

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
745	(108BR)I-1	PIKE	7	1
FED. ROAD DIST. NO. _____		ILLINOIS	CONTRACT NO. 72B57	

FOR INDEX OF SHEETS, SEE SHEET NO. 2

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

**PROPOSED  
HIGHWAY PLANS**

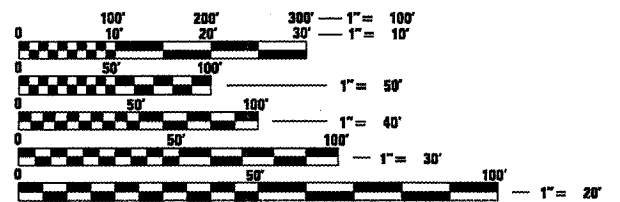
FAP ROUTE 745 (IL 104)  
SECTION (108BR)I-1

PIKE COUNTY  
BEAM REPLACEMENT  
C-96-013-08

**STANDARDS**

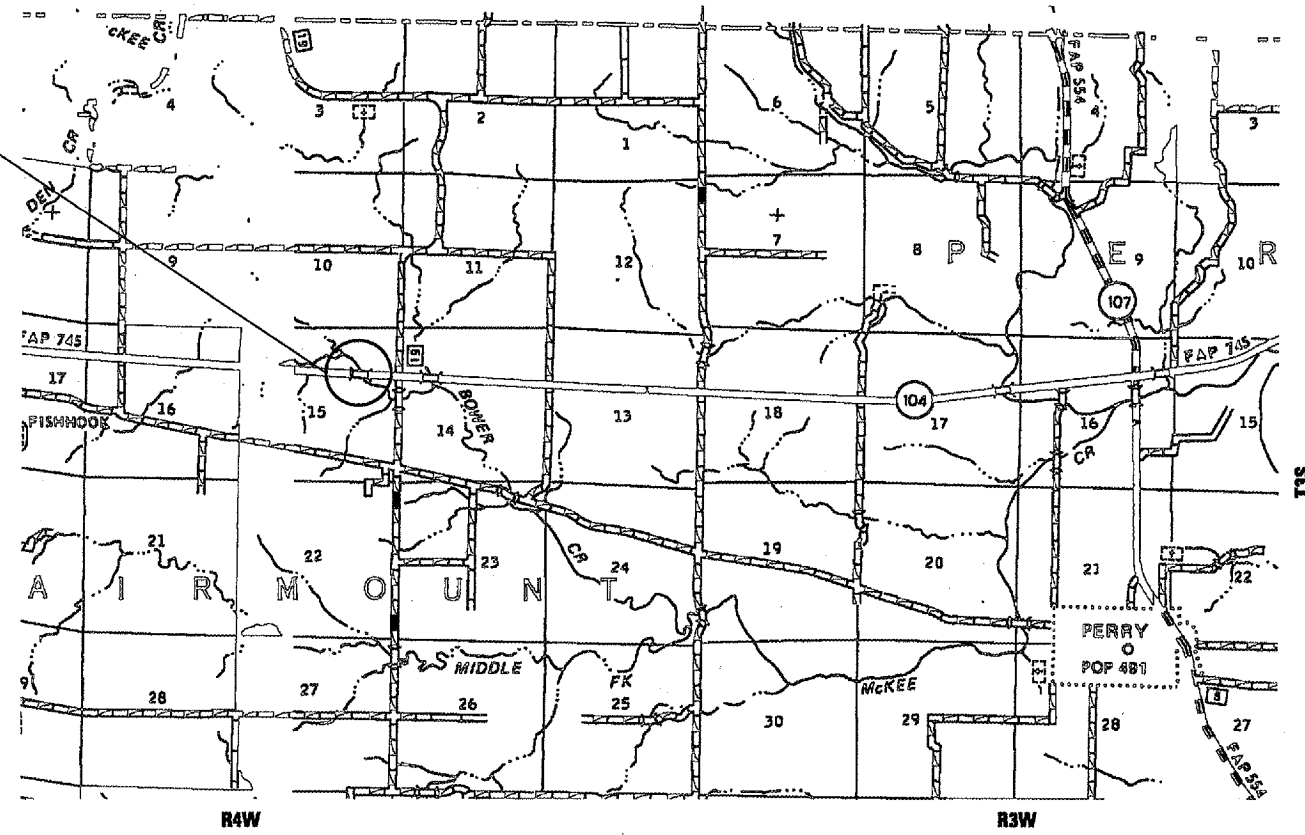
- 000001-05
- 001001-01
- 001006
- 630007-07
- 631031-06
- 701006-02
- 701901
- BLR21-7
- BLR22-5

**BROWER CREEK  
SN 075-0029  
STA 1721+25  
EXISTING SINGLE  
SPAN 54'-3" BK TO  
BK - REPLACE PPC  
DECK BEAM Nos.  
3,4,5,6,7 & 11**



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

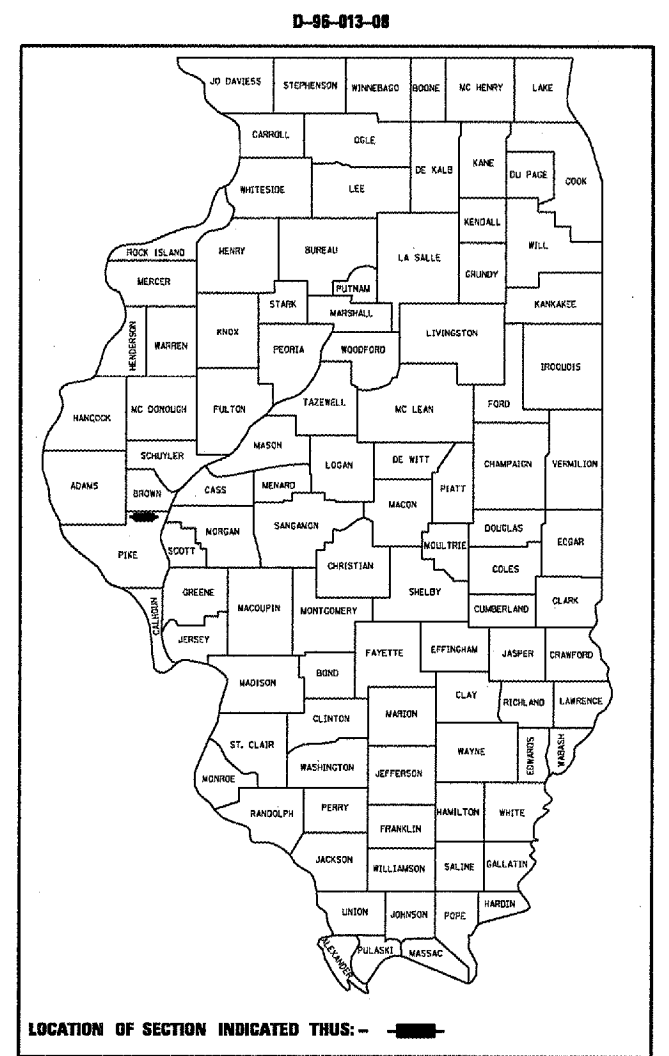
J.U.L.I.E.  
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION  
1-800-892-0123  
OR 811



