

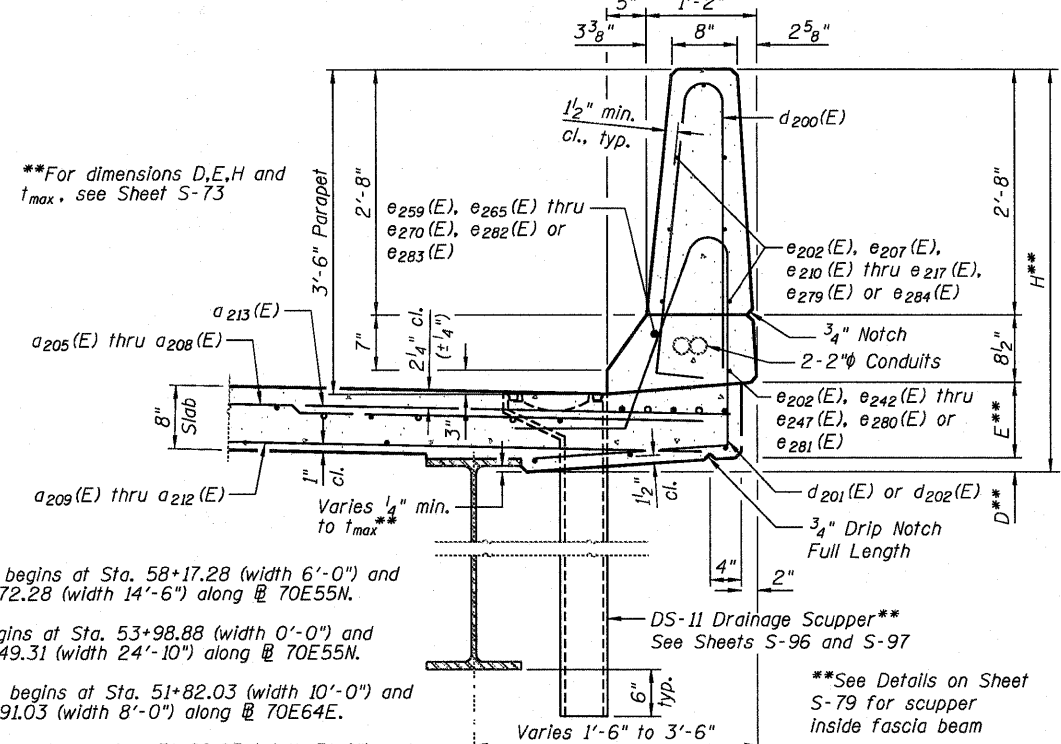
**DECK CROSS SECTION - UNIT 2**

(Looking Upstation)  
 Dimensions radial from @ 70E55N U.N.O.  
 \*Dimensions radial from @ 70E64E

Shoulder	Lane	Lane	Gore	Lane	Shoulder
6'-0"	12'-0"	12'-0"	Varies	16'-0"	10'-0"
Shoulder	Lane 3.40%	Top of Slab	Varies 3.32% to 3.23%	Lane 3.40%	Shoulder
Sta. 56+86.00 to Sta. 57+00.00					
6'-0"	12'-0"	12'-0"	Varies	16'-0"	10'-0"
Shoulder	Lane 3.40%	Top of Slab	Varies 3.23% to 2.44%	Lane 3.40%	Shoulder
Sta. 57+00.00 to Sta. 57+50.00					
6'-0"	12'-0"	12'-0"	Varies	16'-0"	10'-0"
Shoulder	Lane 3.40%	Top of Slab	Varies 2.44% to 2.03%	Lane 3.40%	Shoulder
Sta. 57+50.00 to Sta. 57+82.54					
6'-0"	12'-0"	12'-0"	Varies	16'-0"	10'-0"
Shoulder	Lane Varies 3.40% to 2.92%	Top of Slab	Varies 2.03% to 1.75%	Lane 3.40%	Shoulder
Sta. 57+82.54 to Sta. 58+00.00					
Shoulder	12'-0"	12'-0"	Varies	16'-0"	Shoulder
Shoulder	Lane Varies 2.92% to 1.53%	Top of Slab	Varies 1.75% to 1.18%	Lane 3.40%	Shoulder
Sta. 58+00.00 to Sta. 58+50.00					
Shoulder	12'-0"	12'-0"	Varies	16'-0"	Shoulder
Shoulder	Lane Varies 1.53% to 0.00%	Top of Slab	Varies 1.18% to 0.79%	Lane 3.40%	Shoulder
Sta. 58+50.00 to Sta. 59+05.24					
Shoulder	12'-0"	12'-0"	Varies	16'-0"	Shoulder
Shoulder	Lane Varies 0.00% to 0.43%	Top of Slab	Varies 0.79% to 0.83%	Lane 3.40%	Shoulder
Sta. 59+05.24 to Sta. 59+20.57					

**DECK CROSS SLOPE DETAIL UNIT 2**

Dimensions radial from @ 70E55N U.N.O.  
 \*Dimensions radial from @ 70E64E



**SECTION THRU PARAPET - UNIT 2**

**NOTES:**

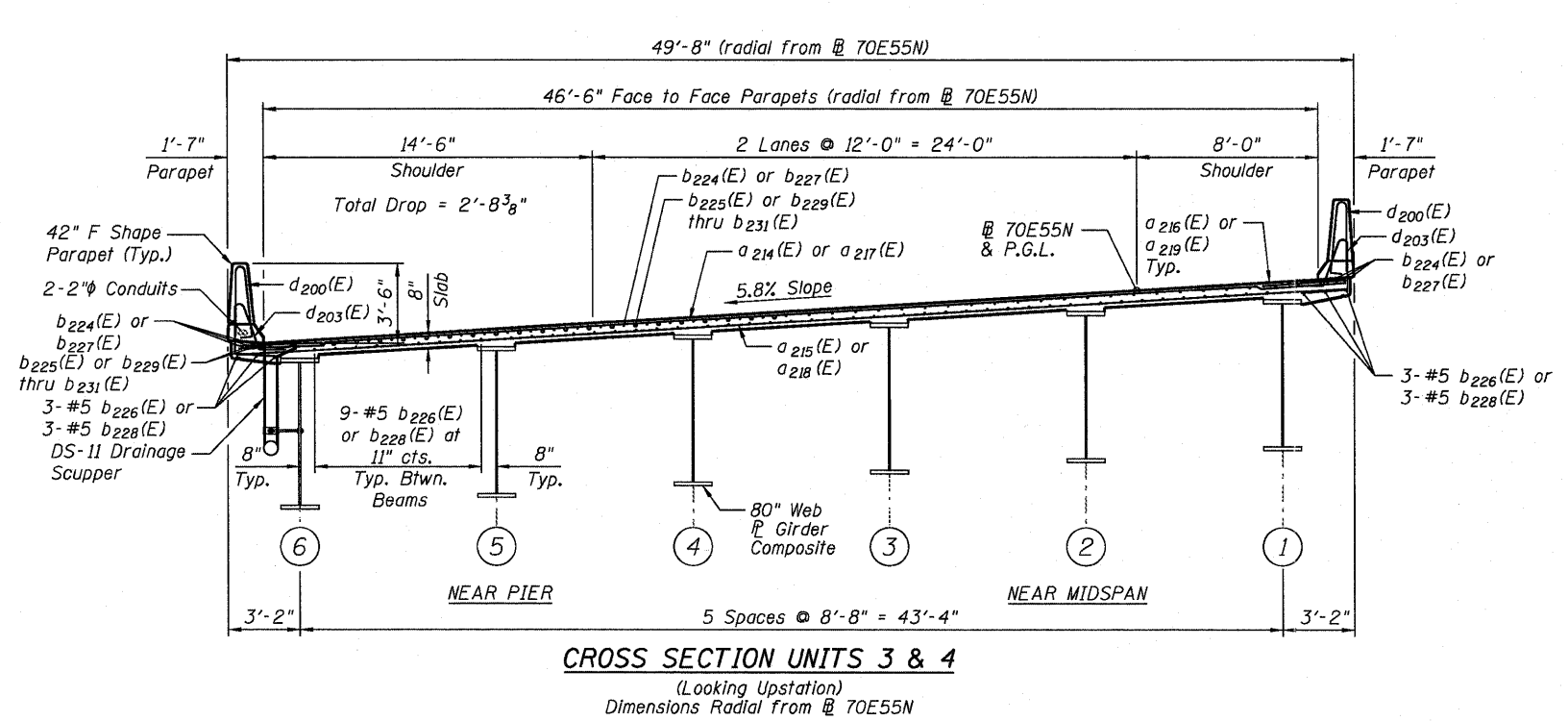
- Shoulder taper begins at Sta. 58+17.28 (width 6'-0") and ends at Sta. 60+72.28 (width 14'-6") along @ 70E55N.
- Gore taper begins at Sta. 53+98.88 (width 0'-0") and ends at Sta. 60+49.31 (width 24'-10") along @ 70E55N.
- Shoulder taper begins at Sta. 51+82.03 (width 10'-0") and ends at Sta. 52+91.03 (width 8'-0") along @ 70E64E.
- Overhang taper begins at Sta. 51+82.03 (width 3'-6") and ends at Sta. 52+91.09 (width 1'-6") along @ 70E64E.

Shoulder	Lane	Lane	Gore	Lane	Shoulder
Shoulder	12'-0"	12'-0"	Varies	16'-0"	Shoulder
Shoulder	Lane Varies 0.43% to 1.24%	Top of Slab	Varies 0.83% to 0.92%	Lane 3.40% to 2.64%	Shoulder
Sta. 59+20.57 to Sta. 59+50.00					
Shoulder	12'-0"	12'-0"	Varies	16'-0"	8'-0"
Shoulder	Lane Varies 1.24% to 2.63%	Top of Slab	Varies 0.92% to 1.42%	Lane Varies 2.64% to 1.33%	Shoulder
Sta. 59+50.00 to Sta. 60+00.00					
Shoulder	12'-0"	12'-0"	Varies	16'-0"	8'-0"
Shoulder	Lane Varies 2.63% to 4.00%	Top of Slab	Varies 1.42% to 1.70%	Lane Varies 1.33% to 0.0%	Shoulder
Sta. 60+00.00 to Sta. 60+49.31					
Shoulder	12'-0"	12'-0"	Shoulder	8'-0"	Shoulder
Shoulder	Lane Varies 4.00% to 5.80%	Top of Slab	Shoulder Varies 1.70% to 5.80%	Shoulder	Shoulder
Sta. 60+49.31 to Sta. 61+14.04					
Shoulder	12'-0"	12'-0"	Shoulder	8'-0"	Shoulder
Shoulder	Lane 5.80%	Top of Slab	Shoulder	Shoulder	Shoulder
Sta. 61+14.04 to Sta. 61+78					
10'-0" Shoulder	16'-0" Lane	8'-0" Shoulder			
1.70% (A)	2.84% (B)	Top of Slab			
2.05% (B)			0.02% (A)		
Sta. 53+89.09*(A) to Sta. 54+99.00*(B)					

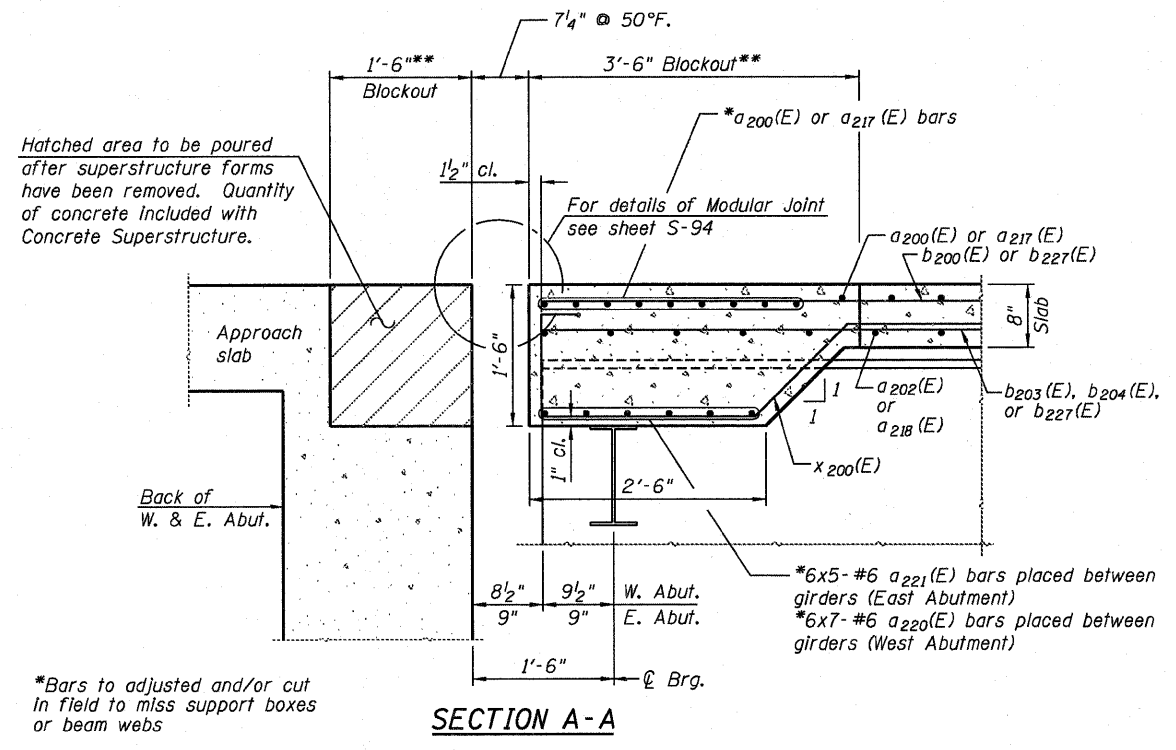
**DECK CROSS SLOPE DETAIL UNIT 2**

Dimensions radial from @ 70E55N U.N.O.  
 \*Dimensions radial from @ 70E64E

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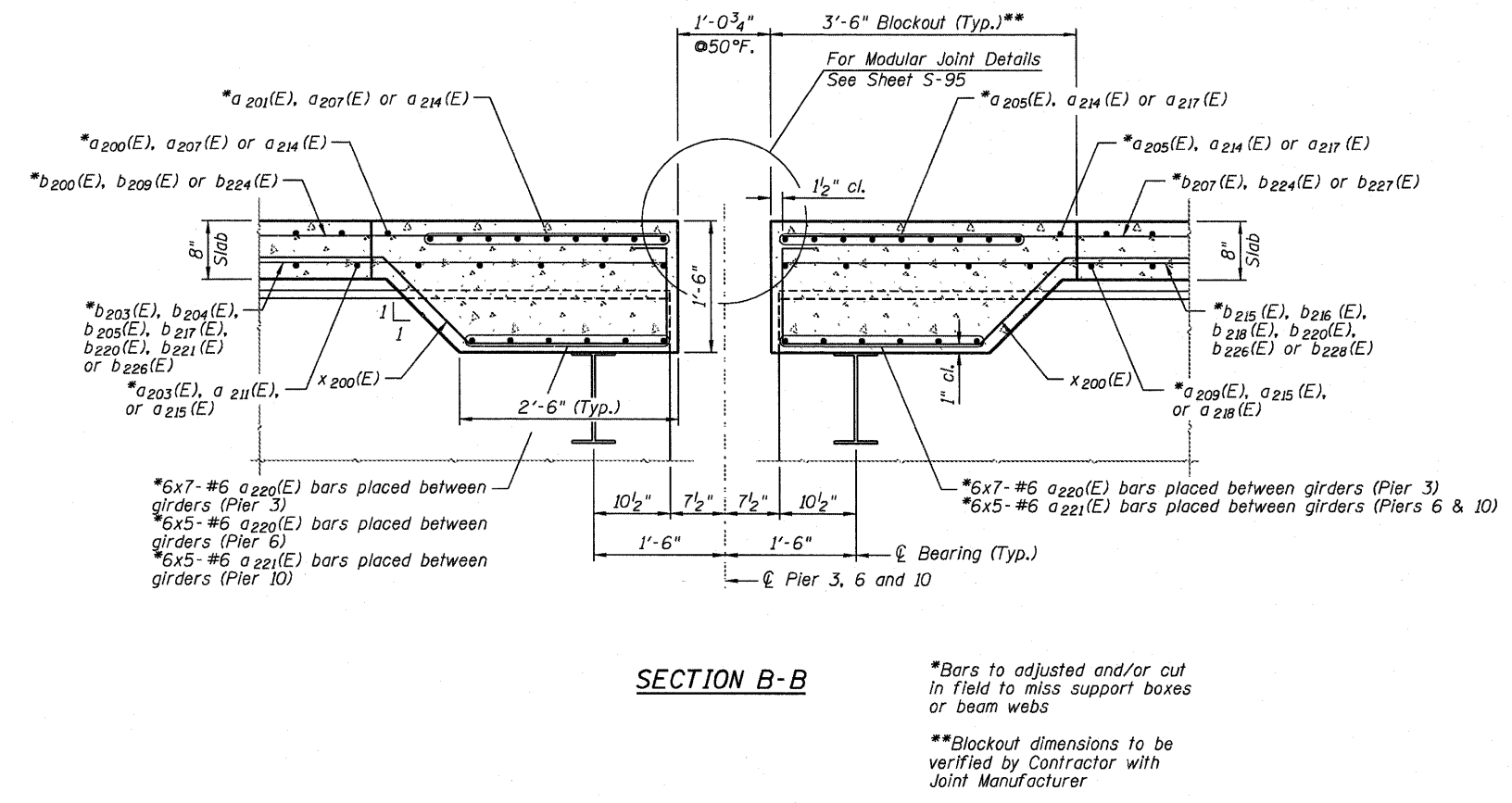


**CROSS SECTION UNITS 3 & 4**  
(Looking Upstation)  
Dimensions Radial from 70E55N



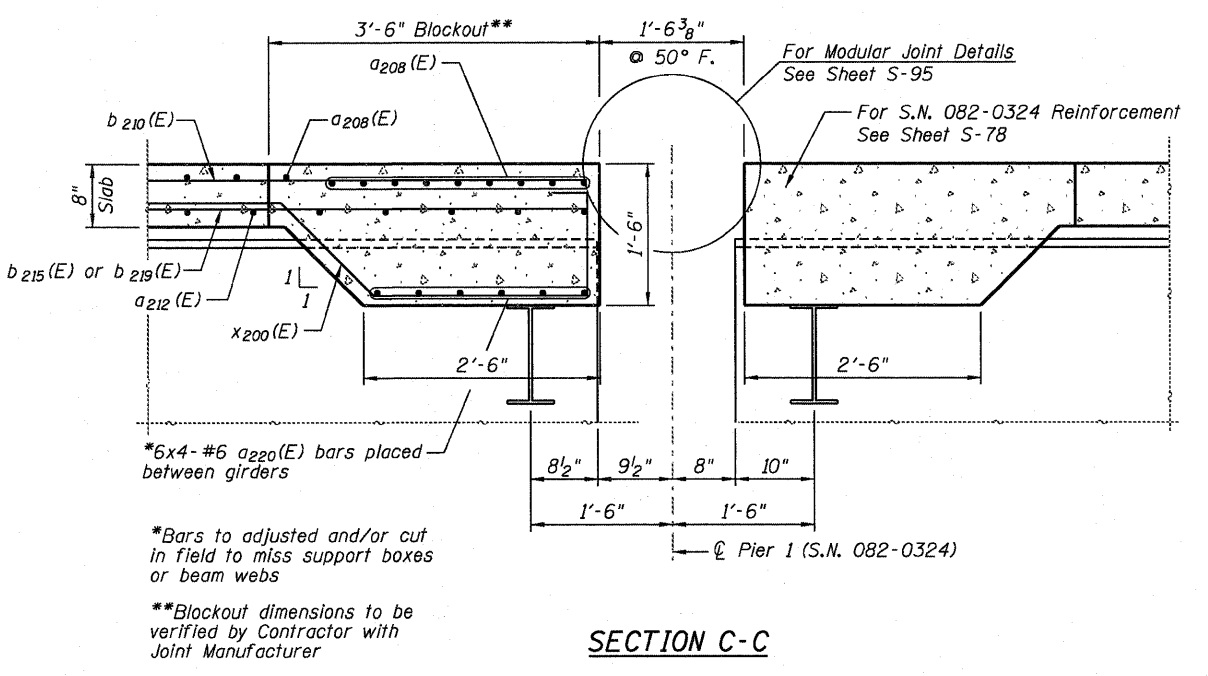
**SECTION A-A**

\*Bars to adjusted and/or cut in field to miss support boxes or beam webs  
\*\*Blockout dimensions to be verified by Contractor with Joint Manufacturer



**SECTION B-B**

\*Bars to adjusted and/or cut in field to miss support boxes or beam webs  
\*\*Blockout dimensions to be verified by Contractor with Joint Manufacturer

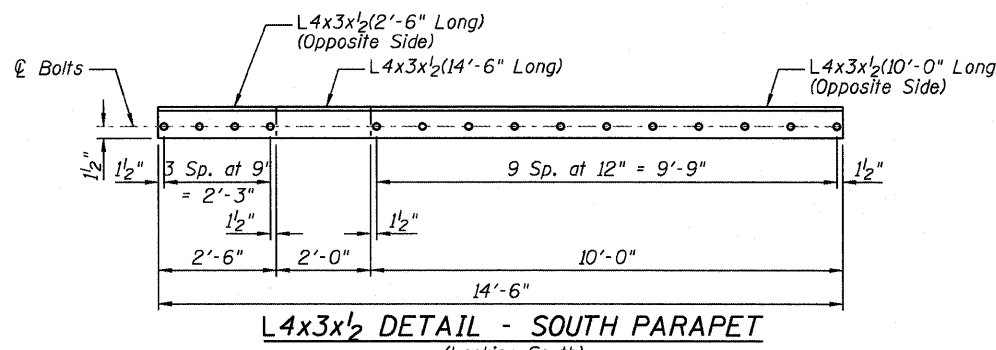
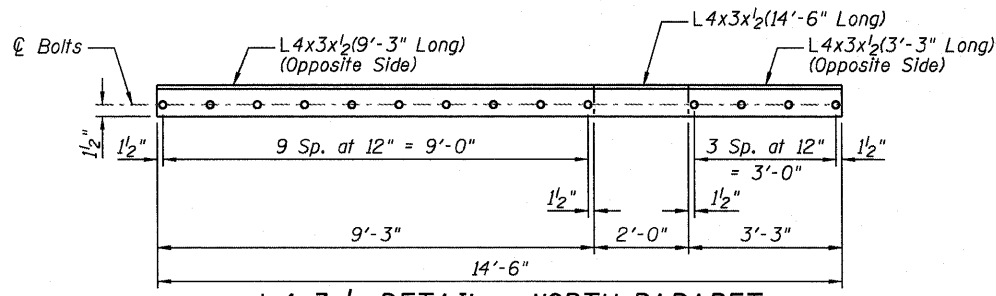


