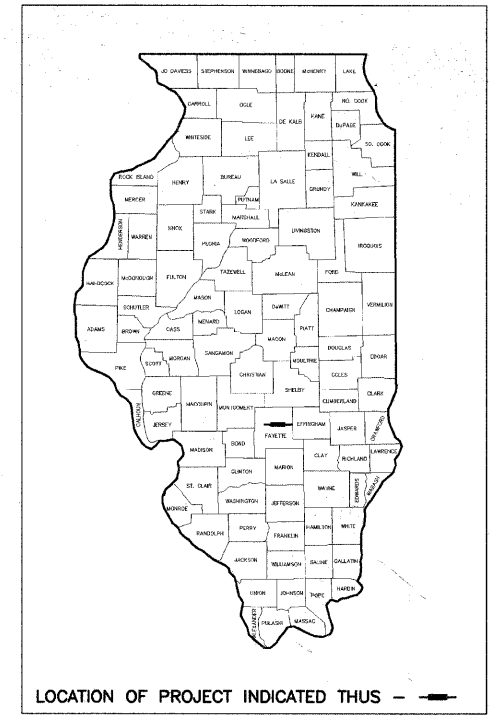


STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS PLANS FOR PROPOSED HIGHWAY BRIDGE PROGRAM

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.R. 1114	09-18120-00-BR	FAYETTE	14	1
FED. AID PROJECT		ILLINOIS	PROJECT BROS-051(089)	
CONTRACT NO. 95630				



INDEX OF SHEETS

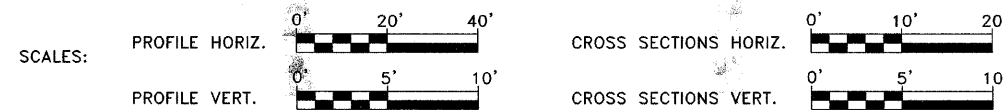
- 1 COVER SHEET
- 2 TYPICAL CROSS SECTION, GENERAL NOTES, MISC. DETAILS, AND SUMMARY OF QUANTITIES
- 3 PLAN AND PROFILE
- 4-13 BRIDGE PLANS
- 14 CROSS SECTIONS

STANDARDS

- STANDARD 000001-05 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
- STANDARD 542001-02 REINFORCED CONCRETE END SECTIONS WITH PARALLEL WINGWALLS FOR PIPE CULVERTS 12" (300 mm) THRU 48" (1200 mm) DIA. AT RIGHT ANGLES WITH ROADWAY (MODIFIED, SEE SPECIAL PROVISIONS & DRAWINGS)
- STANDARD 701901-01 TRAFFIC CONTROL DEVICES
- STANDARD B.L.R. 21-8 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS

UTILITIES:

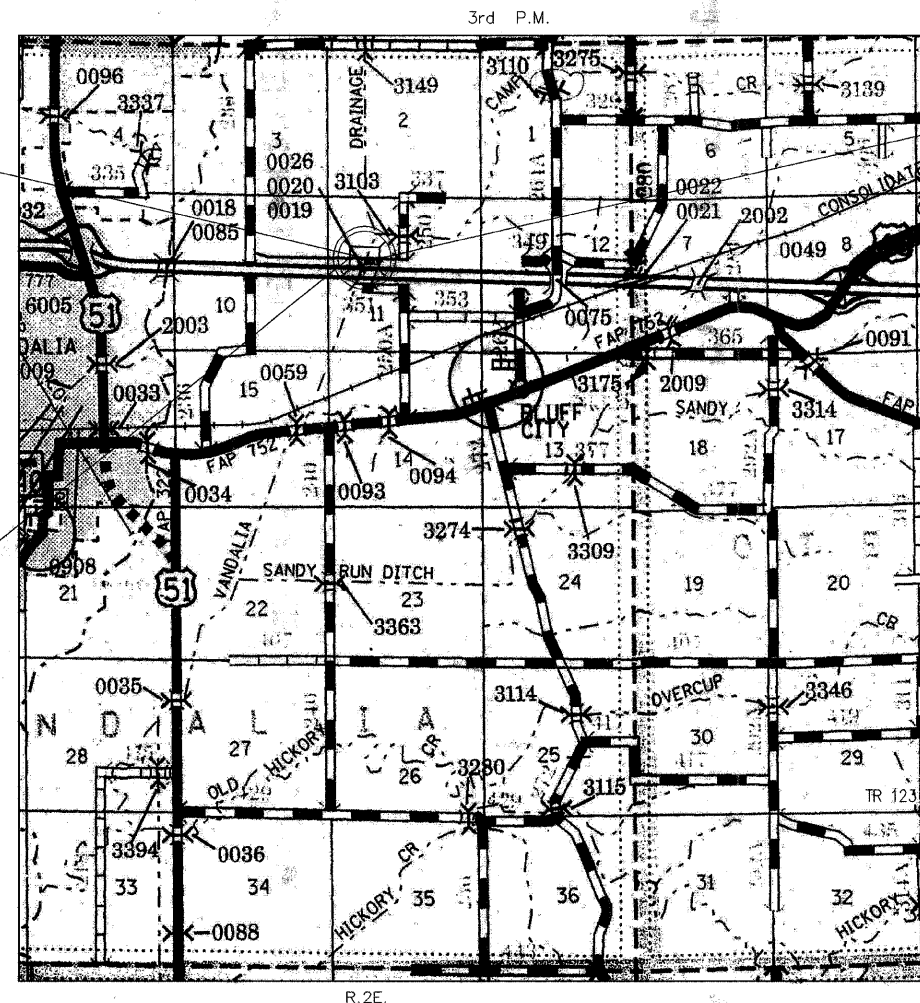
- AT&T TRANSMISSION
ATTN: CARL DONAHUE
(847)420-9115
- AT&T DISTRIBUTION
(630)573-5450
- FAYETTE WATER COMPANY
ATTN: MIKE CASEY
(618)347-2430
- AMEREN IP (SOUTH)
ATTN: JOE PERRYMAN
(618)236-6252
- SOUTHWESTERN ELECTRIC CO-OP
ATTN: ANNETTE BROWN
(618)664-1025 EXT. 5933
- ATMOS ENERGY
ATTN: MORGAN KIRKLAND
(270)685-8048



SECTION 09-18120-00-BR PROJECT NO. BROS-051(089) VANDALIA ROAD DISTRICT FAYETTE COUNTY JOB NO. C-97-075-10 F.R. 1114

STA. 50+05 - CONSTRUCT THREE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE (103.50' BK. TO BK. ABUTMENTS) WITH SPILL-THRU ABUTMENTS AND PILE BENT PIERS, WITH STEEL HP PILES, 0° SKEW, 24' ROADWAY EXISTING STRUCTURE NO. 026-0026 PROPOSED STRUCTURE NO. 026-3447

BEGIN SECTION 09-18120-00-BR
STA. 49+53.25



END SECTION 09-18120-00-BR
STA. 50+56.75

LOCATION MAP

APPROXIMATE SCALE - 1" = 0.58 MILE
LENGTH OF IMPROVEMENTS - 103.50 FEET = 0.020 MILE

APPROVED 3-22, 2010
Michael R. Quandt
COUNTY ENGINEER

PASSED 4-6, 2010
Murphy Kasal
DISTRICT SEVEN ENGINEER OF
LOCAL ROADS & STREETS

Releasing For
Bid Based on
Limited Review 4/6, 2010
Roger R. Dunlap
DEPUTY DIRECTOR OF HIGHWAYS,
REGION FOUR ENGINEER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



MICHAEL R. QUANDT, P.E.
SIGN: *Michael R. Quandt*
DATE: 3/18/2010
EXP. DATE: 11/30/11



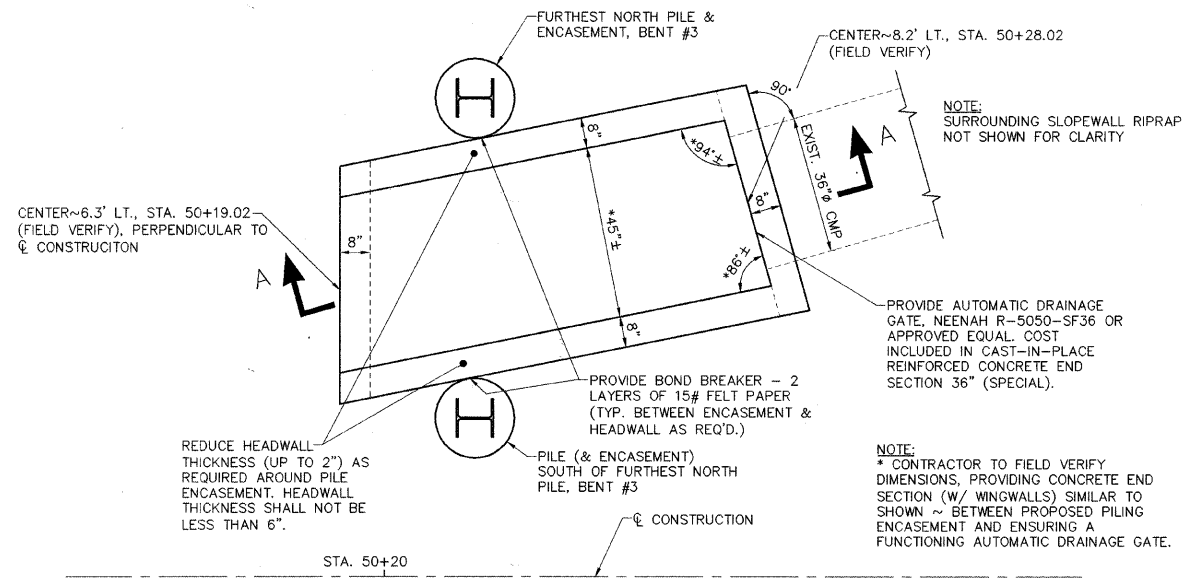
48 HOURS PRIOR TO EXCAVATION CALL J.U.L.I.E.:
811 OR 1-800-892-0123

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184-003709
AECOM Technical Services
184-000178

CLASS ROAD: RURAL LOCAL ROAD
A.D.T. = 50
30 M.P.H.

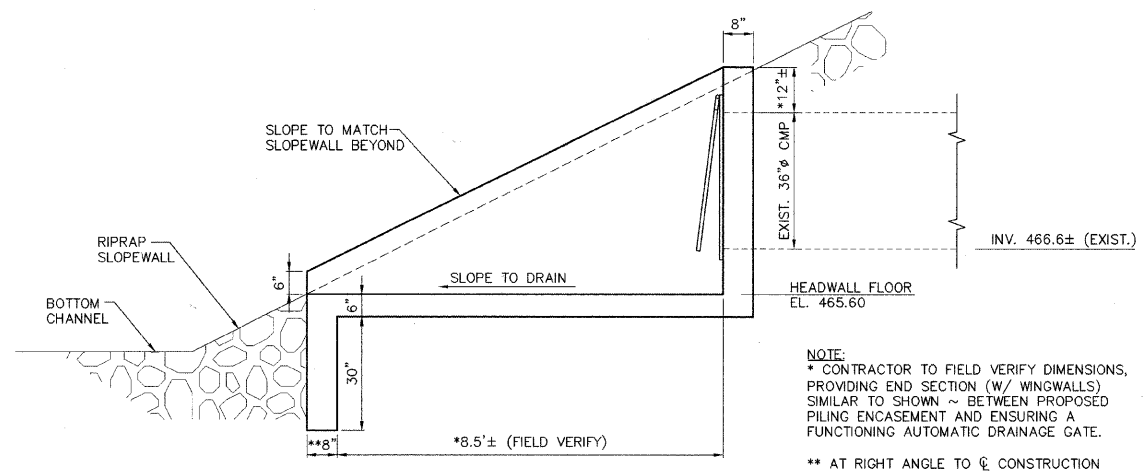
DATE: MARCH 18, 2010
AECOM JOB NO. 60097890



PARTIAL PLAN

CAST-IN-PLACE CONCRETE END SECTION, 36' (SPECIAL)

NOT TO SCALE



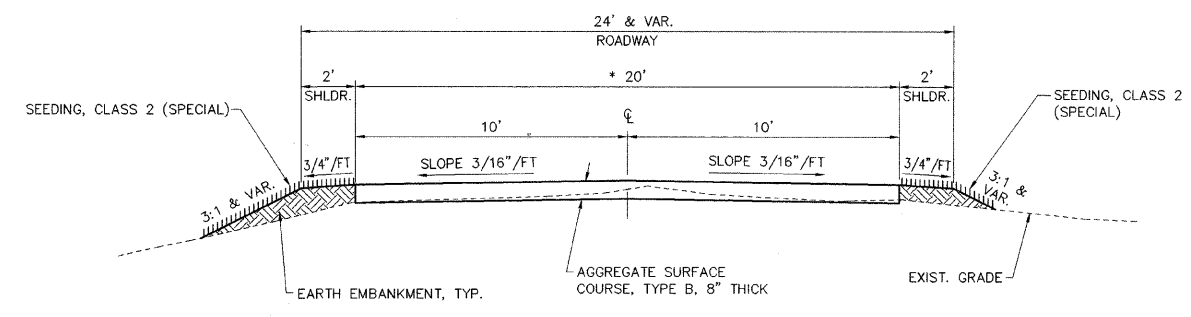
SECTION A-A

CAST-IN-PLACE CONCRETE END SECTION, 36' (SPECIAL)

NOT TO SCALE

GENERAL NOTES

1. THE SHRINKAGE FACTOR FOR EMBANKMENT IS 25%.
2. ALL CLEARING AND GRUBBING IS TO BE INCLUDED IN THE UNIT PRICE BID FOR EARTH EXCAVATION.
3. BITUMINOUS SURFACE TREATMENT (A-2) WILL BE COMPLETED BY THE OWNER.



TYPICAL ROADWAY CROSS-SECTION

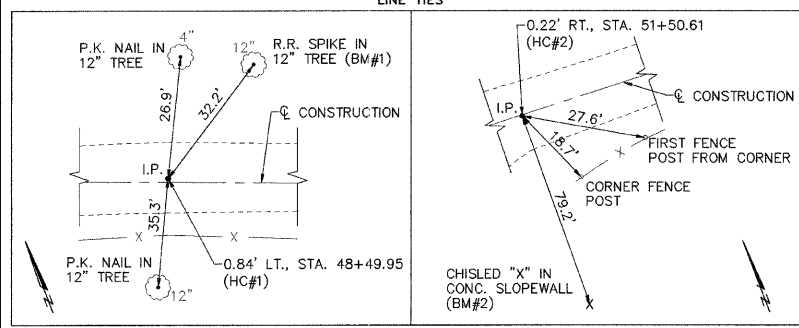
- * (SW QUADRANT) TRANSITION WEDGE FROM EXISTING TO PROPOSED ROADWAY, STA. 49+32.41 TO 49+46.25 (SEE PLAN).
- * (NE & SE QUADRANT) TRANSITION WEDGES FROM PROPOSED TO EXISTING ROADWAY, STA. 50+56.75 TO ±51+00 (SEE PLAN).