ADT = 650 (2005)  
% PV = 80.8 (525)  
% SU = 10 (65)  
% MU = 9.2 (60)

PROJECT LENGTH = 120 FT = 0.02 MILES

CONTRACT NO. 72B57



STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS

SUBMITTED FEB 8 2008  
*[Signature]*  
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

March 21, 2008  
*[Signature]*  
ENGINEER OF DESIGN AND ENVIRONMENT

March 21, 2008  
*[Signature]*  
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

**PRINTED BY THE AUTHORITY  
OF THE STATE OF ILLINOIS**

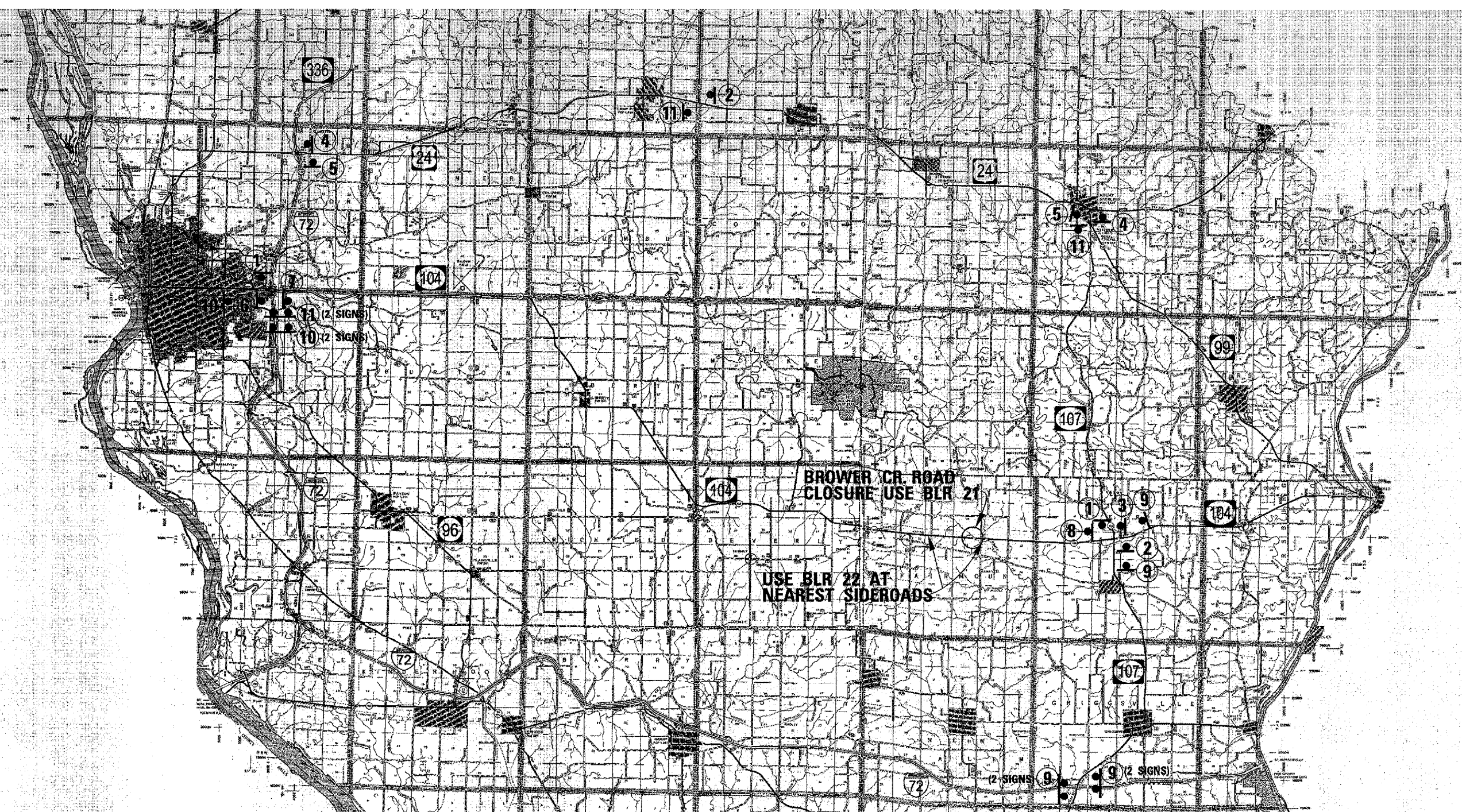
PROJECT ENGINEER: JOHN NEGANGARD (217) 782 6990  
SQUAD LEADER: MARK DUST (217) 785 0597



SUMMARY OF QUANTITIES		UNITS	TOTAL QUANTITY
			<i>X081-2A 100% STATE</i>
PAY CODE NUMBER	PAY ITEM DESCRIPTION		
50300300	<i>PROTECTIVE COAT</i>	<i>SQ YD</i>	<i>117.60</i>
50301200	CONCRETE WEARING SURFACE	SQ YD	117.60
50400505	PRECAST PRESTRESSED CONCRETE DECK BEAMS (27" DEPTH)	SQ FT	959.00
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	2960.00
50900905	REMOVING AND RE-ERECTING EXISTING RAILING	FOOT	54.00
67100100	MOBILIZATION	L SUM	1.00
70101830	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 21	L SUM	1.00
70101835	TRAFFIC CONTROL AND PROTECTION, STANDARD BLR 22	L SUM	1.00
70102550	TRAFFIC CONTROL AND PROTECTION FOR TEMPORARY DETOUR	EACH	1.00
70106800	CHANGEABLE MESSAGE SIGN	CAL MO	2.00
* 78001120	PAINT PAVEMENT MARKING - LINE 5"	FOOT	170.00
X0301424	SILICONE JOINT SEALER	FOOT	28.00
X0320047	REMOVAL OF EXISTING PRECAST PRESTRESSED CONCRETE DECK BEAMS	SQ FT	959.00
X0320887	POLYMER CONCRETE	CU FT	1.00
X0321781	MECHANICAL SPLICE	EACH	187.00
X5030275	CONCRETE WEARING SURFACE REMOVAL	SQ YD	10.40
<i>Z0001900</i>	<i>ASBESTOS BEARING PAD REMOVAL</i>	<i>EACH</i>	<i>6</i>