**SECTION C-C**

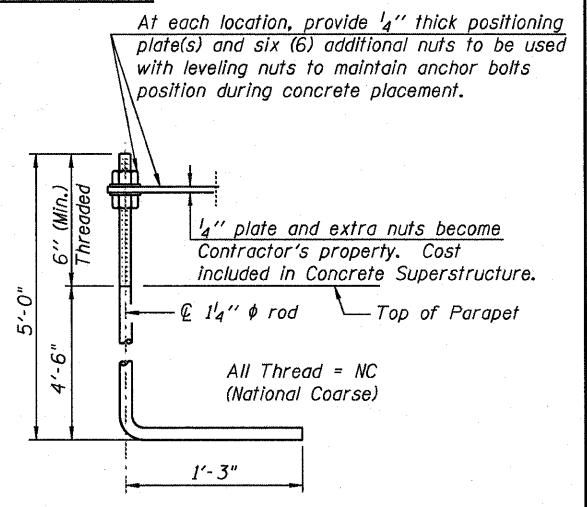
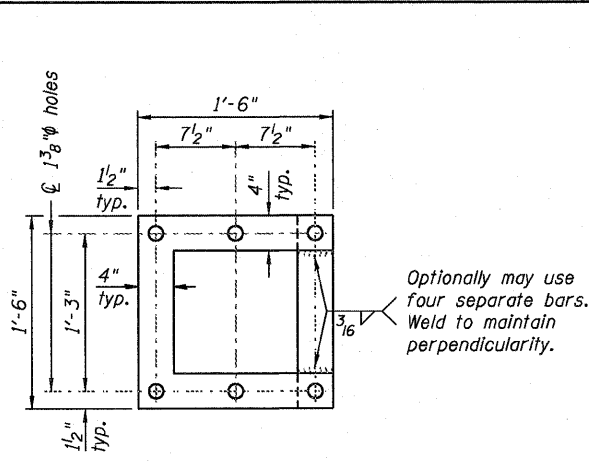
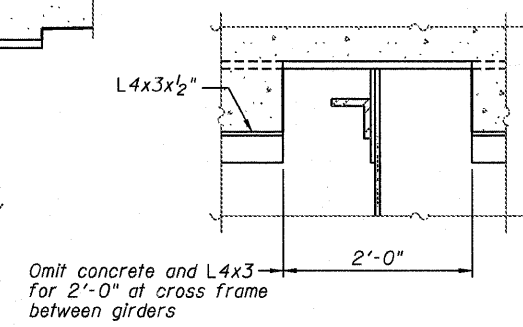
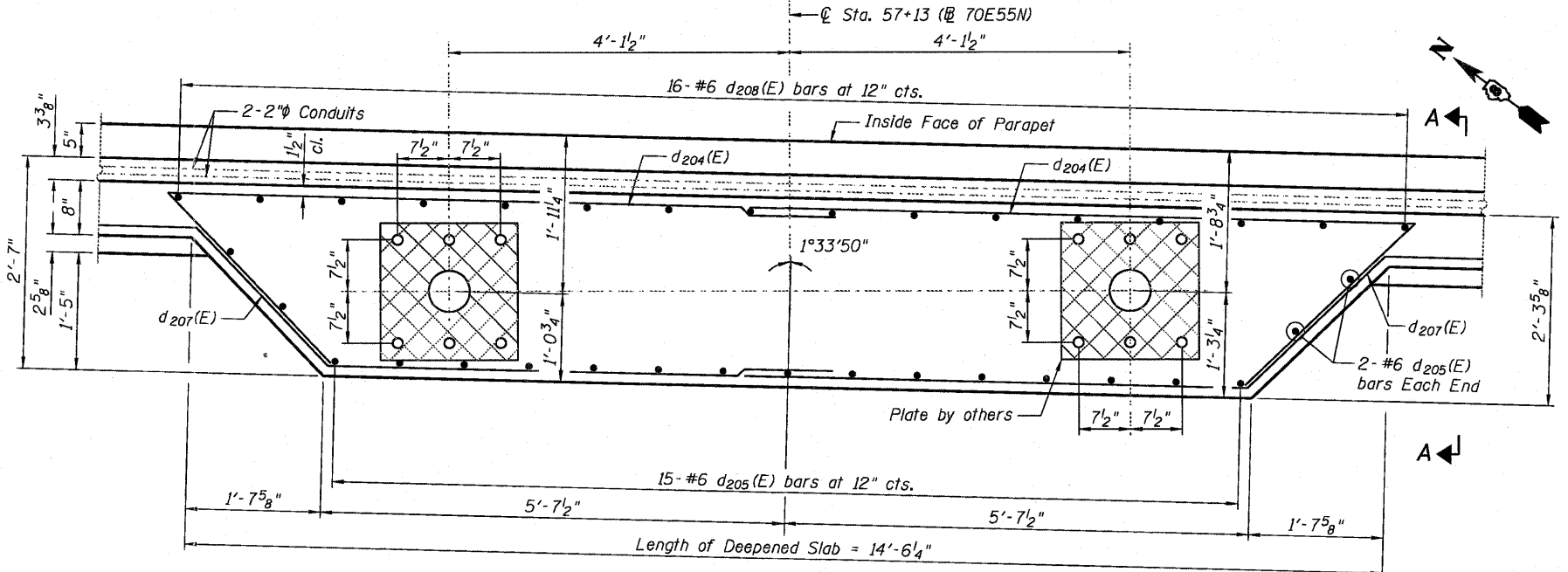
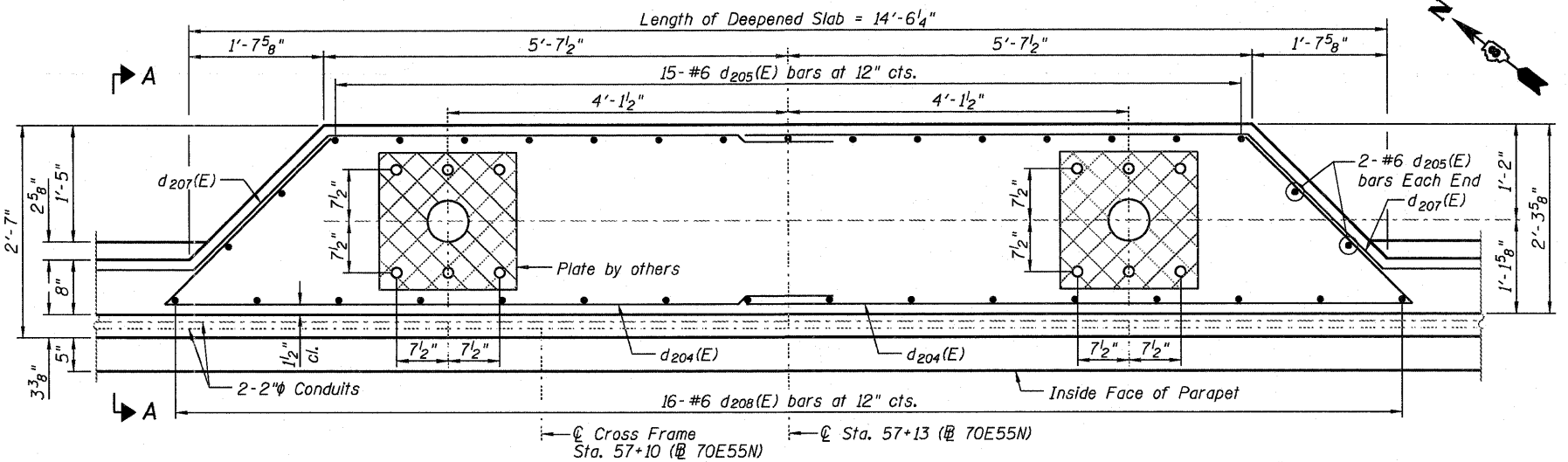
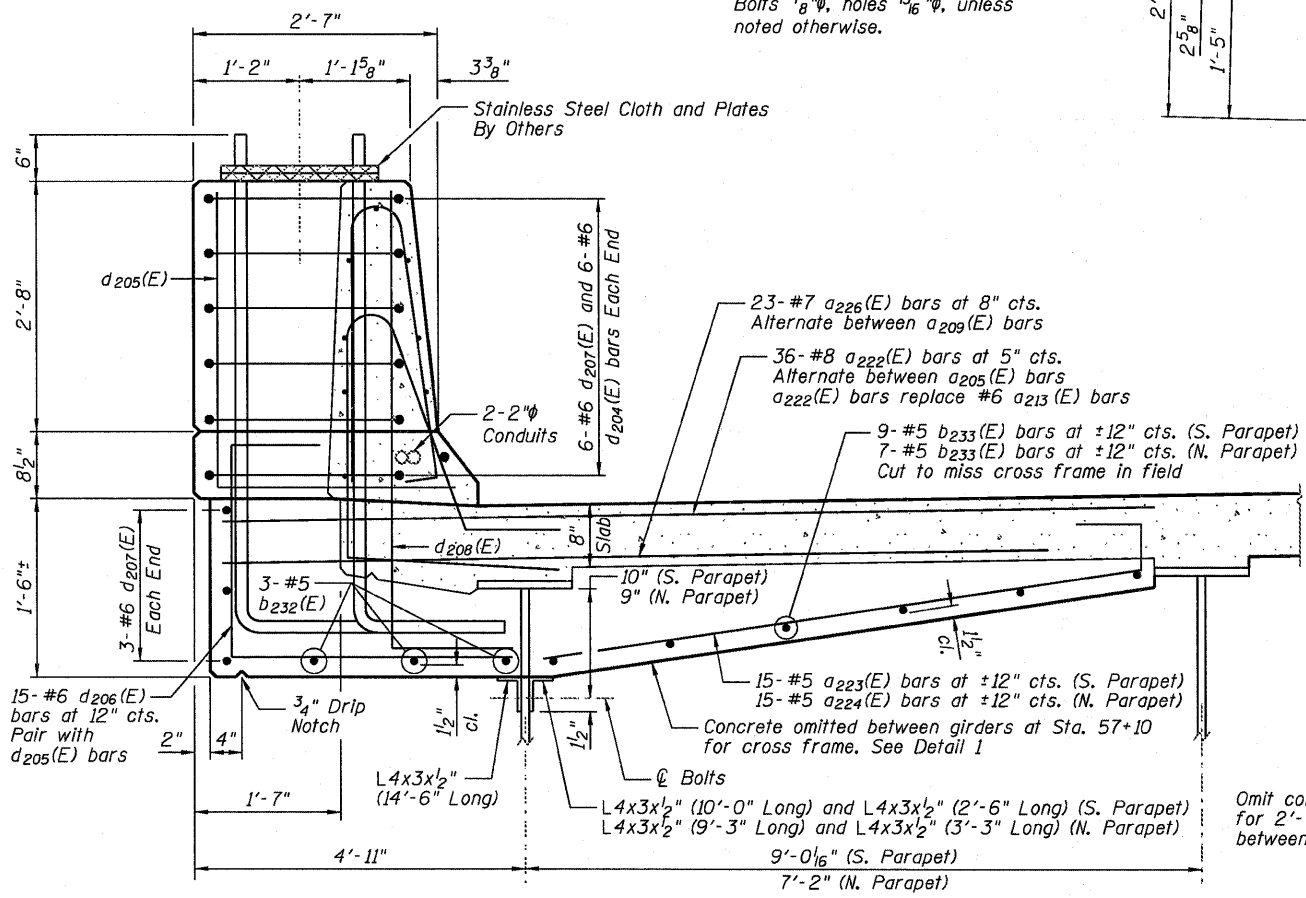
\*Bars to adjusted and/or cut in field to miss support boxes or beam webs  
\*\*Blockout dimensions to be verified by Contractor with Joint Manufacturer

D:\TR\0820322-0820324-76C76-S75-Unit3DeckCrossSections-022.dgn

	USER NAME = Scott Whitney PLOT SCALE = 2,0000' / IN. PLOT DATE = 6/7/2011	DESIGNED - JLA CHECKED - DAZ DRAWN - SAW DATE - 07-01-2011	REVISED - REVISED - REVISED - REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>DECK CROSS SECTIONS - UNITS 3 &amp; 4</b> <b>I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>	F.A.I. RTE. = 70 SECTION = 82-1-B-2 COUNTY = ST. CLAIR TOTAL SHEETS = 399 SHEET NO. = 202	S.N. 082-0322 & S.N. 082-0324 CONTRACT NO. 76C76	FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT
	SCALE: NONE SHEET S-75 OF S-234 SHEETS							



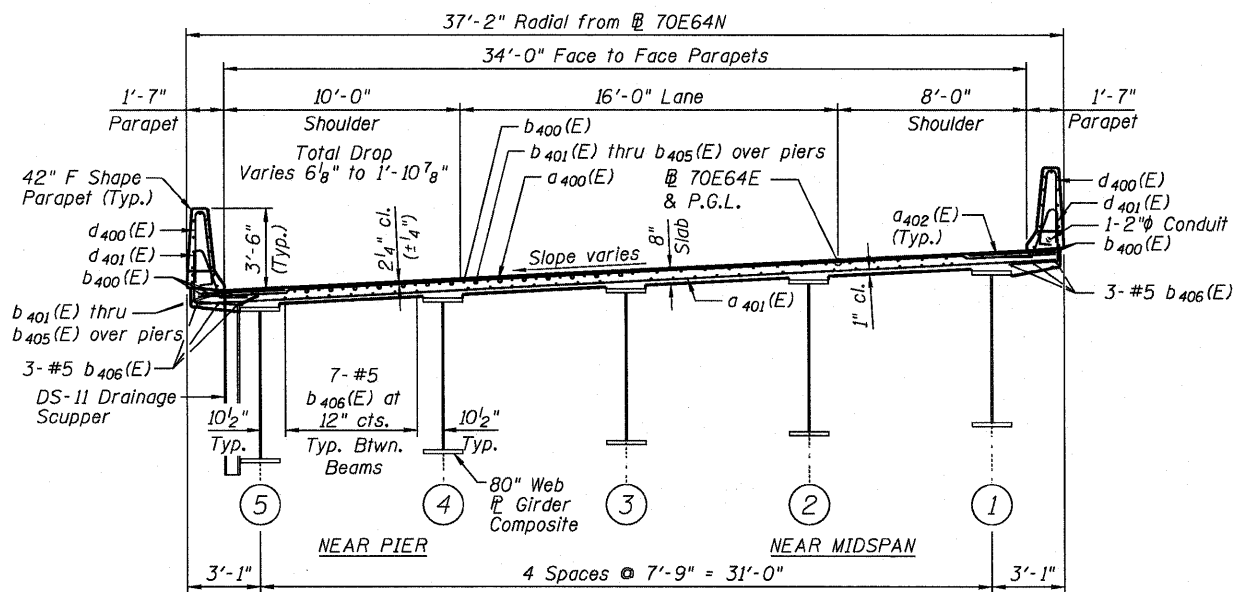
Note:  
Fasteners shall be AASHTO M164  
Type 1 mechanically galvanized bolts.  
Bolts 7/8" φ, holes 1 1/8" φ, unless  
noted otherwise.



D:\1\0820322-0820324-76C75-576-Parapet Details\1-482.dgn

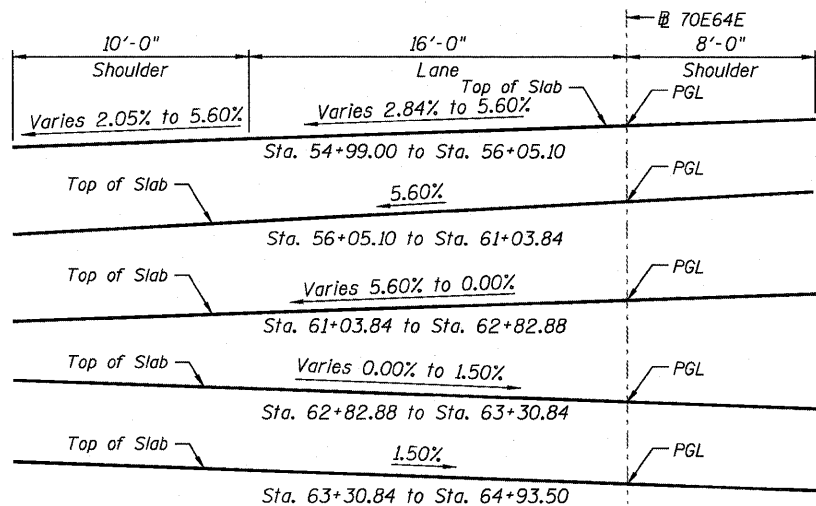
<b>AECOM</b>	<b>ZROKA</b> Engineering	USER NAME = Scott Whitney	DESIGNED - JLA	REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>PARAPET DETAILS - S.N. 082-0322</b> <b>I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		PLOT SCALE = 2.0000' / IN.	CHECKED - DAZ	REVISED -			70	82-1-B-2	ST. CLAIR	399	203
		PLOT DATE = 6/7/2011	DRAWN - SAW	REVISED -			S.N. 082-0322 & S.N. 082-0324	CONTRACT NO. 76C76	FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT	



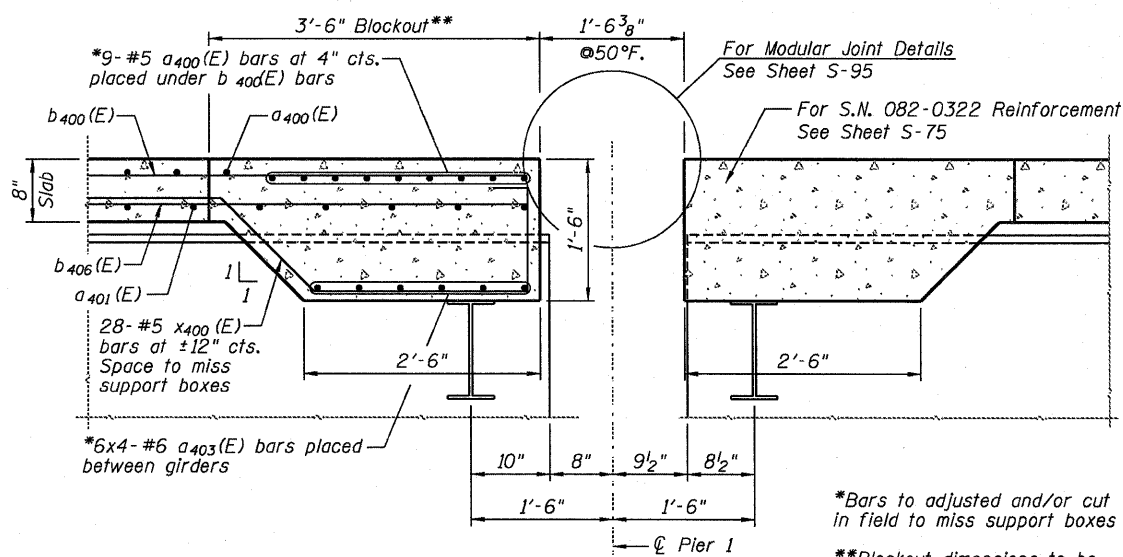


**CROSS SECTION**

(Looking Upstation)  
Dimensions Radial from 70E64N



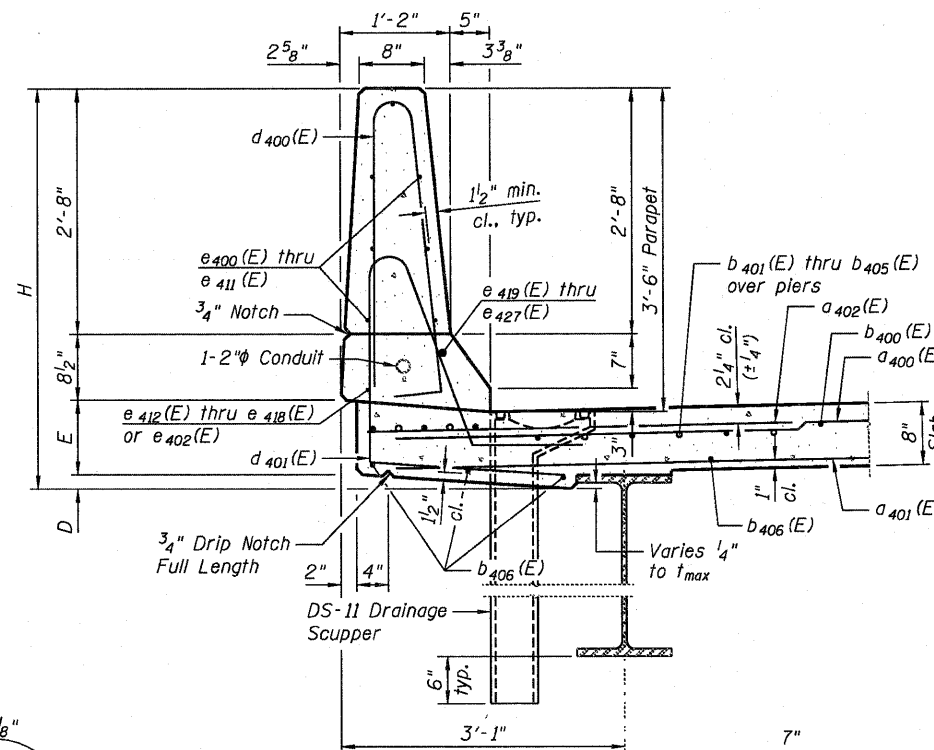
**DECK CROSS SLOPE DETAIL**



**SECTION D-D**

\*Bars to adjusted and/or cut in field to miss support boxes

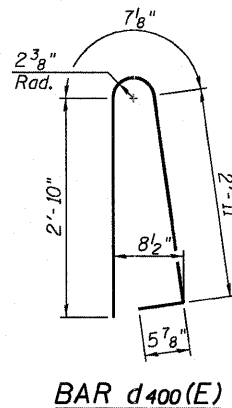
\*\*Blockout dimensions to be verified by Contractor with Joint Manufacturer



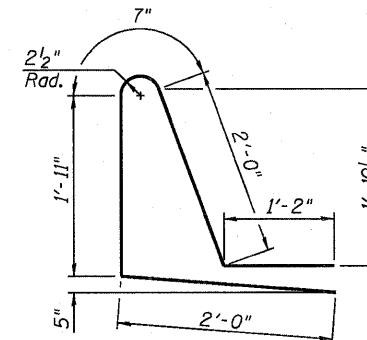
**SECTION THRU PARAPET**

**TABLE OF DIMENSIONS**

Girder	Parapet	D	E	H	t <sub>max</sub>
G5	North	4"	9 1/2"	4'-6"	3 1/2"
G1	South	5"	9 7/8"	4'-7 3/8"	4 1/8"

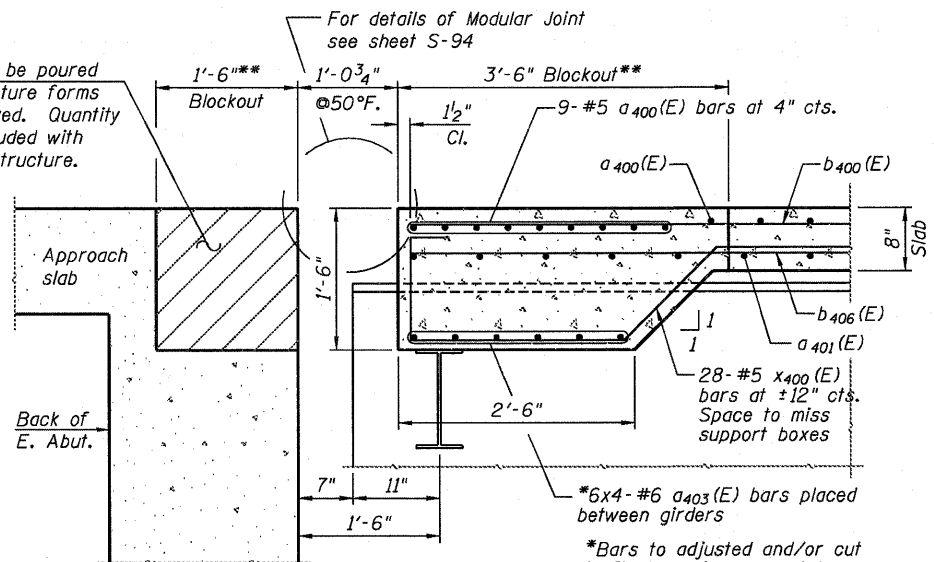


**BAR d400(E)**



**BAR d401(E)**

Hatched area to be poured after superstructure forms have been removed. Quantity of concrete included with Concrete Superstructure.