SUMMARY OF QUANTITIES

CODE NO.	ITEM	QUANTITY	UNIT
20200100	EARTH EXCAVATION	16	CU. YD.
20300100	CHANNEL EXCAVATION	127	CU. YD.
25001000	SEEDING, CLASS 2 (SPECIAL)	0.02	ACRE
28100807	STONE DUMPED RIPRAP, CLASS A4	190	TON
40200800	AGGREGATE SURFACE COURSE, TYPE B	33	TON
50100100	REMOVAL OF EXISTING STRUCTURES	1	EACH
50104400	CONCRETE HEADWALL REMOVAL	1	EACH
50300225	CONCRETE STRUCTURES	31.4	CU. YD.
50300280	CONCRETE ENCASEMENT	14.8	CU. YD.
50400305	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	2448	SQ. FT.
50800105	REINFORCEMENT BARS	4380	POUND
50900205	STEEL RAILING, TYPE S1	204	FOOT
51201400	FURNISHING STEEL PILES HP 10x42	376	FOOT
51201600	FURNISHING STEEL PILES HP 12x53	448	FOOT
51202305	DRIVING PILES	824	FOOT
51203600	TEST PILE STEEL HP 12x53	1	EACH
51204650	PILE SHOES	16	EACH
51500100	NAME PLATES	1	EACH
67100100	MOBILIZATION	1	L. SUM
XX008373	CAST-IN-PLACE REINFORCED CONCRETE END SECTIONS 36" (SPECIAL)	1	EACH

* SPECIALTY ITEMS

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.R. 1114	09-18120-00-BR	FAYETTE	14	3
FED. AID PROJECT		ILLINOIS	PROJECT BROS-051(089)	
		CONTRACT NO. 95630		



STA. 50+00 (EXISTING S.N. 026-0026)
SECTION 09-18120-00-BR, EXISTING BRIDGE, THREE SPAN CONCRETE DECK BEAMS SUPPORTED BY CONCRETE ABUTMENTS AND PIERS WITH CONCRETE CAPS WITH TIMBER PILES, TO BE REMOVED.

STA. 50+05, CONSTRUCT (PROPOSED S.N. 026-3447)
THREE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE (103.50' BK. TO BK. ABUTMENTS) WITH SPILL THRU ABUTMENTS AND PILE BENT PIERS, WITH STEEL HP PILES. 0° SKEW, 24' ROADWAY.

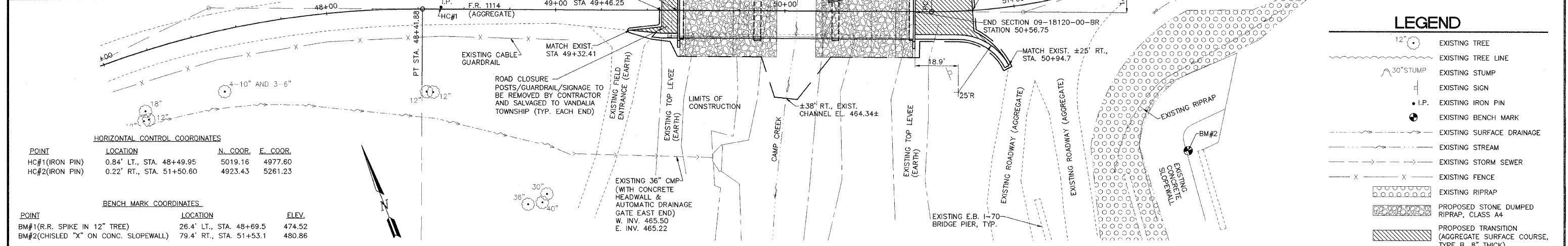
PI STA. 51+03.90
N 4926.20
E 5213.93
I = 18'11"15"L
CIRCULAR
D = 18'11"15"
D_a = 22'55"06"
D_c = 23'04"26"
CB = S 77°48'43" E
T = 40.02
R = 250.00
L = 79.36
C = 79.03
E = 3.18
M = 3.14

CONSTRUCT SEEDING CLASS 2 (SPECIAL)
STA. 49+32.24 TO STA. 51+00 = 0.02 ACRE

DESIGN HWE(50yr) = EL. 477.62
OVER THE ROAD FLOW HWE(50yr) = N/A BETWEEN LEVEES.

657 S.F. EXIST. BRIDGE OPENING BELOW HWE(50yr) EL. 477.62
747 S.F. EXIST. BRIDGE OPENING BELOW LOW BEAM EL. 478.67±
547 S.F. EXIST. WEST BOUND I-70 BRIDGE OPENING BELOW HWE(50yr) EL. 477.62
664 S.F. EXIST. WEST BOUND I-70 BRIDGE OPENING BELOW NEW LOW BEAM EL. 479.09
501 S.F. EXIST. CHANNEL OPENING OF LEVEE 60' UPSTREAM AT TOP OF LEVEE EL. 476.85
667 S.F. PROPOSED BRIDGE OPENING BELOW HWE(50yr) EL. 477.62
802 S.F. PROPOSED BRIDGE OPENING BELOW NEW LOW BEAM EL. 479.09

DESIGN HWE(50yr), EL. 477.62 HAS BEEN TAKEN FROM E.B. I-70 STRUCTURE (026-0019) CONSTRUCTED IN 1998, IMMEDIATELY DOWN STREAM OF OUR STRUCTURE AND IS USED ONLY FOR REFERENCE AND COMPARISON WITH UPSTREAM CHANNEL AND DOWNSTREAM OPENING AREAS.



LEGEND

- EXISTING TREE
- EXISTING TREE LINE
- EXISTING STUMP
- EXISTING SIGN
- EXISTING IRON PIN
- EXISTING BENCH MARK
- EXISTING SURFACE DRAINAGE
- EXISTING STREAM
- EXISTING STORM SEWER
- EXISTING FENCE
- EXISTING RIPRAP
- PROPOSED STONE DUMPED RIPRAP, CLASS A4
- PROPOSED TRANSITION (AGGREGATE SURFACE COURSE, TYPE B, 8" THICK)

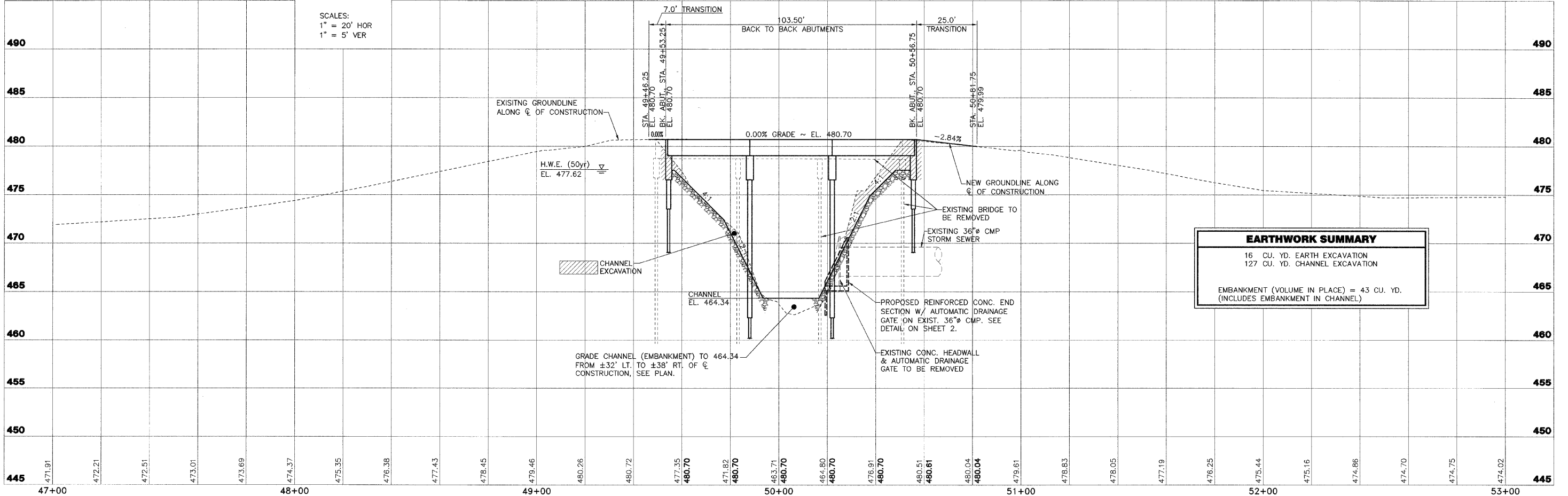
HORIZONTAL CONTROL COORDINATES

POINT	LOCATION	N. COOR.	E. COOR.
HC#1 (IRON PIN)	0.84' LT., STA. 48+49.95	5019.16	4977.60
HC#2 (IRON PIN)	0.22' RT., STA. 51+50.60	4923.43	5261.23

BENCH MARK COORDINATES

POINT	LOCATION	ELEV.
BM#1 (R.R. SPIKE IN 12" TREE)	26.4' LT., STA. 48+69.5	474.52
BM#2 (CHISLED "X" ON CONC. SLOPEWALL)	79.4' RT., STA. 51+53.1	480.86

SCALES:
1" = 20' HOR
1" = 5' VER



EARTHWORK SUMMARY

16 CU. YD. EARTH EXCAVATION
127 CU. YD. CHANNEL EXCAVATION
EMBANKMENT (VOLUME IN PLACE) = 43 CU. YD. (INCLUDES EMBANKMENT IN CHANNEL)

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F.R. 1114, SECTION 09-18120-00-BR
VANDALIA ROAD DISTRICT
FAYETTE COUNTY, ILLINOIS

PLAN AND PROFILE

STA. 47+00 TO STA. 53+00

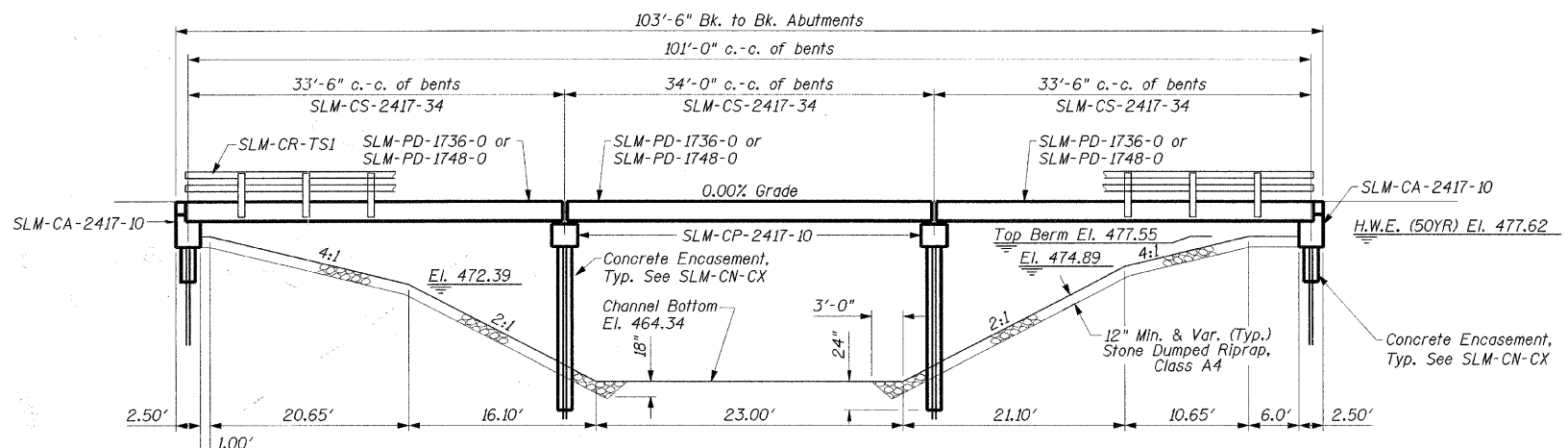
SURVEY	JAS	CHECKED	DATE
DESIGN	MRQ	APPROVED	03/18/10
DRAWN	JMW, BLT		JOB NO.
			60097890

B.M. - B.M. #1 R.R. spike in 12" tree, 26.4' LT., STA. 48+69.5, EL. 474.52
 B.M. #2 Chisled 'X' on conc. slopewall, 79.4' RT., STA. 51+53.1, EL. 480.86

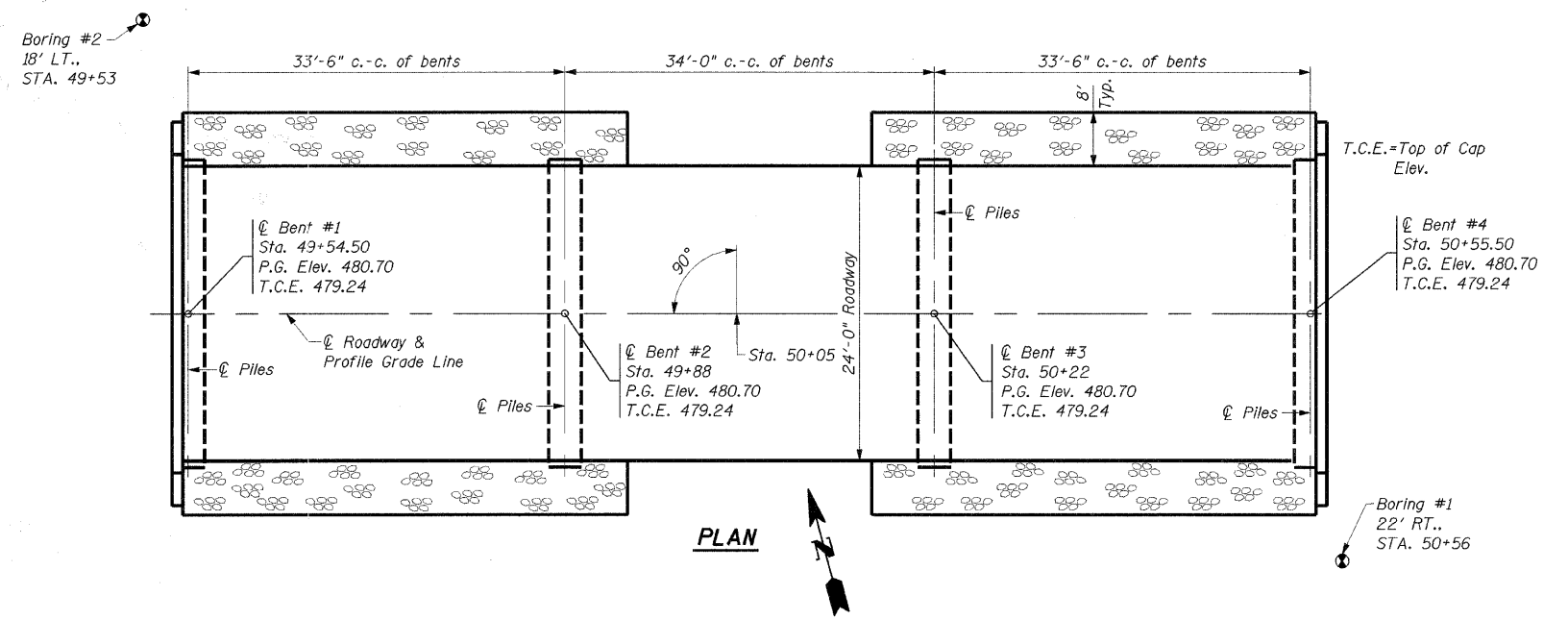
Existing Structure - The existing structure is three span concrete deck beams supported by abutments and piers with concrete caps and timber piles with steel railing and concrete curbs.

Salvage - None.