*\*SPECIALTY ITEMS*

*Rev.*



- ① END DETOUR ILLINOIS 104 M4-6 (24 x 12) M4-8 (24 x 12) M1-1100 (24 x 30)
- ② DETOUR WEST ILLINOIS 104 M4-8 (24 x 12) M3-4 (24 x 12) M1-1100 (24 x 30) M6-3 (21 x 15)
- ③ DETOUR WEST ILLINOIS 104 M4-8 (24 x 12) M3-4 (24 x 12) M1-1100 (24 x 30) M5-11(R) (21 x 15)
- ④ DETOUR WEST ILLINOIS 104 M4-8 (24 x 12) M3-4 (24 x 12) M1-1100 (24 x 30) M5-1(L) (21 x 15)
- ⑤ DETOUR EAST ILLINOIS 104 M4-8 (24 x 12) M3-2 (24 x 12) M1-1100 (24 x 30) M5-1(R) (21 x 15)
- ⑥ DETOUR EAST ILLINOIS 104 M4-8 (24 x 12) M3-2 (24 x 12) M1-1100 (24 x 30) M5-1(L) (21 x 15)
- ⑦ ILLINOIS ROUTE 104 CLOSED 30 MILES AHEAD R11-3B (60 x 30)
- ⑧ ILLINOIS ROUTE 104 CLOSED 5 MILES AHEAD R11-3B (60 x 30)
- ⑨ ILLINOIS ROUTE 104 BRIDGE CLOSED 5 MILES WEST OF IL RTE 107 FOLLOW MARKED DETOUR
- ⑩ ILLINOIS ROUTE 104 BRIDGE CLOSED 30 MILES EAST OF I-172 FOLLOW MARKED DETOUR
- ⑪ DETOUR EAST ILLINOIS 104 M4-8 (24 x 12) M3-2 (24 x 12) M1-1100 (24 x 30) M6-3 (21 x 15)

FILE NAME = c:\Projects\6801308\shdetourplan.dgn	USER NAME = laughlinr1	DESIGNED -	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>DETOUR PLAN</b>	F.A.P. RTE. 745	SECTION (108BR)-1	COUNTY PIKE	TOTAL SHEETS 7	SHEET NO. 4	
PLOT SCALE = 100.0000' / IN.		DRAWN -				SCALE:		SHEET NO. OF SHEETS		CONTRACT NO. 72B57	
PLOT DATE = Feb-11-2008 07:12:26AM		CHECKED -				STA. TO STA.		FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT	
		DATE -									

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	SHEETS	SHEET	SHEET NO. 1
745		Pike	7	5	3 SHEETS
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT			

Contract Number: 72B57

**GENERAL NOTES**

The contractor is advised that the existing PPC Deck Beams are in a deteriorated condition with reduced load carrying capacity. It is the contractor's responsibility to account for the condition of the beams when developing construction procedures.

If the contractor's procedure for existing beam removal or placement of new beams involves placement of cranes or other heavy equipment on the bridge, a detailed procedure shall be submitted to the Engineer for approval. The procedure shall include calculations, prepared and sealed by an Illinois Licensed Structural Engineer, verifying that the equipment and procedure used will not overstress the new or existing beams. To distribute load to multiple beams and protect the existing surface, in all cases a double layer mat of heavy timbers shall be used at all times under crane tracks or wheels and any outriggers in the down position. If necessary, shims shall be used under the crane mat to ensure uniform contact with the underlying beams. If heavy equipment will be placed on new PPC deck beams, the following shall be done prior to placement of the timber mats: placement and tightening of transverse tie assemblies, grouting and curing the dowel rods 24 hours minimum and grouting and curing the shear keys.

Any damage done to the bridge during beam removal shall be repaired by the Contractor. Cost to be included in the cost of Removal of Existing PPC Deck Beams.

The top surface of the beams shall be finished according to the IDOT Manual for Fabrication of Precast Prestressed Concrete Products.

The deck surface shall have its final finish tined according to Article 420.09(e)(1) of the Standard Specifications. Cost included with Concrete Wearing Surface.

Work to be done under road closure.

**DESIGN STRESSES**

FIELD UNITS

$f'_c = 3,500$  psi

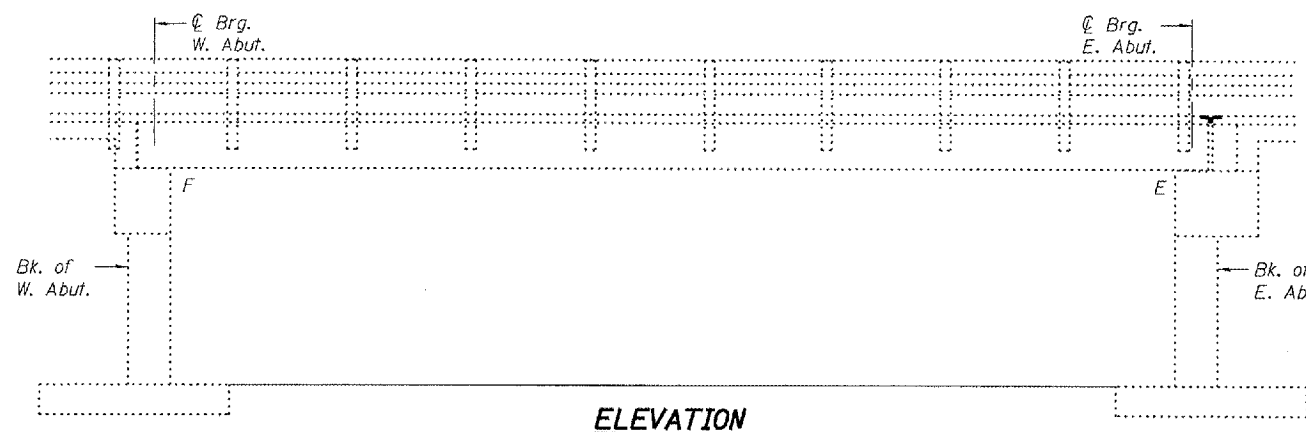
$f'_c = 5,000$  psi (Concrete Wearing Surface)  
 $f_y = 60,000$  psi (Reinforcement)

