Sta. 1010+00 Max. Rec. H.W.E.=Unk.

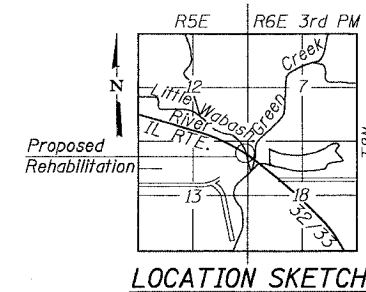
Flood	Freq. Yr.	Opening Sq. Ft.		Nat. H.W.E.		Head-Ft.		Headwater El.		
		Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	
Design	50	19,000	7728	1559	1559	534.3	0.5	0.5	534.8	534.9
Base	100	21,700	9010	1724	1724	535.0	0.5	0.5	535.5	535.5
Max. Calc.	500	28,000	11829	2087	1997	536.7	0.6	0.7	537.3	537.4

**APPROVED**  
 FOR STRUCTURAL ADEQUACY ONLY

*Robert E. Anderson*  
 ENGINEER OF BRIDGES AND STRUCTURES



*Mary Louise Bloxdorf*  
 Illinois Structural No. 4859  
 Expires 11-30-2004  
 Date: 12/23/03



SHEET TITLE <b>GENERAL PLAN AND ELEVATION</b>		
PROJECT IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	PROJECT NO. 02017	SCALE DATE
DRAWN BY TFG		CHECKED BY KPS/CME/MCB
<b>COOMBE-BLOXDORF P.C.</b> Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703		DRAWING NO. 1 OF 26 SHTS

**GENERAL NOTES**

Fasteners shall be high strength bolts. Bolts 7/8" φ, open holes 15/16" φ, unless otherwise noted.

Calculated weight of structural steel = 253,730 lbs (M270 Grade 36)

Reinforcement Bars shall conform to the requirements of AASHTO M31, or M322 Grade 60.

Prior to pouring the new concrete deck, all loose rust, loose mill scale and other loose potentially detrimental foreign material shall be removed from the surfaces of the girders in contact with concrete. The cost of this work will be included in the pay item covering removal of the existing concrete. All heavy rust and other tightly adhered potentially detrimental foreign matter shall also be removed from the surfaces of the girders in contact with concrete. Tightly adhered paint may remain unless otherwise noted. This removal shall be accomplished by methods that will not damage the steel. The cost of this work will be paid for according to Article 109.04.

All existing construction accessories welded to the top flange over the pier between the quarter points of the girders shall be removed. The remaining weld shall be ground smooth and inspected for cracks using magnetic particle testing. Any cracks that can not be removed by grinding approximately 1/4 inch deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. The cost of this work will be paid for according to Article 109.04.

Field welding of construction accessories will not be permitted to girders.

Plan dimensions and details relative to existing structure have been taken from existing plans and are subject to nominal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in the scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8". Adjustment shall be made either by grinding the surface or by shimming the bearing. Two 1/8" adjusting shims, of the dimensions of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims. For Type I Elastomeric Bearings, two 1/8" adjusting shims shall be provided for each bearing and placed as detailed.

The existing structural steel coating contains lead. The Contractor should take appropriate precautions to deal with the presence of lead on this project.

The Inorganic zinc rich primer/Acrylic/Acrylic paint system shall be used for shop and field painting of new structural steel except where otherwise noted. The color of the final finish coat for all interior steel surfaces of new girders shall be Grey Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flange of the new fascia girders shall be Blue Munsell No. 10B 3/6. See Special Provision for "Cleaning and Painting New Metal Structures."

The Contractor shall repair any damage to the paint system of the existing girders occurring during construction. The cost of this repair shall be included with "Furnishing and Erecting Structural Steel."

The main load carrying member components subject to tensile stress shall conform to the Supplemental Requirements for Notch Toughness Zone 2. These components are the tension flanges, webs and all splice plate material except fill plates.

Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.

The Contractor shall drive one steel HP 10 x 57 test pile in a permanent location at each abutment as directed by the Engineer before ordering the remainder of the piles.

Anchor bolts shall be set before bolting diaphragms over supports.

If the Contractor elects to use cantilever forming brackets on the exterior girders, the brackets shall be placed at the same locations as required for the hardwood blocks in Article 503.06 of the Standard Specifications. If additional cantilever forming brackets are required, hardwood blocking shall be wedged between the exterior and first interior girder at each of these additional bracket locations.

All construction joints shall be bonded.

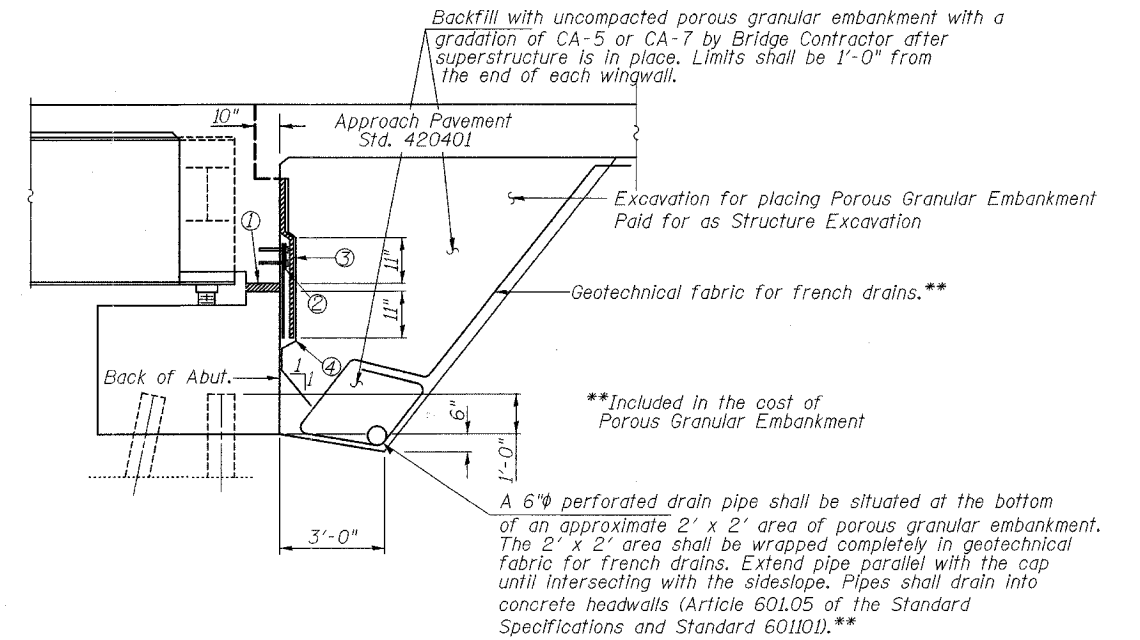
**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Concrete Deck No. 1	Each	1		1
Porous Granular Embankment	Cu Yd		509	509
Concrete Removal	Cu Yd		58.9	58.9
Structure Excavation	Cu Yd		310	310
Concrete Superstructure	Cu Yd	573.6		573.6
Concrete Structures	Cu Yd		121.1	121.1
Elastomeric Bearing Assembly, Type I	Each		20	20
Reinforcement Bars, Epoxy Coated	Pound	152,780	12,650	165,430
Reinforcement Bars	Pound		3440	3440
Name Plates	Each	1		1
Furnishing and Erecting Structural Steel	L. Sum	.52		.52
Stud Shear Connectors	Each	1800		1800
Floor Drains	Each	12		12
Drainage Scupper, DS-12	Each	2		2
Bridge Deck Grooving	Sq. Yd.	1892		1892
Bar Splicers	Each	1103	157	1260
Furnishing Steel Piles HP 10x57	Foot		294	294
Driving Steel Piles	Foot		294	294
Test Piles Steel HP 10x57	Each		2	2
Drilled Shaft in Rock 30"	Foot		47	47
Drilled Shaft in Soil 36"	Foot		50	50
Stone Riprap, Class A4	Sq. Yd.		1010	1010
Jacking and Cribbing, Location No. 1	L. Sum	1		1
Temporary Sheet Piling	Sq. Ft.		340	340
Filter Fabric For Use With Riprap	Sq. Yd.		1010	1010
Slope Wall Removal	Sq. Yd.		860	860
Protective Coat	Sq. Yd.		2129	2129
Temporary Soil Retention System	Sq. Ft.		90	90

\*Includes Removal and Disposal of Existing Bearings

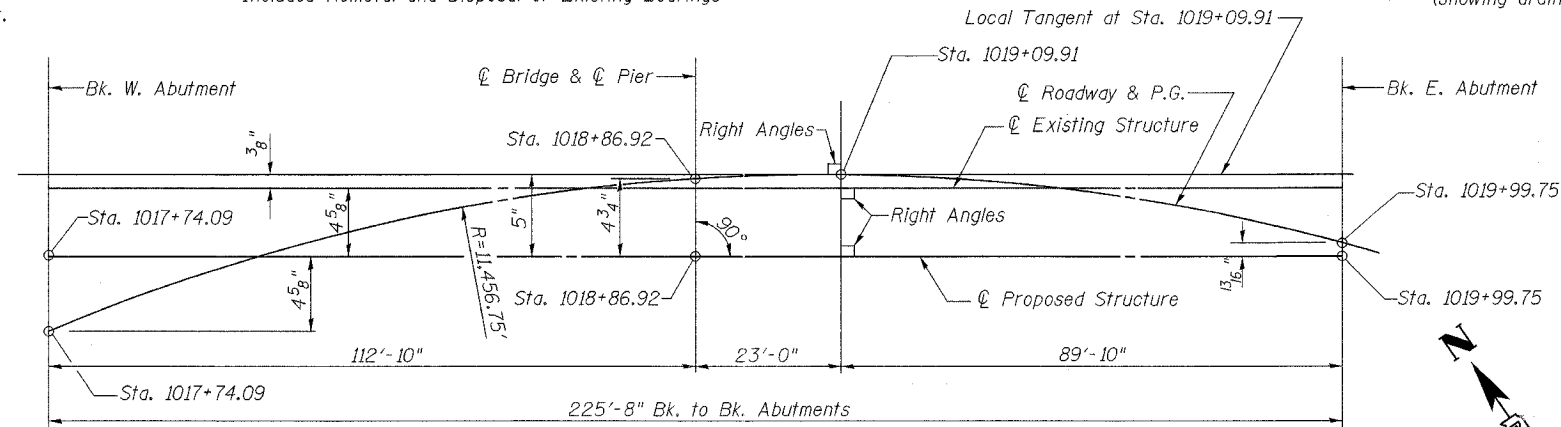
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 2
F.A.P. RTE. 774	107BY-1	EFFINGHAM	273	202	26 SHEETS
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-			

CONTRACT NO. 94827



**SECTION THRU ABUTMENT**

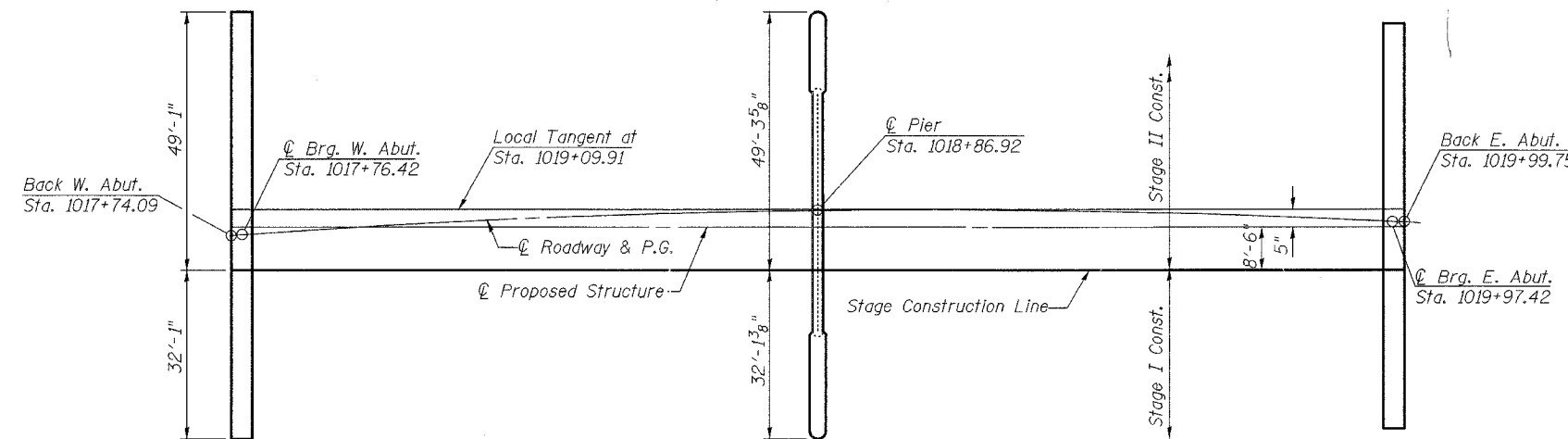
(showing drain details)



**OFFSET SKETCH**

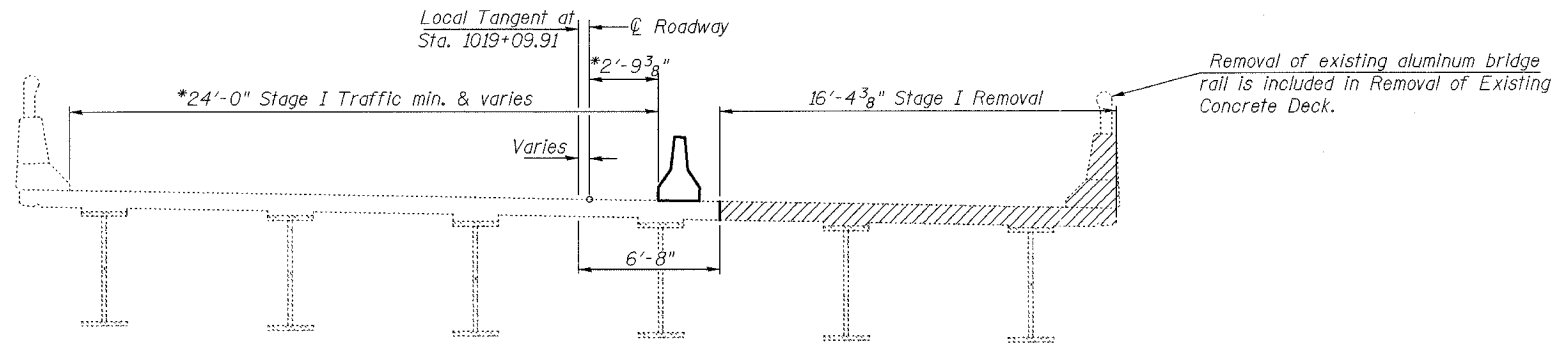
- ① 2" Preformed Joint Filler (Section 1051 of the Standard Specifications bonded to abutment cap with approved adhesive (full width of cap).
- ② Fabric Reinforced Elastomeric Mat (See Special Provisions) Fabric mat shall be 24" wide and attached full width to the abutment cap with a 3/8" x 5" steel plate and 1/2" φ studs with nuts and washers at 12" cts.
- ③ 2" Preformed Joint Filler (Section 1051 of the Standard Specifications) bonded to superstructure (full width of cap).
- ④ Geocomposite Wall Drain (Section 591 of the Standard Specifications)-full width of cap).

Items ① ② ③ & ④ shall be included in the cost of Concrete Superstructure.

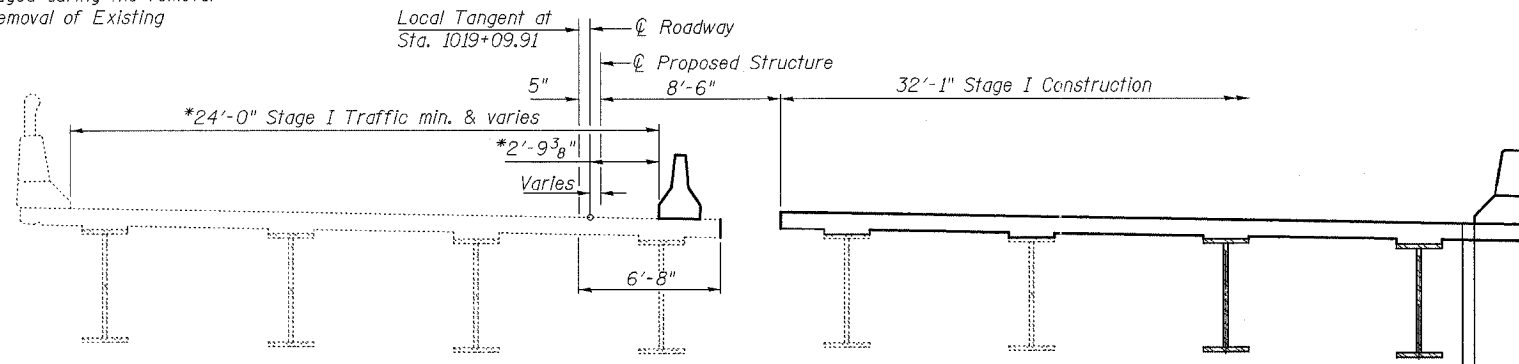


**FOOTING LAYOUT**

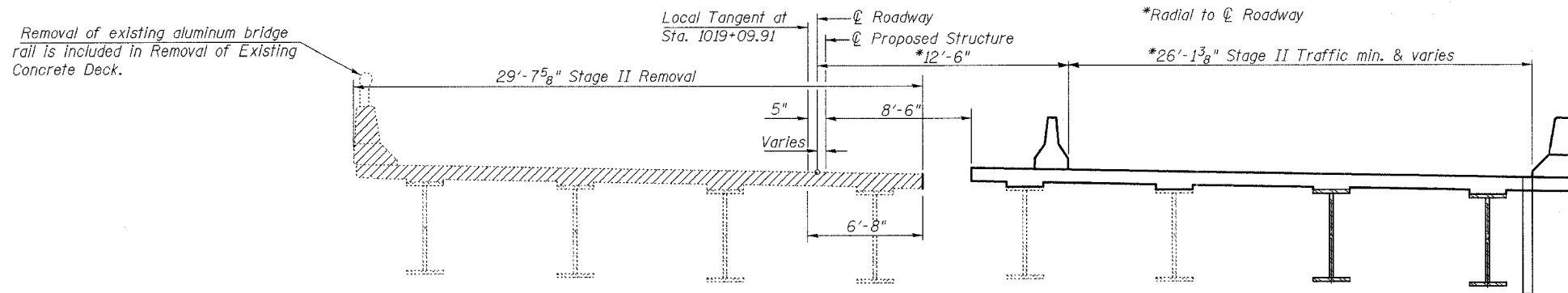
SHEET TITLE		GENERAL NOTES AND TOTAL BILL OF MATERIAL	
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	PROJECT NO.	02017
SCALE		DATE	TFG
DRAWN BY	KPS/CME/MCB	CHECKED BY	
DRAWING NO.			
<b>COOMBE-BLOXDORF P.C.</b> Engineers/Land Surveyors Springfield, Illinois Design Firm License No. 184-002703		2 OF 26 SHTS	



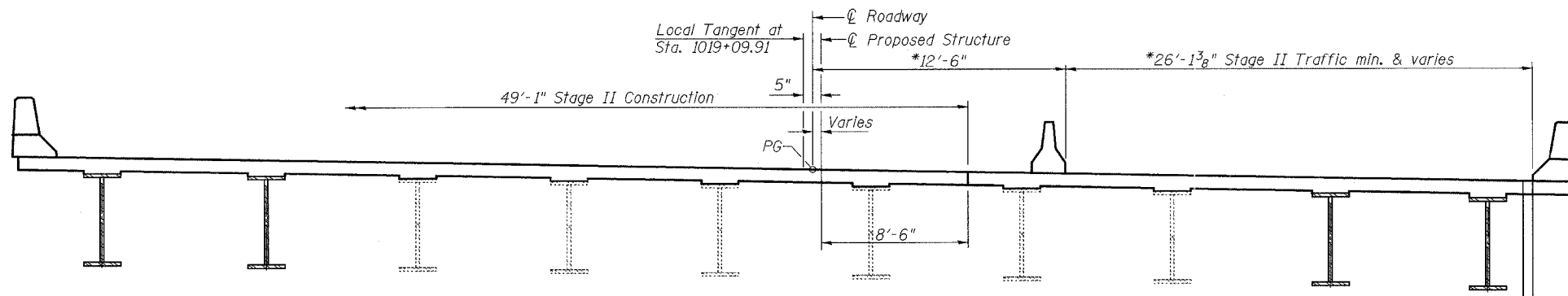
**STAGE I REMOVAL**  
(Looking East)



**STAGE I CONSTRUCTION**  
(Looking East)



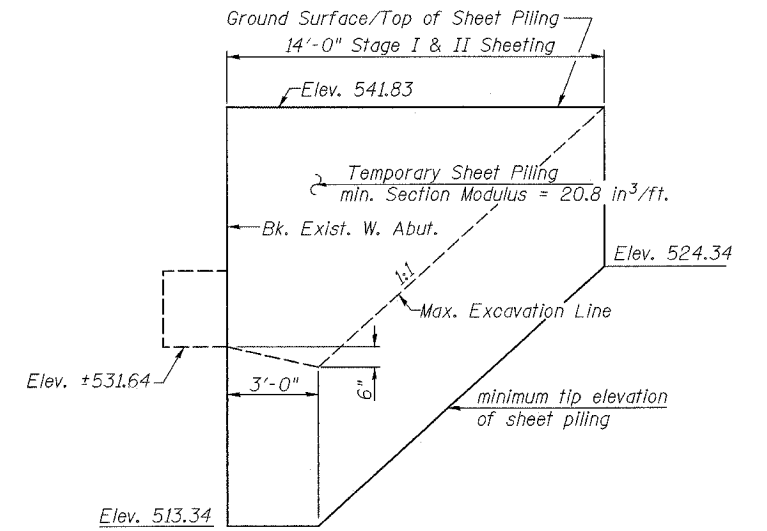
**STAGE II REMOVAL**  
(Looking East)



**STAGE II CONSTRUCTION**  
(Looking East)

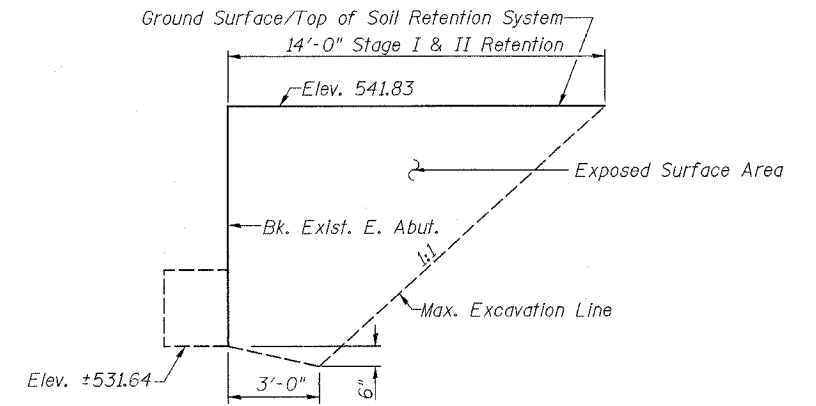
**NOTES**

Hatched areas indicate "Removal of Existing Concrete Deck".  
See Roadway Plans for quantity of Temporary Concrete Barrier.  
The Shear Studs on existing girders will remain. It is the Contractor's responsibility to replace existing shear studs damaged during the removal of the existing Concrete deck. Cost included in Removal of Existing Concrete Deck.



**TEMPORARY SHEET PILING DETAIL-W. ABUT.**

If the Contractor chooses to alter the temporary cantilevered sheet piling design requirements shown on the plans, a design submittal including plan details and calculations will be required for review and acceptance by the Engineer.



**TEMPORARY SOIL RETENTION SYSTEM-E. ABUT.**

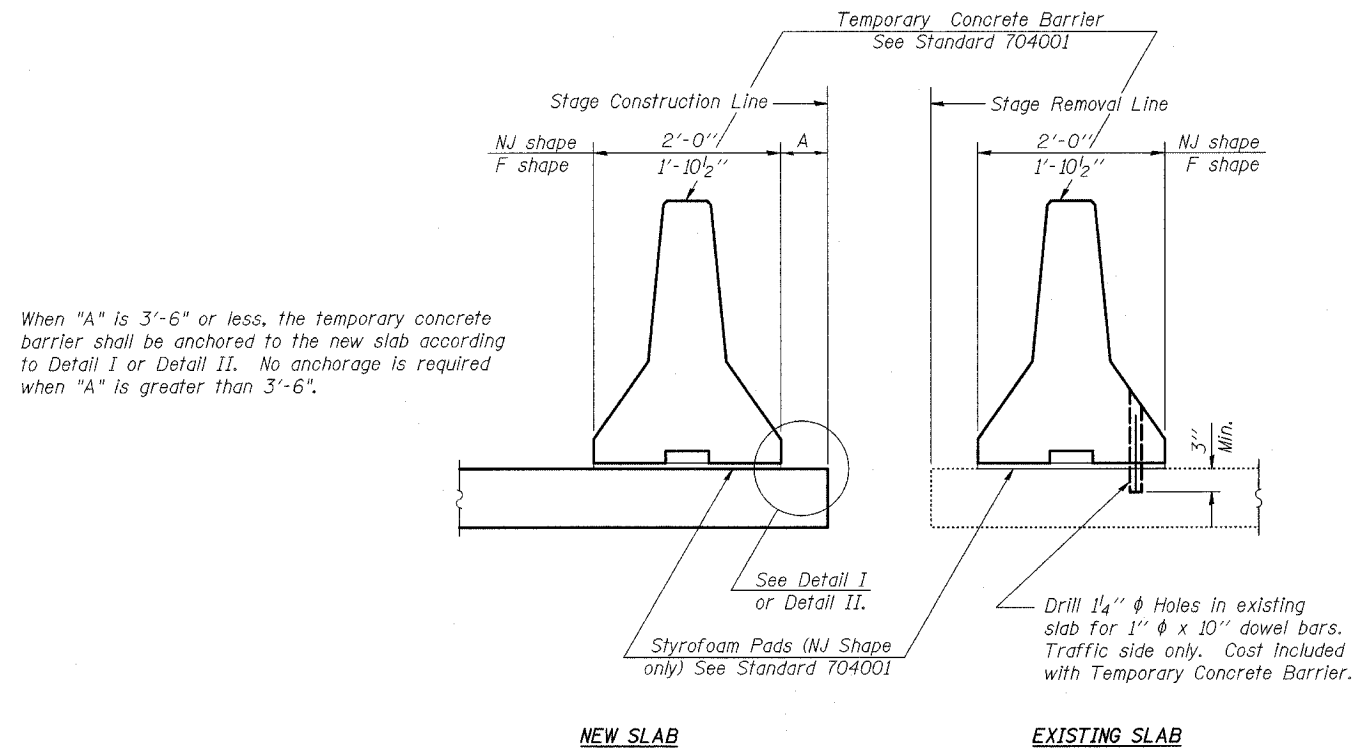
A cantilevered sheet piling design does not appear feasible at the east abutment and additional members or other retention systems may be necessary. The Contractor shall submit a temporary soil retention system design including plan details and calculations for review and acceptance by the Engineer.

**STAGE CONSTRUCTION SEQUENCE**

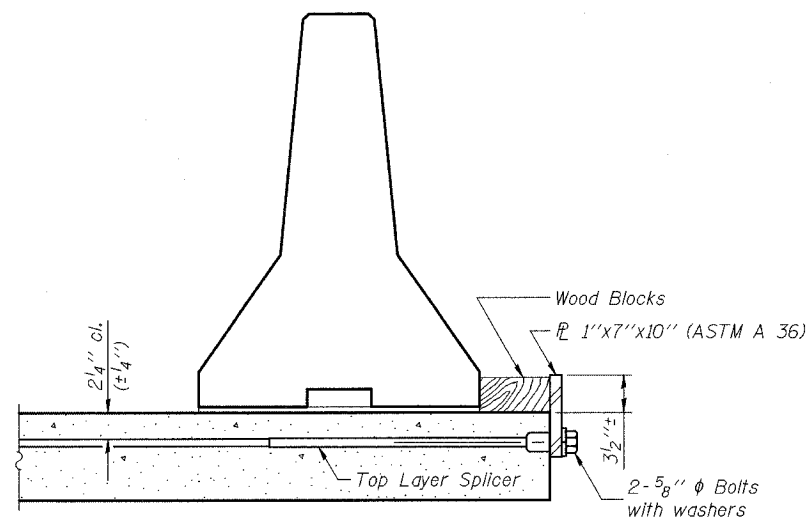
- ① Direct Stage I Traffic as shown.
- ② Drive Temporary Sheet Piling or Install Temporary Retention System located behind each abutment and proceed with Stage I Removal.
- ③ Proceed with Stage I Construction.
- ④ Direct Stage II Traffic as shown.
- ⑤ Relocate Stage I Sheet Piling or Retention System as necessary for Stage II Sheet Piling or Retention System.
- ⑥ Proceed with Stage II Removal and Construction.

SHEET TITLE <b>STAGE CONSTRUCTION DETAILS</b>		
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	PROJECT NO. 02017
SCALE		DATE
DRAWN BY	TFG	CHECKED BY
	KPS/CME/MCB	DRAWING NO.
<b>COOMBE-BLOXDORF P.C.</b> Engineers/Land Surveyors Springfield, Illinois Design Firm License No. 184-002703		3 OF 26 SHTS

CONTRACT NO. 94827

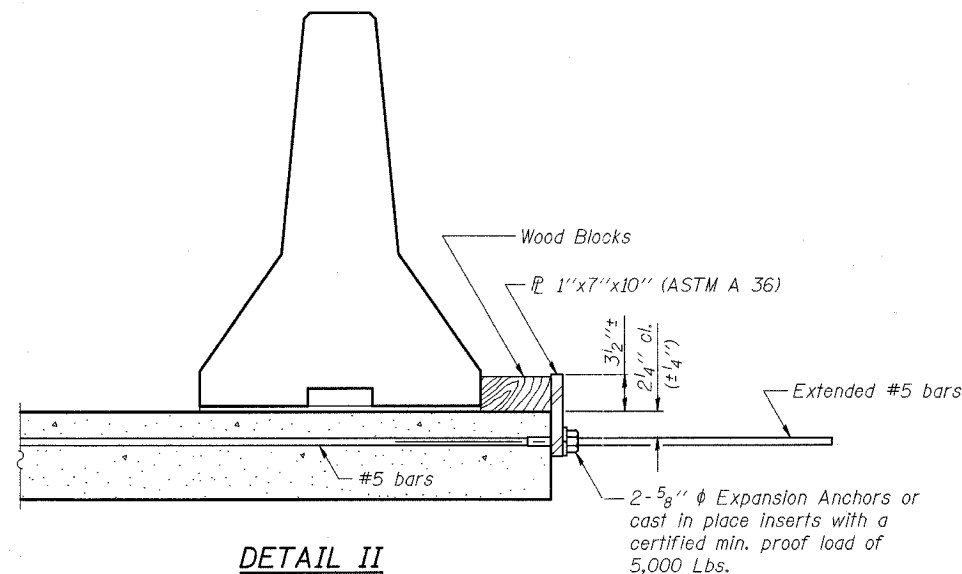


SECTIONS THRU SLAB



DETAIL I

The 1"x7"x10" Plate shall not be removed until Stage II Construction forms and reinforcement bars are in place.

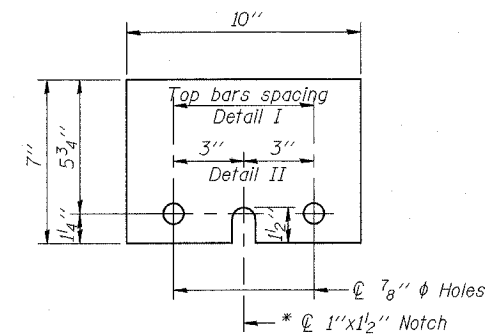


DETAIL II

The 1"x7"x10" Plate shall not be removed until Stage II Construction forms and all reinforcement bars are in place and the concrete is ready to be placed.

NOTES

- Detail I - With Bar Splicer or Couplers:  
Connect one (1) 1"x7"x10" steel  $\bar{L}$  to the top layer of couplers with 2-5/8"  $\phi$  bolts screwed to coupler at approximate  $\bar{C}$  of each barrier panel.
  - Detail II - With Extended Reinforcement Bars:  
Connect one (1) 1"x7"x10" steel  $\bar{L}$  to the concrete slab with 2-5/8"  $\phi$  Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate  $\bar{C}$  of each barrier panel.
- Cost of anchorage is included with Temporary Concrete Barrier.



1" x 7" x 10"

\* Required only with Detail II

SHEET TITLE		TEMPORARY CONCRETE BARRIER FOR STAGED CONSTRUCTION	
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	PROJECT NO.	02017
SCALE		DATE	
DRAWN BY	TFG	CHECKED BY	KPS/CME/MCB
DRAWING NO.			
COOMBE-BLOXDORF P.C. Engineers/Land Surveyors Springfield, Illinois Design Firm License No. 184-002703		4	OF 26 SHTS

**GIRDER 1A**

**GIRDER 2A**

**OPTIONAL LONGITUDINAL  
BONDED CONSTRUCTION JOINT**

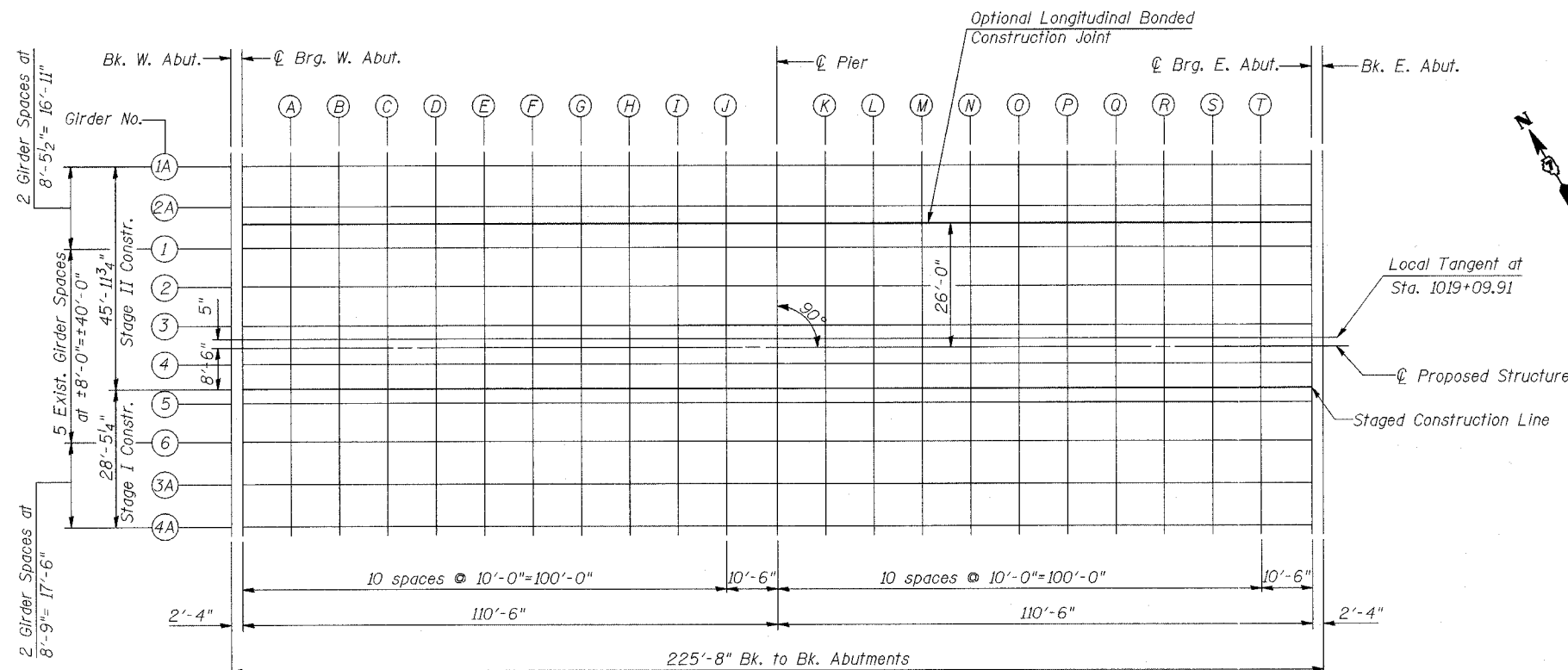
**GIRDER 1**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	101774.526	-37.688	542.418	542.418
⊕ Brg. W. Abut.	101776.851	-37.660	542.417	542.417
A	101786.818	-37.548	542.416	542.452
B	101796.785	-37.445	542.414	542.481
C	101806.752	-37.351	542.413	542.500
D	101816.719	-37.265	542.411	542.509
E	101826.686	-37.188	542.410	542.508
F	101836.654	-37.120	542.409	542.497
G	101846.621	-37.060	542.408	542.479
H	101856.589	-37.009	542.407	542.456
I	101866.557	-36.967	542.407	542.432
J	101876.525	-36.934	542.406	542.414
⊕ Pier	101886.991	-36.908	542.406	542.406
K	101896.959	-36.892	542.406	542.412
L	101906.927	-36.885	542.405	542.430
M	101916.895	-36.887	542.405	542.453
N	101926.862	-36.898	542.406	542.475
O	101936.830	-36.917	542.406	542.493
P	101946.798	-36.945	542.406	542.504
Q	101956.766	-36.981	542.407	542.505
R	101966.734	-37.026	542.408	542.496
S	101976.701	-37.080	542.408	542.476
T	101986.669	-37.143	542.409	542.448
⊕ Brg. E. Abut.	101997.134	-37.218	542.411	542.411
Bk. E. Abut.	101999.460	-37.236	542.411	542.411

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	101774.427	-29.230	542.286	542.286
⊕ Brg. W. Abut.	101776.753	-29.203	542.286	542.286
A	101786.727	-29.091	542.284	542.320
B	101796.702	-28.988	542.282	542.349
C	101806.676	-28.893	542.281	542.368
D	101816.650	-28.808	542.279	542.377
E	101826.625	-28.730	542.278	542.376
F	101836.600	-28.662	542.277	542.365
G	101846.575	-28.603	542.276	542.347
H	101856.550	-28.552	542.275	542.324
I	101866.525	-28.509	542.275	542.300
J	101876.500	-28.476	542.274	542.282
⊕ Pier	101886.974	-28.450	542.274	542.274
K	101896.949	-28.434	542.274	542.280
L	101906.924	-28.427	542.273	542.298
M	101916.900	-28.429	542.273	542.321
N	101926.875	-28.440	542.274	542.343
O	101936.850	-28.459	542.274	542.361
P	101946.825	-28.487	542.274	542.372
Q	101956.800	-28.523	542.275	542.373
R	101966.775	-28.568	542.276	542.364
S	101976.750	-28.622	542.277	542.344
T	101986.725	-28.685	542.277	542.316
⊕ Brg. E. Abut.	101997.199	-28.760	542.279	542.279
Bk. E. Abut.	101999.526	-28.778	542.279	542.279

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	101774.393	-26.386	542.242	542.242
⊕ Brg. W. Abut.	101776.720	-26.359	542.241	542.241
A	101786.697	-26.247	542.239	542.276
B	101796.674	-26.144	542.238	542.304
C	101806.650	-26.049	542.236	542.324
D	101816.627	-25.964	542.235	542.333
E	101826.605	-25.887	542.234	542.332
F	101836.582	-25.818	542.233	542.321
G	101846.559	-25.769	542.232	542.302
H	101856.537	-25.708	542.231	542.279
I	101866.514	-25.665	542.230	542.256
J	101876.492	-25.632	542.230	542.237
⊕ Pier	101886.968	-25.606	542.229	542.229
K	101896.946	-25.590	542.229	542.236
L	101906.924	-25.583	542.229	542.254
M	101916.901	-25.585	542.229	542.276
N	101926.879	-25.596	542.229	542.299
O	101936.857	-25.615	542.230	542.317
P	101946.834	-25.643	542.230	542.328
Q	101956.812	-25.679	542.231	542.329
R	101966.790	-25.724	542.231	542.319
S	101976.767	-25.778	542.232	542.300
T	101986.744	-25.841	542.233	542.271
⊕ Brg. E. Abut.	101997.220	-25.916	542.234	542.234
Bk. E. Abut.	101999.548	-25.934	542.235	542.235

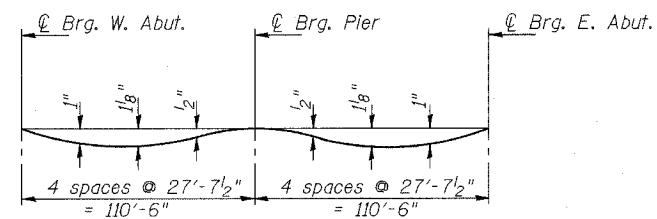
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	101774.327	-20.773	542.154	542.154
⊕ Brg. W. Abut.	101776.655	-20.745	542.154	542.154
A	101786.637	-20.633	542.152	542.189
B	101796.618	-20.530	542.150	542.217
C	101806.600	-20.436	542.149	542.236
D	101816.582	-20.350	542.147	542.245
E	101826.564	-20.273	542.146	542.244
F	101836.546	-20.204	542.145	542.233
G	101846.528	-20.145	542.144	542.215
H	101856.510	-20.094	542.143	542.192
I	101866.493	-20.051	542.143	542.168
J	101876.475	-20.018	542.142	542.150
⊕ Pier	101886.957	-19.992	542.142	542.142
K	101896.940	-19.976	542.142	542.148
L	101906.922	-19.969	542.142	542.166
M	101916.905	-19.971	542.142	542.189
N	101926.887	-19.982	542.142	542.211
O	101936.870	-20.001	542.142	542.229
P	101946.852	-20.029	542.142	542.240
Q	101956.835	-20.065	542.143	542.241
R	101966.817	-20.111	542.144	542.232
S	101976.800	-20.165	542.145	542.212
T	101986.782	-20.227	542.146	542.184
⊕ Brg. E. Abut.	101997.263	-20.303	542.147	542.147
Bk. E. Abut.	101999.592	-20.321	542.147	542.147



**PLAN**

Work this sheet with Sheets 6 and 7 of 26.

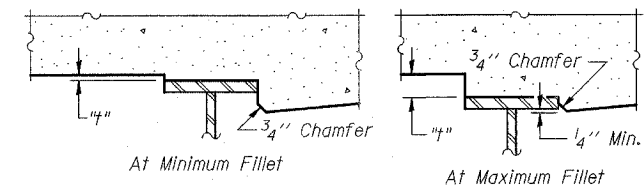
SHEET TITLE		PROJECT NO.	
TOP OF SLAB ELEVATIONS		02017	
PROJECT		SCALE	
IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077		DATE	
DRAWN BY		CHECKED BY	
TFG		KPS/CME/MCB	
DESIGNED BY		DRAWING NO.	
COOMBE-BLOXDORF P.C. Engineers/Land Surveyors Springfield, Illinois Design Firm License No. 184-002703		5	
OF 26 SHTS			



**DEAD LOAD DEFLECTION DIAGRAM**

(Includes weight of concrete only.)

Note: The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown below and on Sheets 5 and 7 of 26.



To determine "t": After all structural steel has been erected, elevations of the top flanges of the girders shall be taken at intervals shown below. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown below, minus slab thickness, equals the fillet heights "t" above top flange of girders.

**FILLET HEIGHTS**

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 6 26 SHEETS
F.A.P. RTE. 774	107BY-1	EFFINGHAM	273	206	
FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT-					

**CONTRACT NO. 94827**

**GIRDER 2**

**GIRDER 3**

**LOCAL TANGENT**

**PROPOSED STRUCTURE**

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	101774.232	-12.773	542.029	542.029
☉ Brg. W. Abut.	101776.562	-12.746	542.029	542.029
A	101786.551	-12.634	542.027	542.064
B	101796.539	-12.531	542.025	542.092
C	101806.528	-12.436	542.024	542.111
D	101816.517	-12.350	542.023	542.121
E	101826.506	-12.273	542.021	542.119
F	101836.495	-12.204	542.020	542.108
G	101846.484	-12.145	542.019	542.090
H	101856.473	-12.094	542.019	542.067
I	101866.463	-12.051	542.018	542.044
J	101876.452	-12.018	542.017	542.025
☉ Pier	101886.941	-11.992	542.017	542.017
K	101896.931	-11.976	542.017	542.024
L	101906.920	-11.969	542.017	542.041
M	101916.910	-11.971	542.017	542.064
N	101926.899	-11.982	542.017	542.086
O	101936.889	-12.001	542.017	542.105
P	101946.878	-12.029	542.018	542.115
Q	101956.868	-12.065	542.018	542.116
R	101966.857	-12.111	542.019	542.107
S	101976.846	-12.165	542.020	542.086
T	101986.835	-12.228	542.021	542.059
☉ Brg. E. Abut.	101997.324	-12.303	542.022	542.022
Bk. E. Abut.	101999.654	-12.321	542.022	542.022

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	101774.137	-4.774	541.904	541.904
☉ Brg. W. Abut.	101776.469	-4.746	541.904	541.904
A	101786.465	-4.634	541.902	541.939
B	101796.460	-4.531	541.901	541.967
C	101806.456	-4.436	541.899	541.987
D	101816.451	-4.350	541.898	541.996
E	101826.447	-4.273	541.897	541.994
F	101836.443	-4.205	541.896	541.984
G	101846.440	-4.145	541.895	541.965
H	101856.436	-4.094	541.894	541.942
I	101866.432	-4.052	541.893	541.919
J	101876.429	-4.018	541.893	541.900
☉ Pier	101886.925	-3.992	541.892	541.892
K	101896.922	-3.976	541.892	541.899
L	101906.918	-3.969	541.892	541.916
M	101916.915	-3.971	541.892	541.939
N	101926.911	-3.982	541.892	541.962
O	101936.908	-4.001	541.892	541.980
P	101946.904	-4.029	541.893	541.990
Q	101956.900	-4.065	541.893	541.992
R	101966.897	-4.111	541.894	541.982
S	101976.893	-4.165	541.895	541.963
T	101986.889	-4.228	541.896	541.934
☉ Brg. E. Abut.	101997.385	-4.303	541.897	541.897
Bk. E. Abut.	101999.717	-4.321	541.897	541.897

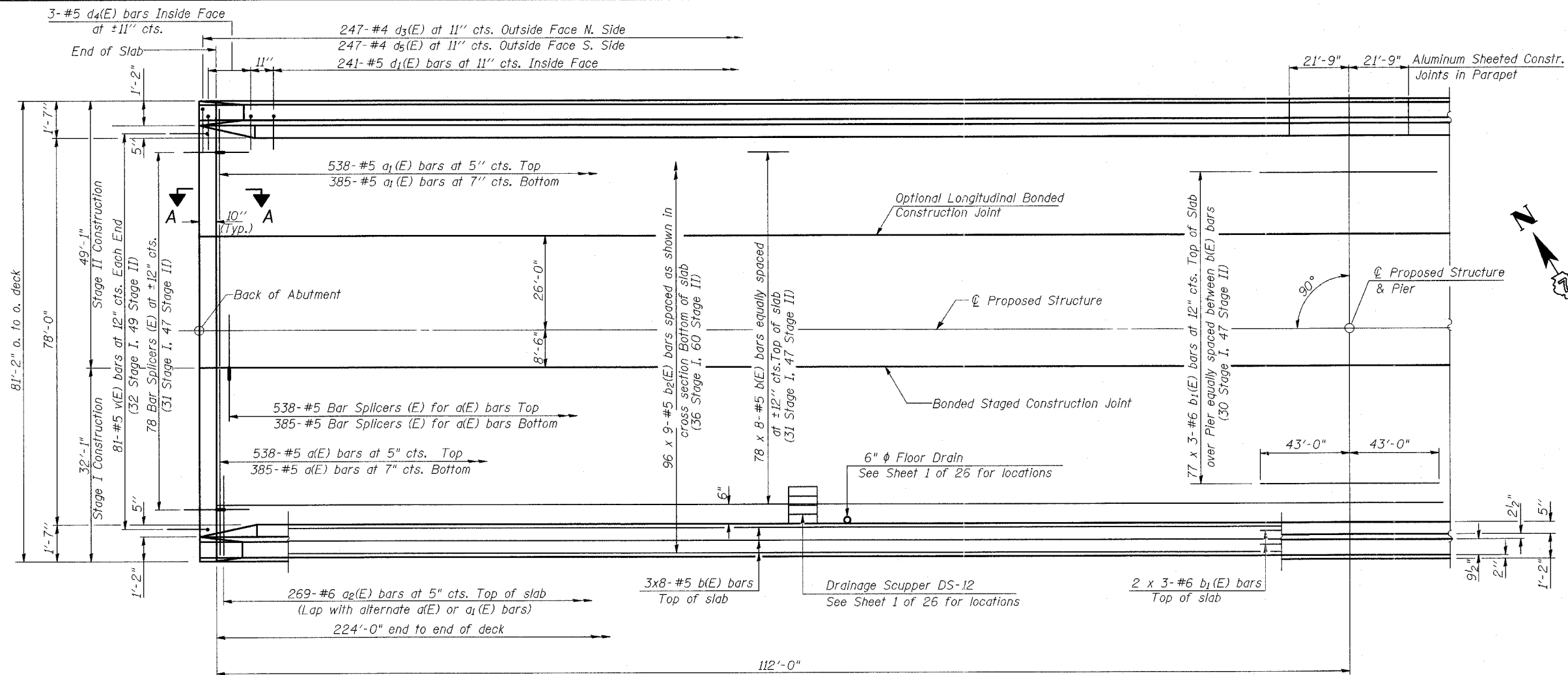
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	101774.090	-0.805	541.843	541.843
☉ Brg. W. Abut.	101776.423	-0.778	541.842	541.842
A	101786.422	-0.666	541.840	541.877
B	101796.421	-0.562	541.839	541.905
C	101806.420	-0.467	541.837	541.925
D	101816.419	-0.381	541.836	541.934
E	101826.418	-0.304	541.835	541.933
F	101836.418	-0.236	541.834	541.922
G	101846.418	-0.176	541.833	541.903
H	101856.417	-0.125	541.832	541.880
I	101866.417	-0.083	541.831	541.857
J	101876.417	-0.049	541.831	541.838
☉ Pier	101886.917	-0.023	541.830	541.830
K	101896.917	-0.007	541.830	541.837
L	101906.917	0.000	541.830	541.855
M	101916.917	-0.002	541.830	541.877
N	101926.917	-0.013	541.830	541.900
O	101936.917	-0.032	541.830	541.918
P	101946.917	-0.060	541.831	541.928
Q	101956.917	-0.096	541.832	541.930
R	101966.917	-0.142	541.832	541.920
S	101976.916	-0.196	541.833	541.901
T	101986.916	-0.259	541.834	541.872
☉ Brg. E. Abut.	101997.415	-0.334	541.835	541.835
Bk. E. Abut.	101999.748	-0.352	541.835	541.835

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. W. Abut.	101774.085	-0.383	541.836	541.836
☉ Brg. W. Abut.	101776.418	-0.356	541.836	541.836
A	101786.417	-0.244	541.834	541.870
B	101796.417	-0.140	541.832	541.899
C	101806.416	-0.045	541.831	541.918
D	101816.416	0.040	541.829	541.927
E	101826.415	0.118	541.828	541.926
F	101836.415	0.186	541.827	541.915
G	101846.415	0.246	541.826	541.897
H	101856.415	0.297	541.825	541.874
I	101866.416	0.339	541.825	541.850
J	101876.416	0.373	541.824	541.832
☉ Pier	101886.916	0.399	541.824	541.824
K	101896.917	0.415	541.824	541.830
L	101906.917	0.422	541.823	541.848
M	101916.917	0.420	541.823	541.871
N	101926.918	0.409	541.824	541.893
O	101936.918	0.390	541.824	541.911
P	101946.918	0.362	541.824	541.922
Q	101956.918	0.326	541.825	541.923
R	101966.919	0.280	541.826	541.914
S	101976.919	0.226	541.826	541.894
T	101986.919	0.163	541.827	541.866
☉ Brg. E. Abut.	101997.419	0.088	541.829	541.829
Bk. E. Abut.	101999.751	0.070	541.829	541.829

Work this sheet with Sheets 5 and 7 of 26.

SHEET TITLE		TOP OF SLAB ELEVATIONS	
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	PROJECT NO.	02017
SCALE		DATE	
DRAWN BY	TFG	CHECKED BY	KPS/CME/MCB
DRAWING NO.			
COOMBE-BLOXDORF P.C. Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703		6 OF 26 SHTS	

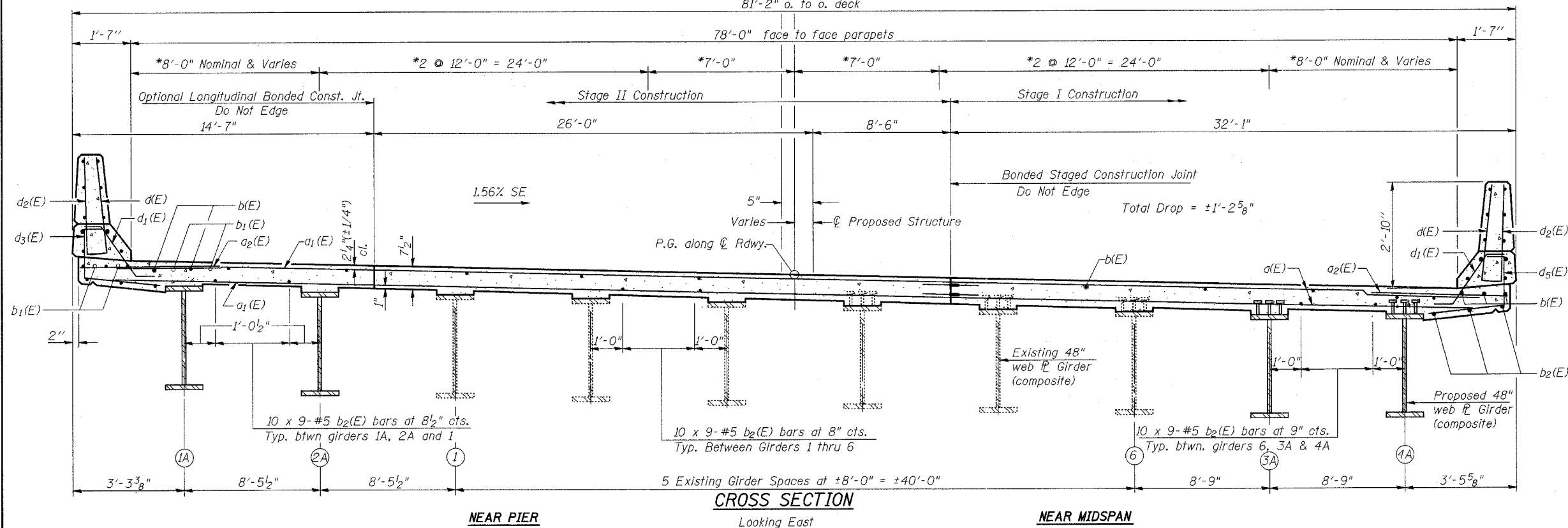




**HALF PLAN**

Local Tangent at Sta. 1019+09.913  
81'-2" o. to o. deck

\*Radial to  $\phi$  Roadway



**CROSS SECTION**

NEAR PIER

Looking East

NEAR MIDSPAN

**NOTES**

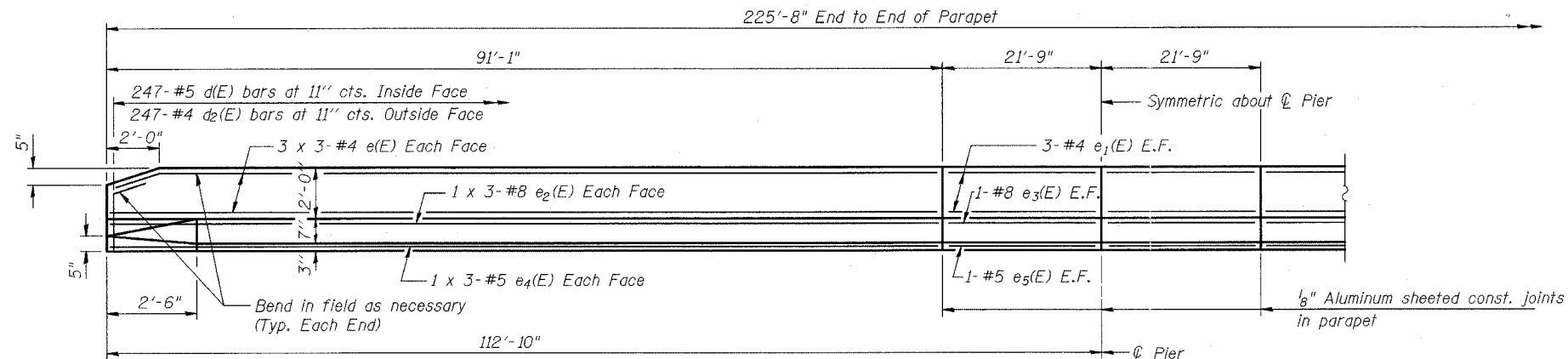
- See Sheet 9 of 26 for superstructure details, parapet reinforcement and Bill of Material.
- Reinforcement bars designated (E) shall be epoxy coated.
- Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.
- See Sheet 10 of 26 for abutment diaphragm details, Section A-A and deck details at drainage Scuppers.
- Cut longitudinal reinforcement bars to clear drainage Scuppers.
- See Sheet 11 of 26 for Drainage Scuppers details.
- See Sheet 24 of 26 for Bar Splicer detail.

**Min. Bar Laps in Slab**

- #5 = 1'-8"
- #6 = 2'-0"

SHEET TITLE <b>SUPERSTRUCTURE</b>		PROJECT NO. 02017
PROJECT IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	SCALE	DATE
<b>COOMBE-BLOXDORF P.C.</b> Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002708	DRAWN BY TFG	8 OF 26 SHTS
	CHECKED BY KPS/CME/MCB	





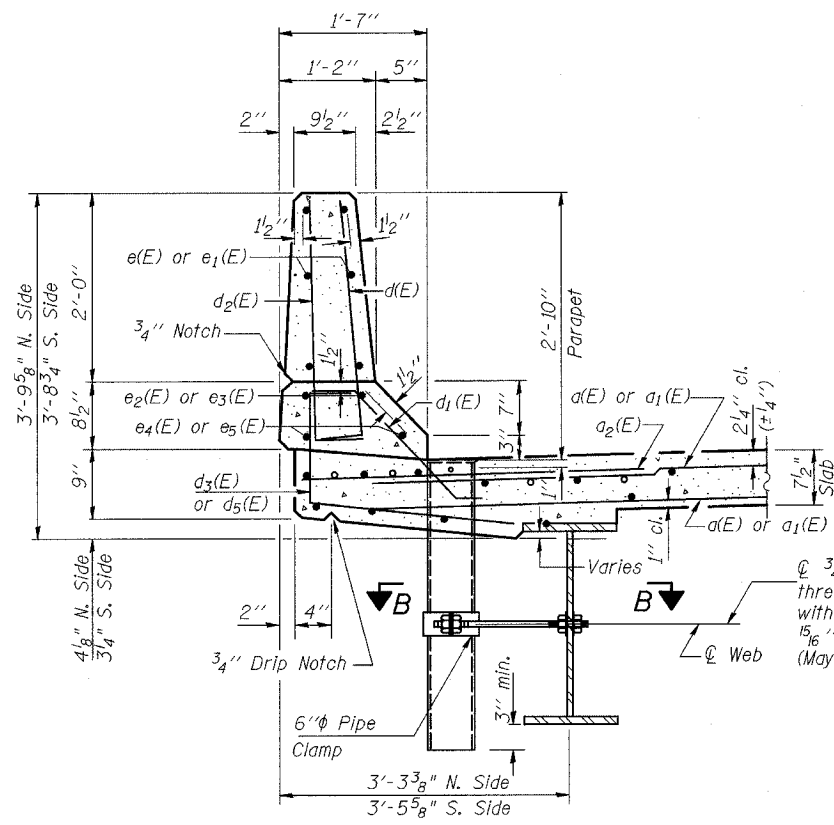
**INSIDE ELEVATION OF PARAPET**

**MIN. BAR LAPS IN PARAPET**

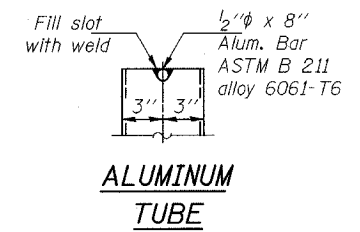
- #4 = 1'-8"
- #5 = 2'-2"
- #8 = 4'-6"

**SUPERSTRUCTURE BILL OF MATERIAL**

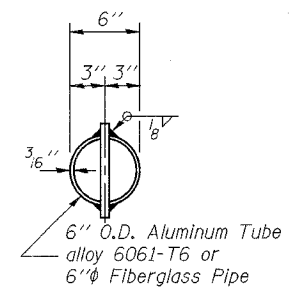
Bar	No.	Size	Length	Shape
a(E)	923	#5	30'-11"	—
a <sub>1</sub> (E)	923	#5	47'-11"	—
a <sub>2</sub> (E)	538	#6	4'-6"	—
a <sub>3</sub> (E)	16	#5	2'-0"	—
b(E)	672	#5	29'-6"	—
b <sub>1</sub> (E)	243	#6	30'-0"	—
b <sub>2</sub> (E)	864	#5	26'-5"	—
d(E)	494	#5	3'-0"	—
d <sub>1</sub> (E)	482	#5	2'-5"	—
d <sub>2</sub> (E)	494	#4	3'-0"	—
d <sub>3</sub> (E)	247	#4	3'-9"	—
d <sub>4</sub> (E)	12	#5	2'-2"	—
d <sub>5</sub> (E)	247	#4	4'-0"	—
e(E)	72	#4	31'-5"	—
e <sub>1</sub> (E)	24	#4	21'-6"	—
e <sub>2</sub> (E)	24	#8	33'-3"	—
e <sub>3</sub> (E)	8	#8	21'-6"	—
e <sub>4</sub> (E)	24	#5	31'-7"	—
e <sub>5</sub> (E)	8	#5	21'-6"	—
m(E)	20	#6	31'-8"	—
m <sub>1</sub> (E)	20	#6	7'-8"	—
m <sub>2</sub> (E)	8	#6	8'-5"	—
m <sub>3</sub> (E)	8	#6	2'-7"	—
m <sub>4</sub> (E)	8	#6	8'-1"	—
m <sub>5</sub> (E)	16	#6	10'-0"	—
m <sub>6</sub> (E)	40	#6	25'-10"	—
m <sub>7</sub> (E)	24	#6	10'-5"	—
s(E)	174	#5	7'-11"	—
s <sub>1</sub> (E)	156	#4	12'-2"	—
u(E)	164	#5	2'-9"	—
v(E)	162	#5	3'-4"	—
Reinforcement Bars, Epoxy Coated		Pound	152,780	
Concrete Superstructure		Cu. Yds.	573.6	
Bar Splicers		Each	1103	



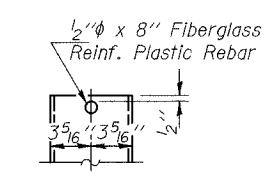
**SECTION THRU PARAPET**  
(Showing 6" φ drain S. Side only)



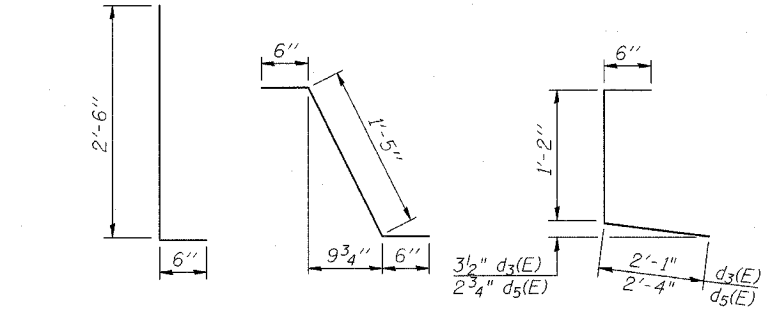
**ALUMINUM TUBE**



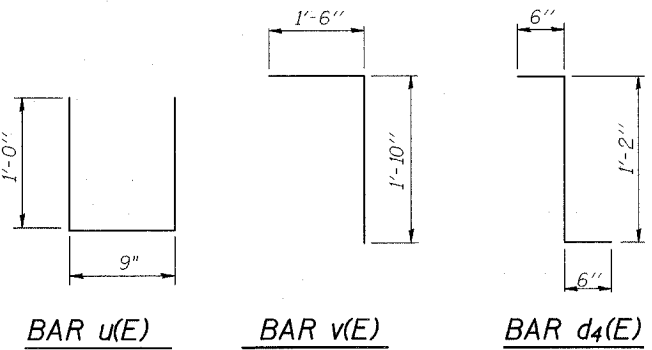
**TOP PLAN**  
(Showing Aluminum Tube)



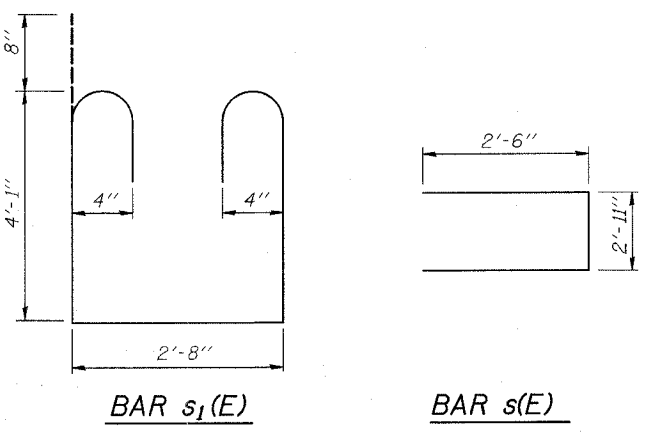
**FIBERGLASS PIPE**



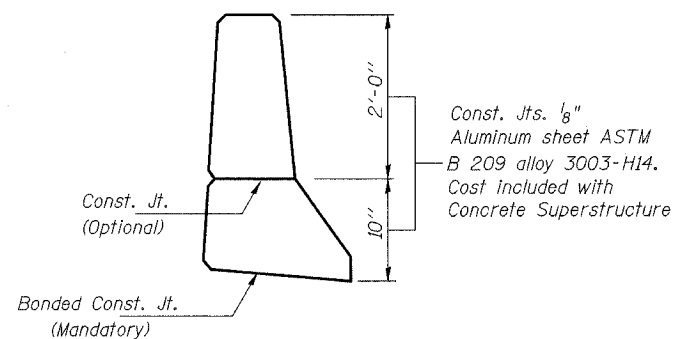
**BARS d(E) & d<sub>2</sub>(E) BAR d<sub>1</sub>(E) BAR d<sub>3</sub>(E) & d<sub>5</sub>(E)**



**BAR u(E) BAR v(E) BAR d<sub>4</sub>(E)**



**BAR s<sub>1</sub>(E) BAR s(E)**



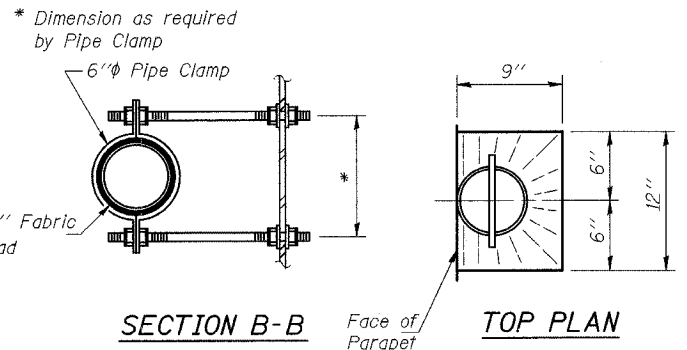
**PARAPET JOINT DETAILS**

**NOTES**

The exterior surfaces of the floor drains shall be painted with the finish coat as specified in the special provisions for Cleaning and Painting New Metal Structures. The exterior surfaces of the drains shall be cleaned according to Steel Structures Painting Council's Spec. SSPC-SP1 prior to painting. Fiberglass pipe shall conform to ASTM D 2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum.