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.R. 1114	09-18120-00-BR	FAYETTE	14	4
FED. AID PROJECT		ILLINOIS	PROJECT BROS-0510891	
CONTRACT NO. 95630				



ELEVATION



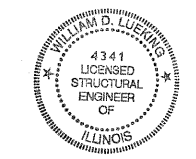
PLAN

GENERAL NOTES

- The contractor shall drive 1 test pile, as specified, in a permanent location as directed by the Engineer before ordering the remaining piles.
- See Special Provisions for boring logs.
- A Calcium Nitrite Corrosion inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.

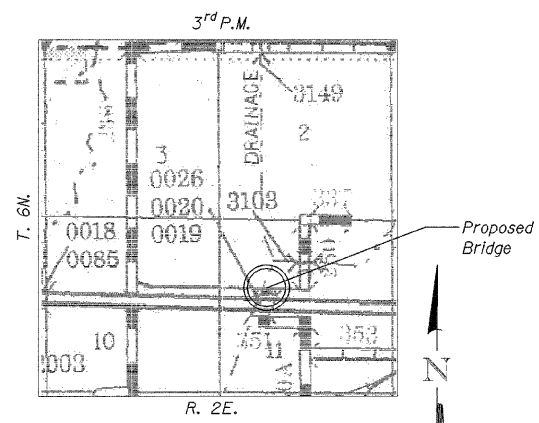
TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub.		Total
			Piers	Abuts.	
Removal of Existing Structures	Each				1
Concrete Structures	Cu. Yd.		14.8	16.6	31.4
Precast Prestressed Concrete Deck Beams (17" Depth)	Sq. Ft.	2448			2448
Steel Railing, Type S-1	Foot	204			204
Reinforcement Bars	Pound		2040	2340	4380
Furnishing Steel Pile HP 10x42	Foot			376	376
Furnishing Steel Pile HP 12x53	Foot		448		448
Driving Piles	Foot		448	376	824
Test Pile Steel HP 12x53	Each		1		1
Name Plates	Each			1	1
Concrete Encasement	Cu. Yd.		12.7	2.1	14.8
Pile Shoes	Each		8	8	16



Date: 3-18-2010
 Date of License: 11/30/2010
 Expiration: 11/30/2010
 Signature: William D. Lucking

I certify that to the best of knowledge, information and belief, this bridge/box culvert design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current AASHTO Standard Specifications for Highway Bridges.



LOCATION SKETCH

DESIGN SPECIFICATIONS

2007 AASHTO LRFD Bridge Design Specifications with 2008 Interims

SEISMIC DATA

Seismic Performance Zone (SPZ) = 2
 Design Spectral Acceleration at 1.0 sec. (S_{D1}) = 22.9
 Design Spectral Acceleration at 0.2 sec. (S_{D5}) = 51
 Soil Site Class = D

LOADING HL-93

Allow 50# / Sq. Ft. for Future Wearing Surface.

PILE DATA (2-PIERS)

Pile Type and Size: Steel Piles, HP12x53
 Nominal Required Bearing: 282 kips
 Allowable Resistance Available: 94 kips
 Estimated Pile Length: 67 Feet Bent #2, 60 Feet Bent #3
 Number of Production Piles: 7 (Provide Pile Shoes)
 Number of Test Piles: 1 (located in Bent #3) (Provide Pile Shoes)

PILE DATA (2-ABUTS.)

Pile Type and Size: Steel Piles, HP10x42
 Nominal Required Bearing: 186 kips
 Allowable Resistance Available: 62 kips
 Estimated Pile Length: 51 Feet Bent #1, 43 Feet Bent #4
 Number of Production Piles: 8 (Provide Pile Shoes)
 Number of Test Piles: 0

STATION 50+05
 CAMP CREEK
 SEC. 09-18120-00-BR BUILT 20
 PROJECT NO. BROS-0510891
 FAYETTE COUNTY
 LOADING HL93
 STR. NO. 026-3447

LETTERING FOR NAME PLATE

Locate Name Plate at Southeast Corner of Bridge (See SLM-CN-CX)

DESIGN SCOUR ELEVATION TABLE

Design Scour Elev. (Ft.)	Bents 1 & 4	Bents 2 & 3
100 Yr. - $\phi = 1.0$	473.3	458.3

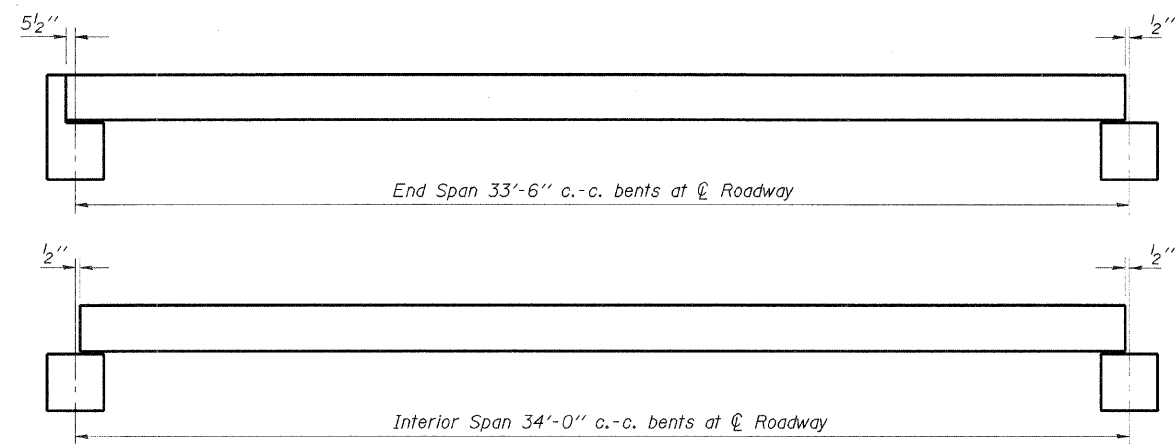
WATERWAY INFORMATION

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E. Ft.	Head - Ft.		Headwater Elev. - Ft.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	50		657	667	477.62				
Base									
Overtopping									
Max. Calc.	500								

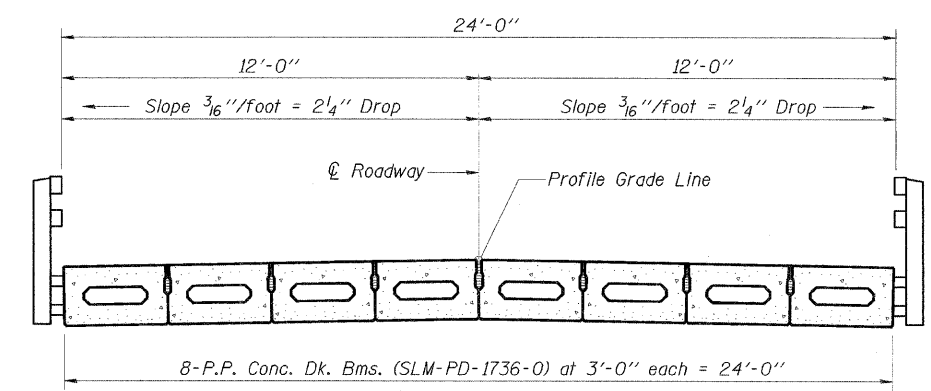
INDEX OF SHEETS

- General Plan & Elevation
- SLM-CS-2417-34
- SLM-PD-1736-0
- SLM-PD-1736-0D
- SLM-PD-1748-0
- SLM-PD-1748-0D
- SLM-CA-2417-10
- SLM-CP-2417-10
- SLM-CR-TS1
- SLM-CN-CX

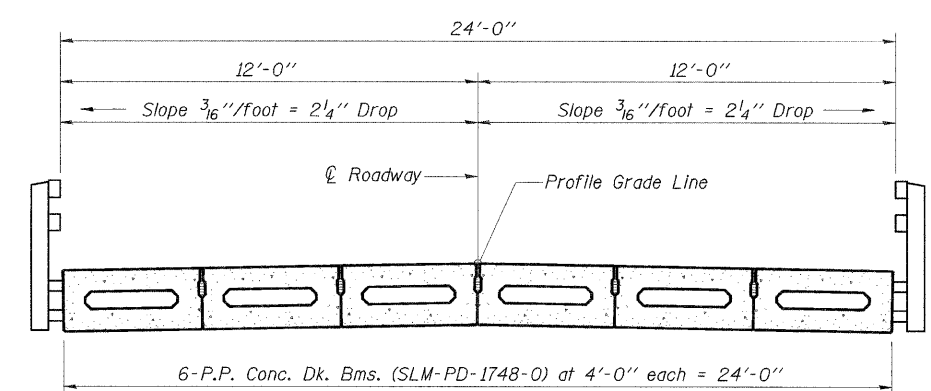
<p>2524 S. Broadway Salem, Illinois 62881 618.548.3500 IL Design Firm Reg. No. 184-000175 No. 184-003706 www.aecom.com</p>	GENERAL PLAN & ELEVATION	
	F.R. 1114 OVER CAMP CREEK	
Date: 03/18/10 Design: WDL Drawn: JSD Job No.: 60097890	SECTION 09-18120-00-BR FAYETTE COUNTY STATION 50+05	



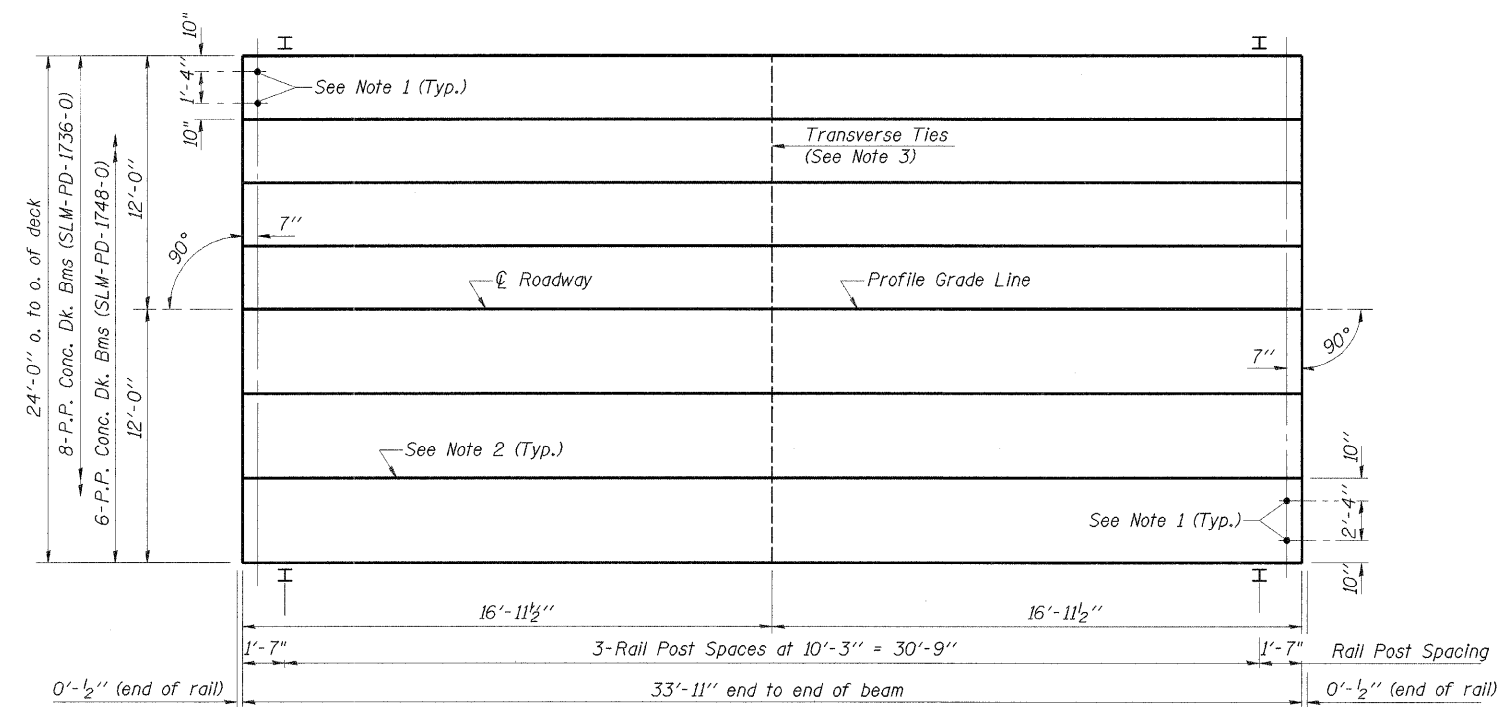
TYPICAL ELEVATIONS



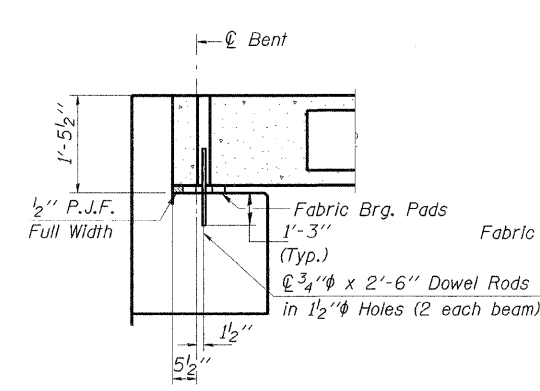
CROSS SECTION



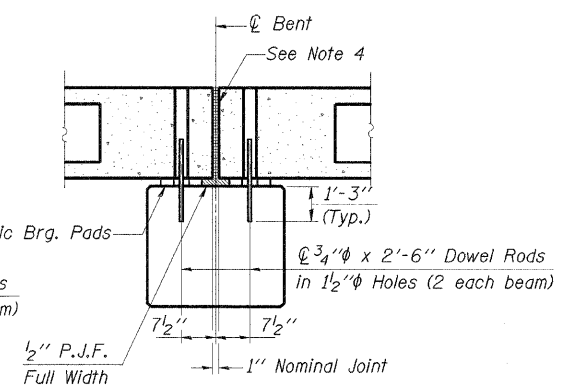
CROSS SECTION



PLAN



SECTION AT ABUTS.
(Along centerline of Beams)



SECTION AT PIERS
(Along centerline of Beams)

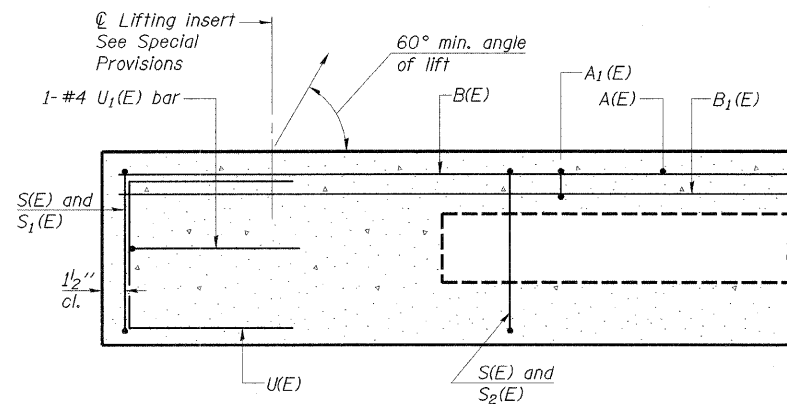
NOTES

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 the shear keys.
2. Longitudinal keys shall be grouted.
3. The 1" diameter rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar outside shall be filled with grout after transverse tie assembly is in place.
4. Nominal 1" joint at centerline of Pier shall be filled with non-shrink grout.