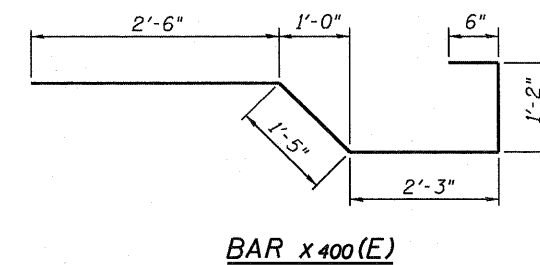
**SECTION E-E**

\*Bars to adjusted and/or cut in field to miss support boxes

\*\*Blockout dimensions to be verified by Contractor with Joint Manufacturer

**SUPERSTRUCTURE BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a400(E)	2189	#5	36'-6"	
a401(E)	1327	#5	36'-2"	
a402(E)	4340	#6	6'-6"	
a403(E)	48	#6	7'-6"	
a404(E)	40	#5	1'-6"	
b400(E)	1558	#5	29'-4"	
b401(E)	114	#6	30'-0"	
b402(E)	190	#6	24'-0"	
b403(E)	190	#6	25'-0"	
b404(E)	190	#6	24'-6"	
b405(E)	190	#6	24'-3"	
b406(E)	1326	#5	28'-8"	
d400(E)	2154	#5	6'-10"	
d401(E)	2154	#5	7'-8"	
e400(E)	7	#4	16'-6"	
e401(E)	77	#4	16'-8"	
e402(E)	160	#4	19'-8"	
e403(E)	84	#4	16'-4"	
e404(E)	7	#4	14'-5"	
e405(E)	182	#4	17'-5"	
e406(E)	14	#4	18'-7"	
e407(E)	7	#4	18'-4"	
e408(E)	203	#4	18'-8"	
e409(E)	7	#4	16'-8"	
e410(E)	14	#4	18'-8"	
e411(E)	14	#4	14'-11"	
e412(E)	5	#4	25'-4"	
e413(E)	4	#4	27'-0"	
e414(E)	5	#4	24'-6"	
e415(E)	12	#4	25'-6"	
e416(E)	22	#4	26'-8"	
e417(E)	4	#4	27'-5"	
e418(E)	12	#4	26'-4"	
e419(E)	4	#8	33'-7"	
e420(E)	4	#8	29'-10"	
e421(E)	4	#8	29'-4"	
e422(E)	20	#8	19'-8"	
e423(E)	4	#8	32'-6"	
e424(E)	10	#8	32'-9"	
e425(E)	10	#8	34'-1"	
e426(E)	8	#8	35'-2"	
e427(E)	10	#8	33'-9"	
x400(E)	56	#5	7'-10"	
Reinforcement Bars, Epoxy Coated		Pound	346,760	
Concrete Superstructure		Cu. Yd.	1,262.0	
Bridge Deck Grooving		Sq. Yd.	3,507	
Protective Coat		Sq. Yd.	4,672	
Conduit Embedded in Structure, 2" Dia., PVC		Feet	998	



**BAR x400(E)**

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USER NAME = Scott Whitney  
PLOT SCALE = 2.0000' / IN.  
PLOT DATE = 6/7/2011

DESIGNED - JLA  
CHECKED - DAZ  
DRAWN - SAW  
DATE - 07-01-2011

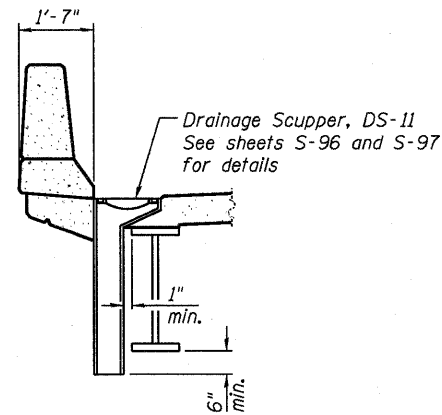
REVISED -  
REVISED -  
REVISED -  
REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

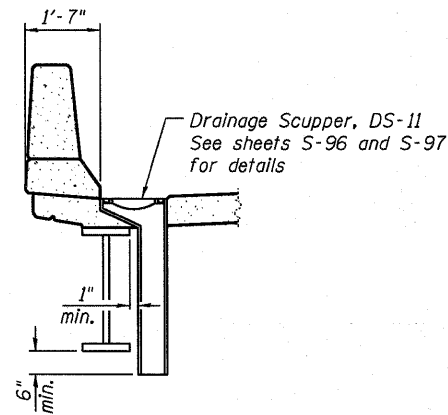
DECK CROSS SECTIONS & BILL OF MATERIAL - S.N.082-0324  
I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: NONE SHEET S-78 OF S-234 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	205
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

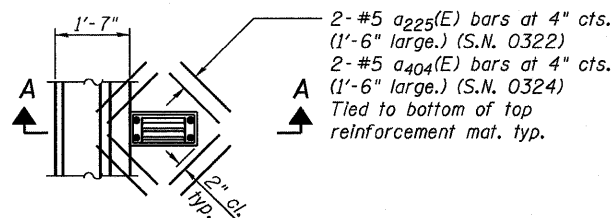


**SECTION A-A**



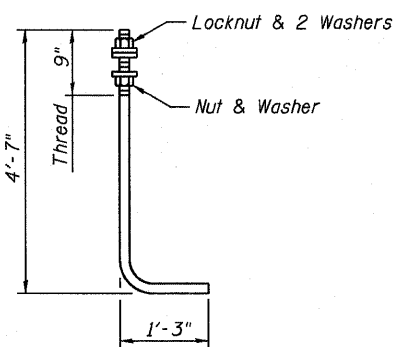
**SECTION A-A**

For scuppers at Sta. 53+00, Sta. 53+54, Sta. 53+90 and Sta. 54+93 along @ 70E64E



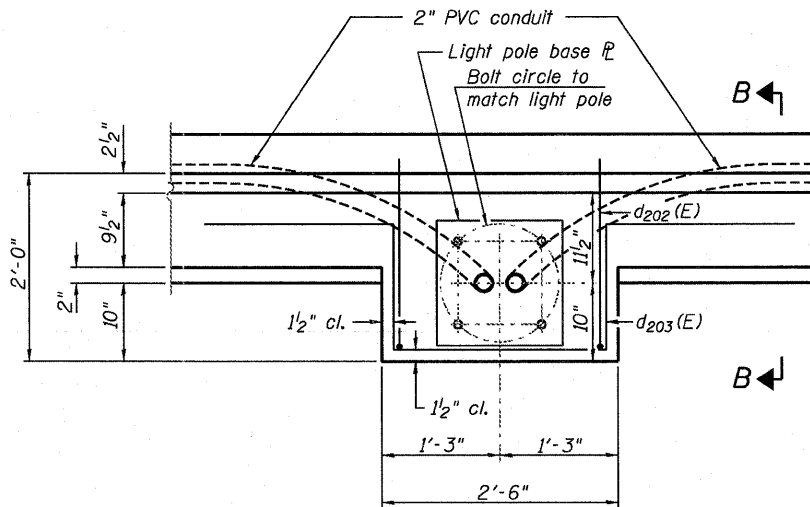
**DETAIL 1  
DRAINAGE SCUPPER**

Note:  
Cut longitudinal reinforcement to clear drainage scuppers.



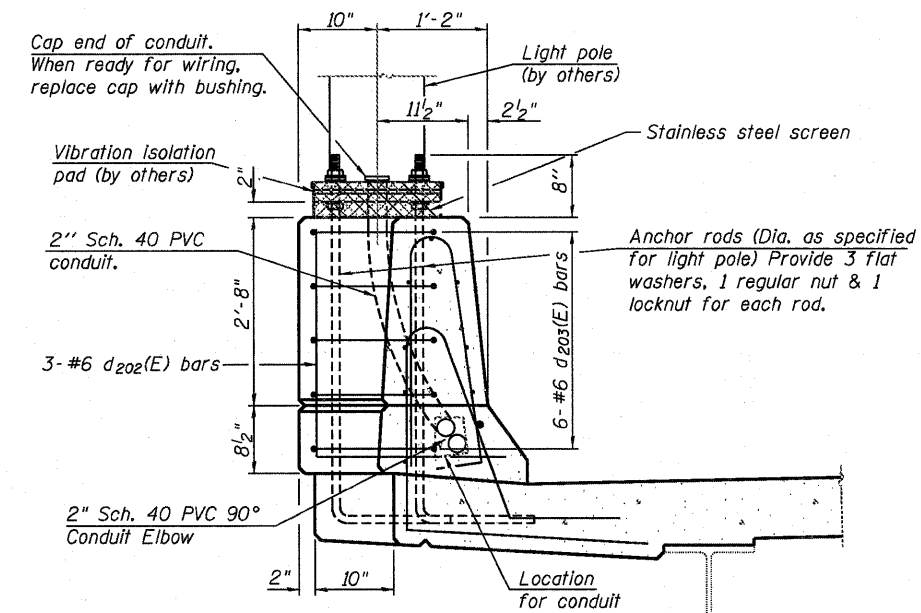
**ANCHOR ROD**

Diameter as specified for light poles.  
(ASTM F 1554 Grade 105)



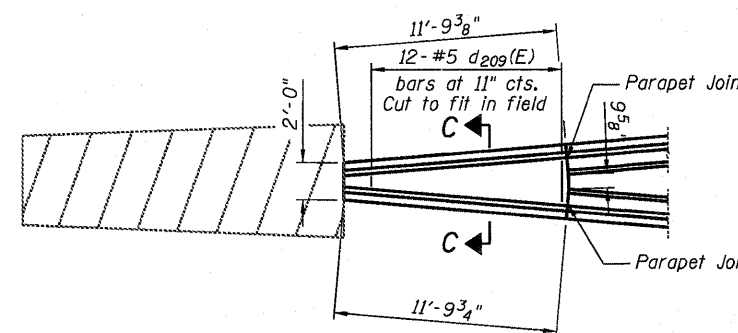
**PLAN**

Note:  
Cost of anchor rods is included with Concrete Superstructure.

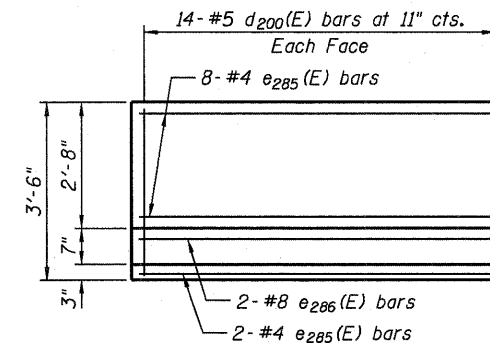


**SECTION B-B**

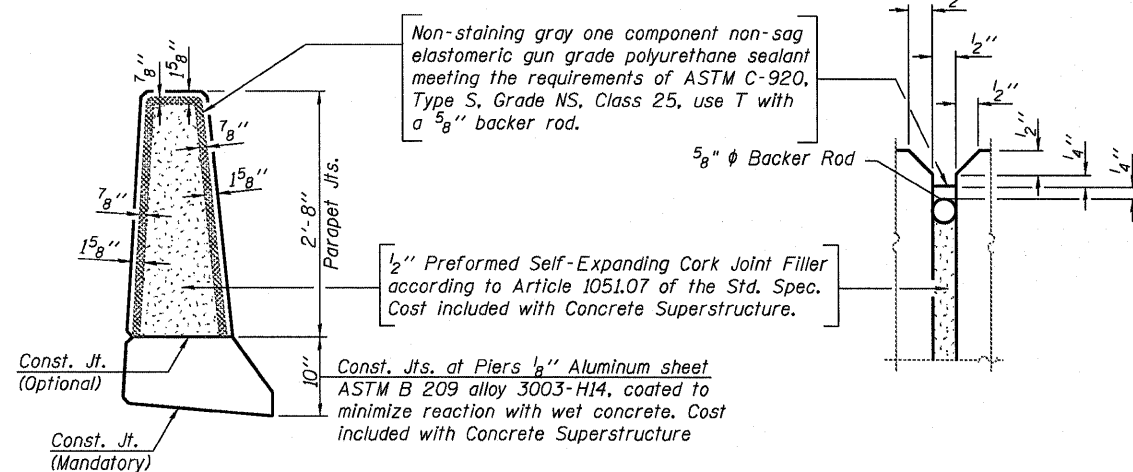
**DETAIL 2  
LIGHT POLE MOUNTED ON PARAPET**



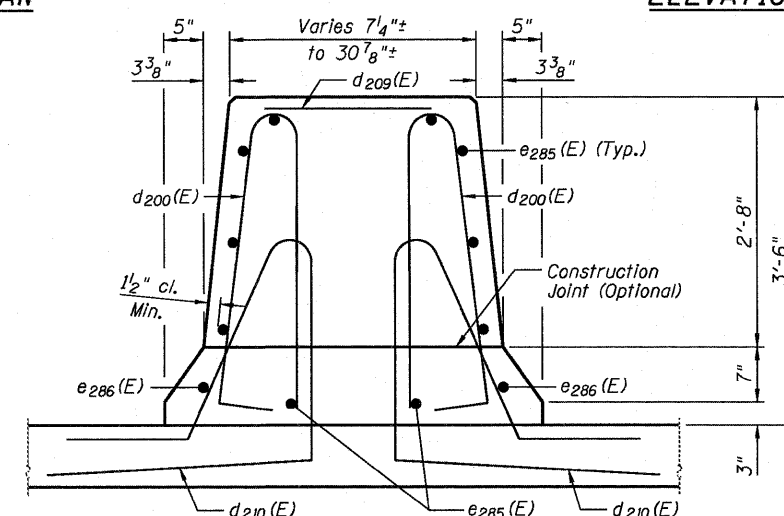
**PLAN**



**ELEVATION**



**PARAPET JOINT DETAILS**



**SECTION C-C**

**PARAPET END DETAILS**

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USER NAME = Scott Whitney  
PLOT SCALE = 2,000' / IN.  
PLOT DATE = 6/7/2011

DESIGNED - JLA  
CHECKED - DAZ  
DRAWN - SAW  
DATE - 07-01-2011

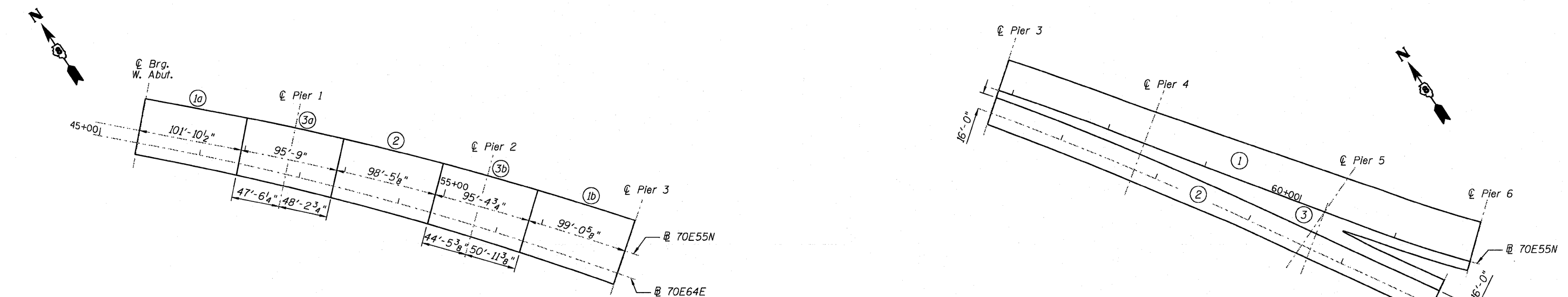
REVISED -  
REVISED -  
REVISED -  
REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**DECK DETAILS  
I-70E OVER I-55, CSX & KCS RAILROADS**

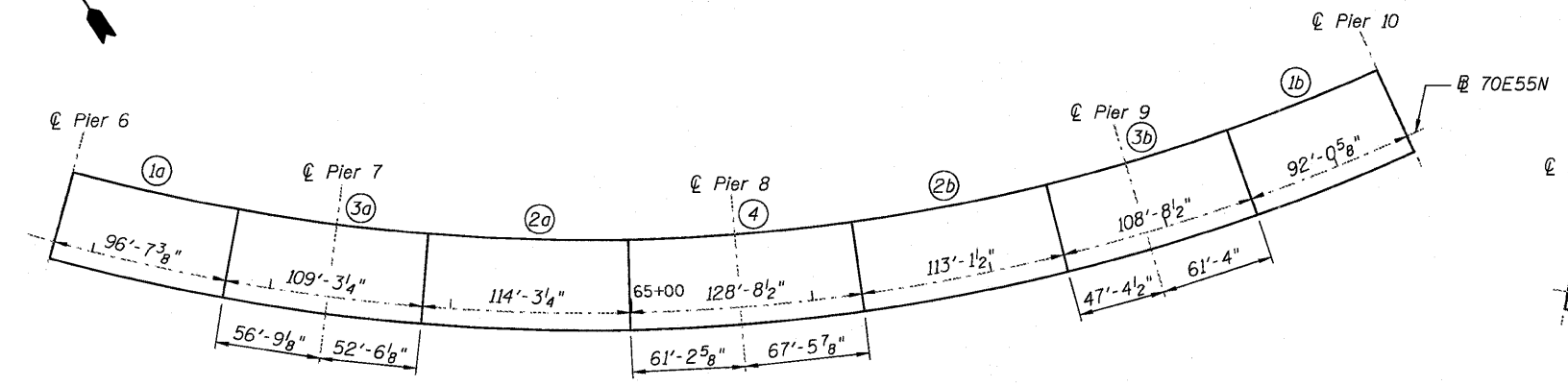
SCALE: NONE SHEET S-79 OF S-234 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	206
S.N. 082-0322 & S.N. 082-0324			CONTRACT NO. 76C76	
FED. ROAD DIST. NO.			ILLINOIS FED. AID PROJECT	

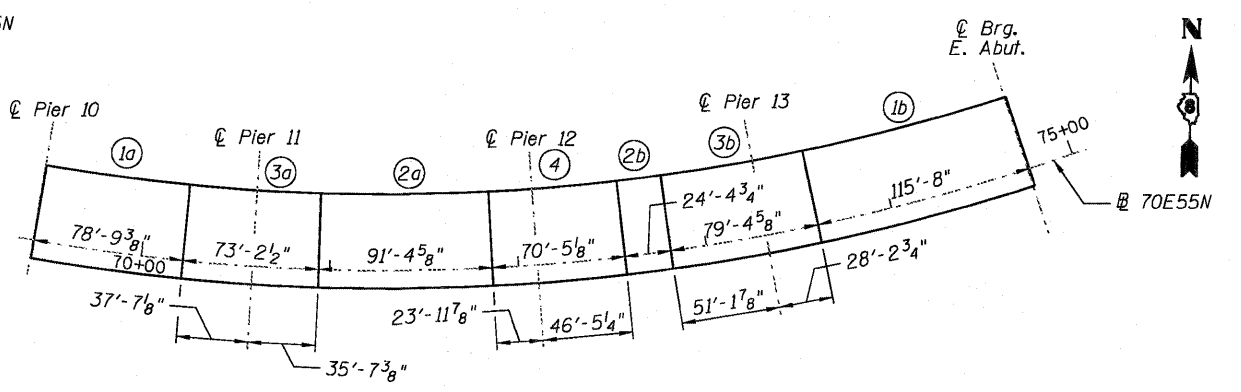


**UNIT 1 - S.N. 082-0322**  
Transverse joints radial to 70E55N

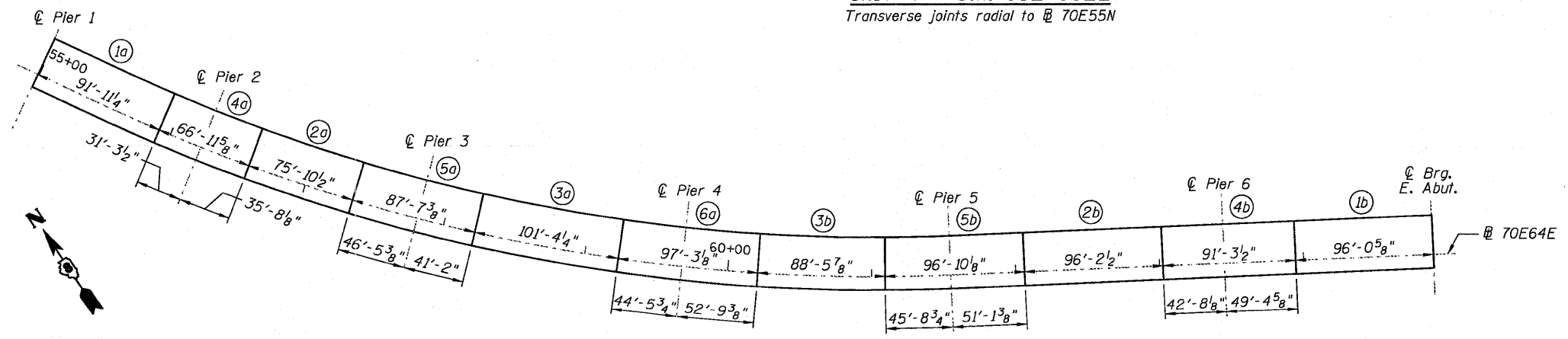
**UNIT 2 - S.N. 082-0322**  
Longitudinal Bonded Construction Joints



**UNIT 3 - S.N. 082-0322**  
Transverse joints radial to 70E55N



**UNIT 4 - S.N. 082-0322**  
Transverse joints radial to 70E55N



**S.N. 082-0324**  
Transverse joints radial to 70E64E

**DECK POURING SEQUENCE**

When the deck pour is stopped for the day at one or more of the transverse Bonded Construction Joints in the Deck Pouring Sequence as shown, the next pour shall not be made until both of the following requirements are met:

1. At least 72 hours shall have elapsed from the end of the previous pour.
2. The concrete strength shall have attained a minimum flexural strength of 650 psi or a minimum compressive strength of 3500 psi.

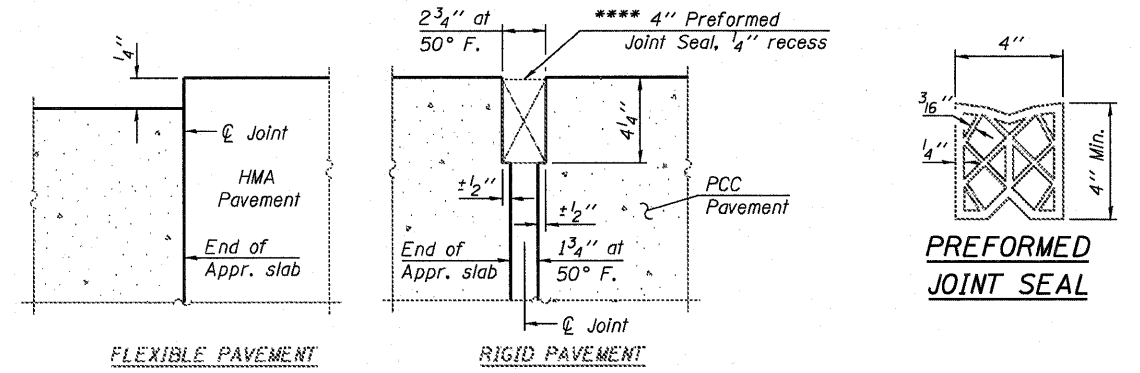
Numbers within the deck pouring sequence indicate the minimum number of group pours required for each unit. Letters next to the group pour numbers indicate the order if pour groups are further subdivided into individual pours. Deviation from this pour sequence requires approval from the Engineer.

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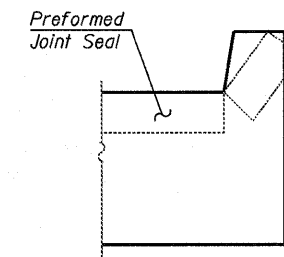
	USER NAME = Scott Whitney PLOT SCALE = 2.0000' / IN. PLOT DATE = 6/7/2011	DESIGNED - JLA CHECKED - DAZ DRAWN - SAW DATE - 07-01-2011	REVISED - REVISED - REVISED - REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>DECK POURING SEQUENCE</b> <b>I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>	F.A.I. RTE. = 70 SECTION = 82-1-B-2 S.N. 082-0322 & S.N. 082-0324 FED. ROAD DIST. NO. = ILLINOIS FED. AID PROJECT	COUNTY = ST. CLAIR TOTAL SHEETS = 399 SHEET NO. = 207	CONTRACT NO. 76C76
	SCALE: NONE SHEET 5-80 OF 5-234 SHEETS	SHEET NO. = 207						

Notes:  
See sheet S-82 for Sections C-C, D-D & F-F and Views B-B & H-H.  
a270(E) thru a273(E) bar spacings measured along  $\varnothing$  Rdwy.

\*\*\*\* Cost included with Concrete Superstructure.