**NOTES**

Reinforcement bars designated (E) shall be epoxy coated. Bars indicated thus 1 x 2-#5 etc. indicates 1 line of bars with 2 lengths per line.

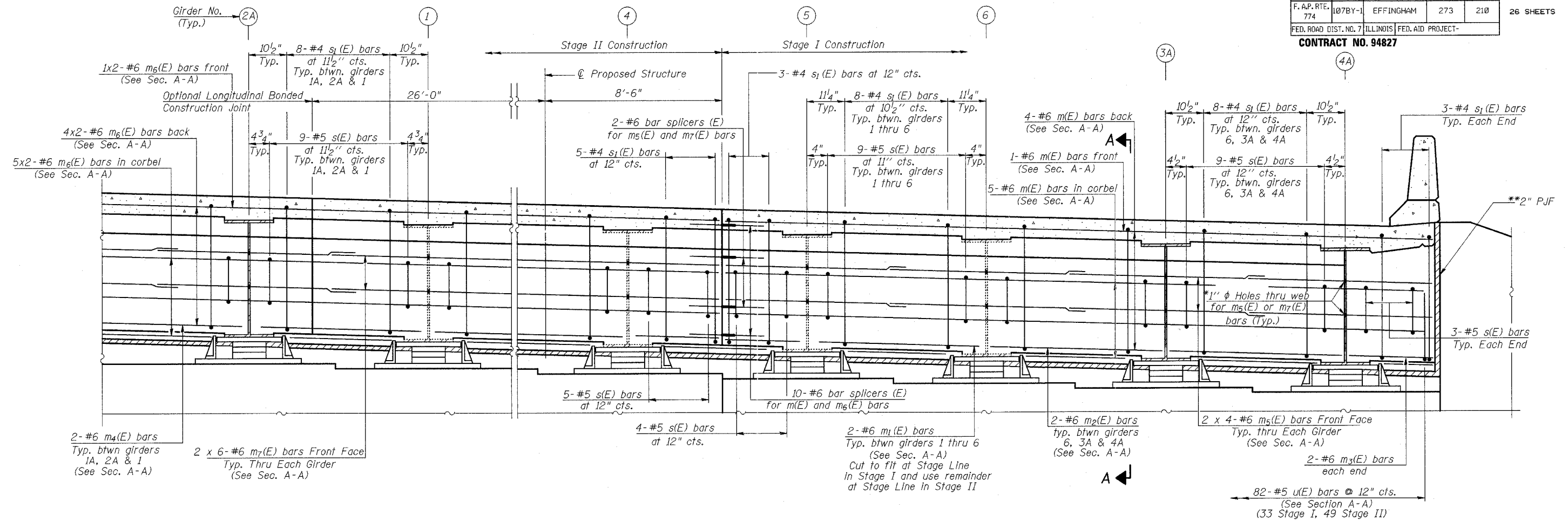


**SECTION B-B TOP PLAN**

SHEET TITLE <b>SUPERSTRUCTURE DETAILS</b>		
PROJECT IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	PROJECT NO. 02017	SCALE DATE DRAWN BY TFG CHECKED BY KPS/CME/MCB DRAWING NO.
<b>COOMBE-BLOXDORF P.C.</b> Engineers/Land Surveyors Springfield, Illinois Design Firm License No. 184-002703		9 OF 26 SHTS

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 10 26 SHEETS
F.A.P. RTE. 774	107BY-1	EFFINGHAM	273	210	
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-			

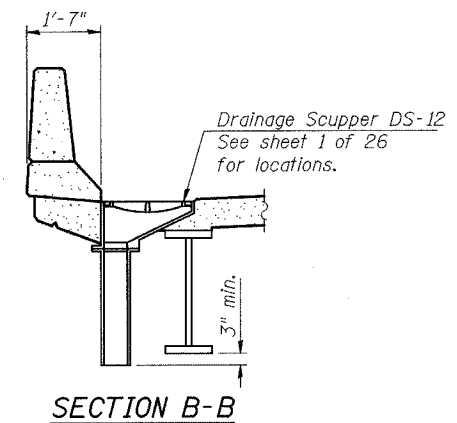
CONTRACT NO. 94827



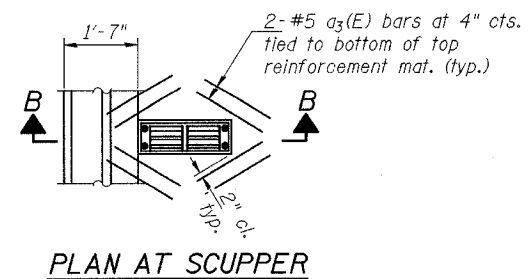
**DIAPHRAGM ELEVATION AT E. ABUTMENT**

Looking East

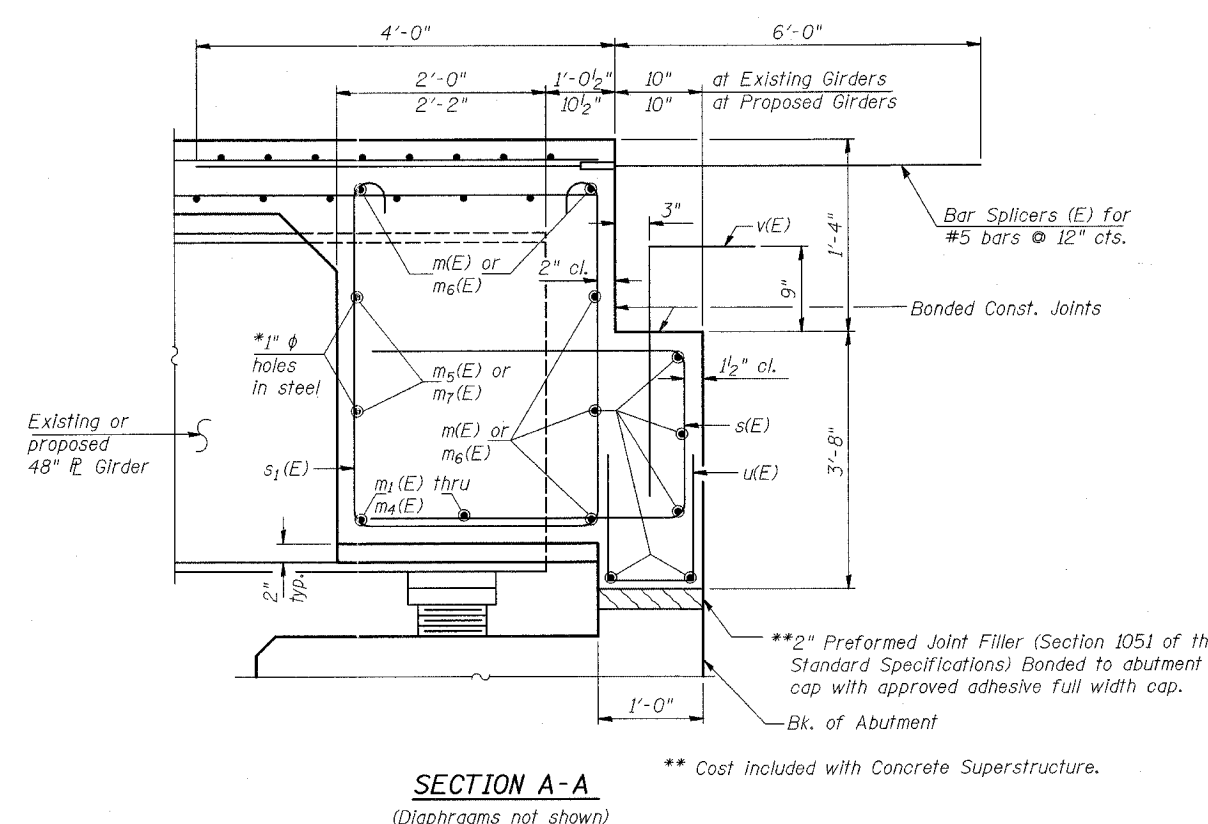
\*Field drill 1"  $\phi$  holes for m<sub>5</sub>(E) or m<sub>7</sub>(E) bars in existing girders. Cost of field drilling included with Concrete Superstructure.



**SECTION B-B**



**PLAN AT SCUPPER**



**SECTION A-A**

(Diaphragms not shown)

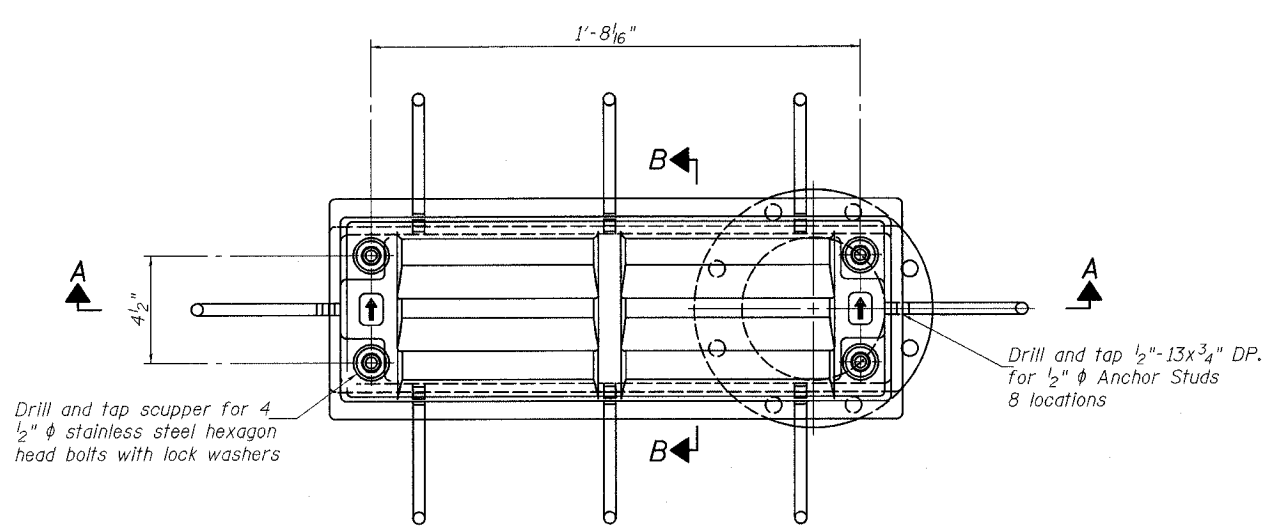
**NOTES**

Reinforcement bars in diaphragm and around scuppers are billed with superstructure on sheet 9 of 26. Concrete in end diaphragm is included with Concrete Superstructure on sheet 9 of 26. For details of bars s(E), s(E) & u(E) see sheet 9 of 26. For anchor bolt details see sheet 15 of 26. Reinforcement bars designated (E) shall be epoxy coated. Bars indicated thus 1 X 2-#5 etc. indicates 1 line of bars with 2 lengths per line. See Sheet 24 of 26 for Bar Splicer details. See Section thru Abutment on Sheet 2 Of 26 for back of abutment treatment.

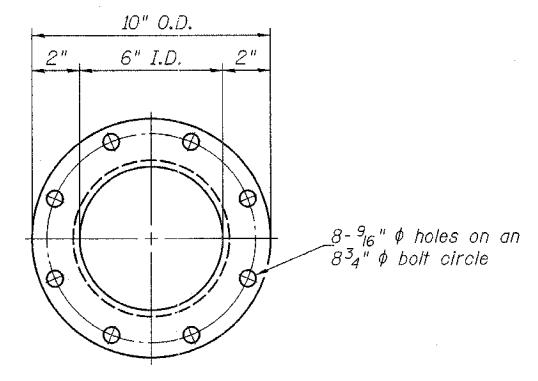
**MIN. BAR LAP**

#6 bar = 2'-9"

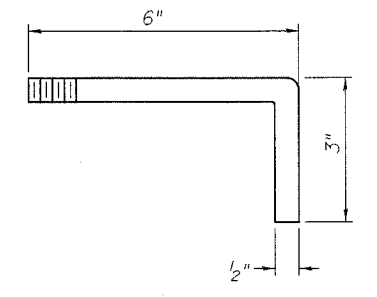
SHEET TITLE <b>DIAPHRAGM AND DRAINAGE SCUPPER DETAILS</b>	
PROJECT IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	PROJECT NO. 02017 SCALE DATE DRAWN BY TFG CHECKED BY KPS/CME/MCB DRAWING NO.
<b>COOMBE-BLOXDORF P.C.</b> Engineers/Land Surveyors Springfield, Illinois Design Firm License No. 184-002703	
10	
OF 26 SHTS	



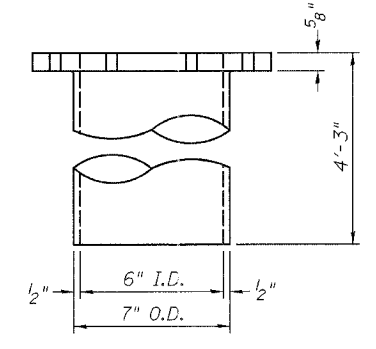
**PLAN**



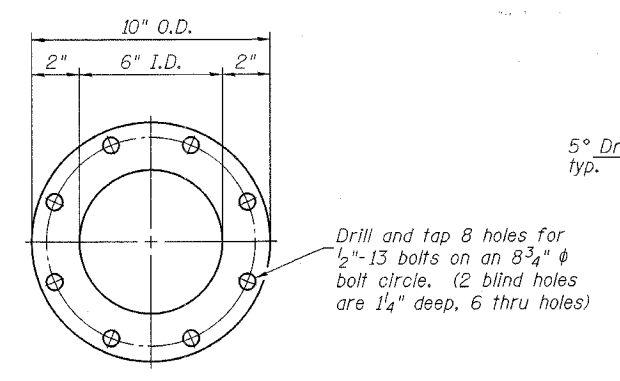
**BOLT HOLE DETAIL**



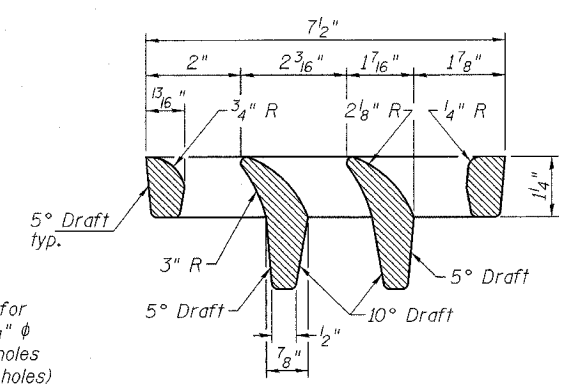
**ANCHOR STUD DETAIL**



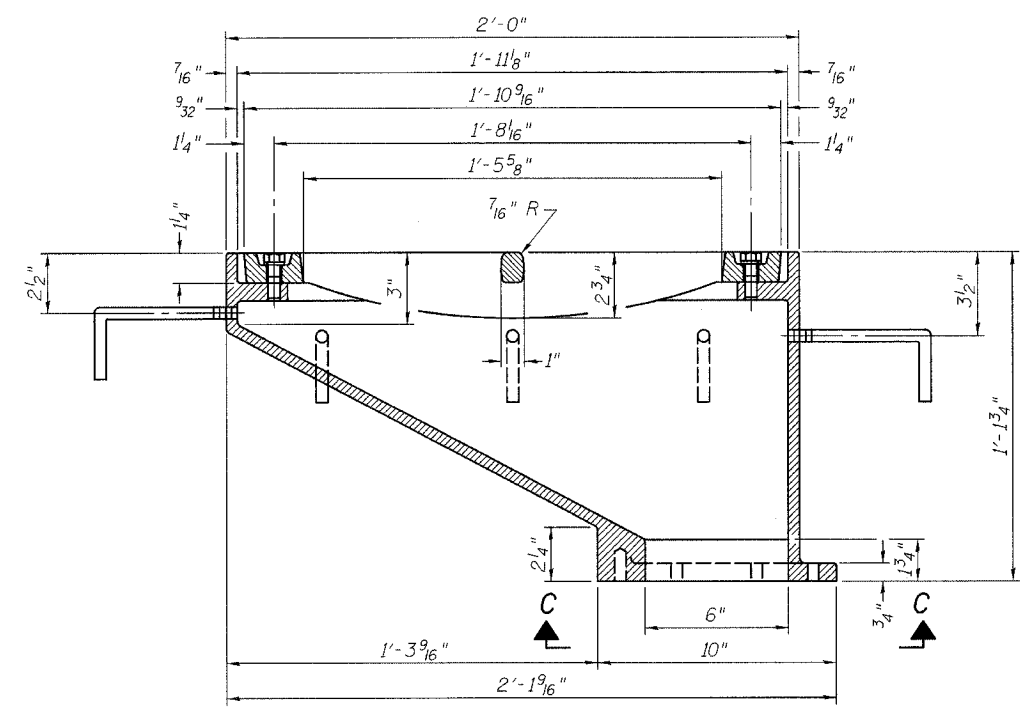
**DOWNSPOUT**



**VIEW C-C**

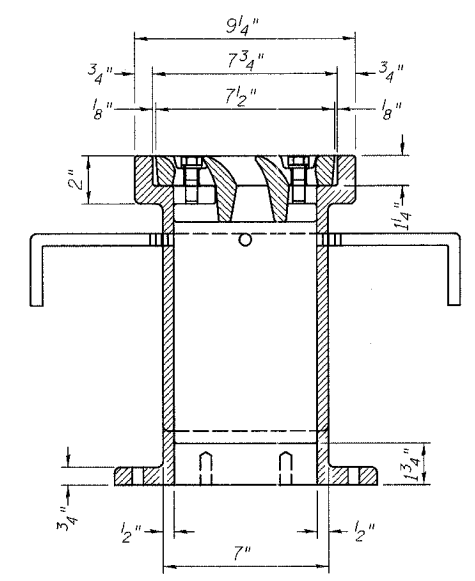


**VANE GRATE DETAIL**



**SECTION A-A**

See sheet 10 of 26 for scupper location relative to parapet.



**SECTION B-B**

**NOTES**

All cast iron parts shall be gray iron conforming to the requirements of AASHTO M 105, Class 35B.

Bolts, anchor studs, washers and nuts shall conform to the requirements of ASTM A 307 and shall be galvanized according to AASHTO M 232.

The grate, frame and downspout shall be galvanized according to AASHTO M 111 and ASTM A 385. Downspouts located on the exterior side of a painted steel fascia beam shall be painted with the finish coat specified for the exterior side of the fascia beam.

As an alternate, bolts, anchor studs, washers and nuts may be stainless steel according to Article 1006.29(d) of the Standard Specifications.

Structural steel weldments of equal sections and of the same configuration may be substituted for cast iron. Fillet or full penetration welds shall be used for the weldments. Details shall be submitted to the Engineer for approval.

The Contractor shall take appropriate measures to assure that Protective Coat is not applied to the scupper.

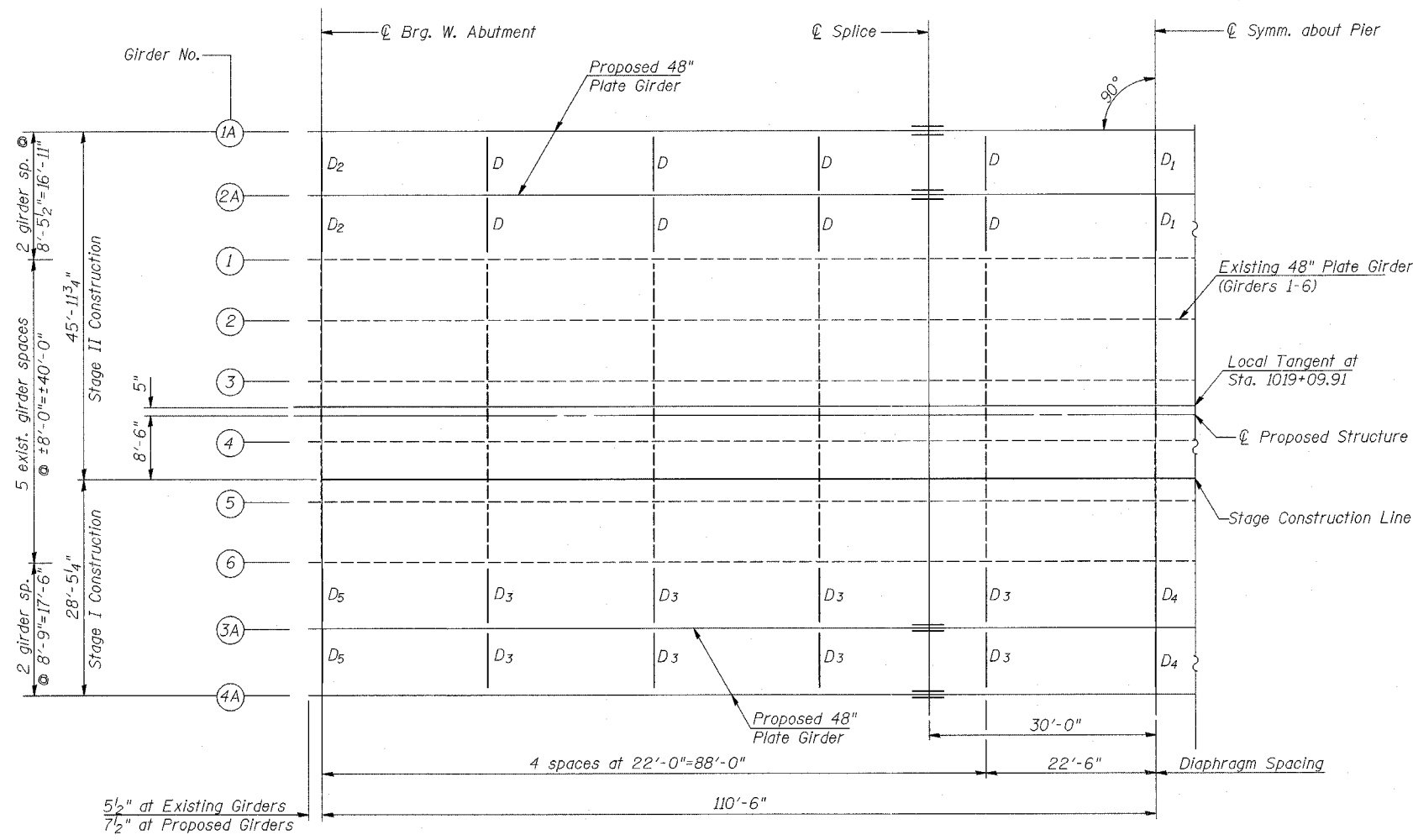
Cost of the Grate, Frame, Downspout, Anchor Studs, Bolts, Washers and Nuts including complete installation of the scupper shall be paid for at the contract unit price each for Drainage Scupper, DS-12.

**BILL OF MATERIAL**

ITEM	UNIT	QUANTITY
Drainage Scupper, DS-12	Each	2

SHEET TITLE <b>DRAINAGE SCUPPER, DS-12</b>		
PROJECT IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	PROJECT NO. 02017	SCALE DATE DRAWN BY TGF
CHECKED BY KPS/CME/MCB		DRAWING NO.
<b>COOMBE-BLOXDORF P.C.</b> Engineers/Land Surveyors Springfield, Illinois Design Firm License No. 184-002703		11 OF 26 SHTS

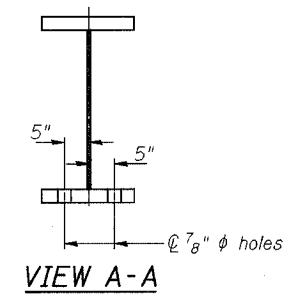
CONTRACT NO. 94827



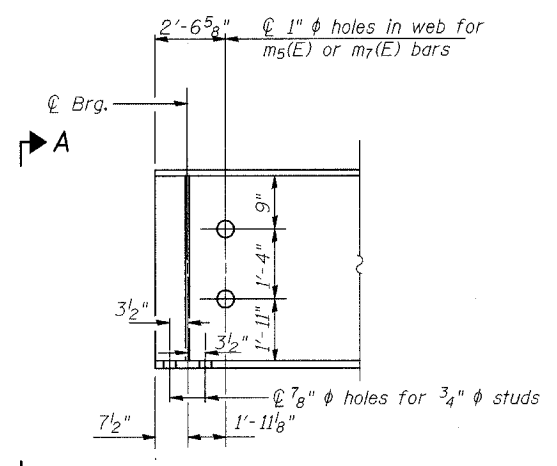
**FRAMING PLAN**

**NOTE**

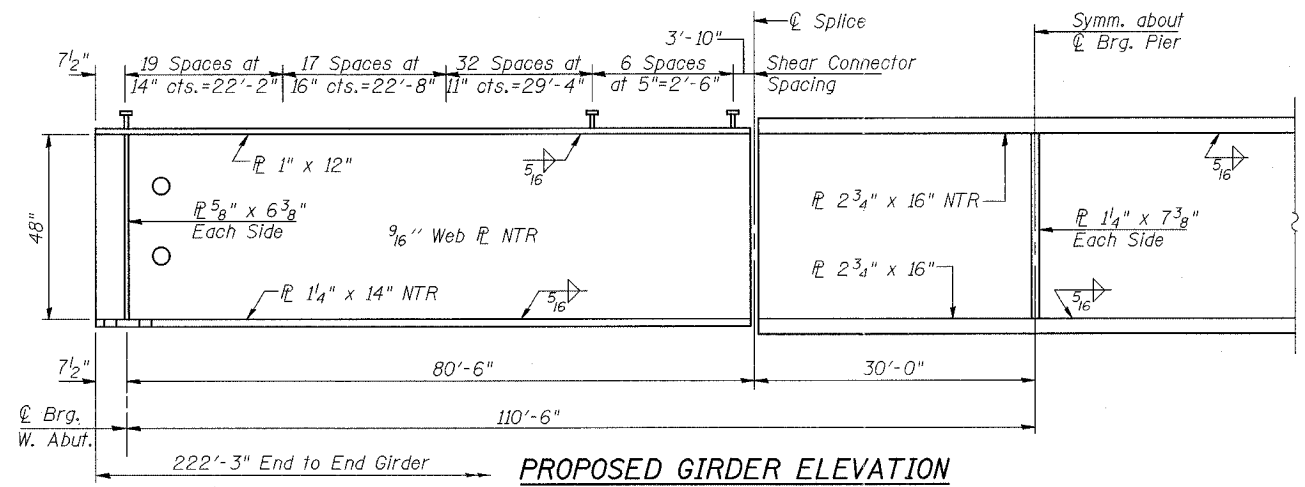
Existing diaphragms along  $\bar{C}$  bearing at Abutments shall be cleaned and left in place. Cost of cleaning is included with Concrete Superstructure.



**VIEW A-A**

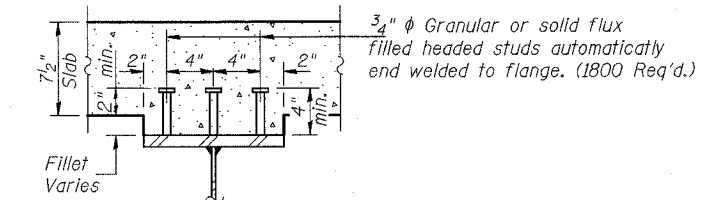


**DETAIL AT ABUTMENT**  
Showing hole locations



**PROPOSED GIRDER ELEVATION**

"NTR" denotes plates to which notch toughness requirements are applicable.



**SHEAR STUD DETAIL**

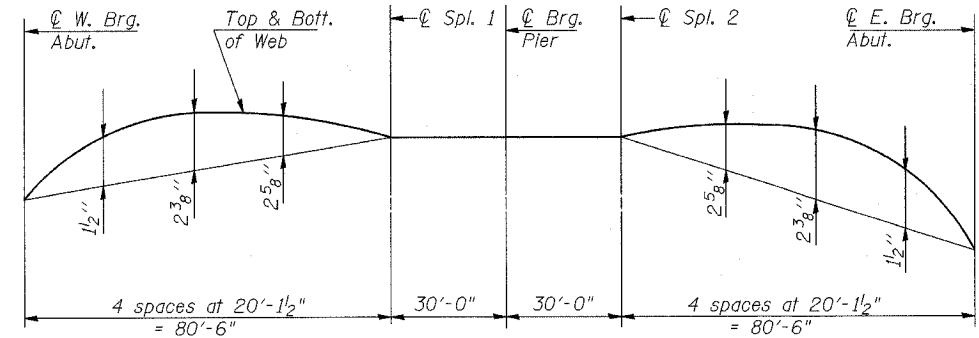
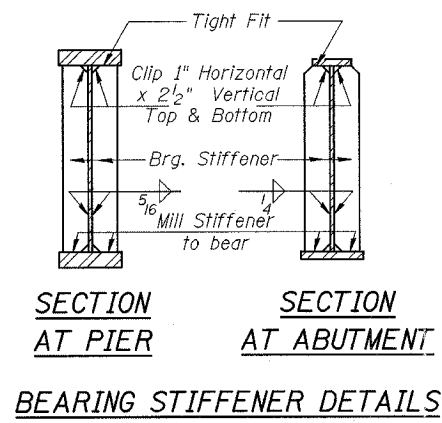
Work this Sheet with Sheet 13 of 26.

SHEET TITLE <b>STRUCTURAL STEEL</b>		
PROJECT IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	PROJECT NO. 02017	SCALE DATE
<b>COOMBE-BLOXDORF P.C.</b> Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703	DRAWN BY TFG	CHECKED BY KPS/CME/MCB
	12	OF 26 SHTS

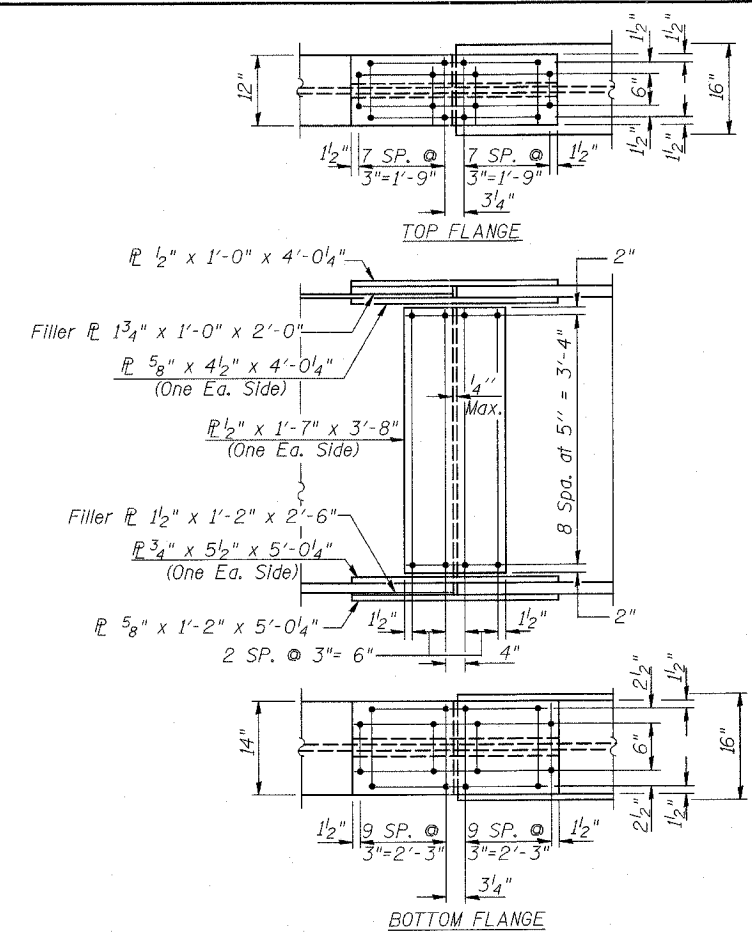
**TOP OF WEB ELEVATIONS**

	Girder 1A	Girder 2A	Girder 3A	Girder 4A
⊙ Brg. W. Abut.	541.646	541.515	540.622	540.486
⊙ Splice 1	541.488	541.356	540.464	540.328
⊙ Pier	541.488	541.356	540.464	540.328
⊙ Splice 2	541.488	541.356	540.464	540.328
⊙ Brg. E. Abut.	541.640	541.508	540.615	540.479

For Fabrication Only



**CAMBER DIAGRAM**



**PROP. INTERIOR GIRDER MOMENT TABLE**

	0.4 Sp. 1 or 0.6 Sp. 2	Pier
$I_s$	(in <sup>4</sup> ) 22670	61900
$I_c(n)$	(in <sup>4</sup> ) 54340	—
$I_c(3n)$	(in <sup>4</sup> ) 39630	—
$S_s$	(in <sup>3</sup> ) 993	2314
$S_c(n)$	(in <sup>3</sup> ) 1338	—
$S_c(3n)$	(in <sup>3</sup> ) 1224	—
$Z$	(in <sup>3</sup> ) —	2557
$D$	(k/ft.) 1.12	1.73
$M\ell$	(k) 741	3107
$s\ell$	(k/ft.) 0.53	—
$M_s\ell$	(k) 433	—
$M\ell$	(k) 1090	1158
$M$ (Imp)	(k) 229	243
$S_3[M\ell + M(\text{Imp})]$	(k) 2198	2335
$M_a$	(k) 4384	7075
$M_u$	(k) 6285	7671
$f_s\ell(\text{non-comp})$ (k.s.i.)	8.9	16.1
$f_s\ell(\text{comp})$ (k.s.i.)	4.2	—
$f_s^{5_3}(\ell + \text{imp})$ (k.s.i.)	19.7	12.1
$f_s$ (Overload) (k.s.i.)	32.8	28.2
VR	(k) 68.8	—

**INTERIOR GIRDER REACTION TABLE**

	Abuts.	Pier
$R\ell$	(k) 107	238.6
$R\ell$	(k) 51.2	91.8
Imp.	(k) 10.8	19.3
$R$ (Total)	(k) 169	349.7

$I_s$  and  $S_s$  are the moment of inertia and section modulus of the steel section used in computing  $f_s\ell$  (non-comp.) and live load stresses at pier.

$I_c(n)$  and  $S_c(n)$  are the moment of inertia and section modulus of the composite section used in computing stresses due to Live Load.

$I_c(3n)$  and  $S_c(3n)$  are the moment of inertia and section modulus of the composite section used in computing stresses due to superimposed dead loads. (see AASHTO 10.38)

VR is the maximum Live Load + Impact shear range in span.

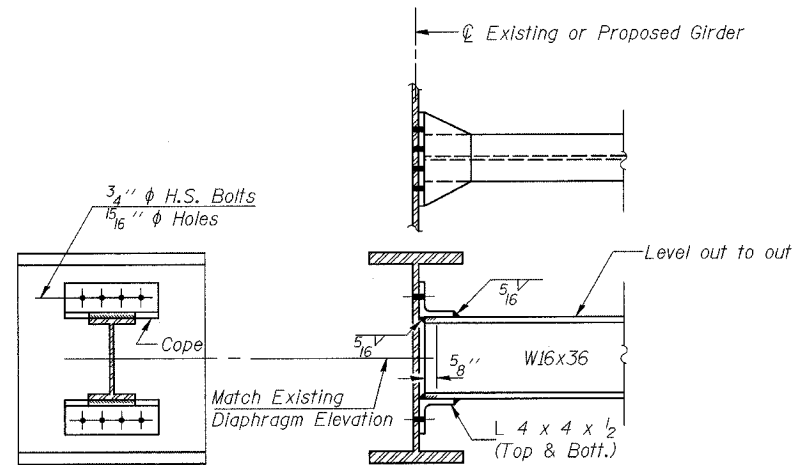
$Z$  is the plastic section modulus used to determine the fully plastic moments in the non-composite areas.

$M_a$  (Applied Moment) =  $1.3[M\ell + M_s\ell + S_3(M\ell + M(\text{Imp}))]$ .

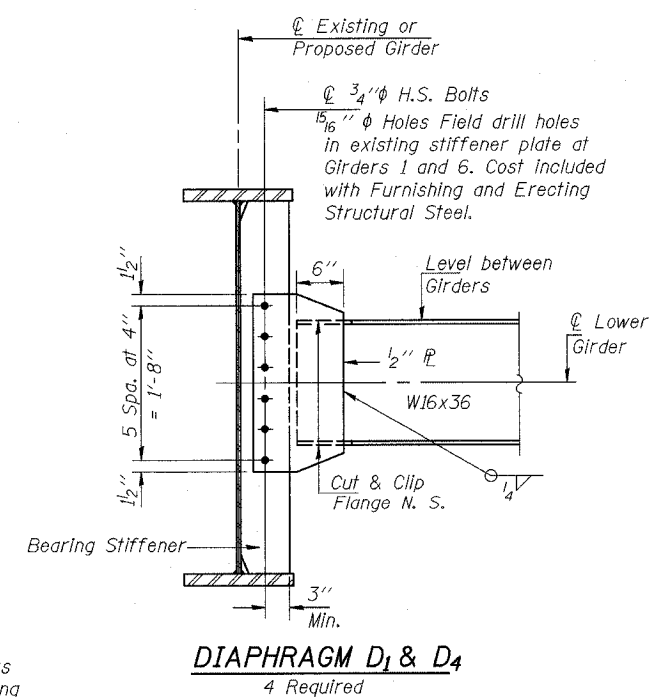
The Plastic Moment capacity ( $M_u$ ) is computed according to AASHTO 10.48.1 and 10.50.1.1.

$f_s$  (Overload) is the sum of the stresses due to  $M\ell + M_s\ell + S_3(M\ell + M(\text{Imp}))$ .

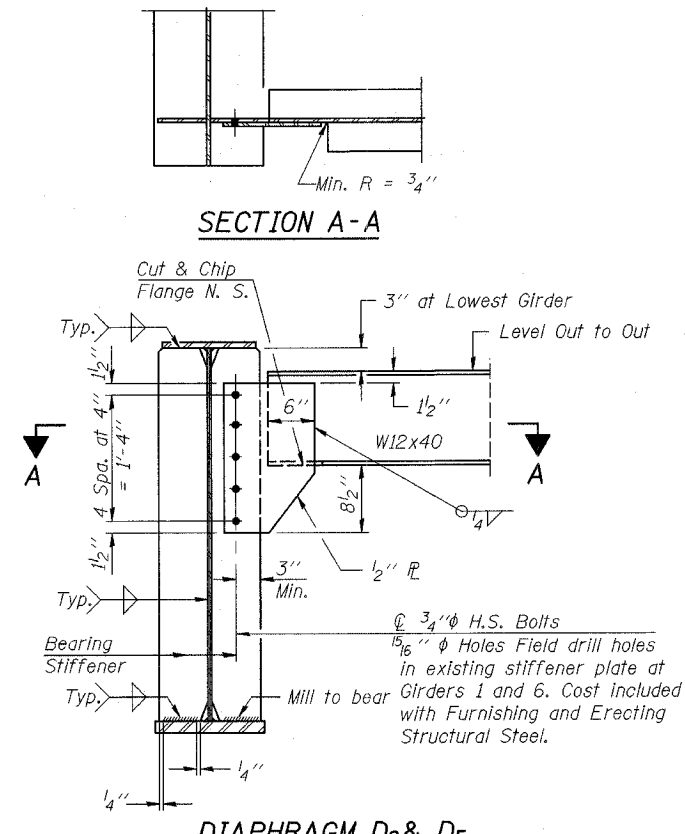
$R\ell$  includes the weight of the concrete diaphragm and the dead load reaction from the approach pavement.



**DIAPHRAGM D & D<sub>3</sub>**  
32 Required



**DIAPHRAGM D<sub>1</sub> & D<sub>4</sub>**  
4 Required



**DIAPHRAGM D<sub>2</sub> & D<sub>5</sub>**  
8 Required

**NOTES**

Two hardened washers shall be required over all oversized holes for diaphragms.

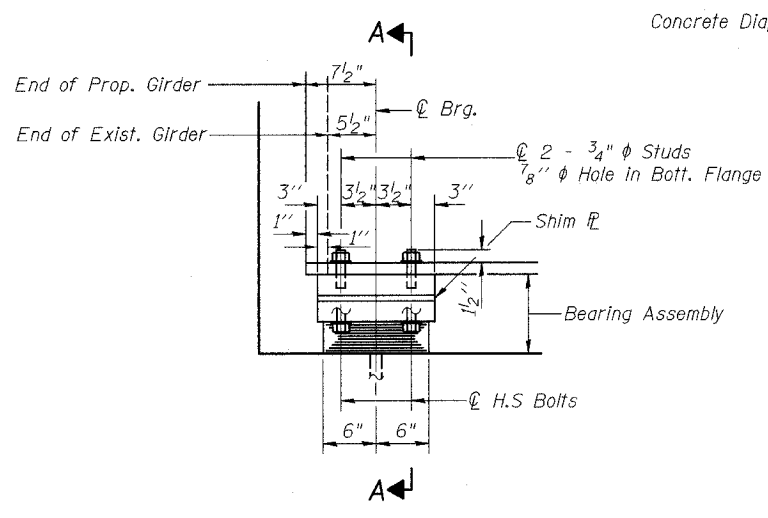
Remove and replace existing bolts at diaphragms connected to existing Girders 1 and 6. Cost included with Furnishing and Erecting Structural Steel.

Note: Two hardened washers shall be required over all oversized holes.

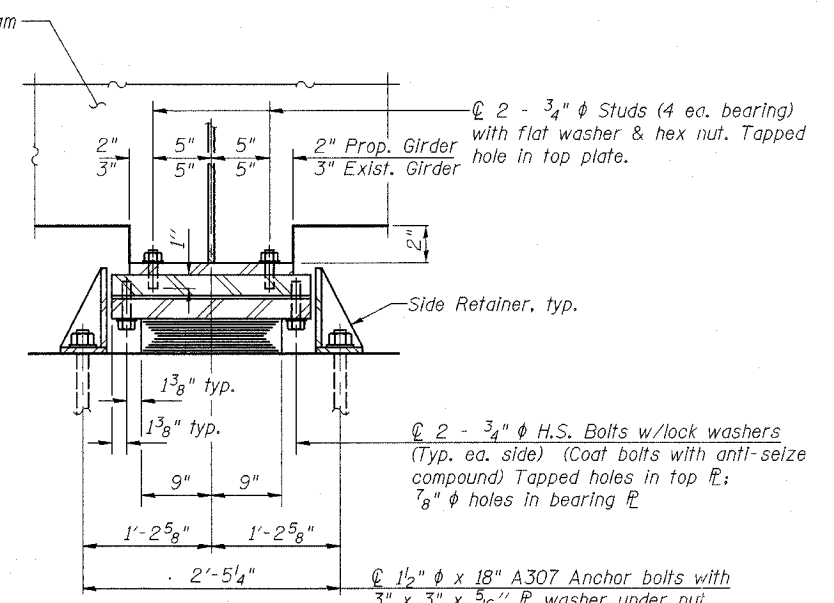
Work this Sheet with Sheet 12 of 26.

SHEET TITLE		STRUCTURAL STEEL	
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	PROJECT NO.	02017
DRAWN BY	TFC	SCALE	
CHECKED BY	KPS/CME/MCB	DATE	
DRAWING NO.			
<b>COOMBE-BLOXDORF P.C.</b> Engineers/Land Surveyors Springfield, Illinois Design Firm License No. 184-002708			13
			OF 26 SHTS

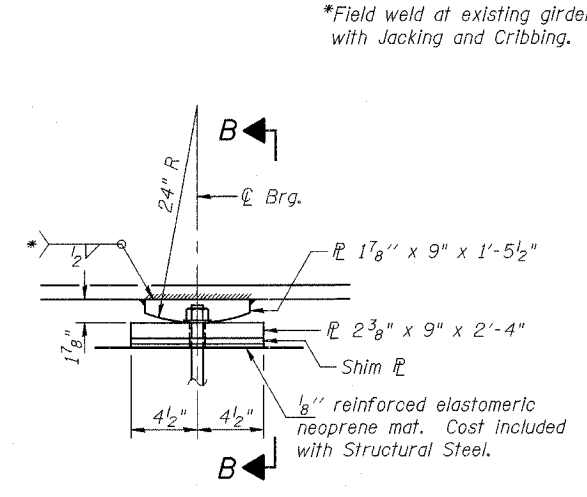
CONTRACT NO. 94827



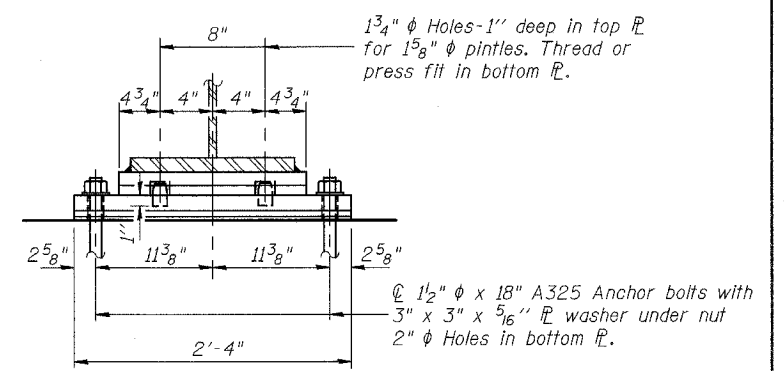
ELEVATION AT ABUT.



SECTION A-A



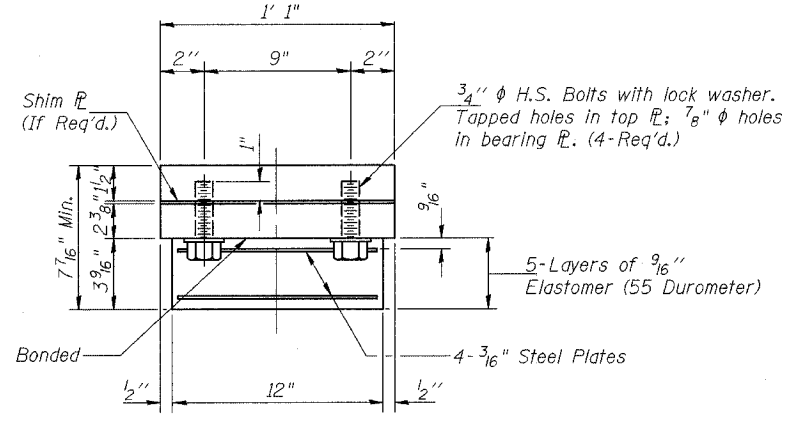
ELEVATION AT PIER



SECTION B-B

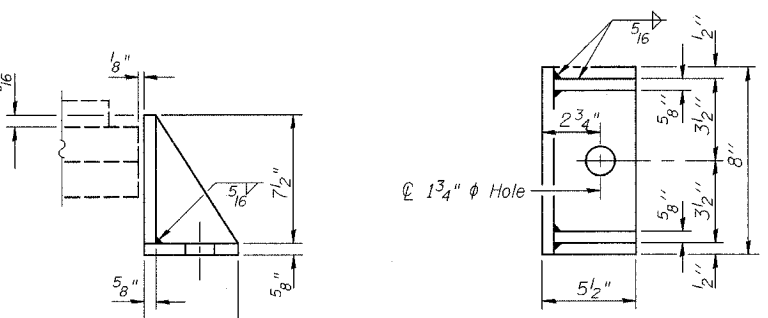
FIXED BEARING

TYPE I ELASTOMERIC EXP. BRG.



BEARING ASSEMBLY

Note: Shim plates shall not be placed under Bearing Assembly.

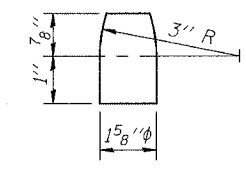


SIDE RETAINER

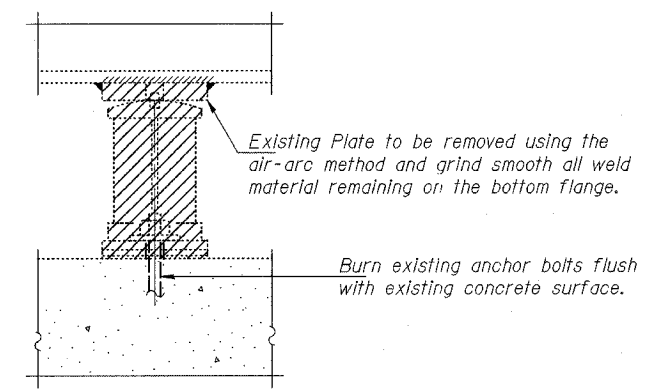
Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates. Weight included with Structural Steel.

NOTES

Anchor bolts at fixed bearings for new girders may be built into the masonry. See sheet 15 of 26 for Anchor Bolt Installation. 7/8 inch diameter holes in bottom flange for 3/4 inch diameter studs will be drilled in the field for existing girders. Cost included with Jacking and Cribbing. The structural steel bearing plates of the elastomeric bearing assembly shall conform to the requirements of AASHTO M270, Grade 50.



PINTLE



EXISTING BEARING REMOVAL DETAIL

Cost of existing bearing removal and disposal is included with Jacking and Cribbing. Total number to be removed = 18

JACKING AND CRIBBING PROCEDURE

- The Contractor shall submit for approval by the Engineer, plans for jacking and cribbing prior to commencing any work at the bearings. See Special Provision for Jacking and Cribbing. Dead Load = 11 k per girder at each abutment and 42 k per girder at pier. Use 15 ton min jack capacity at abutments and 45 ton min jack capacity at the pier.
- Jacking and Cribbing shall be done after the existing concrete deck is removed.
- The existing structural steel shall be raised according to the Special Provision for Jacking and Cribbing and to a height sufficient to form, pour and cure the concrete bearing seats, remove the existing bearings and install the new bearings.
- Once the new bearings are in place the existing steel can be lowered into place and connected to the bearings.
- After the existing and proposed girders are sitting on and connected to the new bearings and the proposed diaphragms are in place, forming for the new deck pour can begin.

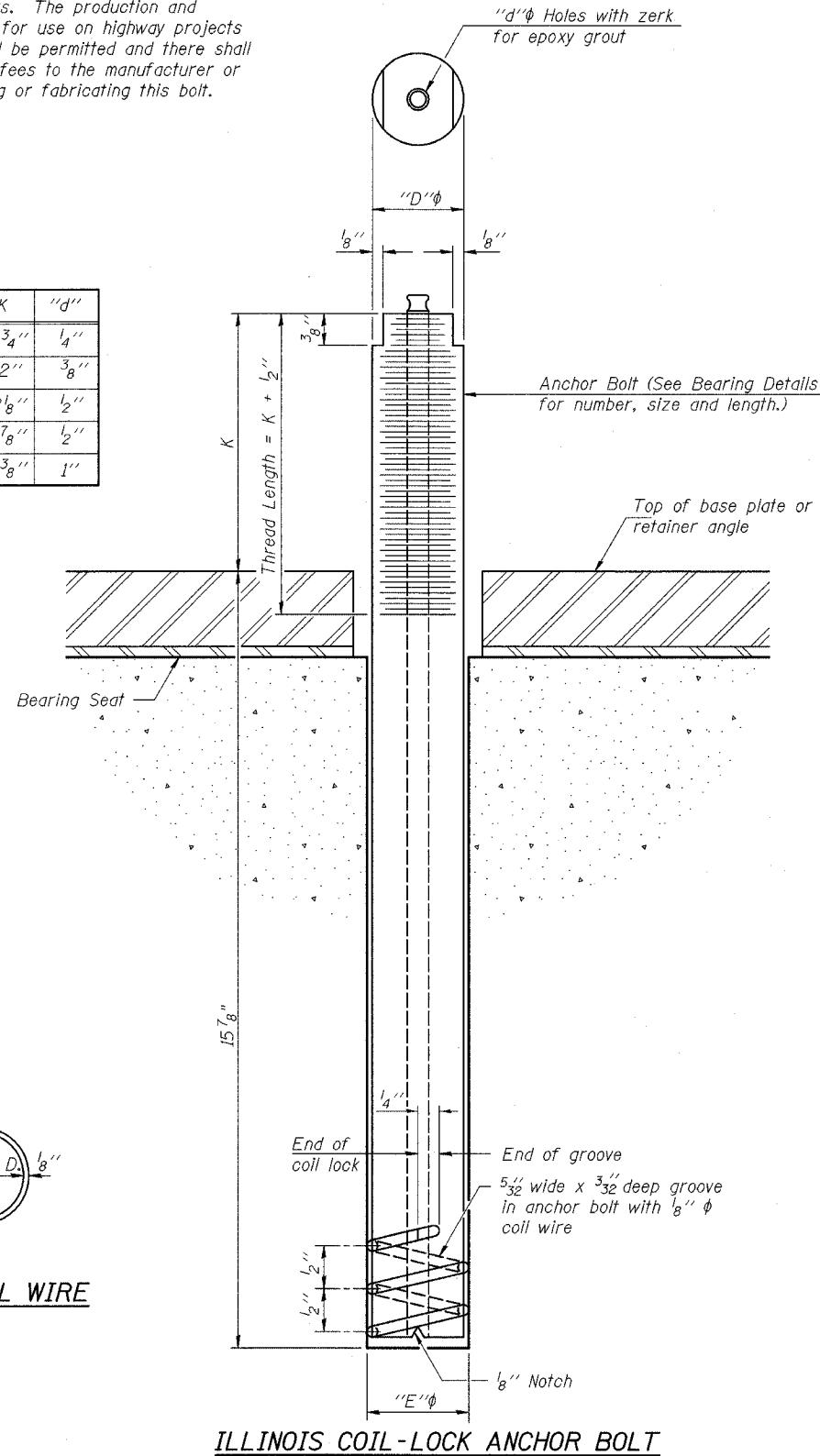
BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	20
Jacking and Cribbing	L. Sum	1

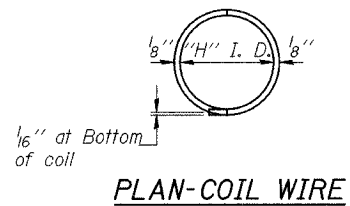
SHEET TITLE		PROJECT NO.
BEARING DETAILS		02017
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	SCALE
		DATE
		DRAWN BY TFC
		CHECKED BY KPS/CME/MCB
		DRAWING NO.
COOMBE-BLOXDORF P.C. Engineers/Land Surveyors Springfield, Illinois Design Firm License No. 184-002703		14 OF 26 SHTS

The Illinois Coil-Lock Anchor Bolt is a proprietary item which is the property of the Illinois Department of Transportation. Use, reproduction or disclosure without express written permission is prohibited and protected under Federal copyright laws. The production and the fabrication of this bolt for use on highway projects in the State of Illinois shall be permitted and there shall be no incurred charges or fees to the manufacturer or the fabricator for producing or fabricating this bolt.

D	E	H	K	"d"
1"	1 1/8"	1 3/16"	1 3/4"	1/4"
1 1/4"	1 3/8"	1 1/16"	2"	3/8"
1 1/2"	1 5/8"	1 5/16"	2 1/8"	1/2"
2"	2 1/8"	1 3/16"	2 7/8"	1/2"
2 1/2"	2 5/8"	2 5/16"	3 3/8"	1"



**ILLINOIS COIL-LOCK ANCHOR BOLT**



**PLAN-COIL WIRE**

**MATERIALS FOR ILLINOIS COIL-LOCK ANCHOR BOLT**

The anchor bolt shall be fabricated from cold drawn or hot finished seamless carbon steel mechanical tubing conforming to ASTM A 519, Grade 1026, CW and supplied with hexagonal nuts and cut washers.  
 The coil wire shall be made of any suitable soft steel wire.  
 The finished anchor bolt shall be cleaned of rust and other foreign materials and wrapped or packaged to prevent contamination until they are installed.  
 The epoxy grout shall be a two-component, epoxy resin bonding system conforming to ASTM C 881, Type I, Grade 1 and of a Class suitable for the temperature at installation.

**INSTALLATION PROCEDURE for the ILLINOIS COIL-LOCK ANCHOR BOLT**

1. With the coil wire in place, the bolt shall be inserted into the hole and turned clockwise to a snug fit in the hole. Nut and washer shall be placed on the bolt. The nut shall be tensioned until the steel base plates are held securely to the concrete bearing seat.
2. Epoxy grout shall be pumped through the zerk fitting with a pressure gun. Pumping shall continue until the epoxy overflows the hole around the bolt shank. After pumping is discontinued, excess epoxy shall be immediately wiped off.

**ALTERNATE ANCHOR BOLTS**

The Contractor may use, at his option, the capsule or the adhesive cartridge type anchor rods that have been previously tested and given a prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes according to the manufacturer's recommendations and procedures.  
 The capsule or the adhesive cartridge type anchor rods shall be a two part system composed of:  
 1. A threaded rod stud with nut and washer of the type specified.  
 2. A sealed glass capsule or a sealed glass adhesive cartridge containing premeasured amounts of the adhesive chemical.

Location	Type
W. Abut.	A307
Pier	A325
E. Abut.	A307

ASTM F 1554 Grade 105, ASTM A 449 and AASHTO M 314 Grade 105 anchor bolts may be substituted for the anchor bolts shown above.

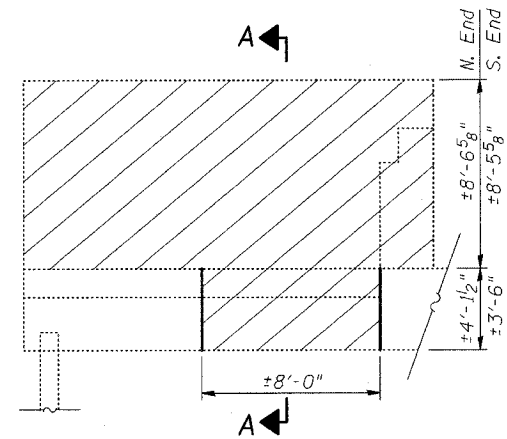
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 15
F.A.P. RTE. 774	107BY-1	EFFINGHAM	273	215	26 SHEETS
FED. ROAD DIST. NO. 7 ILLINOIS FED. AID. PROJECT-					

**CONTRACT NO. 94827**

**GENERAL NOTES**

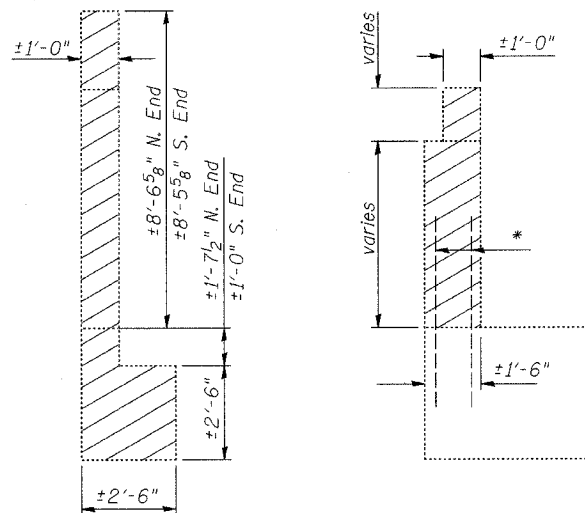
Holes in the masonry for anchor bolts shall be drilled through the base plates to the diameter and depth shown or according to the manufacturer's recommendation after beams or girders have been erected and adjusted.  
 Prior to setting the bolts, the holes shall be dry and all dust and loose particles shall be removed by the use of compressed air or vacuuming.  
 The anchor bolts, furnished and installed and including the epoxy grout or capsules shall not be paid for separately but shall be included in the unit bid price for Furnishing and Erecting Structural Steel.

SHEET TITLE		
ANCHOR BOLT DETAILS FOR BEARINGS		
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	PROJECT NO. 02017 SCALE DATE DRAWN BY TFG CHECKED BY KPS/CME/MCB DRAWING NO.
<b>COOMBE-BLOXDORF P.C.</b> Engineers/Land Surveyors Springfield, Illinois Design Firm License No. 184-002703		15 OF 26 SHTS



**WING WALL ELEVATION**

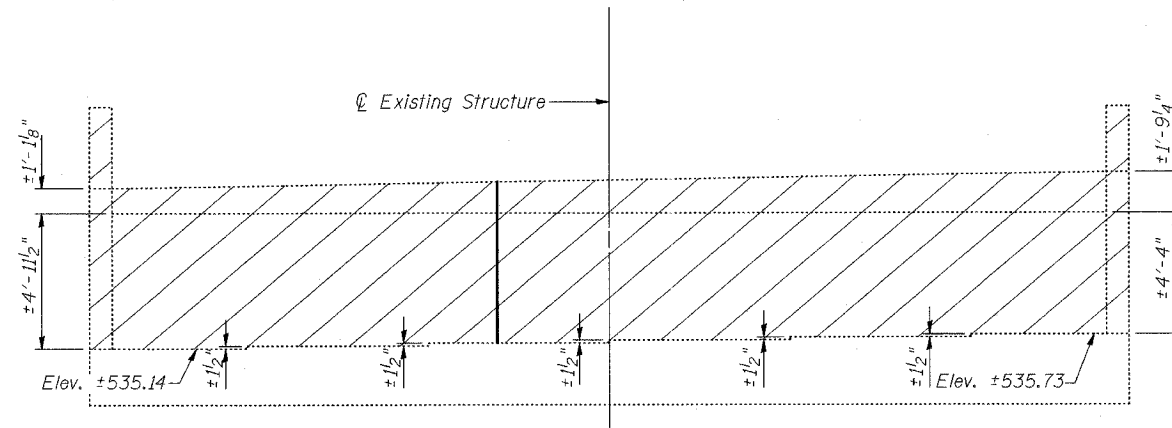
Southwest Wing Wall shown  
Northwest Wing Wall Similar.



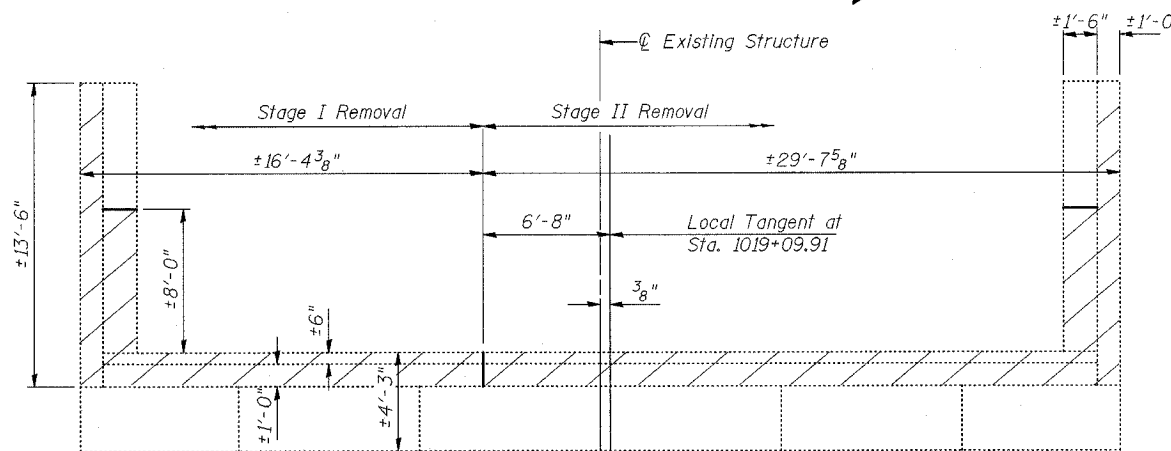
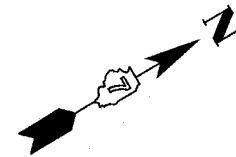
**SEC. A-A**

**SEC. THRU ABUT.**

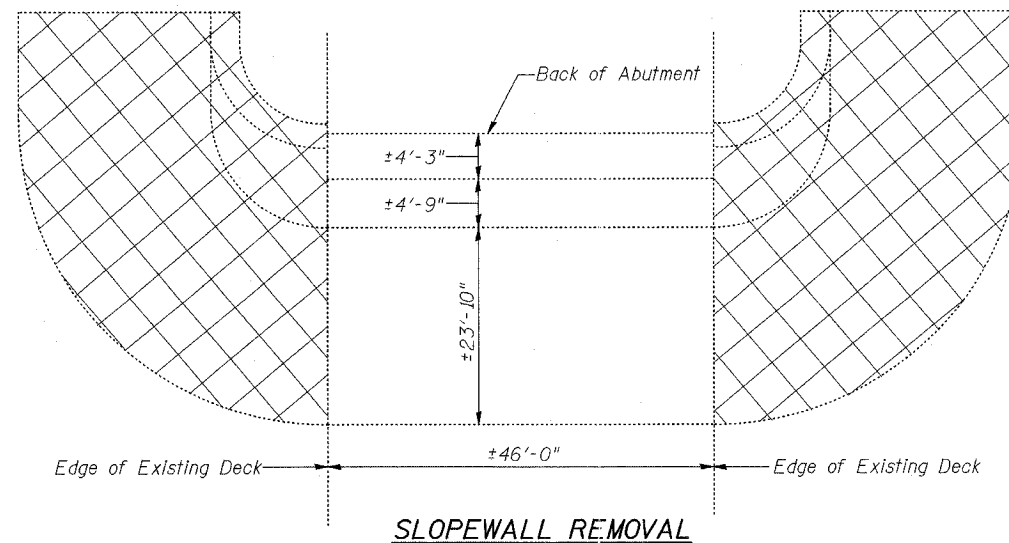
\* Existing v bars in abutment backwall shall be cut to fit proposed construction.



**ELEVATION**  
(Looking West)



**PLAN**



**SLOPEWALL REMOVAL**

**NOTES**

Hatched areas indicate Concrete Removal.  
Existing reinforcement not extending into areas of new construction shall be cut at the removal line and removed. Exposed portion will be covered with a layer of epoxy. Cost included with Concrete Removal.  
Existing reinforcement extending into the removal area construction area to be cleaned, straightened and incorporated into the new construction. All reinforcement bars that are damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system. Cost included with Concrete Removal.  
Cross hatched areas indicate Slopewall Removal. Existing slopewall is 6" thick.

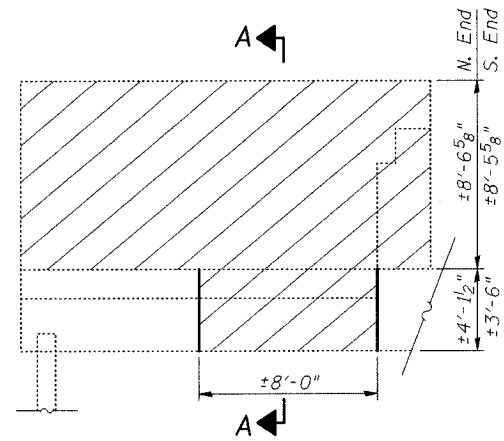
**BILL OF MATERIAL**

Item	Unit	Quantity
Concrete Removal	Cu. Yd.	28.2
Slopewall Removal	Sq. Yd.	428

SHEET TITLE <b>WEST ABUTMENT CONCRETE REMOVAL</b>		
PROJECT IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	PROJECT NO. 02017	SCALE DATE
COOMBE-BLOXDORF P.C. Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703	DRAWN BY TFG	CHECKED BY KPS/CME/MCB
	DRAWING NO.	16
		OF 26 SHEETS

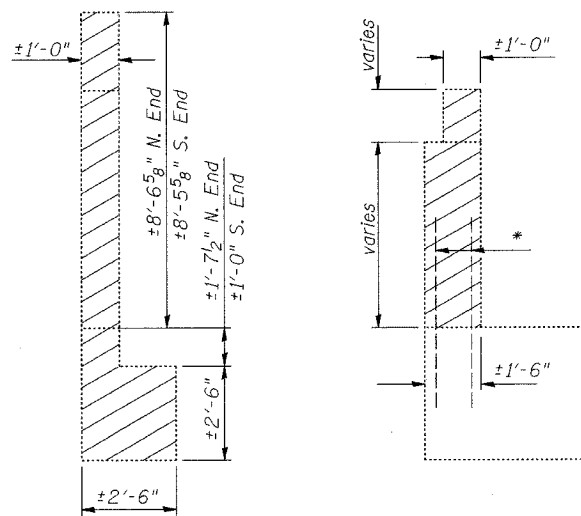


CONTRACT NO. 94827



**WING WALL ELEVATION**

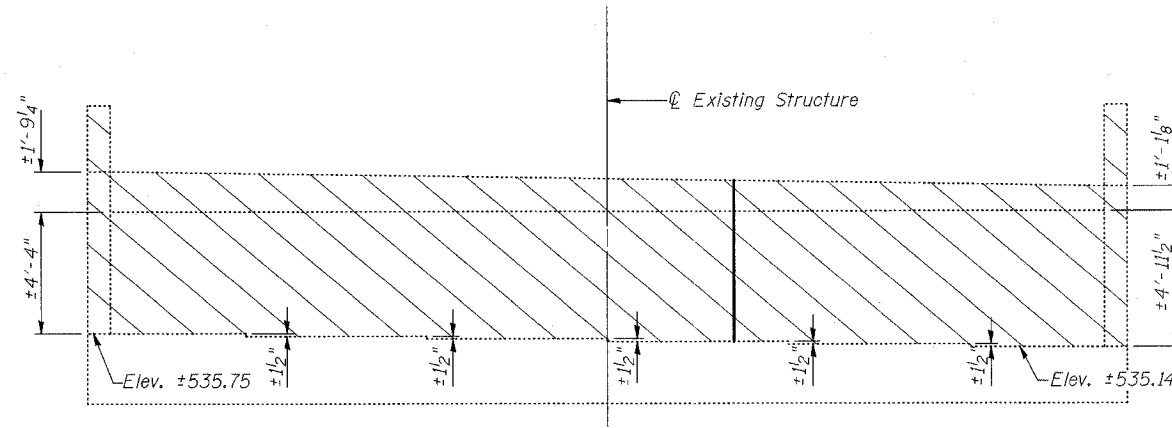
Southwest Wing Wall shown  
Northwest Wing Wall Similar.