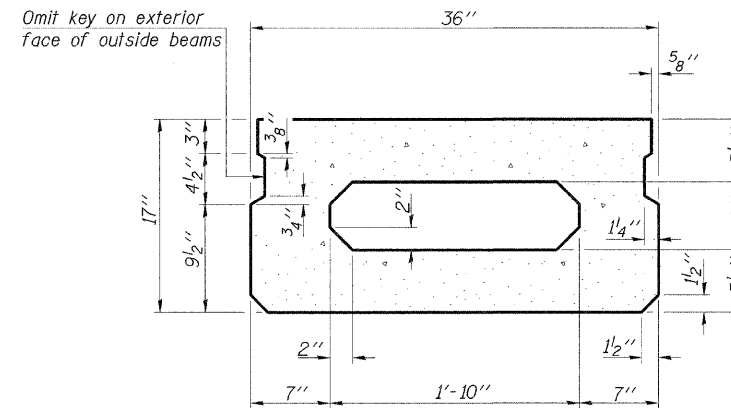
QUANTITIES FOR ONE SPAN

P.P. Conc. Dk. Bm. 17" Dp.	816 Sq. Ft.
Steel Railing	68 Ft.

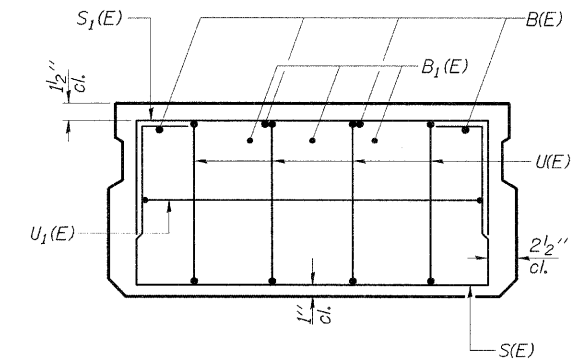
<p>2524 S. Broadway Salem, Illinois 62861 618.548.3500 IL Design Firm Reg. No. 184-000175 No. 184-003708 www.aecom.com</p>	<p>SLM-CS-2417-34 P.P.C. DECK BEAM SUPERSTRUCTURE</p>
	<p>24' ROADWAY 17" BEAMS 34' SPAN - 0° SKEW</p>
<p>Date: 03/18/10 Design: WDL Drawn: JSD Job No.: 60097890</p>	



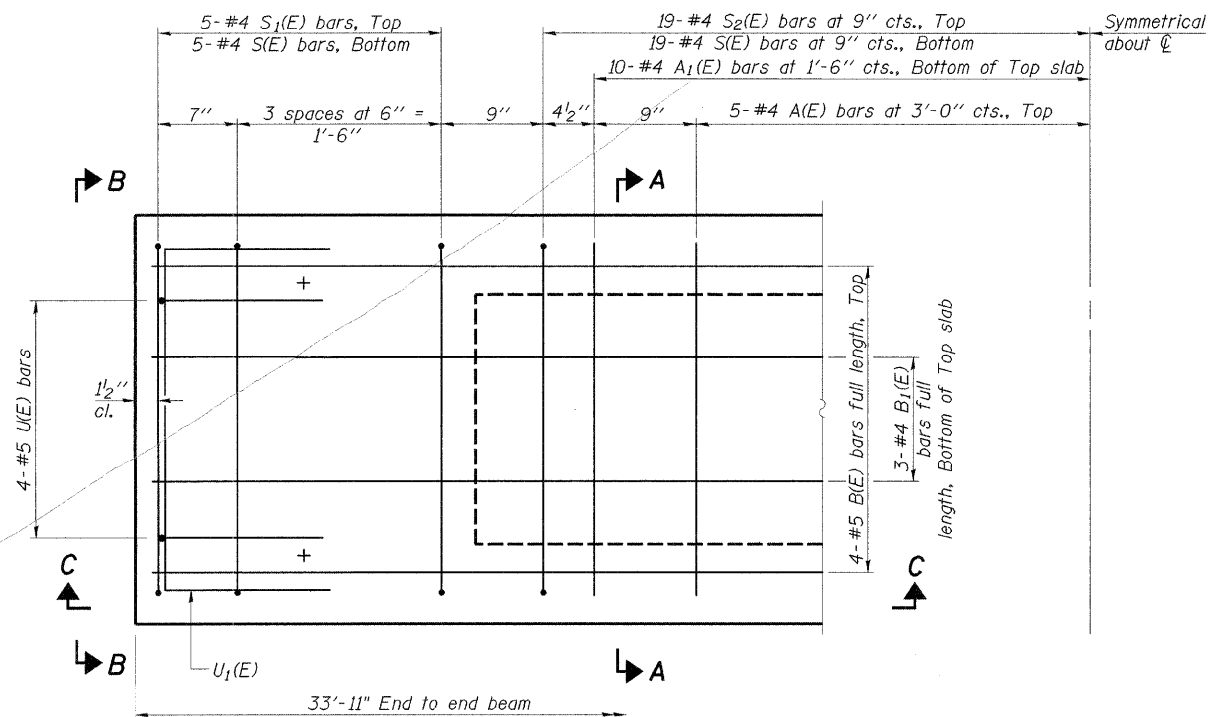
SECTION C-C



SECTION A-A
(Showing dimensions)

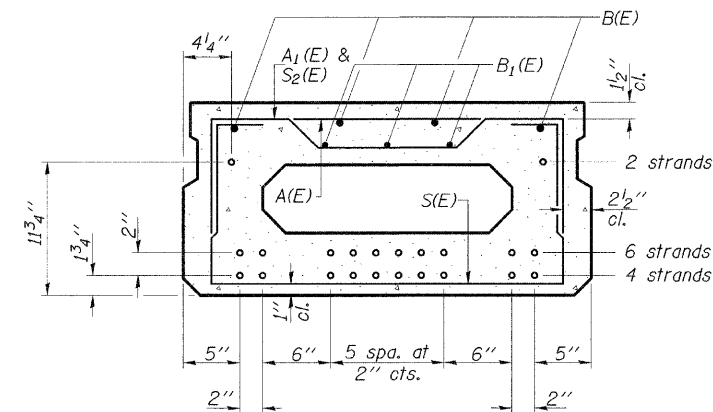


VIEW B-B



PLAN VIEW

Note: Spacing of S(E) and S₂(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.



SECTION A-A

(Showing reinforcement and permissible strand locations)

Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

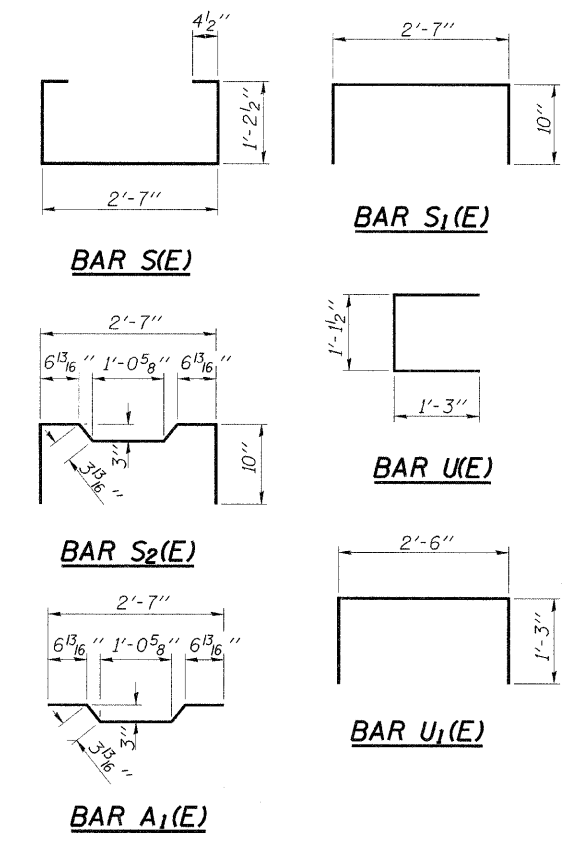
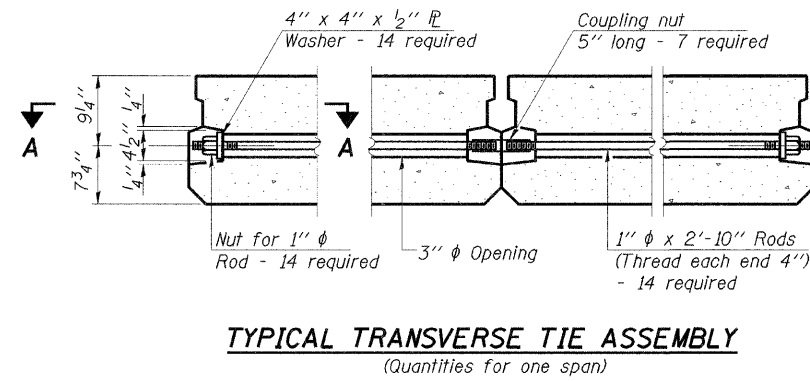
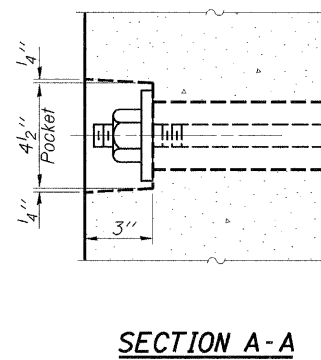
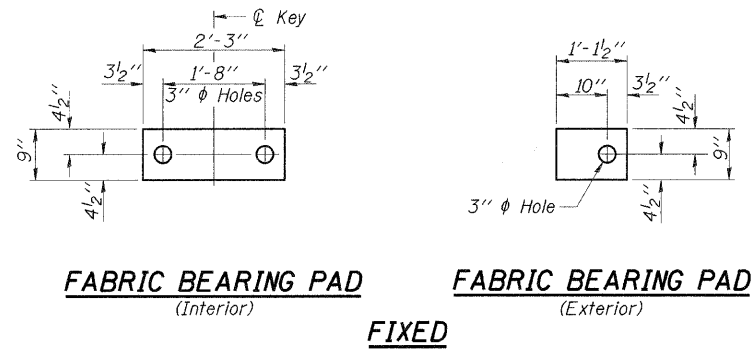
Strands: 12 - 1/2" strands.

BAR LIST
ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	10	#4	2'-7"	—
A ₁ (E)	20	#4	2'-11"	—
B(E)	4	#5	33'-7"	—
B ₁ (E)	3	#4	33'-7"	—
S(E)	48	#4	5'-9"	⌊
S ₁ (E)	10	#4	4'-3"	⌊
S ₂ (E)	38	#4	4'-6"	⌊
U(E)	8	#5	3'-8"	⌊
U ₁ (E)	2	#4	5'-0"	⌊

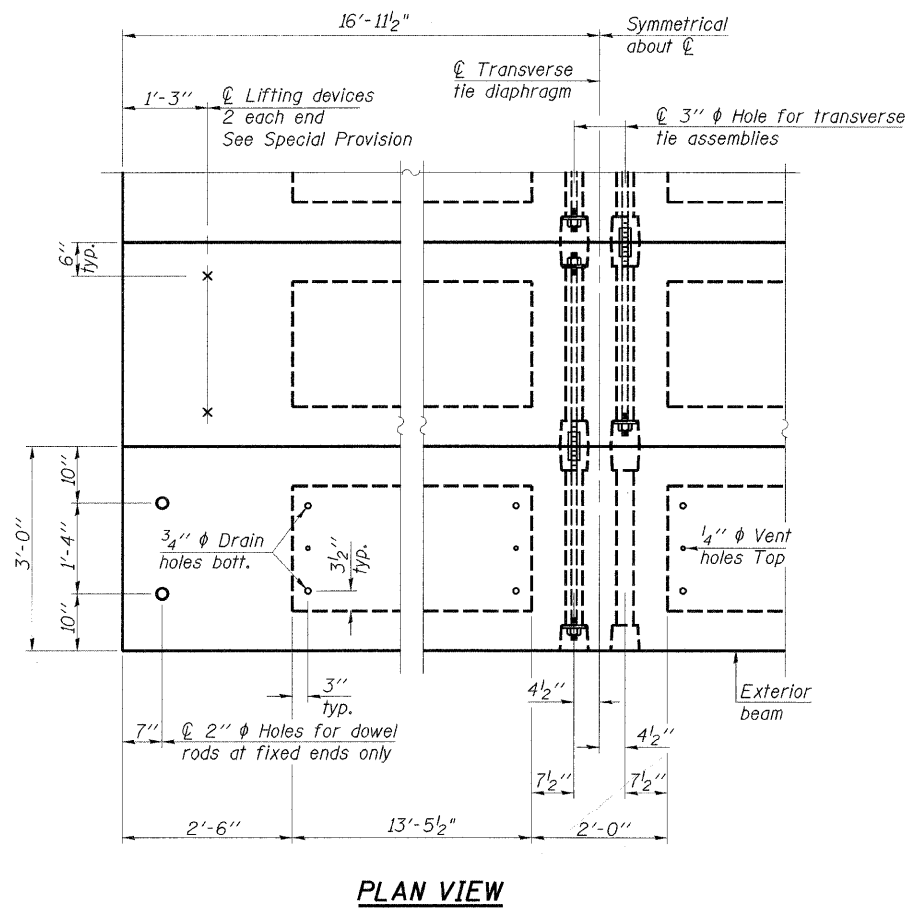
Note: See sheet SLM-PD-1736-0D for additional details.
See sheet SLM-CS-2417-34 for Bill of Material.

<p>2524 S. Broadway Salem, Illinois 62861 618.548.3500 IL Design Firm Reg. No. 184-000178 No. 184-003706 www.aecom.com</p>	<p>SLM-PD-1736-0</p> <p>P.P.C. DECK BEAM DETAILS AND SECTIONS</p>
	<p>Date: 03/18/10 Design: WDL Drawn: JSD Job No.: 60097890</p>



DESIGN STRESSES

$f_s = 270,000$ p.s.i. ($1/2$ " ϕ Strand)
 $f_{st} = 201,960$ p.s.i. ($1/2$ " ϕ Strand)
 $F_t = 30,900$ lbs per strand
 $f_y = 60,000$ p.s.i. Reinf. bars
 $f'_c = 6,000$ p.s.i.
 $f'_{ci} = 5,000$ p.s.i.



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

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be $1/2$ " and the nominal cross-sectional area shall be 0.153 sq. in.

The 1" ϕ rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.

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

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

Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.