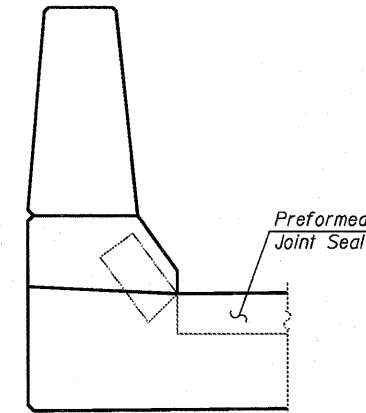


DETAIL A



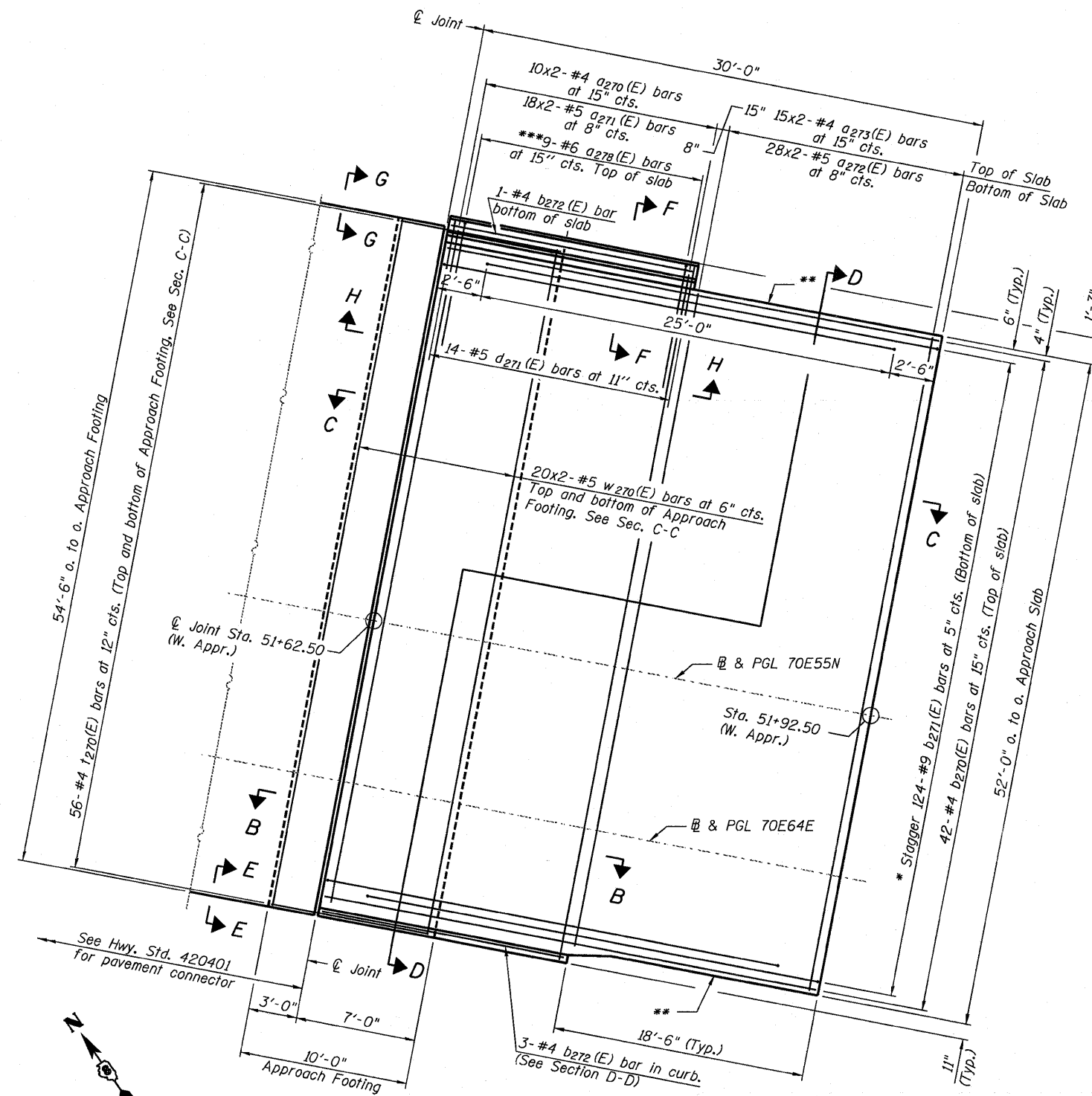
VIEW E-E

Angle Preformed Joint Seal at 45° at curbs when req'd for drainage.



VIEW G-G

Angle Preformed Joint Seal at 45° at curbs when req'd for drainage.



**WEST APPROACH SLAB PLAN - S.N. 082-0322**

- \* Tilt #9 b271(E) bars as required to maintain clearance.
- \*\* Closed cell joint filler according to Article 1051.08 of the Standard Specifications, full depth of slab, full length of parapet. Typical each parapet.
- \*\*\* Space between a270(E) bars.

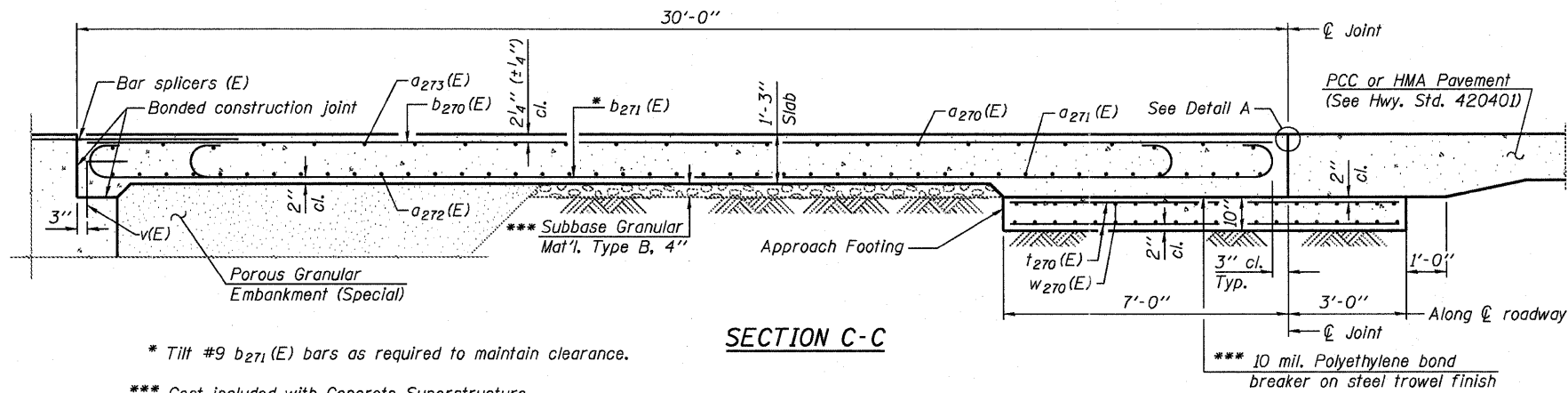
**MIN. BAR LAP**

- #4 bar = 2'-7"
- #5 bar = 3'-3"

DBITL-0820322-0820324-76C76-581-Mppr-Slab1-082.dgn

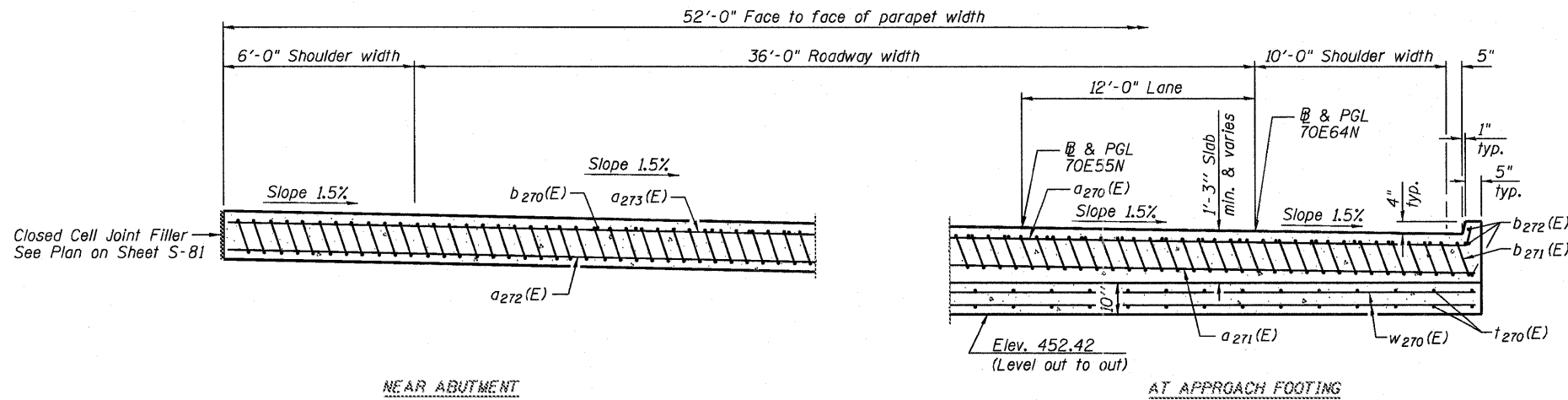
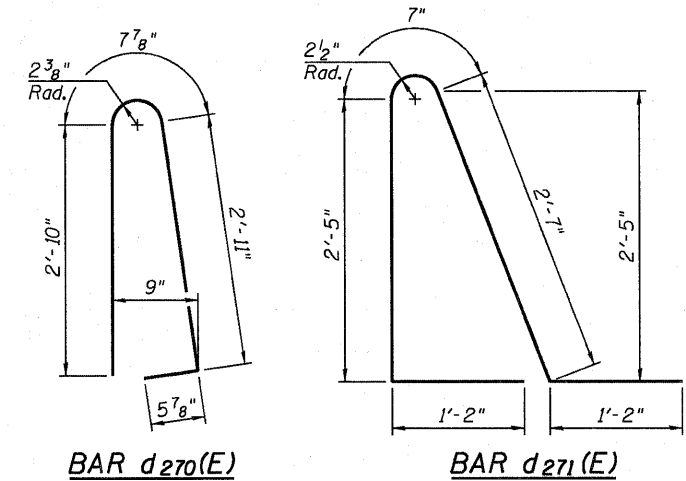
<b>AECOM</b>	<b>ZROKA</b> Engineering	USER NAME = Scott Whitney	DESIGNED - JLA	REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>WEST APPROACH SLAB PLAN - S.N. 082-0322</b> <b>I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>		F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		PLOT SCALE = 2.0000' / IN.	CHECKED - DAZ	REVISED -				70	82-1-B-2	ST. CLAIR	399	208
PLOT DATE = 6/7/2011	DRAWN - SAW	REVISED -	SCALE: NONE			SHEET S-81 OF S-234 SHEETS		S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
	DATE - 07-01-2011	REVISED -						FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		





\* Tilt #9 b271(E) bars as required to maintain clearance.  
 \*\*\* Cost included with Concrete Superstructure.

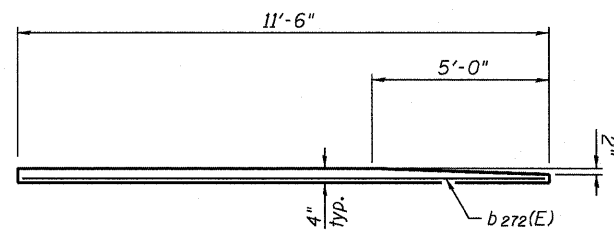
Notes:  
 See sheet S-81 for Detail A.  
 Approach slab and parapet concrete shall be paid for as Concrete Superstructure.  
 Approach footing concrete shall be paid for as Concrete Structures.  
 Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.  
 For v(E) bar details, see sheet S-140.  
 The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.  
 Cost of excavation for approach footing included with Concrete Structures.  
 For Porous Granular Embankment (Special) and drainage treatment details, see sheet S-6.



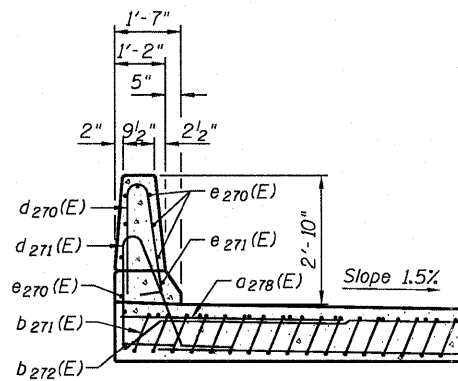
NEAR ABUTMENT

AT APPROACH FOOTING

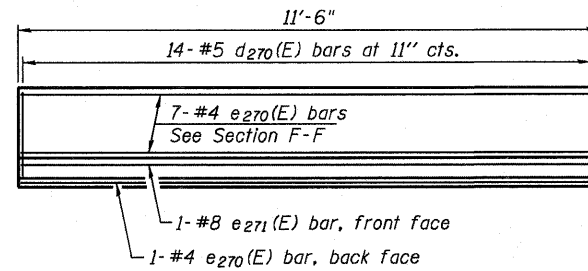
SECTION D-D  
 (See Plan for dimensions not shown)



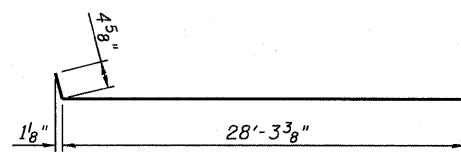
VIEW B-B



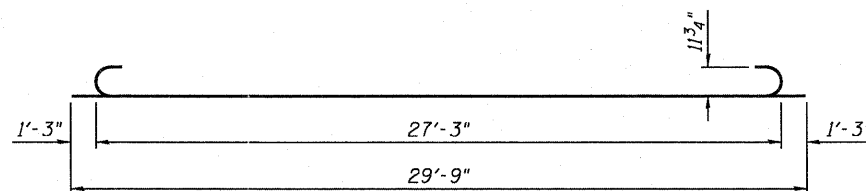
SECTION F-F



VIEW H-H



BAR a270(E)



BAR b271(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a270(E)	20	#4	28'-8"	U
a271(E)	36	#5	28'-9"	U
a272(E)	56	#5	27'-6"	U
a273(E)	30	#4	27'-2"	U
a278(E)	9	#6	6'-6"	U
b270(E)	42	#4	29'-8"	U
b271(E)	124	#9	29'-9"	U
b272(E)	4	#4	11'-2"	U
d270(E)	14	#5	6'-11"	U
d271(E)	14	#5	7'-11"	U
e270(E)	8	#4	11'-2"	U
e271(E)	1	#8	11'-2"	U
t270(E)	112	#4	9'-8"	U
w270(E)	80	#5	28'-9"	U
Concrete Superstructure	Cu. Yd.		80.6	
Concrete Structures	Cu. Yd.		16.8	
Reinforcement Bars, Epoxy Coated	Pound		20,540	
Bridge Deck Grooving	Sq. Yd.		169	
Protective Coat	Sq. Yd.		182	

D:\F1\0820322-0820324-76716-582-4\ppr\slab2-022.dgn



USER NAME = Scott Whitney  
 DESIGNED - JLA  
 CHECKED - DAZ  
 PLOT SCALE = 2.0000' / IN.  
 DRAWN - SAW  
 PLOT DATE = 6/7/2011  
 DATE - 07-01-2011

REVISIONS:  
 REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

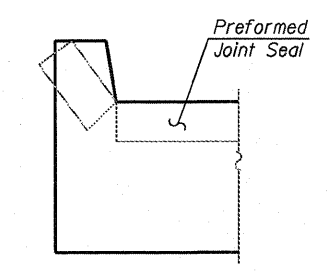
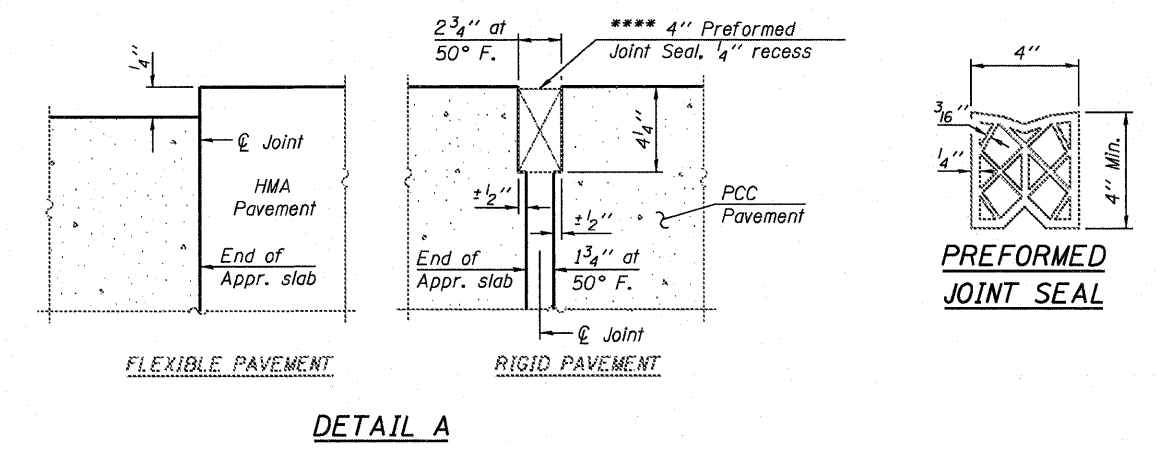
WEST APPROACH SLAB DETAILS - S.N. 082-0322  
 I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: NONE SHEET S-82 OF S-234 SHEETS

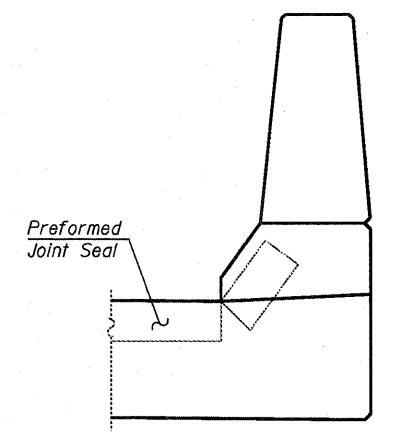
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	209
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

Notes:  
See sheet S-84 for Sections C-C, D-D & H-H and Views B-B & G-G.  
a274(E) thru a277(E) bar spacings measured along  $\phi$  Rdwy.

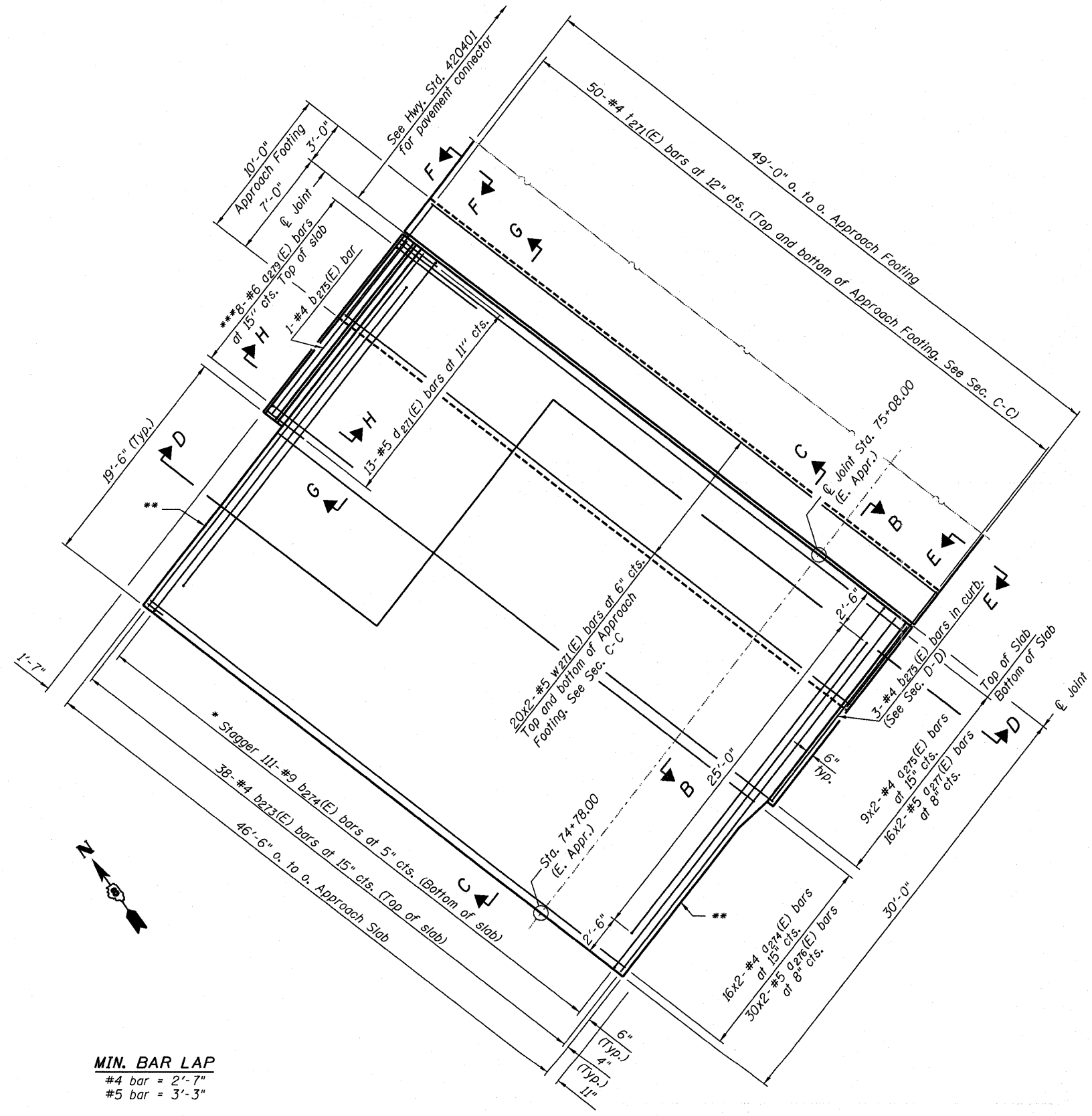
\*\*\*\* Cost included with Concrete Superstructure.



Angle Preformed Joint Seal at 45° at curbs when req'd for drainage.



Angle Preformed Joint Seal at 45° at curbs when req'd for drainage.



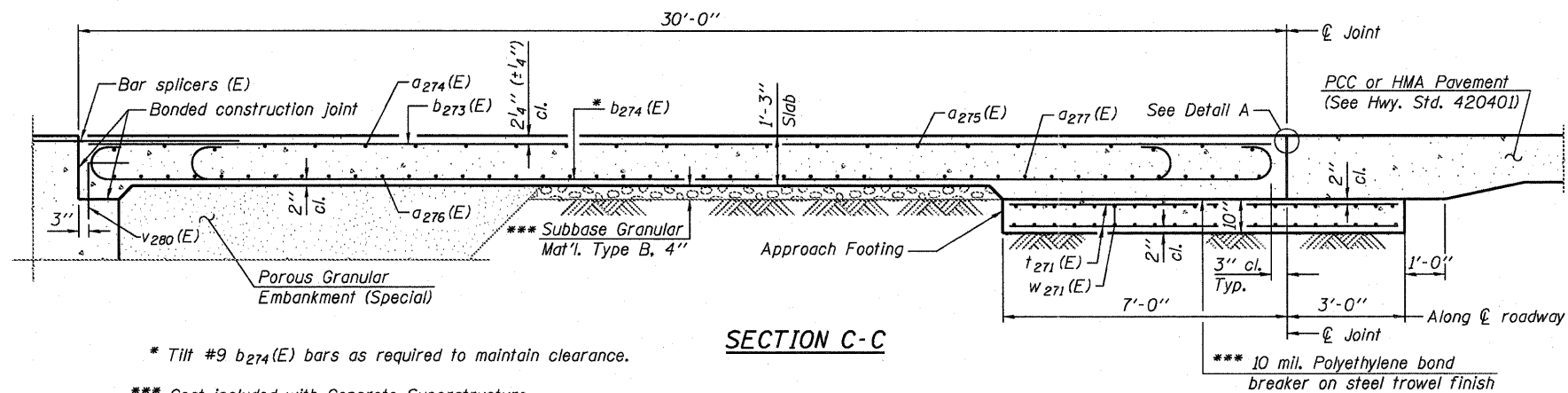
**MIN. BAR LAP**  
#4 bar = 2'-7"  
#5 bar = 3'-3"

**EAST APPROACH SLAB PLAN - S.N. 082-0322**

- \* Tilt #9 b274(E) bars as required to maintain clearance.
- \*\* Closed cell joint filler according to Article 1051.08 of the Standard Specifications, full depth of slab, full length of parapet. Typical each parapet.
- \*\*\* Space between a275(E) bars.