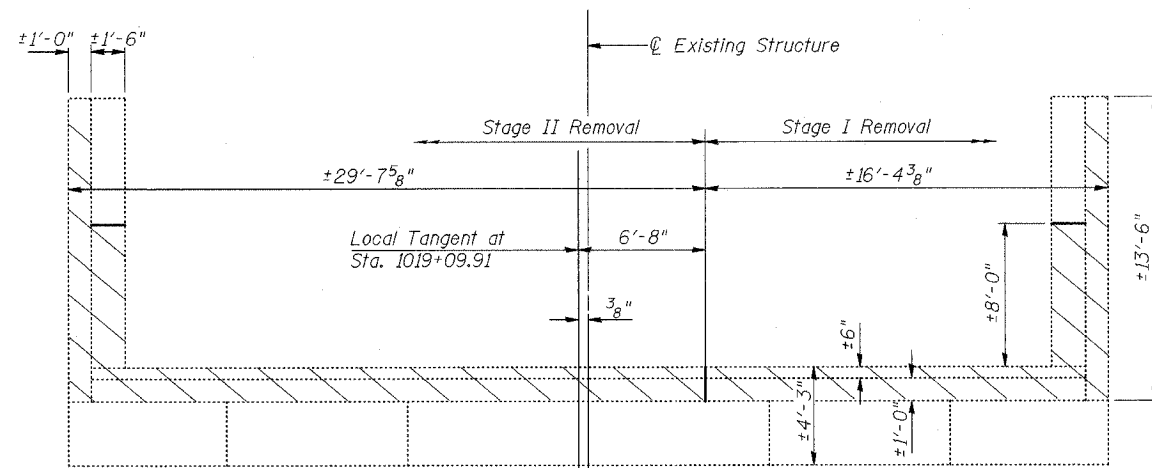
**SEC. A-A**

**SEC. THRU ABUT.**

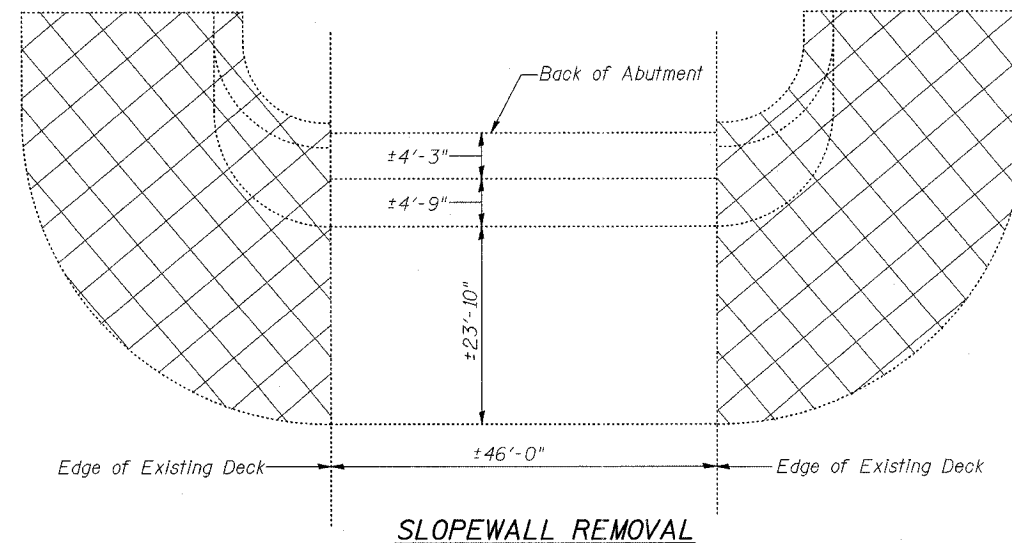
\* Existing v bars in abutment backwall shall be cut to fit proposed construction.



**ELEVATION**  
(Looking East)



**PLAN**



**SLOPEWALL REMOVAL**

**NOTES**

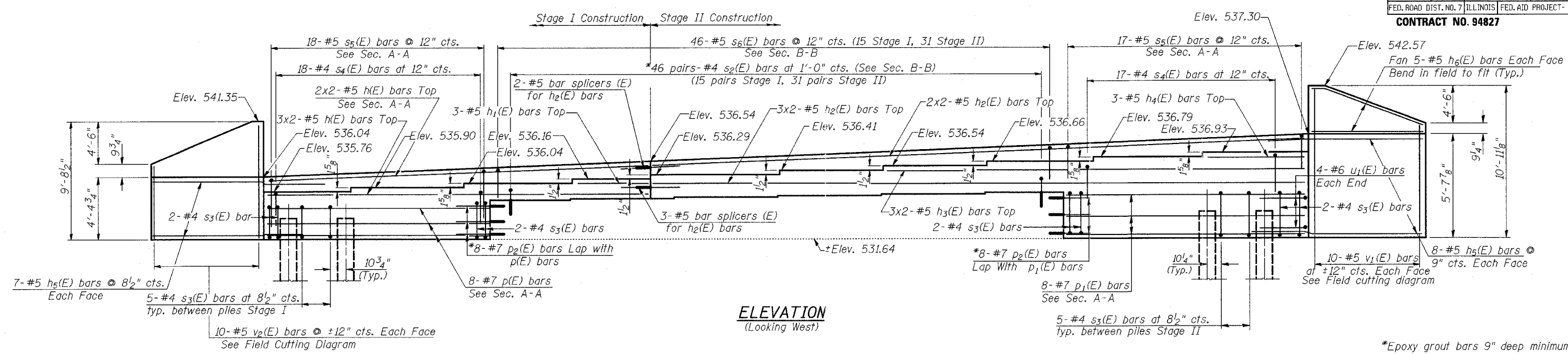
Hatched areas indicate Concrete Removal.  
Existing reinforcement not extending into areas of new construction shall be cut at the removal line and removed. Exposed portion will be covered with a layer of epoxy. Cost included with Concrete Removal.  
Existing reinforcement extending into the removal area construction area to be cleaned, straightened and incorporated into the new construction. All reinforcement bars that are damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system. Cost included with Concrete Removal.  
Cross hatched areas indicate Slopewall Removal. Existing slopewall is 6" thick.

**BILL OF MATERIAL**

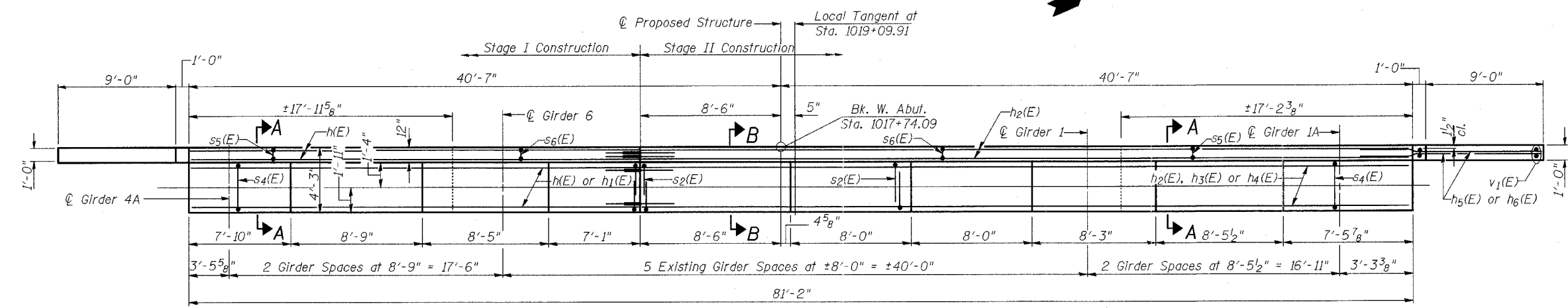
Item	Unit	Quantity
Concrete Removal	Cu. Yd.	28.2
Slopewall Removal	Sq. Yd.	428

SHEET TITLE <b>EAST ABUTMENT CONCRETE REMOVAL</b>		
PROJECT IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	PROJECT NO. 02017 SCALE DATE DRAWN BY TFG CHECKED BY KPS/CME/MCB DRAWING NO.	
<b>COOMBE-BLOXDORF P.C.</b> Engineers/Land Surveyors Springfield, Illinois Design Firm License No. 184-002703		17 OF 26 SHTS

CONTRACT NO. 94827

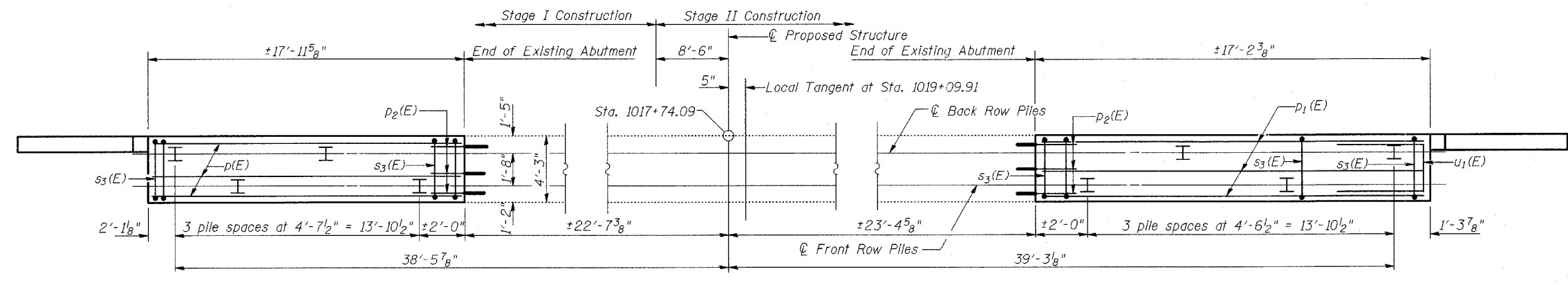


\*Epoxy grout bars 9" deep minimum drilled holes according to Section 584 of the Standard Specifications. The grout and method of application shall be approved by the Engineer. Space p<sub>2</sub>(E) bars to miss existing reinforcement.



**PILE DATA**  
Type : HP10 x 57  
Capacity : Driven to Refusal  
Length : 24'  
No Req'd. : 7 + 1 test pile

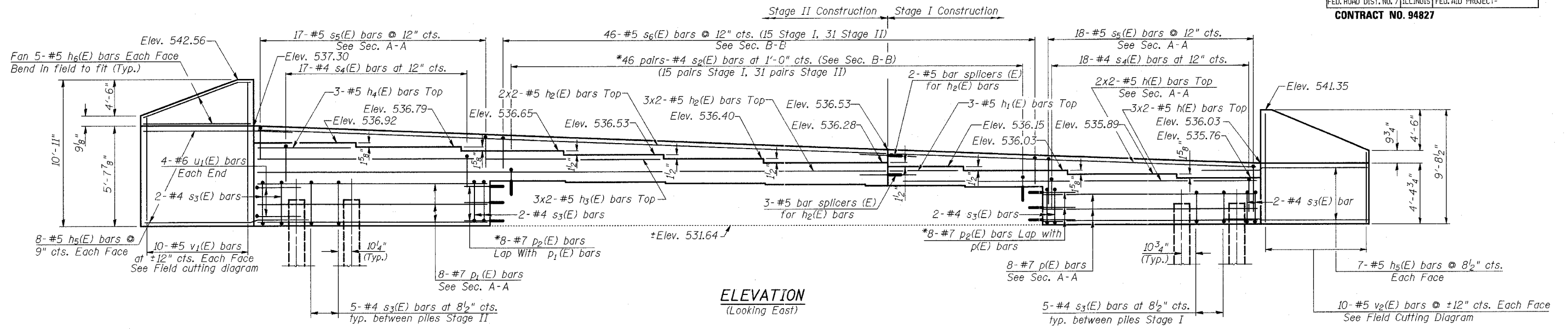
**Min. Bar Lap**  
#5 bars = 1'-8"



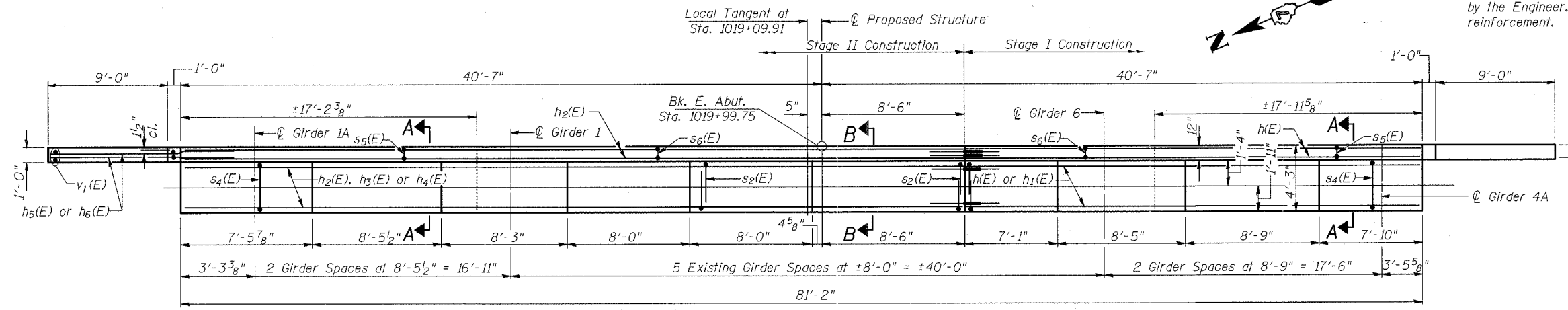
Work this sheet with sheet 20 of 26.

SHEET TITLE		
WEST ABUTMENT		
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	PROJECT NO. 02017
CHECKED BY	KPS/CME/MCB	SCALE
DRAWN BY	TFG	DATE
DESIGNED BY		
COOMBE-BLOXDORF P.C. Engineers/Land Surveyors Springfield, Illinois		18
Design Firm License No. 184-002703		OF 26 SHTS

CONTRACT NO. 94827



\*Epoxy grout bars 9" deep minimum drilled holes according to Section 584 of the Standard Specifications. The grout and method of application shall be approved by the Engineer. Space p<sub>2</sub>(E) bars to miss existing reinforcement.



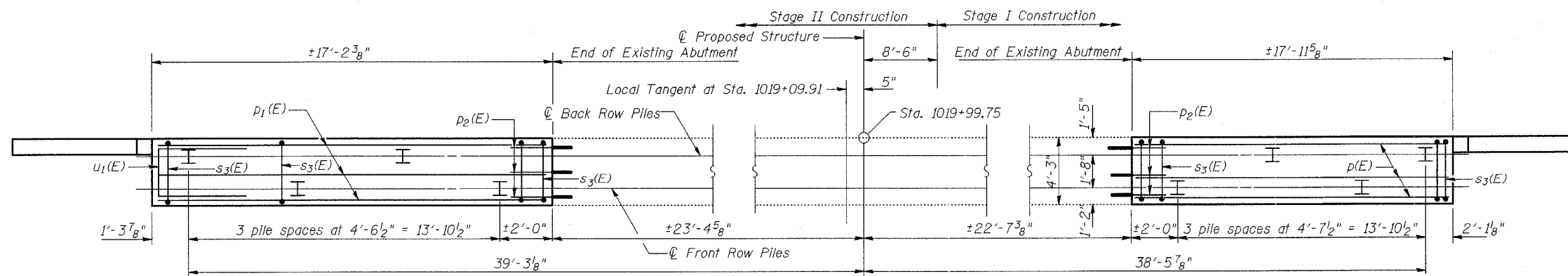
**PILE DATA**

Type : HPI0 x 57  
 Capacity : Driven to Refusal  
 Length : 18'  
 No Req'd. : 7 + 1 test pile

**Min. Bar Lap**

#5 bars = 1'-8"

Work this sheet with sheet 20 of 26.



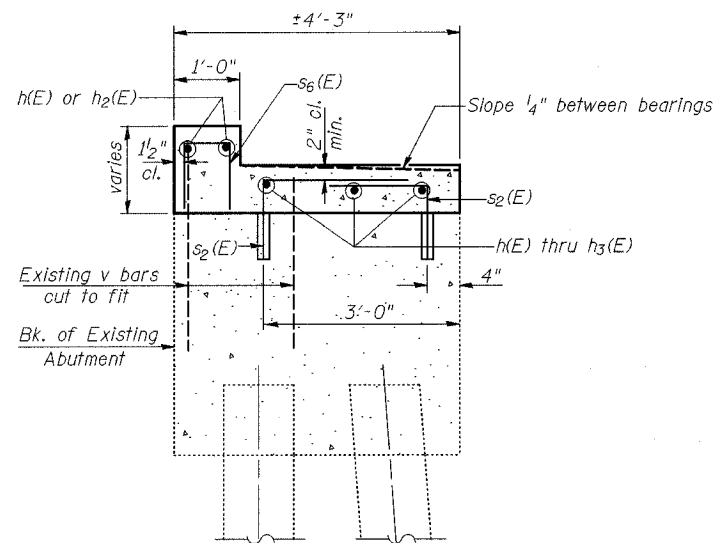
SHEET TITLE		EAST ABUTMENT	
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	PROJECT NO.	02017
SCALE		DATE	
DRAWN BY	TFG	CHECKED BY	KPS/CME/MCB
DRAWING NO.			
<b>COOMBE-BLOXDORF P.C.</b> Engineers/Land Surveyors Springfield, Illinois Design Firm License No. 184-002703		19	OF 26 SHTS

CONTRACT NO. 94827

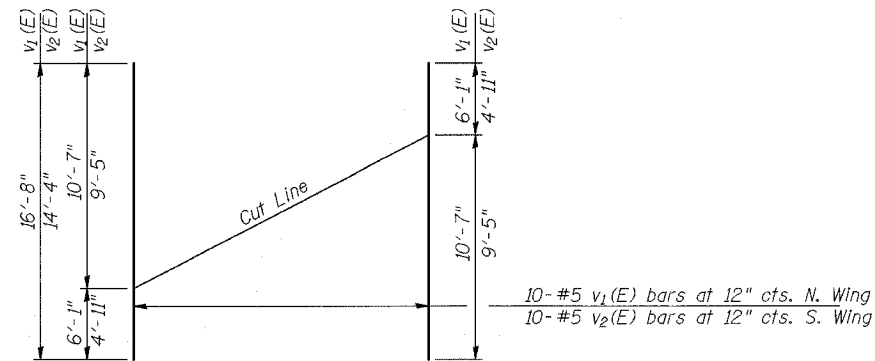
**BILL OF MATERIAL 2-ABUTS.**

Bar	No.	Size	Length	Shape
h(E)	20	#5	16'-9"	—
h <sub>1</sub> (E)	6	#5	6'-9"	—
h <sub>2</sub> (E)	20	#5	25'-3"	—
h <sub>3</sub> (E)	12	#5	16'-9"	—
h <sub>4</sub> (E)	6	#5	7'-1"	—
h <sub>5</sub> (E)	60	#5	12'-2"	—
h <sub>6</sub> (E)	40	#5	9'-8"	—
p(E)	16	#7	17'-7"	—
p <sub>1</sub> (E)	16	#7	16'-10"	—
p <sub>2</sub> (E)	32	#7	5'-9"	—
s <sub>2</sub> (E)	184	#4	3'-9"	□
s <sub>3</sub> (E)	76	#4	14'-11"	□
s <sub>4</sub> (E)	70	#4	5'-5"	□
s <sub>5</sub> (E)	70	#5	6'-1"	□
s <sub>6</sub> (E)	92	#5	2'-3"	□
u <sub>1</sub> (E)	16	#6	9'-0"	□
v <sub>1</sub> (E)	20	#5	16'-8"	—
v <sub>2</sub> (E)	20	#5	14'-4"	—
* Structure Excavation				Cu. Yd. 310
Concrete Structures				Cu. Yd. 79.9
Reinforcement Bars Epoxy Coated				Lbs. 6830
Furnishing Steel Piles HP10x57				Ft. 294
Driving Steel Piles				Ft. 294
Test Piles Steel HP10x57				Each 2
Bar Splacers				Each 10

Reinforcement bars designated (E) shall be epoxy coated.  
\*Structure Excavation = 155 Cu. Yd. per Abutment.

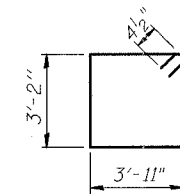


**SECTION B-B**

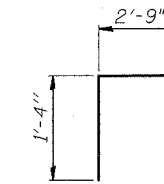


**FIELD CUTTING DIAGRAM**

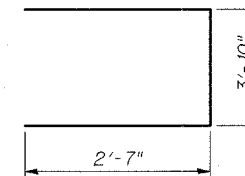
Order v<sub>1</sub>(E) and v<sub>2</sub>(E) bars full length.  
Cut as shown and use remainder of bars in opposite face.



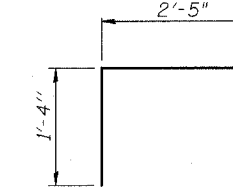
**BAR s<sub>3</sub>(E)**



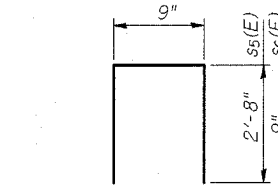
**BAR s<sub>4</sub>(E)**



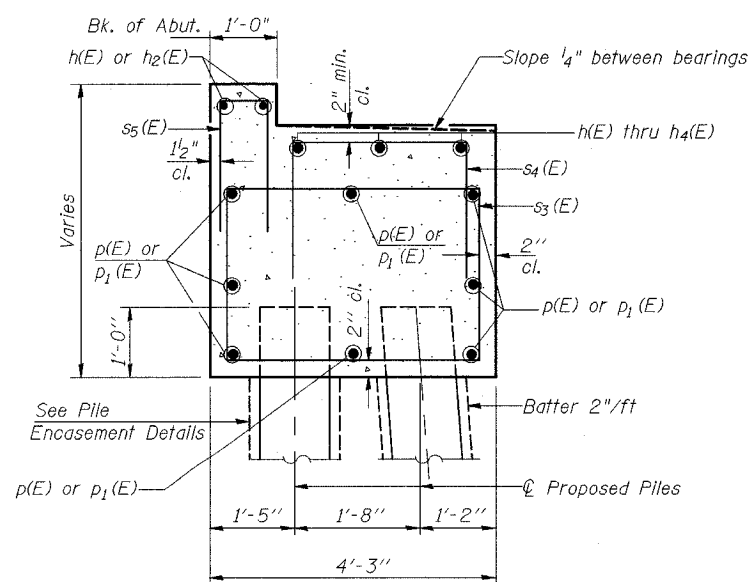
**BAR u<sub>1</sub>(E)**



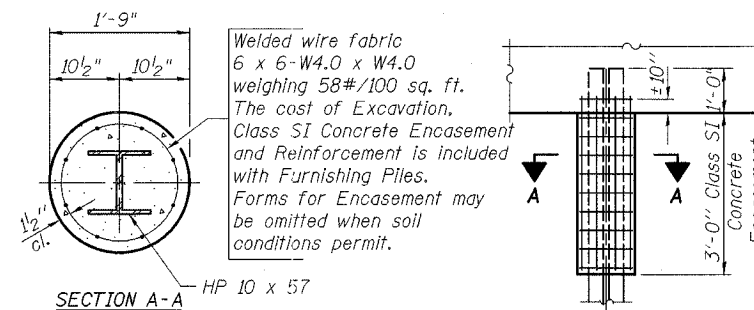
**BAR s<sub>2</sub>(E)**



**BARS s<sub>5</sub>(E) & s<sub>6</sub>(E)**



**SECTION A-A**



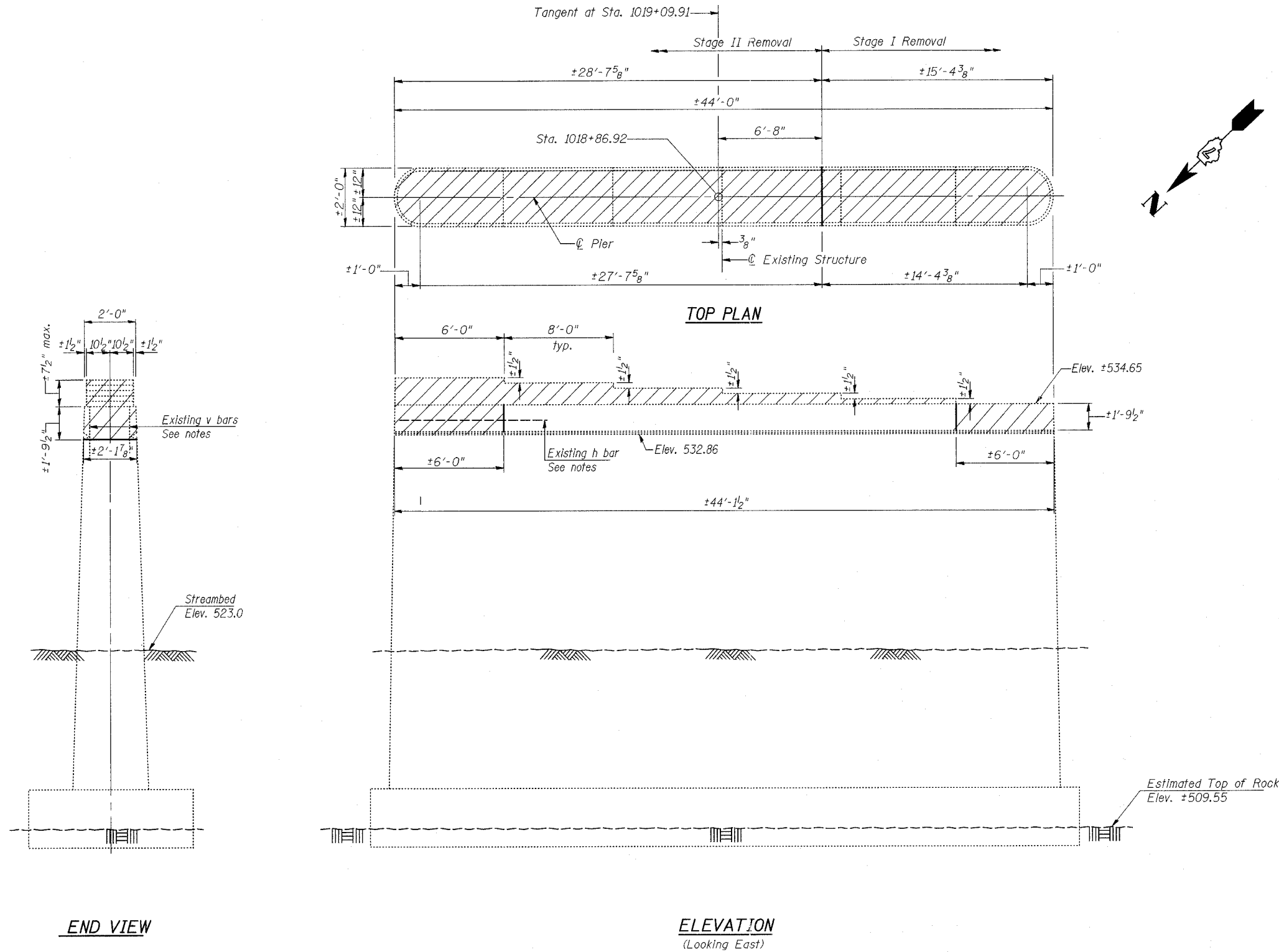
**PILE ENCASEMENT DETAIL**

west-abut-details

Work this sheet with sheets 18 & 19 of 26.

SHEET TITLE		PROJECT NO.	
<b>ABUTMENT DETAILS</b>		02017	
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	SCALE	DATE
<b>COOMBE-BLOXDORF P.C.</b> Engineers/Land Surveyors Springfield, Illinois Design Firm License No. 184-002703		DRAWN BY	TFG
		CHECKED BY	KPS/CME/MCB
		DRAWING NO.	20
		OF 26 SHTS	

CONTRACT NO. 94827



**NOTES**

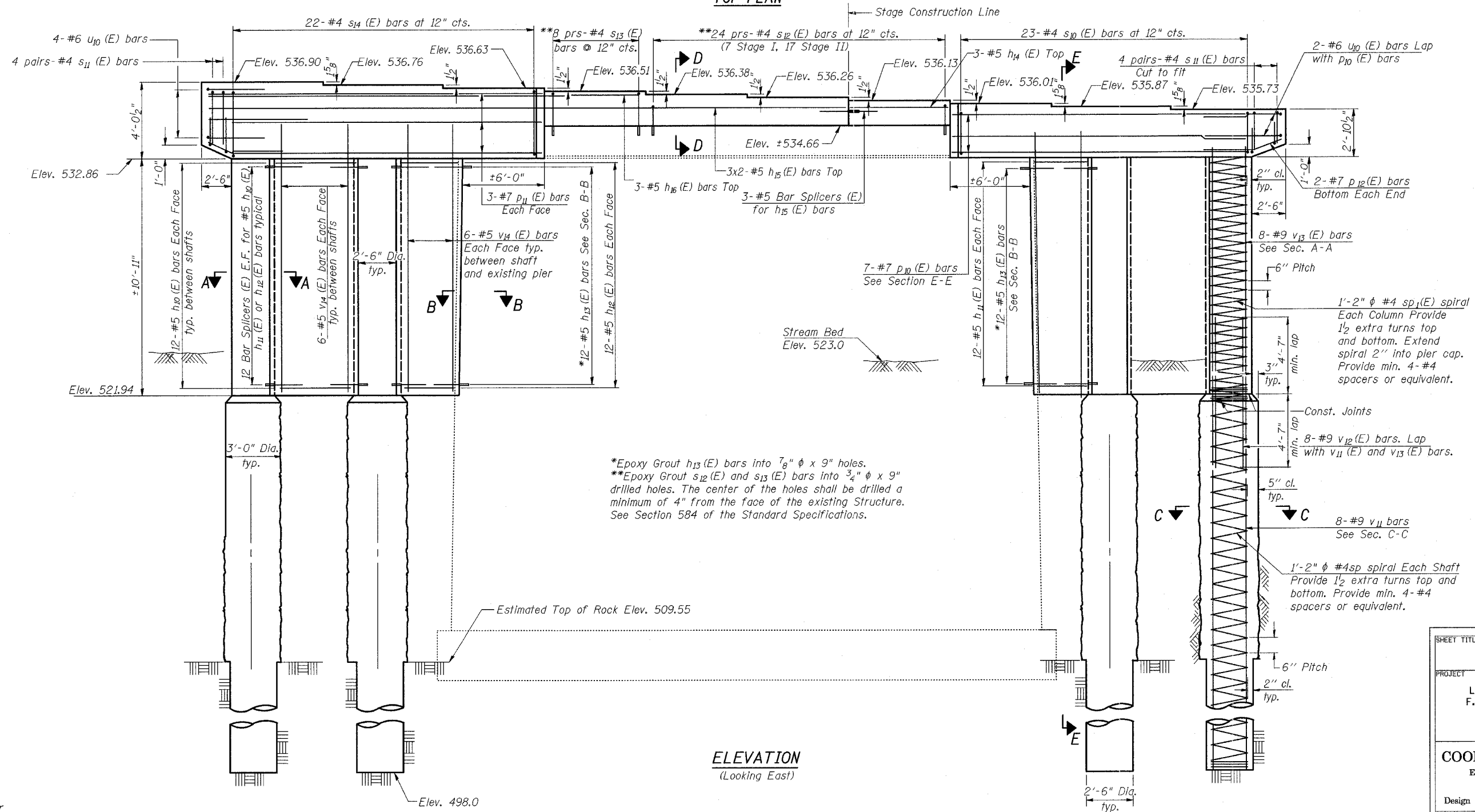
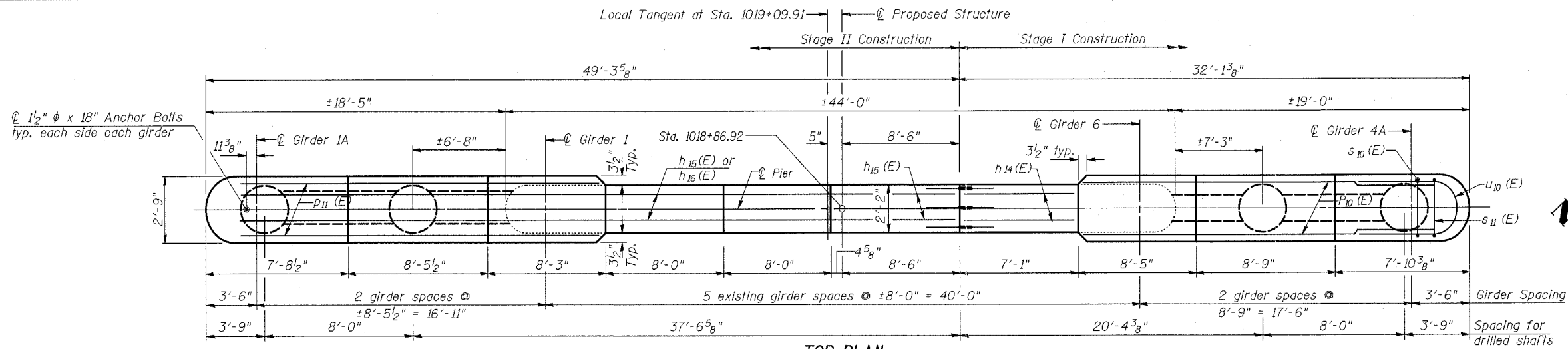
Hatched areas indicate Concrete Removal. Existing v and h bars extending into the new construction shall be cleaned, straightened and incorporated into the new construction. Cost included with Concrete Removal.

**BILL OF MATERIAL**

Item	Unit	Quantity
Concrete Removal	Cu. Yd.	2.5

SHEET TITLE <b>PIER CONCRETE REMOVAL</b>	
PROJECT IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	PROJECT NO. 02017 SCALE DATE DRAWN BY TFC CHECKED BY KPS/CME/MCB DRAWING NO.
<b>COOMBE-BLOXDORF P.C.</b> Engineers /Land Surveyors Springfield, Illinois Design Firm License No. 184-002703	21 OF 26 SHTS

CONTRACT NO. 94827



\*Epoxy Grout h<sub>13</sub>(E) bars into 7/8" φ x 9" holes.  
 \*\*Epoxy Grout s<sub>12</sub>(E) and s<sub>13</sub>(E) bars into 3/4" φ x 9" drilled holes. The center of the holes shall be drilled a minimum of 4" from the face of the existing Structure. See Section 584 of the Standard Specifications.

**Min. Bar Lap**

#5 bar = 1'-8" web wall  
 #5 bar = 3'-0" cap  
 #7 bar = 4'-10"

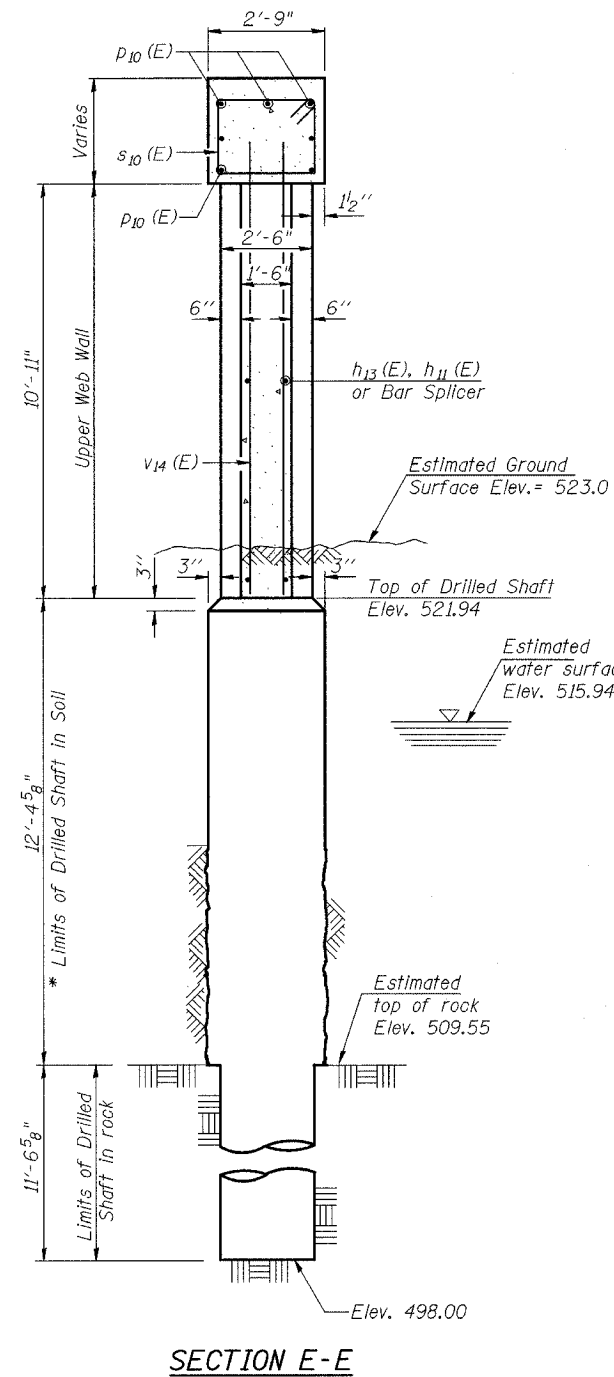
**NOTES**

Space reinforcement in cap to miss anchor bolts.  
 Pour steps monolithically with cap.

Work this Sheet with Sheet 23 of 26.

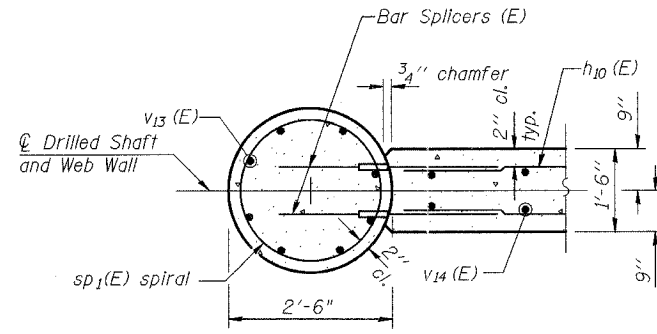
SHEET TITLE		PIER	
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	PROJECT NO.	02017
SCALE		DATE	
DRAWN BY	TFG	CHECKED BY	KPS/CME/MCB
ENGINEERING NO.			
<b>COOMBE-BLOXDORF P.C.</b> Engineers/Land Surveyors Springfield, Illinois Design Firm License No. 184-002708		22	OF 26 SHTS

**ELEVATION**  
(Looking East)

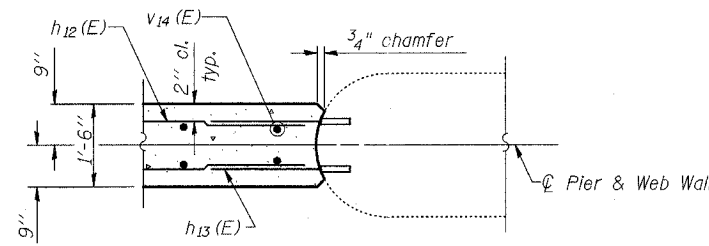


SECTION E-E

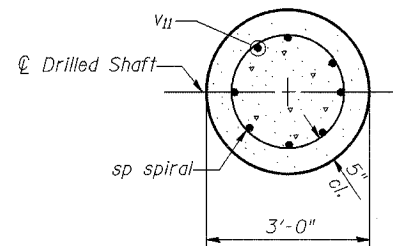
\* If the prevailing water surface elevation during construction is consistently different than estimated on the plans, the contractor may propose an adjustment to the top of the drilled shaft elevation as part of their installation procedure. The top of all drilled shafts within a substructure unit shall be constructed to the same elevation and extend above the prevailing water surface. The quantities and reinforcement detailing are based on the top of shaft and the estimated elevations shown and may change based on the actual elevations encountered at each shaft and the final top of shaft elevation.



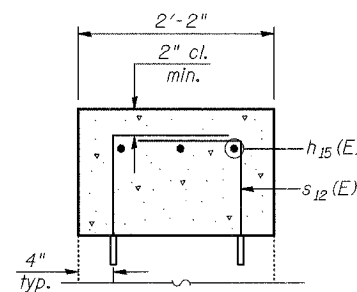
SECTION A-A



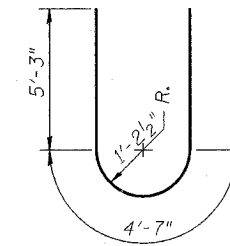
SECTION B-B



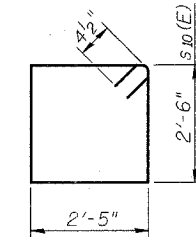
SECTION C-C



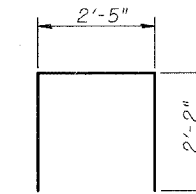
SECTION D-D



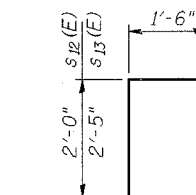
BAR U10(E)



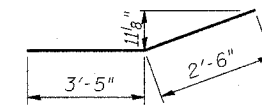
BAR S10(E) & S14(E)



BAR S11(E)



BARS S12(E) & S13(E)



BAR P12(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h10(E)	48	#5	4'-11"	—
h11(E)	24	#5	5'-3"	—
h12(E)	24	#5	4'-7"	—
h13(E)	48	#5	3'-7"	—
h14(E)	3	#5	6'-9"	—
h15(E)	6	#5	24'-7"	—
h16(E)	3	#5	29'-10"	—
P10(E)	7	#7	22'-6"	—
P11(E)	6	#7	21'-10"	—
P12(E)	4	#7	5'-11"	—
S10(E)	23	#4	10'-7"	□
S11(E)	16	#4	6'-9"	□
S12(E)	48	#4	3'-6"	□
S13(E)	16	#4	3'-11"	□
S14(E)	22	#4	12'-3"	□
** SP	4	#4	23'-9"	~
** SP1(E)	4	#4	11'-2"	~
U10(E)	6	#6	15'-1"	U
V11	32	#9	23'-9"	—
V12(E)	32	#9	9'-2"	—
V13(E)	32	#9	13'-6"	—
V14(E)	48	#5	13'-4"	—
Drilled Shaft in Soil	36"	Foot	50	
Drilled Shaft in Rock	30"	Foot	47	
Concrete Structures		Cu. Yd.	41.2	
Reinforcement Bars, Epoxy Coated		Pound	5820	
Reinforcement Bars		Pound	3440	
Bar Splacers		Each	147	

NOTES

Reinforcement Bars designated (E) shall be epoxy coated. Cast steps monolithically with cap. Space cap reinforcement to miss anchor bolts. Minimum lap for spirals = 1 1/2 turns. \*\*Length is height of spiral. Bars indicated thus 3x2-#7 etc. indicates 3 lines of bars with 2 lengths per line.

Work this sheet with sheet 22 of 26.

SHEET TITLE		PROJECT NO.	
PIER DETAILS		02017	
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	SCALE	DATE
		DRAWN BY	TFG
		CHECKED BY	KPS/CME/MCB
		DRAWING NO.	
<b>COOMBE-BLOXDORF P.C.</b> Engineers/Land Surveyors Springfield, Illinois Design Firm License No. 184-002708		23	OF 26 SHTS

CONTRACT NO. 94827

**NOTES**

Bar splicer assemblies shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars.  
 Splicer rods shall be of minimum 60 ksi yield strength, threaded or coiled full length.  
 All reinforcement bars shall be lapped and tied to the splicer rods or dowel bars.  
 Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars.  
 Other systems of similar design may be submitted to the Engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that the proposed bar splicer assembly satisfies the following requirements:

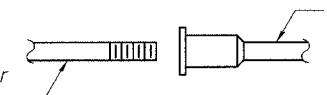
- ① Minimum Capacity (Tension in kips) =  $1.25 \times f_y \times A_t$
- ② Minimum \*Pull-out Strength (Tension in kips) =  $1.25 \times f_{s_{allow}} \times A_t$

Where  $f_y$  = Yield strength of lapped reinforcement bars in ksi.  
 $f_{s_{allow}}$  = Allowable tensile stress in lapped reinforcement bars in ksi (Service Load)  
 $A_t$  = Tensile stress area of lapped reinforcement bars.  
 \* = 28 day concrete

BAR SPLICER ASSEMBLIES			
Bar Size to be Spliced	Splicer Rod or Dowel Bar Length	Strength Requirements	
		Min. Capacity kips - tension	Min. Pull-Out Strength kips - tension
#4	1'-8"	14.7	5.9
#5	2'-0"	23.0	9.2
#6	2'-7"	33.1	13.3
#7	3'-5"	45.1	18.0
#8	4'-6"	58.9	23.6
#9	5'-9"	75.0	30.0
#10	7'-3"	95.0	38.0
#11	9'-0"	117.4	46.8

Bar splicer assemblies shall be according to Section 508 of the Standard Specifications, except as noted. The furnishing and installation of bar splicer assemblies will be measured and paid for at the contract unit price each for "BAR SPLICERS."

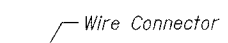
The diameter of this part is the same as the diameter of the bar spliced.



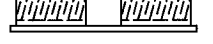
ROLLED THREAD DOWEL BAR



\*\* ONE PIECE



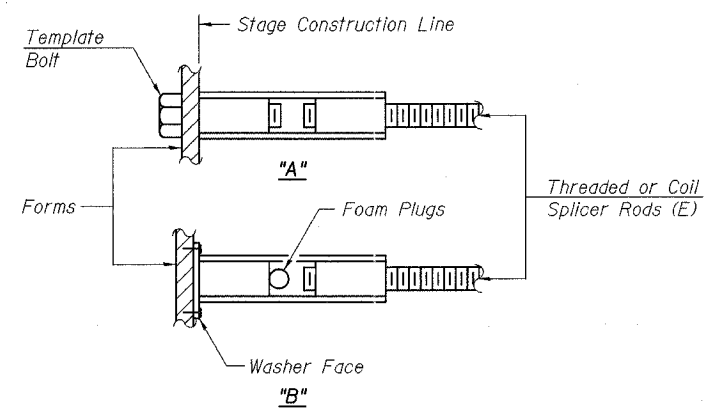
WIRE CONNECTOR



WELDED SECTIONS

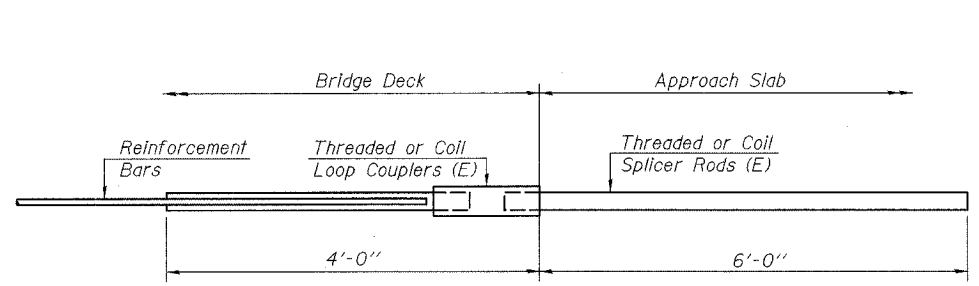
**BAR SPLICER ASSEMBLY ALTERNATIVES**

\*\* Heavy Hex Nuts conforming to ASTM A 563, Grade C, D or DH may be used.



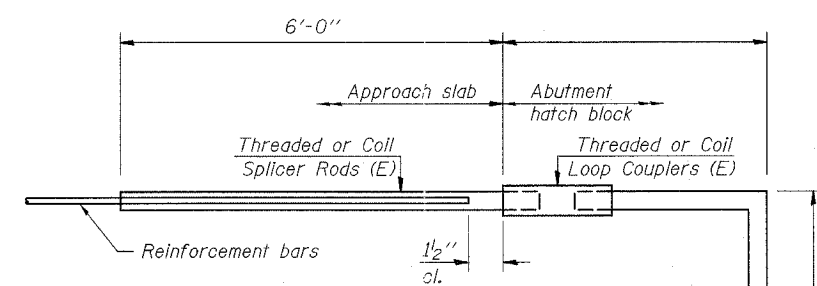
**INSTALLATION AND SETTING METHODS**

"A" : Set bar splicer assembly by means of a template bolt.  
 "B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.  
 (E) : Indicates epoxy coating.



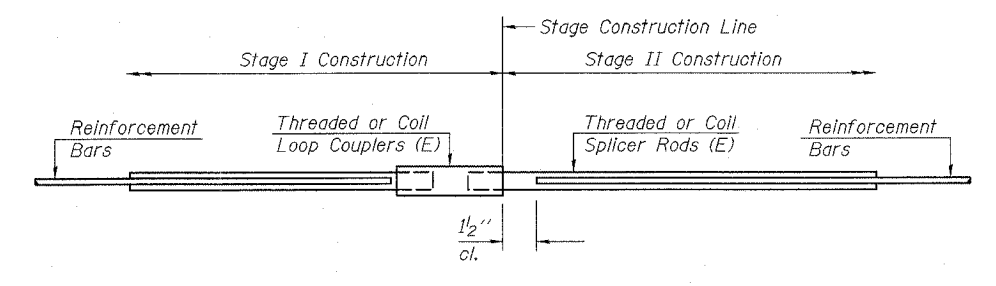
**FOR INTEGRAL OR SEMI-INTEGRAL ABUTMENTS**

Bar Splicer for #5 bar
Min. Capacity = 23.0 kips - tension
Min. Pull-out Strength = 9.2 kips - tension
No. Required = 156



**FOR PILE BENT ABUTMENTS**

Bar Splicer for #5 bar
Min. Capacity = 23.0 kips - tension
Min. Pull-out Strength = 9.2 kips - tension
No. Required =



**STANDARD**

Bar Size	No. Assemblies Required	Location
#5	923	Deck
#6	24	Diaphragms
#5	5	W. Abut.
#5	5	E. Abut.
#5	147	Pier

SHEET TITLE <b>BAR SPLICER ASSEMBLY DETAILS</b>		
PROJECT IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	PROJECT NO. 02017	SCALE DATE DRAWN BY TFG CHECKED BY KPS/CME/MCB DRAWING NO.
<b>COOMBE-BLOXDORF P.C.</b> Engineers/Land Surveyors Springfield, Illinois Design Firm License No. 184-002703		24 OF 26 SHTS



**Boring #1 (2002)**



**SOIL BORING LOG**

Page 1 of 3  
Date 6/18/02

ROUTE FAP 774 (IL 33) DESCRIPTION Little Wabash River Overflow LOGGED BY E. Sandschafer  
SECTION 107WRS-1 LOCATION NW 1/4, SEC. 18, TWP. 8 N, RNG. 6 E, 3 PM  
COUNTY Effingham DRILLING METHOD Hollow stem auger & soil spoon HAMMER TYPE Automatic

STRUCT. NO.	STATION	DEPTH (ft)	DIAMETER (in)	SOIL DESCRIPTION	REMARKS
025-0077	1018+84.5				
1 of 1 (Pier #1)	1018+95				
35.00 ft					
526.45					
524.45		2		Very stiff, damp, brown, CLAY w/ sand and few pebbles.	
521.85		4		Very soft, very damp, brown w/ gray layers, SANDY LOAM.	
516.45		10		Very soft, wet, gray, SILTY LOAM.	
514.45		12		Very loose, very wet, dark gray, fine, SAND. 25% passing #200 sieve.	
		18		33% passing #200 sieve.	
509.95		16		Very dense, very moist, gray, SANDSTONE.	
509.55				Borehole continued with rock coring.	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)  
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, from 137 (Rev. 8-89)



**ROCK CORE LOG**

Page 2 of 3  
Date 6/18/02

ROUTE FAP 774 (IL 33) DESCRIPTION Little Wabash River Overflow LOGGED BY E. Sandschafer  
SECTION 107WRS-1 LOCATION NW 1/4, SEC. 18, TWP. 8 N, RNG. 6 E, 3 PM  
COUNTY Effingham CORING METHOD Rotary, Surface set diamond bit

STRUCT. NO.	STATION	DEPTH (ft)	DIAMETER (in)	ROCK DESCRIPTION	REMARKS
025-0077	1018+84.5				
1 of 1 (Pier #1)	1018+95				
35.00 ft					
526.45					
607.55		100	47	Gray w/ thin black layers, SANDSTONE.	
607.55				Weathered, gray, SANDY CLAY SHALE.	
602.95		100	64	Gray, SANDSTONE.	
600.95				Gray w/ thin black layers, SANDY CLAY SHALE.	
495.75		100	86	Gray, SANDSTONE.	
495.25				Gray w/ thin black layers, SANDY CLAY SHALE.	
491.05		100	44	Gray w/ thin black layers, SANDSTONE.	
490.45				Gray w/ thin black layers, SANDY CLAY SHALE.	

Color pictures of the cores \_\_\_\_\_  
Cores will be stored for examination until \_\_\_\_\_  
The "Strength" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)



**ROCK CORE LOG**

Page 3 of 3  
Date 6/18/02

ROUTE FAP 774 (IL 33) DESCRIPTION Little Wabash River Overflow LOGGED BY E. Sandschafer  
SECTION 107WRS-1 LOCATION NW 1/4, SEC. 18, TWP. 8 N, RNG. 6 E, 3 PM  
COUNTY Effingham CORING METHOD Rotary, Surface set diamond bit

STRUCT. NO.	STATION	DEPTH (ft)	DIAMETER (in)	ROCK DESCRIPTION	REMARKS
025-0077	1018+84.5				
1 of 1 (Pier #1)	1018+95				
35.00 ft					
526.45					
494.55		100	60	Gray w/ thin black layers, SANDY CLAY SHALE. (continued)	
494.55				Extent of exploration.	
45				Benchmark = 543.75' Chiseled square, East abut, SW wingwall of structure number 025-0077	
				Provided by Program Development, design survey.	

Color pictures of the cores \_\_\_\_\_  
Cores will be stored for examination until \_\_\_\_\_  
The "Strength" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)

SHEET TITLE		
<b>BORING LOGS</b>		
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	PROJECT NO. 02017
DRAWN BY	CFC	SCALE
CHECKED BY	KPS/CME/MCB	DATE
<b>COOMBE-BLOXDORF P.C.</b> Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703		25 OF 26 SHTS

Boring #1 (1971)

Boring No. 1 N. ABUT.		Station 1017+70		Offset 7' RT. C		Surface Water El. 522+	
Elevation	H	Qu (t/sf)	w (%)	Elevation	H	Qu (t/sf)	w (%)
529.00				516.0			
Ground Surface							
EXISTING PAVEMENT, SUB-BASE AND STIFF DAMP BROWN CLAY SURGRADE							
536.0				524.0-25			
STIFF, DAMP, MOTTLED BROWN & GREY CLAY TILL WITH TRACES OF SAND LENSES AND FRAGMENTS OF WEATHERED SANDSTONE							
15	1.3	13		6		19	
15	1.1	14		8		19	
531.0				509.0-30			
MIXTURE OF VERY MOIST VERY FINE SAND AND FRAGMENTS OF WEATHERED SANDSTONE							
18		16		12.45		13	
529.0	-10			507.0			
MEDIUM, VERY DAMP, BROWN-GREY, CLAY LOAM TO CLAY (ORGANIC) WITH THIN LENSES OF SAND AND TRACES OF WEATHERED SANDSTONE							
9	0.8	16		**		10	
11	0.9	20		-35		8	
-18				502.5	***		
EXTENT OF EXPLORATION							
523.0				-24"			
STIFF, MOIST, GREY, LOAM TO SANDY LOAM WITH LENSES OF GREY SAND							
12	1.2	18		**		10	
521.0				-22"			
MEDIUM, VERY DAMP, GREY SILTY CLAY LOAM TO CLAY LOAM							
6	0.6	28		-40			
-20							
518.5				-5		26	
SOFT, VERY DAMP, GREY, CLAY LOAM WITH 2" THICK LENSES OF WET SAND & VERY THIN LENSES OF SILTY LOAM							
-5	0.5	26		-45			

Boring #2 (1971)

Boring No. 2 PIER 2		Station 1019+28		Offset 6' RT. C		Surface Water El. 522+	
Elevation	H	Qu (t/sf)	w (%)	Elevation	H	Qu (t/sf)	w (%)
520.30							
Ground Surface							
SOFT, WET, BROWN, LOAM TO CLAY LOAM WITH THIN LENSES OF WET SAND							
3	0.5	27					
514.5							
VERY LOOSE, WATER BEARING, BROWN - ORANGE, FINE SAND							
3		24					
512.0							
VERY LOOSE, WET, BROWN-GREY, SANDY LOAM							
2		22					
509.8							
VERY DENSE, MOIST, LIGHT GREY SANDSTONE							
18							
508.8							
VERY DENSE, DRY, GREY, SHALE WITH THIN LENSES OF HARD SANDSTONE							
**		9					
-15							
503.5	***						
EXTENT OF EXPLORATION							
				-14"			
* 14" PENETRATION FOR 100 BLOWS							
				-24"			
** 24" PENETRATION FOR 100 BLOWS							
				-43"			
*** 43" PENETRATION FOR 100 BLOWS							

Boring #3 (1971)

Boring No. 3 PIER 1		Station 1018+41		Offset 6' LT. C		Surface Water El. 522+	
Elevation	H	Qu (t/sf)	w (%)	Elevation	H	Qu (t/sf)	w (%)
521.60							
Ground Surface							
SOFT TO VERY SOFT, WET, BROWN MOTTLED GREY, CLAY							
2	0.3	35					
515.6							
SOFT, WET, CLAY LOAM TO CLAY WITH THIN LENSES OF SAND							
3	0.3	28					
512.0							
VERY LOOSE, WATER BEARING, BROWN-GREY, SAND							
4		22					
-10							
510.3	76		11				
VERY DENSE, DRY, GREY, SHALE WITH THIN LENSES OF HARD SANDSTONE							
*							
* 1" PENETRATION FOR 100 BLOWS							
-15							
** 24" PENETRATION FOR 100 BLOWS							
**							
502.8	*		8				
EXTENT OF EXPLORATION							
-20							

Boring #4 (1971)

Boring No. 4 S. ABUT.		Station 1014+50		Offset 6' RT. C		Surface Water El. 525.0	
Elevation	H	Qu (t/sf)	w (%)	Elevation	H	Qu (t/sf)	w (%)
525.00							
Ground Surface							
MEDIUM, VERY DAMP, BROWN MARBLED GREY, SILTY CLAY TO CLAY WITH THIN LENSES OF SAND							
8	1.0	26					
523.0							
MEDIUM, VERY DAMP, CLAY LOAM TO SANDY CLAY LOAM WITH LENSES OF SAND & PIECES OF WEATHERED SANDSTONE							
6	0.6	21					
520.0	-5						
SOFT, VERY DAMP, GREY, CLAY LOAM TO CLAY WITH NUMEROUS PIECES OF WEATHERED SANDSTONE							
3	0.25	17					
517.0							
LOOSE, VERY DAMP, GREY, SLIGHTLY ORGANIC, SAND WITH LENSES OF CLAY							
12		17					
515.5	-10						
VERY DENSE, MOIST, LIGHT GREY, WEATHERED SANDSTONE							
*			14				
* 4" PENETRATION FOR 100 BLOWS							
513.0							
VERY DENSE, MOIST, GREY, SHALE WITH THIN LENSES OF HARD SANDSTONE							
160		8					
** 45" PENETRATION FOR 100 BLOWS							
-15							
508.5	**		10				
EXTENT OF EXPLORATION							

N - Standard Penetration Test  
 O.D. Split Spoon Sampler 12" with 140# hammer falling 30".

Qu - Unconfined Compressive Strength - t/sf  
 w - Water Content - percentage of oven dry weight - %

Type failure:  
 B - Bulge Failure  
 S - Shear Failure  
 E - Estimated Value  
 P - Penetrometer

SHEET TITLE		BORING LOGS	
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER OVERFLOW F.A.P. RTE. 774 SECTION 107BY-1 EFFINGHAM COUNTY STATION 1018+86.92 STRUCTURE NO. 025-0077	PROJECT NO.	02017
SCALE		DATE	
DRAWN BY	CFC	CHECKED BY	KPS/CME/MCB
COOMBE-BLOXDORF P.C. Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703		26	OF 26 SHEETS

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 1 29 SHEETS
F.A.P. RTE.	107BY	EFFINGHAM	273	227	
FED. ROAD DIST. NO.	7	ILLINOIS	FED. AID PROJECT-		

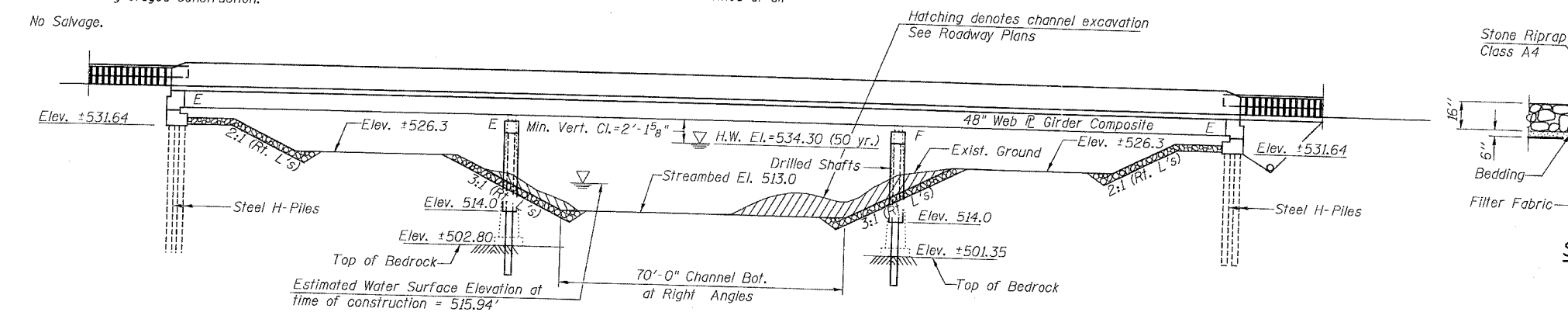
**CONTRACT NO. 94827**

**RDwy. Curve Data**  
 P.I. = Sta. 1014+09.68  
 $\Delta = 25^{\circ}19'45''$  (RT)  
 $D = 0^{\circ}30'00''$   
 $R = 11,456.75'$   
 $L = 5,064.76'$   
 $T = 2,574.44'$   
 $E = 285.69'$   
 $S.E. = 1.56\%$   
 P.C. = Sta. 988+35.24  
 P.T. = Sta. 1039+00.00  
 S.E. Attained Sta. 985+68.57 to Sta. 989+68.57  
 S.E. Removed Sta. 1037+66.67 to Sta. 1041+66.67

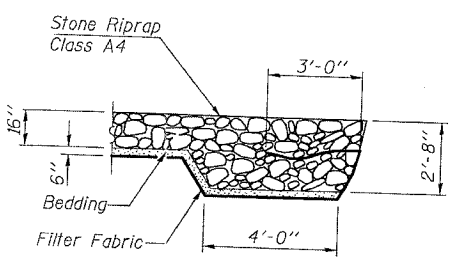
Bench Mark: Chiseled "□" above bridge name plate El. = 543.53

Existing Structure: SN 025-0078 built in 1971 as FA Route 74 at Sta. 1011+47.8. Existing structure is 264'-0" back to back of abutments and 46'-0" out to out of deck. The existing superstructure is supported by 48" Plate Girders. The existing substructure consists of pile bent abutments and solid wall piers on footings. The existing deck is to be removed and replaced with a wider deck to accommodate additional lanes. The existing substructure units will be widened accordingly. One lane of traffic in each direction shall be maintained at all times using staged construction.

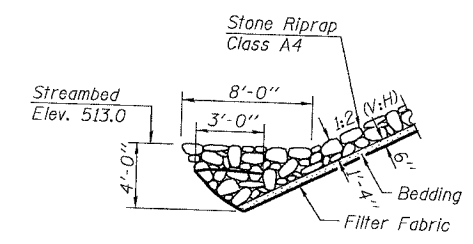
No Salvage.



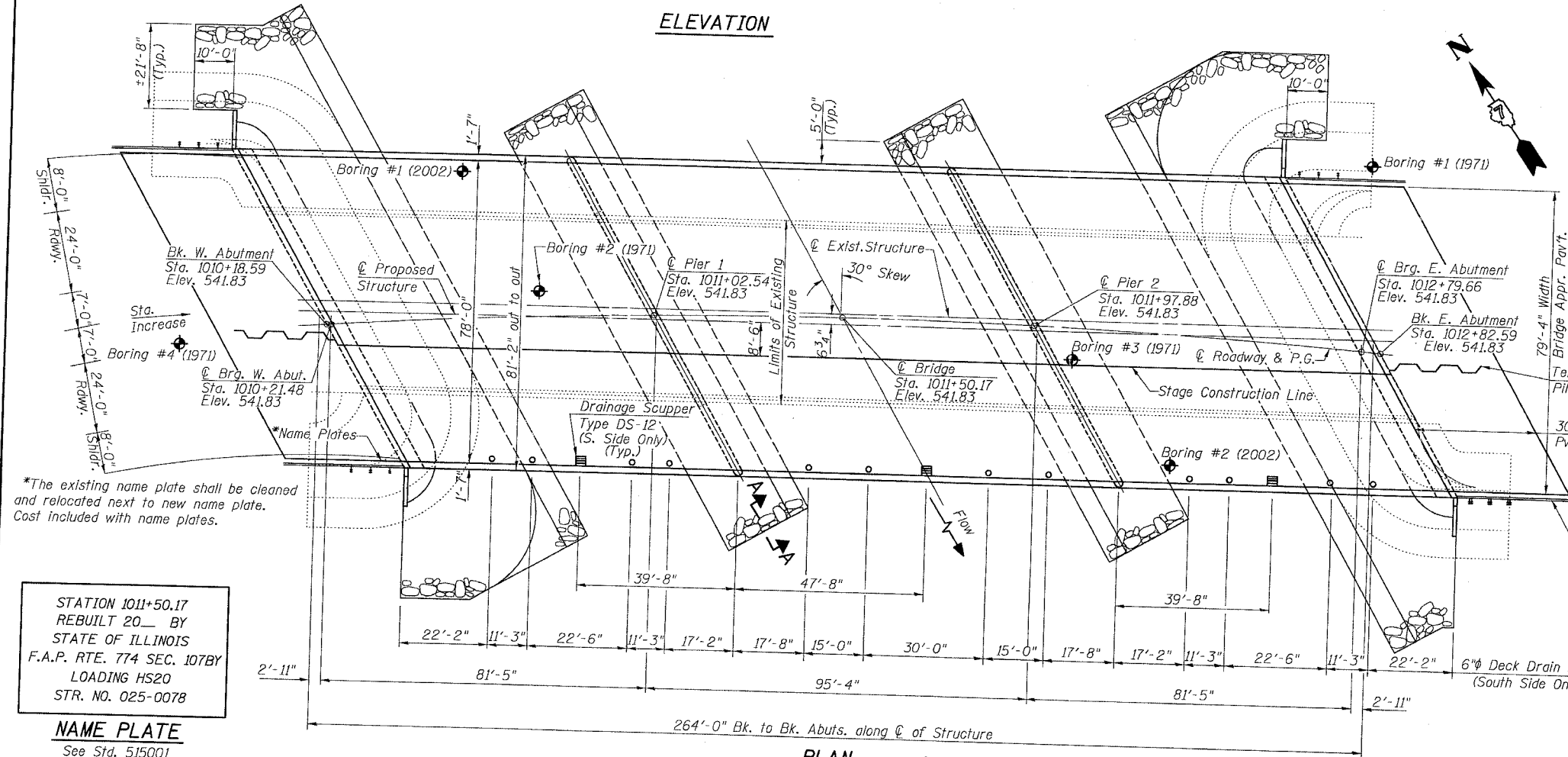
**ELEVATION**



**SECTION A-A**



**STONE RIPRAP ANCHOR DETAIL**



**PLAN**

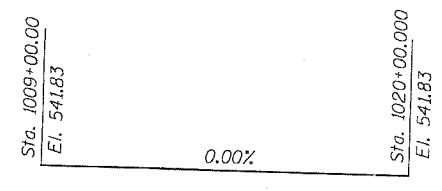
STATION 1011+50.17  
 REBUILT 20\_\_ BY  
 STATE OF ILLINOIS  
 F.A.P. RTE. 774 SEC. 107BY  
 LOADING HS20  
 STR. NO. 025-0078

**NAME PLATE**  
 See Std. 515001

**WATERWAY INFORMATION**

Drainage Area=220 Sq. Miles Low Grade Elev.=541.3 @ Sta. 1010+00 Max. Rec. H.W.E.=Unk.