PRECAST PRESTRESSED UNITS

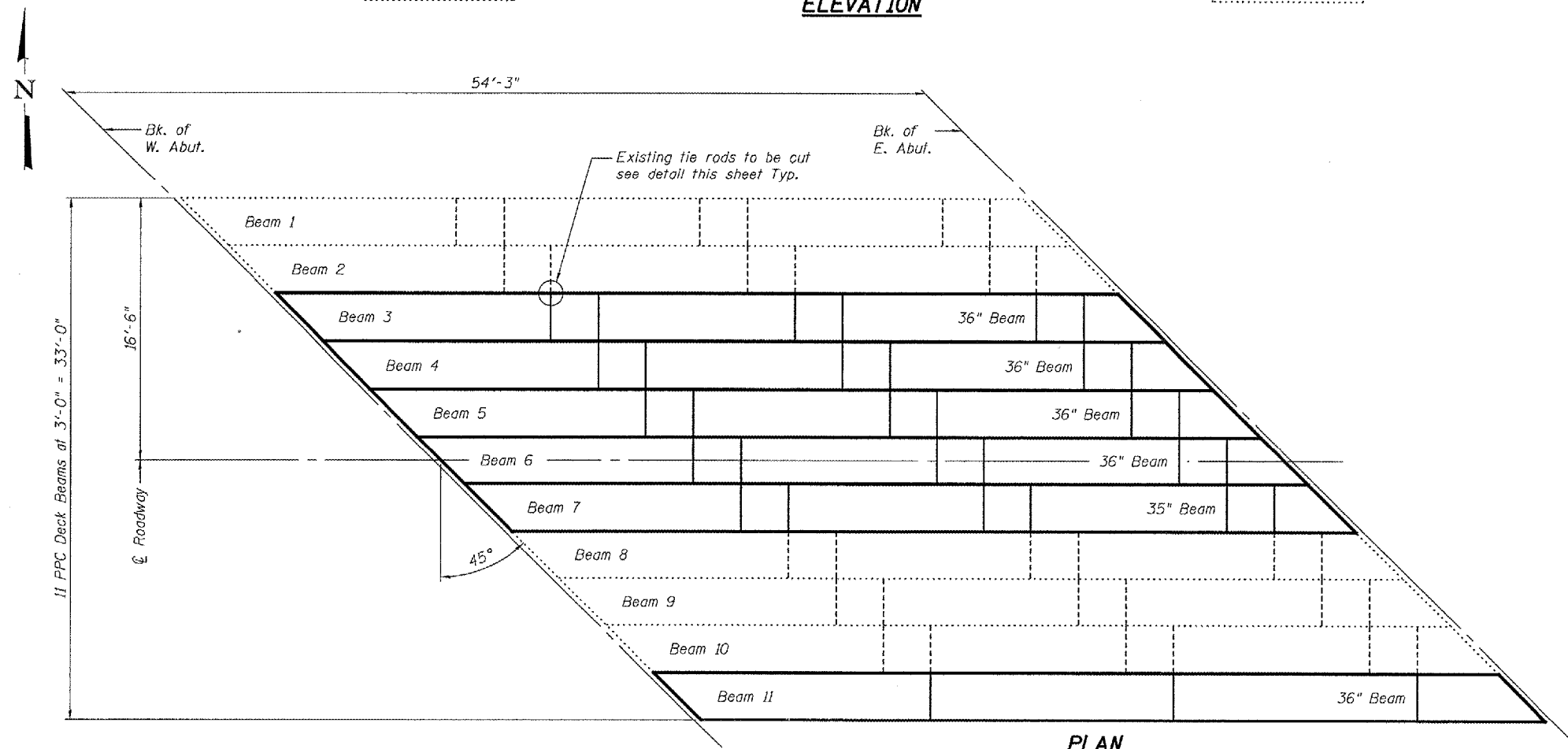
$f'_c = 5,000$  psi

$f'_{ci} = 4,000$  psi

$f'_s = 270,000$  psi ( $\frac{1}{2}$ "  $\phi$  low lax strands)  
 $f'_{si} = 201,960$  psi ( $\frac{1}{2}$ "  $\phi$  low lax strands)



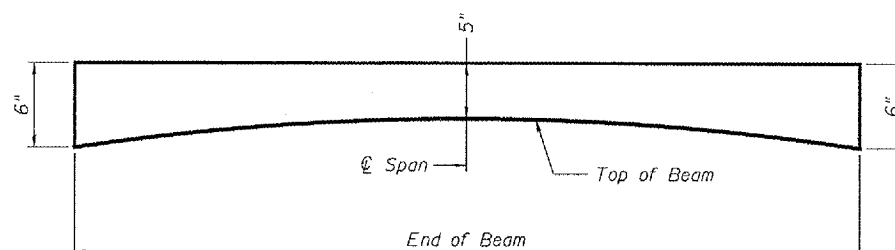
**ELEVATION**



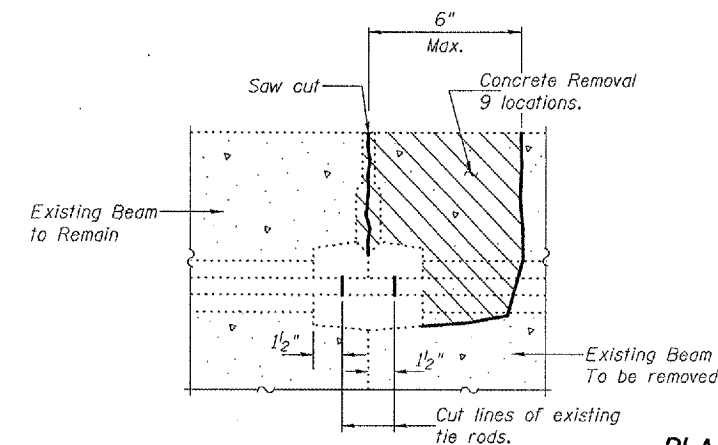
**PLAN**

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	QUANTITY
Removal of Existing PPC Deck Beams	Sq. Ft.	959
PPC Deck Beams (27" Depth)	Sq. Ft.	955
Concrete Wearing Surface	Sq. Yd.	117.6
Concrete Wearing Surface Removal	Sq. Yd.	10.4
Reinforcement Bars, Epoxy Coated	Pound	1,840
Removing and Re-erecting Existing Railing	Foot	54
Silicone Joint Sealer	Foot	28
Mechanical Splice	Each	207
Polymer Concrete	Cu. Ft.	1.0
Asbestos Bearing Pad Removal	Each	6
Protective Coat	Sq. Yd.	117.6