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

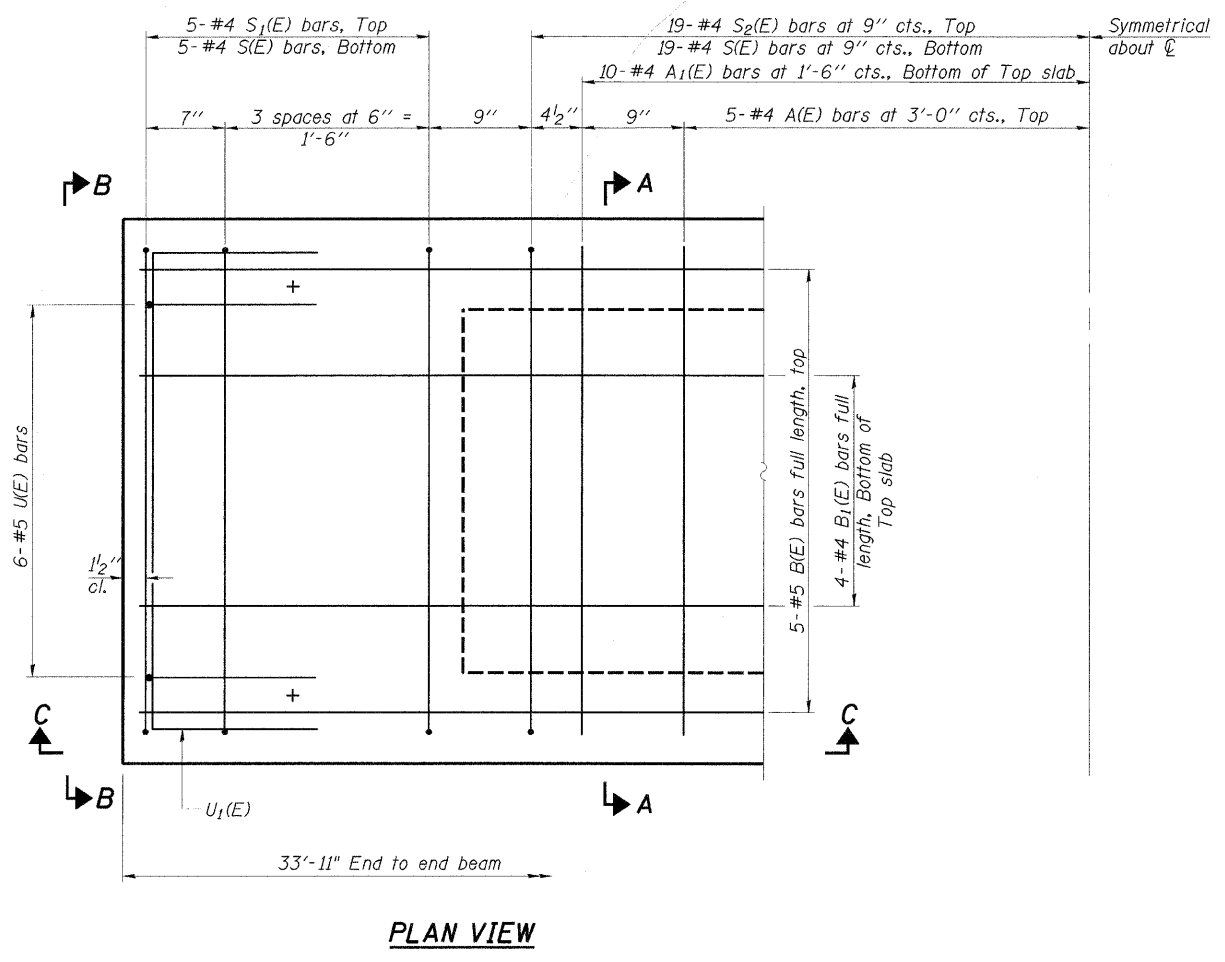
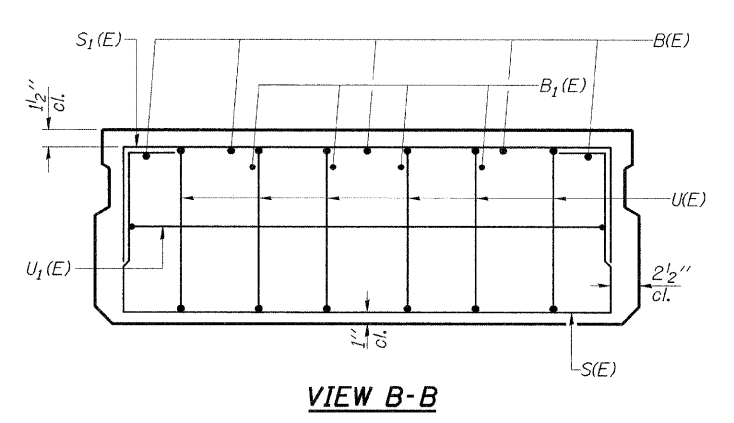
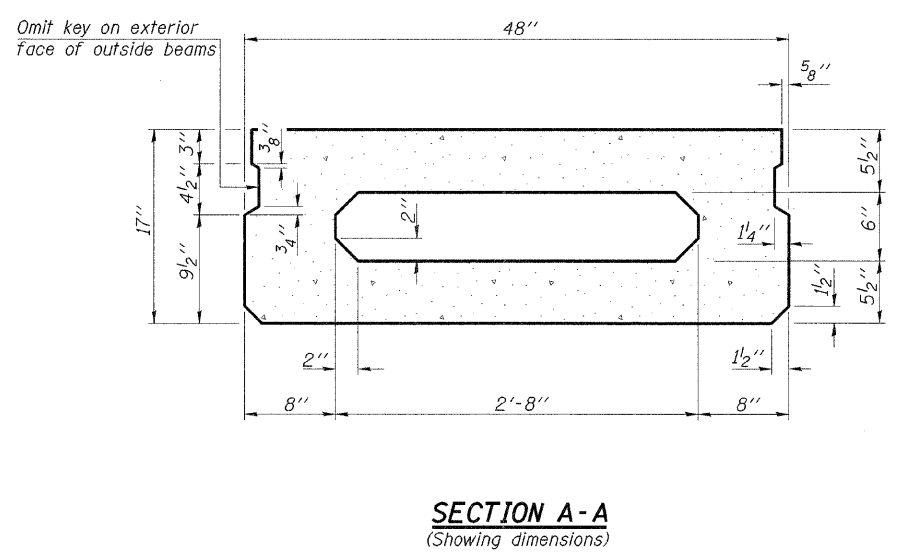
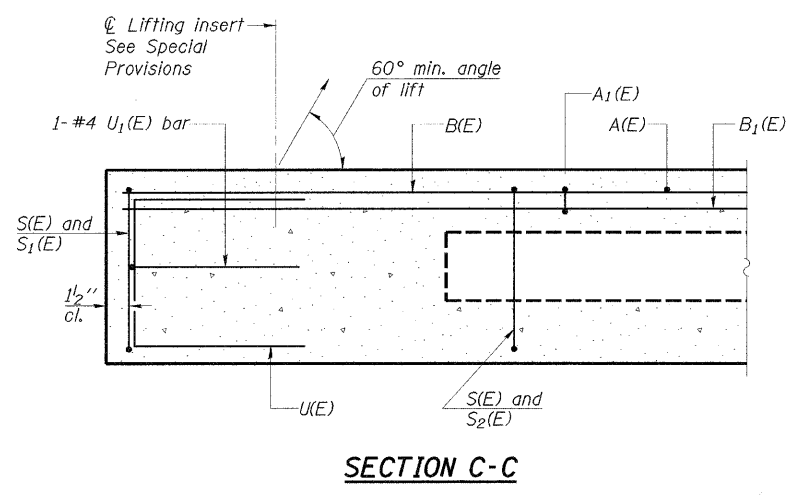
Compressive strength of prestressed concrete at release, f'_{ci} , shall be 5000 psi.

Rail post anchor devices shall be cast into outside beam as elsewhere specified.

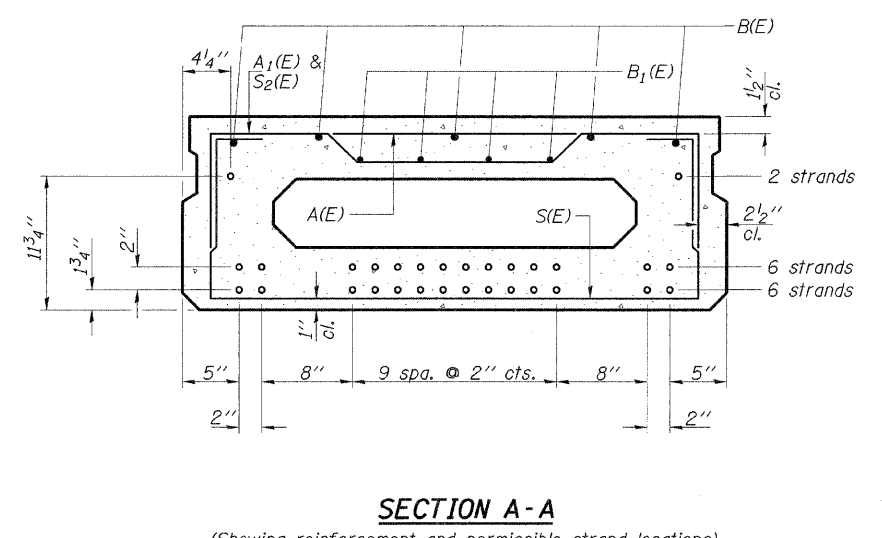
Keyway surfaces shall be cleaned to remove form oil or other bond breaking material prior to shipment of the beams. Cleaning shall be done by sandblasting the keyway areas between the top of the beam and the bottom edge of the key.

Note: See sheet SLM-CS-2417-34 for Bill of Material.

	2824 S. Broadway Salem, Illinois 62881 618.548.3500 IL Design Firm Reg. No. 184-000178 No. 184-003705 www.aecom.com	SLM-PD-1736-0D P.P.C. DECK BEAM DETAILS AND NOTES
	Date: 03/18/10 Design: WDL Drawn: JSD Job No.: 60097890	24' ROADWAY 17" x 36" BEAMS 0° SKEW



Note: Spacing of S(E) and S₂(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.



Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

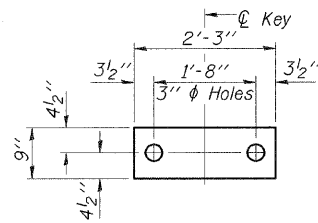
Strands: 14 - 1/2" φ strands.

BAR LIST
ONE BEAM ONLY
(For information only)

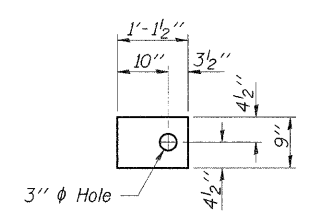
Bar	No.	Size	Length	Shape
A(E)	10	#4	3'-7"	—
A ₁ (E)	20	#4	3'-10"	—
B(E)	5	#5	33'-7"	—
B ₁ (E)	4	#4	33'-7"	—
S(E)	48	#4	6'-9"	□
S ₁ (E)	10	#4	5'-3"	□
S ₂ (E)	38	#4	5'-6"	□
U(E)	12	#5	3'-8"	□
U ₁ (E)	2	#4	6'-0"	□

Note: See sheet SLM-PD-1748-0D for additional details.
See sheet SLM-CS-2417-34 for Bill of Material.

<p>2524 S. Broadway Salem, Illinois 62881 618.548.3500 IL Design Firm Reg. No. 184-000178 No. 184-003708 www.aecom.com</p>	<p>SLM-PD-1748-0</p> <p>P.P.C. DECK BEAM DETAILS AND SECTIONS</p>
	<p>Date: 03/18/10 Design: WDL Drawn: JSD Job No.: 60097890</p>

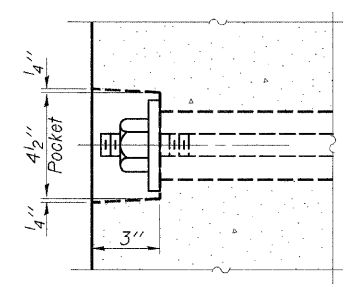


FABRIC BEARING PAD
(Interior)

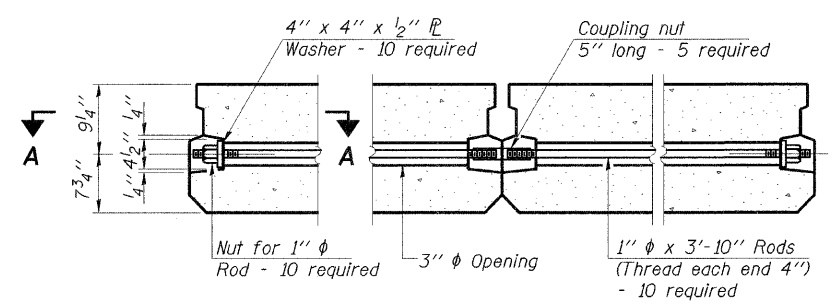


FABRIC BEARING PAD
(Exterior)

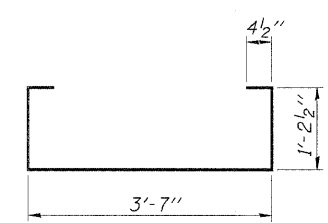
FIXED



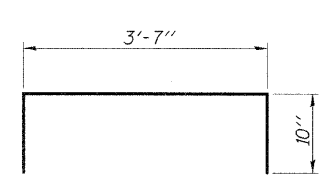
SECTION A-A



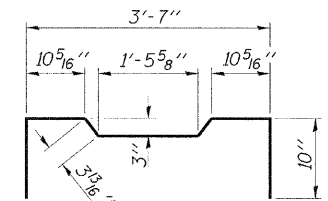
TYPICAL TRANSVERSE TIE ASSEMBLY
(Quantities for one span)



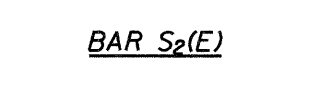
BAR S(E)



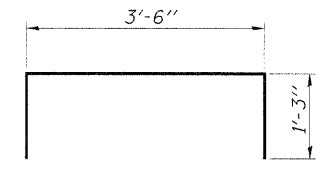
BAR S1(E)



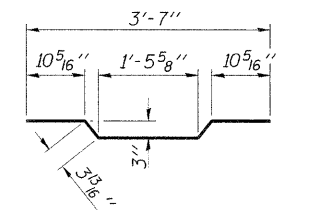
BAR U(E)



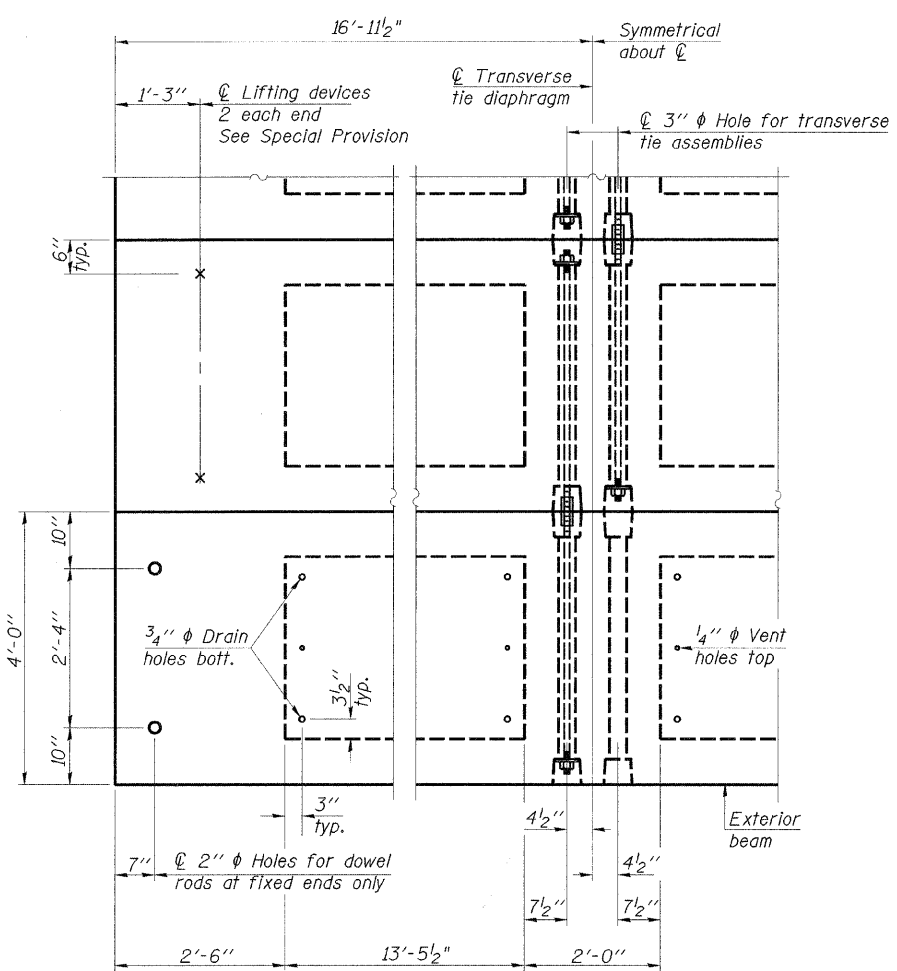
BAR S2(E)