Flood	Freq. Yr.	Q <sub>total</sub> C.F.S.	Q <sub>bridge</sub> C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head-Ft.		Headwater El.	
				Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	50	19,000	11272	2521	2521	534.3	0.5	0.5	534.8	534.9
Base	100	21,700	12690	2687	2687	535.0	0.5	0.5	535.5	535.5
Max. Calc.	500	28,000	16171	3037	2962	536.7	0.6	0.7	537.3	537.4



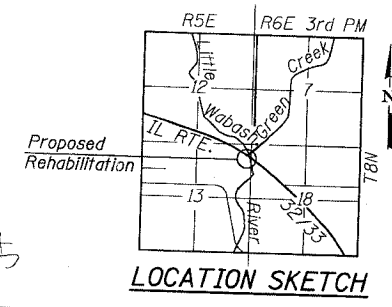
**PROPOSED PROFILE GRADE**

**APPROVED**  
 FOR STRUCTURAL ADEQUACY ONLY

*Ralph E. Anderson*  
 ENGINEER OF BRIDGES AND STRUCTURES

*Mary Coombe Bloxdorf*  
 Illinois Structural No. 4859  
 Expires 11-30-2004  
 Date: 12/23/03

STATE OF ILLINOIS  
 LICENSED STRUCTURAL ENGINEER  
 MARY COOMBE BLOXDORF  
 4859 SPRINGFIELD



**LOCATION SKETCH**

**LOADING HS20-44**  
 Allow 50#/sq. ft. for future wearing surface.

**DESIGN SPECIFICATIONS**  
 AASHTO 1996 and Interims 1997 Thru 2002 and 1995 Seismic Retrofitting Manual for Highway Bridges FHWA-RD-94-052.

**DESIGN STRESSES**

NEW CONSTRUCTION	EXISTING CONSTRUCTION
$f'_c = 3,500$ psi	$f_y = 36,000$ psi St. Steel
$f_y = 60,000$ psi (reinf.)	
$f_y = 36,000$ psi (M270 Grade 36)	

**SEISMIC DATA**  
 Seismic Performance Category (SPC) = A  
 Bedrock Acceleration Coefficient (A) = 0.07g  
 Site Coefficient (S) = 1.0

SHEET TITLE		GENERAL PLAN AND ELEVATION	
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER	PROJECT NO.	02017
	F.A.P. RTE. 774 SECTION 107BY	SCALE	
	EFFINGHAM COUNTY	DATE	
	STATION 1011+50.17	DRAWN BY	TFC
	STRUCTURE NO. 025-0078	CHECKED BY	GJB/MCB
<b>COOMBE-BLOXDORF P.C.</b>		1	
Engineers / Land Surveyors		OF 29 SHTS	
Springfield, Illinois			
Design Firm License No. 184-002703			

**GENERAL NOTES**

Fasteners shall be high strength bolts. Bolts  $\frac{7}{8}$ "  $\phi$ , open holes  $\frac{15}{16}$ "  $\phi$ , unless otherwise noted.

Calculated weight of structural steel = 236,660 lbs (M270 Grade 36)

Reinforcement Bars shall conform to the requirements of AASHTO M31 or M322 Grade 60.

Prior to pouring the new concrete deck, all loose rust, loose mill scale and other loose potentially detrimental foreign material shall be removed from the surfaces of the girders in contact with concrete. The cost of this work will be included in the pay item covering removal of the existing concrete. All heavy rust and other tightly adhered potentially detrimental foreign matter shall also be removed from the surfaces of the girders in contact with concrete. Tightly adhered paint may remain unless otherwise noted. This removal shall be accomplished by methods that will not damage the steel. The cost of this work will be paid for according to Article 109.04.

All existing construction accessories welded to the top flange over the piers between the quarter points of the girders shall be removed. The remaining weld shall be ground smooth and inspected for cracks using magnetic particle testing. Any cracks that can not be removed by grinding approximately  $\frac{1}{4}$  inch deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. The cost of this work will be paid for according to Article 109.04.

Field welding of construction accessories will not be permitted to girders.

The Structural Steel Bearing Plates of the Elastomeric Bearing Assembly shall conform to the requirements of AASHTO M270 Grade 50.

Plan dimensions and details relative to existing structure have been taken from existing plans and are subject to nominal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in the scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of  $\frac{1}{8}$ ". Adjustment shall be made either by grinding the surface or by shimming the bearing. Two  $\frac{1}{8}$ " adjusting shims, of the dimensions of the bottom bearing plate, shall be provided for each bearing in addition to all other plates or shims. For Type I Elastomeric Bearings, two  $\frac{1}{8}$ " adjusting shims shall be provided for each bearing and placed as detailed.

The existing structural steel coating contains lead. The Contractor should take appropriate precautions to deal with the presence of lead on this project.

The Inorganic zinc rich primer/Acrylic/Acrylic paint system shall be used for shop and field painting of new structural steel except where otherwise noted. The color of the final finish coat for all interior steel surfaces shall be Gray Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flange of the fascia girders shall be Blue, Munsell No. 10B 3/6. See Special Provision for "Cleaning and Painting New Metal Structures."

The Contractor shall repair any damage to the paint system of the existing girders occurring during construction. The cost of this repair shall be included with "Furnishing and Erecting Structural Steel."

The main load carrying member components subject to tensile stress shall conform to the Supplemental Requirements for Notch Toughness Zone 2. These components are the tension flanges, webs and all splice plate material except fill plates.

Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.

The Contractor shall drive one steel HP 10 x 42 test pile in a permanent location at each abutment as directed by the Engineer before ordering the remainder of the piles.

Anchor bolts shall be set before bolting diaphragms over supports.

If the Contractor elects to use cantilever forming brackets on the exterior girders, the brackets shall be placed at the same locations as required for the hardwood blocks in Article 503.06 of the Standard Specifications. If additional cantilever forming brackets are required, hardwood blocking shall be wedged between the exterior and first interior girder at each of these additional bracket locations.

All construction joints shall be bonded.

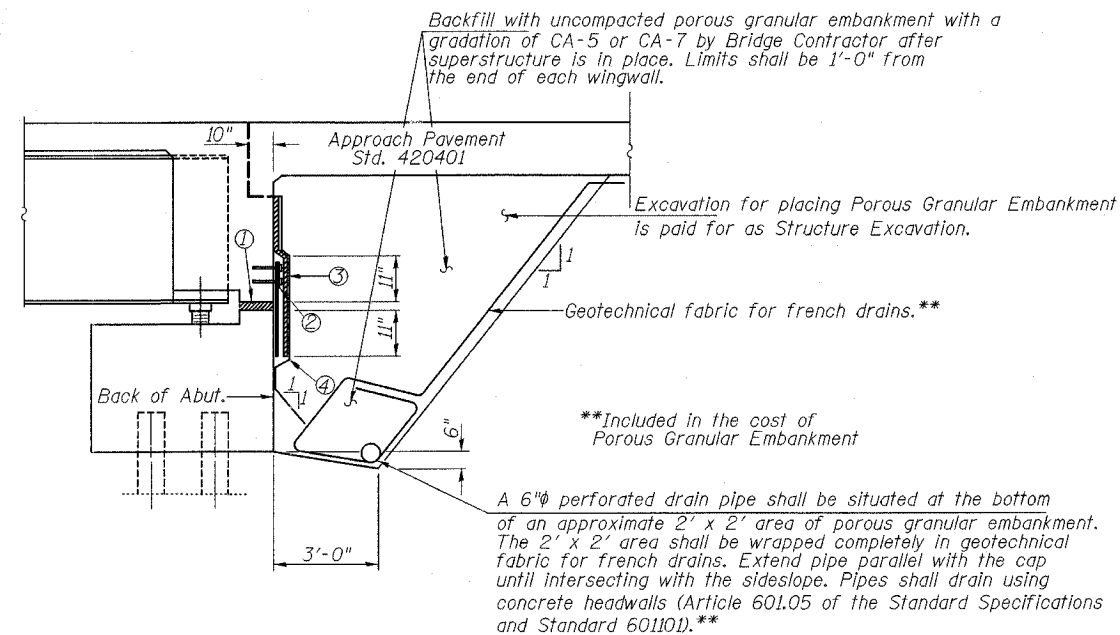
**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Concrete Deck No. 2	Each	1		1
Porous Granular Embankment	Cu Yd		568	568
Concrete Removal	Cu Yd		77.0	77.0
Structure Excavation	Cu Yd		366	366
Concrete Superstructure	Cu Yd	676.2		676.2
Concrete Structures	Cu Yd		236.3	236.3
Elastomeric Bearing Assembly, Type I	Each			20
Elastomeric Bearing Assembly, Type II	Each			10
Reinforcement Bars, Epoxy Coated	Pound	179,860	25,740	205,600
Reinforcement Bars	Pound		7160	7160
Name Plates	Each	1		1
Furnishing and Erecting Structural Steel	L. Sum	.48		.48
Stud Shear Connectors	Each	2460		2460
Floor Drains	Each	12		12
Drainage Scupper, DS-12	Each	3		3
Bridge Deck Grooving	Sq. Yd.	2213		2213
Bar Splicers	Each	1255	388	1643
Furnishing Steel Piles HP 10x42	Foot		448	448
Driving Steel Piles	Foot		448	448
Test Piles Steel HP 10x42	Each		2	2
Drilled Shaft in Rock 30"	Foot		81	81
Drilled Shaft in Soil 36"	Foot		119	119
Underwater Structure Excavation, Location 3	Each			1
Underwater Structure Excavation, Location 4	Each			1
Stone RipRap, Class A4	Sq. Yd.			2295
Jacking and Cribbing, Location No. 2	L. Sum	1		1
Temporary Sheet Piling	Sq. Ft.			900
Filter Fabric For Use With RipRap	Sq. Yd.			2295
Slope Wall Removal	Sq. Yd.			642
Protective Coat	Sq. Yd.	2491		2491

\*Includes Removal and disposal of Existing Bearings.

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 2
F.A.P. RTE. 774	107BY	EFFINGHAM	273	228	29 SHEETS
FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT-					

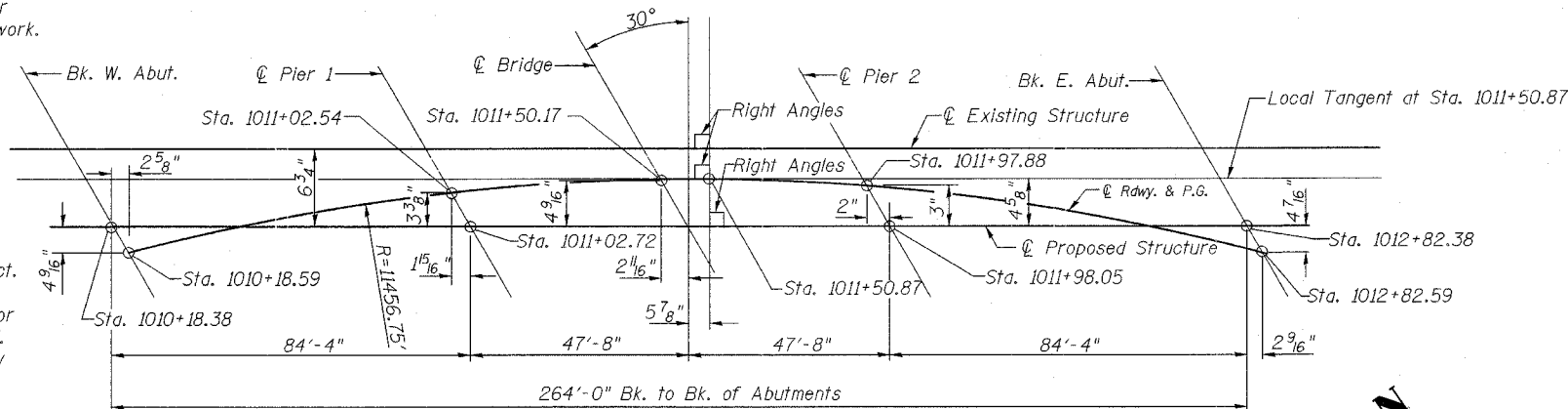
CONTRACT NO. 94827



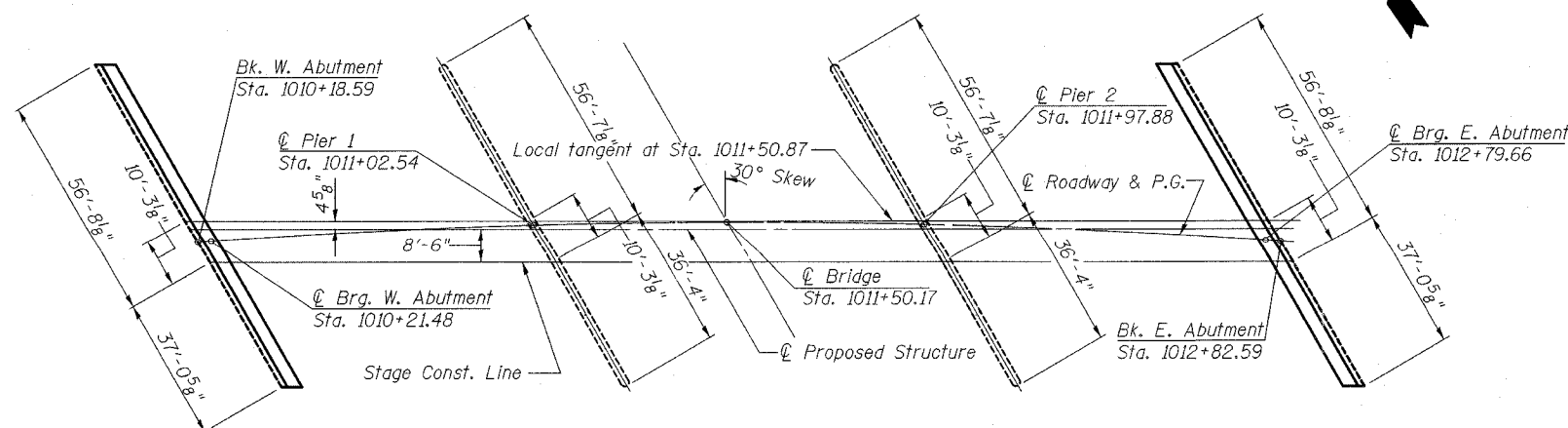
**SECTION THRU SEMI INTEGRAL ABUTMENTS**

(dimension at right Angles) (showing drain details)

- ① 2" Preformed Joint Filler (Section 1051 of the Standard Specifications) bonded to abutment cap with approved adhesive (full width of cap).
  - ② Fabric Reinforced Elastomeric Mat (See Special Provisions) Fabric mat shall be 24" wide and attached full width to the abutment cap with a  $\frac{3}{8}$ " x 5" steel plate and  $\frac{1}{2}$ "  $\phi$  studs with nuts and washers at 12" cts.
  - ③ 2" Preformed Joint Filler (Section 1051 of the Standard Specifications) bonded to superstructure (full width of cap).
  - ④ Geocomposite Wall Drain (Section 591 of the Standard Specifications - full width of cap).
- Items ① ② ③ & ④ shall be included in the cost of Concrete Superstructure.



**OFFSET SKETCH**



**FOOTING LAYOUT**

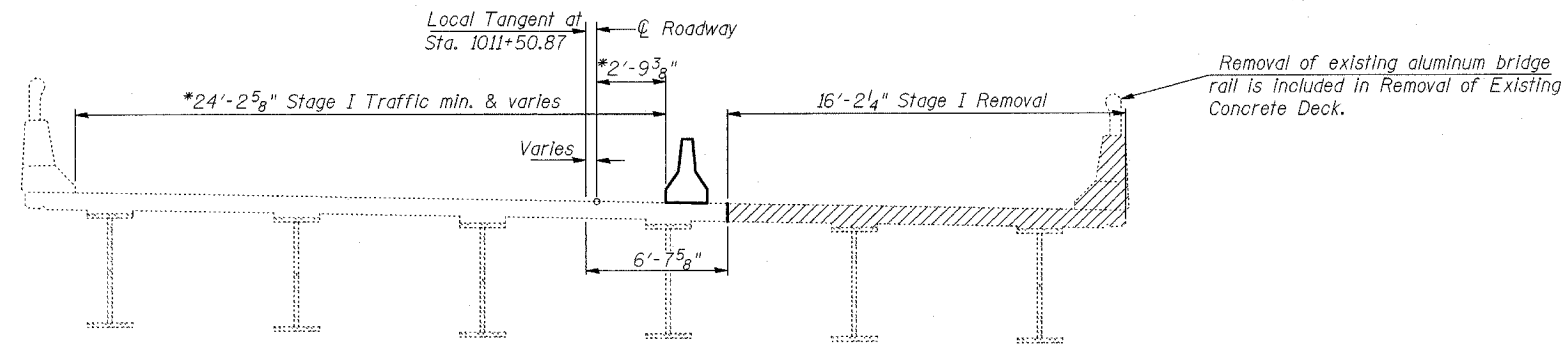
SHEET TITLE		PROJECT NO.	
GENERAL NOTES AND TOTAL BILL OF MATERIALS		02017	
PROJECT		SCALE	
IL RTE. 32/33 OVER LITTLE WABASH RIVER			
F.A.P. RTE. 774 SECTION 107BY		DATE	
EFFINGHAM COUNTY		DRAWN BY	
STATION 1011+50.17		TFG	
STRUCTURE NO. 025-0078		CHECKED BY	
		GJB/MCB	
DRAWING NO.			
<b>COOMBE-BLOXDORF P.C.</b>		2	
Engineers/Land Surveyors		OF 29 SHTS	
Springfield, Illinois			
Design Firm License No. 184-002708			

FILE: 94827-2

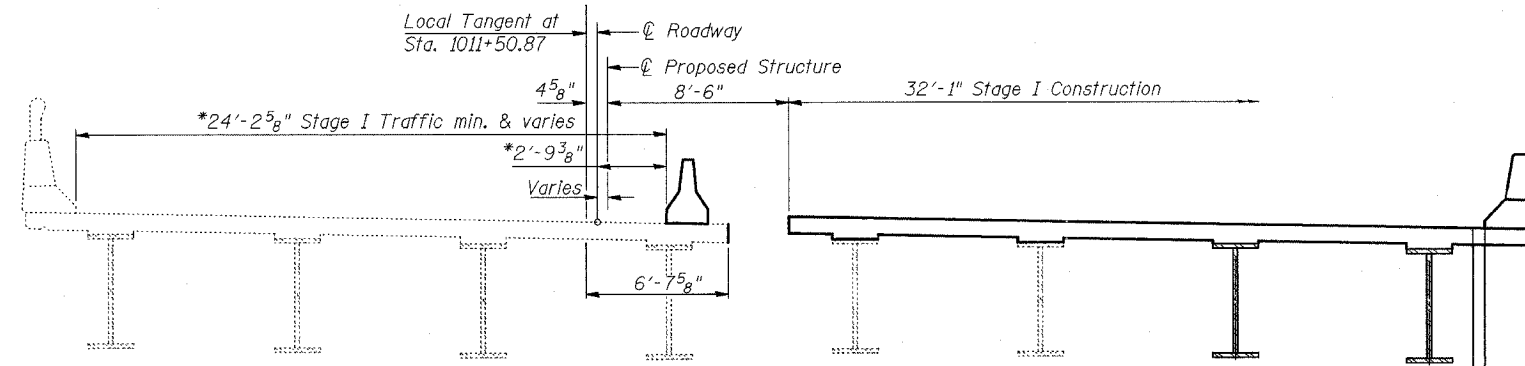
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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 3 29 SHEETS
F.A.P. RTE.	107BY	EFFINGHAM	273	229	
FED. ROAD DIST. NO.	7	ILLINOIS	FED. AID PROJECT-		

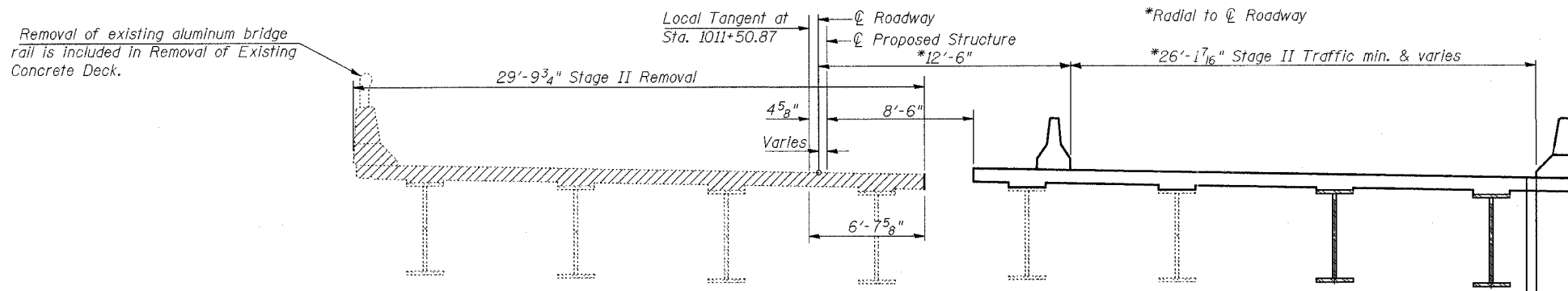
CONTRACT NO. 94827



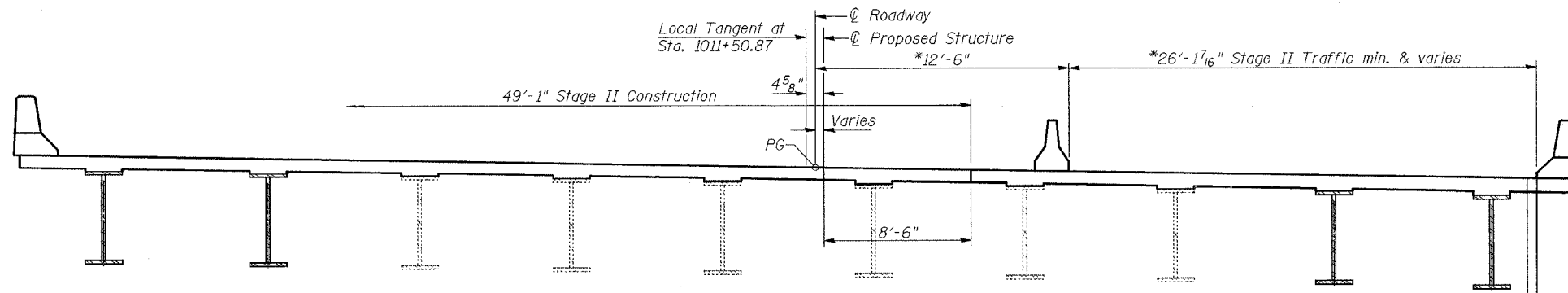
**STAGE I REMOVAL**  
(Looking East) (Dim. at right angles except as noted)



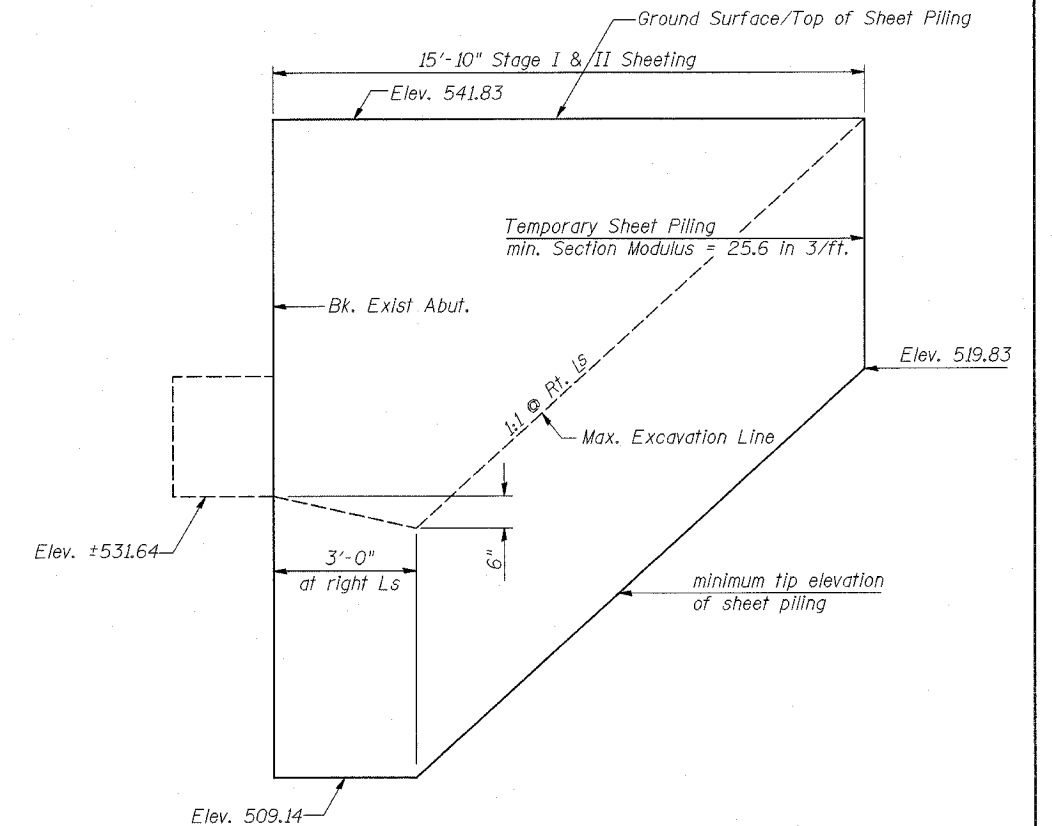
**STAGE I CONSTRUCTION**  
(Looking East) (Dim. at right angles except as noted)



**STAGE II REMOVAL**  
(Looking East) (Dim. at right angles except as noted)



**STAGE II CONSTRUCTION**  
(Looking East) (Dim. at right angles except as noted)



**TEMPORARY SHEET PILE DETAIL**

If the Contractor chooses to alter the temporary cantilevered sheet piling design requirements shown on the plans, a design submittal including plan details and calculations will be required for review and acceptance by the Engineer.

**STAGE CONSTRUCTION SEQUENCE**

- ① Direct Stage I Traffic as shown.
- ② Drive Temporary Sheet Piling located behind each abutment and proceed with Stage I Removal.
- ③ Proceed with Stage I Construction.
- ④ Direct Stage II Traffic as shown.
- ⑤ Relocate Stage I Sheet Piling as necessary for Stage II Sheet Piling.
- ⑥ Proceed with Stage II Removal and Construction.

**NOTES**

Hatched areas indicate "Removal of Existing Concrete Deck". See Roadway Plans for quantity of Temporary Concrete Barrier.  
The Shear Studs on existing girders will remain. It is the Contractor's responsibility to replace existing shear studs damaged during the removal of the existing Concrete deck. Cost included with Removal of Existing Concrete Deck.

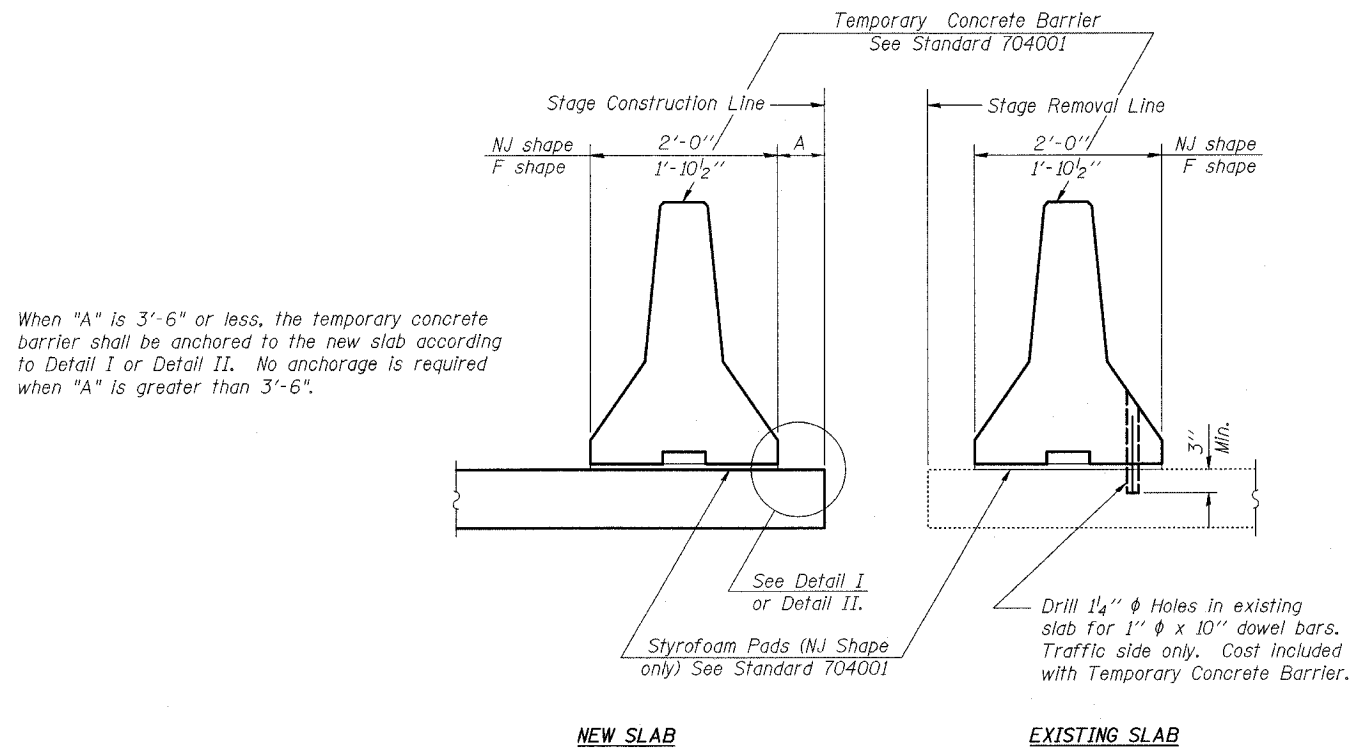
SHEET TITLE <b>STAGED CONSTRUCTION DETAILS</b>	
PROJECT IL RTE. 32/33 OVER LITTLE WABASH RIVER F.A.P. RTE. 774 SECTION 107BY EFFINGHAM COUNTY STATION 1011+50.17 STRUCTURE NO. 025-0078	PROJECT NO. 02017 SCALE DATE DRAWN BY TFG CHECKED BY GJB/MCB DRAWING NO.
<b>COOMBE-BLOXDORF P.C.</b> Engineers/Land Surveyors Springfield, Illinois Design Firm License No. 184-002708	3 OF 29 SHTS

#FILE-0000014

SCALE: AS SHOWN ON SHEET 3 OF 29 SHEETS

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 4 29 SHEETS
F.A.P. RTE. 774	107BY	EFFINGHAM	273	230	
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-			

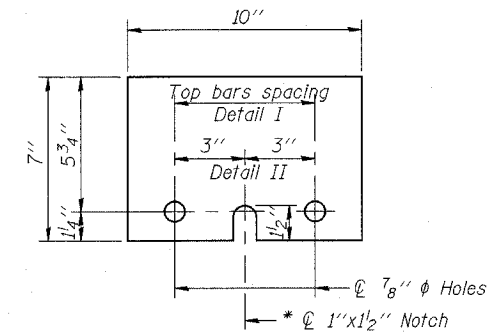
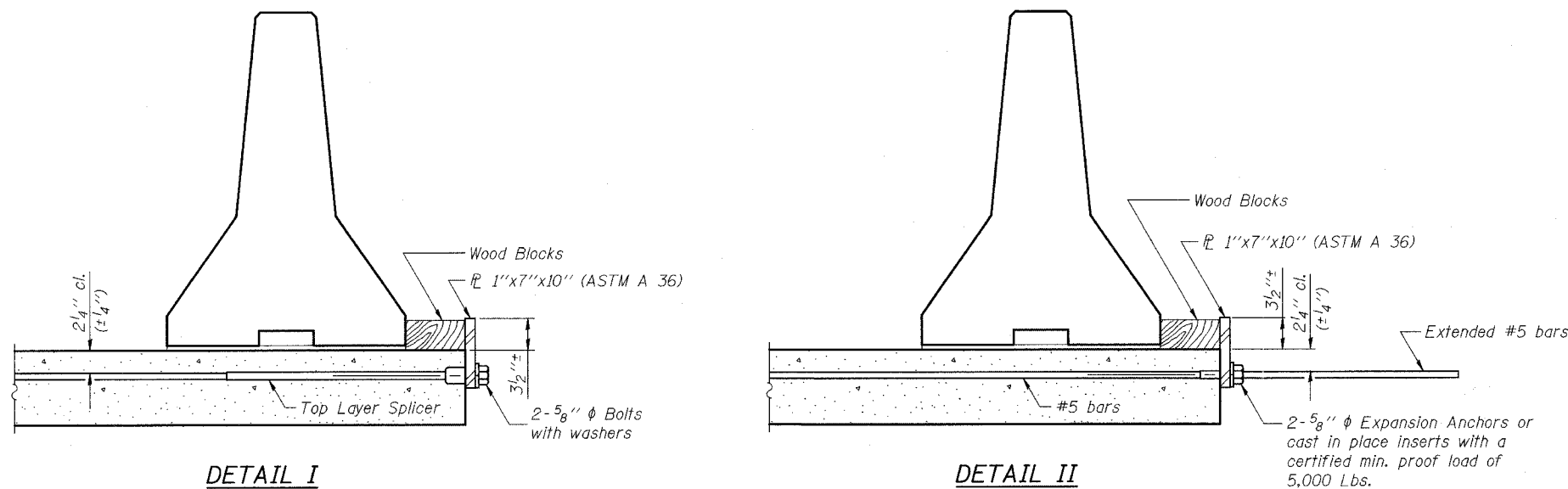
CONTRACT NO. 94827



SECTIONS THRU SLAB

NOTES

- Detail I - With Bar Splicer or Couplers:  
Connect one (1) 1"x7"x10" steel  $\bar{P}$  to the top layer of couplers with 2-5/8"  $\phi$  bolts screwed to coupler at approximate  $\bar{C}$  of each barrier panel.
- Detail II - With Extended Reinforcement Bars:  
Connect one (1) 1"x7"x10" steel  $\bar{P}$  to the concrete slab with 2-5/8"  $\phi$  Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate  $\bar{C}$  of each barrier panel.
- Cost of anchorage is included with Temporary Concrete Barrier.



$\bar{P}$  1"x7"x10"

\* Required only with Detail II

**DETAIL I**  
The 1"x7"x10" Plate shall not be removed until Stage II Construction forms and reinforcement bars are in place.

**DETAIL II**  
The 1"x7"x10" Plate shall not be removed until Stage II Construction forms and all reinforcement bars are in place and the concrete is ready to be placed.

SHEET TITLE <b>TEMPORARY CONCRETE BARRIER FOR STAGED CONSTRUCTION</b>	
PROJECT IL RTE. 32/33 OVER LITTLE WABASH RIVER F.A.P. RTE. 774 SECTION 107BY EFFINGHAM COUNTY STATION 1011+50.17 STRUCTURE NO. 025-0078	PROJECT NO. 02017 SCALE DATE DRAWN BY TFG CHECKED BY GJB/MCB DRAWING NO.
<b>COOMBE-BLOXDORF P.C.</b> Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703	4 OF 29 SHTS



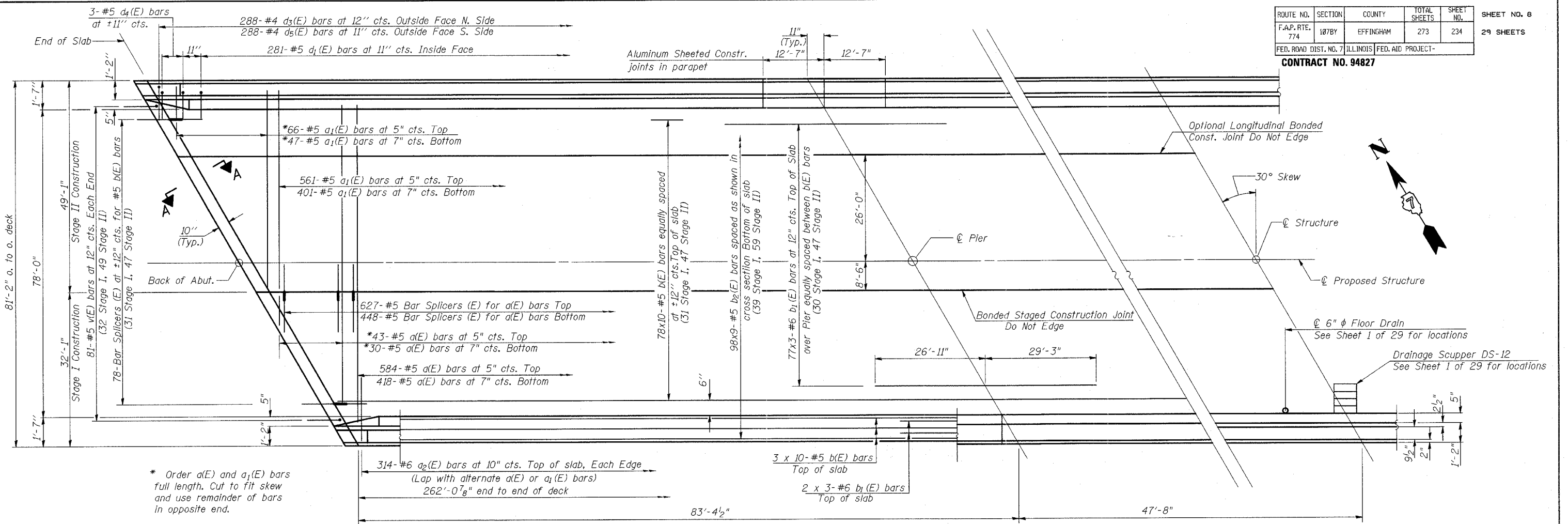






ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 8 29 SHEETS
F.A.P. RTE. 774	107BY	EFFINGHAM	273	234	
FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT-					

CONTRACT NO. 94827



HALF PLAN

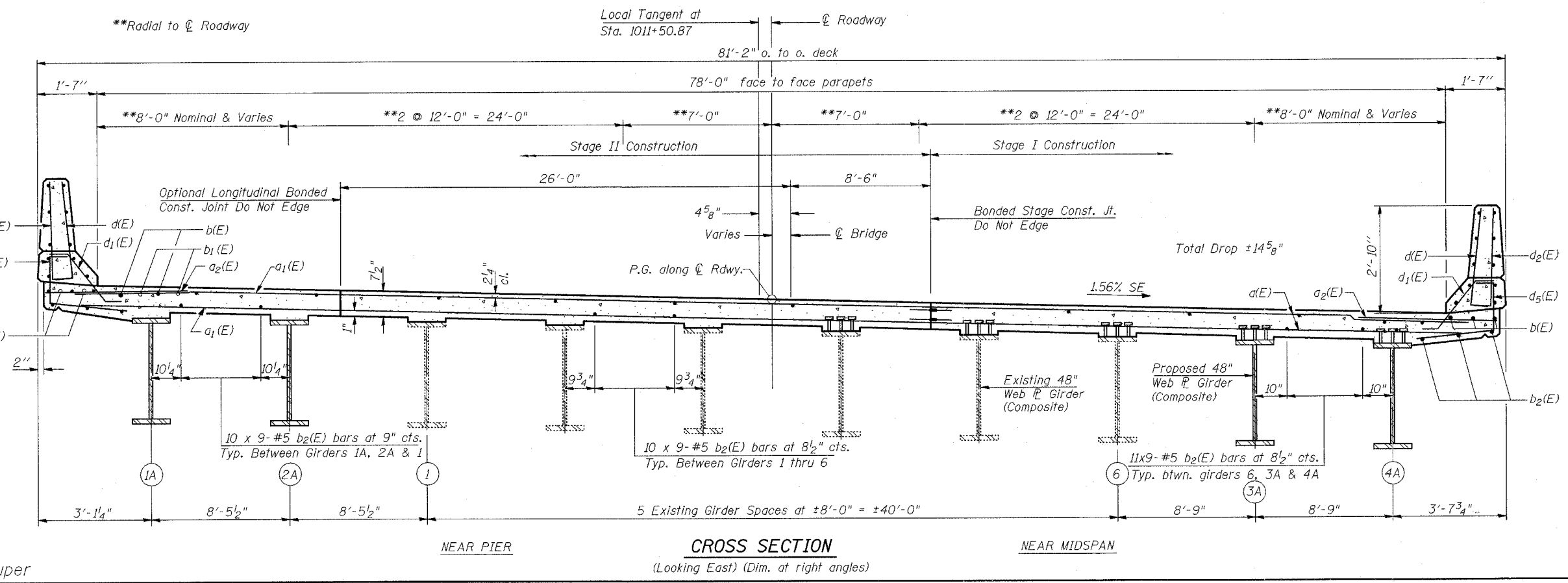
\* Order a(E) and a1(E) bars full length. Cut to fit skew and use remainder of bars in opposite end.

NOTES

See Sheet 9 of 29 for superstructure details, parapet reinforcement and Bill of Material.  
 Reinforcement bars designated (E) shall be epoxy coated.  
 Bars indicated thus 20 x 3-#5 etc. indicates 20 lines of bars with 3 lengths per line.  
 See Sheet 10 of 29 for abutment diaphragm details, Section A-A and deck details at drainage scuppers.  
 Cut longitudinal reinforcement bars to clear drainage scuppers.  
 See sheet 11 of 29 for details of Drainage Scupper DS-12.  
 See sheet 26 of 29 for bar splicer details.

Min. Bar Lap

#5 bars = 1'-8"  
 #6 bars = 2'-0"



CROSS SECTION

(Looking East) (Dim. at right angles)

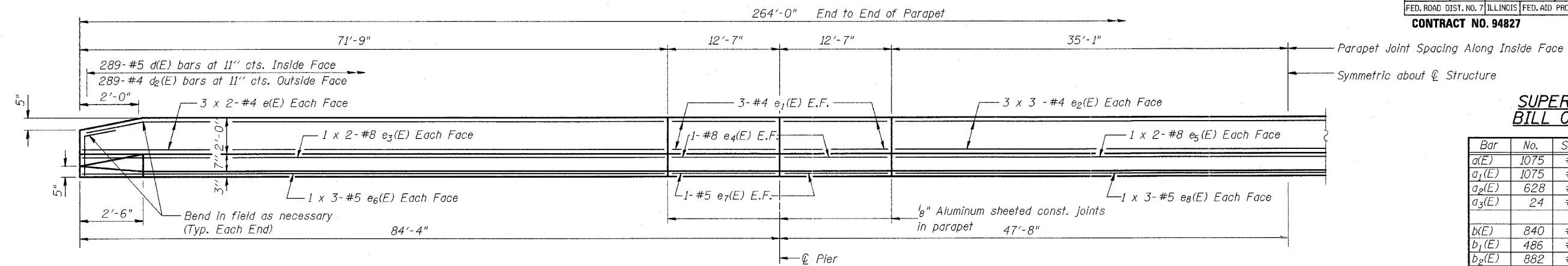
SHEET TITLE		SUPERSTRUCTURE	
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER	PROJECT NO.	02017
	F.A.P. RTE. 774 SECTION 107BY	SCALE	
	EFFINGHAM COUNTY	DATE	
	STATION 1011+50.17	DRAWN BY	TFG
	STRUCTURE NO. 025-0078	CHECKED BY	GJB/MCB
COOMBE-BLOXDORF P.C.		DRAWING NO.	8
Engineers / Land Surveyors			
Springfield, Illinois			
Design Firm License No. 184-002703			
			OF 29 SHTS

FILE ABBREV

super

**SUPERSTRUCTURE  
BILL OF MATERIAL**

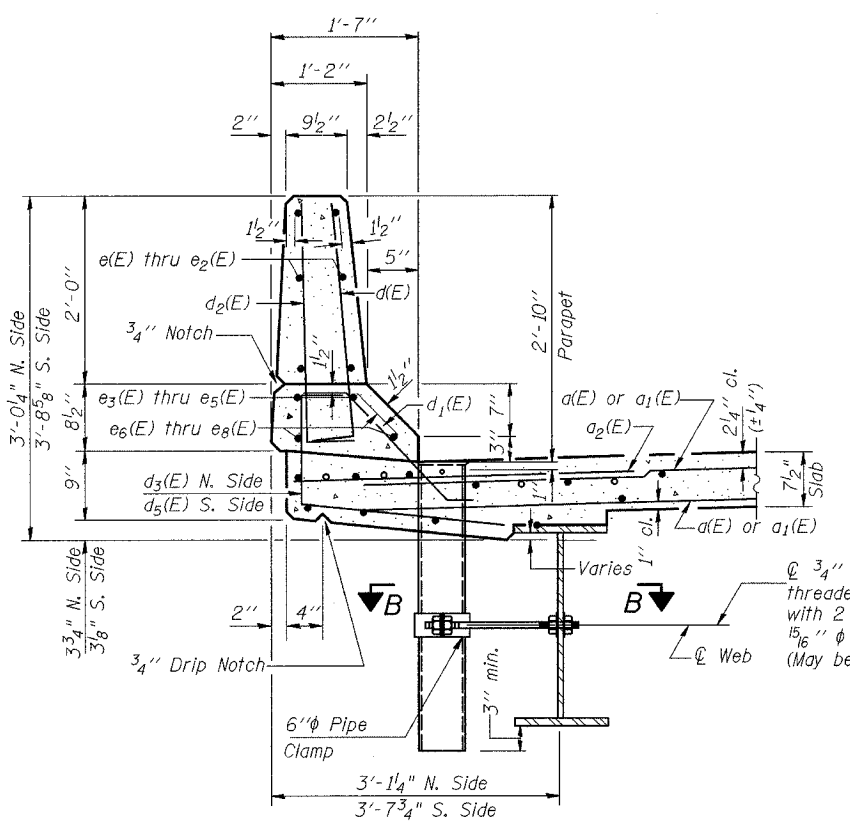
Bar	No.	Size	Length	Shape
a(E)	1075	#5	30'-11"	—
a <sub>1</sub> (E)	1075	#5	47'-11"	—
a <sub>2</sub> (E)	628	#6	4'-6"	—
a <sub>3</sub> (E)	24	#5	2'-0"	—
b(E)	840	#5	27'-9"	—
b <sub>1</sub> (E)	486	#6	20'-1"	—
b <sub>2</sub> (E)	882	#5	30'-7"	—
d(E)	578	#5	3'-0"	—
d <sub>1</sub> (E)	574	#5	2'-5"	—
d <sub>2</sub> (E)	578	#4	3'-0"	—
d <sub>3</sub> (E)	288	#4	3'-9"	—
d <sub>4</sub> (E)	12	#5	2'-2"	—
d <sub>5</sub> (E)	288	#4	4'-3"	—
e(E)	48	#4	36'-7"	—
e <sub>1</sub> (E)	48	#4	12'-3"	—
e <sub>2</sub> (E)	36	#4	24'-5"	—
e <sub>3</sub> (E)	16	#8	38'-0"	—
e <sub>4</sub> (E)	16	#8	12'-3"	—
e <sub>5</sub> (E)	8	#8	37'-3"	—
e <sub>6</sub> (E)	24	#5	25'-3"	—
e <sub>7</sub> (E)	16	#5	12'-3"	—
e <sub>8</sub> (E)	12	#5	24'-9"	—
m(E)	20	#6	36'-6"	—
m <sub>1</sub> (E)	20	#6	9'-0"	—
m <sub>2</sub> (E)	8	#6	9'-9"	—
m <sub>3</sub> (E)	8	#6	3'-6"	—
m <sub>4</sub> (E)	8	#6	9'-4"	—
m <sub>5</sub> (E)	16	#6	11'-4"	—
m <sub>6</sub> (E)	40	#6	29'-6"	—
m <sub>7</sub> (E)	24	#6	11'-9"	—
s(E)	174	#5	7'-11"	—
s <sub>1</sub> (E)	156	#4	11'-11"	—
u(E)	164	#5	2'-11"	—
v(E)	162	#5	3'-4"	—
Reinforcement Bars, Epoxy Coated		Pound	179,860	
Concrete Superstructure		Cu. Yds.	676.2	
Bar Splicers		Each	1255	



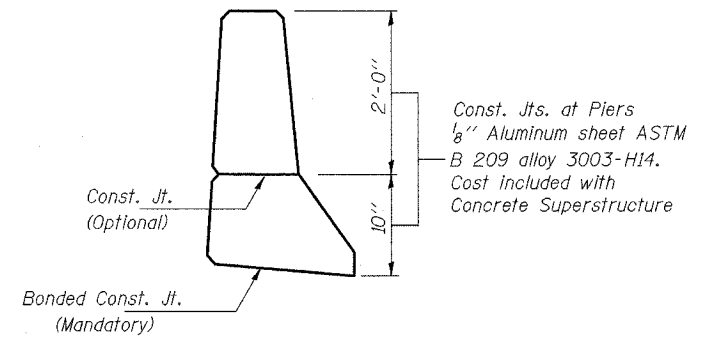
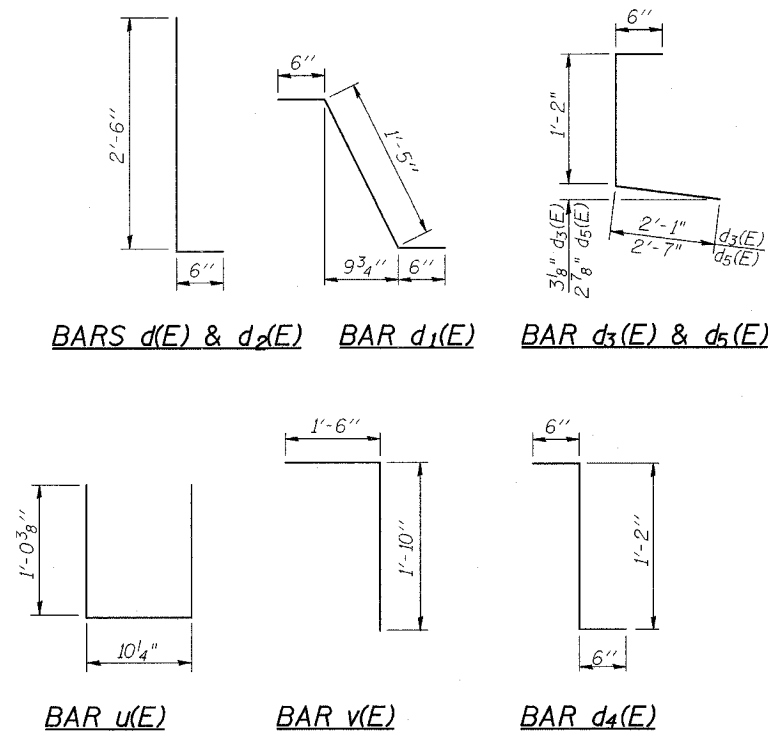
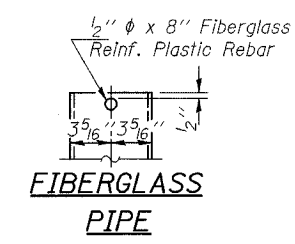
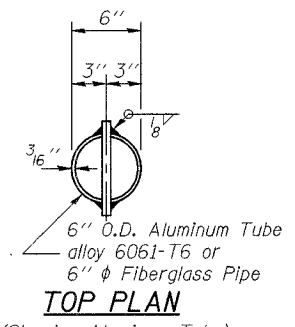
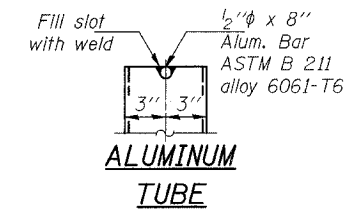
**INSIDE ELEVATION OF PARAPET**

**MIN BAR LAP IN PARAPET**

- #4 = 1'-8"
- #5 = 2'-2"
- #8 = 4'-6"



**SECTION THRU PARAPET**  
(Showing 6" φ drain S. Side only)



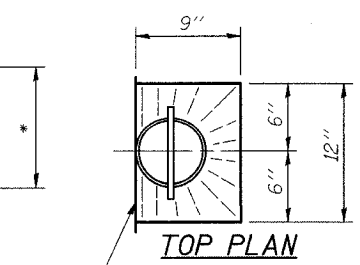
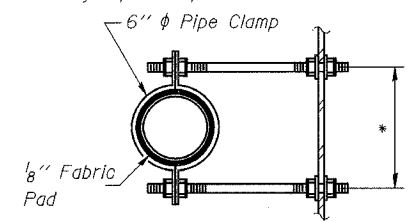
**NOTES**

The exterior surfaces of the floor drains shall be painted with the finish coat as specified in the special provisions for Cleaning and Painting New Metal Structures. The exterior surfaces of the drains shall be cleaned according to Steel Structures Painting Council's Spec. SSPC-SP1 prior to painting. Fiberglass pipe shall conform to ASTM D 2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum.

**NOTES**

Reinforcement bars designated (E) shall be epoxy coated. Bars indicated thus 1 x 2-#5 etc. indicates 1 line of bars with 2 lengths per line.

\* Dimension as required by Pipe Clamp

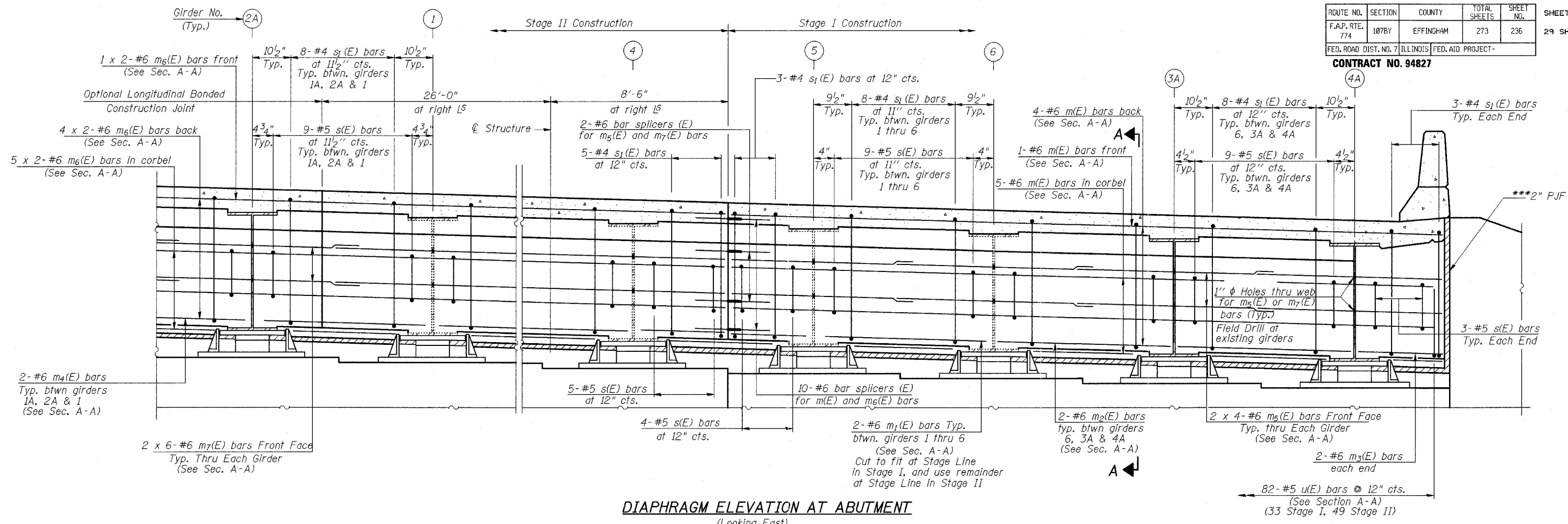


SHEET TITLE <b>SUPERSTRUCTURE DETAILS</b>	
PROJECT IL RTE. 32/33 OVER LITTLE WABASH RIVER F.A.P. RTE. 774 SECTION 107BY EFFINGHAM COUNTY STATION 1011+50.17 STRUCTURE NO. 025-0078	PROJECT NO. 02017 SCALE DATE DRAWN BY TFG CHECKED BY GJB/MCB DRAWING NO.
<b>COOMBE-BLOXDORF P.C.</b> Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002708	
9 OF 29 SHTS	

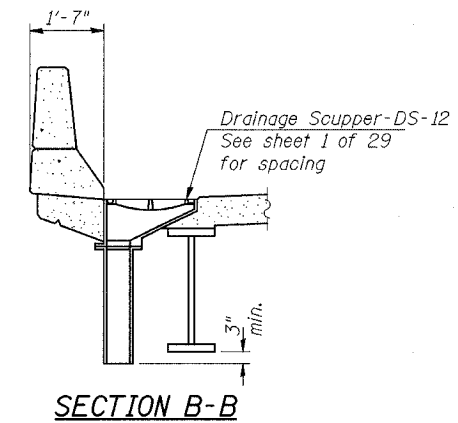
FILE ABBREV

super-details

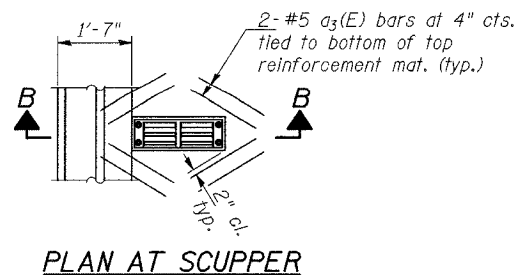
CONTRACT NO. 94827



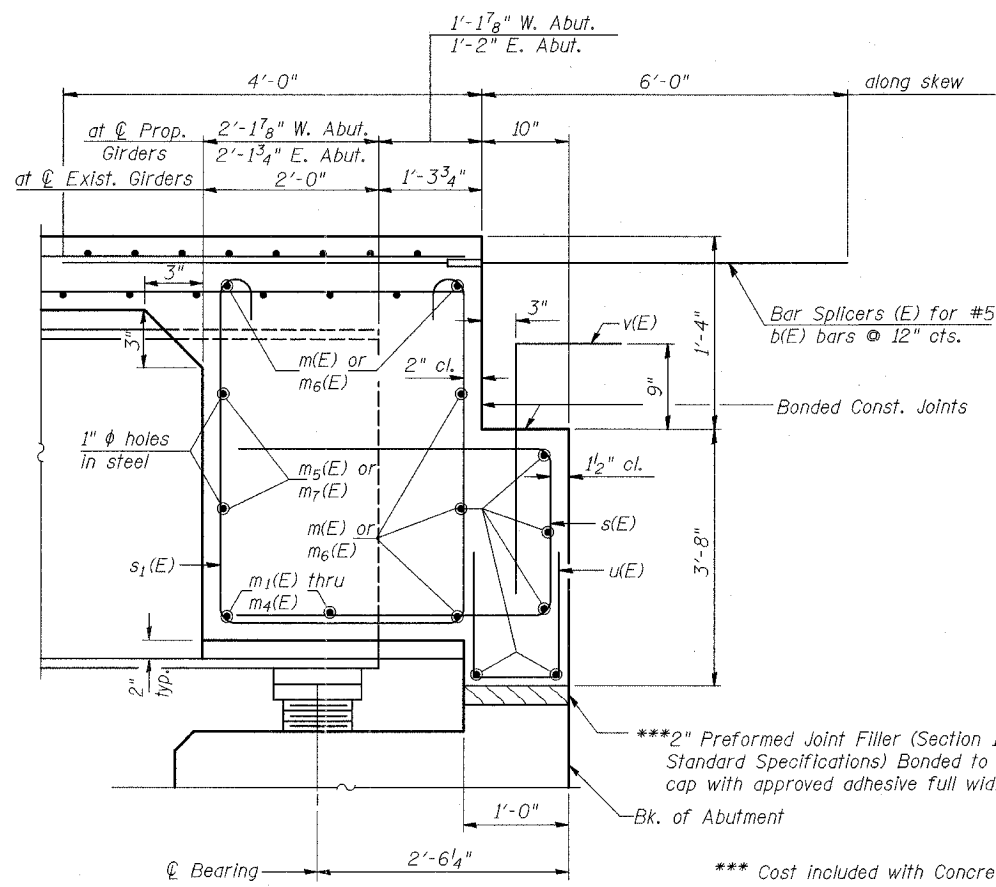
**DIAPHRAGM ELEVATION AT ABUTMENT**  
(Looking East)



**SECTION B-B**



**PLAN AT SCUPPER**



**SECTION A-A**

Dimensions at right angles to abutment, except as shown.  
(Diaphragms not shown)

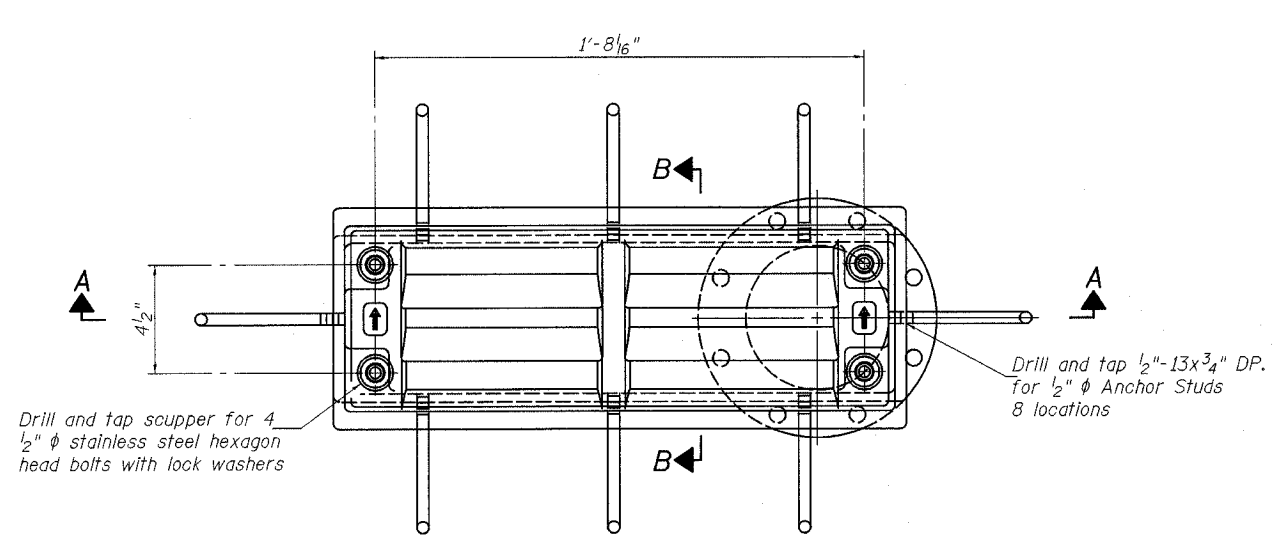
**NOTES**

Cost for Field drilling of 1"  $\phi$  holes for  $m_5(E)$  or  $m_7(E)$  bars shall be included with Concrete Superstructure. Reinforcement bars in diaphragm and around scuppers are billed with superstructure on sheet 9 of 29. Concrete in end diaphragms is included with Concrete Superstructure on sheet 9 of 29. For details of bars  $s(E)$ ,  $s_1(E)$  &  $u(E)$  see sheet 9 of 29. The  $s(E)$ ,  $s_1(E)$  &  $u(E)$  bars shall be placed parallel to the beams. Spacing for these bars shall be at right angles to the beams. For anchor bolt details see sheet 16 of 29. Reinforcement bars designated (E) shall be epoxy coated. Bars indicated thus 1 x 2-#5 etc. indicates 1 line of bars with 2 lengths per line. See sheet 26 of 29 for bar splicer details. See Section thru abutment on sheet 2 of 29 for back of abutment treatment.