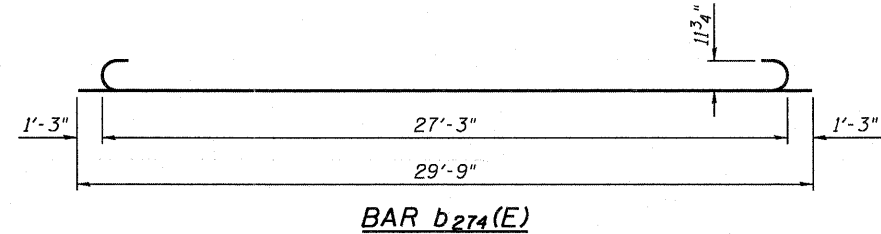
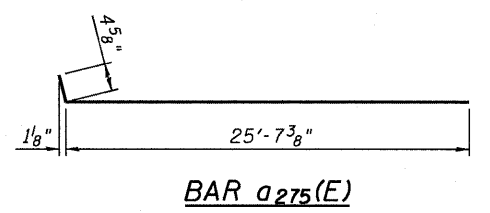
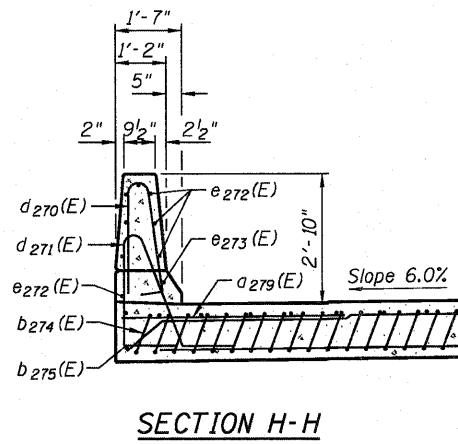
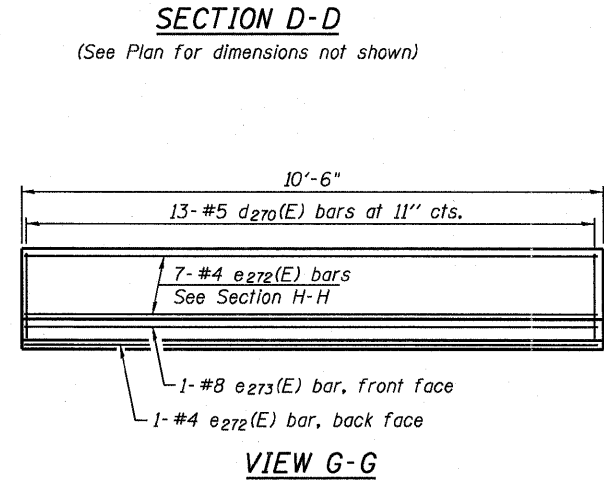
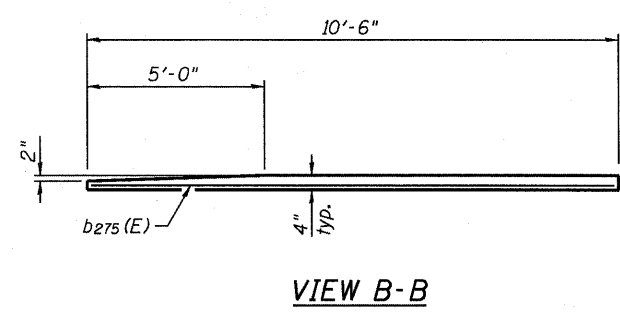
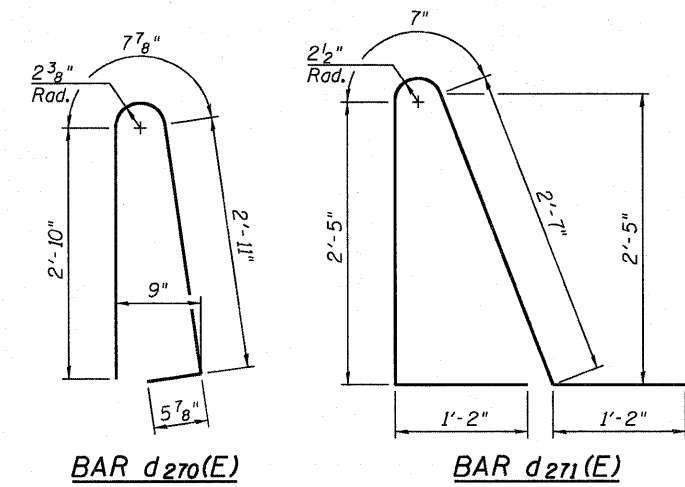
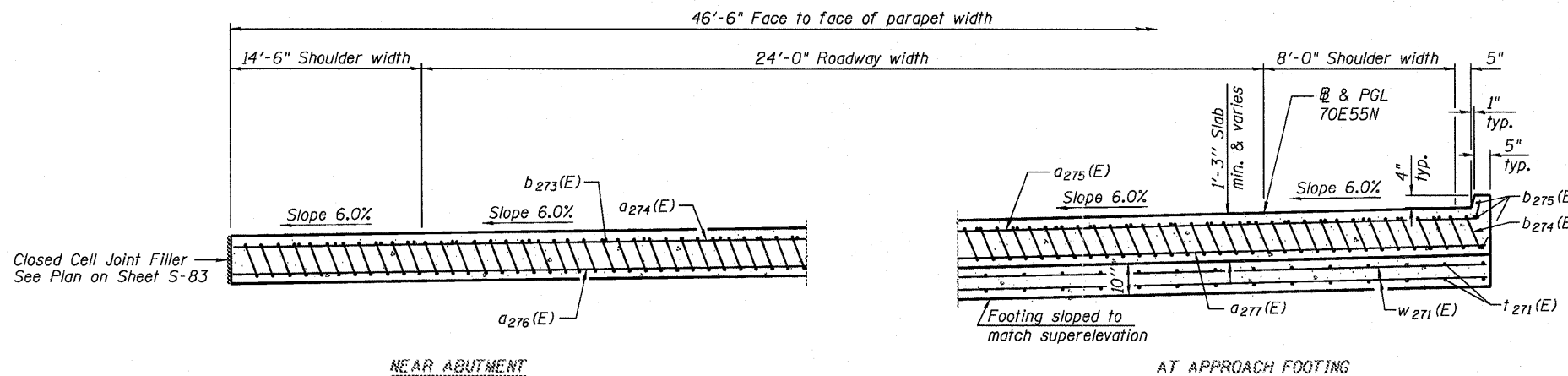
DB:TR-0820322-0820324-76775-583-EAppr-Slab1-0822.dgn

	USER NAME = Scott Whitney PLOT SCALE = 2.0000' / IN. PLOT DATE = 6/7/2011	DESIGNED - JLA CHECKED - DAZ DRAWN - SAW DATE - 07-01-2011	REVISED - REVISED - REVISED - REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>EAST APPROACH SLAB PLAN - S.N. 082-0322 I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>	F.A.I. RTE. 70 SECTION 82-1-B-2 S.N. 082-0322 & S.N. 082-0324 FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT	COUNTY ST. CLAIR TOTAL SHEETS 399 SHEET NO. 210	CONTRACT NO. 76C76
	SCALE: NONE SHEET S-83 OF S-234 SHEETS	SHEET NO. 210						



\* Tilt #9 b274(E) bars as required to maintain clearance.  
 \*\*\* Cost included with Concrete Superstructure.

Notes:  
 See sheet S-83 for Detail A.  
 Approach slab and parapet concrete shall be paid for as Concrete Superstructure.  
 Approach footing concrete shall be paid for as Concrete Structures.  
 Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.  
 For v280(E) bar details, see sheet S-143.  
 The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.  
 Cost of excavation for approach footing included with Concrete Structures.  
 For Porous Granular Embankment (Special) and drainage treatment details, see sheet S-6.

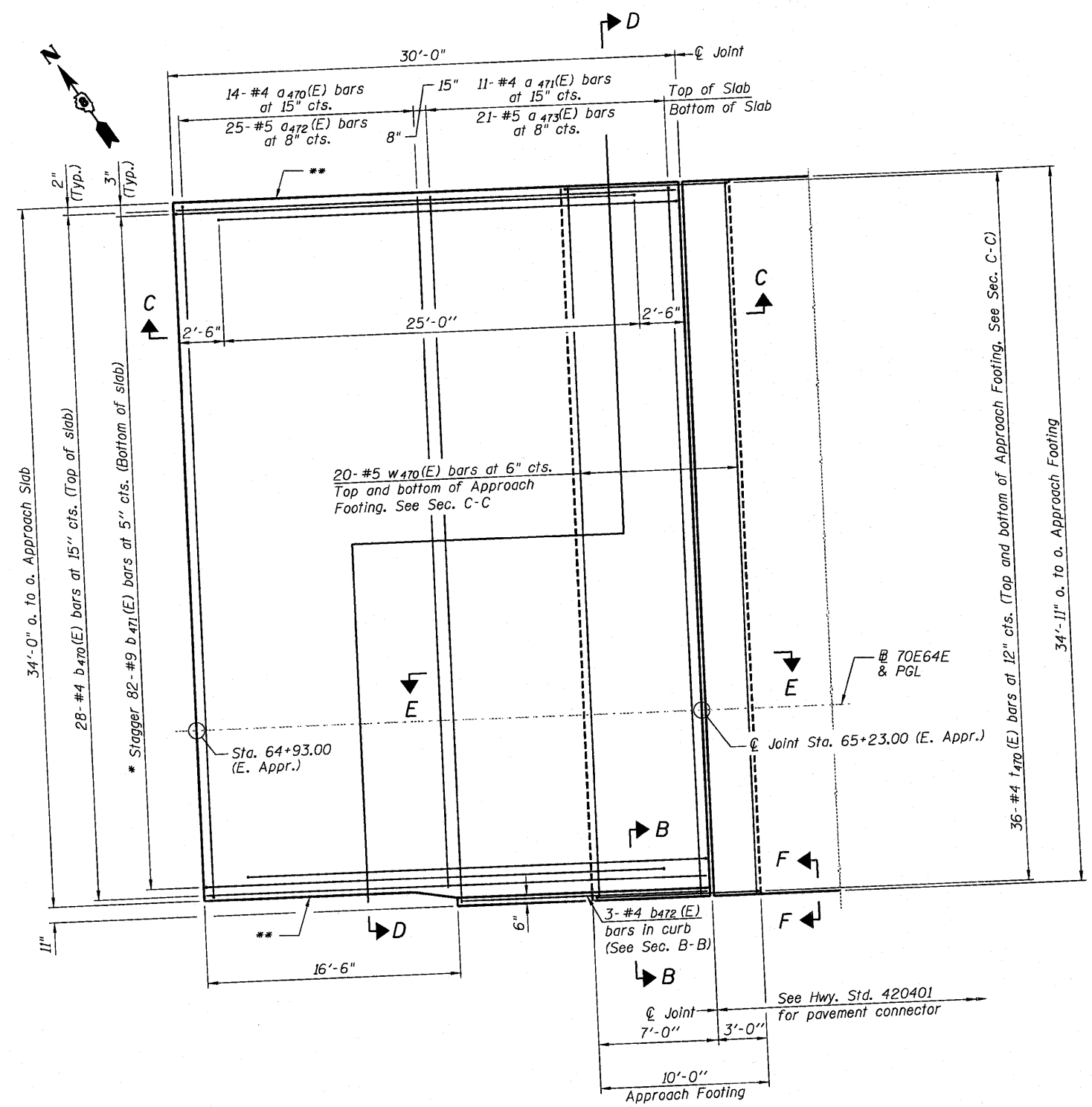


**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a274(E)	32	#4	24'-5"	—
a275(E)	18	#4	26'-0"	—
a276(E)	60	#5	24'-9"	—
a277(E)	32	#5	26'-0"	—
a279(E)	8	#6	6'-6"	—
b273(E)	38	#4	29'-8"	—
b274(E)	111	#9	29'-9"	—
b275(E)	4	#4	10'-2"	—
d270(E)	13	#5	6'-11"	U
d271(E)	13	#5	7'-11"	U
e272(E)	8	#4	10'-2"	—
e273(E)	1	#8	10'-2"	—
t271(E)	100	#4	9'-8"	—
w271(E)	80	#5	26'-0"	—
Concrete Superstructure		Cu. Yd.	72.3	
Concrete Structures		Cu. Yd.	15.1	
Reinforcement Bars, Epoxy Coated		Pound	18,440	
Bridge Deck Grooving		Sq. Yd.	150	
Protective Coat		Sq. Yd.	164	

DB 11-0820322-0820324-76276-584-E:\pwr-slab2-022.dgn

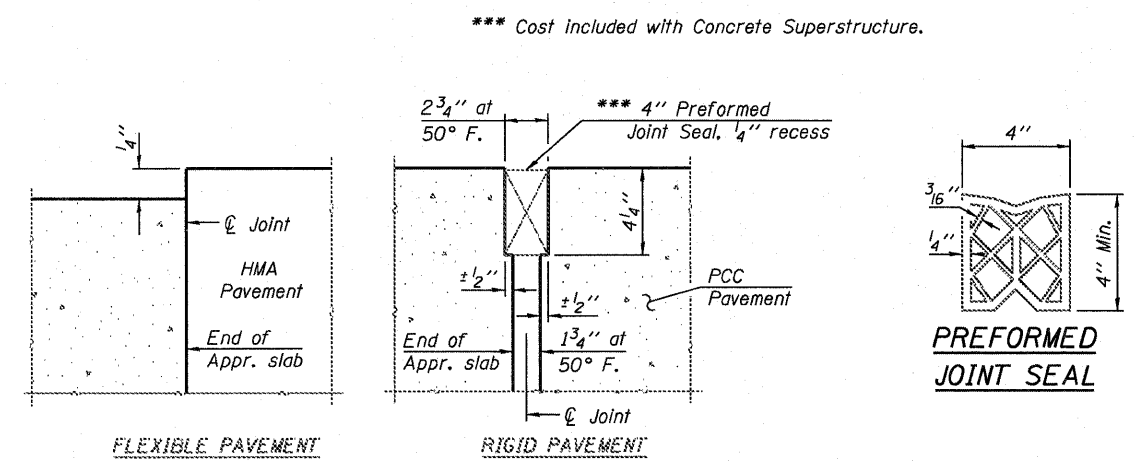
Notes:  
See sheet S-86 for Sections B-B, C-C & D-D and View E-E.  
a470(E) thru a473(E) bar spacings measured along  $\phi$  Rdwy.



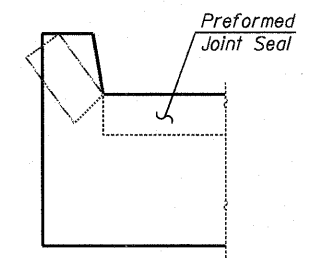
**EAST APPROACH SLAB PLAN - S.N. 082-0324**

\* Tilt #9 b471(E) bars as required to maintain clearance.  
\*\* Closed cell joint filler according to Article 1051.08 of the Standard Specifications, full depth of slab, full length of parapet.

**MIN. BAR LAPS**  
#4 bar = 2'-7"  
#5 bar = 3'-3"



**DETAIL A**

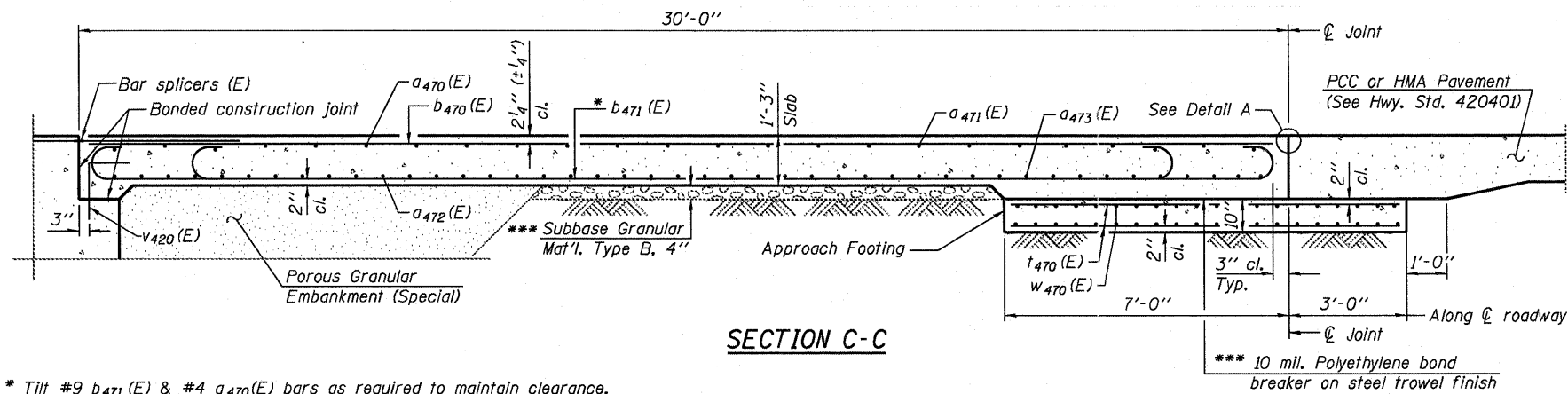


**VIEW F-F**

Angle Preformed Joint Seal at 45° at curbs when req'd for drainage.

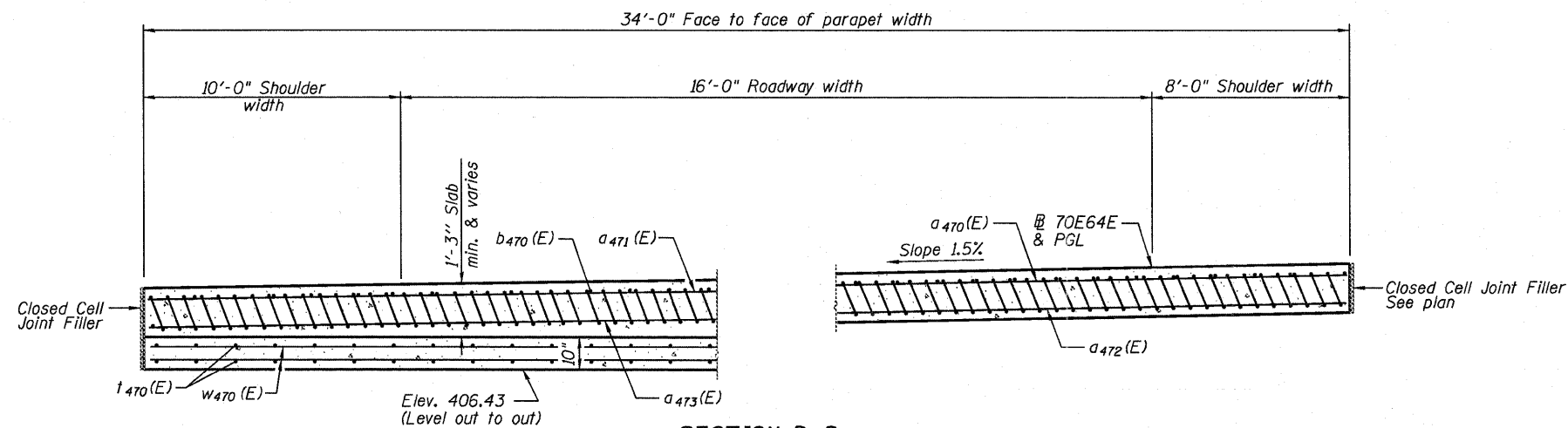
DBT1-0820322-0820324-76C76-SB5-EAppr-Slab1-021.dgn

		USER NAME = Scott Whitney	DESIGNED - JLA	REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>EAST APPROACH SLAB PLAN - S.N. 082-0324</b> <b>I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>		F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 212
		PLOT SCALE = 2.0000' / IN.	DRAWN - SAW	REVISED -		SCALE: NONE	SHEET S-85 OF S-234 SHEETS	S.N. 082-0322 & S.N. 082-0324	CONTRACT NO. 76C76		FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT	
		PLOT DATE = 6/7/2011	DATE - 07-01-2011	REVISED -								

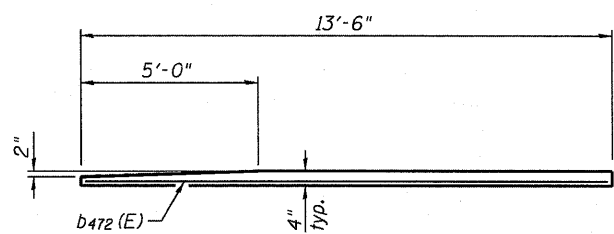


\* Tilt #9 b471 (E) & #4 a470 (E) bars as required to maintain clearance.

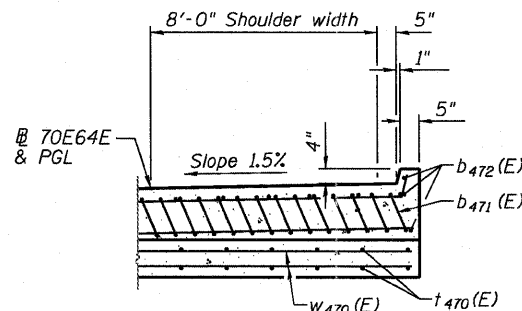
\*\*\* Cost included with Concrete Superstructure.



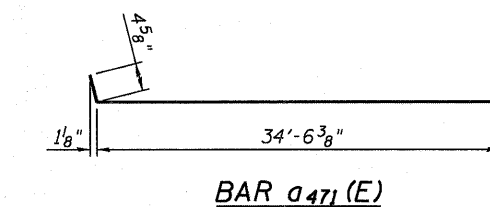
SECTION D-D  
(See Plan for dimensions not shown)



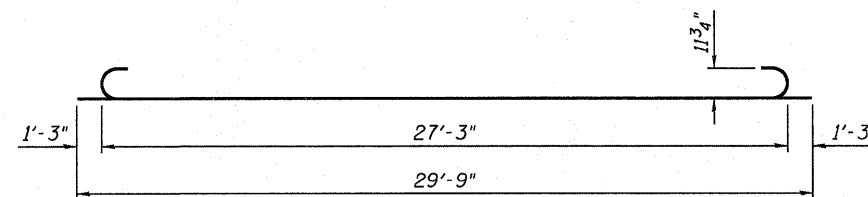
VIEW E-E



SECTION B-B



BAR a471 (E)



BAR b471 (E)

Notes:

- See sheet S-85 for Detail A.
- Approach slab and parapet concrete shall be paid for as Concrete Superstructure.
- Approach footing concrete shall be paid for as Concrete Structures.
- Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
- For v420 (E) bar details, see sheet S-146.
- The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
- Cost of excavation for approach footing included with Concrete Structures.
- For Porous Granular Embankment (Special) and drainage treatment details, see sheet S-6.

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a470 (E)	14	#4	33'-8"	—
a471 (E)	11	#4	34'-11"	—
a472 (E)	25	#5	33'-8"	—
a473 (E)	21	#5	34'-7"	—
b470 (E)	28	#4	29'-8"	—
b471 (E)	82	#9	29'-9"	—
b472 (E)	3	#4	13'-2"	—
t470 (E)	72	#4	9'-8"	—
w470 (E)	40	#5	34'-7"	—
Concrete Superstructure			Cu. Yd.	51.3
Concrete Structures			Cu. Yd.	10.8
Reinforcement Bars, Epoxy Coated			Pound	13,000
Bridge Deck Grooving			Sq. Yd.	108
Protective Coat			Sq. Yd.	116

DB1R1-0820322-0820324-7676-586-EApprSlab2-02.dgn

AECOM

ZROKA Engineering

USER NAME = Scott Whitney  
 PLOT SCALE = 2.0000' / IN.  
 PLOT DATE = 6/7/2011

DESIGNED - JLA  
 CHECKED - DAZ  
 DRAWN - SAW  
 DATE - 07-01-2011

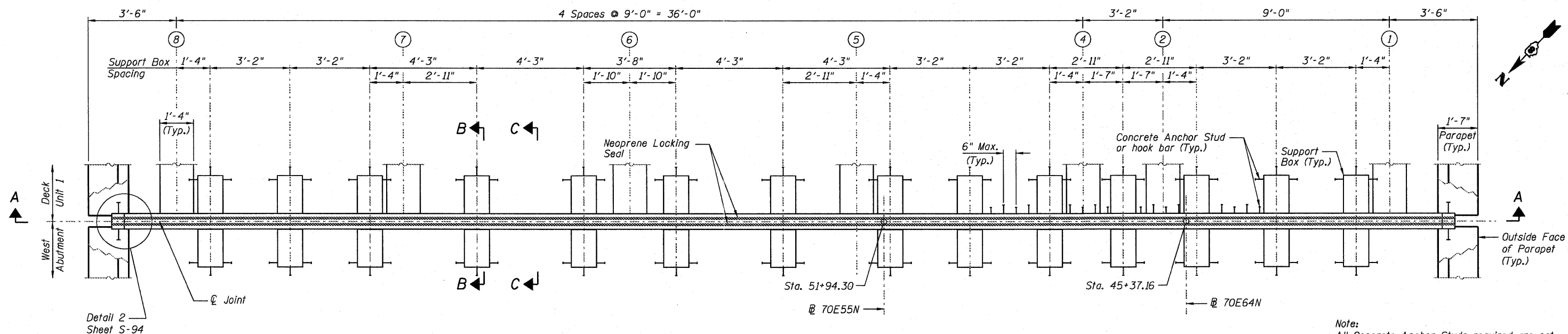
REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

EAST APPROACH SLAB DETAILS - S.N. 082-0324  
 I-70E OVER I-55, CSX & KCS RAILROADS

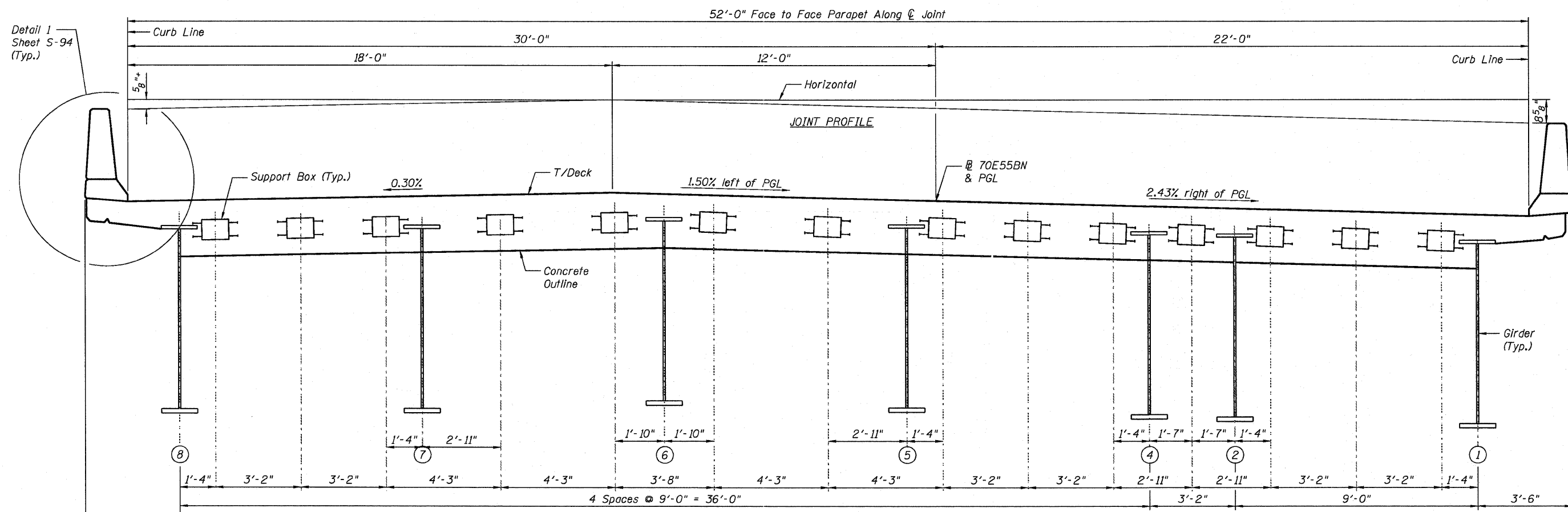
SCALE: NONE SHEET S-86 OF 5-234 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	213
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		



**PLAN**

Note:  
All Concrete Anchor Studs required are not shown on plans for clarity.