**CONCRETE WEARING SURFACE PROFILE**

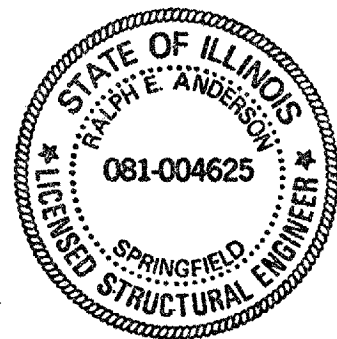


**BEAM REMOVAL DETAIL  
AT TRANSVERSE TIES**

**PLAN AND ELEVATION  
F.A.P. RT. 745 IL 104  
PIKE COUNTY  
SN 075-0029**

DESIGNED *Adrian T. Holloway*  
CHECKED *Victor H. Vela*  
DRAWN *[Signature]*  
CHECKED *ATW UHV*

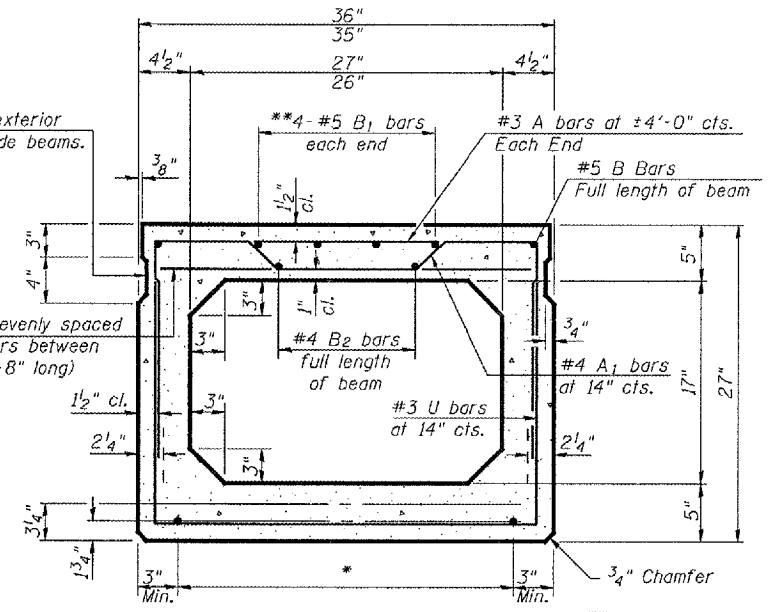
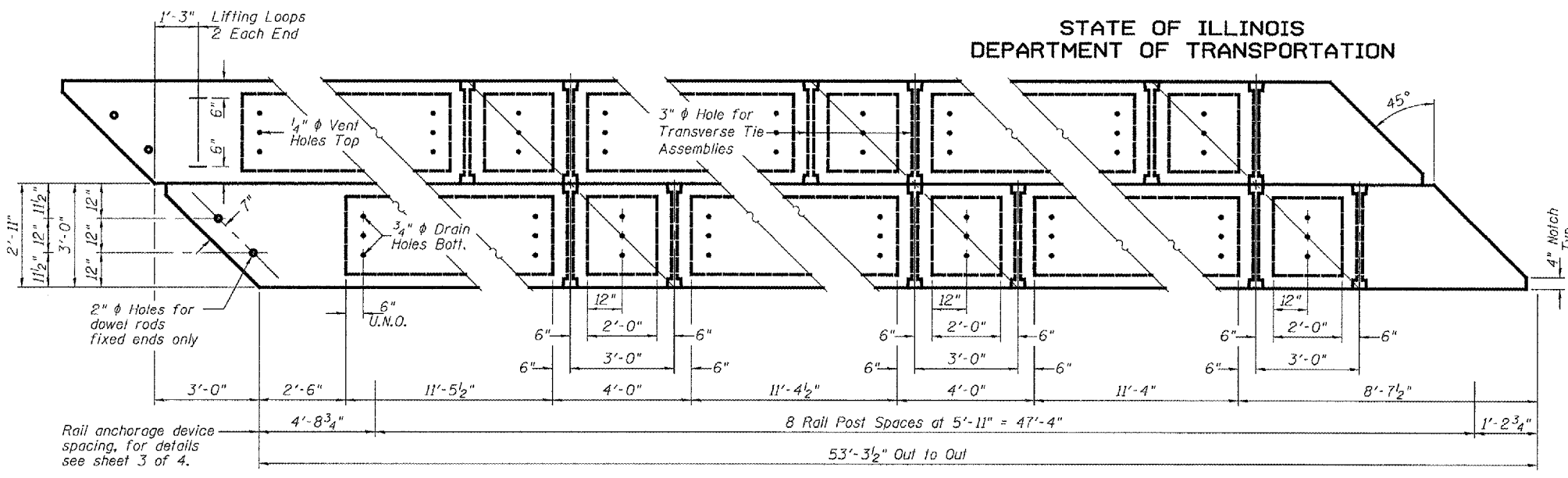
February 26, 2008  
EXAMINED *[Signature]*  
PASSED *[Signature]*  
ENGINEER OF BRIDGES AND STRUCTURES



Expires: November 30, 2008

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

ROUTE NO.	SECTION	COUNTY	SHEET NO.	SHEET TOTAL
745		Pike	7	6
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT	
Contract Number: 72B57				