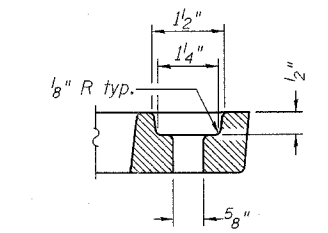
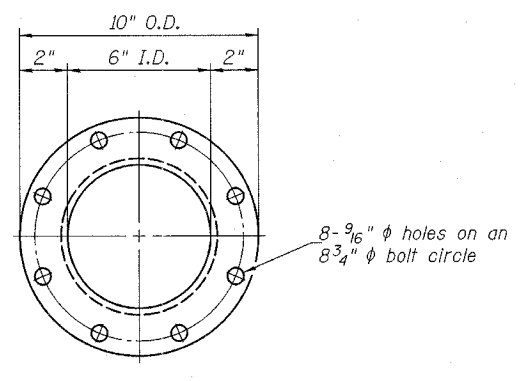
**MIN. BAR LAP**  
#6 bar = 2'-9"

SHEET TITLE <b>DIAPHRAGM AND DRAINAGE SCUPPER DETAILS</b>	
PROJECT IL RTE. 32/33 OVER LITTLE WABASH RIVER F.A.P. RTE. 774 SECTION 107BY EFFINGHAM COUNTY STATION 1011+50.17 STRUCTURE NO. 025-0078	PROJECT NO. 02017 SCALE DATE DRAWN BY TFG CHECKED BY CJB/MCB DRAWING NO.
<b>COOMBE-BLOXDORF P.C.</b> Engineers/Land Surveyors Springfield, Illinois Design Firm License No. 184-002703	
10	
OF 29 SHTS	

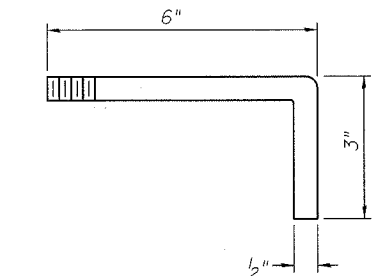
CONTRACT NO. 94827



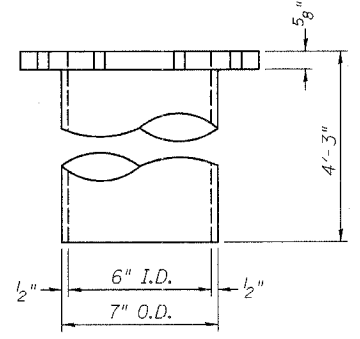
PLAN



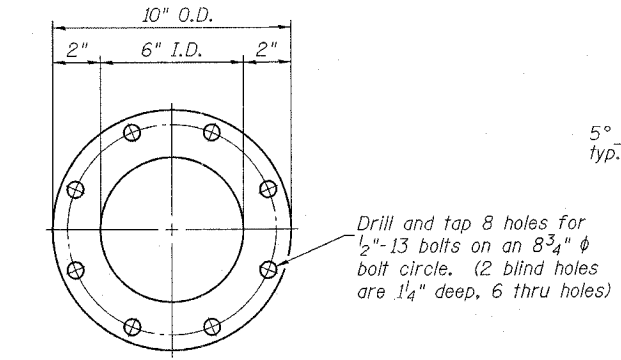
BOLT HOLE DETAIL



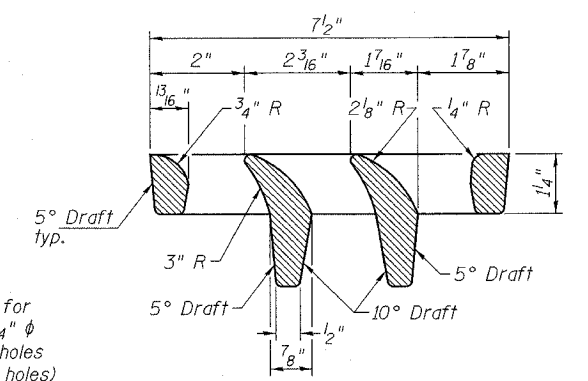
ANCHOR STUD DETAIL



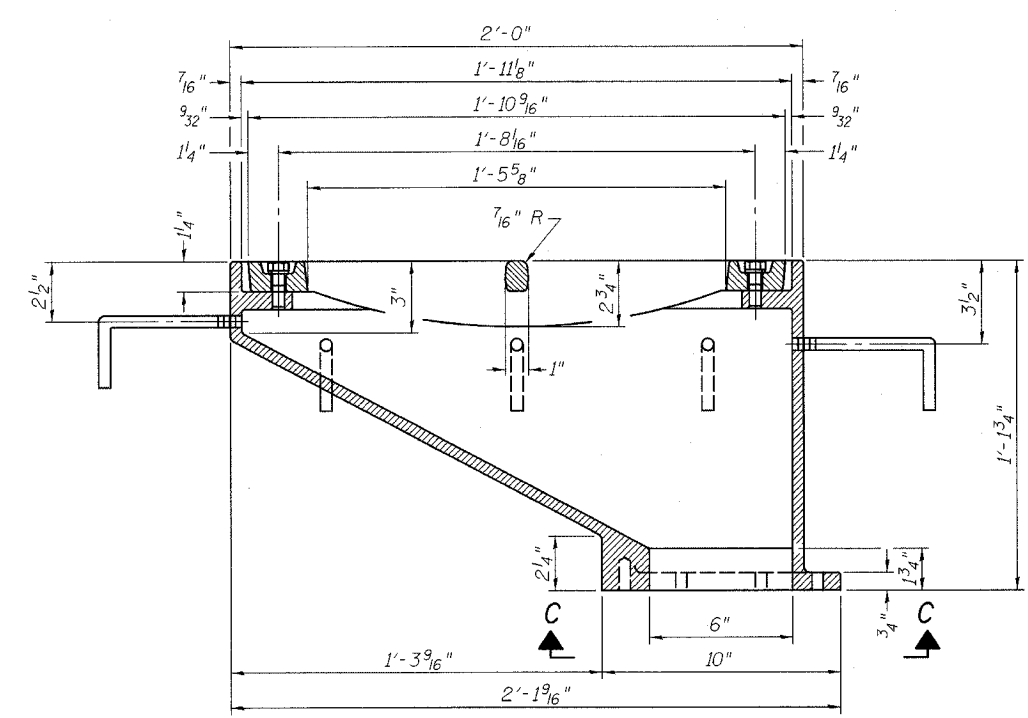
DOWNSPOUT



VIEW C-C

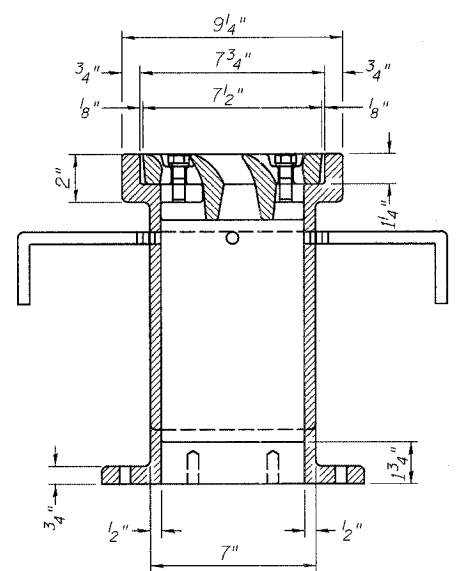


VANE GRATE DETAIL



SECTION A-A

See sheet 10 of 29 for scupper location relative to parapet.



SECTION B-B

NOTES

All cast iron parts shall be gray iron conforming to the requirements of AASHTO M 105, Class 35B.

Bolts, anchor studs, washers and nuts shall conform to the requirements of ASTM A 307 and shall be galvanized according to AASHTO M 232.

The grate, frame and downspout shall be galvanized according to AASHTO M 111 and ASTM A 385. Downspouts located on the exterior side of a painted steel fascia beam shall be painted with the finish coat specified for the exterior side of the fascia beam.

As an alternate, bolts, anchor studs, washers and nuts may be stainless steel according to Article 1006.29(d) of the Standard Specifications.

Structural steel weldments of equal sections and of the same configuration may be substituted for cast iron. Fillet or full penetration welds shall be used for the weldments. Details shall be submitted to the Engineer for approval.

The Contractor shall take appropriate measures to assure that Protective Coat is not applied to the scupper.

Cost of the Grate, Frame, Downspout, Anchor Studs, Bolts, Washers and Nuts including complete installation of the scupper shall be paid for at the contract unit price each for Drainage Scupper, DS-12.

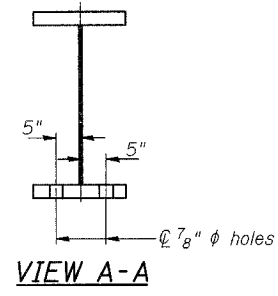
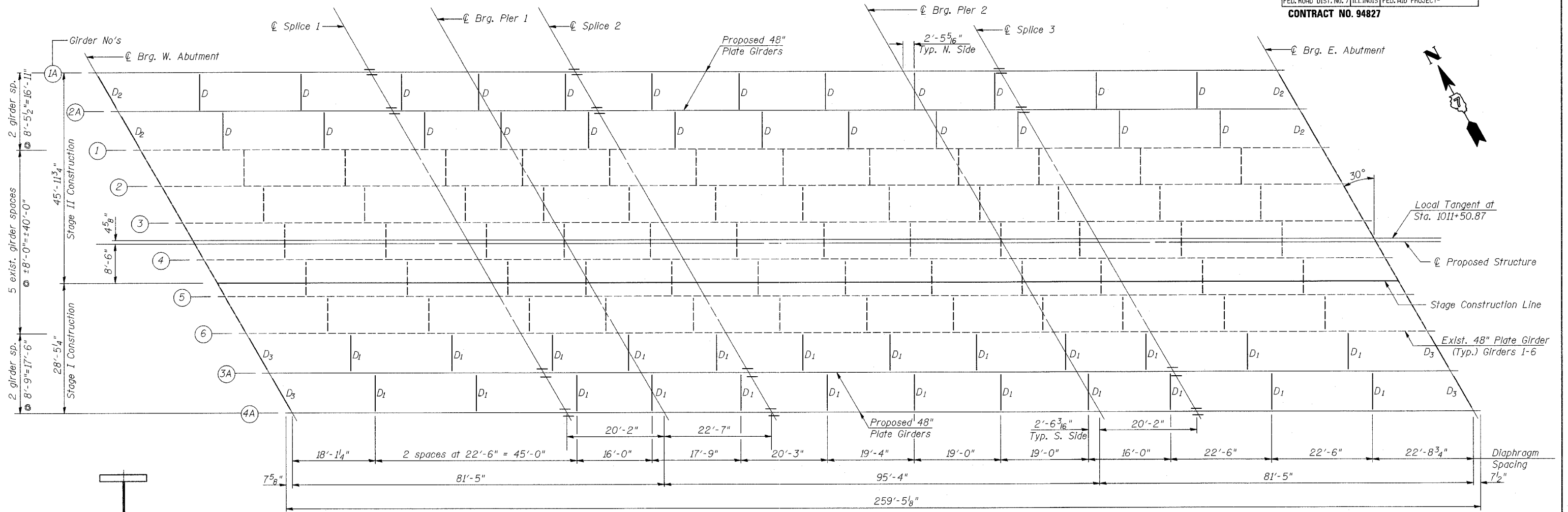
BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Drainage Scupper, DS-12	Each	3

SHEET TITLE		DRAINAGE SCUPPER, DS-12	
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER	PROJECT NO.	02017
	F.A.P. RTE. 774 SECTION 107BY	SCALE	
	EFFINGHAM COUNTY	DATE	
	STATION 1011+50.17	DRAWN BY	TFG
	STRUCTURE NO. 025-0078	CHECKED BY	GJB/MCB
COOMBE-BLOXDORF P.C.		DRAWING NO.	11
Engineers / Land Surveyors			
Springfield, Illinois			
Design Firm License No. 184-002703			
			OF 29 SHTS

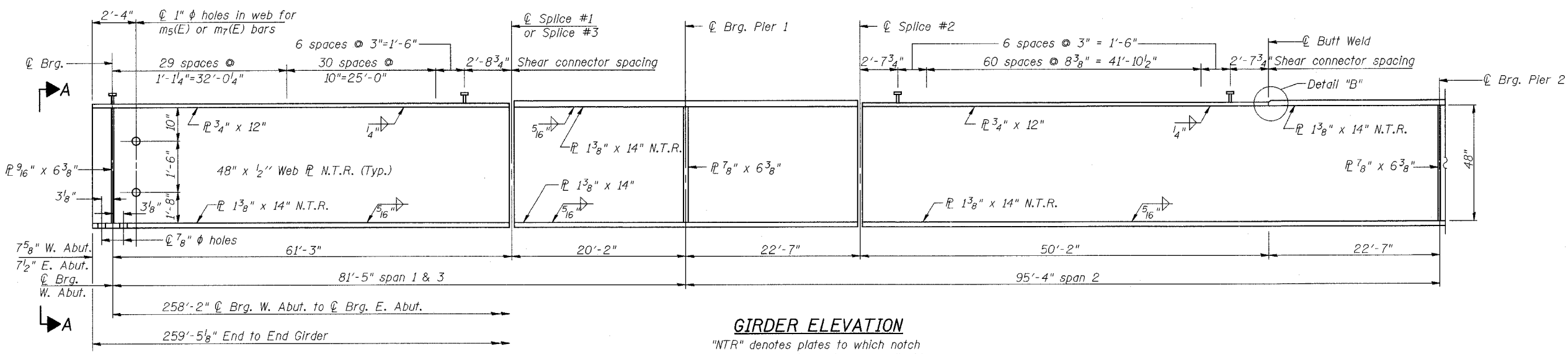
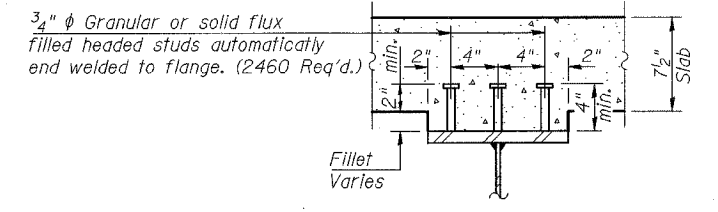
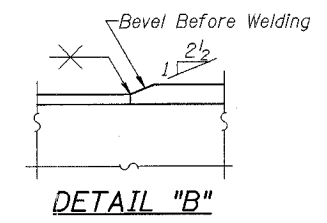
FILE:ASB1017

CONTRACT NO. 94827



**FRAMING PLAN**

The existing steel diaphragms at the abutments shall be cleaned and left in place.  
Cost of cleaning is included with Concrete Superstructure.



**GIRDER ELEVATION**

"NTR" denotes plates to which notch toughness requirements are applicable.

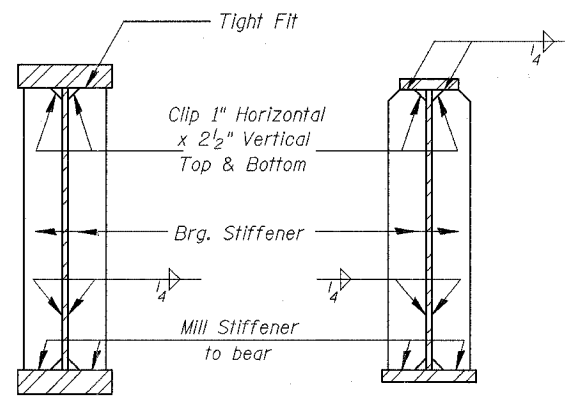
SHEET TITLE		STRUCTURAL STEEL	
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER	PROJECT NO.	02017
	F.A.P. RTE. 774 SECTION 107BY	SCALE	
	EFFINGHAM COUNTY	DATE	
	STATION 1011+50.17	DRAWN BY	TFG
	STRUCTURE NO. 025-0078	CHECKED BY	GJB/MCB
COOMBE-BLOXDORF P.C.		DRAWING NO.	
Engineers/Land Surveyors		12	
Springfield, Illinois		OF 29 SHTS	
Design Firm License No. 184-002703			

CONTRACT NO. 94827

TOP OF WEB ELEVATIONS

	Girder 1A	Girder 2A	Girder 3A	Girder 4A
☉ Brg. W. Abut.	541.674	541.541	540.643	540.506
☉ Splice 1	541.598	541.467	540.570	540.434
☉ Pier 1	541.590	541.459	540.564	540.428
☉ Splice 2	541.582	541.450	540.557	540.421
☉ Pier 2	541.591	541.459	540.569	540.433
☉ Splice 3	541.593	541.462	540.573	540.437
☉ Brg. E. Abut.	541.666	541.535	540.649	540.513

For Fabrication Only



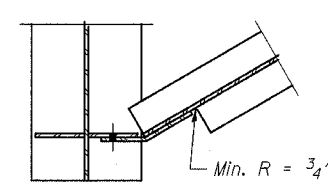
SECTION AT PIER

SECTION AT ABUTMENT

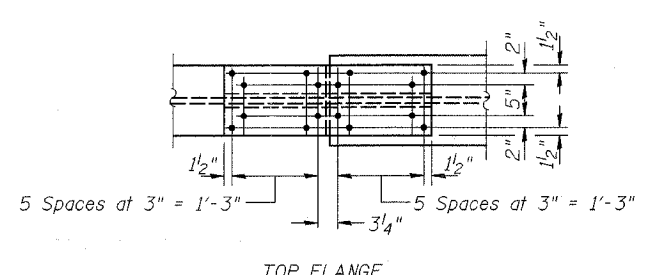
INTERIOR GIRDER MOMENT TABLE				
		0.4 Sp. 1 & 0.6 Sp. 3	Piers 1 & 2	0.5 Sp. 2
$I_s$	(in <sup>4</sup> )	20,438	28,079	20,438
$I_c$ (n)	(in <sup>4</sup> )	55,138		55,138
$I_c$ (3n)	(in <sup>4</sup> )	39,415		39,415
$S_s$	(in <sup>3</sup> )	998	1107	998
$S_c$ (n)	(in <sup>3</sup> )	1373		1373
$S_c$ (3n)	(in <sup>3</sup> )	1260		1260
$Z$	(in <sup>3</sup> )		1238	
$\phi$	(k/ft.)	1.073	1.62	1.084
$M\phi$	(k)	494	1242	333
$s\phi$	(k/ft.)	0.520		0.520
$M_s\phi$	(k)	276		247
$M_t$	(k)	804	557	795
$M$ (Imp)	(k)	194	131	180
$5_3[M_t + M(\text{Imp})]$	(k)	1663	1147	1625
$M_a$	(k)	3163	3106	2867
$M_u$	(k)	5230	3715	5230
$f_s\phi$ non-comp (k.s.i.)		5.9	13.5	4.0
$f_s\phi$ (comp) (k.s.i.)		2.6		2.4
$f_s 5_3(\phi + \text{Imp})$ (k.s.i.)		14.5	12.4	14.2
$f_s$ (Overload) (k.s.i.)		23.0	25.9	20.6
VR	(k)	53.4		54.6

INTERIOR GIRDER REACTION TABLE			
	Abuts.	Piers 1 & 2	
$R\phi$	(k)	86.8	156.6
$R_t$	(k)	49.6	72.3
Imp	(k)	12.0	17.0
$R$ (Total)	(k)	148.4	245.9

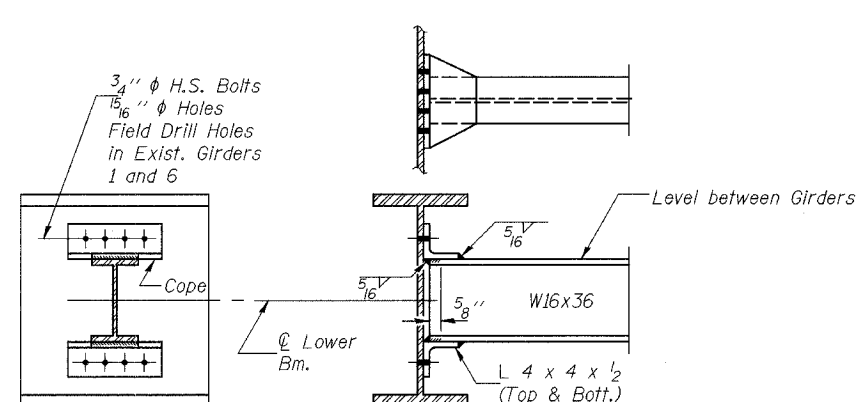
$I_s$  and  $S_s$  are the moment of inertia and section modulus of the steel section used in computing  $f_s$  (overload).  $I_c(n)$  and  $S_c(n)$  are the moment of inertia and section modulus of the composite section used in computing stresses due to Live Load.  $I_c(3n)$  and  $S_c(3n)$  are the moment of inertia and section modulus of the composite section used in computing stresses due to superimposed dead loads. (see AASHTO 10.38) VR is the maximum Live Load + Impact shear range in span.  $Z$  is the plastic section modulus used to determine the fully plastic moments in the non-composite areas.  $M_a$  (Applied Moment) =  $1.3[M\phi + M_s\phi + 5_3(M_t + M(\text{Imp}))]$ . The Plastic Moment capacity ( $M_u$ ) is computed according to AASHTO 10.48.1 and 10.50.1.1.  $f_s$  (Overload) is the sum of the stresses due to  $M\phi + M_s\phi + 5_3(M_t + M(\text{Imp}))$ .  $R\phi$  includes the weight of the Concrete diaphragm and the dead load reaction from the approach pavement.



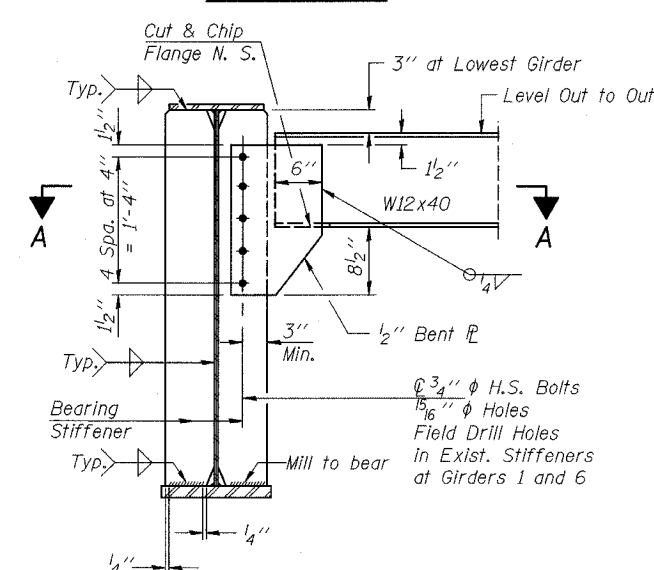
SECTION A-A



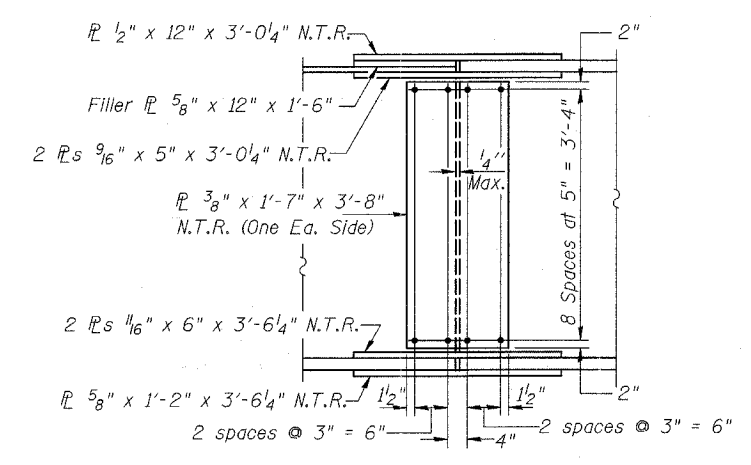
TOP FLANGE



DIAPHRAGM D & D1  
Required 24 D & 24 D1



DIAPHRAGM D2 & D3  
Required 4 D2 & 4 D3



BOTTOM FLANGE

SPLICES  
(12 Required)

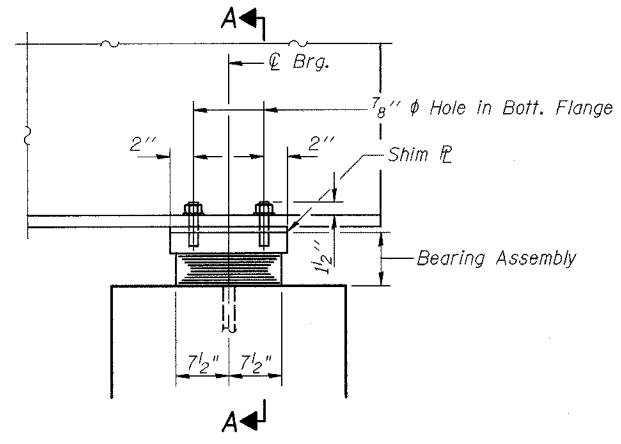
Note: Two hardened washers shall be required over all oversize holes for diaphragms.

SHEET TITLE <b>STRUCTURAL STEEL</b>		
PROJECT IL RTE. 32/33 OVER LITTLE WABASH RIVER F.A.P. RTE. 774 SECTION 107BY EFFINGHAM COUNTY STATION 1011+50.17 STRUCTURE NO. 025-0078	PROJECT NO. 02017	SCALE DATE DRAWN BY TFG
<b>COOMBE-BLOXDORF P.C.</b> Engineers/Land Surveyors Springfield, Illinois Design Firm License No. 184-002708		CHECKED BY GJB/MCB DRAWING NO. <b>13</b> OF 29 SHTS.

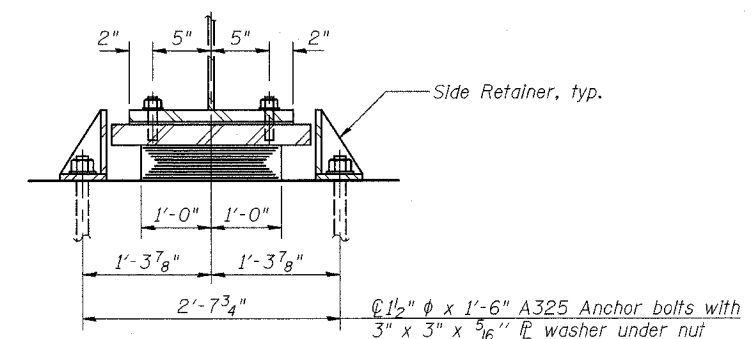
FILE/ABBREV'S





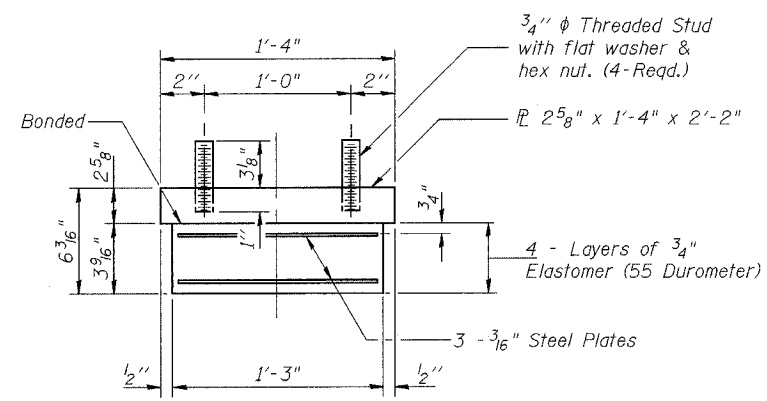


ELEVATION AT PIER 1



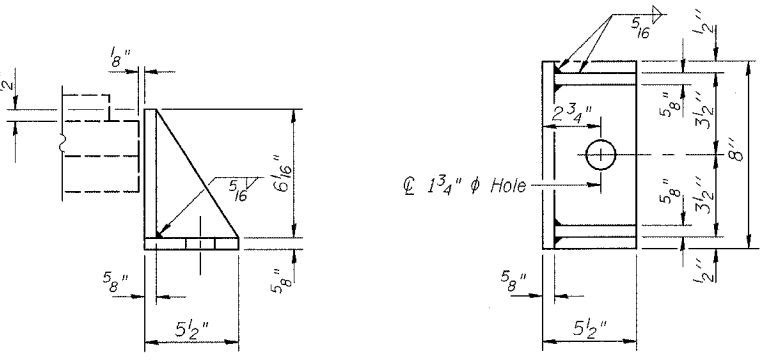
SECTION A-A

**TYPE I ELASTOMERIC EXP. BRG. PIER 1**



BEARING ASSEMBLY

Note: Shim plates shall not be placed under Bearing Assembly.

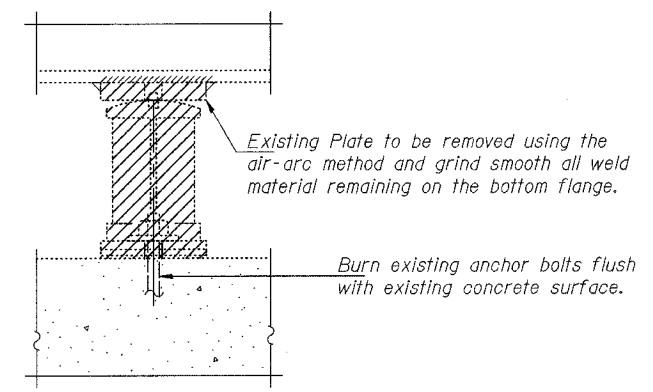


**SIDE RETAINER**

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates. Weight Included with Structural Steel.

**NOTES**

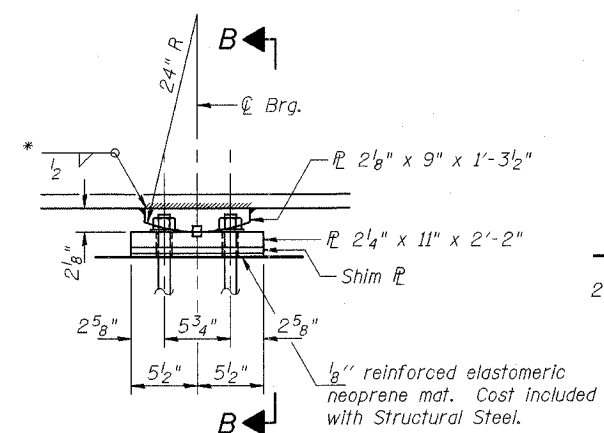
See sheet 16 of 29 for Anchor Bolt Installation. 7/8" holes in bottom flange for 3/4" studs will be drilled in the field for existing girders. Cost included with Jacking and Cribbing. Anchor bolts at fixed bearings may be built into the masonry at proposed girders. The Structural Steel bearing plates of the elastomeric bearing assembly shall conform to the requirements of AASHTO M270, Grade 50.



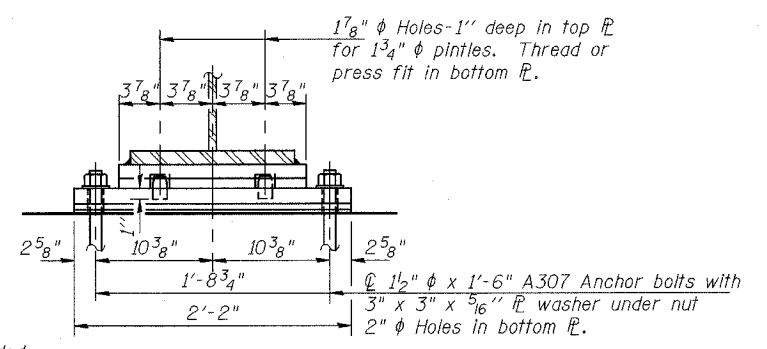
**EXISTING BEARING REMOVAL DETAIL**

Cost of existing bearing removal and disposal is included with Jacking and Cribbing. Total number to be removed = 24

\* Field weld at existing girders. Cost Included with Jacking and Cribbing.

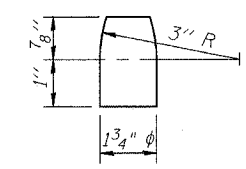


ELEVATION AT PIER 2



SECTION B-B

**FIXED BEARING PIER 2**



PINTLE

**JACKING AND CRIBBING PROCEDURE**

- The Contractor shall submit for approval by the Engineer, plans for jacking and cribbing prior to commencing any work at the bearings. See Special Provision for Jacking and Cribbing. Dead Load = 7 k per girder at each abutment and 23 k per girder at each pier. Use 10 ton min jack capacity at abutments and 25 ton min jack capacity at the piers.
- Jacking and Cribbing shall be done after the existing concrete deck is removed.
- The existing structural steel shall be raised according to the Special Provision for Jacking and Cribbing and to a height sufficient to form, pour and cure the concrete bearing seats, remove the existing bearings and install the new bearings.
- Once the new bearings are in place the existing steel can be lowered into place and connected to the bearings.
- After the existing and proposed girders are sitting on and connected to the new bearings and the proposed diaphragms are in place, forming for the new deck pour can begin.

**BILL OF MATERIAL**

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	10
Jacking and Cribbing	L. Sum	1

SHEET TITLE		PROJECT NO.
<b>BEARING DETAILS</b>		02017
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER	SCALE
	F.A.P. RTE. 774 SECTION 107BY	DATE
	EFFINGHAM COUNTY	DATE
	STATION 1011+50.17	DATE
	STRUCTURE NO. 025-0078	DATE
<b>COOMBE-BLOXDORF P.C.</b>		DATE
Engineers/Land Surveyors		DATE
Springfield, Illinois		DATE
Design Firm License No. 184-002708		DATE
		15
		OF 29 SHTS

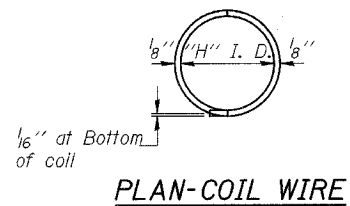
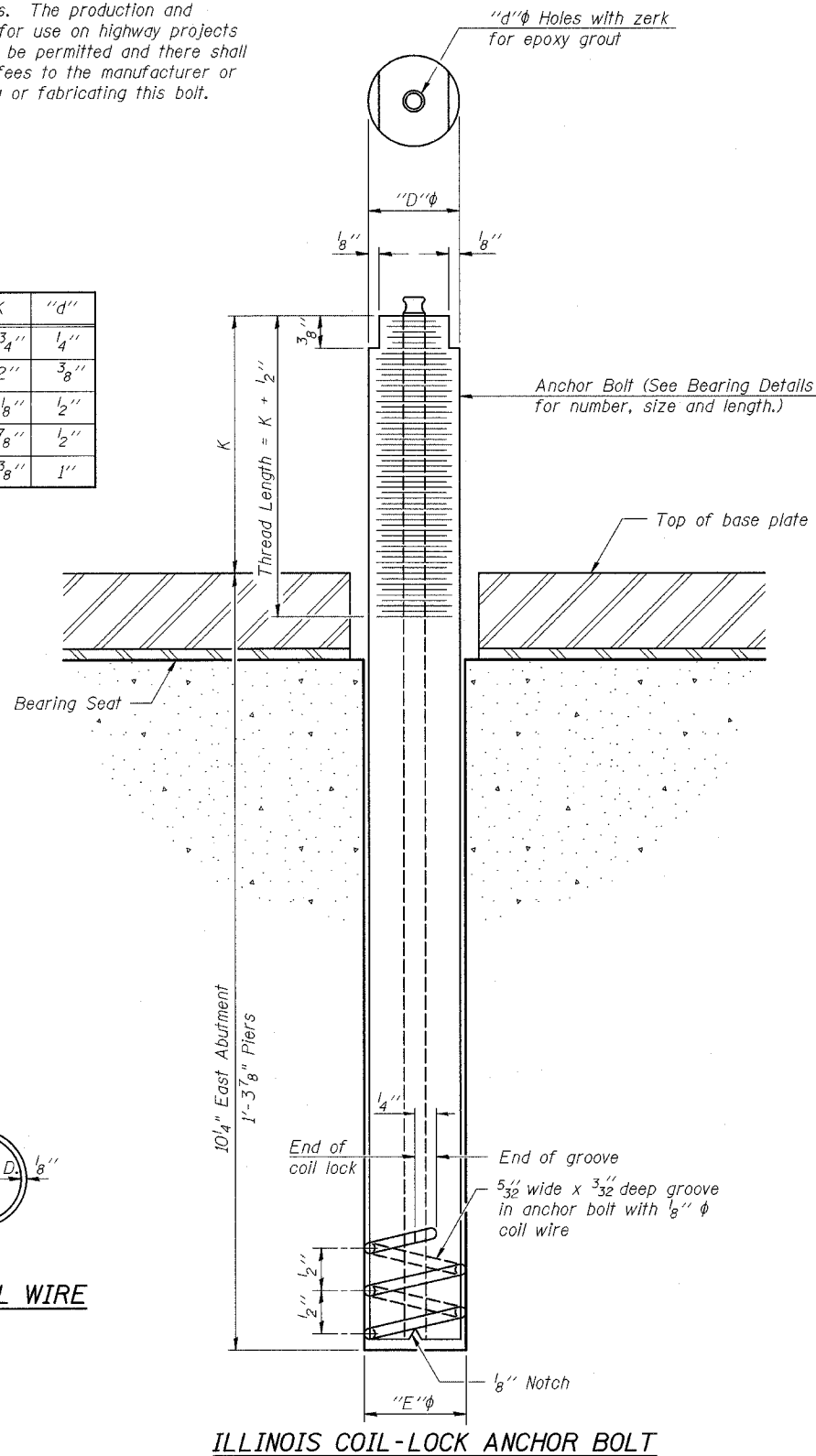
#1148888888

#1148888888

CONTRACT NO. 94827

The Illinois Coil-Lock Anchor Bolt is a proprietary item which is the property of the Illinois Department of Transportation. Use, reproduction or disclosure without express written permission is prohibited and protected under Federal copyright laws. The production and the fabrication of this bolt for use on highway projects in the State of Illinois shall be permitted and there shall be no incurred charges or fees to the manufacturer or the fabricator for producing or fabricating this bolt.

D	E	H	K	"d"
1"	1 1/8"	1 3/16"	1 3/4"	1/4"
1 1/4"	1 3/8"	1 1/16"	2"	3/8"
1 1/2"	1 5/8"	1 5/16"	2 1/8"	1/2"
2"	2 1/8"	1 13/16"	2 7/8"	1/2"
2 1/2"	2 5/8"	2 5/16"	3 3/8"	1"



### MATERIALS FOR ILLINOIS COIL-LOCK ANCHOR BOLT

The anchor bolt shall be fabricated from cold drawn or hot finished seamless carbon steel mechanical tubing conforming to ASTM A 519, Grade 1026, CW and supplied with hexagonal nuts and cut washers.  
 The coil wire shall be made of any suitable soft steel wire.  
 The finished anchor bolt shall be cleaned of rust and other foreign materials and wrapped or packaged to prevent contamination until they are installed.  
 The epoxy grout shall be a two-component, epoxy resin bonding system conforming to ASTM C 881, Type I, Grade 1 and of a Class suitable for the temperature at installation.

### INSTALLATION PROCEDURE for the ILLINOIS COIL-LOCK ANCHOR BOLT

1. With the coil wire in place, the bolt shall be inserted into the hole and turned clockwise to a snug fit in the hole. Nut and washer shall be placed on the bolt. The nut shall be tensioned until the steel base plates are held securely to the concrete bearing seat.
2. Epoxy grout shall be pumped through the zerk fitting with a pressure gun. Pumping shall continue until the epoxy overflows the hole around the bolt shank. After pumping is discontinued, excess epoxy shall be immediately wiped off.

### ALTERNATE ANCHOR BOLTS

The Contractor may use, at his option, the capsule or the adhesive cartridge type anchor rods that have been previously tested and given a prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes according to the manufacturer's recommendations and procedures.

- The capsule or the adhesive cartridge type anchor rods shall be a two part system composed of:
1. A threaded rod stud with nut and washer of the type specified.
  2. A sealed glass capsule or a sealed glass adhesive cartridge containing premeasured amounts of the adhesive chemical.

Location	Type
Pier 1	A325
Pier 2	A307
E. Abut.	A307

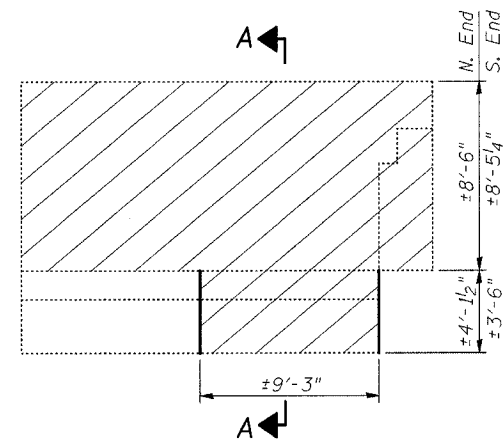
ASTM F 1554 Grade 105, ASTM A 449 and AASHTO M 314 Grade 105 anchor bolts may be substituted for the anchor bolts shown above.

### GENERAL NOTES

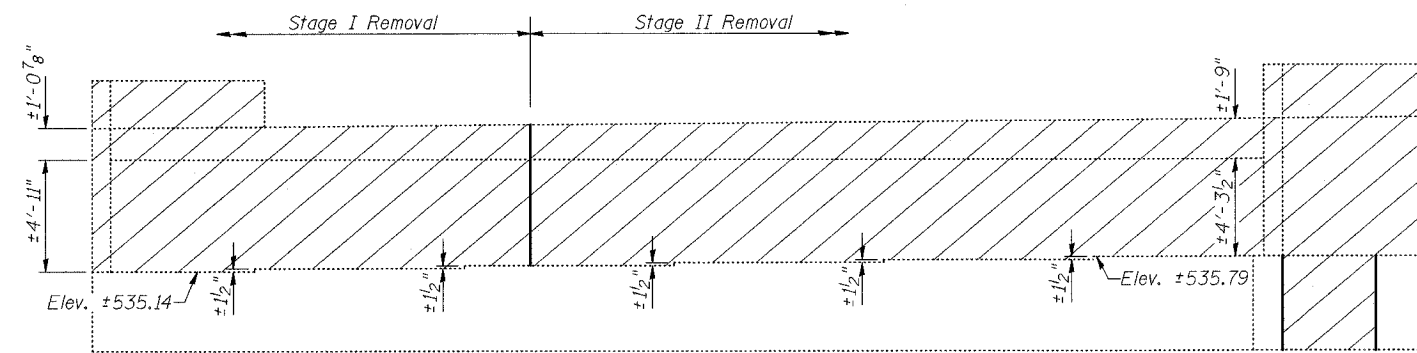
Holes in the masonry for anchor bolts shall be drilled through the base plates to the diameter and depth shown or according to the manufacturer's recommendation after beams or girders have been erected and adjusted.  
 Prior to setting the bolts, the holes shall be dry and all dust and loose particles shall be removed by the use of compressed air or vacuuming.  
 The anchor bolts, furnished and installed and including the epoxy grout or capsules shall not be paid for separately but shall be included in the unit bid price for Furnishing and Erecting Structural Steel.

SHEET TITLE		ANCHOR BOLT DETAILS FOR BEARINGS	
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER F.A.P. RTE. 774 SECTION 107BY EFFINGHAM COUNTY STATION 1011+50.17 STRUCTURE NO. 025-0078	PROJECT NO.	02017
SCALE		DATE	
DRAWN BY	TFG	CHECKED BY	GJB/MCB
DRAWING NO.			
COOMBE-BLOXDORF P.C. Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703		16 OF 29 SHTS	

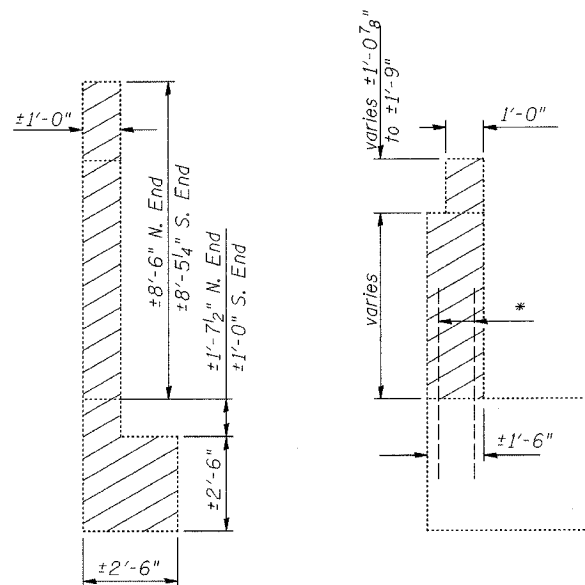
CONTRACT NO. 94827



**WING WALL ELEVATION**  
(South Wingwall Shown)

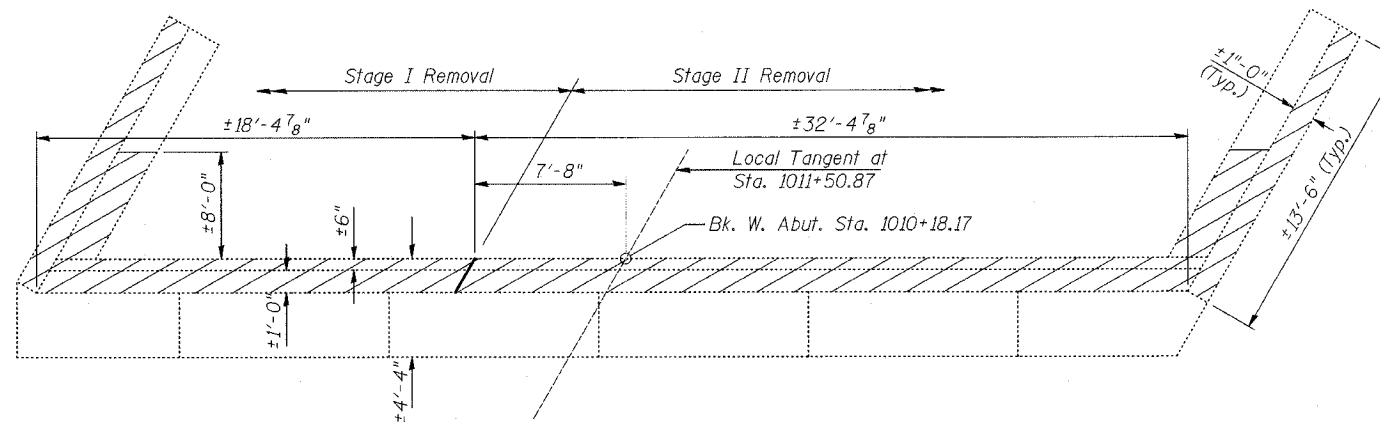


**ELEVATION**  
(Looking West)



**SEC. A-A**

**SEC. THRU ABUT.**



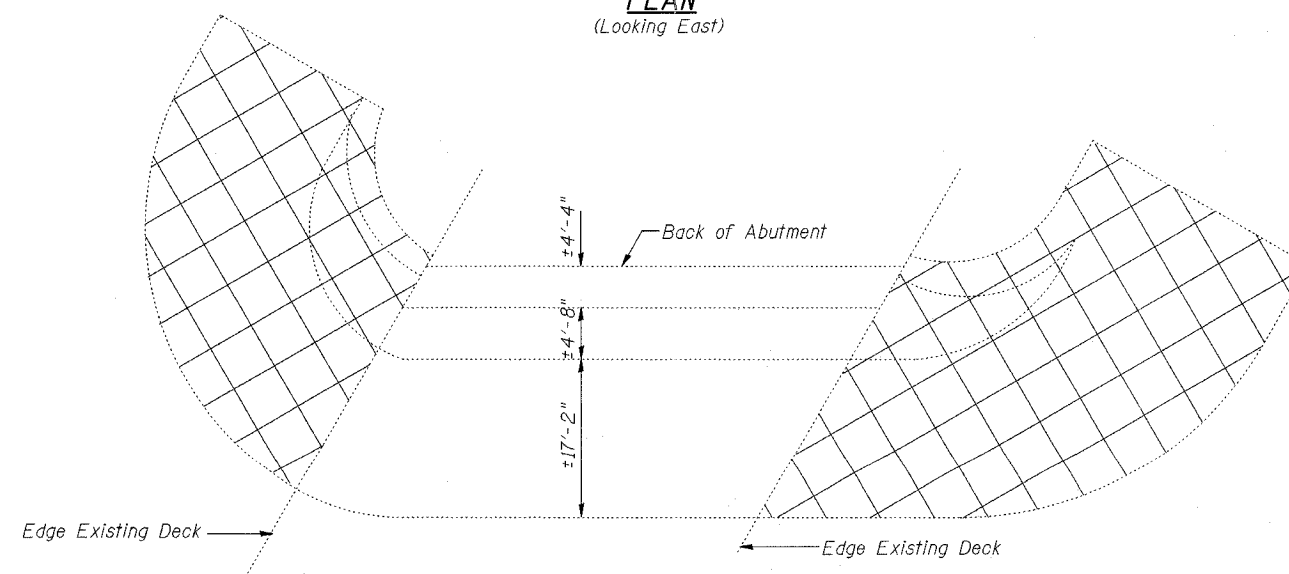
**PLAN**  
(Looking East)

**NOTES**

Hatched areas indicate Concrete Removal.  
Existing reinforcement not extending into areas of new construction shall be cut at the removal line and removed. Exposed portion will be covered with a layer of epoxy. Cost included with Concrete Removal.  
Existing reinforcement extending into the removal area are to be cleaned, straightened and incorporated into the new construction. All reinforcement bars that are damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system. Cost included with Concrete Removal.  
Cross hatched areas indicate Slope wall Removal.

**BILL OF MATERIAL**

Item	Unit	Quantity
Concrete Removal	Cu. Yd.	29.3
Slope wall Removal	Sq. Yd.	321



**SLOPEWALL REMOVAL**

\* Existing v bars in abutment backwall shall be cut to fit proposed construction.

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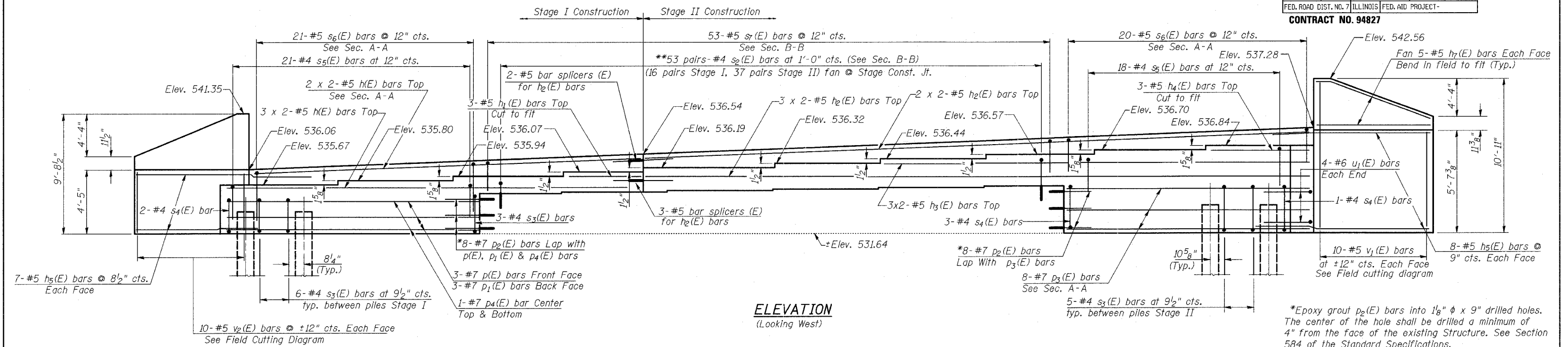
west-abut-conc-removal

SHEET TITLE <b>WEST ABUTMENT CONCRETE REMOVAL</b>	
PROJECT IL RTE. 32/33 OVER LITTLE WABASH RIVER F.A.P. RTE. 774 SECTION 107BY EFFINGHAM COUNTY STATION 1011+50.17 STRUCTURE NO. 025-0078	PROJECT NO. 02017 SCALE DATE DRAWN BY TFG CHECKED BY GJB/MCB DRAWING NO.
<b>COOMBE-BLOXDORF P.C.</b> Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002708	
17 OF 29 SHTS	

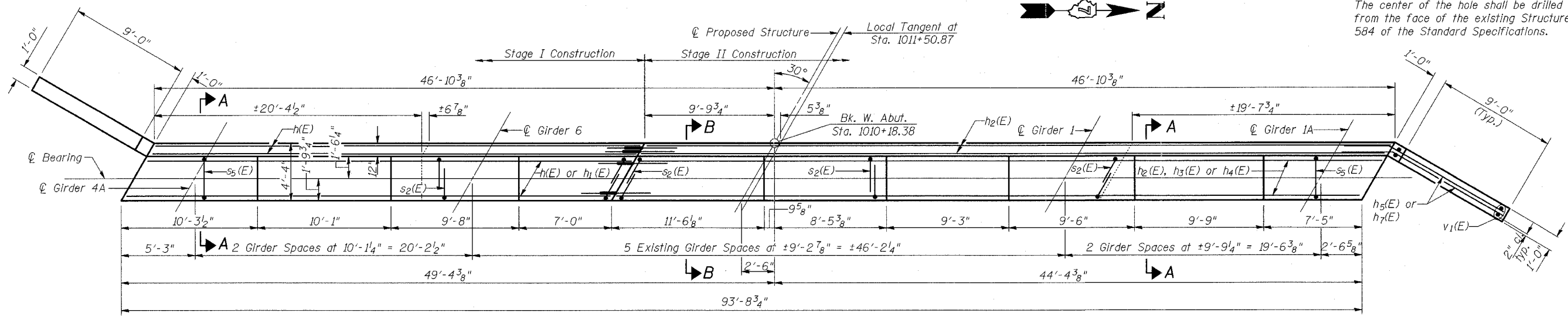
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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 18 29 SHEETS
F.A.P. RTE. 774	107BY	EFFINGHAM	273	244	
FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT-					

CONTRACT NO. 94827



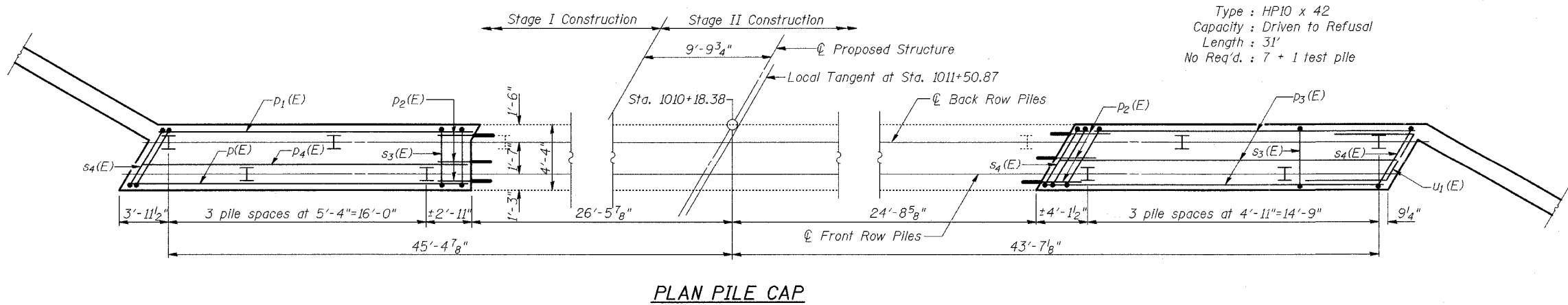
\*Epoxy grout  $p_2(E)$  bars into  $1\frac{1}{8}$ "  $\phi$  x 9" drilled holes. The center of the hole shall be drilled a minimum of 4" from the face of the existing structure. See Section 584 of the Standard Specifications.  
\*\*Epoxy grout  $s_2(E)$  bars into  $\frac{3}{4}$ "  $\phi$  x 9" drilled holes. The center of the hole shall be drilled a minimum of 4" from the face of the existing structure. See Section 584 of the Standard Specifications.



**PILE DATA**

Type : HP10 x 42  
Capacity : Driven to Refusal  
Length : 31'  
No Req'd. : 7 + 1 test pile

**Min. Bar Lap**  
#5 bars = 1'-8"



Work this sheet with sheet 19 of 29.

SHEET TITLE		WEST ABUTMENT	
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER	PROJECT NO.	02017
	F.A.P. RTE. 774 SECTION 107BY	SCALE	
	EFFINGHAM COUNTY	DATE	
	STATION 1011+50.17	DRAWN BY	TFG
	STRUCTURE NO. 025-0078	CHECKED BY	GJB/MCB
COOMBE-BLOXDORF P.C.		DRAWING NO.	18
Engineers/Land Surveyors			
Springfield, Illinois			
Design Firm License No. 184-002703			OF 29 SHTS

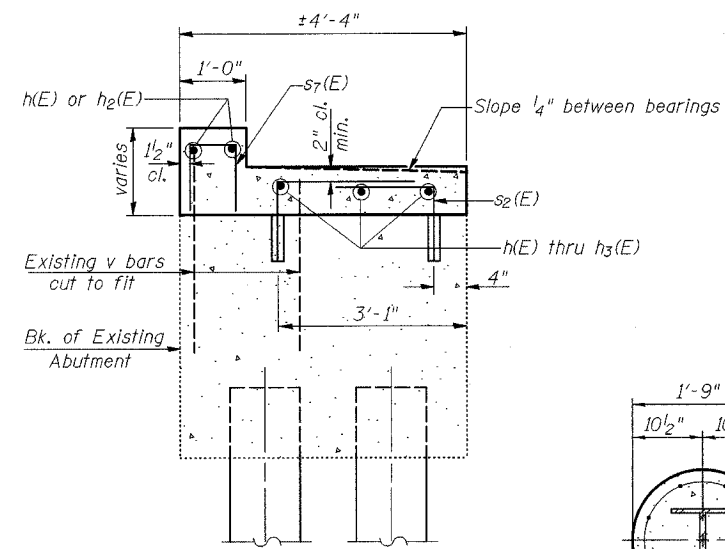
west-abut-proposed

CONTRACT NO. 94827

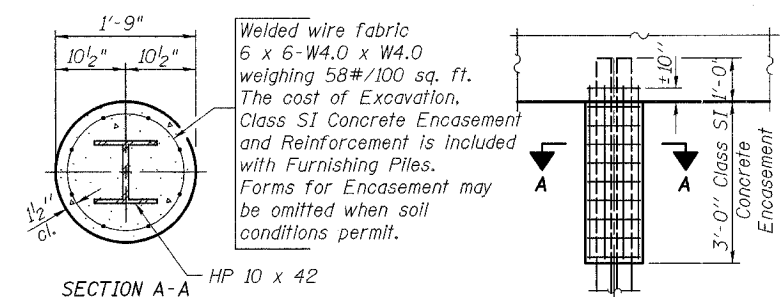
**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
$h(E)$	10	#5	19'-3"	—
$h_1(E)$	3	#5	8'-4"	—
$h_2(E)$	10	#5	29'-0"	—
$h_3(E)$	6	#5	19'-7"	—
$h_4(E)$	3	#5	8'-10"	—
$h_5(E)$	30	#5	12'-2"	—
$h_7(E)$	20	#5	9'-8"	—
$p(E)$	3	#7	22'-6"	—
$p_1(E)$	3	#7	20'-0"	—
$p_2(E)$	16	#7	5'-9"	—
$p_3(E)$	8	#7	19'-4"	—
$p_4(E)$	2	#7	21'-3"	—
$s_2(E)$	106	#4	3'-9"	□
$s_3(E)$	36	#4	15'-1"	□
$s_4(E)$	6	#4	16'-4"	□
$s_5(E)$	39	#4	5'-8"	□
$s_6(E)$	41	#5	6'-1"	□
$s_7(E)$	53	#5	2'-5"	□
$u_1(E)$	8	#6	9'-8"	—
$v_1(E)$	10	#5	16'-10"	—
$v_2(E)$	10	#5	14'-4"	—
Structure Excavation	Cu. Yd.		183	
Concrete Structures	Cu. Yd.		44.7	
Reinforcement Bars Epoxy Coated	Lbs.		3790	
Furnishing Steel Piles HP10x42	Ft.		217	
Driving Steel Piles	Ft.		217	
Test Piles Steel HP10x42	Each		1	
Bar Splicers	Each		5	

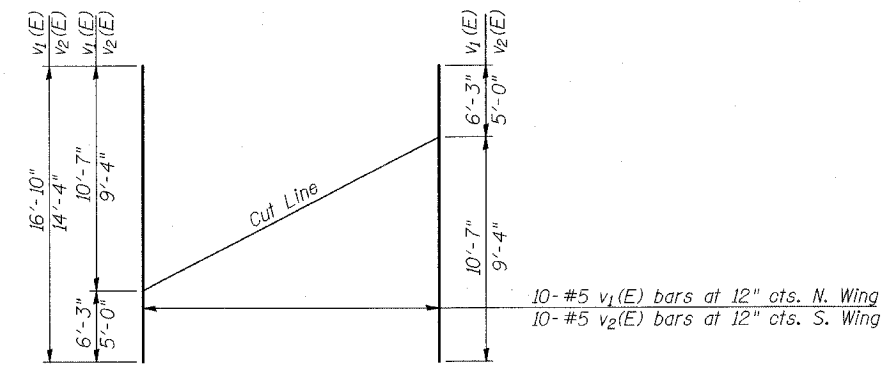
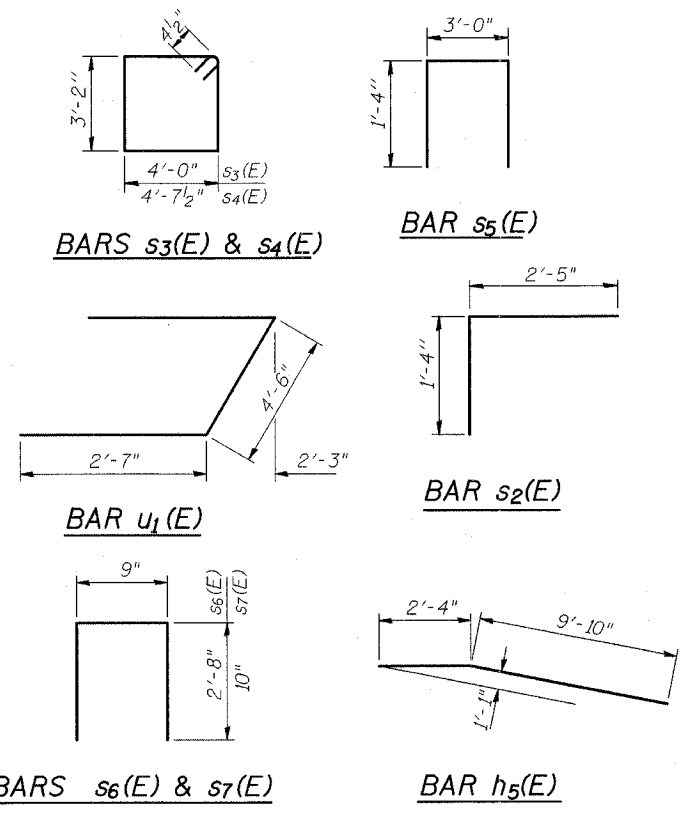
Reinforcement bars designated (E) shall be epoxy coated.



**SECTION B-B**

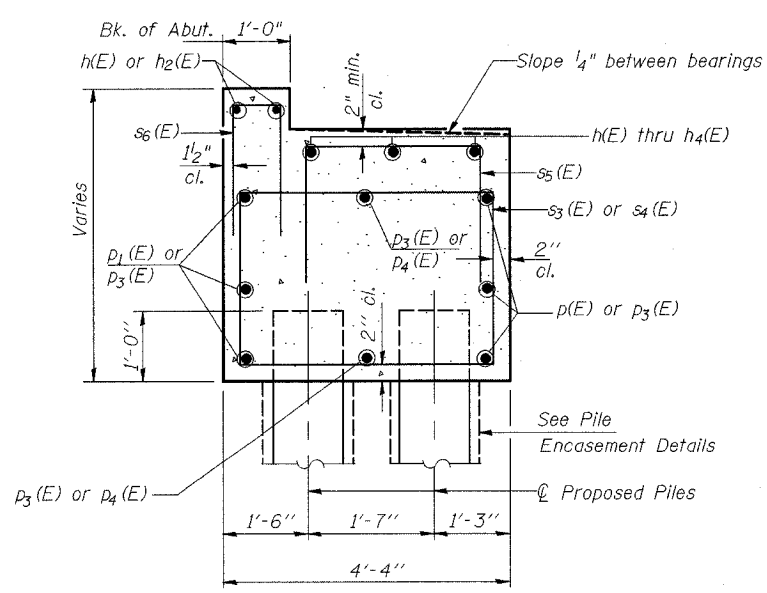


**PILE ENCASEMENT DETAIL**



**FIELD CUTTING DIAGRAM**

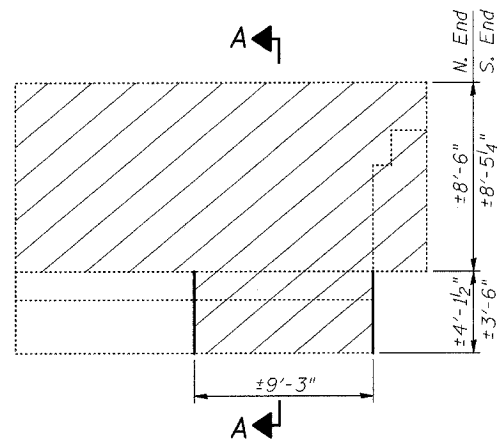
Order  $v_1(E)$  and  $v_2(E)$  bars full length.  
Cut as shown and use remainder of bars in opposite face.



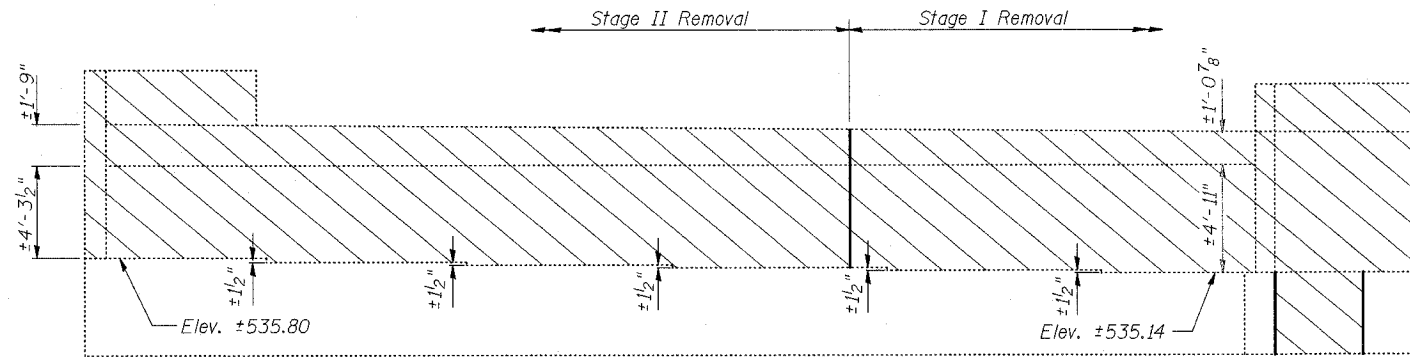
**SECTION A-A**

Work this sheet with sheet 18 of 29.