**SECTION A - A**  
(Looking Upstation)

**TABLE A**

Location	Longitudinal Movement (Inch)	Size (Inch)
W. Abut.	4.75"	6"

**BILL OF MATERIAL**

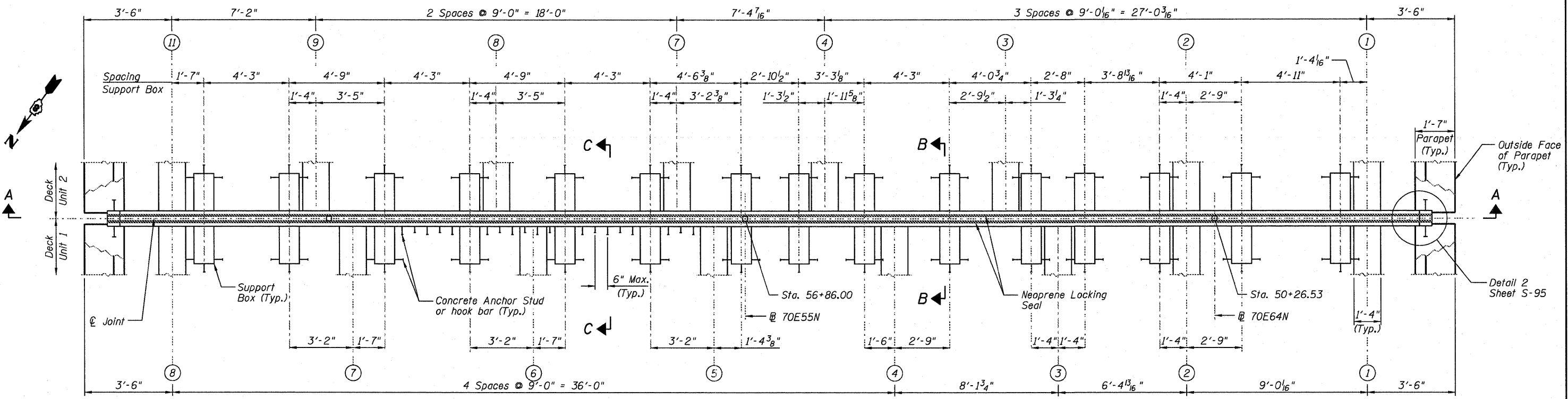
Item	Unit	Total
Modular Expansion Joint-Swivel, 6"	Foot	52

For General Notes, see Sheet S-93.

For Sections B-B and C-C, see Sheet S-94.

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<b>AECOM</b>	<b>ZROKA</b> <small>Engineering</small>	USER NAME = Scott Whitney	DESIGNED - JLA	REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>MODULAR EXPANSION JOINT - S.N. 082-0322 - WEST ABUTMENT</b> <b>I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>	F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 214
		PLOT SCALE = 2.0000' / IN.	DRAWN - SAW	REVISED -			S.N. 082-0322 & S.N. 082-0324	CONTRACT NO. 76C76			
		PLOT DATE = 6/7/2011	DATE - 07-01-2011	REVISED -		SCALE: NONE	SHEET S-87 OF S-234 SHEETS	FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT		



Note:  
All Concrete Anchor Studs required are not shown on plans for clarity.

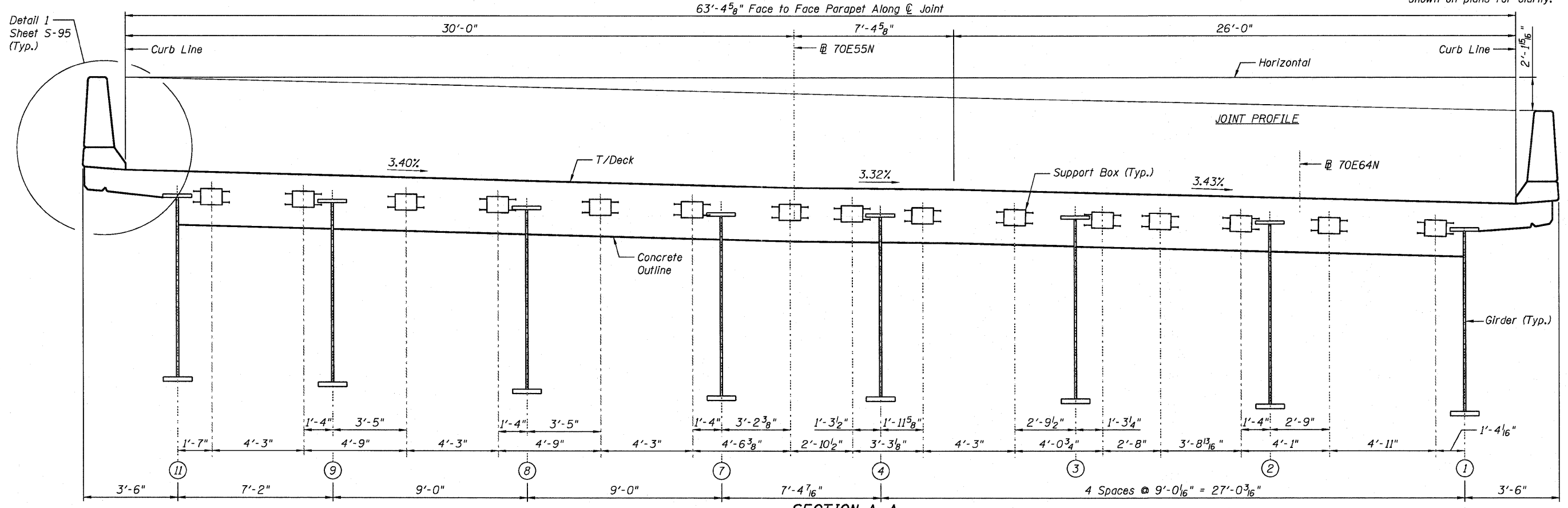


TABLE A

Location	Longitudinal Movement (Inch)	Size (Inch)
Pier 3	6.66"	9"

BILL OF MATERIAL

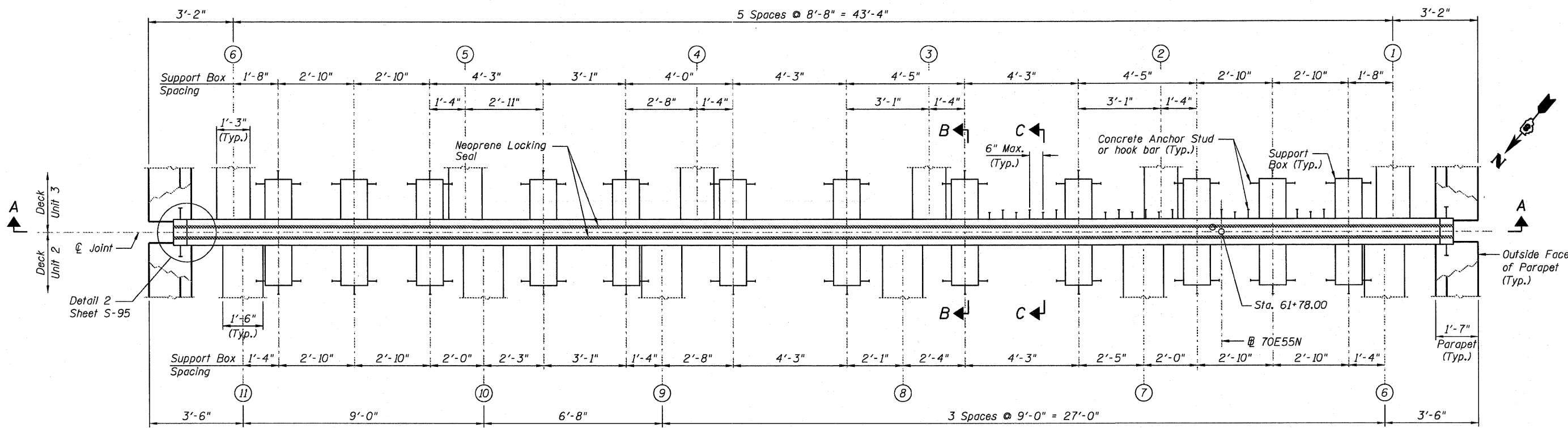
Item	Unit	Total
Modular Expansion Joint-Swivel, 9"	Foot	63.5

For General Notes, see Sheet S-93.

For Sections B-B and C-C, see Sheet S-95.

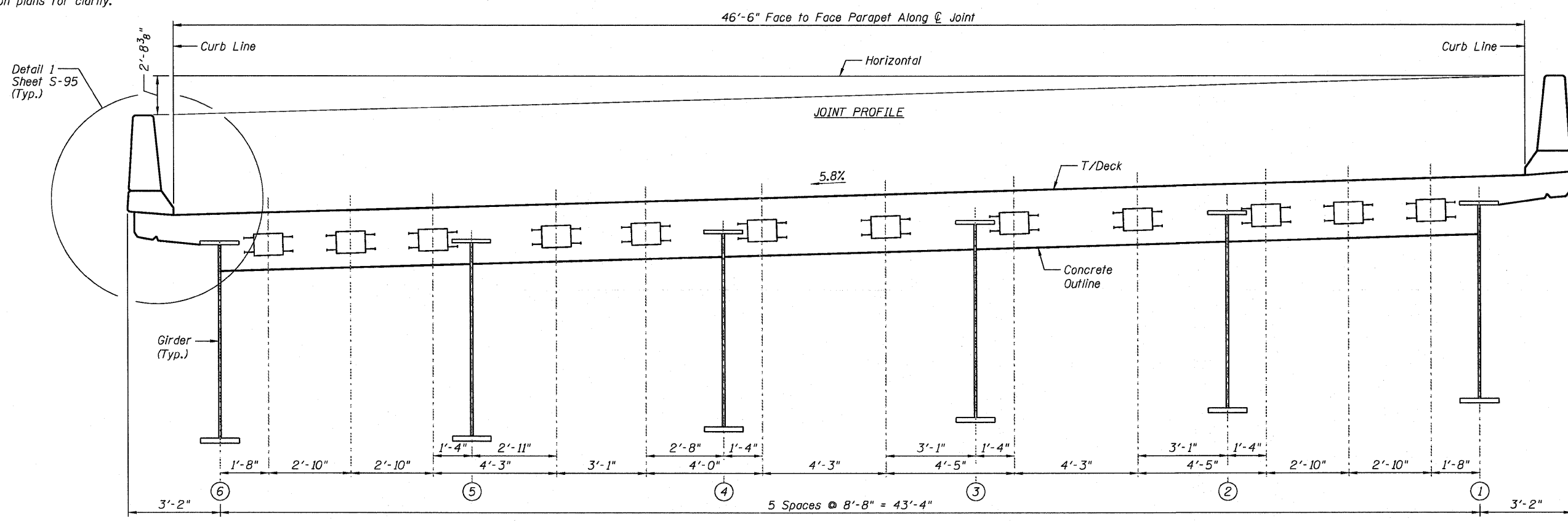
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	USER NAME = Scott Whitney PLOT SCALE = 2.0000' / IN. PLOT DATE = 6/7/2011	DESIGNED - JLA CHECKED - DAZ DRAWN - SAW DATE - 07-01-2011	REVISED - REVISED - REVISED - REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>MODULAR EXPANSION JOINT - S.N. 082-0322 - PIER 3</b> <b>I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>	F.A.I. RTE. 70 SECTION 82-1-B-2 S.N. 082-0322 & S.N. 082-0324 FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT	COUNTY ST. CLAIR TOTAL SHEETS 399 SHEET NO. 215
	SCALE: NONE SHEET S-88 OF S-234 SHEETS		CONTRACT NO. 76C76				



Note:  
All Concrete Anchor Studs required are not shown on plans for clarity.

PLAN



SECTION A-A  
(Looking Upstation)

TABLE A

Location	Longitudinal Movement (Inch)	Size (Inch)
Pier 6	8.34"	9"

BILL OF MATERIAL

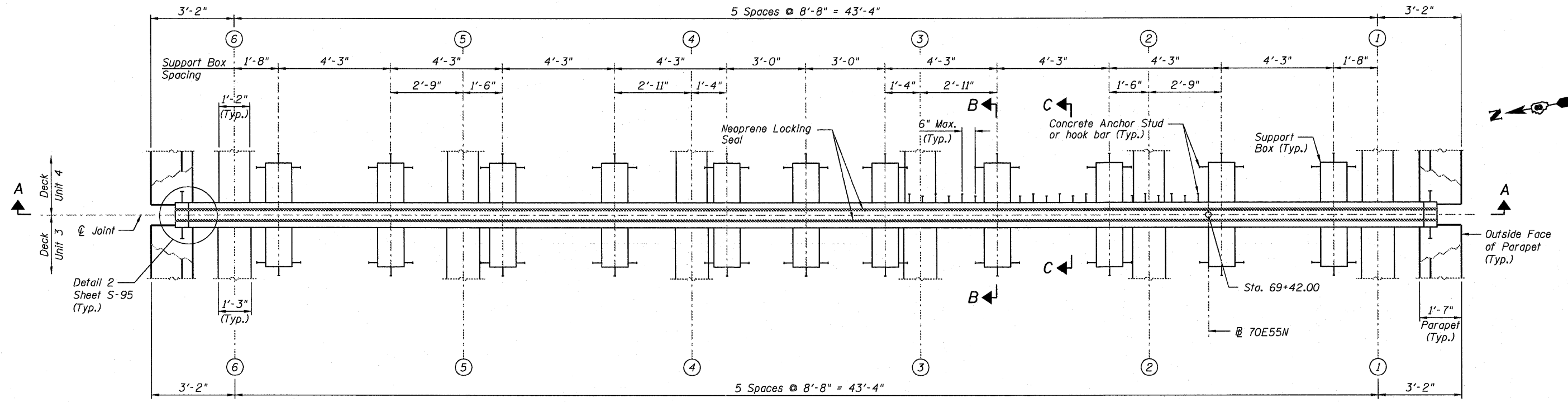
Item	Unit	Total
Modular Expansion Joint-Swivel, 9"	Foot	46.5

For General Notes, see Sheet S-93.  
For Sections B-B and C-C, see Sheet S-95.

DB:R1-0820322-0820324-76776-S99-HELP-6-022.dgn

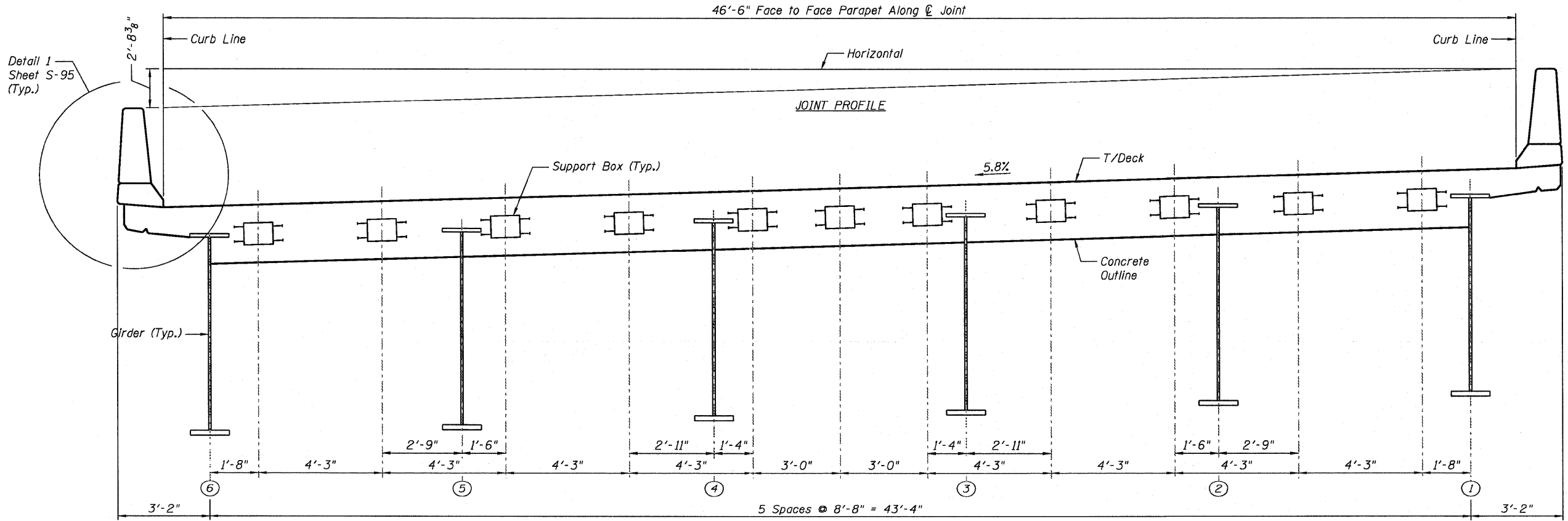
	USER NAME = Scott Whitney PLOT SCALE = 2.0000' / IN. PLOT DATE = 6/7/2011	DESIGNED - JLA CHECKED - DAZ DRAWN - SAW DATE - 07-01-2011	REVISED - REVISED - REVISED - REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>MODULAR EXPANSION JOINT - S.N. 082-0322 - PIER 6</b> <b>I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>	F.A.I. RTE. 70 SECTION 82-1-B-2 COUNTY ST. CLAIR S.N. 082-0322 & S.N. 082-0324 FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT	TOTAL SHEETS 399 SHEET NO. 216 CONTRACT NO. 76C76
	SCALE: NONE SHEET S-89 OF S-234 SHEETS						





Note:  
All Concrete Anchor Studs required are not shown on plans for clarity.

PLAN



SECTION A-A  
(Looking Upstation)

TABLE A

Location	Longitudinal Movement (Inch)	Size (Inch)
Pier 10	8.62"	9"

BILL OF MATERIAL

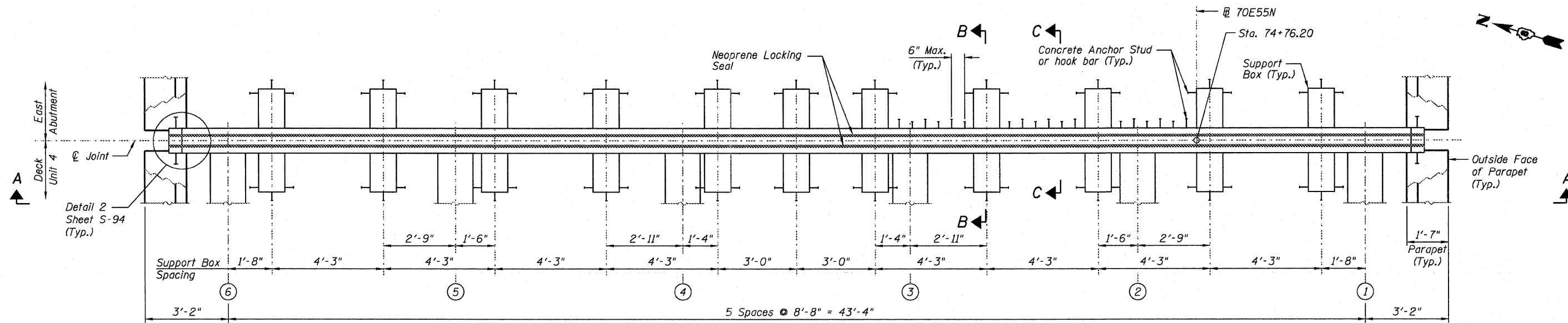
Item	Unit	Total
Modular Expansion Joint-Swivel, 9"	Foot	46.5

For General Notes, see Sheet S-93.

For Sections B-B and C-C, see Sheet S-95.

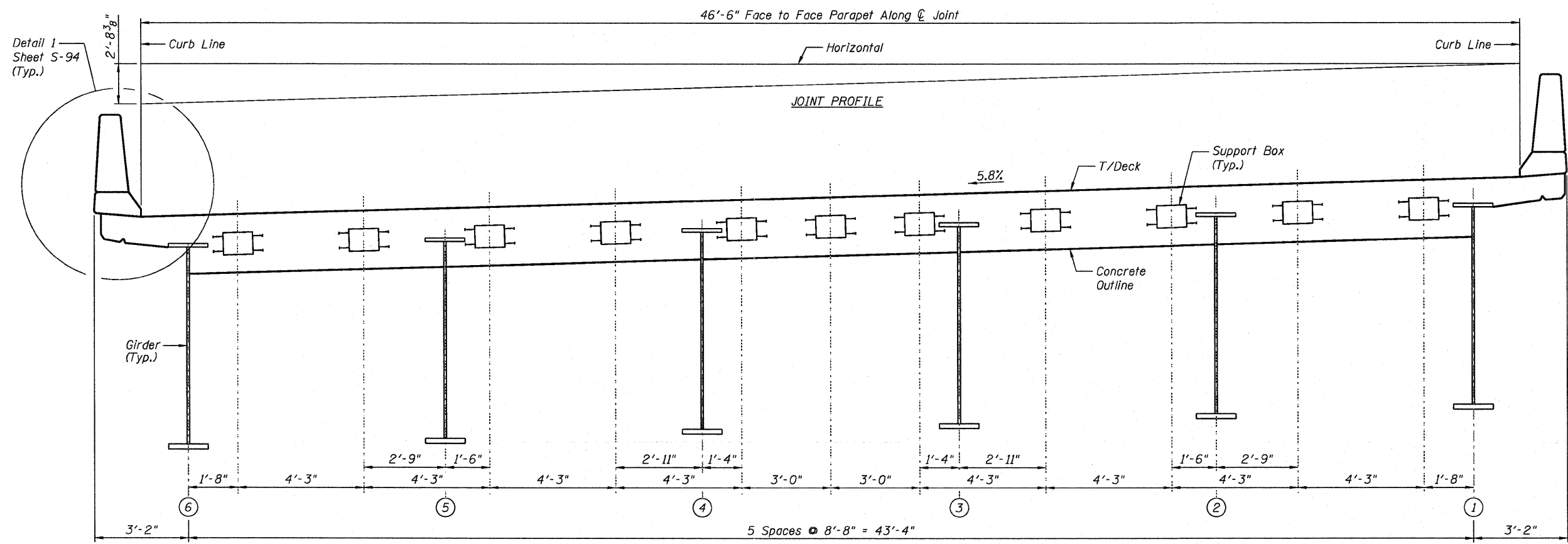
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<b>AECOM</b>	<b>ZROKA</b> Engineering	USER NAME = Scott Whitney	DESIGNED - JLA	REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>MODULAR EXPANSION JOINT - S.N.082-0322 - PIER 10</b> <b>I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>	F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 217
		PLOT SCALE = 2.0000' / IN.	DRAWN - SAW	REVISED -			S.N. 082-0322 & S.N. 082-0324	CONTRACT NO. 76C76		FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT	
		PLOT DATE = 6/7/2011	DATE - 07-01-2011	REVISED -		SCALE: NONE	SHEET S-90 OF S-234 SHEETS				



Note:  
All Concrete Anchor Studs required are not shown on plans for clarity.