BAR U1(E)



BAR A1(E)



PLAN VIEW

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

NOTES

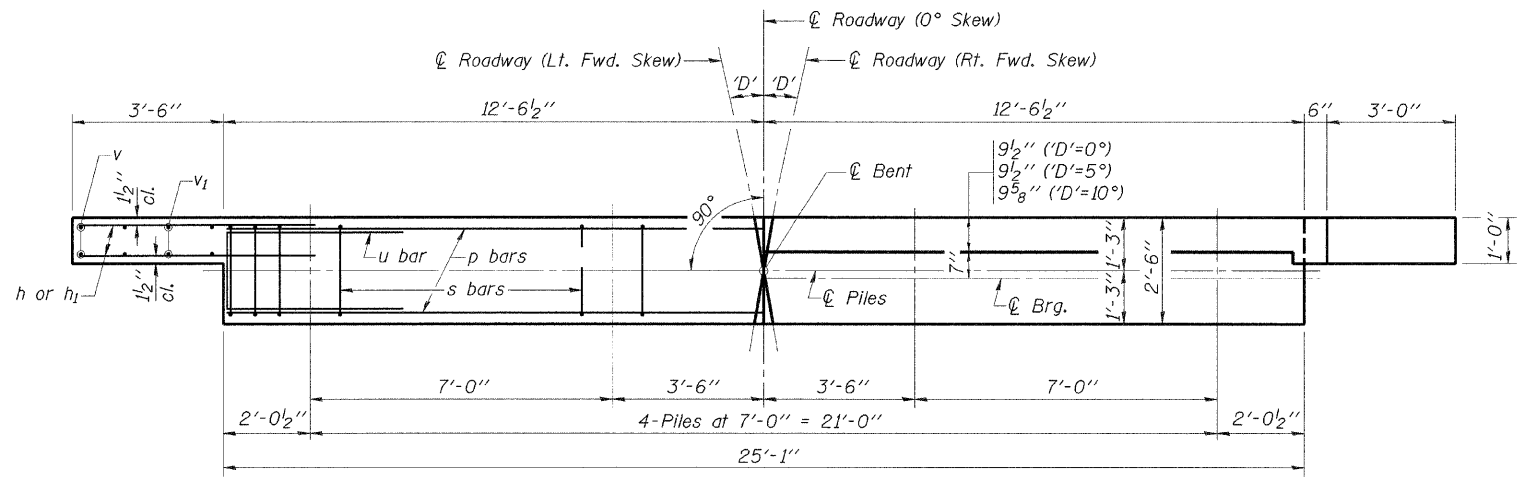
- Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in.
- The 1" phi rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.
- Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions).
- Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.
- Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.
- Compressive strength of prestressed concrete, f'c, shall be 6000 psi.
- Compressive strength of prestressed concrete at release, f'cl, shall be 5000 psi.
- Rail post anchor devices shall be cast into outside beam as elsewhere specified.
- Keyway surfaces shall be cleaned to remove form oil or other bond breaking material prior to shipment of the beams. Cleaning shall be done by sandblasting the keyway areas between the top of the beam and the bottom edge of the key.

DESIGN STRESSES

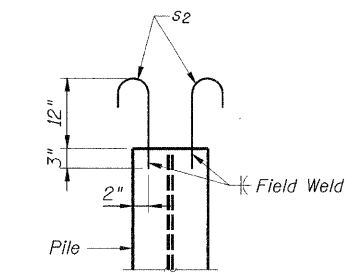
- f's = 270,000 p.s.i. (1/2" phi Strand)
- f'sl = 201,960 p.s.i. (1/2" phi Strand)
- F_i = 30,900 lbs per strand
- f_y = 60,000 p.s.i. Reinf. bars
- f'c = 6,000 p.s.i.
- f'cl = 5,000 p.s.i.

Note: See sheet SLM-CS-2417-34 for Bill of Material.

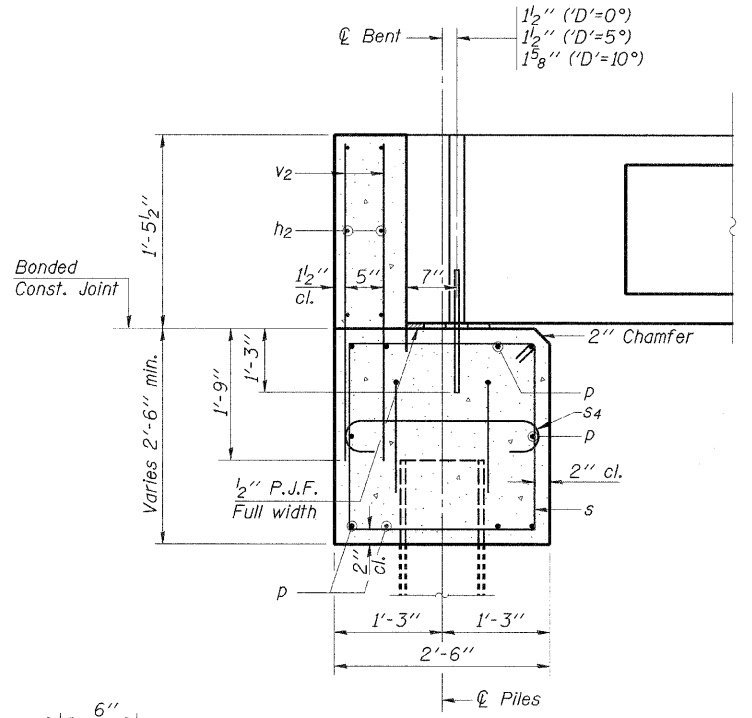
	2524 S. Broadway Salem, Illinois 62881 618.546.3500 IL Design Firm Reg. No. 184-000178 No. 184-003708 www.aecom.com	SLM-PD-1748-0D P.P.C. DECK BEAM DETAILS AND NOTES
	Date: 03/18/10 Design: WDL Drawn: JSD Job No.: 60097890	24' ROADWAY 17" x 48" BEAMS 0° SKEW



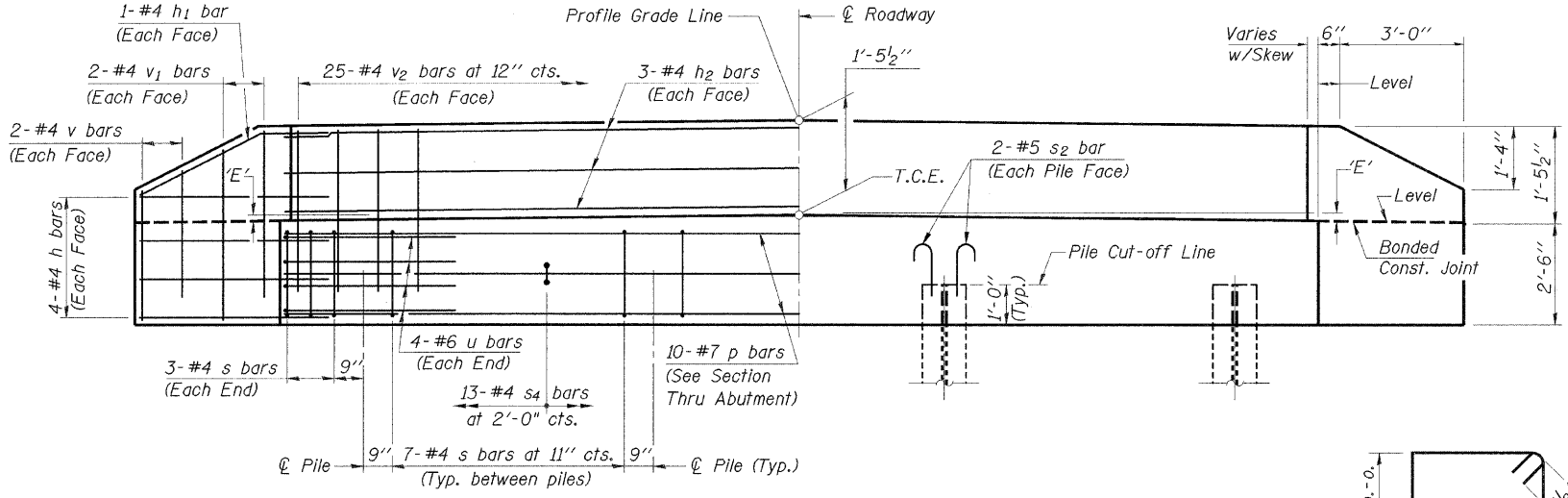
PLAN
(D'=Designated Skew Angle)



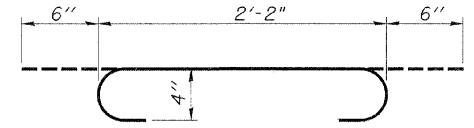
PILE ANCHOR DETAIL
(Welding included in cost of reinforcement)



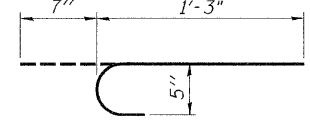
SECTION THRU ABUTMENT
(At Right Angles)



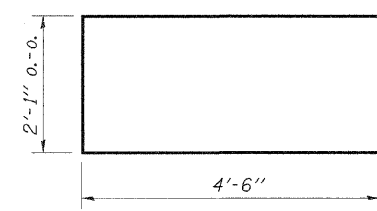
ELEVATION



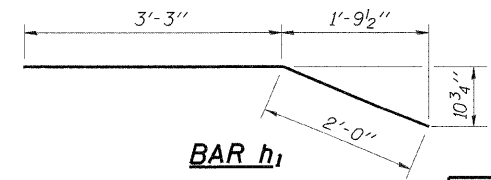
BAR s4



BAR s2



BAR u



BAR h1

BILL OF MATERIAL FOR ONE ABUTMENT

Bar	No.	Size	Length	Shape
h	16	#4	5'-0"	—
h1	4	#4	5'-3"	—
h2	6	#4	24'-9"	—
p	10	#7	24'-9"	—
s	27	#4	9'-5"	□
s2	16	#5	1'-10"	U
s4	13	#4	3'-2"	U
u	8	#6	11'-1"	□
v	8	#4	2'-6"	—
v1	8	#4	3'-5"	—
v2	50	#4	3'-1"	—
Concrete Structures			8.3 Cu. Yds.	
Reinforcement Bars			1170 Lb.	

DIMENSION 'E'

GRADE	'D'=0°		'D'=5°		'D'=10°	
	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END
0%	2 3/8"	2 3/8"	2 3/8"	2 3/8"	2 3/8"	2 3/8"
Over 0% to 1%	2 3/8"	2 3/8"	2 1/4"	2 3/8"	2 1/8"	2 1/2"
Over 1% to 2%	2 3/8"	2 3/8"	2 1/8"	2 1/2"	1 7/8"	2 3/4"
Over 2% to 3%	2 3/8"	2 3/8"	2"	2 5/8"	1 5/8"	3"
Over 3% to 4%	2 3/8"	2 3/8"	1 7/8"	2 3/4"	1 3/8"	3 1/4"

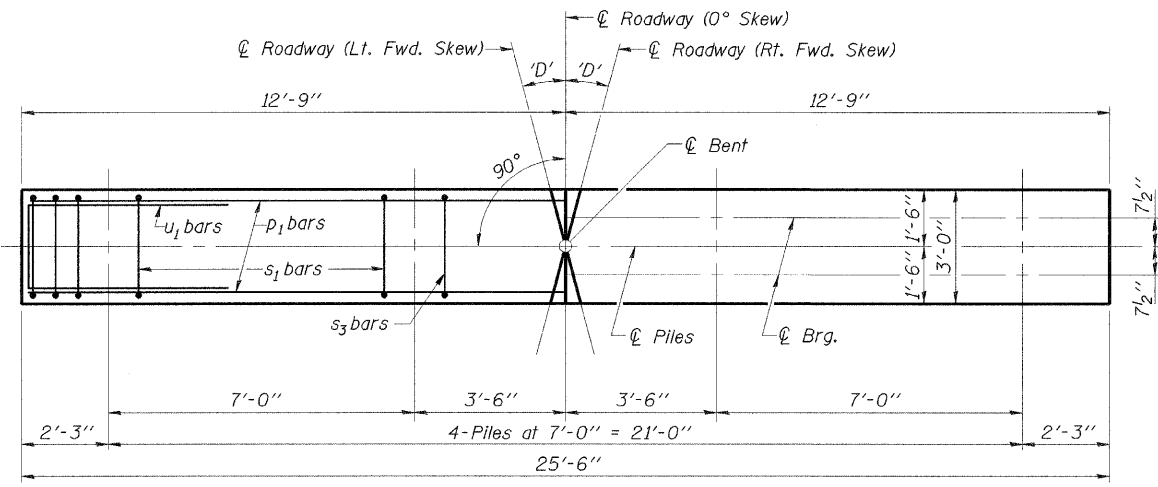
NOTES

- 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 the requirements of A.A.S.H.T.O. M-31 or M-322, Grade 60.
- Space reinforcement in cap to miss anchor bolts.