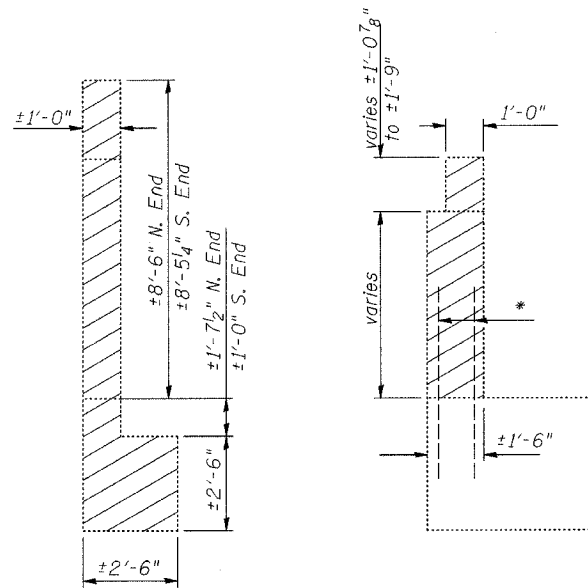
SHEET TITLE		WEST ABUTMENT DETAILS	
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER F.A.P. RTE. 774 SECTION 107BY EFFINGHAM COUNTY STATION 1011+50.17 STRUCTURE NO. 025-0078	PROJECT NO.	02017
SCALE		DATE	
DRAWN BY	TFG	CHECKED BY	GJB/MCB
DRAWING NO.			
<b>COOMBE-BLOXDORF P.C.</b> Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002708		19 OF 29 SHTS	



**WING WALL ELEVATION**  
(North Wingwall Shown)

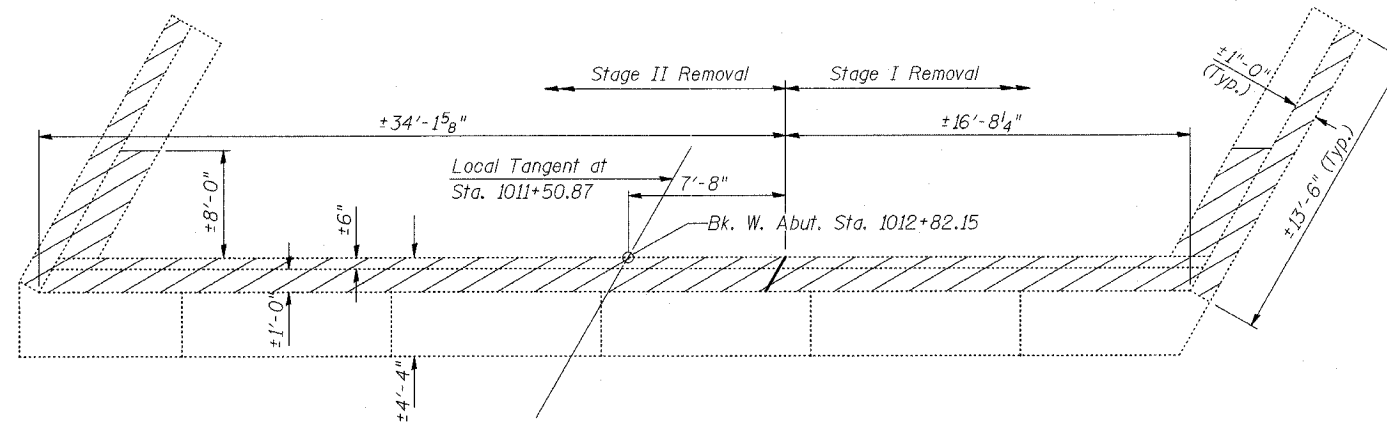


**ELEVATION**  
(Looking East)

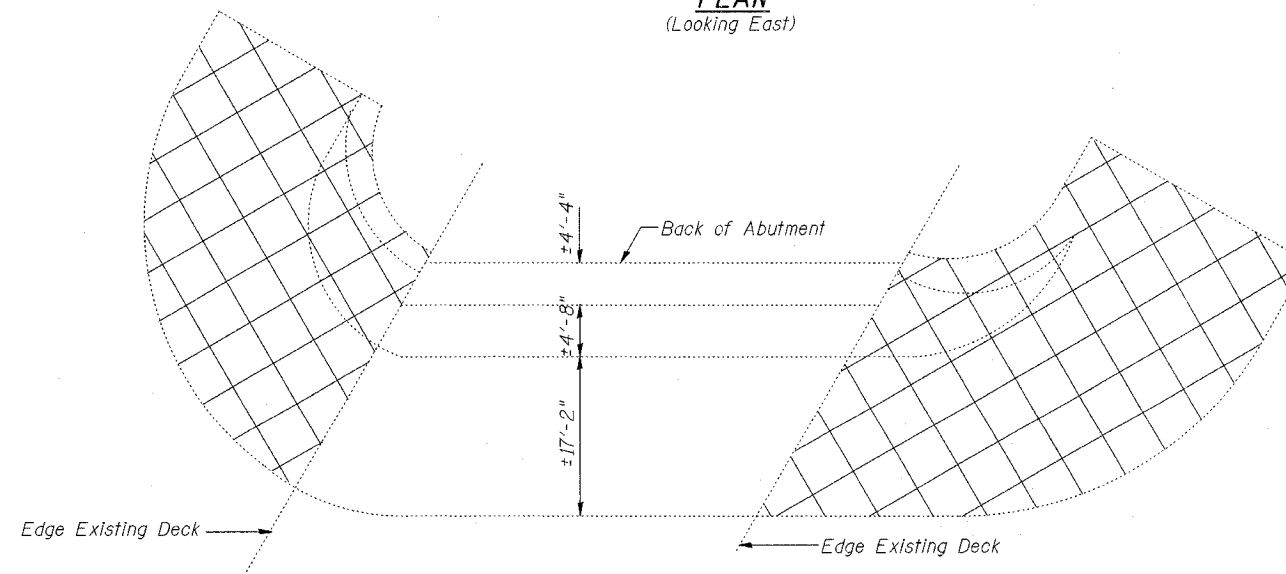


**SEC. A-A**

**SEC. THRU ABUT.**



**PLAN**  
(Looking East)



**SLOPEWALL REMOVAL**

**NOTES**

Hatched areas indicate Concrete Removal.  
Existing reinforcement not extending into areas of new construction shall be cut at the removal line and removed. Exposed portion will be covered with a layer of epoxy. Cost Included with Concrete Removal.  
Existing reinforcement extending into the removal area are to be cleaned, straightened and incorporated into the new construction. All reinforcement bars that are damaged during concrete removal shall be replaced with an approved bar splicer or anchorage system. Cost included with Concrete Removal.  
Cross hatched areas indicate Slopewall Removal.

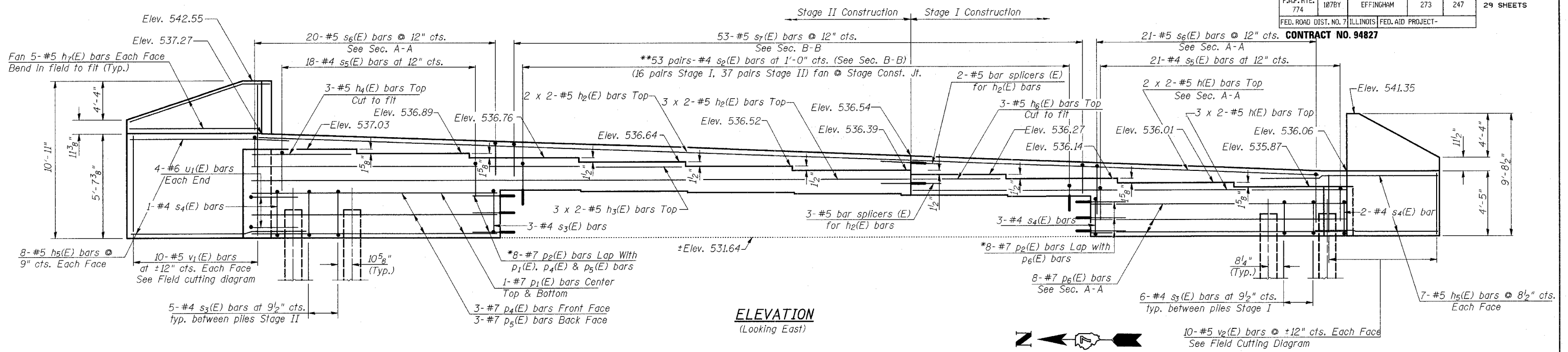
**BILL OF MATERIAL**

Item	Unit	Quantity
Concrete Removal	Cu. Yd.	29.3
Slopewall Removal	Sq. Yd.	321

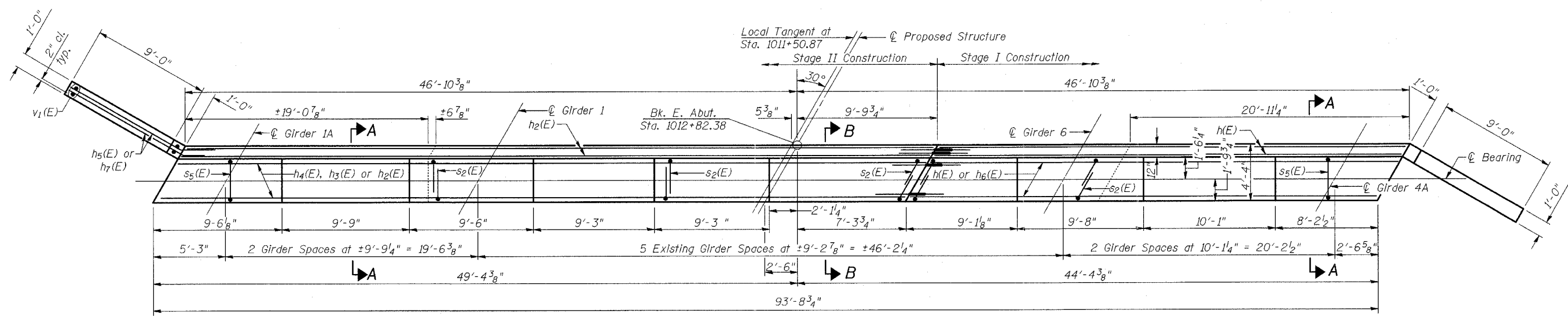
\* Existing v bars in abutment backwall shall be cut to fit proposed construction.

SHEET TITLE		EAST ABUTMENT CONCRETE REMOVAL	
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER F.A.P. RTE. 774 SECTION 107BY EFFINGHAM COUNTY STATION 1011+50.17 STRUCTURE NO. 025-0078	PROJECT NO.	02017
SCALE		DATE	
DRAWN BY	TFG	CHECKED BY	GJB/MCB
DRAWING NO.			
<b>COOMBE-BLOXDORF P.C.</b> Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703		20	OF 29 SHTS

CONTRACT NO. 94827



**ELEVATION**  
(Looking East)

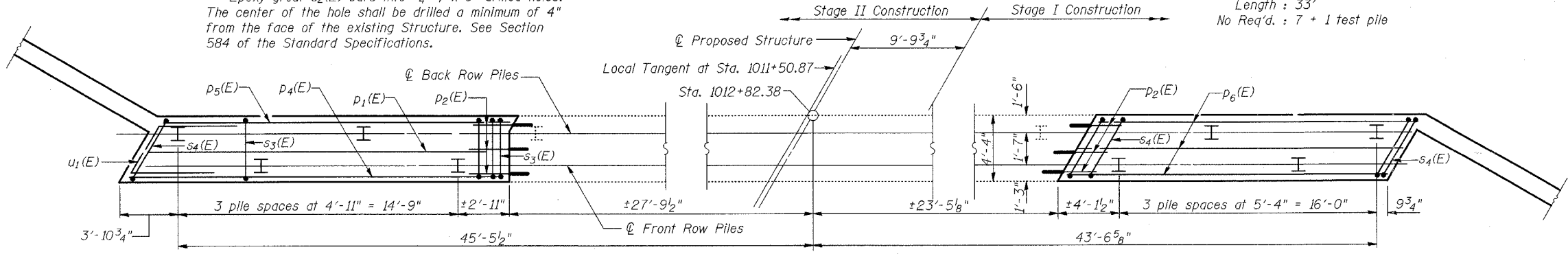


**PLAN**

\*Epoxy grout p<sub>2</sub>(E) bars into 1 1/8" φ x 9" drilled holes. The center of the hole shall be drilled a minimum of 4" from the face of the existing Structure. See Section 584 of the Standard Specifications.  
\*\*Epoxy grout s<sub>2</sub>(E) bars into 3/4" φ x 9" drilled holes. The center of the hole shall be drilled a minimum of 4" from the face of the existing Structure. See Section 584 of the Standard Specifications.

**PILE DATA**  
Type : HP10 x 42  
Capacity : Driven to Refusal  
Length : 33'  
No Req'd. : 7 + 1 test pile

**Min. Bar Lap**  
#5 bars = 1'-8"



**PLAN PILE CAP**

Work this sheet with sheet 22 of 29.

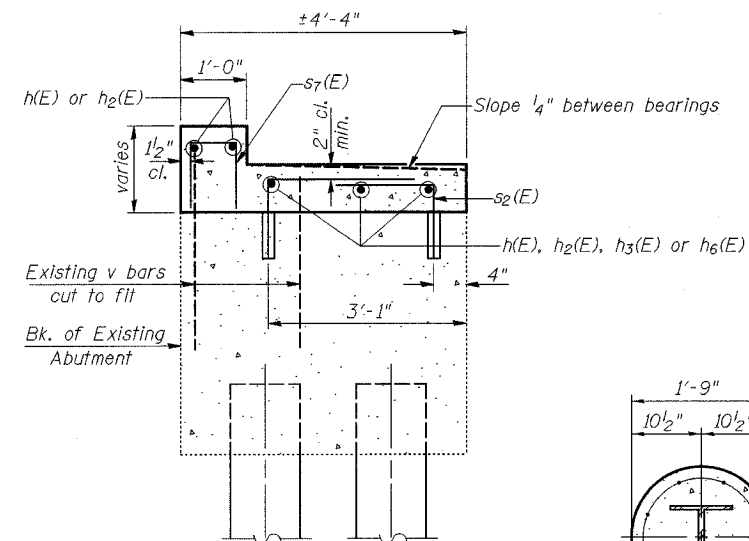
SHEET TITLE		PROJECT NO.	
EAST ABUTMENT		02017	
PROJECT		SCALE	
IL RTE. 32/33 OVER LITTLE WABASH RIVER		DATE	
F.A.P. RTE. 774 SECTION 107BY		DRAWN BY	
EFFINGHAM COUNTY		CHECKED BY	
STATION 1011+50.17		DRAWING NO.	
STRUCTURE NO. 025-0078		21	
COOMBE-BLOXDORF P.C.		OF 29 SHTS	
Engineers / Land Surveyors			
Springfield, Illinois			
Design Firm License No. 184-002703			

CONTRACT NO. 94827

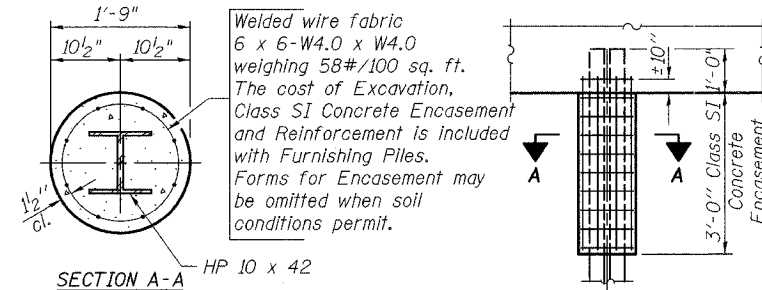
**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h(E)	10	#5	19'-3"	
h <sub>2</sub> (E)	10	#5	29'-0"	
h <sub>3</sub> (E)	6	#5	19'-7"	
h <sub>4</sub> (E)	3	#5	8'-10"	
h <sub>5</sub> (E)	30	#5	12'-2"	
h <sub>6</sub> (E)	3	#5	8'-9"	
h <sub>7</sub> (E)	20	#5	9'-8"	
p <sub>1</sub> (E)	2	#7	20'-0"	
p <sub>2</sub> (E)	16	#7	5'-9"	
p <sub>4</sub> (E)	3	#7	21'-3"	
p <sub>5</sub> (E)	3	#7	18'-11"	
p <sub>6</sub> (E)	8	#7	20'-7"	
s <sub>2</sub> (E)	106	#4	3'-9"	
s <sub>3</sub> (E)	36	#4	15'-1"	
s <sub>4</sub> (E)	6	#4	16'-4"	
s <sub>5</sub> (E)	39	#4	5'-8"	
s <sub>6</sub> (E)	41	#5	6'-1"	
s <sub>7</sub> (E)	53	#5	2'-5"	
u <sub>1</sub> (E)	8	#6	9'-8"	
v <sub>1</sub> (E)	10	#5	16'-10"	
v <sub>2</sub> (E)	10	#5	14'-4"	
Structure Excavation	Cu. Yd.		183	
Concrete Structures	Cu. Yd.		46.9	
Reinforcement Bars Epoxy Coated	Lbs.		3790	
Furnishing Steel Piles HP10x42	Ft.		231	
Driving Steel Piles	Ft.		231	
Test Piles Steel HP10x42	Each		1	
Bar Splicers	Each		5	

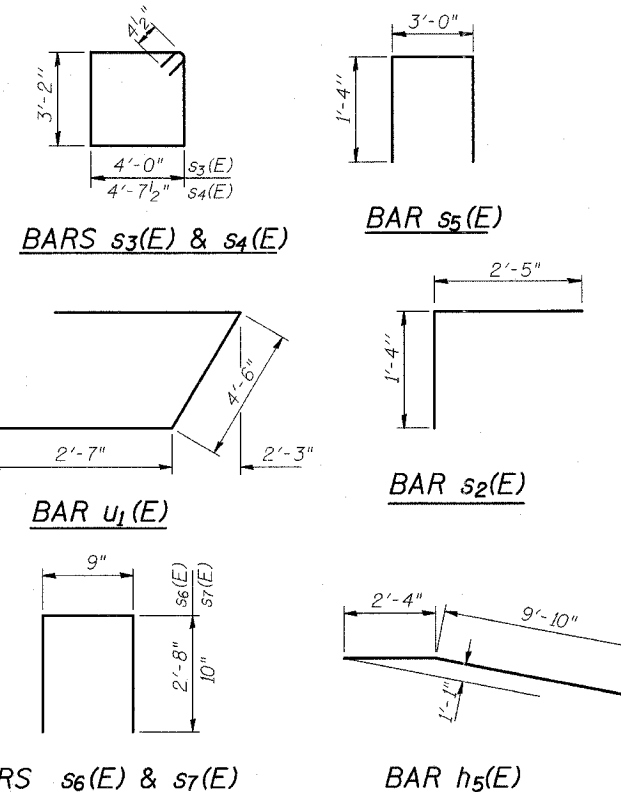
Reinforcement bars designated (E) shall be epoxy coated.



**SECTION B-B**



**PILE ENCASEMENT DETAIL**



**BARS s<sub>3</sub>(E) & s<sub>4</sub>(E)**

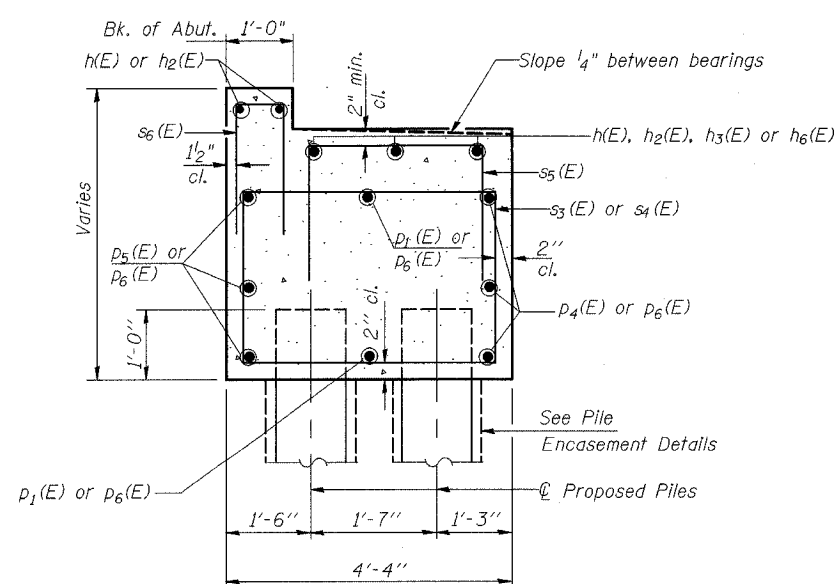
**BAR s<sub>5</sub>(E)**

**BAR u<sub>1</sub>(E)**

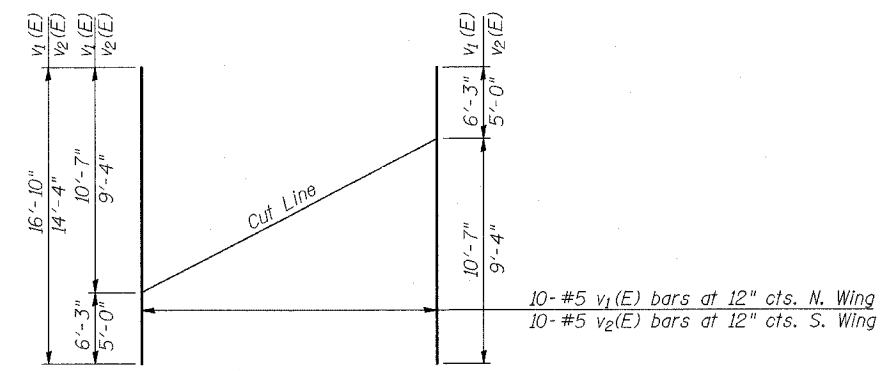
**BAR s<sub>2</sub>(E)**

**BARS s<sub>6</sub>(E) & s<sub>7</sub>(E)**

**BAR h<sub>5</sub>(E)**



**SECTION A-A**



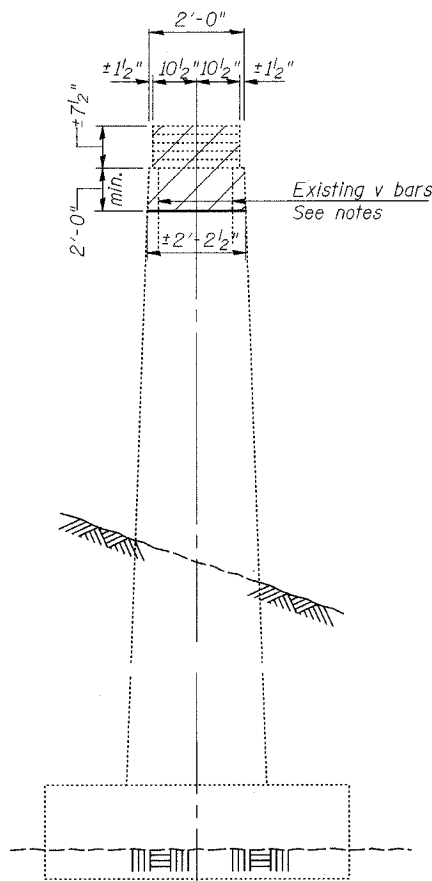
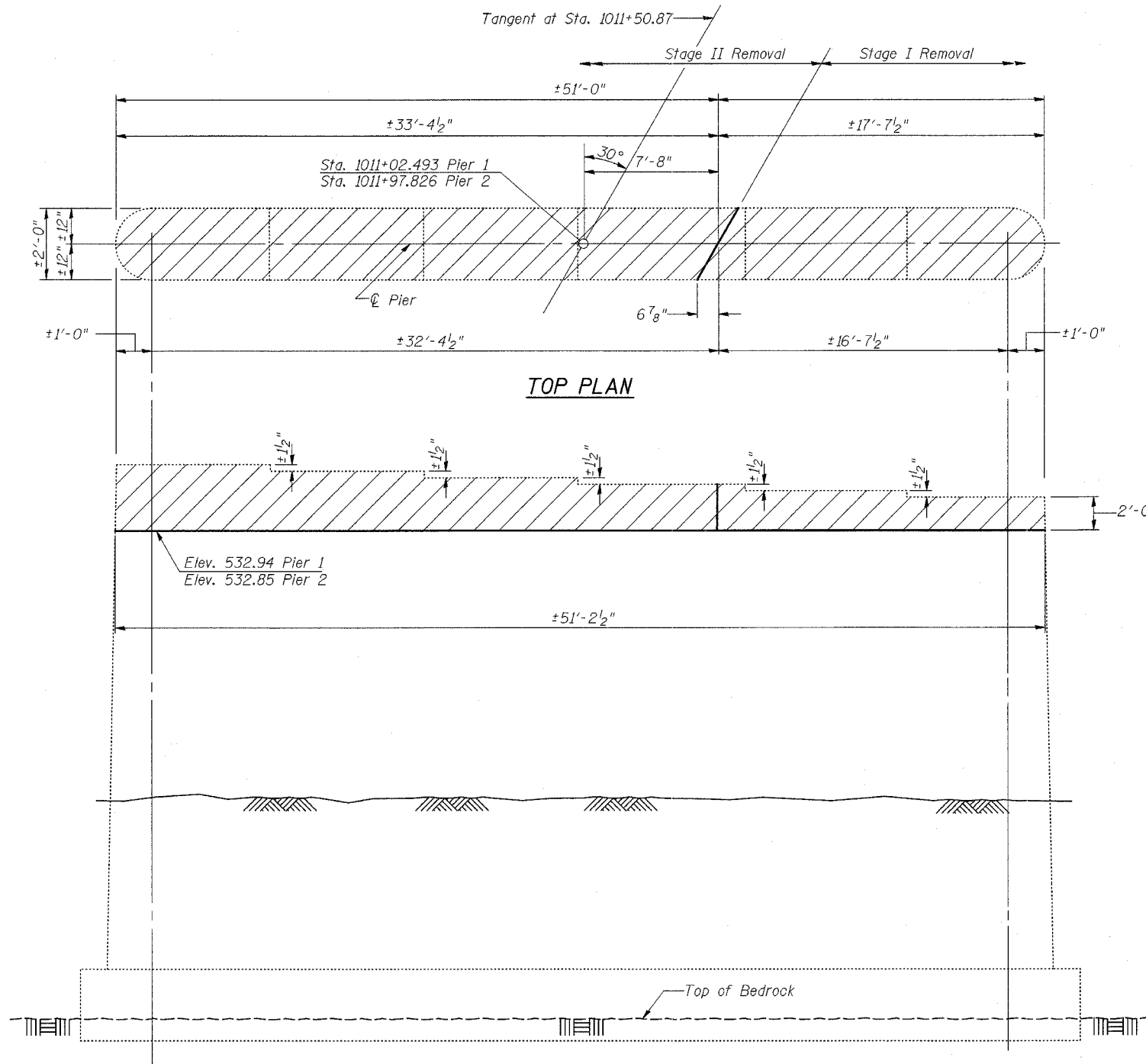
**FIELD CUTTING DIAGRAM**

Order v<sub>1</sub>(E) and v<sub>2</sub>(E) bars full length. Cut as shown and use remainder of bars in opposite face.

Work this sheet with sheet 21 of 29.

SHEET TITLE		PROJECT NO.	
EAST ABUTMENT DETAILS		02017	
PROJECT		SCALE	
IL RTE. 32/33 OVER LITTLE WABASH RIVER			
F.A.P. RTE. 774 SECTION 107BY		DATE	
EFFINGHAM COUNTY		DRAWN BY	
STATION 1011+50.17		TFG	
STRUCTURE NO. 025-0078		CHECKED BY	
		CJB/MCB	
DRAWING NO.			
COOMBE-BLOXDORF P.C.		22	
Engineers/Land Surveyors			
Springfield, Illinois			
Design Firm License No. 184-002703		OF 29 SHTS	





**NOTES**

Hatched areas indicate Concrete Removal.  
Existing v bars extending into the new construction shall be cleaned, straightened and incorporated into the new construction. Cost included with Concrete Removal.

**BILL OF MATERIAL (2-PIERS)**

Item	Unit	Quantity
Concrete Removal	Cu. Yd.	18.4

SHEET TITLE <b>PIERS 1 &amp; 2 CONCRETE REMOVAL</b>	
PROJECT IL RTE. 32/33 OVER LITTLE WABASH RIVER F.A.P. RTE. 774 SECTION 107BY EFFINGHAM COUNTY STATION 1011+50.17 STRUCTURE NO. 025-0078	PROJECT NO. 02017 SCALE DATE DRAWN BY TFC CHECKED BY GJB/MCB DRAWING NO.
<b>COOMBE-BLOXDORF P.C.</b> Engineers/Land Surveyors Springfield, Illinois Design Firm License No. 184-002703	23 OF 29 SHTS

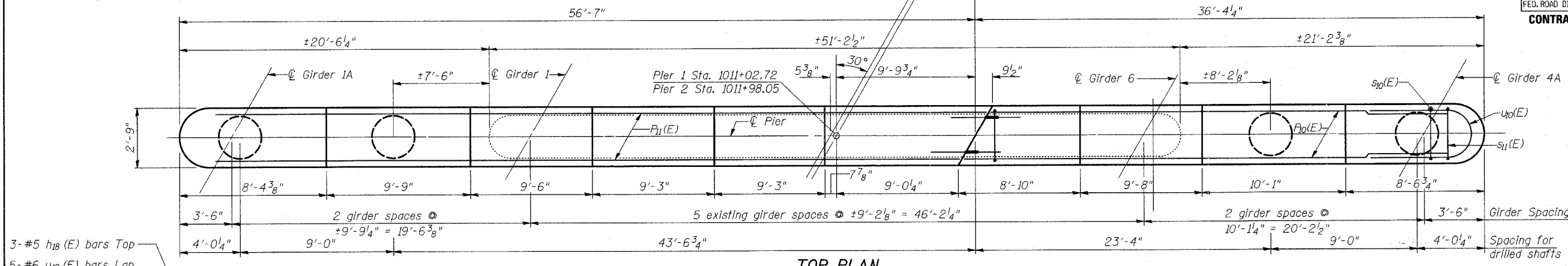
Notes: Space reinforcement in cap to miss anchor bolts.  
Four steps monolithically with cap.

Local Tangent at Sta. 1011+50.87

Stage II Construction Stage I Construction

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 24 29 SHEETS
F.A.P. RTE.	107BY	EFFINGHAM	273	250	
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-			

CONTRACT NO. 94827



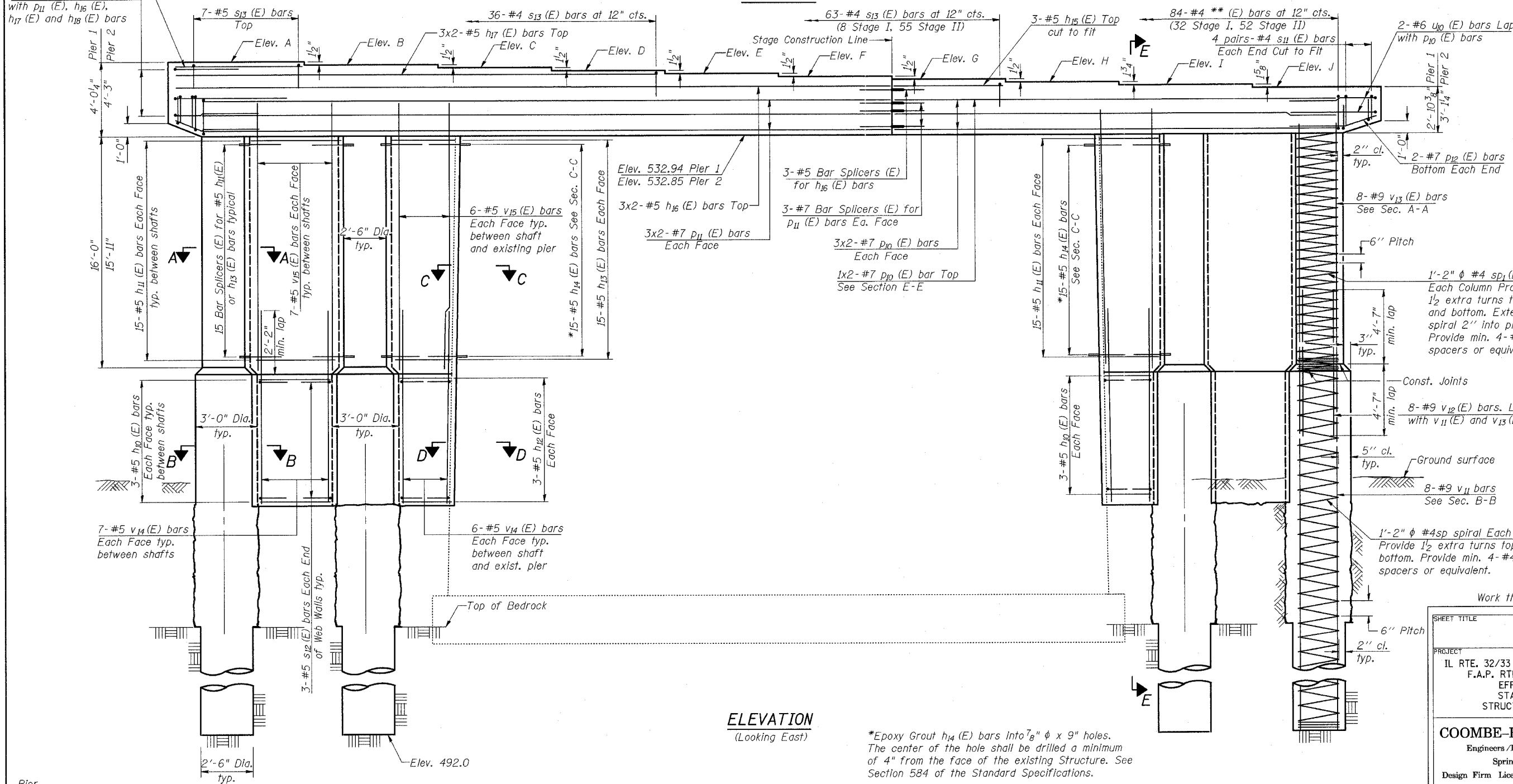
**TOP PLAN**

3-#5 h<sub>18</sub>(E) bars Top  
5-#6 u<sub>10</sub>(E) bars Lap with p<sub>11</sub>(E), h<sub>15</sub>(E), h<sub>17</sub>(E) and h<sub>18</sub>(E) bars

\*\*s<sub>10</sub>(E) Pier 1  
s<sub>14</sub>(E) Pier 2

**TABLE of ELEVATIONS**

Elev.	Pier 1	Pier 2
A	536.96	537.10
B	536.83	536.97
C	536.71	536.85
D	536.58	536.73
E	536.46	536.60
F	536.34	536.48
G	536.21	536.36
H	536.09	536.23
I	535.93	536.08
J	535.80	535.95



**ELEVATION**  
(Looking East)

\*Epoxy Grout h<sub>14</sub>(E) bars into 7/8" φ x 9" holes. The center of the hole shall be drilled a minimum of 4" from the face of the existing Structure. See Section 584 of the Standard Specifications.

**Min. Bar Lap**

#5 bar = 1'-8" web wall  
#5 bar = 3'-0" cap  
#7 bar = 4'-10"

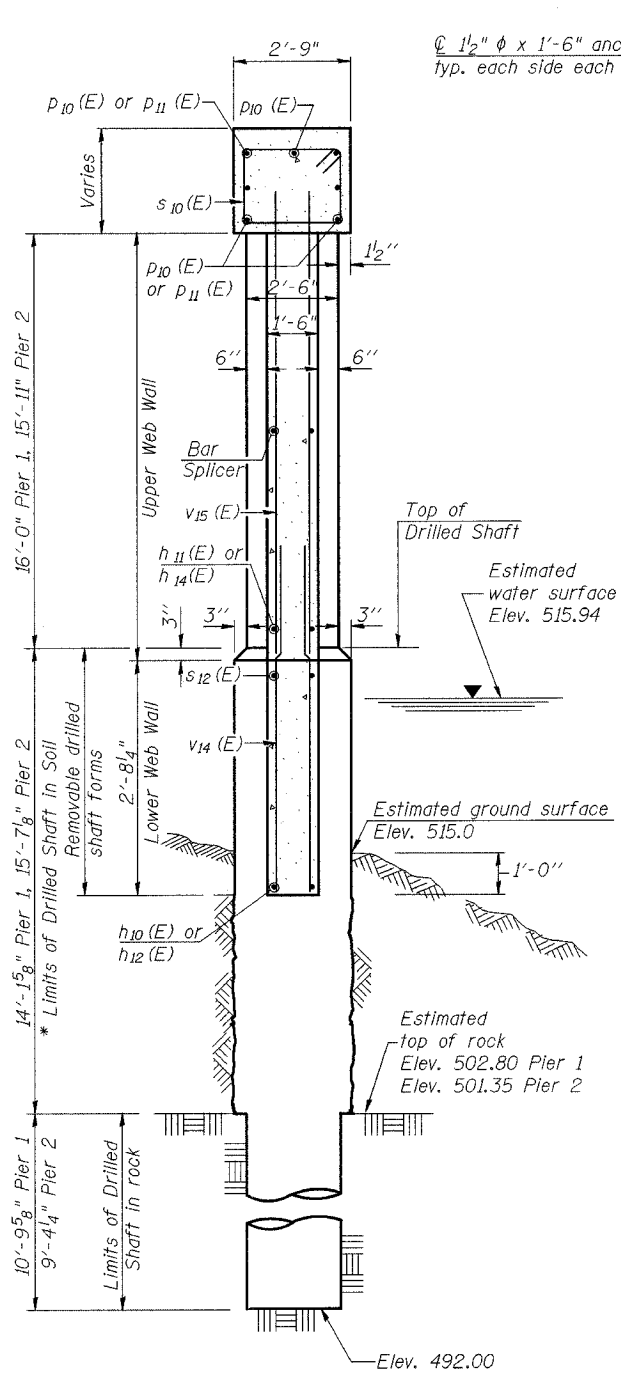
Work this Sheet with Sheet 25 of 29.

SHEET TITLE		PIERS	
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER	PROJECT NO.	02017
	F.A.P. RTE. 774 SECTION 107BY	SCALE	
	EFFINGHAM COUNTY	DATE	
	STATION 1011+50.17	DRAWN BY	TFG
	STRUCTURE NO. 025-0078	CHECKED BY	GJB/MCB
<b>COOMBE-BLOXDORF P.C.</b>		24	
Engineers/Land Surveyors		OF 29 SHTS	
Springfield, Illinois			
Design Firm License No. 184-002703			

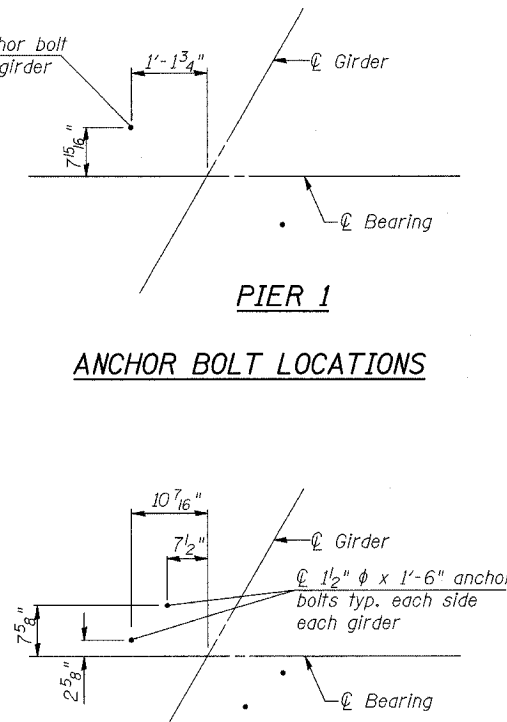
FILE NUMBER

Pier

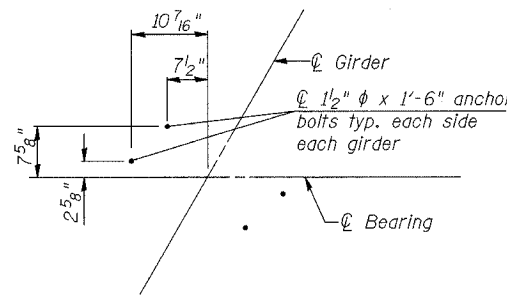
DATE: 2/25/15



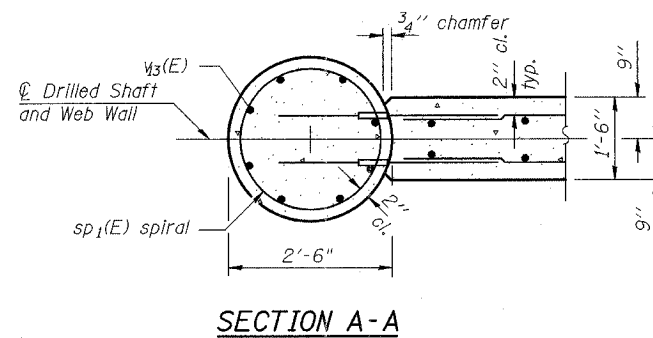
SECTION E-E



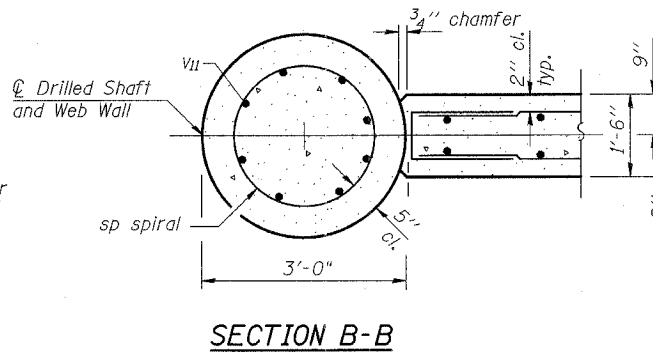
PIER 1  
ANCHOR BOLT LOCATIONS



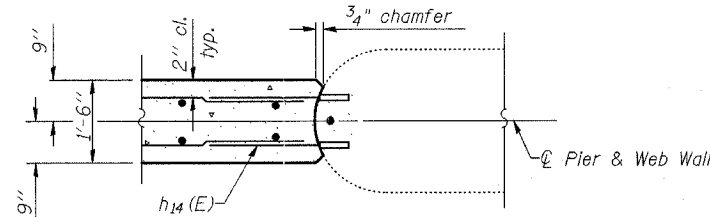
PIER 2  
ANCHOR BOLT LOCATIONS



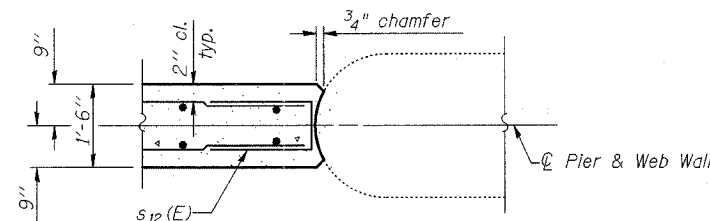
SECTION A-A



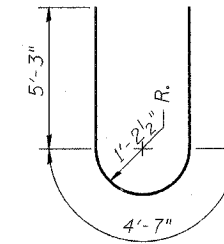
SECTION B-B



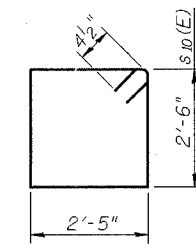
SECTION C-C



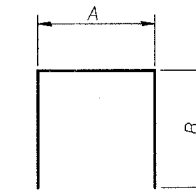
SECTION D-D



BAR u10(E)



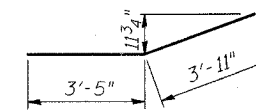
BAR s10(E) & s14(E)



BARS s11(E), s12(E) & s13(E)

A & B DIMENSIONS

BAR	A	B
s11(E)	2'-5"	2'-6"
s12(E)	1'-2"	2'-6"
s13(E)	2'-5"	2'-2"



BAR D12(E)

BILL OF MATERIAL-2 PIERS

Bar	No.	Size	Length	Shape
h10(E)	36	#5	5'-8"	—
h11(E)	180	#5	6'-2"	—
h12(E)	12	#5	4'-11"	—
h13(E)	60	#5	5'-3"	—
h14(E)	120	#5	3'-7"	—
h15(E)	6	#5	8'-5"	—
h16(E)	12	#5	29'-6"	—
h17(E)	12	#5	19'-1"	—
h18(E)	6	#5	6'-9"	—
D10(E)	28	#7	19'-0"	—
D11(E)	24	#7	29'-2"	—
D12(E)	8	#7	7'-4"	—
s10(E)	84	#4	10'-7"	□
s11(E)	32	#4	7'-5"	□
s12(E)	48	#5	6'-2"	□
s13(E)	212	#4	6'-9"	□
s14(E)	84	#4	10'-11"	□
sp	8	#4	24'-8"	⋈
sp1(E)	8	#4	16'-2"	⋈
u10(E)	14	#6	15'-1"	U
v11	64	#9	24'-8"	—
v12(E)	64	#9	9'-2"	—
v13(E)	64	#9	18'-4"	—
v14(E)	104	#5	4'-11"	—
v15(E)	104	#5	18'-2"	—
Underwater Structure Excavation Protection Locations 3 & 4	Each		2	
Drilled Shaft in Soil 36"	Foot		119	
Drilled Shaft in Rock 30"	Foot		81	
Concrete Structures	Cu. Yd.		144.7	
Reinforcement Bars, Epoxy Coated	Pound		18,160	
Reinforcement Bars	Pound		7,160	
Bar Splicers	Each		378	

Reinforcement Bars designated (E) shall be epoxy coated. Cast steps monolithically with cap. Space cap reinforcement to miss anchor bolts. Minimum lap for spirals = 1 1/2 turns. \*\*Length is height of spiral. Bars indicated thus 3 x 2-#7 etc. indicates 3 lines of bars with 2 lengths per line.

Construction Sequence for Web Wall

- Excavate between shafts to elevation of web wall base and set lower web wall forms through water to bear on the circular edge of drilled shafts. Secure in place with fill, struts or tie forms together as required.
- Place the lower web wall reinforcement cage into the forms using spacers to maintain proper clearances.
- If the forms can be sealed against the shafts and streambed to allow dewatering, the reinforcement and the concrete placement may be completed in the dry. Alternatively, the rebar cage can be lowered into position through water and the concrete discharged at the base of the excavation through a tremie pipe or pump hose, displacing water, sediment, and tainted concrete out the top of the forms.
- Construct Columns.
- Construct upper web walls.

\* If the prevailing water surface elevation during construction is consistently different than estimated on the plans, the contractor may propose an adjustment to the top of the drilled shaft elevation as part of their installation procedure. The top of all drilled shafts within a substructure unit shall be constructed to the same elevation and extend above the prevailing water surface. The quantities and reinforcement detailing are based on the top of shaft and the estimated elevations shown and may change based on the actual elevations encountered at each shaft and the final top of shaft elevation.

Work this sheet with sheet 24 of 29.

SHEET TITLE		PIER DETAILS	
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER F.A.P. RTE. 774 SECTION 107BY EFFINGHAM COUNTY STATION 1011+50.17 STRUCTURE NO. 025-0078	PROJECT NO.	02017
SCALE		DATE	
DRAWN BY	TFG	CHECKED BY	GJB/MCB
DRAWING NO.			
<b>COOMBE-BLOXDORF P.C.</b> Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002708		25	OF 29 SHTS

CONTRACT NO. 94827

**NOTES**

Bar splicer assemblies shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars.  
 Splicer rods shall be of minimum 60 ksi yield strength, threaded or coiled full length.  
 All reinforcement bars shall be lapped and tied to the splicer rods or dowel bars.  
 Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars.  
 Other systems of similar design may be submitted to the Engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that the proposed bar splicer assembly satisfies the following requirements:

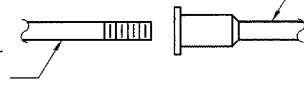
- ① Minimum Capacity =  $1.25 \times f_y \times A_t$   
(Tension in kips)
- ② Minimum \*Pull-out Strength =  $1.25 \times f_{s_{allow}} \times A_t$   
(Tension in kips)

Where  $f_y$  = Yield strength of lapped reinforcement bars in ksi.  
 $f_{s_{allow}}$  = Allowable tensile stress in lapped reinforcement bars in ksi (Service Load)  
 $A_t$  = Tensile stress area of lapped reinforcement bars.  
 \* = 28 day concrete

BAR SPLICER ASSEMBLIES			
Bar Size to be Spliced	Splicer Rod or Dowel Bar Length	Strength Requirements	
		Min. Capacity kips - tension	Min. Pull-Out Strength kips - tension
#4	1'-8"	14.7	5.9
#5	2'-0"	23.0	9.2
#6	2'-7"	33.1	13.3
#7	3'-5"	45.1	18.0
#8	4'-6"	58.9	23.6
#9	5'-9"	75.0	30.0
#10	7'-3"	95.0	38.0
#11	9'-0"	117.4	46.8

Bar splicer assemblies shall be according to Section 508 of the Standard Specifications, except as noted. The furnishing and installation of bar splicer assemblies will be measured and paid for at the contract unit price each for "BAR SPLICERS."

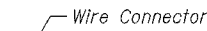
The diameter of this part is the same as the diameter of the bar spliced.



ROLLED THREAD DOWEL BAR



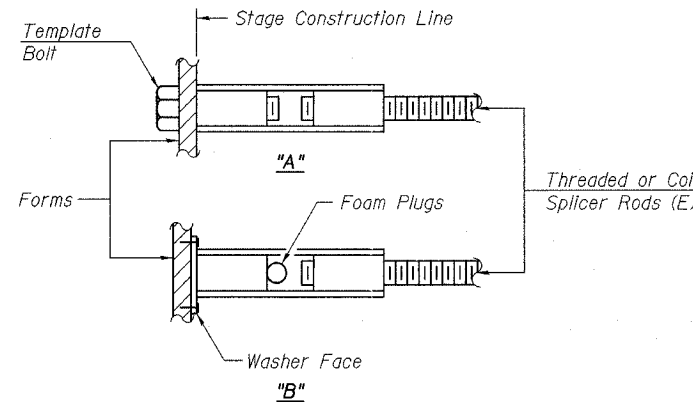
\*\* ONE PIECE



WELDED SECTIONS

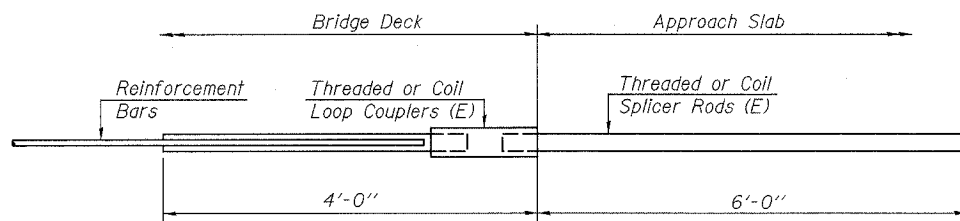
**BAR SPLICER ASSEMBLY ALTERNATIVES**

\*\* Heavy Hex Nuts conforming to ASTM A 563, Grade C, D or DH may be used.



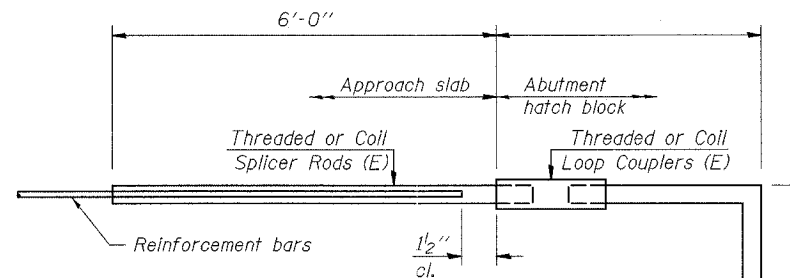
**INSTALLATION AND SETTING METHODS**

"A" : Set bar splicer assembly by means of a template bolt.  
 "B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.  
 (E) : Indicates epoxy coating.



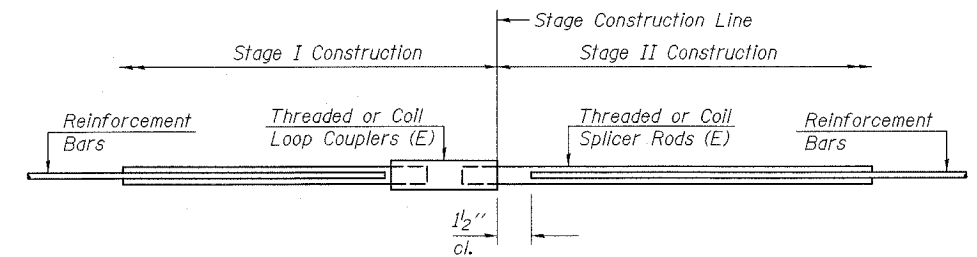
**FOR INTEGRAL OR SEMI-INTEGRAL ABUTMENTS**

Bar Splicer for #5 bar
Min. Capacity = 23.0 kips - tension
Min. Pull-out Strength = 9.2 kips - tension
No. Required = 156



**FOR PILE BENT ABUTMENTS**

Bar Splicer for #5 bar
Min. Capacity = 23.0 kips - tension
Min. Pull-out Strength = 9.2 kips - tension
No. Required =



**STANDARD**

Bar Size	No. Assemblies Required	Location
#5	1075	Slab
#6	24	Diaphragms
#5	5	W. Abut.
#5	5	E. Abut.
#5	3	Pier 1 Cap
#7	6	Pier 1 Cap
#5	180	Pier 1 Shafts
#5	3	Pier 2 Cap
#7	6	Pier 2 Cap
#5	180	Pier 2 Shafts

SHEET TITLE	
BAR SPLICER ASSEMBLY DETAILS	
PROJECT	PROJECT NO.
IL RTE. 32/33 OVER LITTLE WABASH RIVER	02017
F.A.P. RTE. 774 SECTION 107BY	SCALE
EFFINGHAM COUNTY	DATE
STATION 1011+50.17	DRAWN BY
STRUCTURE NO. 025-0078	CHECKED BY
	TFG
	GJB/MCB
DRAWING NO.	
COOMBE-BLOXDORF P.C.	
Engineers / Land Surveyors	
Springfield, Illinois	
Design Firm License No. 184-002703	
	26
	OF 29 SHTS



Illinois Department of Transportation  
Division of Highways  
Division of Transportation - District 7  
**SOIL BORING LOG**  
Page 1 of 3  
Date 6/17/02

ROUTE FAP 774 (IL 33) DESCRIPTION Little Wabash River LOGGED BY E. Sandschaefer  
SECTION 107WRS-1 LOCATION NE 1/4, SEC. 13, TWP. 8 N, RNG. 5 E, 3 PM  
COUNTY Effingham DRILLING METHOD Hollow stem auger & split spoon HAMMER TYPE Automatic

STRUCT. NO. 025-0078 Station 1011+47.58  
BORING NO. 2 of 2 (Pier #2) Station 1012+32  
Offset 36.00ft Rt  
Ground Surface Elev. 528.15 ft

DEPTH (ft)	BLU (6")	UCS (tsf)	M	Surface Water Elev.	DEPTH (ft)	BLU (6")	UCS (tsf)	M
0				531.99 ft	0			
0				Stream Bed Elev.	0			
				Groundwater Elev.:				
				First Encounter				
				Upon Completion				
				After N/A Hrs. samples				
0				507.69	0			
0				508.15	0			
0				526.15	0			
0				523.85	0			
0				521.15	0			
0				520.15	0			
0				-10	0			
0				-2	0			
0				-13.55	0			
0				-1	0			
0				-1	0			
0				-1	0			

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrator)  
The SPT (N value) is the sum of the last two blow values in each sampling zone (ASTM D2922)  
EBS, from 137 (Rev. 8-99)

Illinois Department of Transportation  
Division of Highways  
Division of Transportation - District 7  
**ROCK CORE LOG**  
Page 2 of 3  
Date 6/17/02

ROUTE FAP 774 (IL 33) DESCRIPTION Little Wabash River LOGGED BY E. Sandschaefer  
SECTION 107WRS-1 LOCATION NE 1/4, SEC. 13, TWP. 8 N, RNG. 5 E, 3 PM  
COUNTY Effingham CORING METHOD Rotary diamond surf set bit

STRUCT. NO. 025-0078 Station 1011+47.58  
BORING NO. 2 of 2 (Pier #2) Station 1012+32  
Offset 36.00ft Rt  
Ground Surface Elev. 528.15 ft

CORING BARREL TYPE & SIZE NW, conv dbl bbl, solid inner

Core Diameter 2.06 in  
Top of Rock Elev. 501.35 ft  
Begin Core Elev. 501.35 ft

DEPTH (ft)	RECOVERY (%)	CORE LENGTH (ft)	STRONGEST (tsf)
48	42		
100	100		
490.65	93		
489.15			
92	65		

Color pictures of the cores \_\_\_\_\_  
Cores will be stored for examination until \_\_\_\_\_  
The "Strongest" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)

Illinois Department of Transportation  
Division of Highways  
Division of Transportation - District 7  
**ROCK CORE LOG**  
Page 3 of 3  
Date 6/17/02

ROUTE FAP 774 (IL 33) DESCRIPTION Little Wabash River LOGGED BY E. Sandschaefer  
SECTION 107WRS-1 LOCATION NE 1/4, SEC. 13, TWP. 8 N, RNG. 5 E, 3 PM  
COUNTY Effingham CORING METHOD Rotary diamond surf set bit

STRUCT. NO. 025-0078 Station 1011+47.58  
BORING NO. 2 of 2 (Pier #2) Station 1012+32  
Offset 36.00ft Rt  
Ground Surface Elev. 528.15 ft

CORING BARREL TYPE & SIZE NW, conv dbl bbl, split inner

Core Diameter 2.06 in  
Top of Rock Elev. 501.35 ft  
Begin Core Elev. 501.35 ft

DEPTH (ft)	RECOVERY (%)	CORE LENGTH (ft)	STRONGEST (tsf)
100	60		
476.35			
480.65			
489.15			
92	65		

Color pictures of the cores \_\_\_\_\_  
Cores will be stored for examination until \_\_\_\_\_  
The "Strongest" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)

8/22/003  
-Jov/fps/dfp

SHEET TITLE <b>BORING LOGS</b>	
PROJECT IL RTE. 32/33 OVER LITTLE WABASH RIVER F.A.P. RTE. 774 SECTION 107BY EFFINGHAM COUNTY STATION 1011+50.17 STRUCTURE NO. 025-0078	PROJECT NO. 02017 SCALE DATE DRAWN BY CFC CHECKED BY GJB/MCB
<b>COOMBE-BLOXDORF P.C.</b> Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703	
28	OF 29 SHTS

### BORING #1 (1971)

Boring No. 1 PIER 1 Station 1022+78 Offset 40' LT. C		Surface Water El.	Groundwater El. at Completion	After - Hours	Elevation	N	Ch./A.L.	v (%)
Ground Surface	528.9 0							
SOFT, VERY DAMP, BROWN, SILTY CLAY LOAM TO SILTY CLAY	526.4							
SOFT, VERY DAMP, BROWN, LOAM TO CLAY LOAM WITH THIN LENSES OF FINE SAND	522.9							
LOOSE, MOIST, BROWN-GREY, SAND WATER ENCOUNTERED AT ELEVATION 517.9	517.9							
EXTENT OF EXPLORATION								
LOOSE, WET, BROWN, SAND								

### BORING #2 (1971)

Boring No. 2 PIER 1 Station 1010+71 Offset 6' LT. C		Surface Water El.	Groundwater El. at Completion	After - Hours	Elevation	N	Ch./A.L.	v (%)
Ground Surface	524.3 0							
VERY DENSE, DRY, GREY, SHALE WITH THIN LENSES OF HARD LIMY SANDSTONE	520.3							
LOOSE, VERY DAMP, BROWN-GREY, FINE SAND	516.3							
VERY LOOSE, WET, BROWN-GREY, FINE SAND WITH THIN LENSES OF SOFT WET CLAY TO CLAY LOAM	513.3							
SOFT, WET, BROWN, CLAY TO CLAY LOAM WITH THIN LENSES OF SAND	511.3							
VERY LOOSE, WATER BEARING, BROWN-GREY, SAND WATER ENCOUNTERED AT ELEVATION 511.3	508.3							
LOOSE, WET, BROWN-GREY, SAND WITH GRAVEL PARTICLES AND A FEW THIN WET LENSES OF CLAY LOAM	504.3							
VERY DENSE, MOIST, GREY, SHALE WITH VERY THIN LENSES OF HARD LIMY SANDSTONE								

### BORING #3 (1971)

Boring No. 3 PIER 2 Station 1017+07 Offset 6' WE. C		Surface Water El.	Groundwater El. at Completion	After - Hours	Elevation	N	Ch./A.L.	v (%)
Ground Surface	526.3 0							
SOFT, WET, BROWN, LOAM TO CLAY LOAM	523.3							
VERY LOOSE, WET, BROWN CHANGING TO DARK GREY WITH DEPTH, SAND TO SANDY LOAM	520.8							
EXTENT OF EXPLORATION								
WOOD PARTICLES PRESENT INTERMITTENTLY.								
WATER ENCOUNTERED AT ELEVATION 515.8								

### BORING #4 (1971)

Boring No. 4 PIER 1 Station 1009+80 Offset 6.5' RT. C		Surface Water El.	Groundwater El. at Completion	After - Hours	Elevation	N	Ch./A.L.	v (%)
Ground Surface	538.9 0							
EXISTING PAVEMENT, SUB-BASE AND STIFF, DAMP, BROWN, CLAY SUBGRADE	535.9							
VERY STIFF, VERY MOIST TO DAMP, BROWN-GREY, CLAY TILL (EXISTING BRAMMINGTON)	519.9							
SOFT, WET, DARK GREY, CLAY	510.9							
LOOSE, DAMP, BROWN-GREY, SAND WITH GRAVEL PARTICLES	507.9							
MEDIUM, VERY DAMP, DARK GREY, SLIGHTLY ORGANIC, CLAY	505.9							
VERY STIFF, MOIST, DARK GREY, SANDY CLAY LOAM WITH 2 1/2" THICK LENSES OF SOFT CLAY	523.4							
LOOSE, DAMP, DARK GREY, SANDY LOAM WITH THIN LENSES OF CLAY	520.9							
MEDIUM, DAMP, DARK GREY, CLAY LOAM WITH LENSES OF VERY DAMP SANDY LOAM TO SAND	517.4							
LOOSE (SOFT) VERY DAMP, DARK GREY, SANDY LOAM WITH VERY THIN LENSES OF CLAY								
VERY LOOSE, WET, BROWN FINE SAND								

■ - Standard Penetration Test - Blows per foot to drive 2" Ch. 2 Split Spoon Sampler 12" DIA. 140# hammer falling 30".

□ - Unconfined Compressive Strength - 1/d  
w - Water Content - percentage of oven dry weight - %

Type failure:  
B - Bridge Failure  
S - Slender Failure  
E - Estimated Value  
P - Piezometer

SHEET TITLE		BORING LOGS	
PROJECT	IL RTE. 32/33 OVER LITTLE WABASH RIVER	PROJECT NO.	02017
	F.A.P. RTE. 774 SECTION 107BY	SCALE	
	EFFINGHAM COUNTY	DATE	
	STATION 1011+50.17	DRAWN BY	CFC
	STRUCTURE NO. 025-0078	CHECKED BY	GJB/MCB
COOMBE-BLOXDORF P.C.		29	
Engineers / Land Surveyors		OF 29 SHEETS	
Springfield, Illinois			
Design Firm License No. 184-002703			

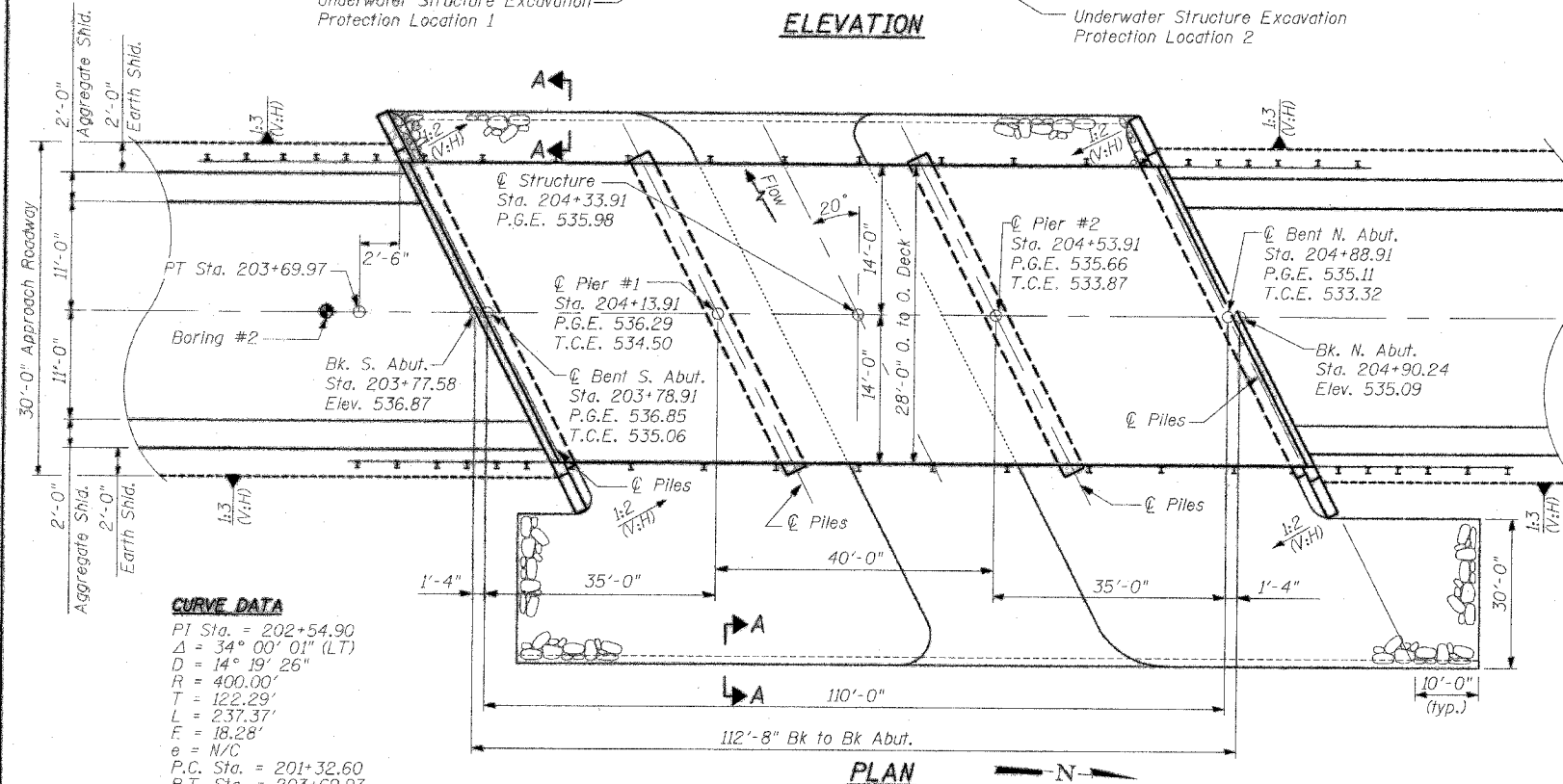
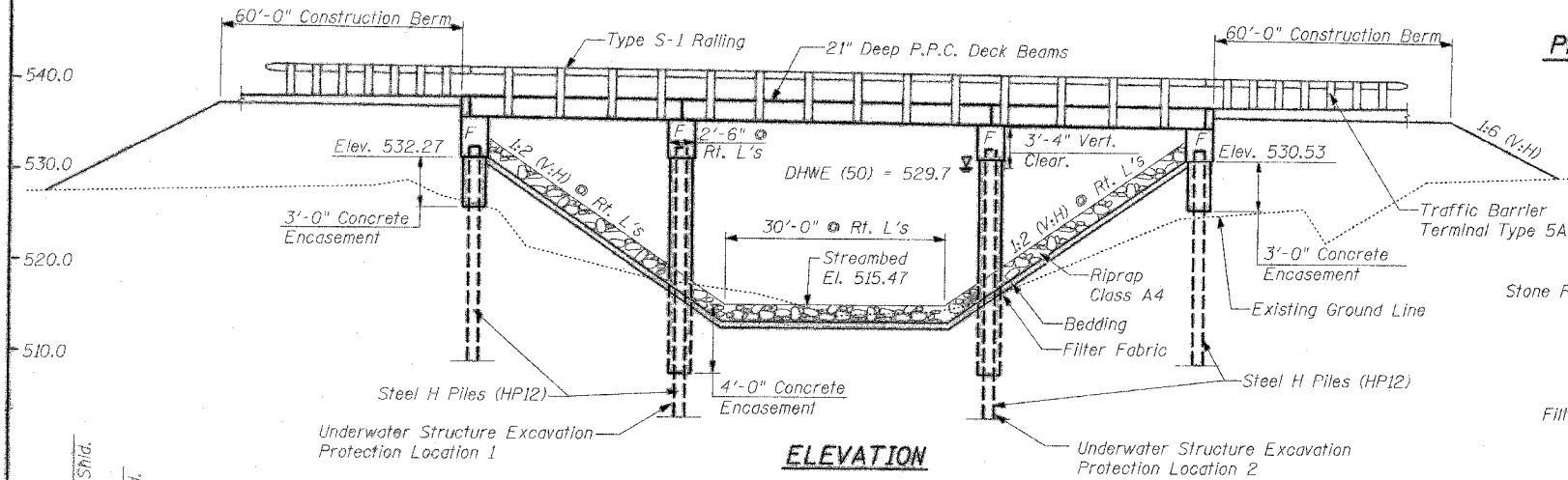
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	SHEETS	SHEET NO.
FAP 774	107B-2	EFFINGHAM	273	256
FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT				

Bench Mark : Chiseled "a" above bridge name plate on SN025-0077 (IL 32/33 overflow structure) Elev. 543.66  
Existing Structure : SN 025-3161, built in 1982 as TR-160 SEC. 80-03109-00-BR at Sta. 50+12.  
Single span precast reinforced concrete deck beam bridge abutments on steel H-piling, 80'-0" back to back of abutments, 25'-0" overall width. The existing structure shall remain open to traffic until the proposed structure and relocated road are open to traffic; the existing structure and roadway shall then be removed.  
No staging is required.  
Proposed Structure: Three span PPC Deck Beam Structure on pile bent abutments and pile bent piers.  
Salvage : Deck beams and railing to be salvaged and delivered to a location (within 15 miles travel distance) designated by the Douglas Township Commissioner, Mr. Clem Kaufman Maintenance Building; (217) 347-5734 Cell Phone: (217) 254-5734

STATION 204+33.91  
BUILT 200 BY  
STATE OF ILLINOIS  
TR 160  
SECTION 107B-2  
LOADING HS20  
STR. NO. 025-3309  
**NAME PLATE**  
Locate Name Plate at Southeast Corner of Bridge (See Std. CN)

- GENERAL NOTES**
- The Contractor shall drive 2 HP12 test piles, as specified, in a permanent location, one at the North Abutment and one at Pier #1, as directed by the Engineer before ordering the remaining piles.
  - Class SI Concrete shall be used throughout except in the deck beams.
  - Layout of the slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.
  - The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of abutments.
  - All construction joints shall be bonded.