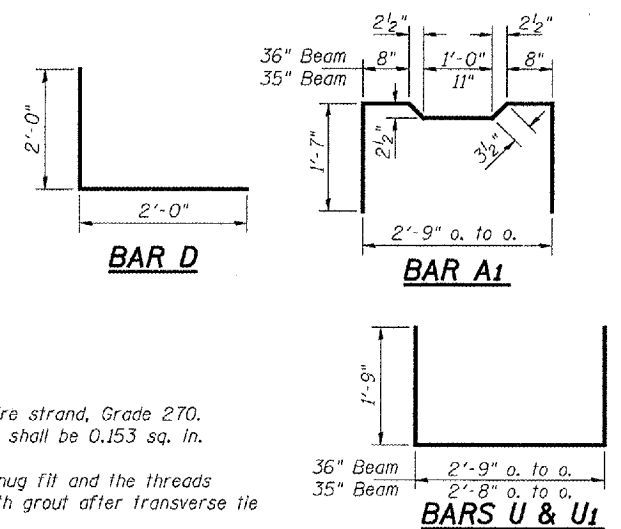
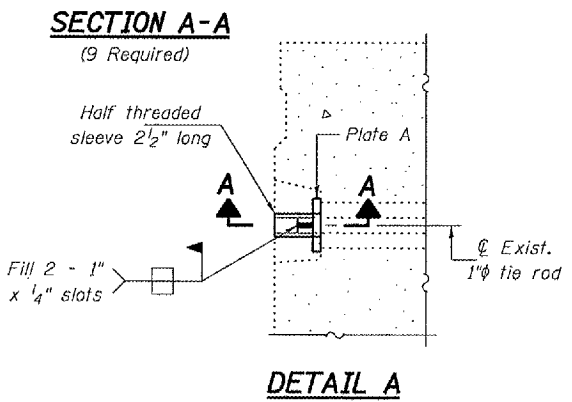
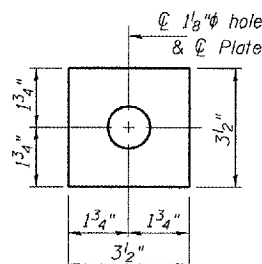
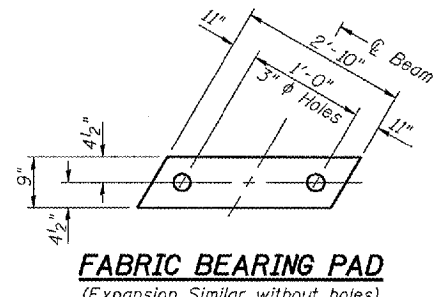
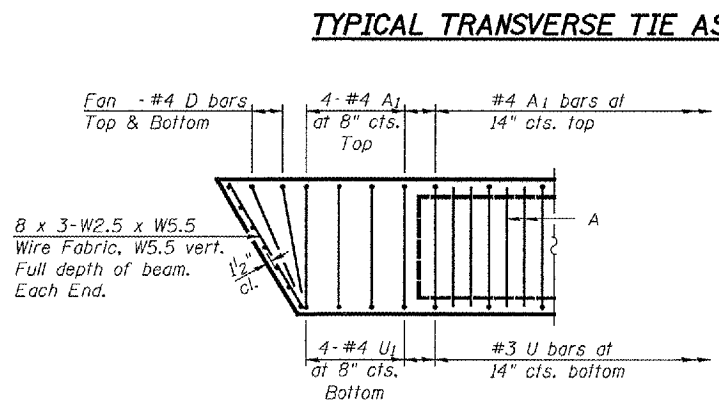
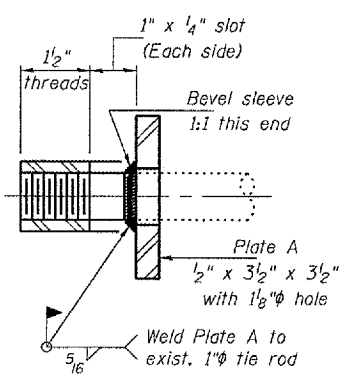
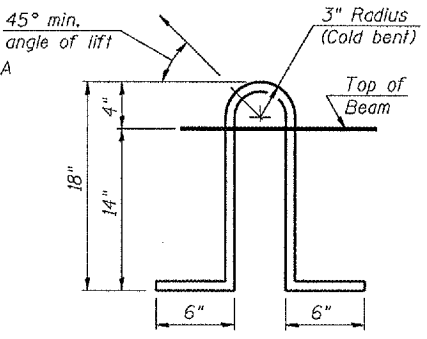
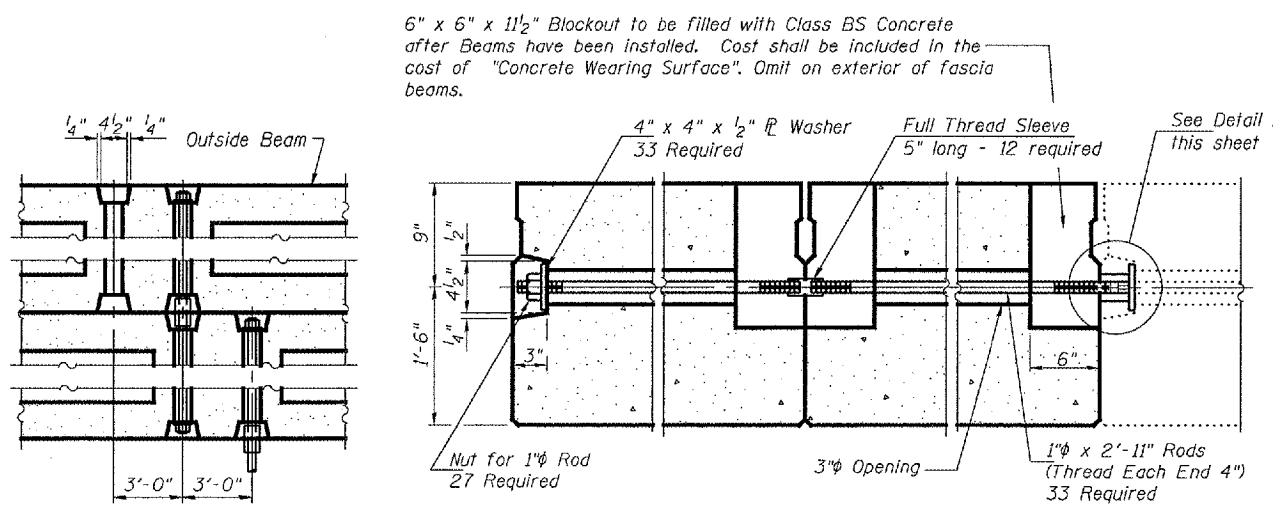


11-1/2" φ Strands, Each Strand Stressed to 30,900 Lbs.  
9-Strands 1 3/4" up, 2-Strands 3/4" up

**\* TRANSVERSE PLACEMENT GUIDELINES**

1. Place strands symmetrically about centerline of beam.
2. The minimum distance from center to center of strands in all directions shall be 2".
3. The minimum clearance from strand to dowel hole shall be 1/2".
4. The minimum clearance from strand to void shall be 1/2".

Vertical placement of strands shall not be adjusted to satisfy the above guidelines.



**NOTES**

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. Lifting loops shall be 2 - 1/2" φ-270 ksi strands, as shown. The 1" φ rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar on outside shall be filled with grout after transverse tie assembly is in place. Non prestressing steel shall conform to ASTM A 706 (IL MOD), Grade 60. The bearing seat surfaces shall be adjusted by shimming to assure firm and even bearing. Two 1/8" fabric adjusting shims of the dimensions shown shall be provided for each bearing. 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. Corrosion Inhibitor, per Article 1020.05(b)(12) of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams. Required Release Strength, f'ci, shall be 4,000 p.s.i.

**BILL OF MATERIAL**

Precast Prestressed Conc. Deck Bms.	Sq. Ft.	955
-------------------------------------	---------	-----

DESIGNED	A.T.H.
CHECKED	V.H.V.
DRAWN	Drew Christopher
CHECKED	A.T.H. V.H.V.