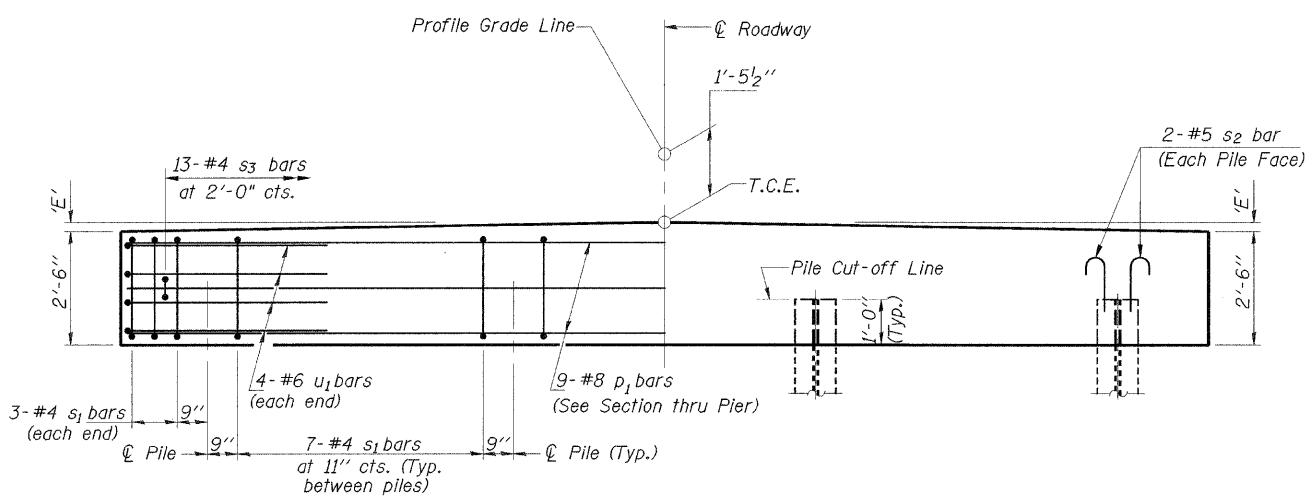
DESIGN STRESSES

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

AECOM <small>2524 S. Broadway Salem, Illinois 62861 618.548.3500 IL Design Firm Reg. No. 184-000178 No. 184-003706 www.aecom.com</small>	SLM-CA-2417-10 P.P.C. DECK BEAMS PILE BENT ABUTMENT
	24' ROADWAY 17" BEAMS 'D'=0°, 5°, OR 10°
Date: 03/18/10 Design: WDL Drawn: JSD Job No.: 60097890	



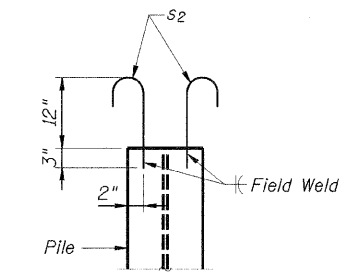
PLAN
('D' = Designated Skew Angle)



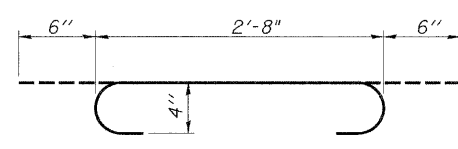
ELEVATION

DIMENSION 'E'

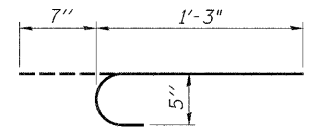
GRADE	'D'=0°		'D'=5°		'D'=10°	
	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END	UPGRADE END	DOWNGRADE END
0%	2 ³ / ₈ "	2 ³ / ₈ "	2 ³ / ₈ "	2 ³ / ₈ "	2 ³ / ₈ "	2 ³ / ₈ "
Over 0% to 1%	2 ³ / ₈ "	2 ³ / ₈ "	2 ¹ / ₄ "	2 ³ / ₈ "	2 ¹ / ₈ "	2 ¹ / ₂ "
Over 1% to 2%	2 ³ / ₈ "	2 ³ / ₈ "	2 ¹ / ₈ "	2 ¹ / ₂ "	1 ⁷ / ₈ "	2 ³ / ₄ "
Over 2% to 3%	2 ³ / ₈ "	2 ³ / ₈ "	2"	2 ⁵ / ₈ "	1 ⁵ / ₈ "	3"
Over 3% to 4%	2 ³ / ₈ "	2 ³ / ₈ "	1 ⁷ / ₈ "	2 ³ / ₄ "	1 ³ / ₈ "	3 ¹ / ₄ "



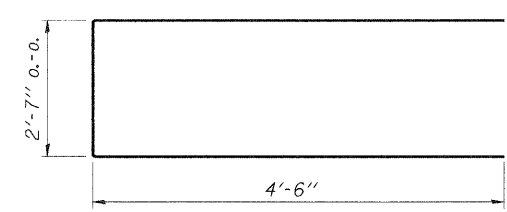
PILE ANCHOR DETAIL
(Welding included in cost of reinforcement)



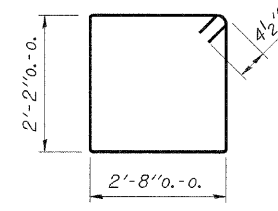
BAR s3



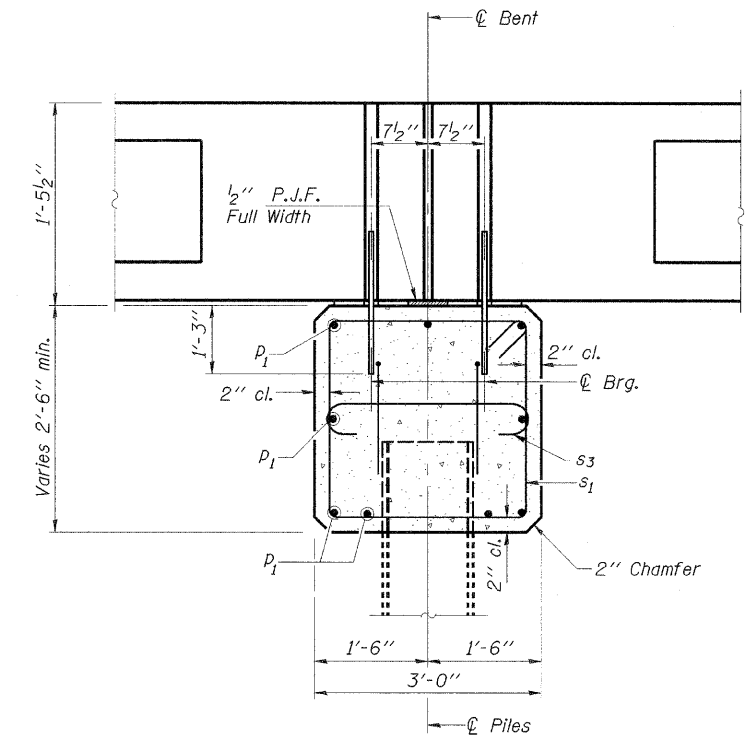
BAR s2



BAR u1



BAR s1



SECTION THRU PIER
(At Right Angles)

BILL OF MATERIAL FOR ONE PIER

Bar	No.	Size	Length	Shape
p1	9	#8	25'-2"	—
s1	30	#4	10'-5"	□
s2	16	#5	1'-10"	U
s3	13	#4	3'-8"	U
u1	8	#6	11'-7"	□
Concrete Structures			7.4	Cu. Yds.
Reinforcement Bars			1020	Lb.

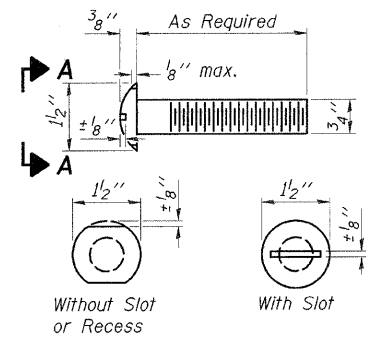
NOTE

- Reinforcement bars shall conform to the requirements of A.A.S.H.T.O. M-31 or M-322, Grade 60.
- Space reinforcement in cap to miss dowel rods.
- For clarity, concrete encasement is not pictorially shown on elevation or section.

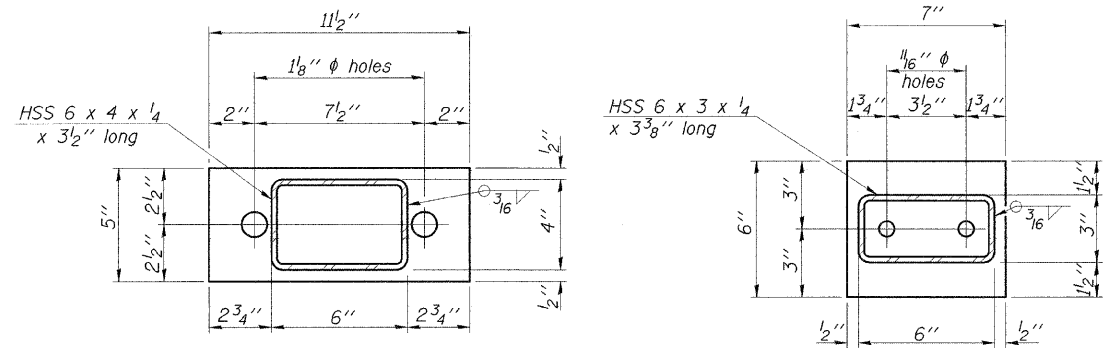
DESIGN STRESSES

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

	2524 S. Broadway Salem, Illinois 62861 618.548.3500 IL Design Firm Reg. No. 184-000175 No. 184-003706 www.aecom.com	SLM-CP-2417-10 P.P.C. DECK BEAMS PILE BENT PIER
	Date: 03/18/10 Design: WDL Drawn: JSD Job No.: 60097890	24' ROADWAY 17" BEAMS 'D'=0°, 5°, OR 10°

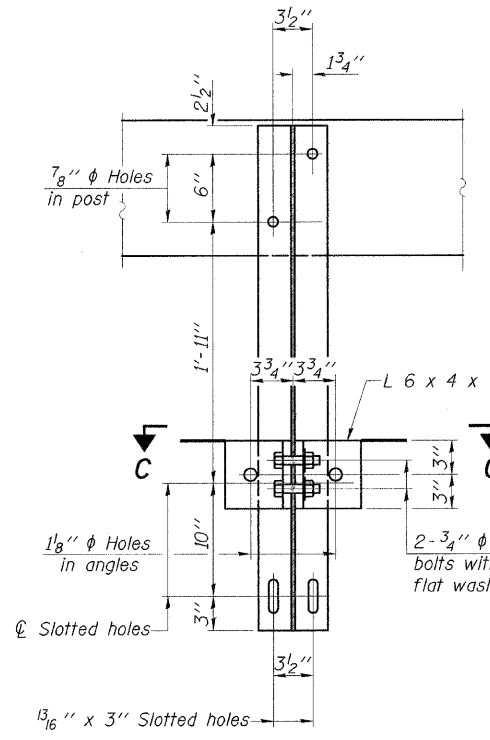


VIEW A-A ROUND HEAD BOLT



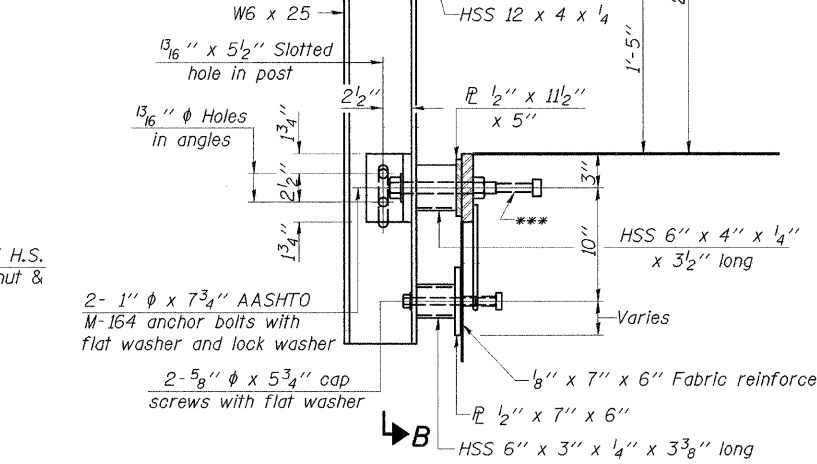
PL 1/2" x 11 1/2" x 5"

PL 1/2" x 7" x 6"



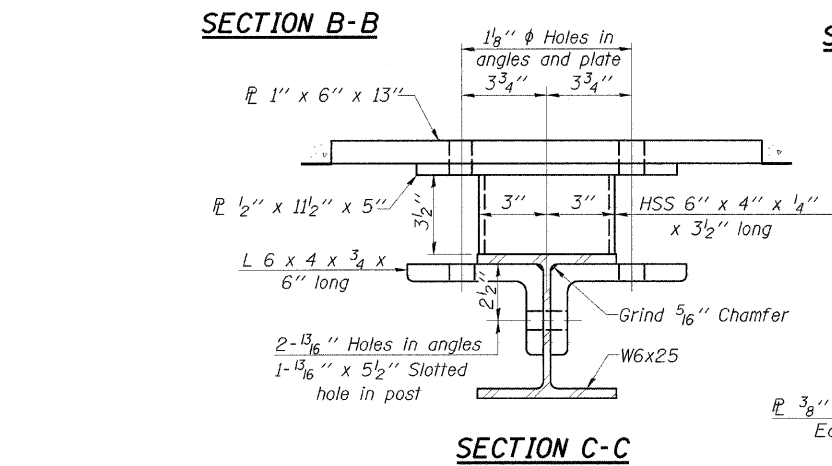
SECTION B-B

2-3/4" ϕ x 6" Round Head Bolts (With slot or approved recess in head) with locknut & flat washer. 7/8" ϕ holes in hollow structural section may be drilled in the field.

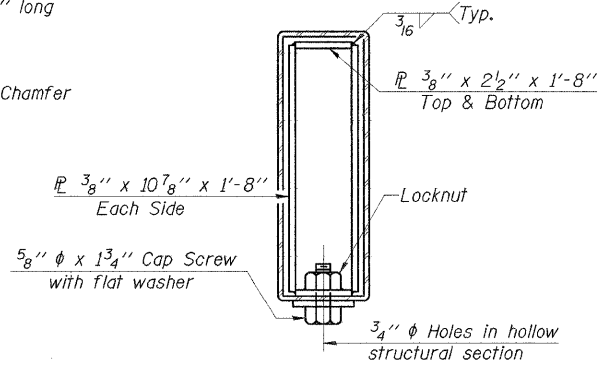


SECTION AT RAILING POST

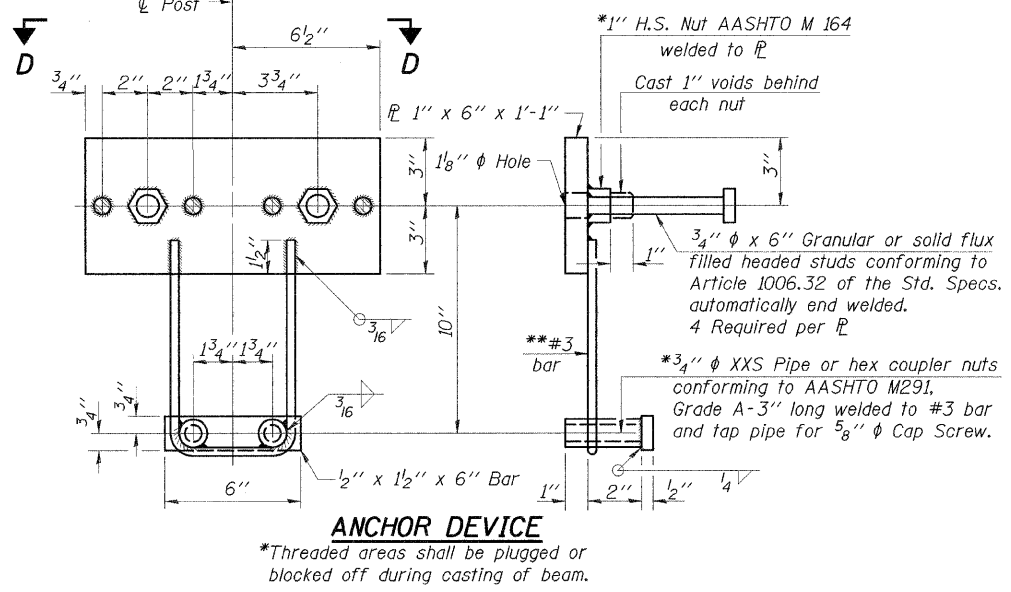
**Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".