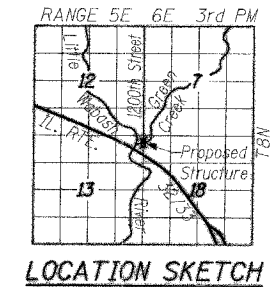
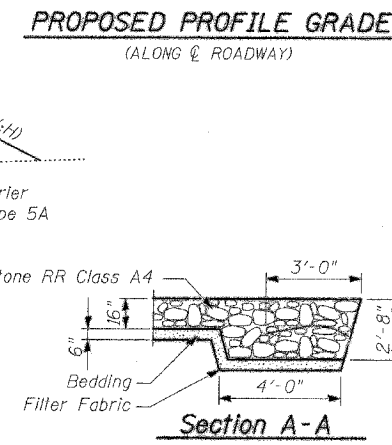
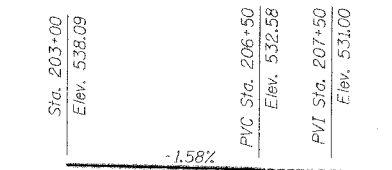


**CURVE DATA**  
PI Sta. = 202+54.90  
Δ = 34° 00' 01" (LT)  
D = 14' 19" 26"  
R = 400.00'  
T = 122.29'  
L = 237.37'  
E = 18.28'  
e = N/C  
P.C. Sta. = 201+32.60  
P.T. Sta. = 203+69.97

DESIGNED	TMM
CHECKED	KCM
DRAWN	CAR
CHECKED	TMM

**SEISMIC DATA**  
Seismic Performance Category (SPC) = A  
Bedrock Acceleration Coefficient (A) = 0.070g  
Site Coefficient (S) = 1.5  
**LOADING HS20-44**  
Allow 50#/sq. ft. for future wearing surface.  
**DESIGN SPECIFICATIONS**  
2002 AASHTO

**DESIGN STRESSES**  
**FIELD UNITS**  
f<sub>c</sub> = 3,500 psi  
f<sub>y</sub> = 60,000 psi (reinforcement)  
**PRECAST PRESTRESSED UNITS**  
f<sub>c</sub> = 5,000 psi  
f<sub>ci</sub> = 4,000 psi  
f<sub>s</sub> = 270 ksi (1/2" Dia. stress relieved strands)  
f<sub>si</sub> = 189 ksi (1/2" Dia. stress relieved strands)



**WATERWAY INFORMATION**  
(Without Little Wabash River Backwater Effects)

Drainage Area = 41.80 Sq. Miles  
Existing Low Grade Elev. - 529.70 ft. @ Sta. 147+82 (Existing 1200th Street)  
Proposed Low Grade Elev. - 531.00 ft. @ Sta. 208+50 (Realigned 1200th Street)

Flood	Freq. Yr.	Discharge C.F.S.	Opening Sq. Ft.		Ex. Nat. H.W.E.		Pr. Nat. H.W.E.		Head - Ft.		Headwater El.	
			Exist.	Prop.	H.W.E.	H.W.E.	Exist.	Prop.	Exist.	Prop.		
Design	10	3748	492	703	526.9	528.0	529.7	529.7	0.4	0.3	527.3	528.3
Base	50	5636	625	845	528.7	529.7	529.7	529.7	0.1	0.7	528.8	530.4
Ex. Overtop	100	6428	688	904	529.6	530.4	530.4	530.4	0.2	0.7	529.8	531.1
Pr. Overtop	5+	3050	431	-	525.9	-	-	-	0.3	-	526.2	-
	5+	3050	-	624	-	-	527.0	-	0.0	-	527.0	-

10 Year Velocity through Existing Bridge = 7.62fps  
10 Year Velocity through Proposed Bridge = 5.33fps

**TOTAL BILL OF MATERIAL**

Item	Unit	Super	Sub.		Total
			Piers	Abuts.	
Removal of Existing Structures	Each	--	--	--	1
Concrete Structures	Cu. Yd.	--	15.4	22.0	37.4
Precast Prestressed Concrete Deck Beams (21" Depth)	Sq. Ft.	3101.0	--	--	3101
Steel Railing, Type S1	Foot	222	--	--	222
Reinforcement Bars, Epoxy Coated	Pound	--	1784	2762	4546
Furnishing Steel Piles HP12x53	Foot	--	374	306	680
Driving Steel Piles	Foot	--	374	306	680
Test Pile Steel HP12x53	Each	--	1	1	2
Name Plates	Each	--	--	--	1
Concrete Encasement	Cu. Yd.	--	27.9	3.5	31.4
Stone Riprap, Class A4	Sq. Yd.	--	--	--	1088
Filter Fabric For Use With Riprap	Sq. Yd.	--	--	--	1088
Structure Excavation	Cu. Yd.	--	--	71	71
Porous Granular Embankment	Cu. Yd.	--	--	53	53
Underwater Structure Excavation Protection Location 1	Each	--	1	--	1
Underwater Structure Excavation Protection Location 2	Each	--	1	--	1

**APPROVED**  
FOR STRUCTURAL ADEQUACY ONLY  
*Ralph E. Anderson*  
ENGINEER OF BRIDGES AND STRUCTURES



*Toni M. McDonough* 9-12-03  
Date  
Toni M. McDonough  
Licensed Structural Engineer  
State of Illinois No. 81-5025  
License Expires 11/30/04

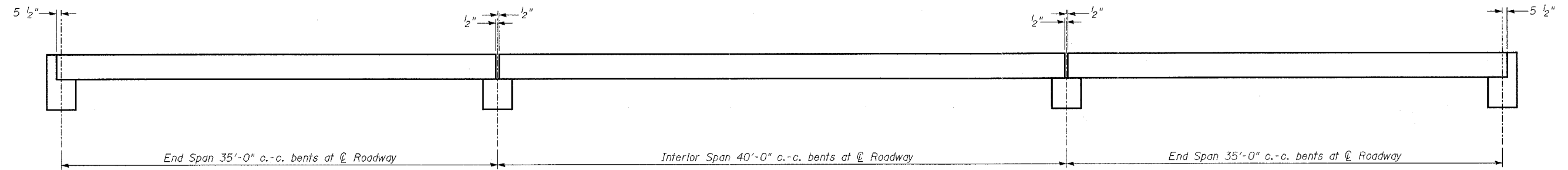
**GENERAL PLAN & ELEVATION**  
**1200th STREET OVER GREEN CREEK**  
FAP RTE. 774, SECTION 107B-2  
EFFINGHAM COUNTY  
STATION 204+33.91  
S.N. 025-3309



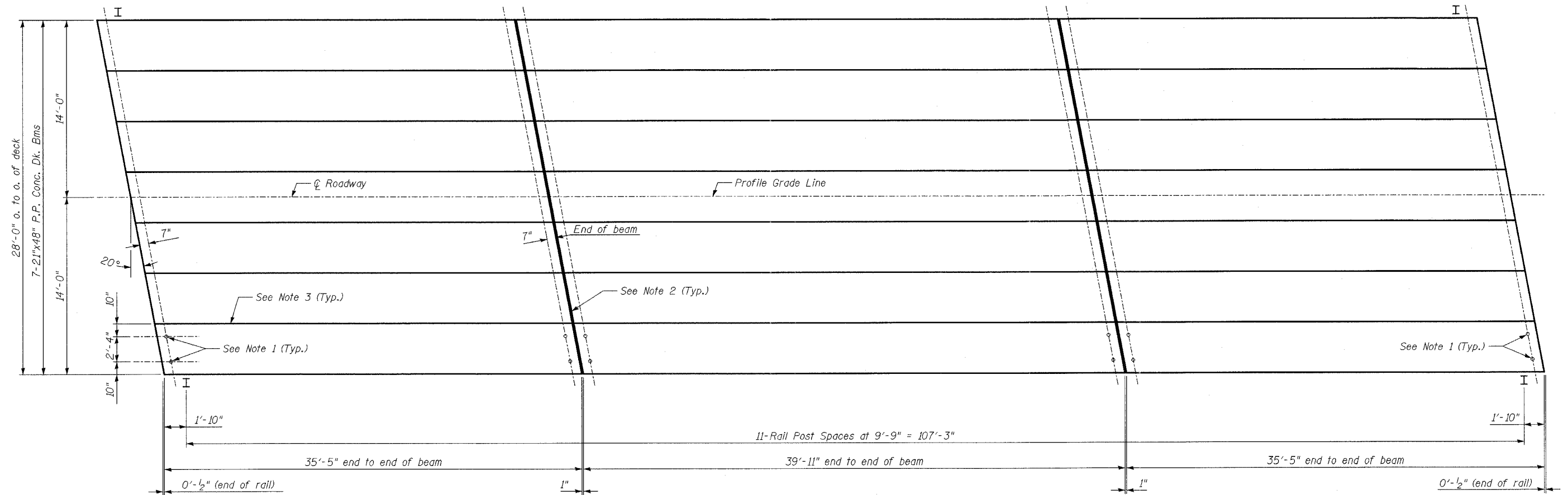
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET	SHEET NO. 2 8 SHEETS
FAP 774	107B-2	EFFINGHAM	273	257	
FED. ROAD DIST. NO. 7	ILLINOIS FED. AID PROJECT-				

CONTRACT NO. 94827



TYPICAL ELEVATION



PLAN

NOTES

1. After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting to shear keys.
2. Nominal 1" joint at Q pier to be filled with P.C. mortar mixture. Non-shrink grout may be used at contractor's option.
3. Longitudinal keys shall be grouted.

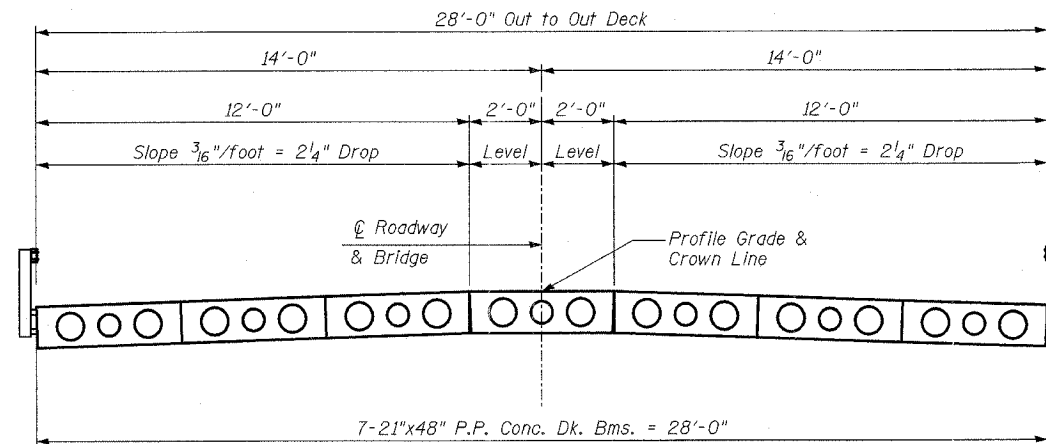
DESIGNED	TMM
CHECKED	KCM
DRAWN	CAR
CHECKED	TMM

P.P.C. DECK BEAM SUPERSTRUCTURE  
1200th STREET OVER GREEN CREEK  
FAP RTE. 774, SECTION 107B-2  
EFFINGHAM COUNTY  
STATION 204+33.91  
S.N. 025-3309

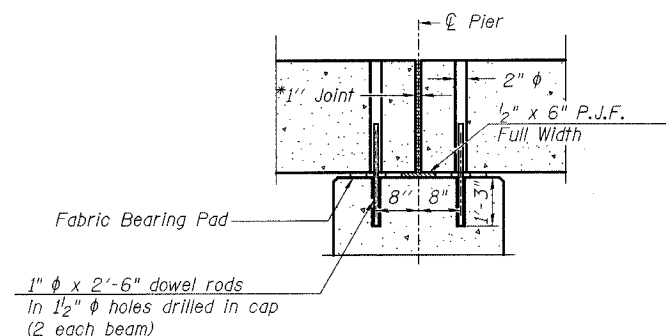
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TEAM SHEETS	SHEET NO.	SHEET NO. 3 8 SHEETS
FAP 774	107B-2	EFFINGHAM	273	258	
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-			

CONTRACT NO. 94827

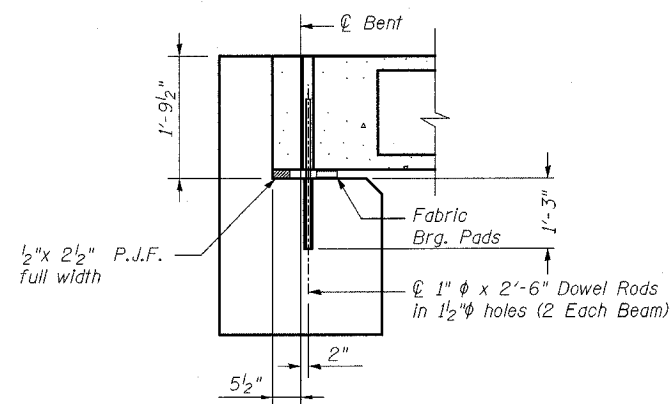


CROSS SECTION

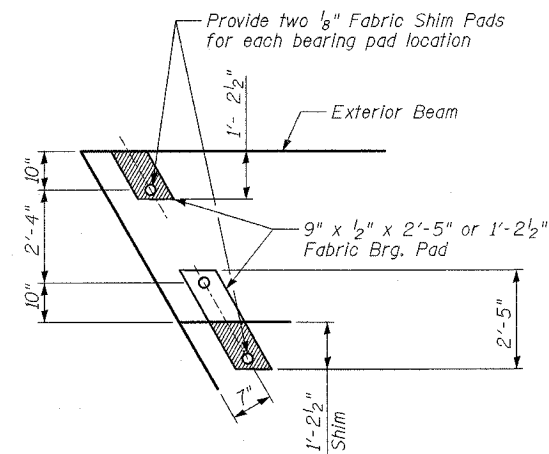


SECTION THRU PIER  
(Along  $\bar{C}$  beams)

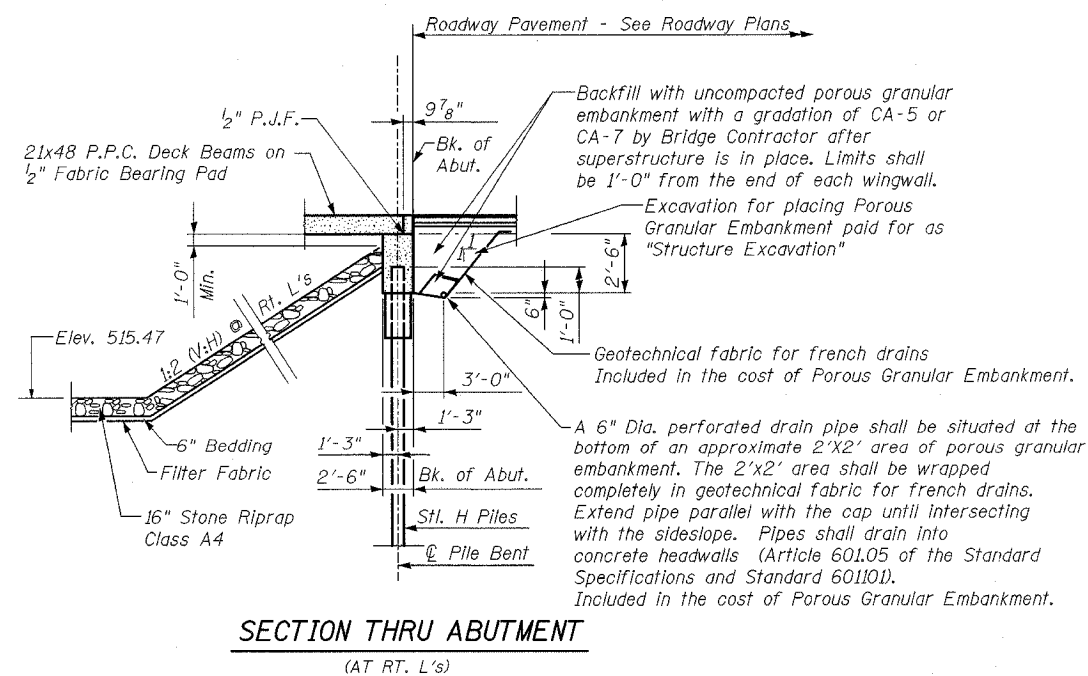
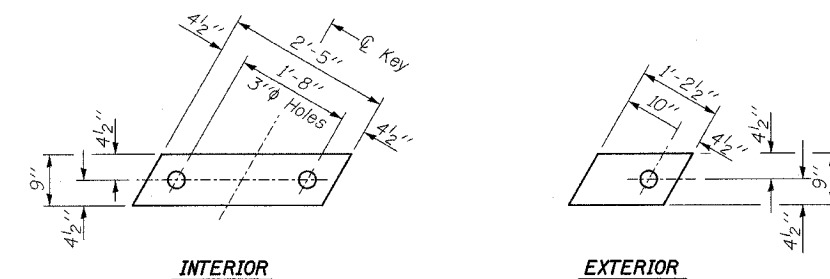
\* 1" Joint shall be packed with a very dry mix of 2:1 sand and P.C. mortar. 1" Dimension may vary plus or minus to accommodate tolerance in beam lengths.



SECTION AT ABUTMENTS  
(ALONG  $\bar{C}$  BEAMS)



1/2" FABRIC BEARING PAD DETAILS



SECTION THRU ABUTMENT  
(AT RT. L'S)

NOTES

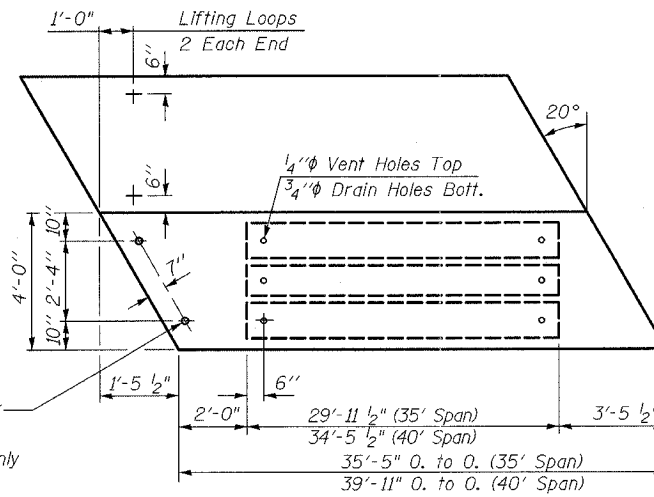
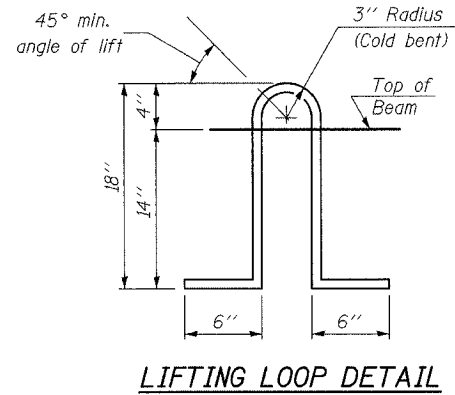
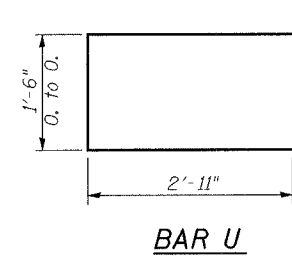
- Nominal 1" joint at  $\bar{C}$  Pier may be filled with non-shrink grout in lieu of P.C. mortar mixture at contractor's option.
- Longitudinal keys shall be grouted.
- The bearing seat surfaces shall be adjusted by shimming to assure firm and even bearing. Two 1/8" fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing.

DESIGNED	TMM
CHECKED	KCM
DRAWN	CAR
CHECKED	TMM

P.P.C. DECK BEAM SUPERSTRUCTURE  
DETAILS  
1200th STREET OVER GREEN CREEK  
FAP RTE. 774, SECTION 107B-2  
EFFINGHAM COUNTY  
STATION 204+33.91  
S.N. 025-3309

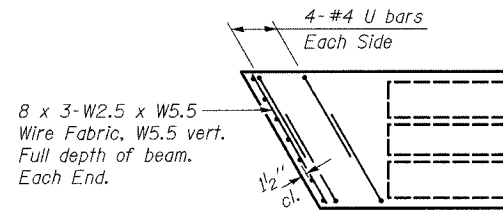
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	JEFF	259	SHEET NO. 4
FAP 774	107B-2	EFFINGHAM	273	259	8 SHEETS
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-			

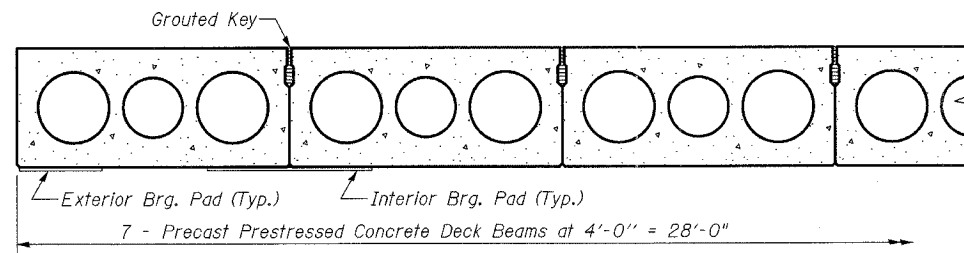


PLAN

2"φ Holes for Dowel Rods Fixed Ends Only



END PLAN

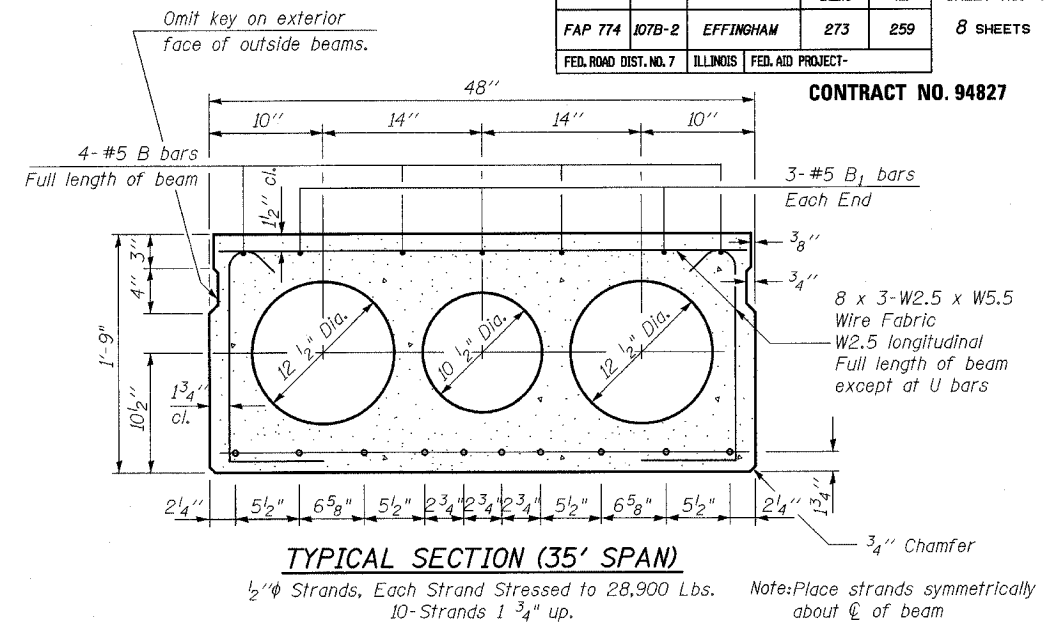


HALF CROSS SECTION

NOTES

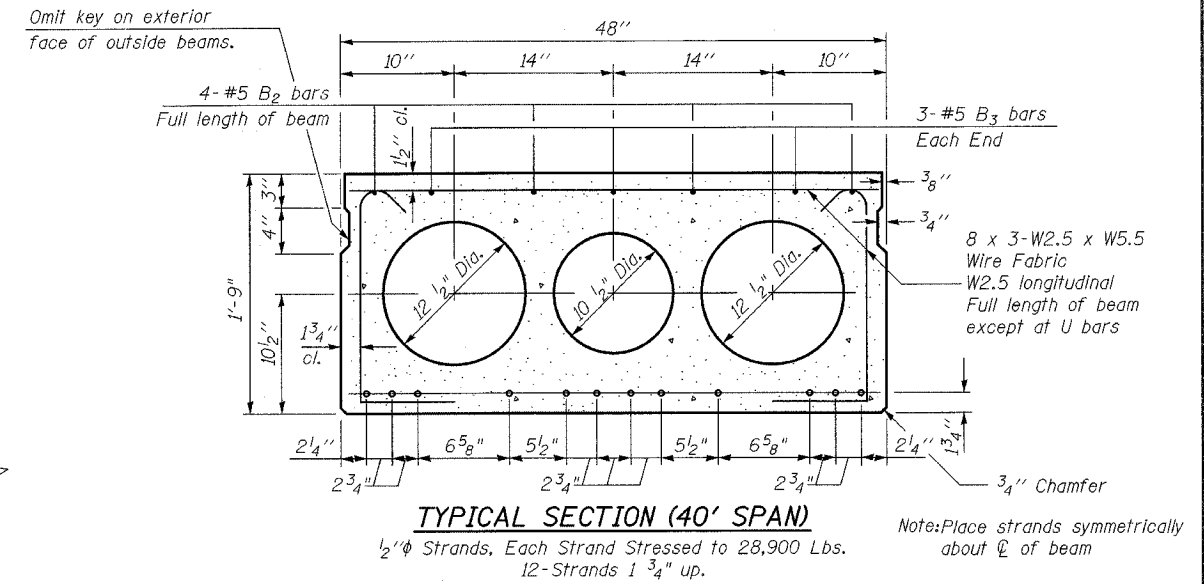
- Prestressing steel shall be uncoated high strength, stress-relieved 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in.
- Lifting loops shall be 2 - 1/2"φ - 270 ksi strands, as shown. Alternate approved lifting devices are also acceptable.
- Reinforcement bars shall conform to the requirements of AASHTO M 31, M 42, M 53 Grade 60.
- 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 top of the beam and the bottom edge of the key.
- A Corrosion Inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.
- Required Release Strength, f'ci, shall be 4,000 p.s.i.
- An equal substitution of the low-relaxation strands for the stress-relieved strands will be permitted.

DESIGNED	TMM
CHECKED	KCM
DRAWN	CAR
CHECKED	TMM



TYPICAL SECTION (35' SPAN)

1/2"φ Strands, Each Strand Stressed to 28,900 Lbs. 10-Strands 1 3/4" up. Note: Place strands symmetrically about C of beam



TYPICAL SECTION (40' SPAN)

1/2"φ Strands, Each Strand Stressed to 28,900 Lbs. 12-Strands 1 3/4" up. Note: Place strands symmetrically about C of beam

BILL OF MATERIAL  
TOTAL FOR 21 DECK BEAMS

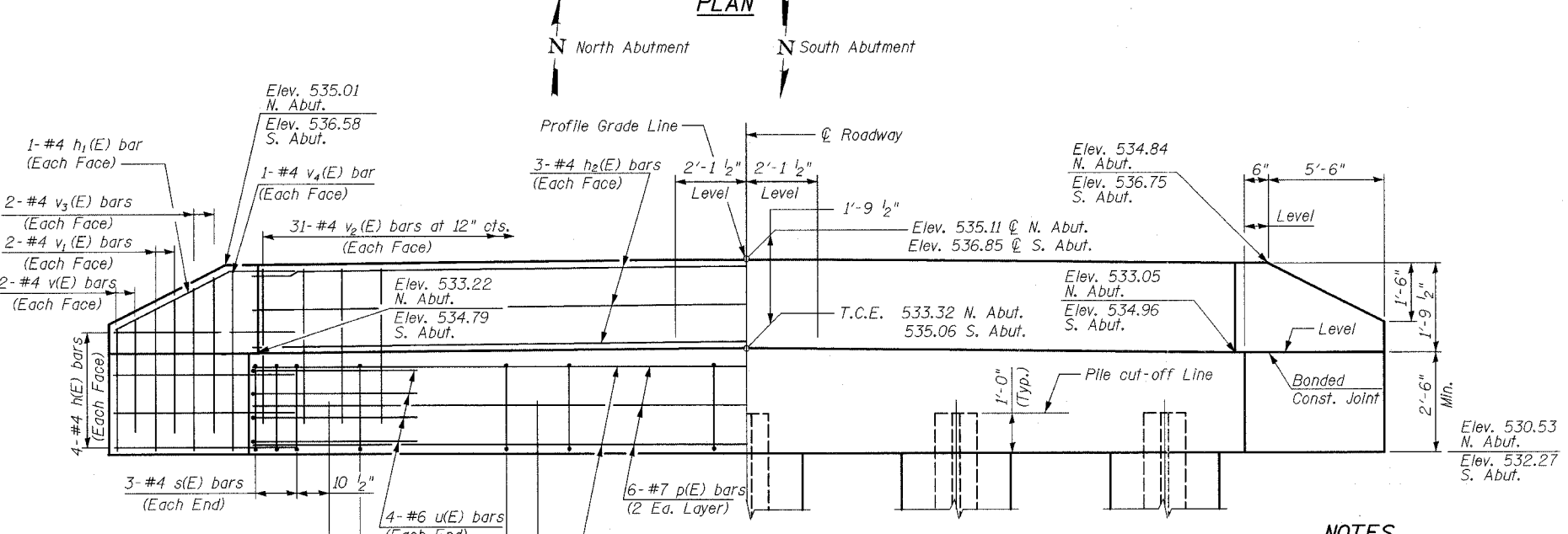
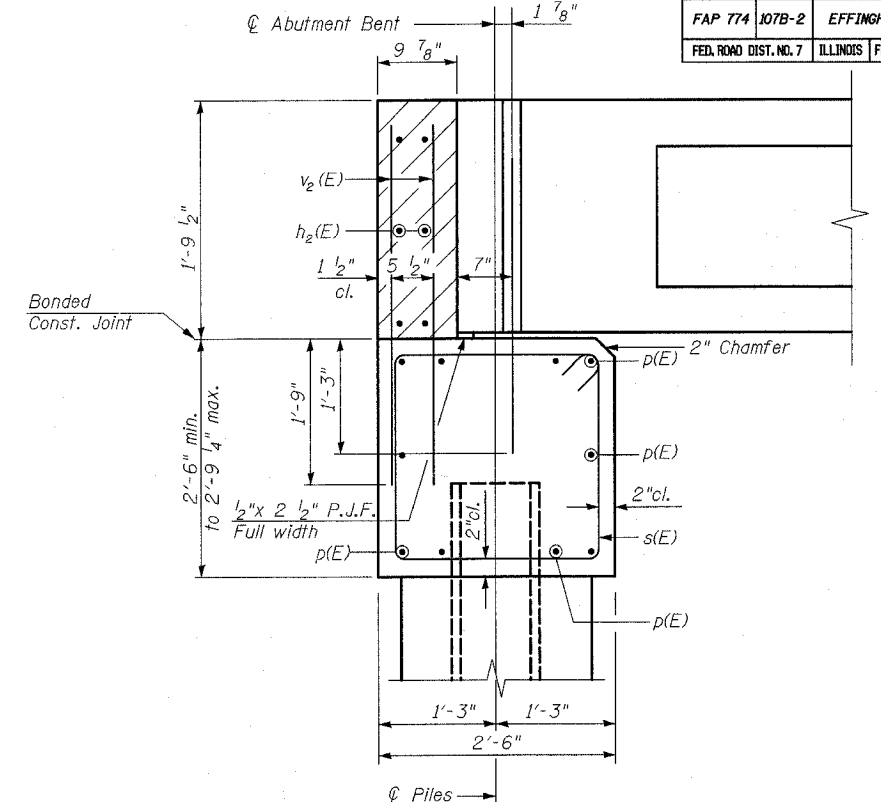
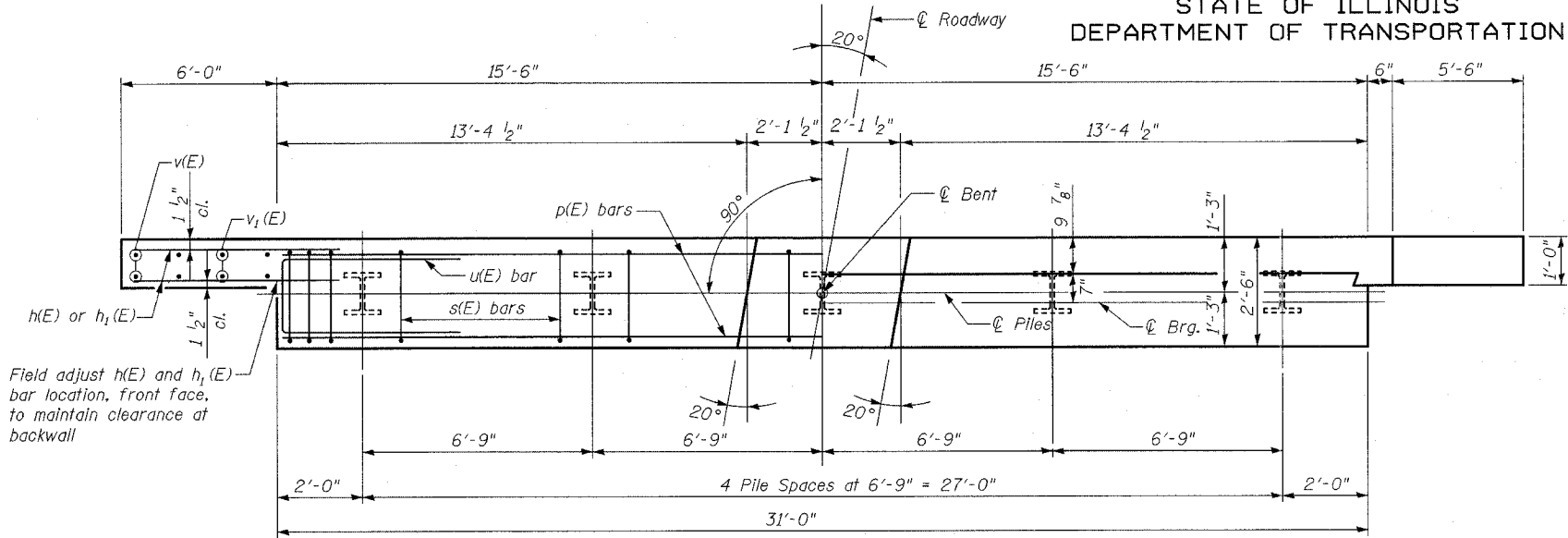
Bar	No.	Size	Length	Shape	
B	56	5	35'-1"	—	
B <sub>1</sub>	84	5	7'-1"	—	
B <sub>2</sub>	28	5	39'-7"	—	
B <sub>3</sub>	42	5	8'-0"	—	
U	336	4	7'-4"	U	
Precast Prestressed Conc. Deck Bms.				Sq. Ft.	3101

21"X48" P.P.C.  
DECK BEAM DETAILS  
1200th STREET OVER GREEN CREEK  
FAP RTE. 774, SECTION 107B-2  
EFFINGHAM COUNTY  
STATION 204+33.91  
S.N. 025-3309

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	POST MILE	SHEET NO.
FAP 774	107B-2	EFFINGHAM	273	260
FED. ROAD DIST. NO. 7		ILLINOIS FED. AID PROJECT-		8 SHEETS

CONTRACT NO. 94827

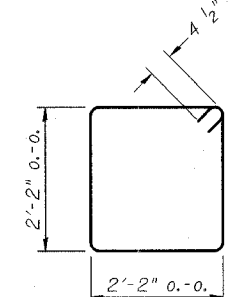


SECTION THRU ABUTMENT  
(At Right Angles)

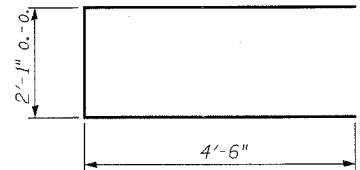
BILL OF MATERIAL  
FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape	
h(E)	16	#4	8'-0"	—	
h1(E)	4	#4	7'-7"	—	
h2(E)	6	#4	30'-8"	—	
p(E)	10	#7	30'-8"	—	
s(E)	30	#4	9'-5"	□	
u(E)	8	#6	11'-1"	—	
v(E)	8	#4	2'-7"	—	
v1(E)	8	#4	3'-0"	—	
v2(E)	62	#4	3'-5"	—	
v3(E)	8	#4	3'-6"	—	
v4(E)	4	#4	4'-0"	—	
Concrete Structures				Cu. Yd.	11.0
Reinforcement Bars, Epoxy Coated				Pound	1381
Furnishing Steel Piles HP12x53				Foot	153
Driving Steel Piles				Foot	153
*Test Pile Steel HP12x53				Each	1
Concrete Encasement				Cu. Yd.	1.75
Structure Excavation				Cu. Yd.	35.5
Porous Granular Embankment				Cu. Yd.	26.5

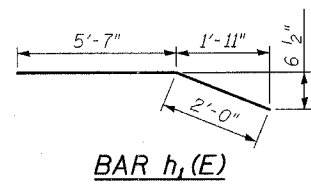
\*At North Abutment only



BAR s(E)



BAR u(E)



BAR h1(E)

NOTES

- The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
- Reinforcement bars shall conform to AASHTO M 31, M 42 or M 53, Grade 60.
- Reinforcement bars designated (E) shall be epoxy coated.
- Hatched area to be poured after beam is placed.

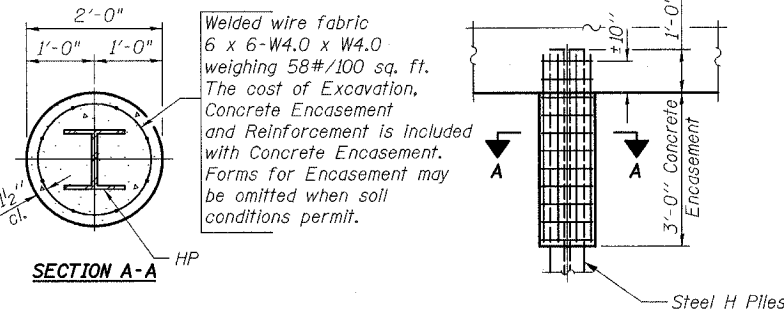
PILE DATA (2-ABUTMENTS)

Type HP12x53  
Capacity Driven to Refusal\*  
Estimated Length 34 Feet  
Number Required 9  
Test Pile 1 In North Abutment  
\*Allows for 7 Tons of negative skin friction

DESIGN STRESSES

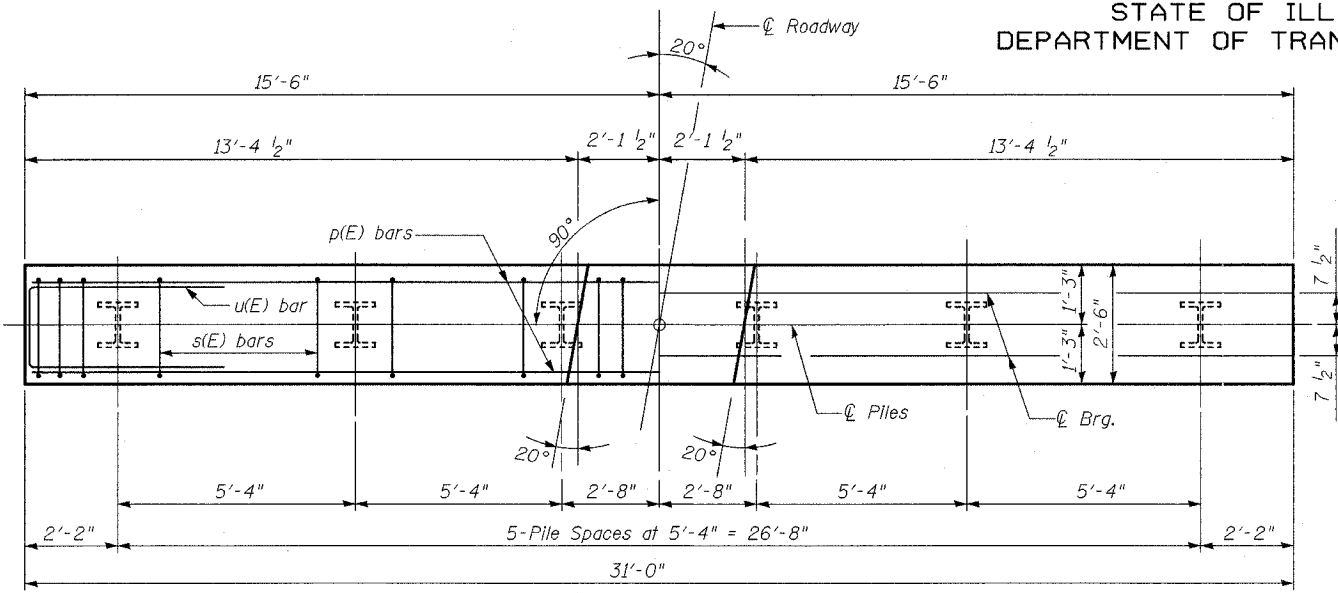
$f'_c = 3,500$  psi  
 $f_y = 60,000$  psi

DESIGNED	TMM
CHECKED	KCM
DRAWN	CAR
CHECKED	TMM

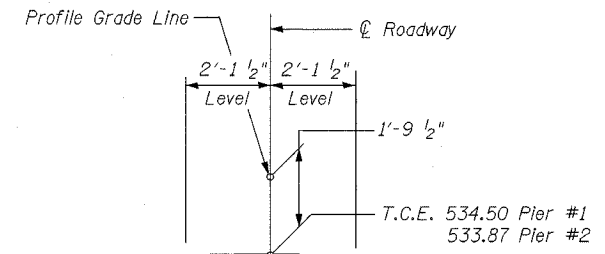


PILE ENCASEMENT DETAIL AT ABUTMENT

CONTRACT NO. 94827

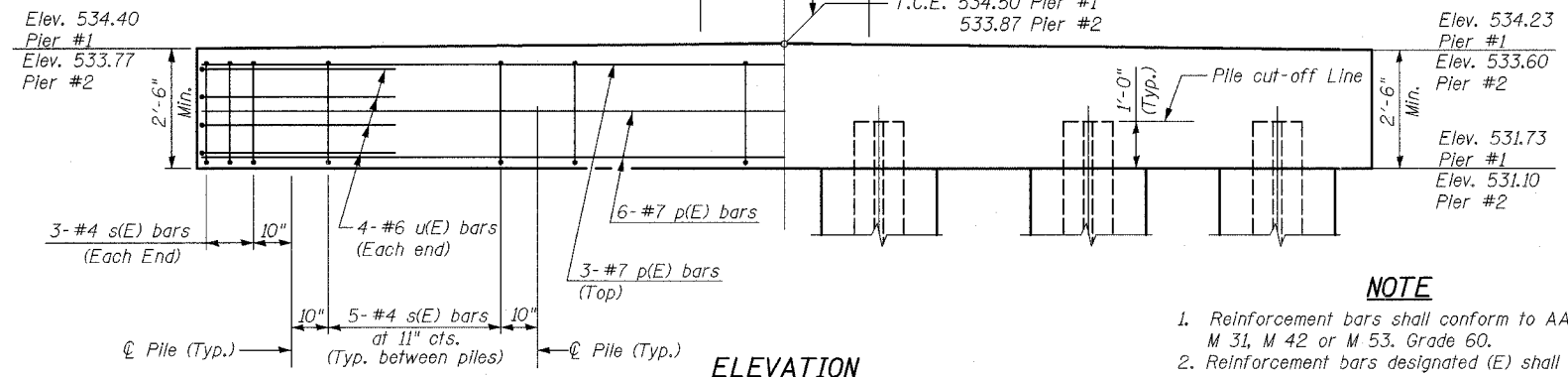


PLAN



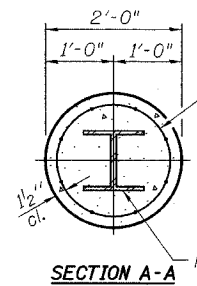
ELEVATION

(Pier #1 Looking North)  
(Pier #2 Looking North)  
T.C.E. = Top of Cap Elevation



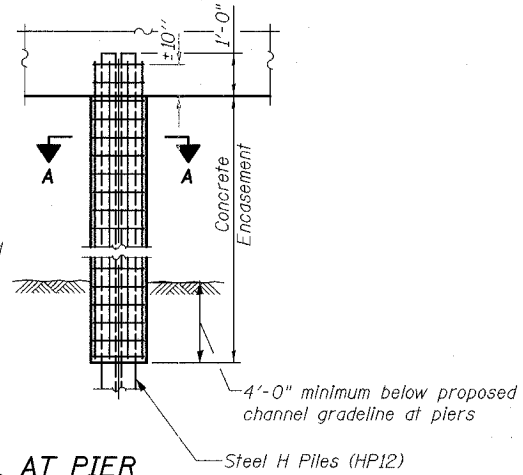
NOTE

1. Reinforcement bars shall conform to AASHTO M 31, M 42 or M 53. Grade 60.
2. Reinforcement bars designated (E) shall be epoxy coated.

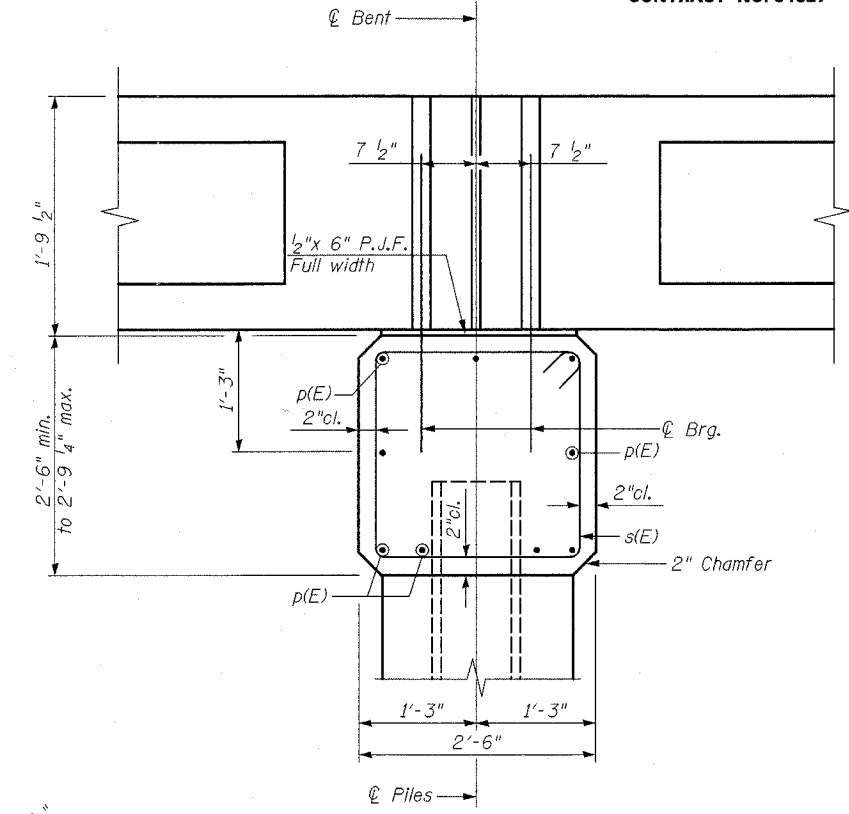


SECTION A-A

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

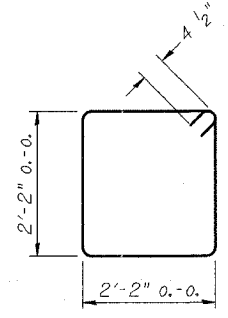


PILE ENCASEMENT DETAIL AT PIER

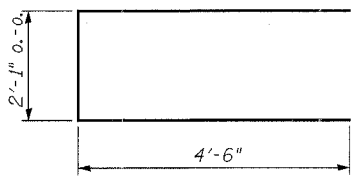


SECTION THRU PIER

(At Right Angles)



BAR s(E)



BAR u(E)

BILL OF MATERIAL  
FOR ONE PIER

Bar	No.	Size	Length	Shape
p(E)	9	#7	30'-8"	—
s(E)	31	#4	9'-5"	□
u(E)	8	#6	11'-1"	—
Concrete Structures			Cu. Yd.	7.7
Reinforcement Bars, Epoxy Coated			Pound	892
Furnishing Steel Piles HP12x53			Foot	187
Driving Steel Piles			Foot	187
*Test Pile Steel HP12x53			Each	1
Concrete Encasement			Cu. Yd.	13.95
Underwater Structure Excavation Protection Location 1			Each	1
Underwater Structure Excavation Protection Location 2			Each	1

\*At Pier #1 only

PILE DATA (2-PIERS)

Type	HP12x53
Capacity	Driven to Refusal
Estimated Length	34 Feet
Number Required	11
Test Pile	1 in Pier #1

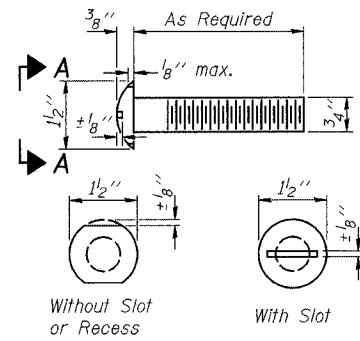
PILE BENT PIER  
1200th STREET OVER GREEN CREEK  
FAP RTE. 774, SECTION 107B-2  
EFFINGHAM COUNTY  
STATION 204+33.91  
S.N. 025-3309

DESIGNED	TMM
CHECKED	KCM
DRAWN	CAR
CHECKED	TMM

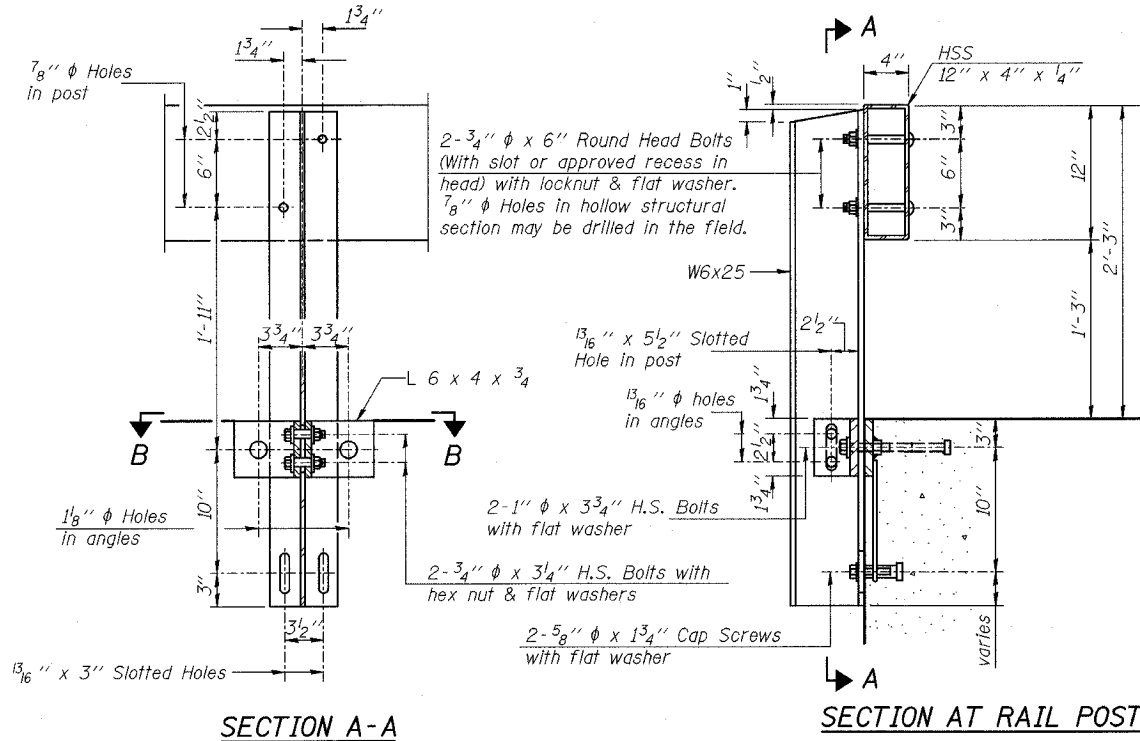
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	SHEET	SHEET	SHEET NO. 7
FAP 774	107B-2	EFFINGHAM	273	262	8 SHEETS
FED. ROAD DIST. NO. 7		ILLINOIS		FED. AID PROJECT-	

CONTRACT NO. 94827

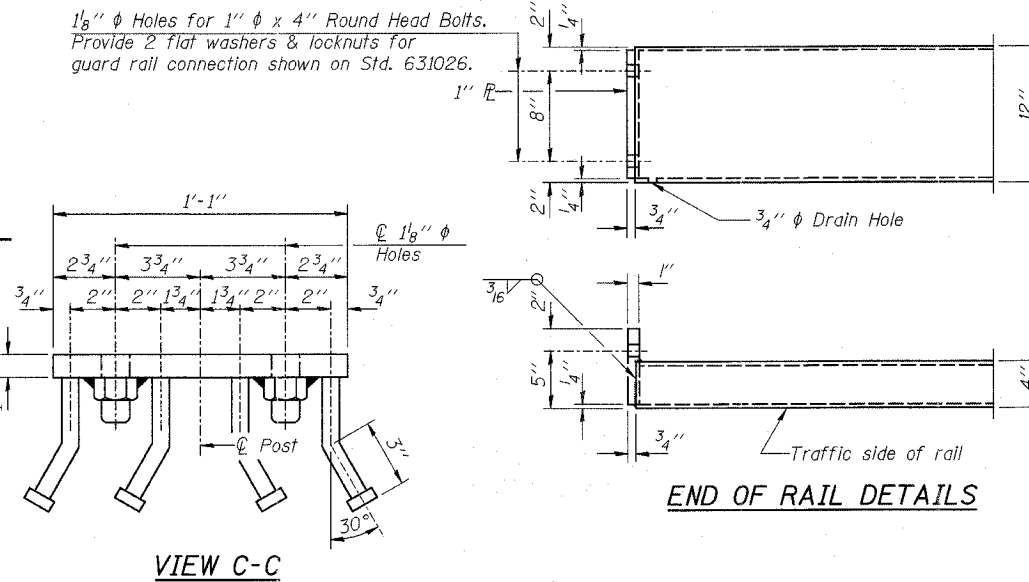


VIEW A-A  
ROUND HEAD BOLT

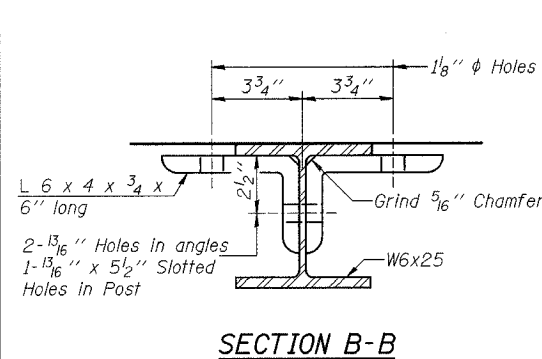


SECTION A-A

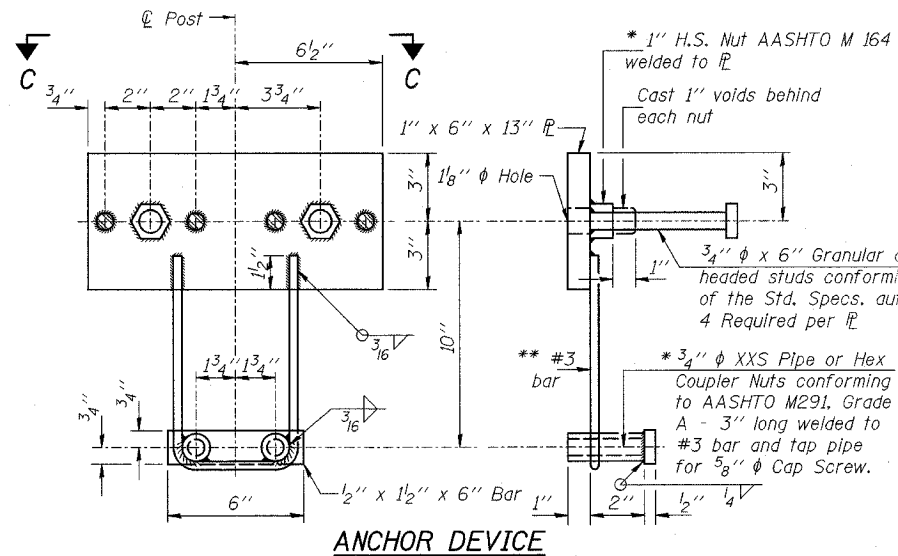
SECTION AT RAIL POST



VIEW C-C



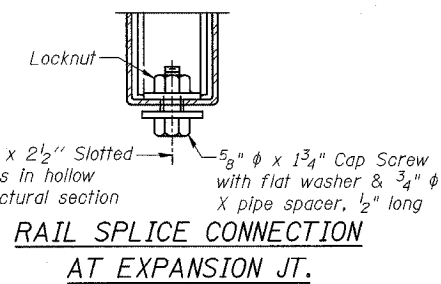
SECTION B-B



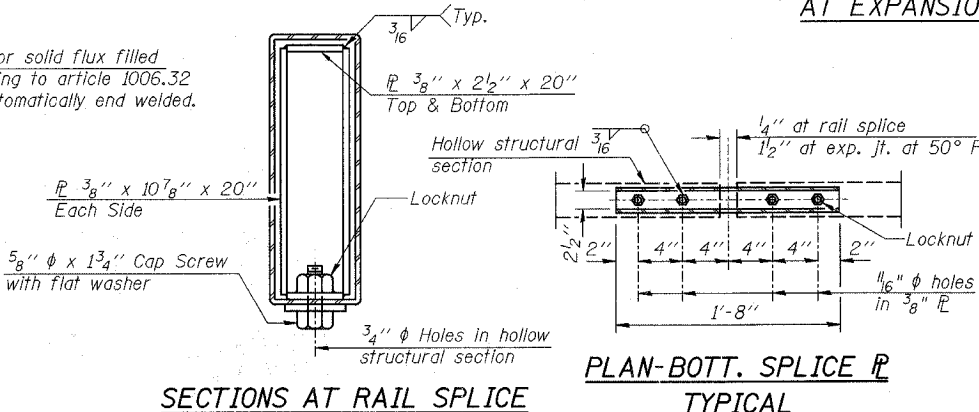
ANCHOR DEVICE

\* Threaded areas shall be plugged or blocked off during casting of beam.

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



RAIL SPLICE CONNECTION  
AT EXPANSION JT.



SECTIONS AT RAIL SPLICE

PLAN-BOTT. SPLICE  
TYPICAL

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing Type S-1	Foot	222

TYPE S-1 STEEL RAILING  
1200th STREET OVER GREEN CREEK  
FAP RTE. 774, SECTION 107B-2  
EFFINGHAM COUNTY  
STATION 204+33.91  
S.N. 025-3309

DESIGNED	TMM
CHECKED	KCM
DRAWN	CAR
CHECKED	TMM
R-23A	10-31-02 (10'-9" Maximum Post Spacing)

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PROJECT NO.	SECTION	DISTRICT	SHEET NO.	SHEET NO.
1200th STREET	107B-2	EFFINGHAM	273	263
FED. ROAD DIST. NO. 7			ILLINOIS   FEDERAL PROJECT	

CONTRACT NO. 94827

### SOIL BORING LOG

Page 1 of 2  
Date 10/17/02

ROUTE CR 1200 E DESCRIPTION Green Creek LOGGED BY E. Szpadzhaler

SECTION 107 WRS-1 LOCATION NW 1/4 SEC. 18, TWP. 8 N, RNG. 6 E, 3 PM

COUNTY Effingham DRILLING METHOD Hollow stem auger & split spoon HAMMER TYPE Automatic 140#

DEPTH (ft)	SOIL DESCRIPTION	SPT (Blows)	Moisture (%)	Shrinkage (%)	Notes
0.00	Surface Water Elev. _____				
0.00	Stream Bed Elev. _____				
0.00	Groundwater Elev. _____				
0.00	First Encounter _____				
0.00	Upon Completion _____				
0.00	After N/A. Hrs. _____				
0.00	Ground Surface Elev. _____				
0.00	Very soft, very moist, brown, SILTY LOAM w/ hair roots.				3% passing #200 sieve.
0.00	Very soft, very moist, brown, SILTY LOAM w/ hair roots.				Loose, water bearing, gray, SAND w/ one 1" stone. 7% passing #200 sieve.
0.00	Very soft, very moist, brown, SILTY LOAM w/ hair roots.				Soft, damp, gray, SANDY CLAY LOAM w/ black specks.
0.00	Very soft, very moist, brown, SILTY LOAM w/ hair roots.				Very dense, very moist, gray, SANDY CLAY LOAM SHALE w/ black specks.
0.00	Very soft, very moist, brown, SILTY LOAM.				Soil core continued with rock boring.
0.00	Very soft, damp, brown, SANDY LOAM.				
0.00	Loose, very damp, brown w/ rust spots, SAND.				
0.00	5% passing #200 sieve.				
0.00	Very loose, wet to water bearing, gray, SAND. 3% passing #200 sieve.				
0.00	5% passing #200 sieve.				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer).  
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, form 137 (Rev. 8-95)

### ROCK CORE LOG

Page 2 of 2  
Date 10/17/02

ROUTE CR 1200 E DESCRIPTION Green Creek LOGGED BY E. Szpadzhaler

SECTION 107 WRS-1 LOCATION NW 1/4 SEC. 18, TWP. 8 N, RNG. 6 E, 3 PM

COUNTY Effingham DRILLING METHOD Rotary diamond split spoon

DEPTH (ft)	ROCK DESCRIPTION	Recovery (%)	Core Length (ft)	Notes
0.00	Gray, SANDY CLAY LOAM SHALE w/ thin gray sandstone layering.			
0.00				
0.00				
0.00				
0.00	Extent of exploration.			
0.00	Benchmark: BM #10 = 543.64' on Little Wabash River bridge. Furnished by Program Development.			