PLAN



SECTION A-A  
(Looking Upstation)

TABLE A

Location	Longitudinal Movement (Inch)	Size (Inch)
East Abutment	4.75"	6"

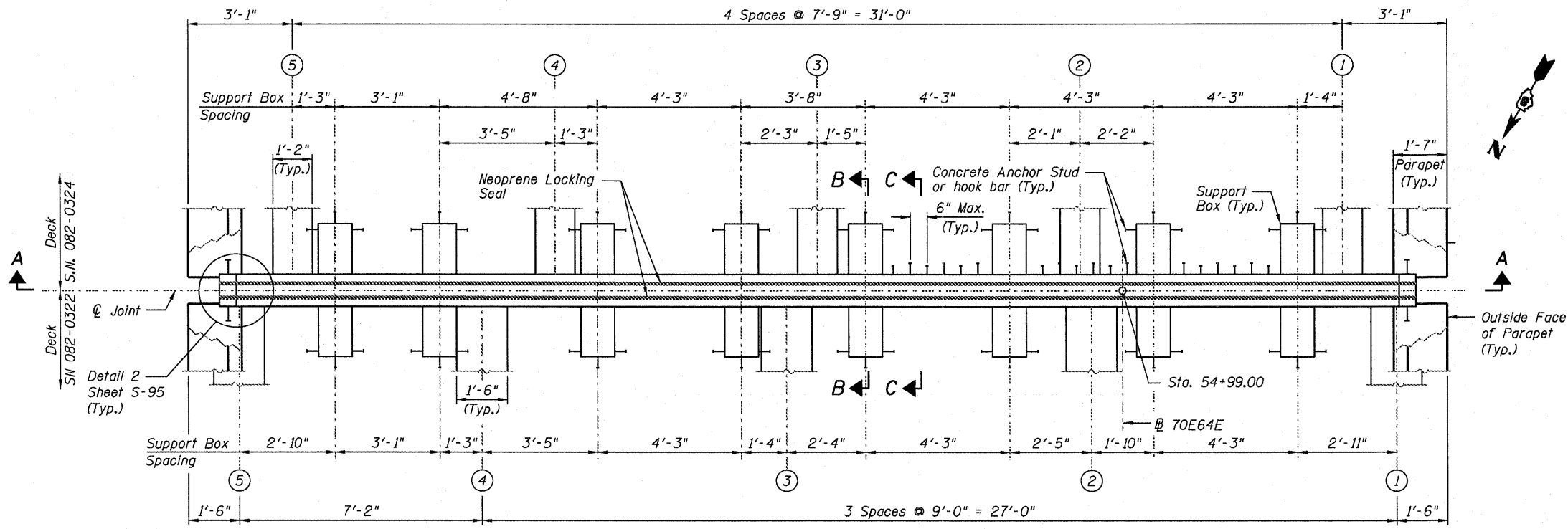
BILL OF MATERIAL

Item	Unit	Total
Modular Expansion Joint-Swivel, 6"	Foot	46.5

For General Notes, see Sheet S-93.  
For Sections B-B and C-C, see Sheet S-94.

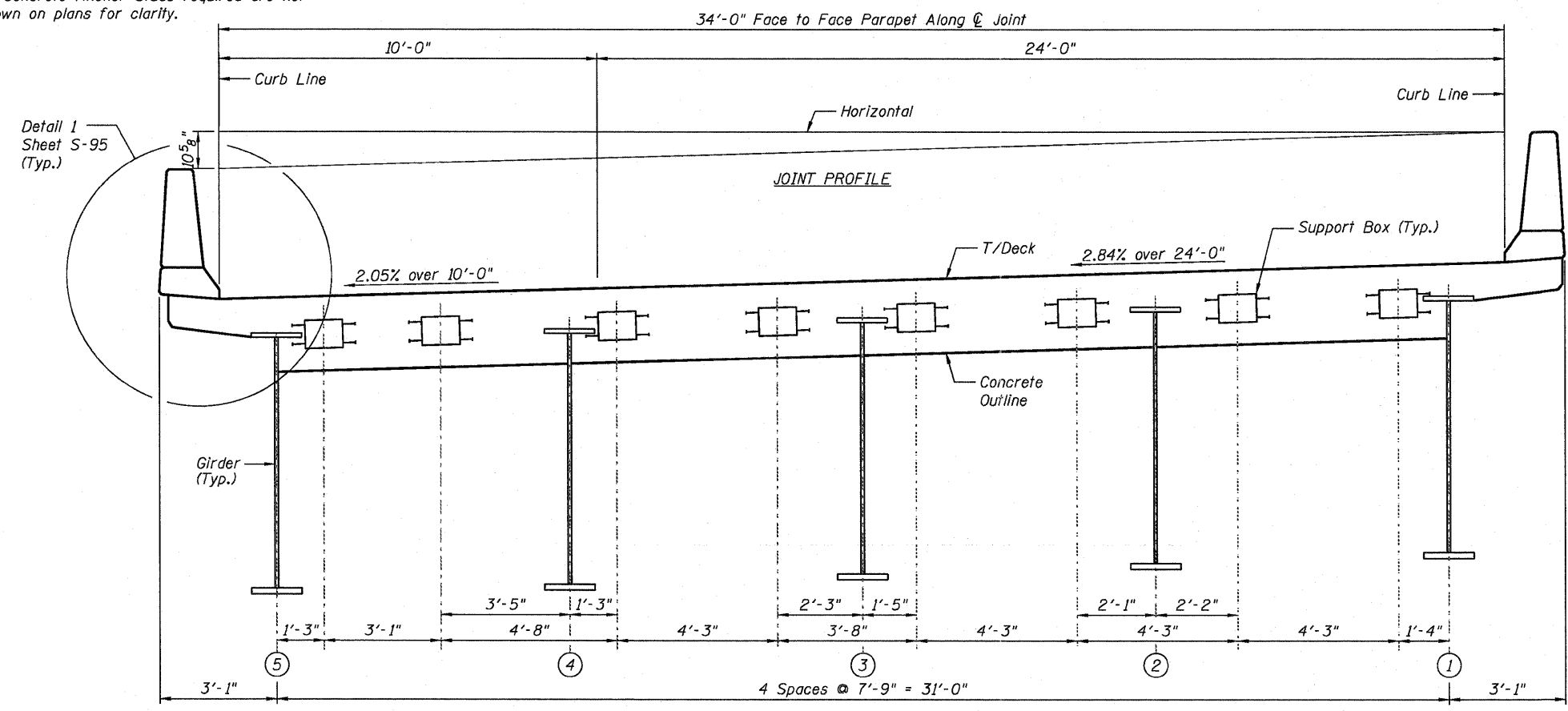
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<b>AECOM</b>	<b>ZROKA</b> <small>Engineering</small>	USER NAME = Scott Whitney	DESIGNED - JLA	REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>MODULAR EXPANSION JOINT - S.N. 082-0322 - EAST ABUTMENT</b> <b>I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>	F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 218
		PLOT SCALE = 2.0000' / IN.	DRAWN - SAW	REVISED -			S.N. 082-0322 & S.N. 082-0324	CONTRACT NO. 76C76	FED. ROAD DIST. NO. ILLINOIS	FED. AID PROJECT	
		PLOT DATE = 6/7/2011	DATE - 07-01-2011	REVISED -	SCALE: NONE SHEET S-91 OF S-234 SHEETS						



**PLAN**

Note:  
All Concrete Anchor Studs required are not shown on plans for clarity.



**SECTION A-A**  
(Looking Upstation)

**TABLE A**

Location	Longitudinal Movement (Inch)	Size (Inch)
Pier 1	9.78"	12"

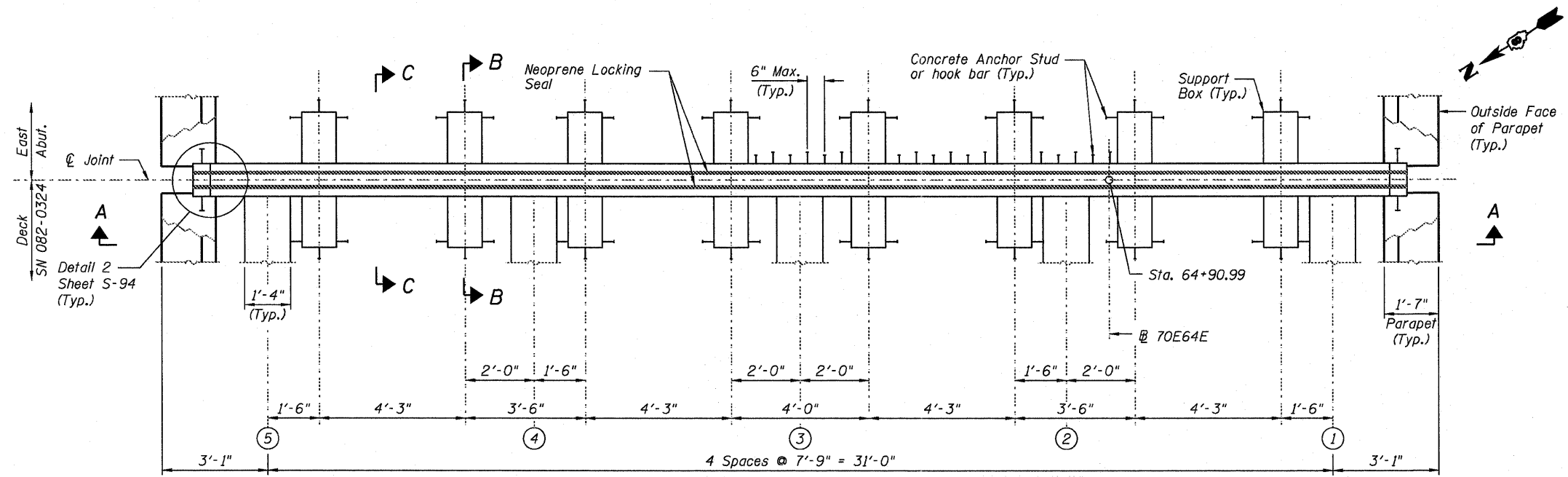
**BILL OF MATERIAL**

Item	Unit	Total
Modular Expansion Joint-Swivel, 12"	Foot	34.0

For General Notes, see Sheet S-93.  
For Sections B-B and C-C, see Sheet S-95.

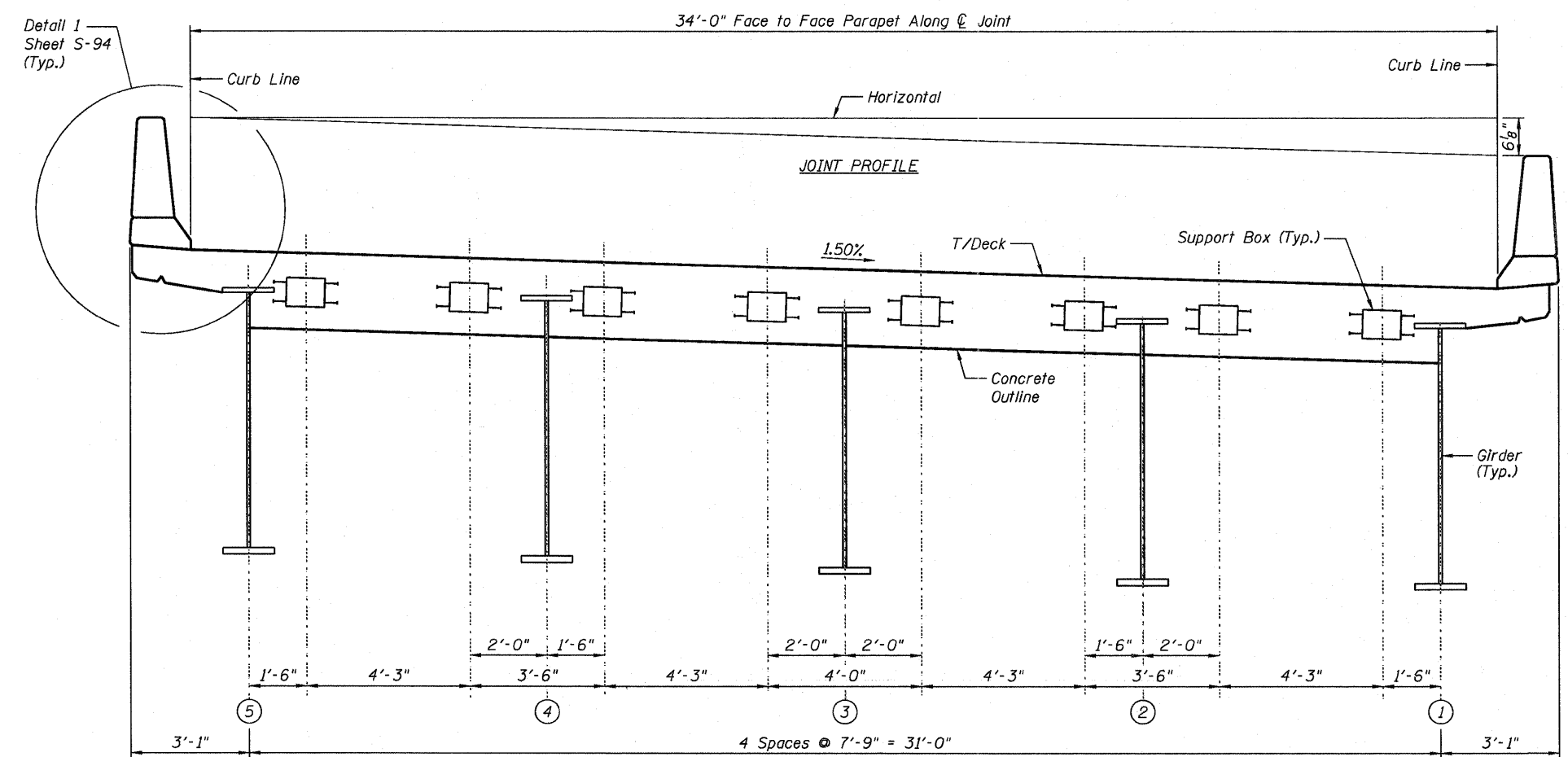
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<b>AECOM</b>	<b>ZROKA</b> <small>Engineering</small>	USER NAME = Scott Whitney	DESIGNED - JLA	REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>MODULAR EXPANSION JOINT - S.N.082-0324 - PIER 1</b> <b>I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>	F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 219
		PLOT SCALE = 2.0000' / IN.	DRAWN - SAW	REVISIED -			S.N. 082-0322 & S.N. 082-0324	CONTRACT NO. 76C76		FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT	
		PLOT DATE = 6/7/2011	DATE - 07-01-2011	REVISIED -	SCALE: NONE SHEET S-92 OF S-234 SHEETS						



**PLAN**

Note:  
All Concrete Anchor Studs required are not shown on plans for clarity.



**SECTION A-A**  
(Looking Upstation)

**GENERAL NOTES**

1. Modular expansion joint shall be designed according to Section 14 of the 2010 AASHTO specifications for HL-93 truck loading with impact and the Special Provision.
2. The joint shall be a shop-fabricated modular assembly with multiple support bars, edge and separation beams, and transverse neoprene seals providing a continuous seal across the deck.
3. Joint shall be fabricated and installed according to the manufacturer's recommendations and as specified in the special provision for a modular joint system and as approved by the Engineer.
4. Joint shall be fabricated to conform to the roadway profile and cross-slopes.
5. All exposed structural steel elements such as separation beams, edge beams, support bars, sliding plate assemblies and cover plates shall be fabricated with AASHTO M270 Grade 50 ksi steel.
6. Modular expansion joints shall be shipped in one piece unless noted.
7. Concrete anchor studs attached to the modular expansion joint shall conform to the requirements of Article 1006.32 of the Standard Specifications. The cost of the Concrete Anchor Studs shall be included with Modular Expansion Joint-Swivel of the size specified.
8. No aluminum components shall be allowed.
9. All splices of center beams and edge beams located in the roadway shall be full penetration welds. (Upturn splices may be partial penetration welds)
10. See deck reinforcement plan sheet for bar size, designation and blockout dimensions.
11. The swivel modular expansion joint shall be either the Maurer Swivel System by the D.S. Brown Company or the WABO X-CEL system by the Watson Bowman Acme Corporation. The joint shall provide the movement as shown in Table A.
12. For Details 1 and 2 and Sections B-B and C-C, see sheet S-94.
13. Modular expansion joints shall be assembled in their final relative position with the ends in place for shop inspection and acceptance

**TABLE A**

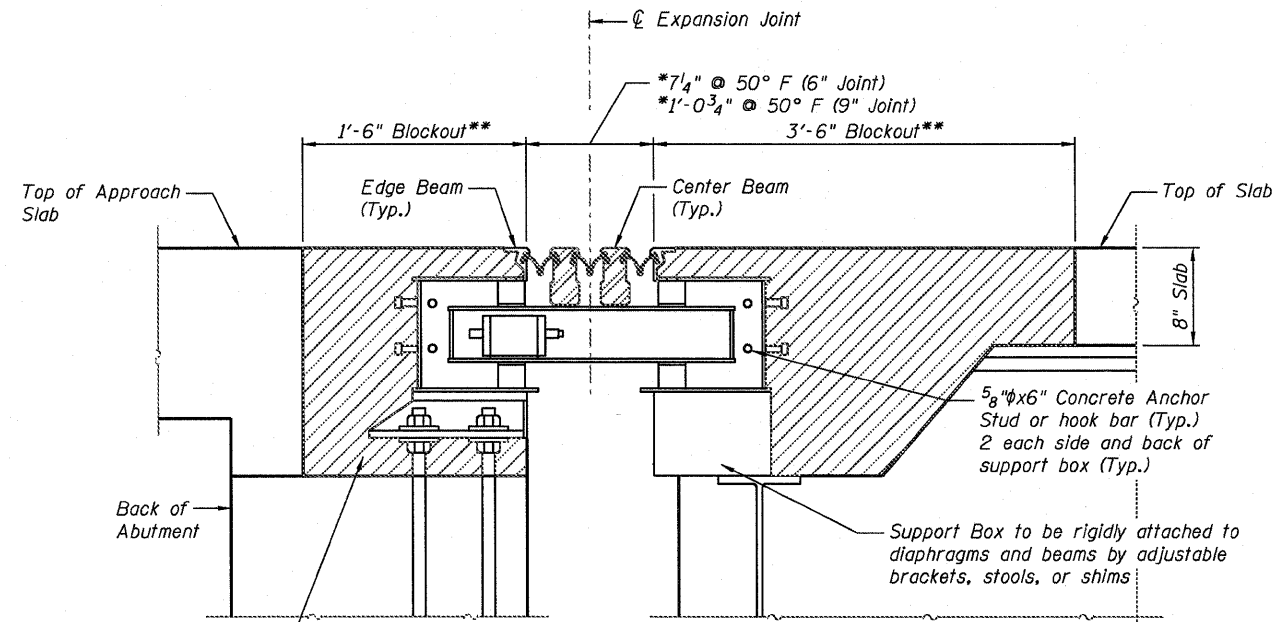
Location	Longitudinal Movement (Inch)	Size (Inch)
E. Abut.	8.18"	9"

**BILL OF MATERIAL**

Item	Unit	Total
Modular Expansion Joint-Swivel, 9"	Foot	34.0

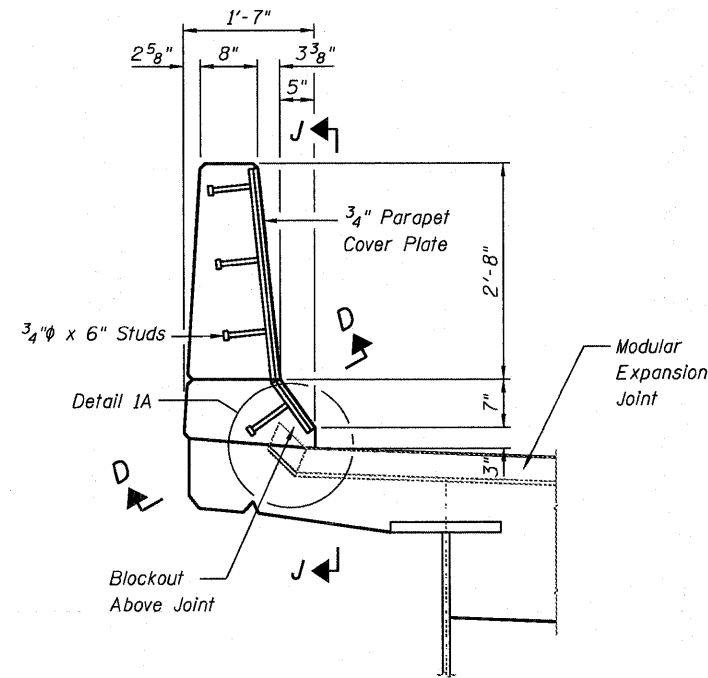
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<b>AECOM</b>	<b>ZROKA</b> Engineering	USER NAME = Scott Whitney	DESIGNED - JLA	REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>MODULAR EXPANSION JOINT - S.N. 082-0324 - EAST ABUTMENT</b> <b>I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>	F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 220
		PLOT SCALE = 2.0000' / IN.	CHECKED - DAZ	REVISED -			S.N. 082-0322 & S.N. 082-0324	CONTRACT NO. 76C76			
		PLOT DATE = 6/7/2011	DRAWN - SAW	REVISED -		SCALE: NONE	SHEET 5-93 OF 5-234 SHEETS	FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT			
			DATE - 07-01-2011	REVISED -							

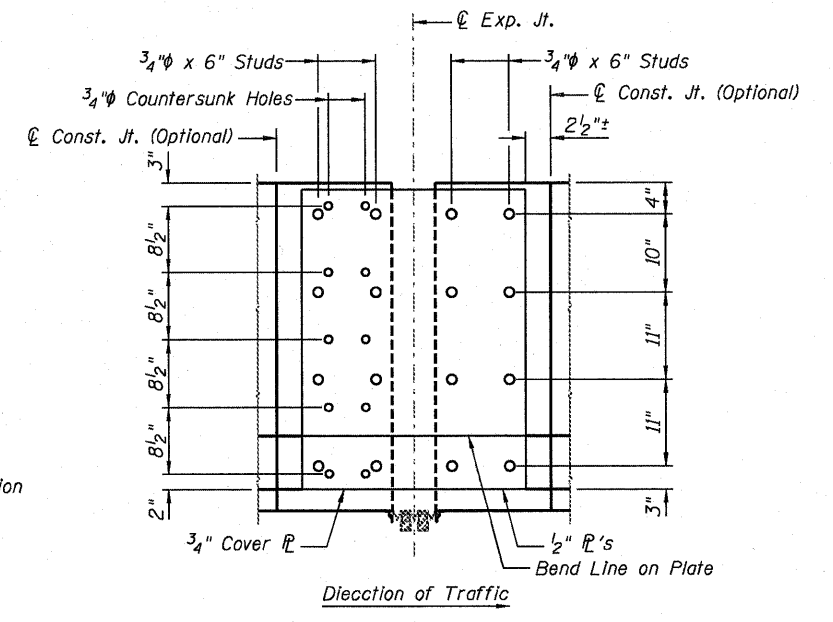


Concrete in blockout shall be poured after the joint assembly has been positioned and adjusted. Quantity of concrete is included with "Concrete Superstructure." (Typ.)