SECTION C-C

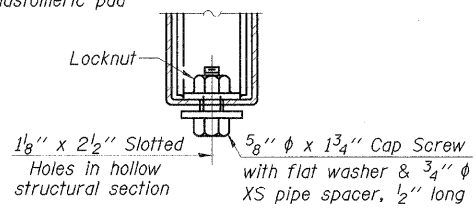


SECTIONS AT RAIL SPLICE

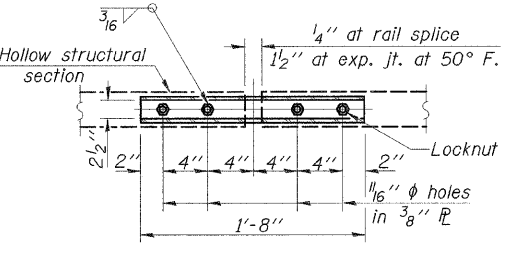


ANCHOR DEVICE

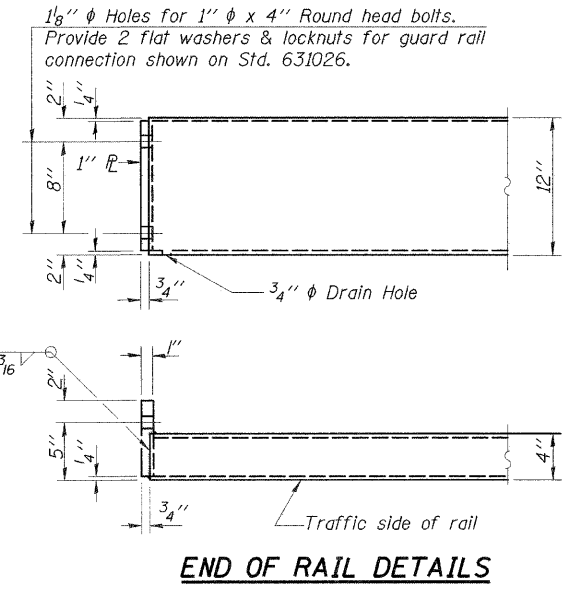
*Threaded areas shall be plugged or blocked off during casting of beam.



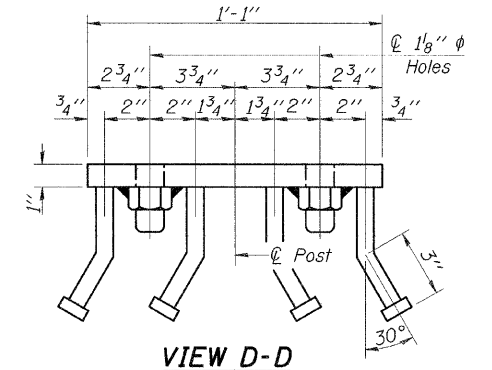
RAIL SPLICE CONNECTION AT EXPANSION JT.



PLAN-BOTTOM SPLICE PL TYPICAL



END OF RAIL DETAILS



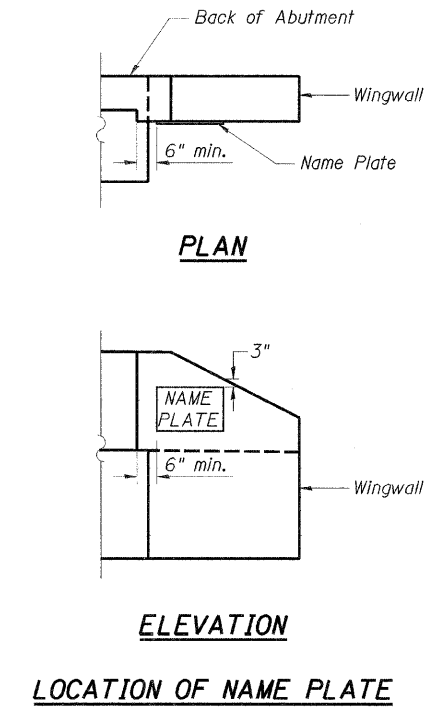
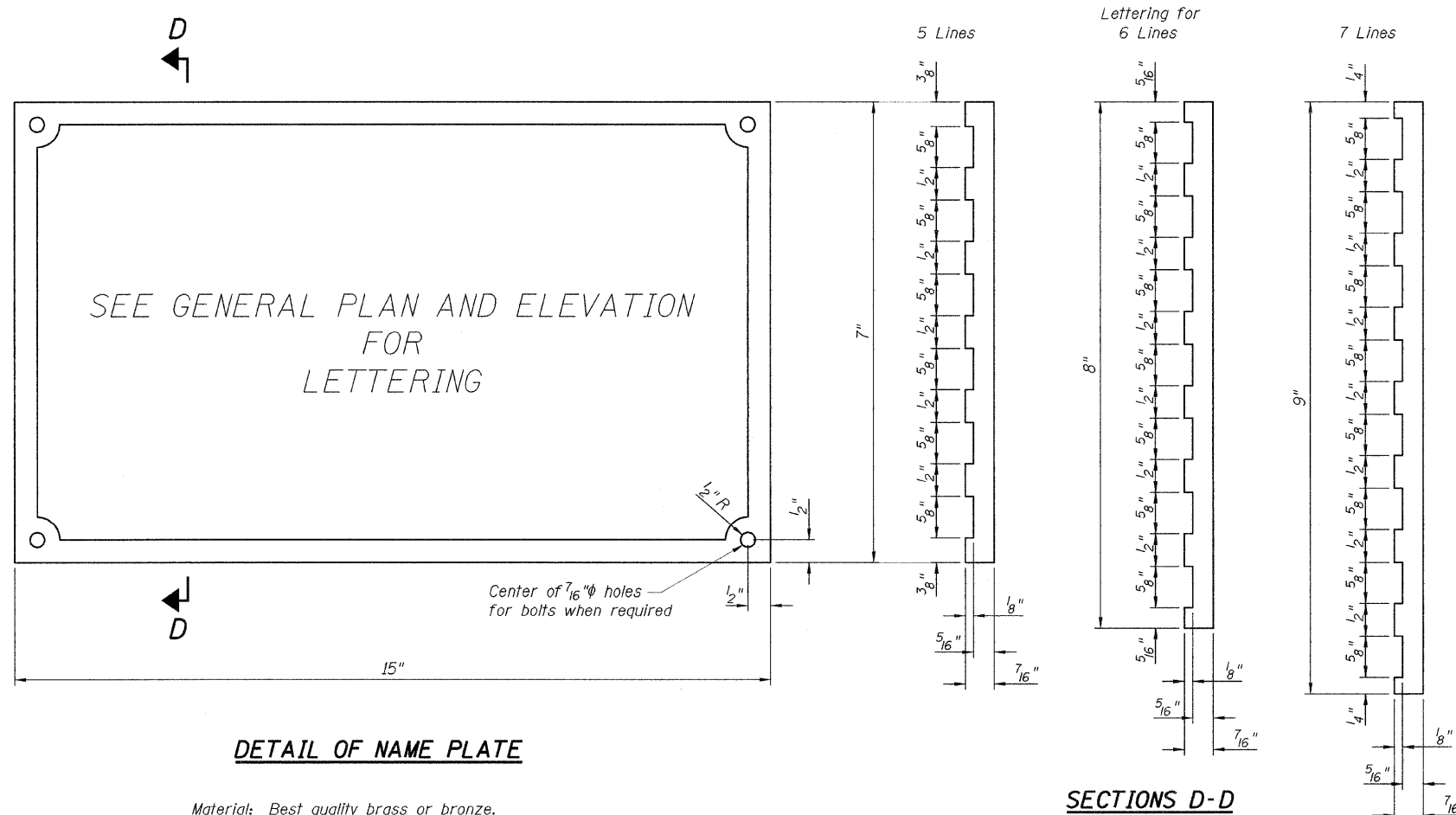
VIEW D-D

Notes:
 All field drilled holes shall be coated with an approved zinc rich paint before erection.
 For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1.
 All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.
 ***The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.
 The maximum allowable rail post spacing shall be 10'-9". The rail post spacing shown elsewhere in the plans is based on the allowable spacing for another type of rail. When this type of rail is used, the number of posts may be decreased and the post spacing increased to provide equal post spaces of 10'-9" or less.

(10'-9" Maximum Post Spacing)

See SLM-CS-2417-34 for Steel Railing Quantities.

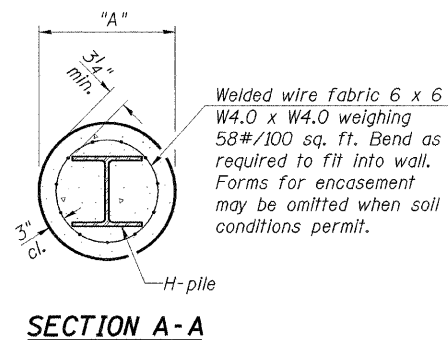
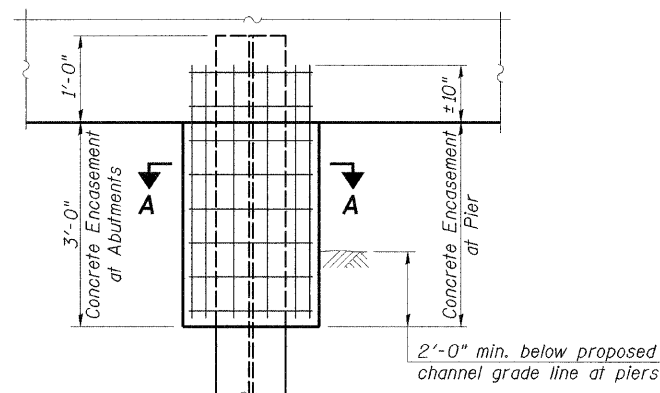
AECOM 2524 S. Broadway Salem, Illinois 62881 618.548.3500 IL Design Firm Reg. No. 184-003176 No. 184-003706 www.aecom.com	SLM-CR-TS1
	STEEL RAILING TYPE S-1
Date: 03/18/10 Design: WDL Drawn: JSD Job No.: 60097890	



DETAIL OF NAME PLATE

SECTIONS D-D

Material: Best quality brass or bronze.
 Border and Lettering: Raised $\frac{1}{8}$ inch. Square cut and not tapered. Top surface polished.
 Fastenings: Four lugs at least three inches long, cast on back of plate.



ELEVATION

SECTION A-A

PILE ENCASEMENT

Pile	"A"
HP8	1'-6"
HP10	1'-9"
HP12	2'-0"

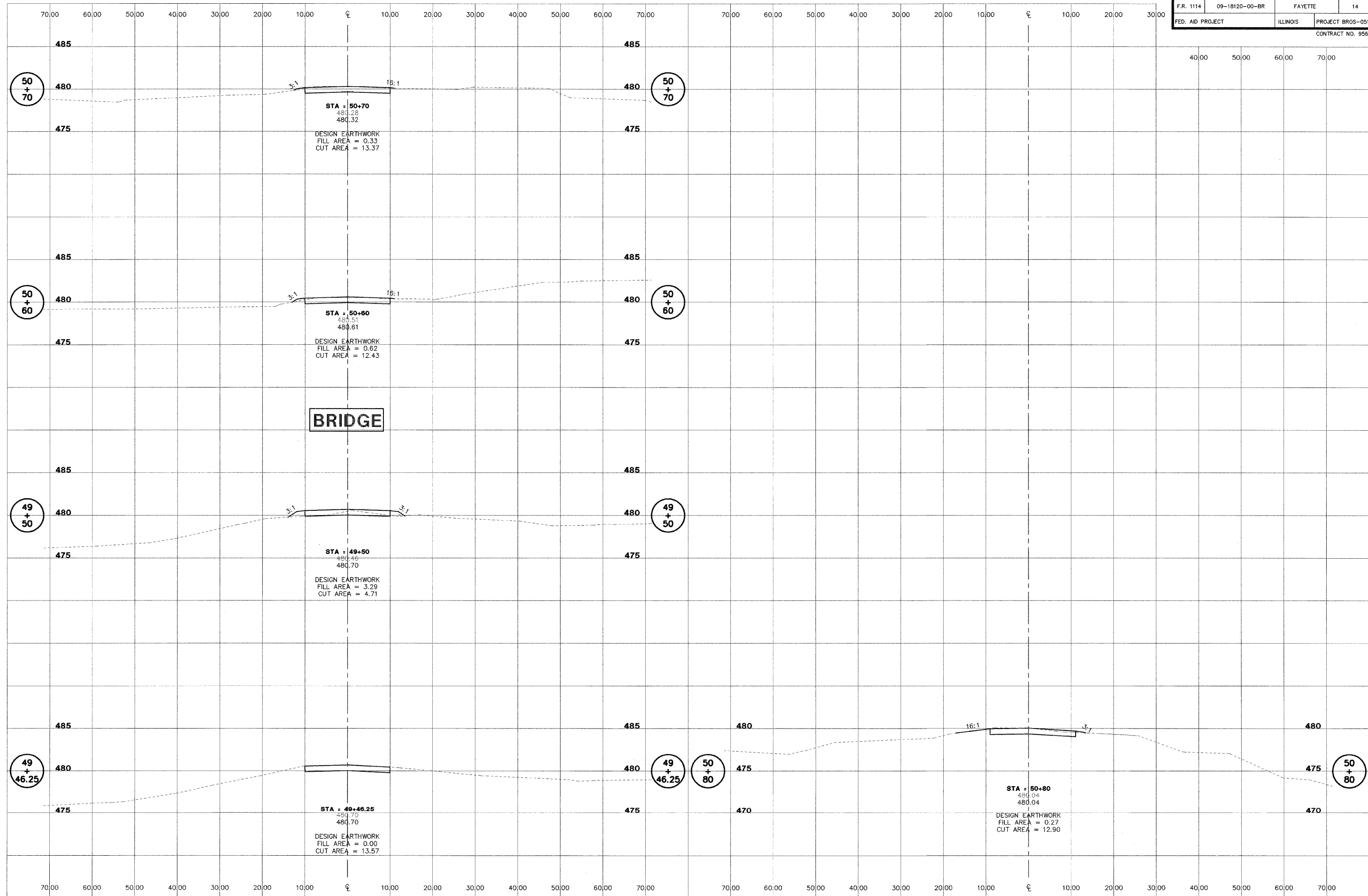
PILE ENCASEMENT QUANTITIES
(Steel Piles)

Pile Size	Item	Unit	Quantity
HP10	Concrete Encasement	Cu Yd.	0.086
HP12	Concrete Encasement	Cu Yd.	0.112

Quantities per foot of Encasement.

AECOM 2524 S. Broadway Salem, Illinois 62881 618.548.3500 IL Design Firm Reg. No. 184-000176 No. 184-003706 www.aecom.com	SLM-CN-CX
	NAME PLATE & PILE ENCASEMENT DETAILS
Date: 03/18/10 Design: WDL Drawn: JSD Job No.: 60097890	

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.R. 1114	09-18120-00-BR	FAYETTE	14	14
FED. AID PROJECT		ILLINOIS	PROJECT BROS-051(089)	
CONTRACT NO. 95630				



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 AECOM Technical Services
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F.R. 1114, SECTION 09-18120-00-BR
 VANDALIA ROAD DISTRICT
 FAYETTE COUNTY, ILLINOIS

CROSS SECTIONS		DATE
STA. 49+46.25 TO STA. 50+80		03/18/10
SURVEY	CHECKED	DATE
DESIGN	APPROVED	REVISED
DRAWN		JOB NO.
BLT		60097890

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