February 26, 2008

EXAMINED *Carl Prosser*

PASSED *Ralph E. Anderson*

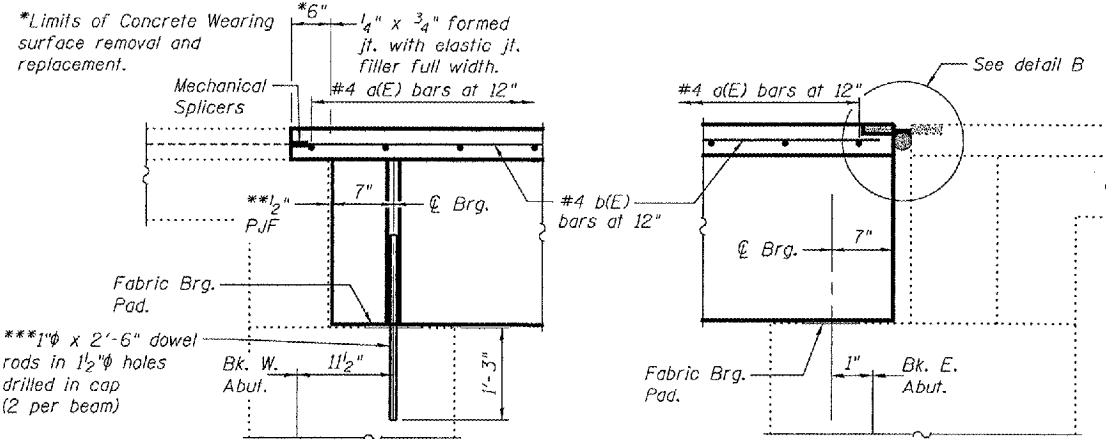
ENGINEER OF STRUCTURAL SERVICES

ENGINEER OF BRIDGES AND STRUCTURES

**BEAM DETAILS**  
F.A.P. RT. 745 IL 104  
PIKE COUNTY  
SN 075-0029

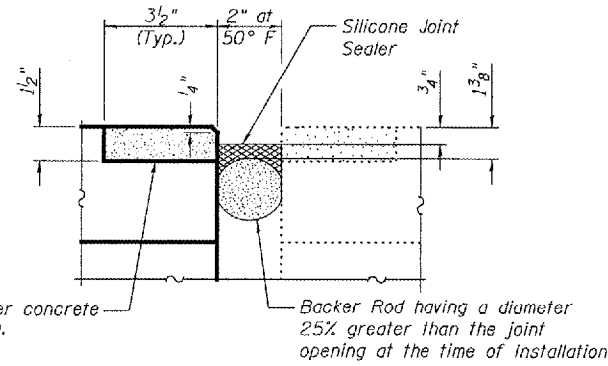
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	DISTRICT	SHEET NO.	SHEET NO. 3 3 SHEETS
745		Pike	7	7	
Contract Number: 72B57					