Color picture of the core \_\_\_\_\_  
Cores will be stored for examination until \_\_\_\_\_  
The "Strength" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)  
BBS, form 133 (Rev. 8-95)

### SOIL BORING LOG

Page 1 of 1  
Date 10/17/02

ROUTE CR 1200 E DESCRIPTION Green Creek LOGGED BY E. Szpadzhaler

SECTION 107 WRS-1 LOCATION NW 1/4 SEC. 18, TWP. 8 N, RNG. 6 E, 3 PM

COUNTY Effingham DRILLING METHOD Hollow stem auger & split spoon HAMMER TYPE Automatic 140#

DEPTH (ft)	SOIL DESCRIPTION	SPT (Blows)	Moisture (%)	Shrinkage (%)	Notes
0.00	Surface Water Elev. _____				
0.00	Stream Bed Elev. _____				
0.00	Groundwater Elev. _____				
0.00	First Encounter _____				
0.00	Upon Completion _____				
0.00	After N/A. Hrs. _____				
0.00	Ground Surface Elev. _____				
0.00	Medium, damp, brown, SILTY LOAM w/ many roots.				Very loose, water bearing, gray, SAND w/ few sandstone fragments and one wood chunk. 1% passing #200 sieve. (continued)
0.00	Medium, damp, brown, SILTY LOAM w/ many roots.				Loose, water bearing, gray, SAND w/ many pebbles. 3% passing #200 sieve.
0.00	Medium, damp, brown, SANDY LOAM w/ few hair roots.				Loose, water bearing, gray, SAND w/ many pebbles. 7% passing #200 sieve.
0.00	Loose, damp, brown, SAND, 21% passing #200 sieve.				Soft, damp, gray, SANDY CLAY LOAM
0.00	Medium, damp, brown, SILTY LOAM w/ few black specks.				Gray, SANDY CLAY LOAM SHALE Extent of exploration.
0.00	Very loose, water bearing, brown, SAND w/ few gray sandstone fragments. 10% passing #200 sieve.				Benchmark: BM #10 = 543.64' on Little Wabash River bridge. Furnished by Program Development.
0.00	3% passing #200 sieve.				
0.00	Loose, water bearing, brown, SAND. 2% passing #200 sieve.				
0.00					

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer).  
The SPT (N value) is the sum of the last two blow values in each sampling zone (AASHTO T206) BBS, form 137 (Rev. 8-95)

DESIGNED	TMM
CHECKED	KCM
DRAWN	CAR
CHECKED	TMM

BORING LOGS  
1200th STREET OVER GREEN CREEK  
SECTION 107B-2  
EFFINGHAM COUNTY  
STATION 204+33.91  
S.N. 025-3309

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RIGHT OF WAY PLANS  
**FOR PROPOSED  
FEDERAL AID HIGHWAY**

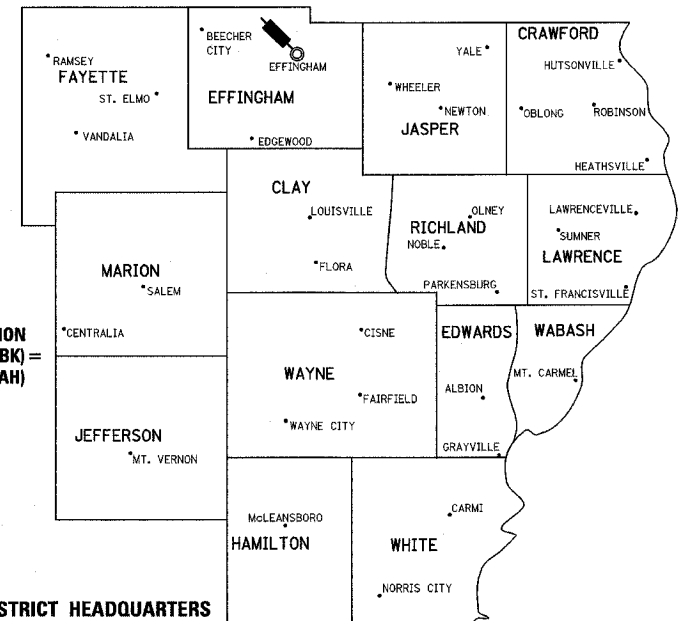
F.A.P. ROUTE 774 (ILLINOIS ROUTE 32/33)  
SECTION 107WRS-1, 107BY, 107BY-1, 107B-2  
JOB NO R-97-007-00  
EFFINGHAM COUNTY  
CONTRACT NO 94827

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
774	*	EFFINGHAM	273	264
STA. TO STA.				
FED. ROAD DIST. NO. 7 ILLINOIS		FED. AID PROJECT		
* 107WRS-1, 107BY, 107BY-1, 107B-2		CONTRACT NO. 94827		

SHEET NO. 1  
10 SHEETS

18/07/02  
\\0349903\ROW\COVERSHEET.DGN  
1 2 3 4 5 6 7 8 9  
10 11 12 13 14 15 16 17 18  
19 20 21 22 23 24 25 26 27  
28 29 30 31 32 33 34 35  
36 37 38 39 40 41 42 43 44 45  
46 47 48 49 50 51 52 53 54  
55 56 57 58 59 60 61 62 63

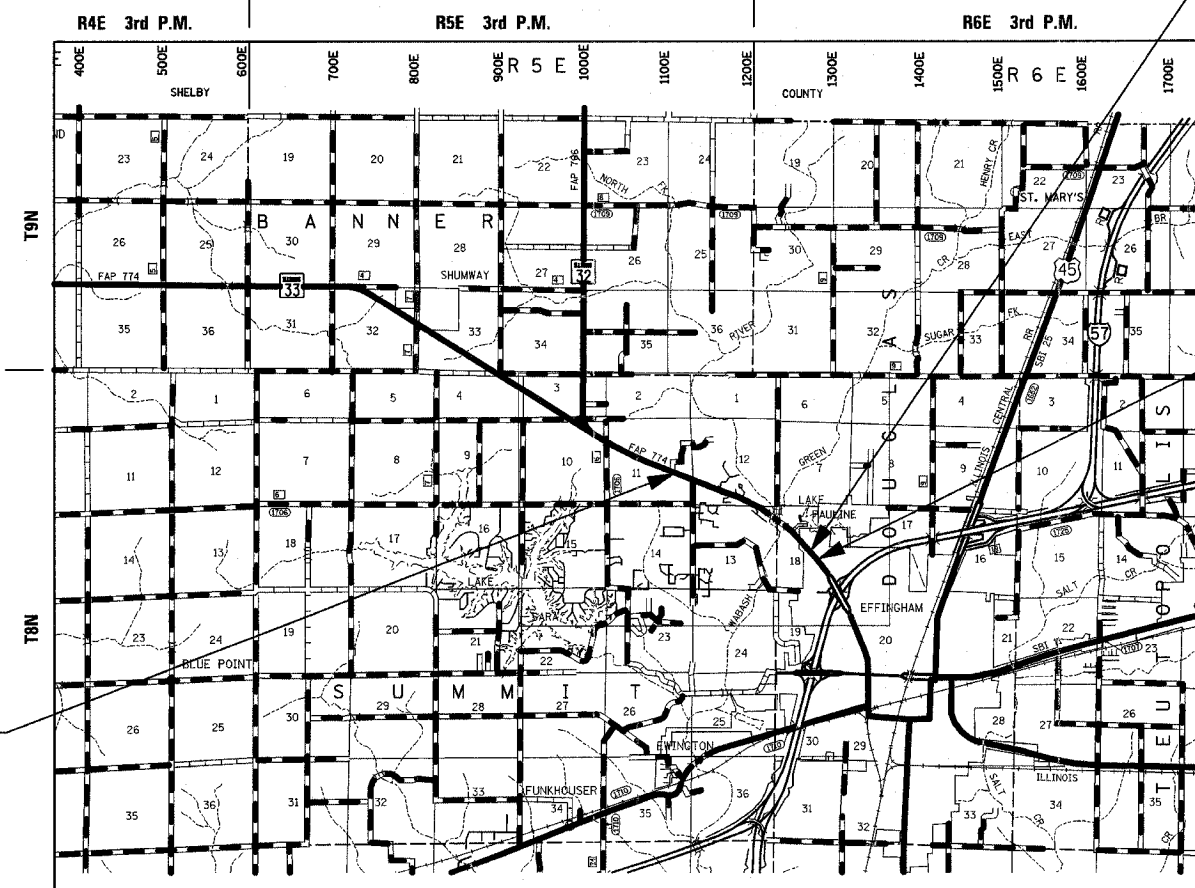
**DISTRICT 7**



STATION EQUATION  
STA. 1039 + 00.00 (BK) =  
STA. 39 + 00.00 (AH)

FAP ROUTE 774 (IL ROUTE 32/33)  
SECTION 107WRS-1, 107BY,  
107BY-1, 107B-2  
EFFINGHAM COUNTY  
ENDS  
STA. 43 + 85.53

FAP ROUTE 774 (IL ROUTE 32/33)  
SECTION 107WRS-1, 107BY,  
107BY-1, 107B-2  
EFFINGHAM COUNTY  
BEGINS  
STA. 940 + 36.37



LOCATION OF SECTION INDICATED THUS:

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

SUBMITTED \_\_\_\_\_ 20 \_\_\_\_\_  
EXAMINED \_\_\_\_\_ 20 \_\_\_\_\_  
PASSED \_\_\_\_\_ 20 \_\_\_\_\_  
REVIEWED \_\_\_\_\_ 20 \_\_\_\_\_  
APPROVED \_\_\_\_\_ 20 \_\_\_\_\_

DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER  
DISTRICT CHIEF OF PLATS AND PLANS  
DISTRICT LAND ACQUISITION ENGINEER  
CENTRAL BUREAU RIGHT OF WAY PLANS ENGINEER  
ENGINEER OF LAND ACQUISITION

GROSS LENGTH OF PROJECT = 10349 LIN. FT. = 1.96 MILES

\\0349903\ROW\COVERSHEET.DGN  
18/07/02

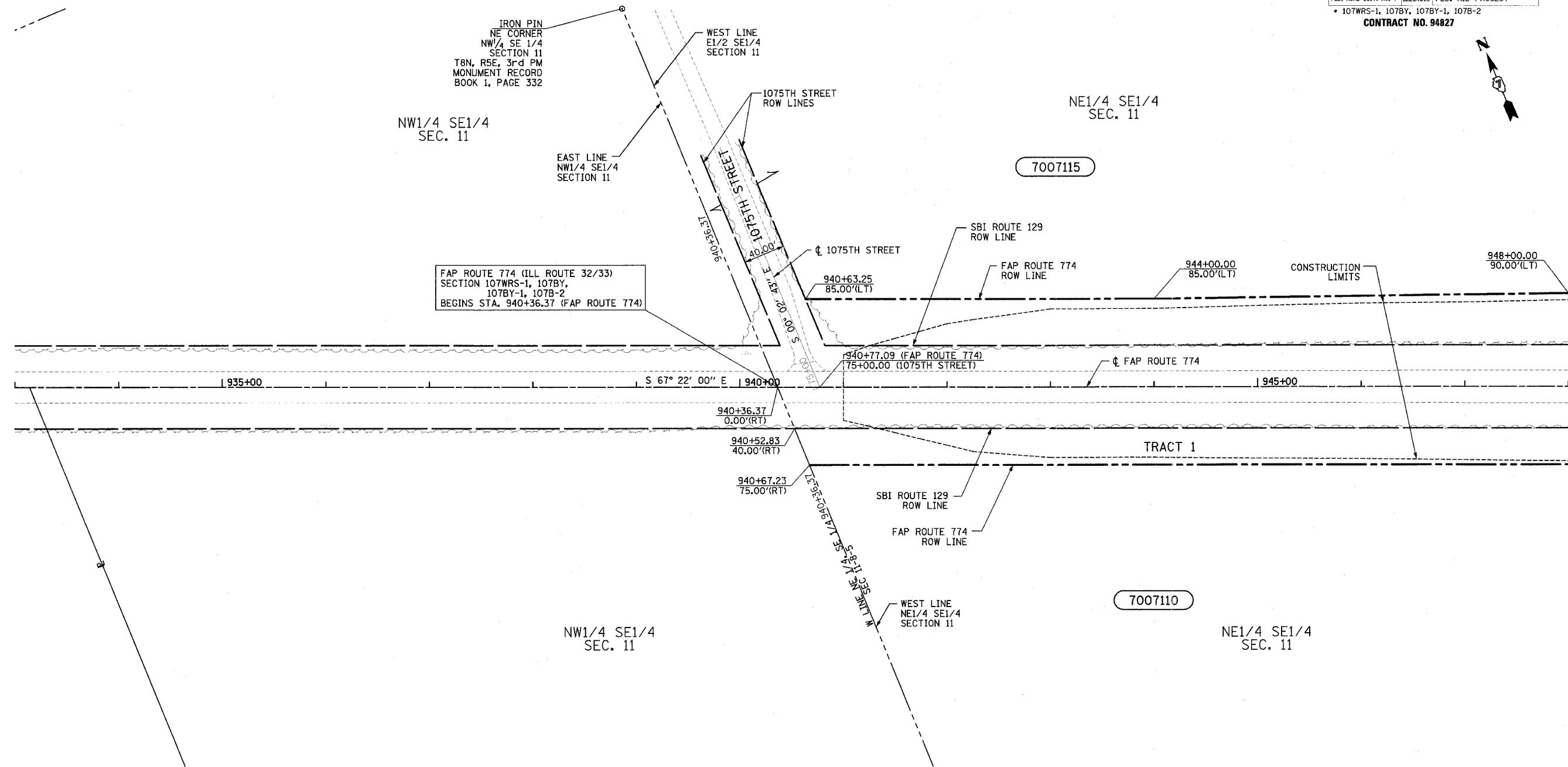
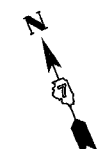


# T 8 N-R 5 E 3rd P.M. SUMMIT TWP

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
774	*	EFFINGHAM	273	265
FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT				
* 107WRS-1, 107BY, 107BY-1, 107B-2				
CONTRACT NO. 94827				

SHEET NO. 2  
10 SHEETS

10/7/02  
 \0349903\ROW\ROWPLANS-6.DGN  
 1 2 3 4 5 6 7 8 9  
 10 11 12 13 14 15 16 17 18  
 19 20 21 22 23 24 25 26 27  
 28 29 30 31 32 33 34 35 36  
 37 38 39 40 41 42 43 44 45  
 46 47 48 49 50 51 52 53 54  
 55 56 57 58 59 60 61 62 63



**UTILITIES:**

TELEPHONE- ILLINOIS CONSOLIDATED TELEPHONE COMPANY  
VERIZON NORTH INC.

GAS- AMEREN CIPS

ELECTRICITY- NORRIS ELECTRIC COOPERATIVE  
AMEREN CIPS

WATER- E J WATER CORPORATION  
LAKE SARA AREA WATER COOPERATIVE, INC.  
CITY OF EFFINGHAM

SEWER- CITY OF EFFINGHAM

T.V. CABLE- AT & T MEDIA SERVICE

CONTRACT NO. 94827  
FIELD BOOK NO 449, 450, 451,  
452 & 452B  
(R) RECORDED DISTANCE

NOTE: ALL AREAS ARE IN SQUARE FEET  
UNLESS OTHERWISE NOTED.

NOTE:  
BEARINGS ARE REFERENCED TO THE  
ILLINOIS STATE PLANE COORDINATE  
SYSTEM EAST ZONE DATUM OF 1983

RIGHT OF WAY PLANS FAP ROUTE 774			
PROJECT	SECTION	107WRS-1 107BY, 107BY-1 107B-2	
STATION	940+36.37	TO	
STATION	948+00.00		
COUNTY	EFFINGHAM		
SCALE	1"=50'	SHEET 2 OF 10	

PARCEL	OWNER	ADD AREA TAKEN	EXIST. AREA TAKEN	EASEMENT	REM. AREA	INST	MICRO FILM NO RECORDED	DATE	BOOK	PAGE	AREA	SOLD EXCESS
7007110	PAUL FRANKLIN WEBB	63,968	5,175	997	3,755,316							
	TRACT 1	54,524	5,175		2,247,646							
	TRACT 2	9,444			1,507,670							
7007115	PAUL WEBB	53,551	1,951		1,005,226							

JOB NO. R-97-007-00

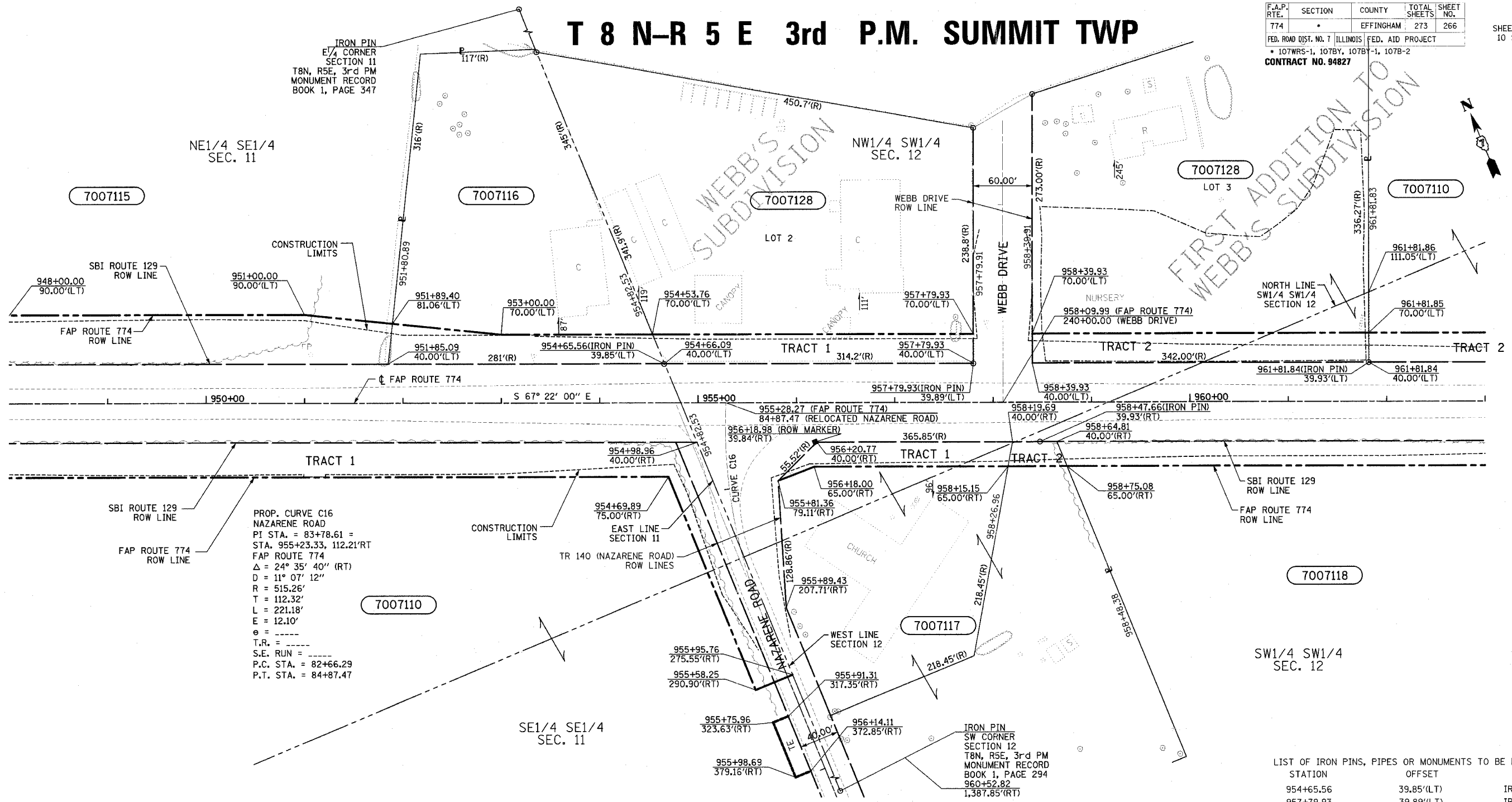
10/7/02  
 \0349903\ROW\ROWPLANS-8.DGN

1 2 3 4 5 6 7 8 9  
 10 11 12 13 14 15 16 17 18 19  
 20 21 22 23 24 25 26 27 28 29  
 30 31 32 33 34 35 36 37 38  
 39 40 41 42 43 44 45 46 47  
 48 49 50 51 52 53 54 55 56  
 57 58 59 60 61 62 63

# T 8 N-R 5 E 3rd P.M. SUMMIT TWP

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
774		EFFINGHAM	273	266
FED. ROAD DIST. NO. 7 ILLINOIS		FED. AID PROJECT		
• 107WRS-1, 107BY, 107B-1, 107B-2				
CONTRACT NO. 94827				

SHEET NO. 3  
10 SHEETS



PROP. CURVE C16  
 NAZARENE ROAD  
 PI STA. = 83+78.61 =  
 STA. 955+23.33, 112.21'RT  
 FAP ROUTE 774  
 $\Delta = 24^\circ 35' 40''$  (RT)  
 $D = 11^\circ 07' 12''$   
 $R = 515.26'$   
 $T = 112.32'$   
 $L = 221.18'$   
 $E = 12.10'$   
 $\theta = \text{---}$   
 T.R. = ---  
 S.E. RUN = ---  
 P.C. STA. = 82+66.29  
 P.T. STA. = 84+87.47

LIST OF IRON PINS, PIPES OR MONUMENTS TO BE PROTECTED

STATION	OFFSET	LABEL
954+65.56	39.85'(LT)	IRON PIN
957+79.93	39.89'(LT)	IRON PIN
958+47.66	39.93'(RT)	IRON PIN
961+81.84	39.93'(LT)	IRON PIN

**UTILITIES:**

TELEPHONE- ILLINOIS CONSOLIDATED TELEPHONE COMPANY  
 VERIZON NORTH INC.

GAS- AMEREN CIPS

ELECTRICITY- NORRIS ELECTRIC COOPERATIVE  
 AMEREN CIPS

WATER- E J WATER CORPORATION  
 LAKE SARA AREA WATER COOPERATIVE, INC.  
 CITY OF EFFINGHAM

SEWER- CITY OF EFFINGHAM

T.V. CABLE- AT & T MEDIA SERVICE

TRACT	OWNER	ADD AREA TAKEN	EXIST. AREA TAKEN	EASEMENT	REM. AREA	INST	MICRO FILM NO RECORDED	DATE	BOOK	PAGE	AREA EXCESS	SOLD
7007110	PAUL FRANKLIN WEBB	63,968	5,175	997	3,755,316							
	TRACT 1	54,524	5,175		2,247,646							
	TRACT 2	9,444			1,507,670							
7007115	PAUL WEBB	53,551	1,951		1,005,226							
7007116	BERT L. ELLIS	8,816			54,308							
7007117	EFFINGHAM CHURCH OF THE NAZARENE	6,702			124,039							
	TRACT 1	5,389			44,928							
	TRACT 2	1,313			79,111							
7007118	PAUL WEBB ET AL	20,879			1,340,626							
7007128	LAURYN, INC.	19,858			191,273							
	TRACT 1	9,600			92,985							
	TRACT 2	10,258			98,359							

CONTRACT NO. 94827  
 FIELD BOOK NO 449, 450, 451, 452 & 452B  
 (R) RECORDED DISTANCE

○ - IRON PIN  
 ■ - ROW MARKER

NOTE: TEMPORARY EASEMENTS ARE NEEDED AS A WORK AREA.

NOTE: ALL AREAS ARE IN SQUARE FEET UNLESS OTHERWISE NOTED.

NOTE: BEARINGS ARE REFERENCED TO THE ILLINOIS STATE PLANE COORDINATE SYSTEM EAST ZONE DATUM OF 1983

**RIGHT OF WAY PLANS**  
 FAP ROUTE 774

PROJECT SECTION 107WRS-1, 107BY, 107BY-1, 107B-2

STATION 948+00.00 TO

STATION 963+00.00

COUNTY EFFINGHAM

SCALE 1"=50'

SHEET 3 OF 10

JOB NO. R-97-007-00

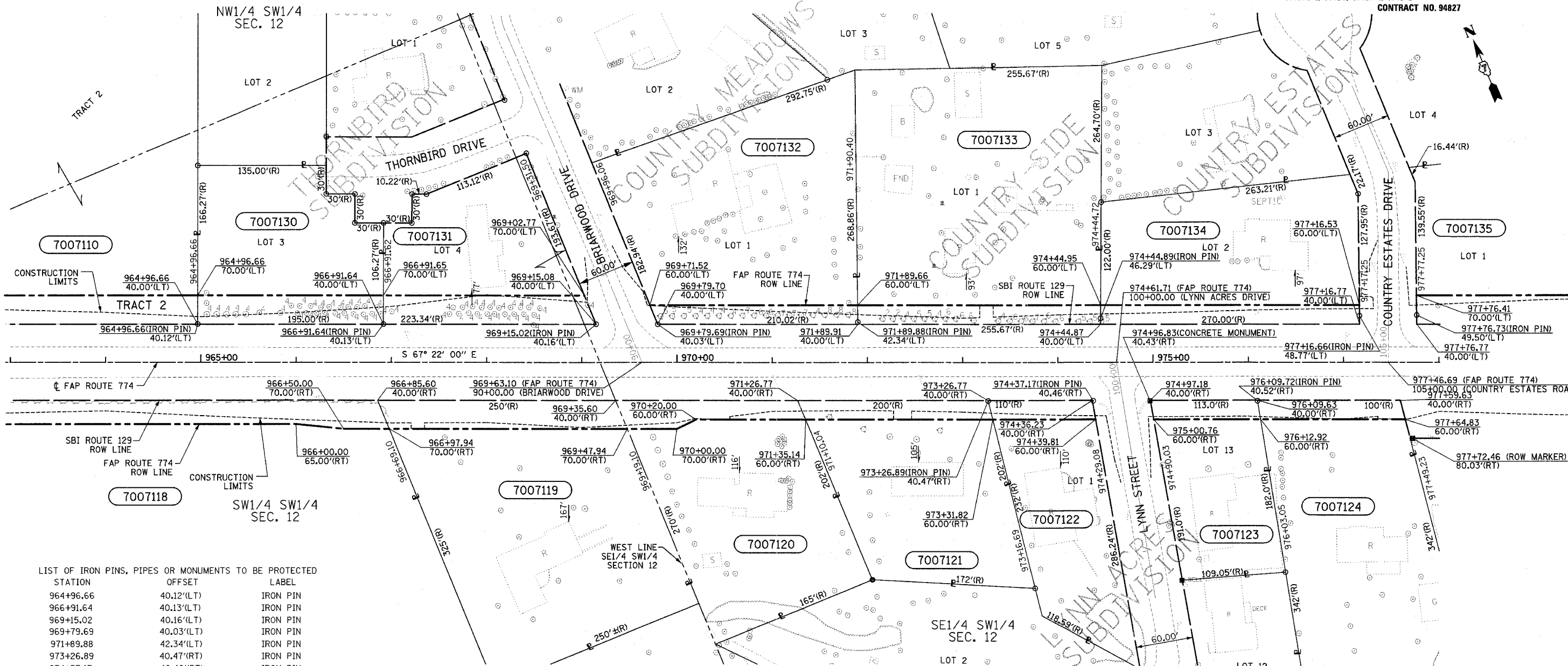
# T 8 N-R 5 E 3rd P.M. SUMMIT TWP

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
774		EFFINGHAM	273	267
FED. ROAD DIST. NO. 7		ILLINOIS FED. AID PROJECT		
107WRS-1, 107BY, 107BY-1, 107B-2		CONTRACT NO. 94827		

SHEET NO. 4  
10 SHEETS

10/7/02  
N:\0349903\ROW\PLANS-8.DGN

1 2 3 4 5 6 7 8 9  
10 11 12 13 14 15 16 17 18  
19 20 21 22 23 24 25 26 27  
28 29 30 31 32 33 34 35 36  
37 38 39 40 41 42 43 44 45  
46 47 48 49 50 51 52 53 54  
55 56 57 58 59 60 61 62 63



LIST OF IRON PINS, PIPES OR MONUMENTS TO BE PROTECTED

STATION	OFFSET	LABEL
964+96.66	40.12'(LT)	IRON PIN
966+91.64	40.13'(LT)	IRON PIN
969+15.02	40.16'(LT)	IRON PIN
969+79.69	40.03'(LT)	IRON PIN
971+89.88	42.34'(LT)	IRON PIN
973+26.89	40.47'(RT)	IRON PIN
974+37.17	40.46'(RT)	IRON PIN
974+44.89	46.29'(LT)	IRON PIN
974+96.83	40.43'(RT)	CONC. MONUMENT
976+09.72	40.52'(RT)	IRON PIN
977+16.66	48.77'(LT)	IRON PIN
977+76.73	49.50'(LT)	IRON PIN

**UTILITIES:**

TELEPHONE- ILLINOIS CONSOLIDATED TELEPHONE COMPANY  
VERIZON NORTH INC.

GAS- AMEREN CIPS

ELECTRICITY- NORRIS ELECTRIC COOPERATIVE  
AMEREN CIPS

WATER- E J WATER CORPORATION  
LAKE SARA AREA WATER COOPERATIVE, INC.  
CITY OF EFFINGHAM

SEWER- CITY OF EFFINGHAM

T.V. CABLE- AT & T MEDIA SERVICE

PARCEL	OWNER	ADD. AREA TAKEN	EXIST. AREA	EASEMENT	REM. AREA	INST	MICRO FILM NO. RECORDED	DATE	BOOK	PAGE	AREA EXCESS	SOLD
7007110	PAUL FRANKLIN WEBB	63,968	5,175	997	3,755,316							
	TRACT 1	54,524	5,175		2,247,646							
	TRACT 2	9,444			1,507,670							
7007118	PAUL WEBB ET AL	20,879			1,340,626							
7007119	ELWOOD WEBB	7,500			56,655							
7007120	THOMAS L. CLOUGH	4,466			38,090							
7007121	LEROY ZIEGLER AS TRUSTEE OF THE LEROY ZIEGLER TRUST	3,967			31,410							
7007122	CARL J. SIEPKER	2,175			23,276							
7007123	JOHN D. STORM	2,246			18,221							
7007124	DAVID LEE HEUERMAN	3,019			52,451							
7007130	RODNEY L. LOVELLETTE	5,850			23,885							
7007131	BILLIE GENE DOWLING	6,518			21,844							
7007132	WILMER L. WOELFER	4,284			50,466							
7007133	JERRY R. JANSEN	5,102			63,985							
7007134	ORVILLE E. LAUE	5,435			33,174							
7007135	FREDERICK C. SCHAEFER	8,473			34,896							

CONTRACT NO. 94827  
FIELD BOOK NO 449, 450, 451, 452 & 452B  
(R) RECORDED DISTANCE

○ - IRON PIPE  
● - IRON PIN  
■ - ROW MARKER  
■ - CONCRETE MONUMENT

NOTE: ALL AREAS ARE IN SQUARE FEET UNLESS OTHERWISE NOTED.

NOTE: BEARINGS ARE REFERENCED TO THE ILLINOIS STATE PLANE COORDINATE SYSTEM EAST ZONE DATUM OF 1983

**RIGHT OF WAY PLANS**  
**FAP ROUTE 774**

PROJECT	SECTION	107WRS-1
		107BY, 107BY-1
		107B-2
STATION	963+00.00	TO
STATION	978+00.00	
COUNTY	EFFINGHAM	
SCALE	1"=50'	SHEET 4 OF 10

JOB NO. R-97-007-00

BLANK, WESSELINK, COOK & ASSOCIATES

ENGINEERS - CONSULTANTS DECATUR, ILLINOIS

F.A.P. 774 (IL RTE 32/33) SEC 107WRS-1, 107BY, 107BY-1 & 107B-2

EFFINGHAM COUNTY

10/7/02  
 \0349303\ROW\ROWPLANS9-13.DGN  
 1 2 3 4 5 6 7 8 9  
 10 11 12 13 14 15 16 17 18  
 19 20 21 22 23 24 25 26 27  
 28 29 30 31 32 33 34 35 36  
 37 38 39 40 41 42 43 44 45  
 46 47 48 49 50 51 52 53 54  
 55 56 57 58 59 60 61 62 63

# T 8 N-R 5 E 3rd P.M. SUMMIT TWP

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
774		EFFINGHAM	273	268

FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT  
 • 107WRS-1, 107BY, 107BY-1, 107B-2

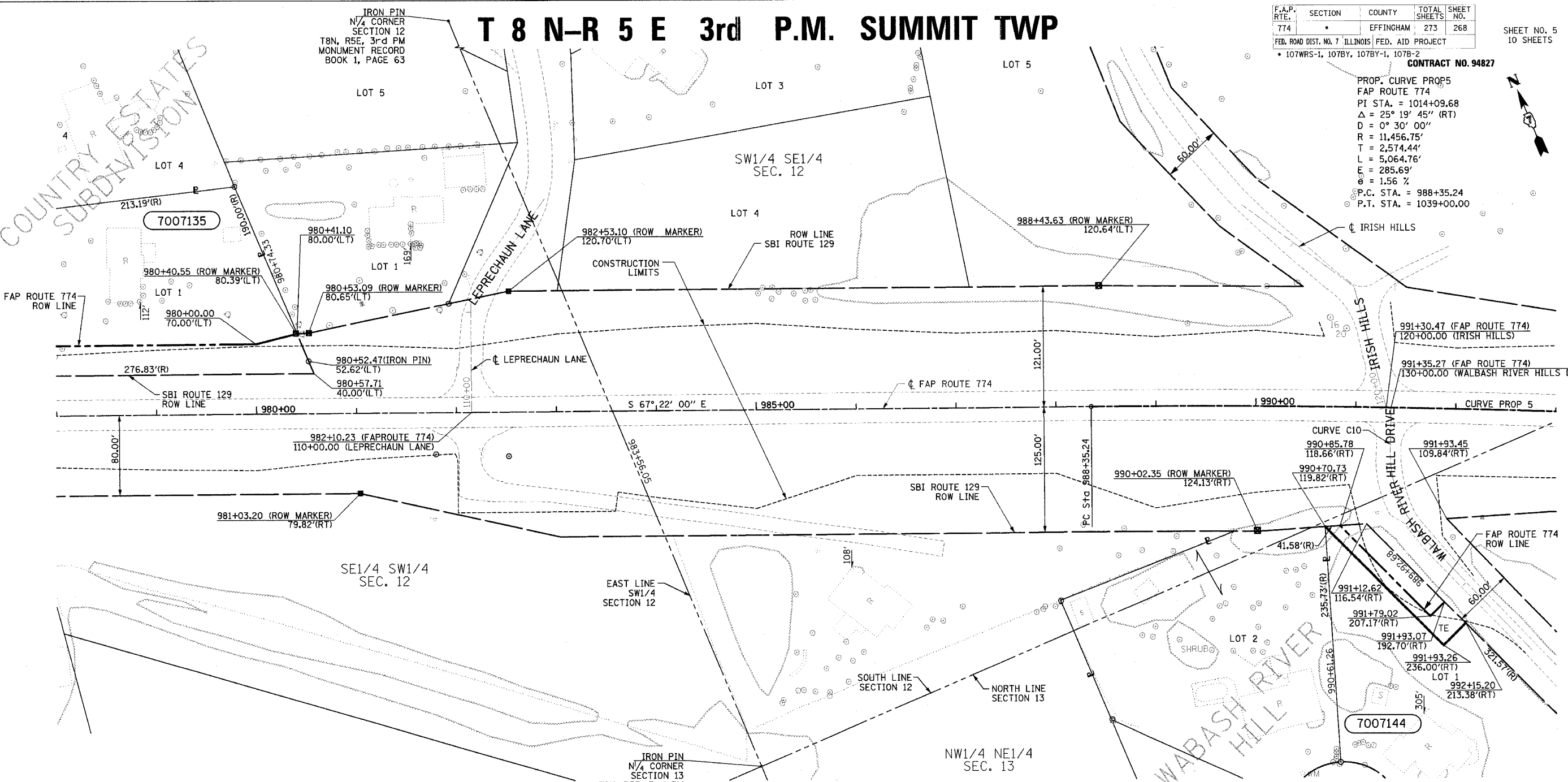
SHEET NO. 5  
 10 SHEETS

CONTRACT NO. 94827

PROP. CURVE PROP5  
 FAP ROUTE 774  
 PI STA. = 1014+09.68  
 $\Delta = 25^\circ 19' 45''$  (RT)  
 $D = 0^\circ 30' 00''$   
 $R = 11,456.75'$   
 $T = 2,574.44'$   
 $L = 5,064.76'$   
 $E = 285.69'$   
 $e = 1.56 \%$   
 P.C. STA. = 988+35.24  
 P.T. STA. = 1039+00.00



COUNTRY ESTATES  
 SUBDIVISIONS



**UTILITIES:**  
 TELEPHONE- ILLINOIS CONSOLIDATED TELEPHONE COMPANY  
 VERIZON NORTH INC.  
 GAS- AMEREN CIPS  
 ELECTRICITY- NORRIS ELECTRIC COOPERATIVE  
 AMEREN CIPS  
 WATER- E J WATER CORPORATION  
 LAKE SARA AREA WATER COOPERATIVE, INC.  
 CITY OF EFFINGHAM  
 SEWER- CITY OF EFFINGHAM  
 T.V. CABLE- AT & T MEDIA SERVICE

JOB NO. R-97-007-00

7007135	FREDERICK C. SCHAEFER	8,473		34,896							
7007144	SAMUEL G. WILLIAMS	2,376	2,422	52,013							
PARCEL	OWNER	ADD AREA TAKEN	EXIST. EASEMENT	REM. AREA	INST	MICRO FILM NO RECORDED	DATE	BOOK	PAGE	AREA EXCESS	SOLD

EXIST. CURVE C10  
 P.I. STA. = 129+10.44  
 $\Delta = 45^\circ 09' 21''$  (RT)  
 $D = 45^\circ 50' 12''$   
 $R = 125.00'$   
 $T = 51.98'$   
 $L = 98.52'$   
 $E = 10.38'$   
 $e = N/C$   
 P.C. STA. = 128+58.46  
 P.T. STA. = 129+56.98

CONTRACT NO. 94827  
 FIELD BOOK NO 449, 450, 451,  
 452 & 452B  
 (R) RECORDED DISTANCE  
 ○ - IRON PIN  
 ■ - ROW MARKER  
 ⊙ - STEEL "T" POST

NOTE: TEMPORARY EASEMENTS ARE NEEDED AS A WORK AREA.

NOTE: ALL AREAS ARE IN SQUARE FEET UNLESS OTHERWISE NOTED.

NOTE: BEARINGS ARE REFERENCED TO THE ILLINOIS STATE PLANE COORDINATE SYSTEM EAST ZONE DATUM OF 1983

RIGHT OF WAY PLANS  
 FAP ROUTE 774

PROJECT	SECTION	107WRS-1
		107BY, 107BY-1
		107B-2
STATION	978+00.00	TO
STATION	993+00.00	
COUNTY	EFFINGHAM	
SCALE	1"=50'	SHEET 5 OF 10

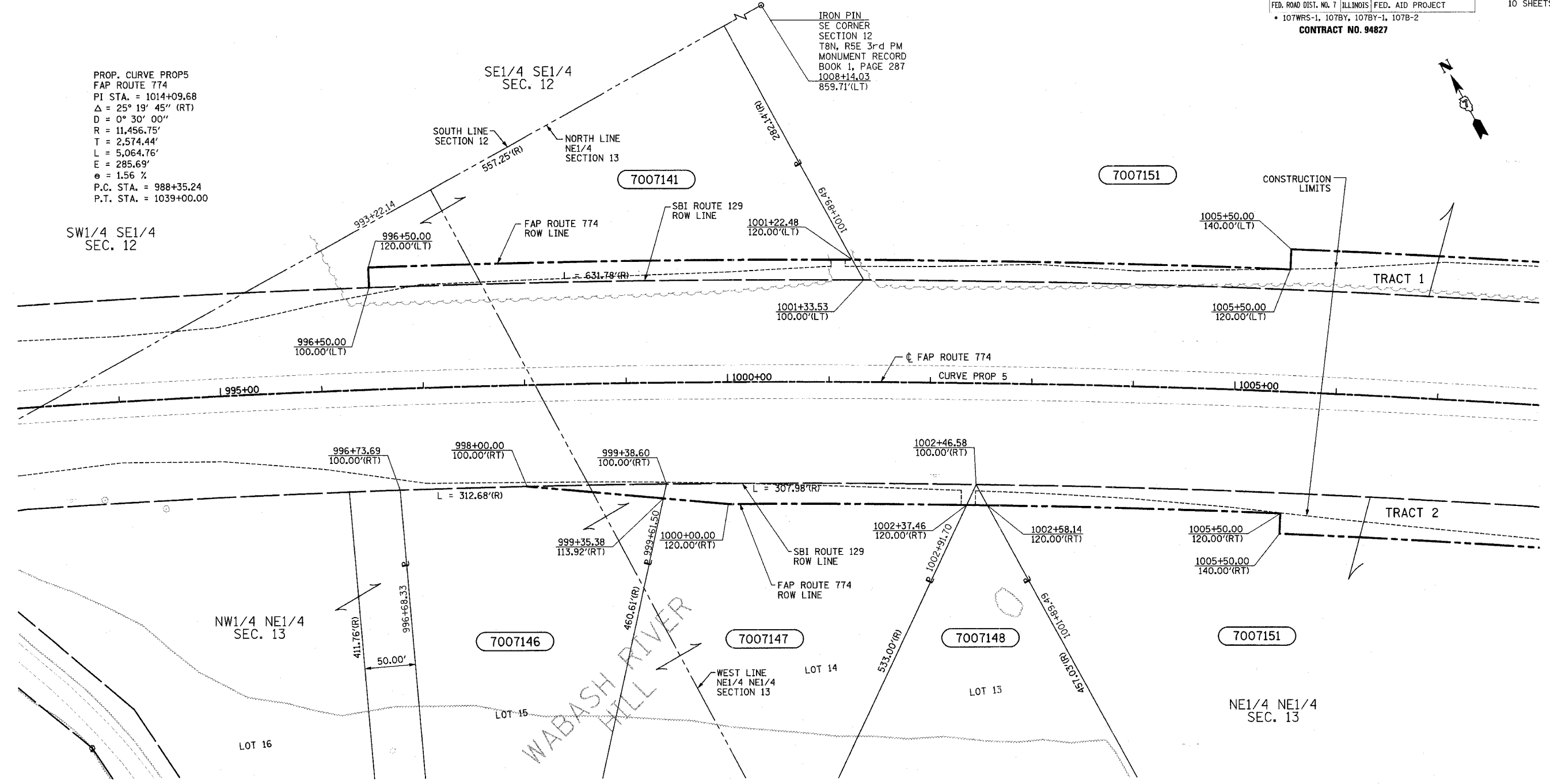
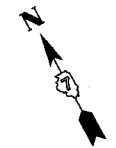
# T 8 N-R 5 E 3rd P.M. SUMMIT TWP

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
774	*	EFFINGHAM	273	269

FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT  
 \* 107WRS-1, 107BY, 107BY-1, 107B-2  
**CONTRACT NO. 94827**

SHEET NO. 6  
10 SHEETS

PROP. CURVE PROP5  
 FAP ROUTE 774  
 PI STA. = 1014+09.68  
 $\Delta = 25^\circ 19' 45''$  (RT)  
 $D = 0^\circ 30' 00''$   
 $R = 11,456.75'$   
 $T = 2,574.44'$   
 $L = 5,064.76'$   
 $E = 285.69'$   
 $e = 1.56\%$   
 P.C. STA. = 988+35.24  
 P.T. STA. = 1039+00.00



10/7/02  
 \0349903\ROW\ROWPLANS9-13.DGN  
 1 2 3 4 5 6 7 8 9  
 10 11 12 13 14 15 16 17 18  
 19 20 21 22 23 24 25 26 27  
 28 29 30 31 32 33 34 35  
 36 37 38 39 40 41 42 43 44  
 45 46 47 48 49 50 51 52 53 54  
 55 56 57 58 59 60 61 62

**UTILITIES:**  
 TELEPHONE- ILLINOIS CONSOLIDATED TELEPHONE COMPANY  
 VERIZON NORTH INC.  
 GAS- AMEREN CIPS  
 ELECTRICITY- NORRIS ELECTRIC COOPERATIVE  
 AMEREN CIPS  
 WATER- E J WATER CORPORATION  
 LAKE SARA AREA WATER COOPERATIVE, INC.  
 CITY OF EFFINGHAM  
 SEWER- CITY OF EFFINGHAM  
 T.V. CABLE- AT & T MEDIA SERVICE

7007141	FRANCIS BLOEMER	9,652			65,776							
7007146	HAROLD C. HAMILTON	974			84,274							
7007147	TERRY HOEKSTRA	5,774			108,850							
7007148	DAVID L. BRUMLEVE	205			106,786							
7007151	MICHAEL WENTE	70,849	1,400		1,003,377							
	TRACT 1	46,456			544,130							
	TRACT 2	24,393			459,247							
PARCEL	OWNER	ADD AREA TAKEN	EXIST. AREA TAKEN	EASEMENT	REM. AREA	INST	MICRO FILM NO RECORDED	DATE	BOOK	PAGE	AREA EXCESS	SOLD

**CONTRACT NO. 94827**  
 FIELD BOOK NO 449, 450, 451,  
 452 & 452B  
 (R) RECORDED DISTANCE

NOTE: ALL AREAS ARE IN SQUARE FEET  
 UNLESS OTHERWISE NOTED.

NOTE:  
 BEARINGS ARE REFERENCED TO THE  
 ILLINOIS STATE PLANE COORDINATE  
 SYSTEM EAST ZONE DATUM OF 1983

**RIGHT OF WAY PLANS**  
**FAP ROUTE 774**  
 PROJECT SECTION 107WRS-1  
 107BY, 107BY-1  
 107B-2  
 STATION 993+00.00 TO  
 STATION 1008+00.00  
 COUNTY EFFINGHAM  
 SCALE 1"=50' SHEET 6 OF 10

JOB NO. R-97-007-00

BLANK, WESSELINK, COOK & ASSOCIATES

ENGINEERS - CONSULTANTS DECATUR, ILLINOIS

F.A.P. 774 (IL RTE 32/33) SEC 107WRS-1, 107BY, 107BY-1 & 107B-2

EFFINGHAM COUNTY

107WRS-1, 107BY, 107BY-1, 107B-2

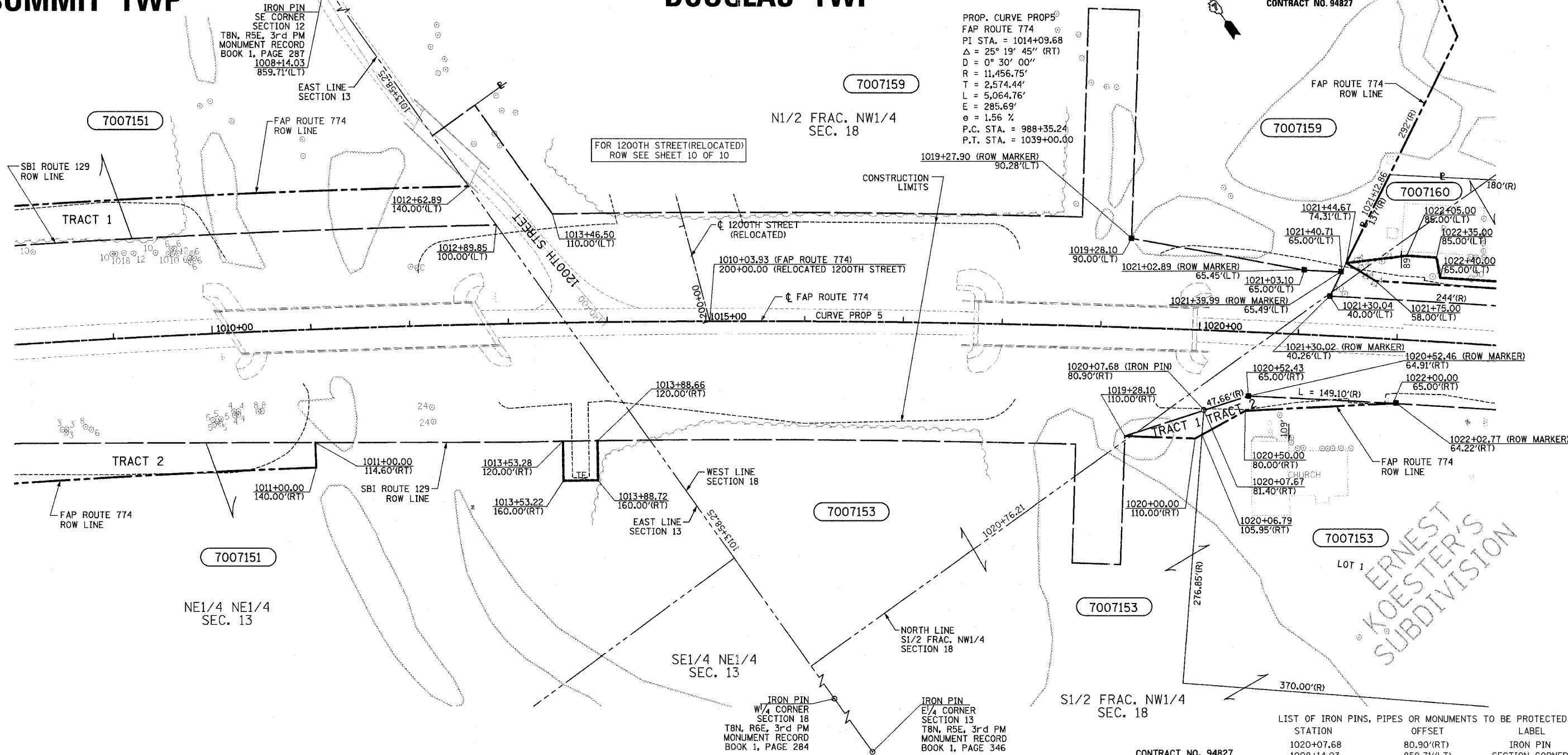
**T 8 N-R 5 E 3rd P.M.  
SUMMIT TWP**

**T 8 N-R 6 E 3rd P.M.  
DOUGLAS TWP**

F.A.P. RTE. 774	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		EFFINGHAM	273	270
FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT				
• 107WRS-1, 107BY, 107BY-1, 107B-2				
CONTRACT NO. 94827				

SHEET NO. 7  
10 SHEETS

10/77/02  
 \0349003\ROW\ROWPLANS9-13.DGN  
 1 2 3 4 5 6 7 8 9 10  
 11 12 13 14 15 16 17 18 19  
 20 21 22 23 24 25 26 27 28  
 29 30 31 32 33 34 35 36 37  
 38 39 40 41 42 43 44 45 46  
 47 48 49 50 51 52 53 54  
 55 56 57 58 59 60 61 62 63



PROP. CURVE PROPS<sup>5</sup>  
 FAP ROUTE 774  
 PI STA. = 1014+09.68  
 $\Delta = 25^\circ 19' 45''$  (RT)  
 $D = 0^\circ 30' 00''$   
 $R = 11,456.75'$   
 $T = 2,574.44'$   
 $L = 5,064.76'$   
 $E = 285.69'$   
 $e = 1.56\%$   
 P.C. STA. = 988+35.24  
 P.T. STA. = 1039+00.00

LIST OF IRON PINS, PIPES OR MONUMENTS TO BE PROTECTED

STATION	OFFSET	LABEL
1020+07.68	80.90'(RT)	IRON PIN
1008+14.03	859.71'(LT)	SECTION CORNER

CONTRACT NO. 94827  
 FIELD BOOK NO 449, 450, 451,  
 452 & 452B  
 (R) RECORDED DISTANCE

■ - ROW MARKER  
 ⊙ - IRON PIN

NOTE: TEMPORARY EASEMENTS ARE NEEDED AS A WORK AREA.

NOTE: ALL AREAS ARE IN SQUARE FEET UNLESS OTHERWISE NOTED.

NOTE: BEARINGS ARE REFERENCED TO THE ILLINOIS STATE PLANE COORDINATE SYSTEM EAST ZONE DATUM OF 1983

RIGHT OF WAY PLANS  
 FAP ROUTE 774

PROJECT	SECTION	107WRS-1
		107BY, 107BY-1
		107B-2
STATION	1008+00.00	TO
STATION	1023+00.00	
COUNTY	EFFINGHAM	
SCALE	1"=50'	SHEET 7 OF 10

**UTILITIES:**  
 TELEPHONE- ILLINOIS CONSOLIDATED TELEPHONE COMPANY  
 VERIZON NORTH INC.  
 GAS- AMEREN CIPS  
 ELECTRICITY- NORRIS ELECTRIC COOPERATIVE  
 AMEREN CIPS  
 WATER- E J WATER CORPORATION  
 LAKE SARA AREA WATER COOPERATIVE, INC.  
 CITY OF EFFINGHAM  
 SEWER- CITY OF EFFINGHAM  
 T.V. CABLE- AT & T MEDIA SERVICE

PARCEL	OWNER	ADD AREA TAKEN	EXIST. AREA	EASEMENT	REM. AREA	INST	MICRO FILM NO RECORDED	DATE	BOOK	PAGE	AREA	SOLD
7007151	MICHAEL WENTE TRACT 1 TRACT 2	70,849 46,456 24,393		1,400	1,003,377 544,130 459,247							
7007153	CROSSROADS FREE WILL BAPTIST CHURCH TRACT 1 TRACT 2	3,051 1,097 1,954			1,192,491 1,041,900 150,591							
7007159	STEPHEN KOESTER, AS SUCCESSOR TRUSTEE	380,222			0							
7007160	BRUCE L. WEIR	6,570		2,736	20,329							

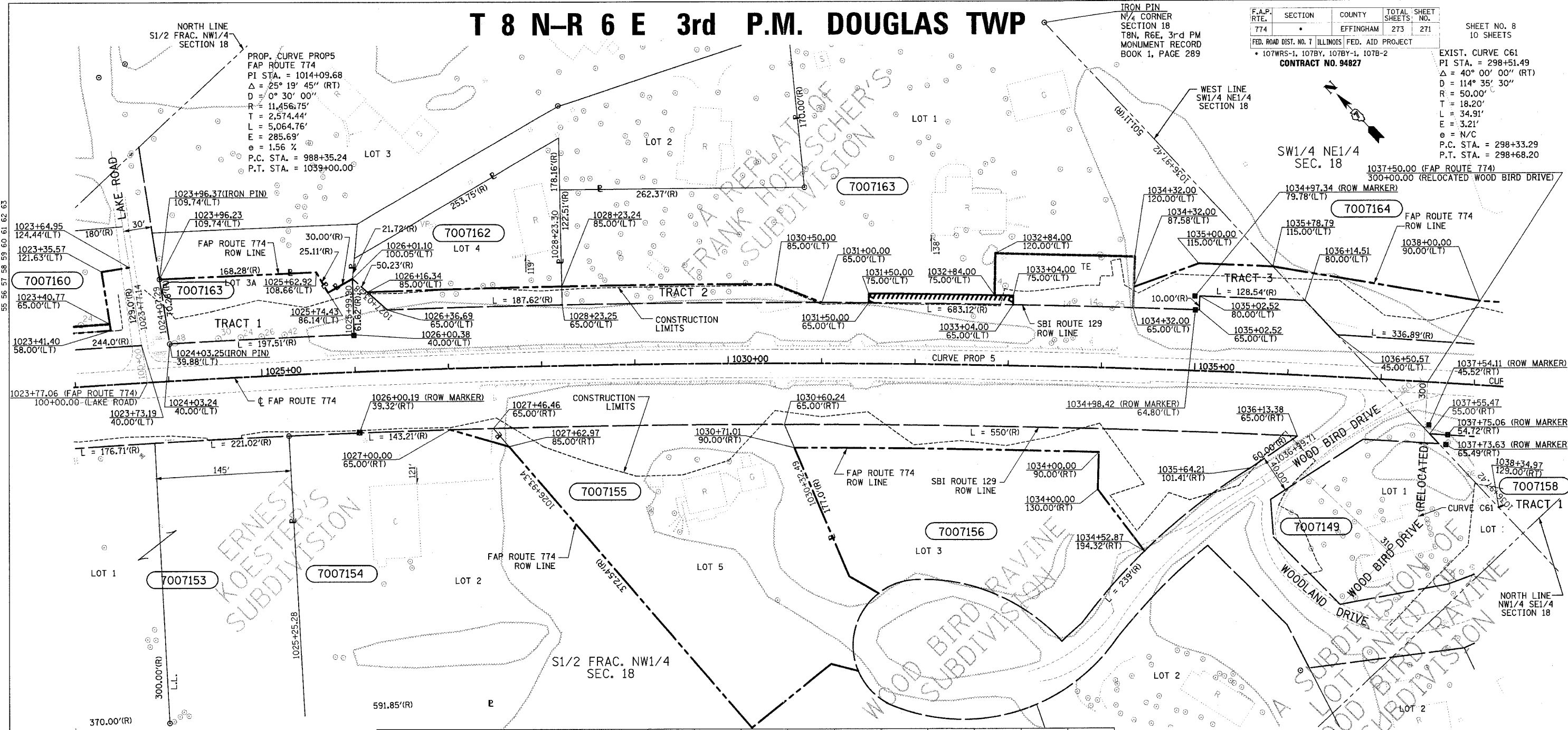
JOB NO. R-97-007-00

# T 8 N-R 6 E 3rd P.M. DOUGLAS TWP

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
774		EFFINGHAM	273	271
FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT				
* 107WRS-1, 107BY, 107BY-1, 107B-2				
CONTRACT NO. 94827				

EXIST. CURVE C61  
 PI STA. = 298+51.49  
 $\Delta = 40^{\circ} 00' 00''$  (RT)  
 D = 114' 35' 30"  
 R = 50.00'  
 T = 18.20'  
 L = 34.91'  
 E = 3.21'  
 e = N/C  
 P.C. STA. = 298+33.29  
 P.T. STA. = 298+68.20

10/7/02  
 \0349303\ROW\ROWPLANS-3.DGN  
 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63



ERNEST KOESTER'S SUBDIVISION  
 FRANK HOELSCHER'S SUBDIVISION  
 WOOD BIRD RAVINE SUBDIVISION  
 WOODLAND LOT 1  
 WOOD BIRD DRIVE (RELOCATED)  
 NORTH LINE NW1/4 SEC 18

**UTILITIES:**

TELEPHONE- ILLINOIS CONSOLIDATED TELEPHONE COMPANY  
 VERIZON NORTH INC.

GAS- AMEREN CIPS

ELECTRICITY- NORRIS ELECTRIC COOPERATIVE  
 AMEREN CIPS

WATER- E J WATER CORPORATION  
 LAKE SARA AREA WATER COOPERATIVE, INC.  
 CITY OF EFFINGHAM

SEWER- CITY OF EFFINGHAM

T.V. CABLE- AT & T MEDIA SERVICE

PARCEL	OWNER	ADD AREA TAKEN	EXIST. EASEMENT	REM. AREA	INST	MICRO FILM NO RECORDED	DATE	BOOK	PAGE	AREA EXCESS	SOLD
7007149	WILFORD MILLER ET AL	33,443		0							
7007153	CROSSROADS FREE WILL BAPTIST CHURCH	3,051		1,192,491							
	TRACT 1	1,097		1,041,900							
	TRACT 2	1,954		150,591							
7007154	THOMAS L. NEASE	464		98,441							
7007155	TODD A. GARTNER	70,218		0							
7007156	DORRIS E. GARTNER	23,060		49,248							
7007160	BRUCE L. WEIR	6,570	2,736	20,329							
7007162	RICHARD J. HOELSCHER	3,961		21,449							
7007163	FRANK HOELSCHER	24,487	9,530	150,419							
	TRACT 1	13,440		0							
	TRACT 2	5,119		150,419							
	TRACT 3	5,928									
7007164	CENTRAL ILLINOIS PUBLIC SERVICE COMPANY	20,397		920,546							

CONTRACT NO. 94827

FIELD BOOK NO 449, 450, 451, 452 & 452B

(R) RECORDED DISTANCE

STATION	OFFSET	LABEL
1024+03.25	39.88'(LT)	IRON PIN
1023+96.37	109.74'(LT)	IRON PIN

○ - IRON PIN  
 ■ - ROW MARKER

NOTE: TEMPORARY EASEMENTS ARE NEEDED AS A WORK AREA.

NOTE: ALL AREAS ARE IN SQUARE FEET UNLESS OTHERWISE NOTED.

NOTE: BEARINGS ARE REFERENCED TO THE ILLINOIS STATE PLANE COORDINATE SYSTEM EAST ZONE DATUM OF 1983

**RIGHT OF WAY PLANS**  
**FAP ROUTE 774**

PROJECT SECTION 107WRS-1, 107BY, 107BY-1, 107B-2

STATION 1023+00.00 TO 1038+00.00

COUNTY EFFINGHAM

SCALE 1"=50'

SHEET 8 OF 10

JOB NO. R-97-007-00

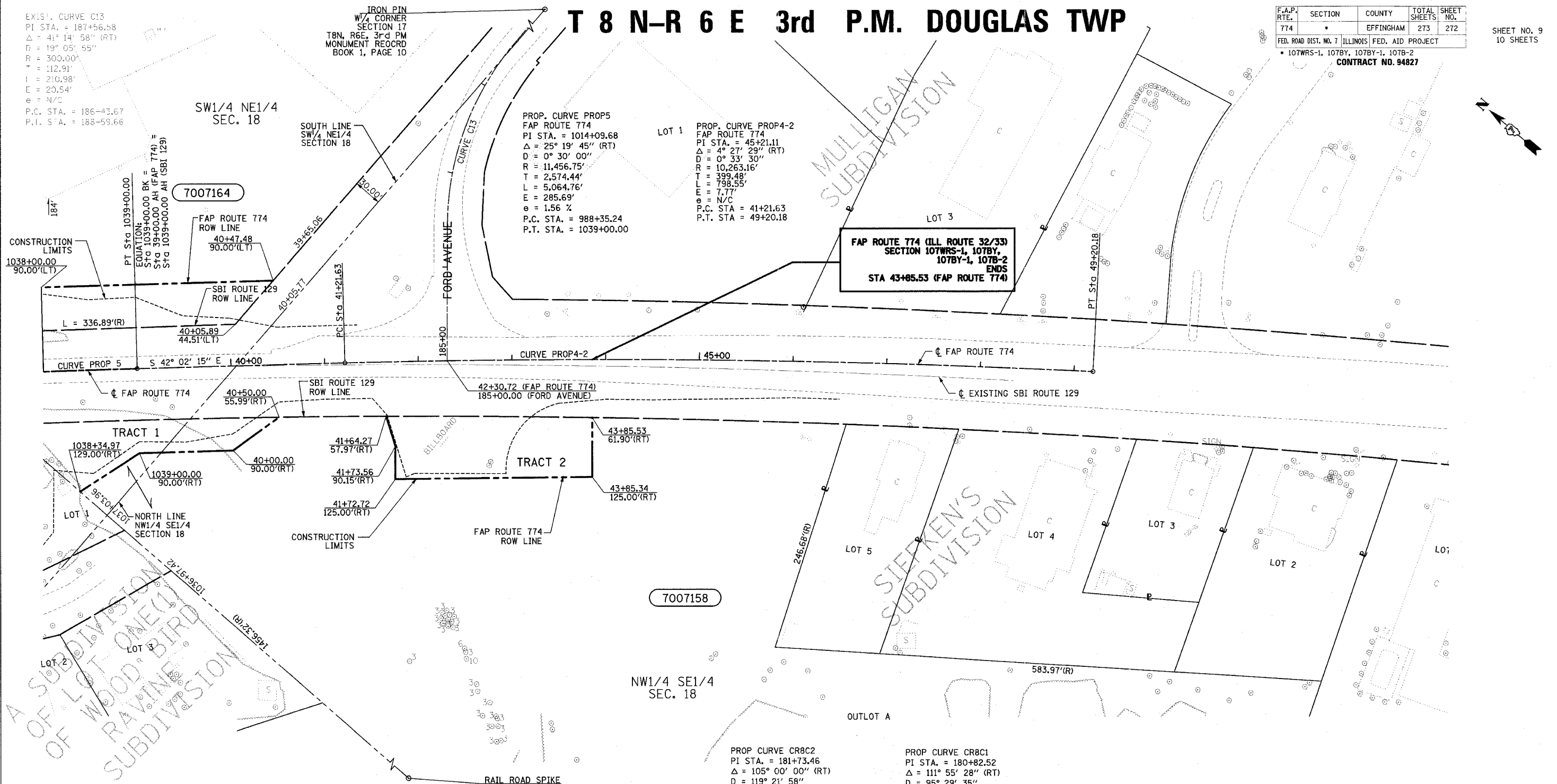
# T 8 N-R 6 E 3rd P.M. DOUGLAS TWP

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
774		EFFINGHAM	273	272
FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT				
CONTRACT NO. 94827				

SHEET NO. 9  
10 SHEETS

10/7/02  
\\0349903\ROW\ROWPLANS9-13.DGN

1 2 3 4 5 6 7 8 9  
10 11 12 13 14 15 16 17 18  
19 20 21 22 23 24 25 26 27  
28 29 30 31 32 33 34 35 36  
37 38 39 40 41 42 43 44 45  
46 47 48 49 50 51 52 53 54  
55 56 57 58 59 60 61 62 63



**UTILITIES:**

TELEPHONE- ILLINOIS CONSOLIDATED TELEPHONE COMPANY  
VERIZON NORTH INC.

GAS- AMEREN CIPS

ELECTRICITY- NORRIS ELECTRIC COOPERATIVE  
AMEREN CIPS

WATER- E J WATER CORPORATION  
LAKE SARA AREA WATER COOPERATIVE, INC.  
CITY OF EFFINGHAM

SEWER- CITY OF EFFINGHAM

T.V. CABLE- AT & T MEDIA SERVICE

PARCEL	OWNER	ADD AREA TAKEN	EXIST. AREA	EASEMENT	REM. AREA	INST	MICRO FILM NO RECORDED	DATE	BOOK	PAGE	AREA	SOLD EXCESS
7007158	JAMES J. HECHT TRACT 1 TRACT 2	24,668 10,795 13,873				607,428						
7007164	CENTRAL ILLINOIS PUBLIC SERVICE COMPANY	20,397				920,546						

CONTRACT NO. 94827  
FIELD BOOK NO 449, 450, 451,  
452 & 452B  
(R) RECORDED DISTANCE

○ - IRON PIN  
■ - ROW MARKER

NOTE: ALL AREAS ARE IN SQUARE FEET  
UNLESS OTHERWISE NOTED.

NOTE:  
BEARINGS ARE REFERENCED TO THE  
ILLINOIS STATE PLANE COORDINATE  
SYSTEM EAST ZONE DATUM OF 1983

**RIGHT OF WAY PLANS**  
FAP ROUTE 774

PROJECT SECTION 107WRS-1  
107BY, 107BY-1  
107B-2

STATION 1038+00.00 TO

STATION 43+85.53

COUNTY EFFINGHAM

SCALE 1"=50' SHEET 9 OF 10



# T 8 N-R 6 E 3rd P.M. DOUGLAS TWP

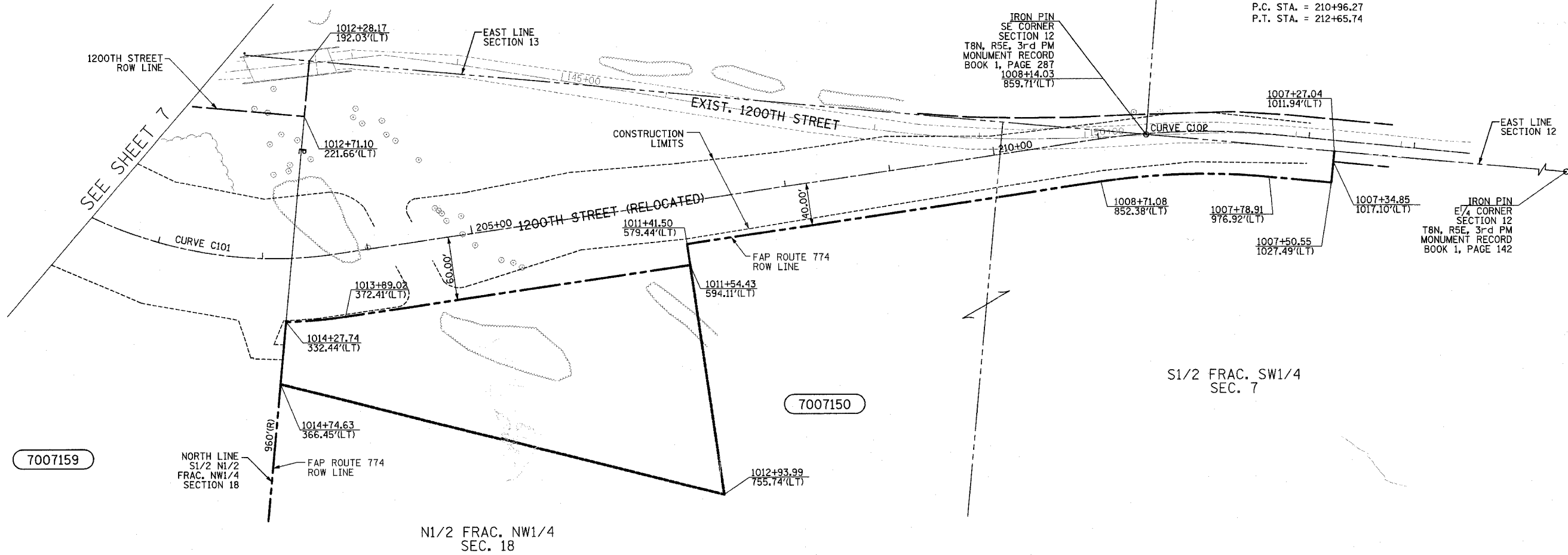
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
774	*	EFFINGHAM	273	273
FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT				
* 107WRS-1, 107BY, 107BY-1, 107B-2 CONTRACT NO. 94827				

SHEET NO. 10  
10 SHEETS

1 2 3 4 5 6 7 8 9  
 10 11 12 13 14 15 16 17 18  
 19 20 21 22 23 24 25 26 27  
 28 29 30 31 32 33 34 35 36  
 37 38 39 40 41 42 43 44 45  
 46 47 48 49 50 51 52 53 54  
 55 56 57 58 59 60 61 62 63

PROP. CURVE C101  
 RELOCATED 1200TH STREET  
 PI STA. = 202+54.90 =  
 STA. 1014+39.51, 246.44'(LT)  
 FAP ROUTE 774  
 $\Delta = 34^\circ 00' 01''$  (LT)  
 $D = 14^\circ 19' 26''$   
 $R = 400.00'$   
 $T = 122.29'$   
 $L = 237.37'$   
 $E = 18.28'$   
 $e = N/C$   
 P.C. STA. = 201+32.60  
 P.T. STA. = 203+69.97

PROP. CURVE C102  
 RELOCATED 1200TH STREET  
 PI STA. = 211+81.42 =  
 STA. 1007+88.51, 888.39'(LT)  
 FAP ROUTE 774  
 $\Delta = 13^\circ 52' 16''$  (RT)  
 $D = 8^\circ 11' 06''$   
 $R = 700.00'$   
 $T = 85.10'$   
 $L = 169.47'$   
 $E = 5.16'$   
 $e = N/C$   
 P.C. STA. = 210+96.27  
 P.T. STA. = 212+65.74



S1/2 FRAC. SW1/4  
SEC. 7

N1/2 FRAC. NW1/4  
SEC. 18

STATION	OFFSET	LABEL
1008+14.03	859.71'(LT)	IRON PIN

FIELD BOOK NO 449, 450, 451,  
 452 & 452B  
 (R) RECORDED DISTANCE  
 ○ - IRON PIN

NOTE: ALL AREAS ARE IN SQUARE FEET  
 UNLESS OTHERWISE NOTED.  
 NOTE:  
 BEARINGS ARE REFERENCED TO THE  
 ILLINOIS STATE PLANE COORDINATE  
 SYSTEM EAST ZONE DATUM OF 1983

RIGHT OF WAY PLANS FAP ROUTE 774		
PROJECT	SECTION	107WRS-1 107BY, 107BY-1 107B-2
STATION	1007+27.04	
STATION	1010+27.37	
COUNTY	EFFINGHAM	
SCALE	1"=50'	
		SHEET 10 OF 10

**UTILITIES:**

TELEPHONE- ILLINOIS CONSOLIDATED TELEPHONE COMPANY  
 VERIZON NORTH INC.  
 GAS- AMEREN CIPS  
 ELECTRICITY- NORRIS ELECTRIC COOPERATIVE  
 AMEREN CIPS  
 WATER- E J WATER COORORATION  
 LAKE SARA AREA WATER COOPERATIVE, INC.  
 CITY OF EFFINGHAM  
 SEWER- CITY OF EFFINGHAM  
 T.V. CABLE- AT & T MEDIA SERVICE

PARCEL	OWNER	ADD AREA TAKEN	EXIST. AREA TAKEN	EASEMENT	REM. AREA	INST	MICRO FILM NO RECORDED	DATE	BOOK	PAGE	AREA EXCESS	SOLD
7007159	STEPHEN KOESTER, AS SUCCESSOR TRUSTEE	380,222			0							
7007150	IOLENE KOESTER	101,062	19,495	54,273	2,309,438							

DRAWN BY: NJV  
 WRITTEN BY: TLS  
 CHECKED BY: BKB  
 INSPECTED BY: RMD

JOB NO. R-97-007-00