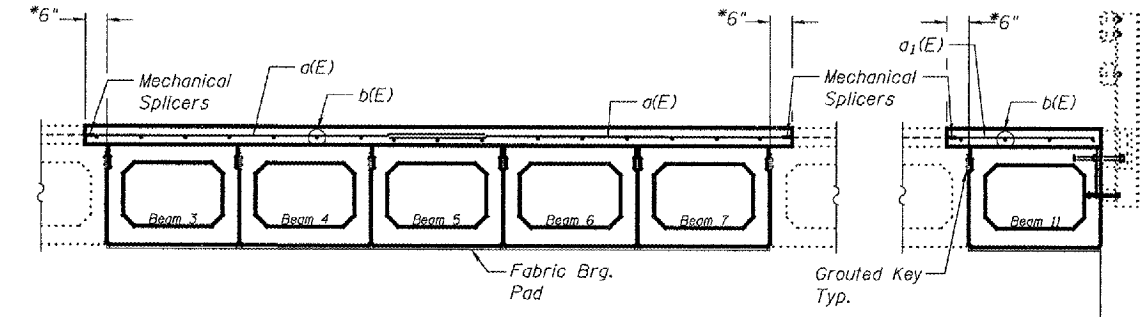


**WEST ABUTMENT  
TYPICAL SECTION**  
(Dims at Rt. L's)

**EAST ABUTMENT  
TYPICAL SECTION**  
(Dims at Rt. L's)

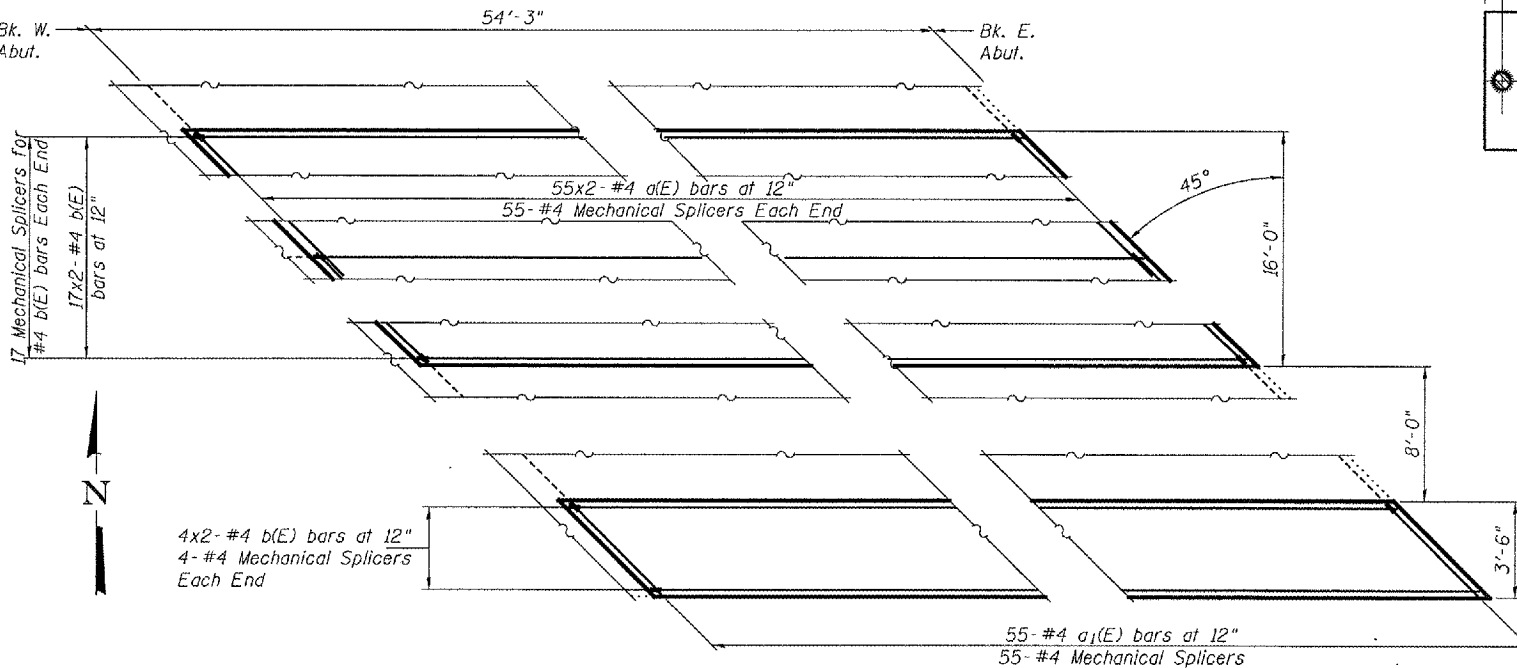


**DETAIL B  
TYPICAL SJS JOINT**



**PARTIAL DECK CROSS SECTION**

\*\*1/2" Joint shall be filled with non-shrink grout. Dimension may vary to accommodate tolerance in beam lengths.  
\*\*\*Existing dowel rods are to be burned off, ground flush, and sealed with epoxy prior to placement of new beams. Cost included in Removal of Existing PPC Deck Beams. After beams have been erected holes shall be drilled into cap and dowel rods placed. Dowel holes shall be filled with non-shrink grout to top of beam and allowed to cure a minimum of 24 hours prior to grouting the shear keys.



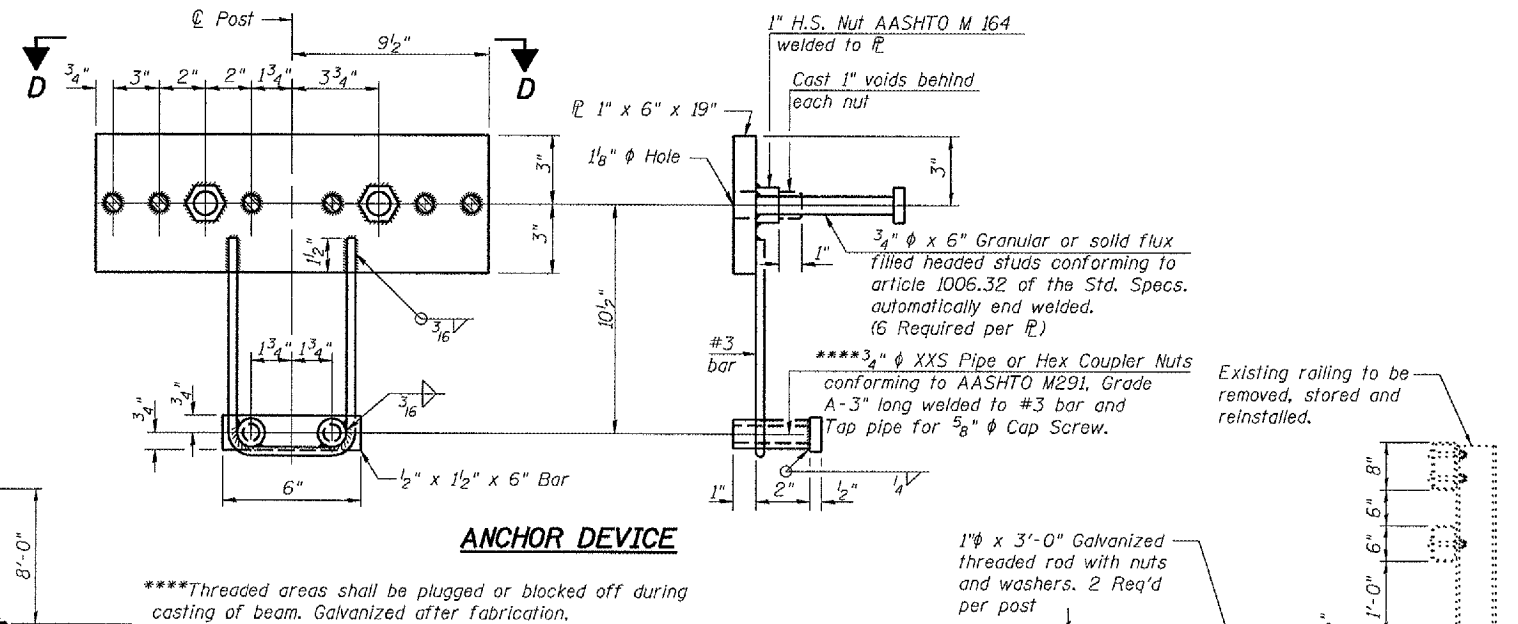
**Min. Bar Lap**  
#4 = 1'-4"

**PARTIAL CONCRETE WEARING SURFACE PLAN**

**BILL OF MATERIAL**

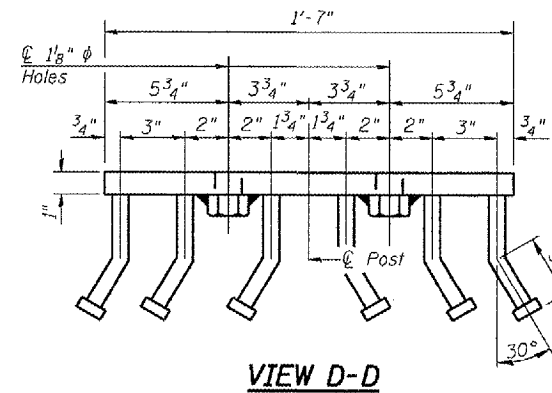
Bar	No.	Size	Length	Shape
a(E)	110	#4	12'-0"	—
a <sub>1</sub> (E)	55	#4	4'-7"	—
b(E)	42	#4	28'-1"	—
Mechanical Splice			Each	207
Concrete Wearing Surface Removal			Sq. Yd.	10.4
Concrete Wearing Surface			Sq. Yd.	117.6
Reinforcement Bars, Epoxy Coated			Pound	1,840

Bars indicated thus 10 x 2-#5 etc. indicates 10 lines of bars with 2 lengths per line.



**ANCHOR DEVICE**

**FASCIA BEAM SECTION  
SHOWING RAIL**



**VIEW D-D**

**OVERLAY AND RAIL DETAILS**  
F.A.P. RT. 745 IL 104  
PIKE COUNTY  
SN 075-0029

DESIGNED	A.T.H.
CHECKED	V.H.V.
DRAWN	Drew Christopher
CHECKED	A.T.H. V.H.V.

EXAMINED	February 26, 2008
PASSED	Ralph E. Anderson ENGINEER OF BRIDGES AND STRUCTURES