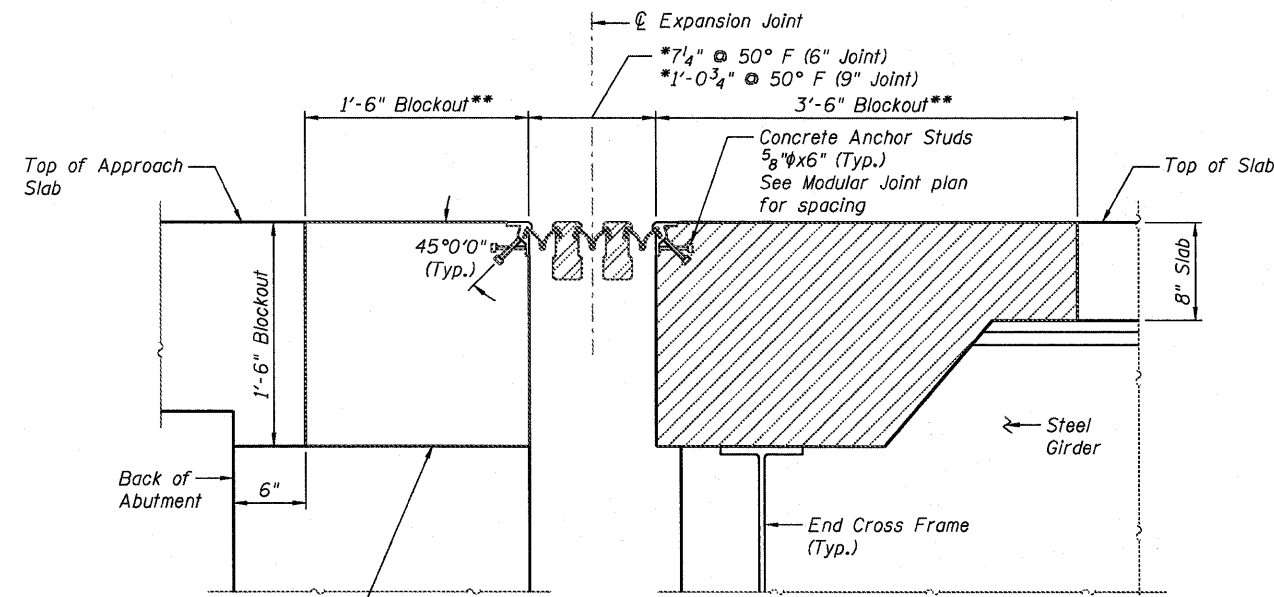
**SECTION B-B**



**DETAIL 1**

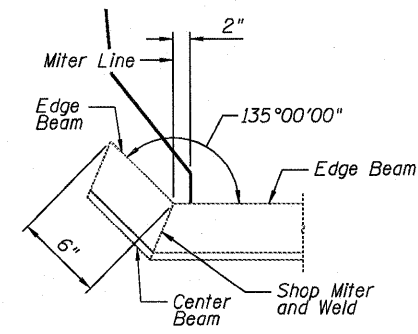


**SECTION J-J**

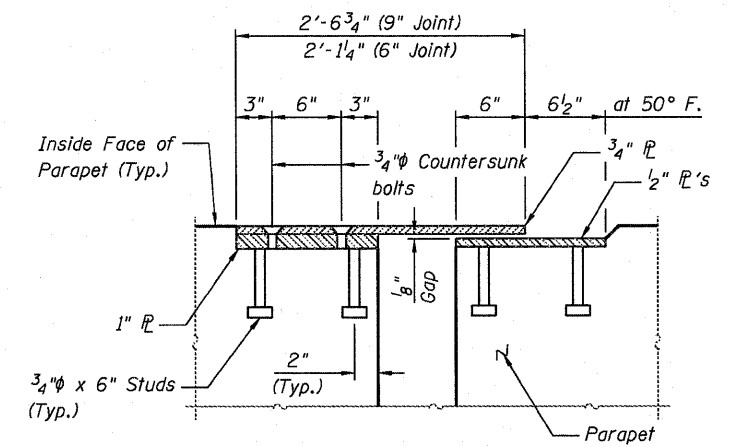


Concrete in blockout shall be poured after the joint assembly has been positioned and adjusted. Quantity of concrete is included with "Concrete Superstructure." (Typ.)

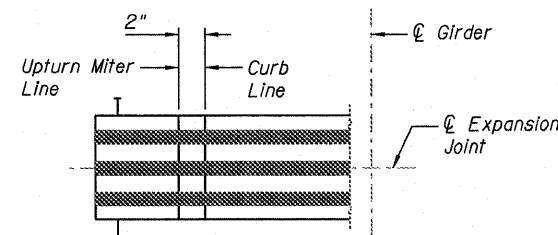
**SECTION C-C**



**DETAIL 1A**



**SECTION D-D**



**DETAIL 2**

\*Number of beams and rails determined by manufacturer.  
 \*\* Blockout dimensions to be verified by Contractor with Joint Manufacturer.

DB:TR: 0820322-0820324-76C76-S94-HE.D:\a\l\abur\edg



USER NAME = Scott Whitney  
 PLOT SCALE = 2,000' / IN.  
 PLOT DATE = 6/7/2011

DESIGNED - JLA  
 CHECKED - DAZ  
 DRAWN - SAW  
 DATE - 07-01-2011

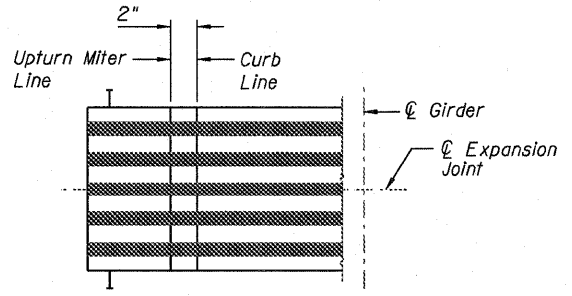
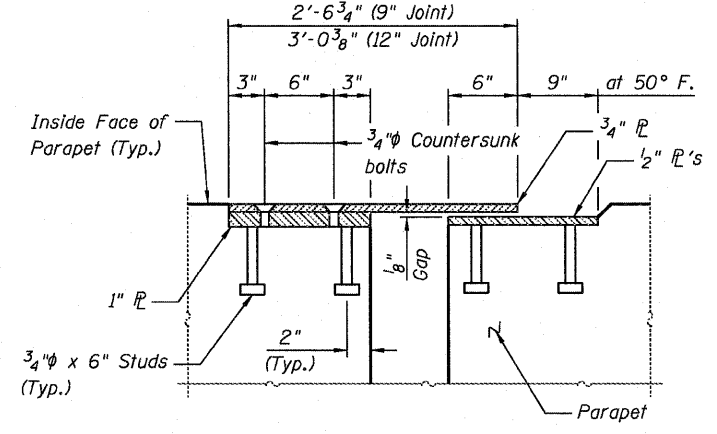
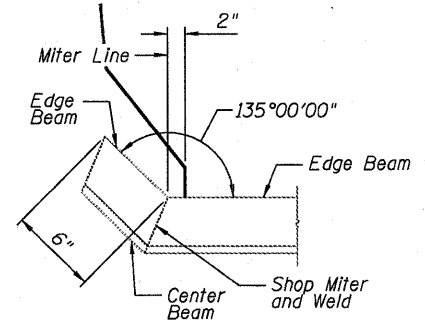
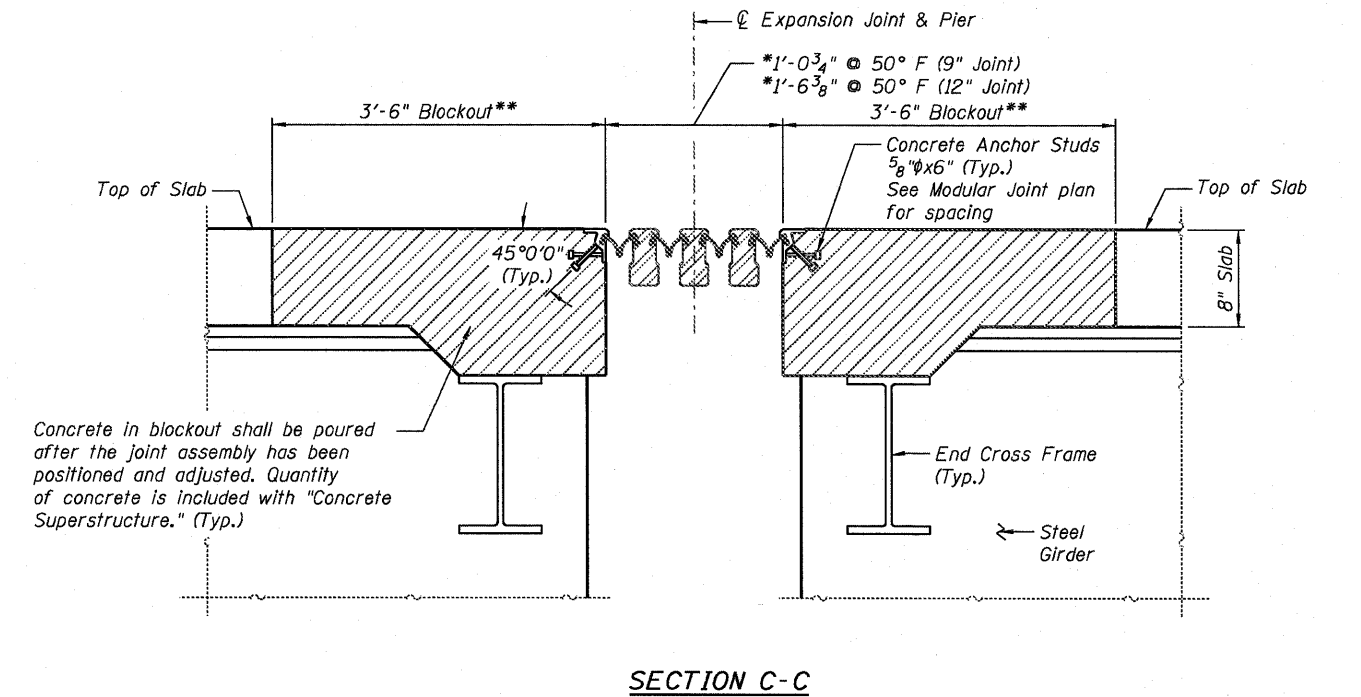
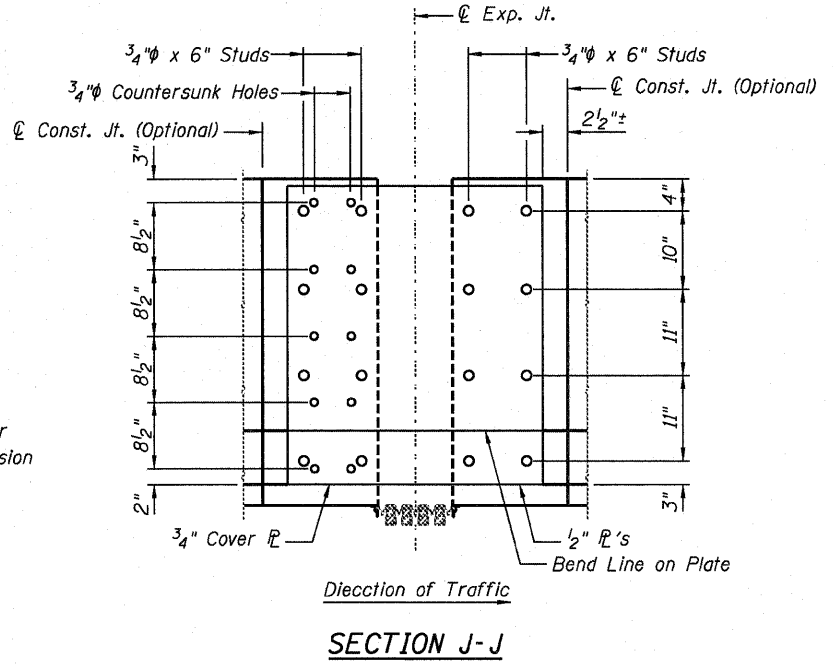
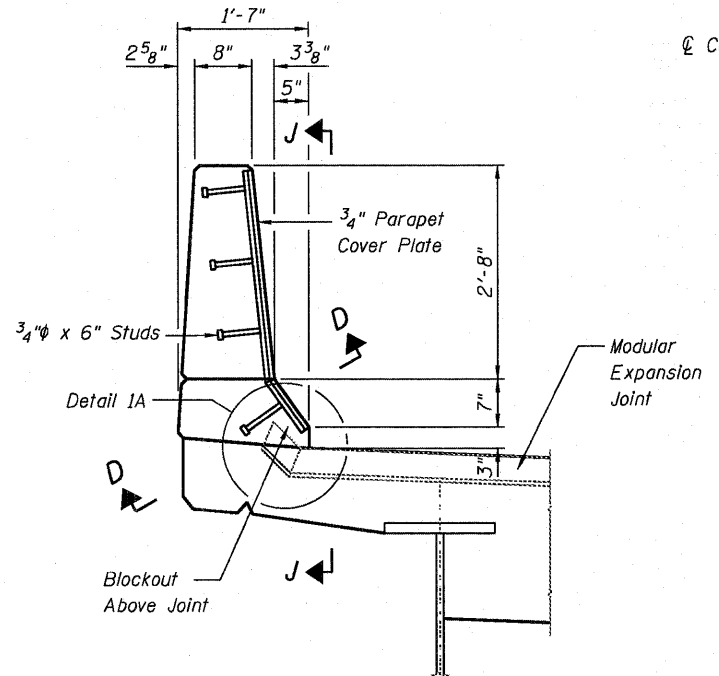
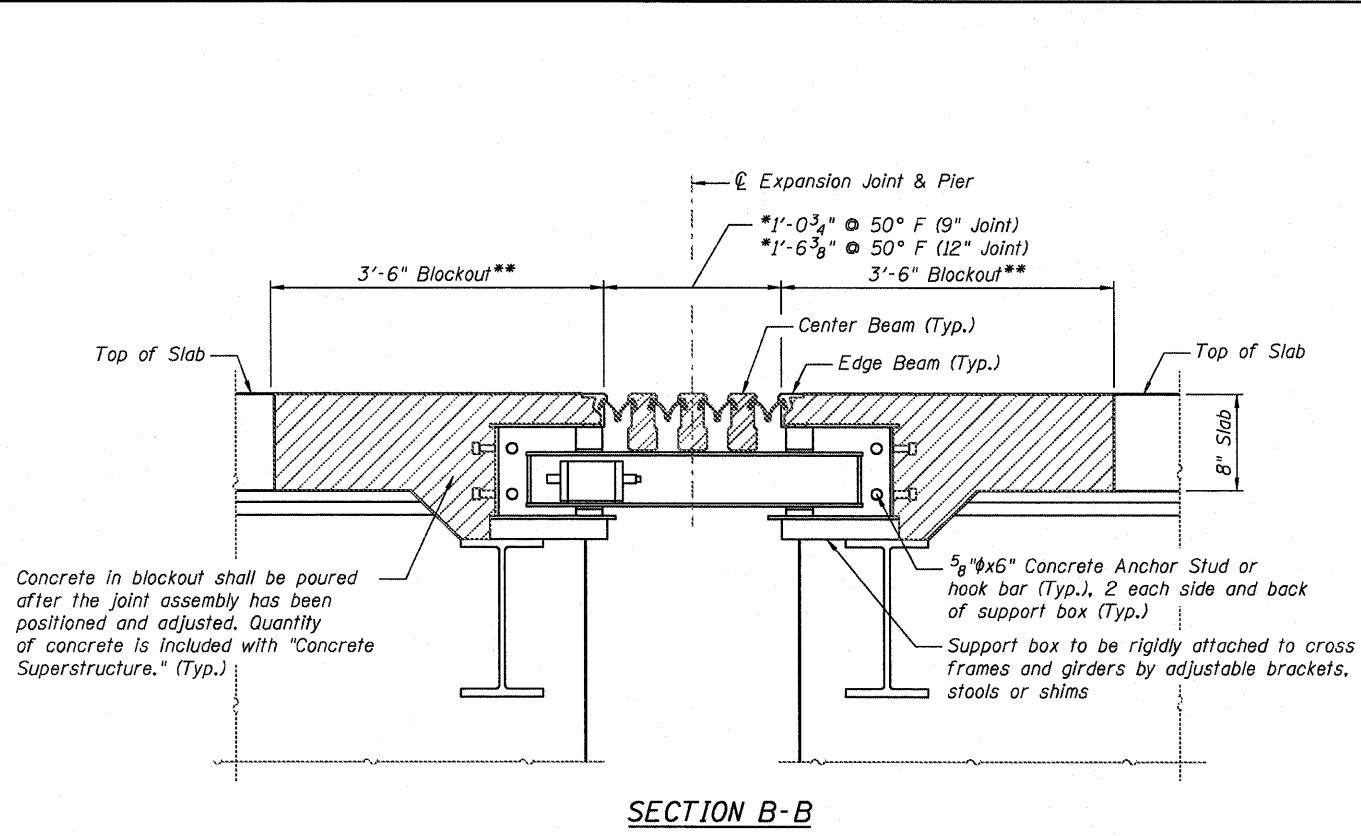
REVISED -  
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**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**MODULAR EXPANSION JOINT - DETAILS AT ABUTMENTS  
 I-70E OVER I-55, CSX & KCS RAILROADS**

SCALE: NONE SHEET S-94 OF S-234 SHEETS

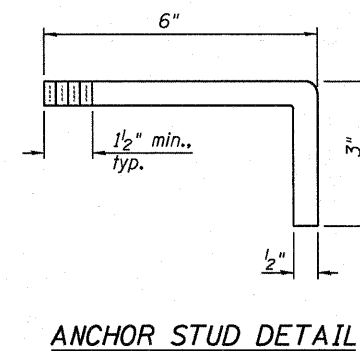
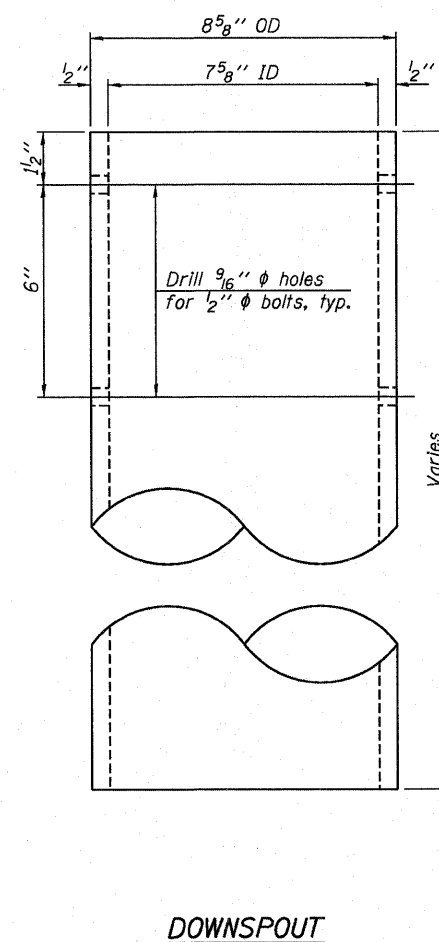
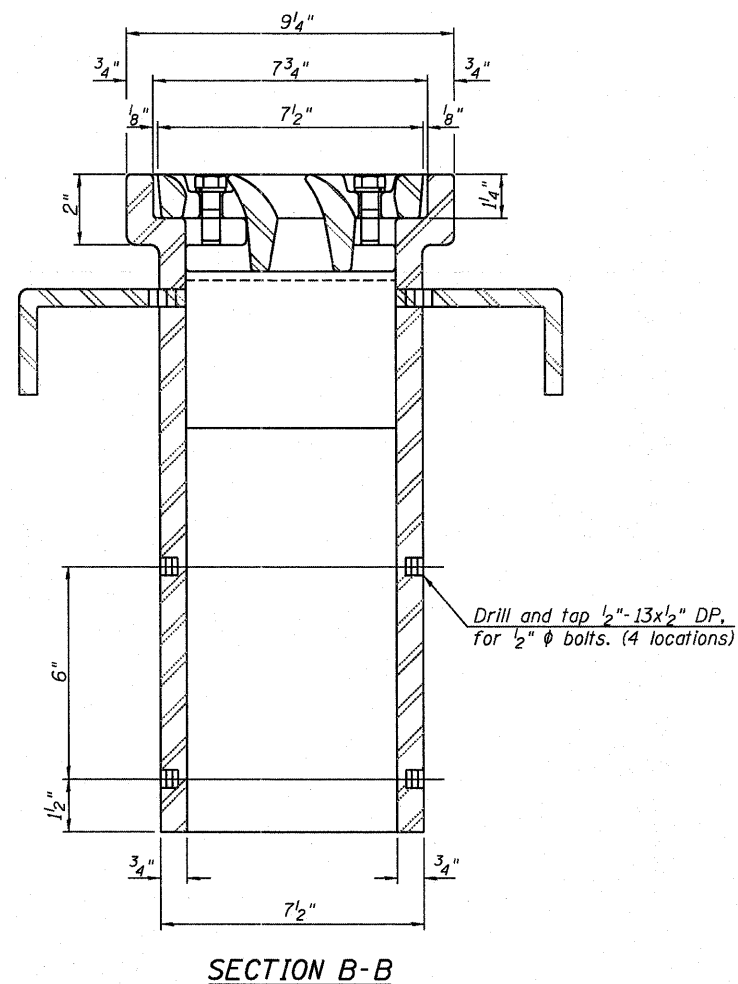
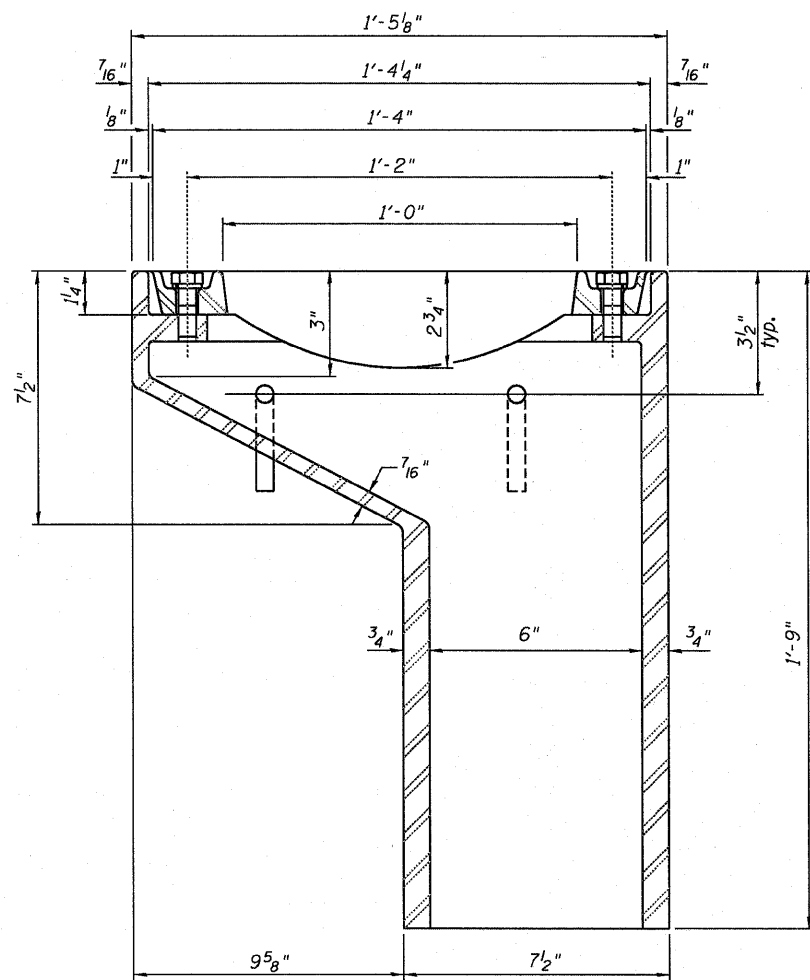
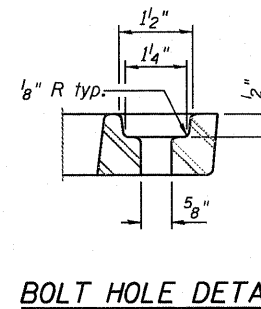
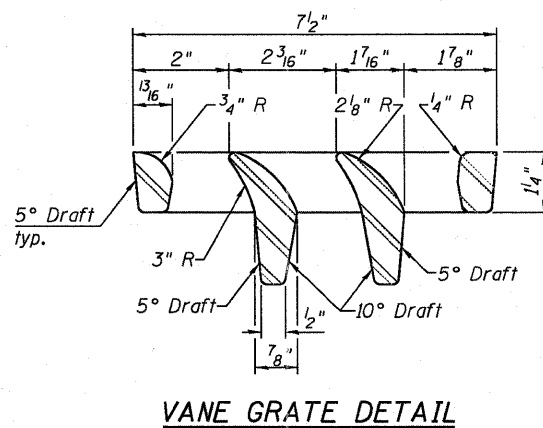
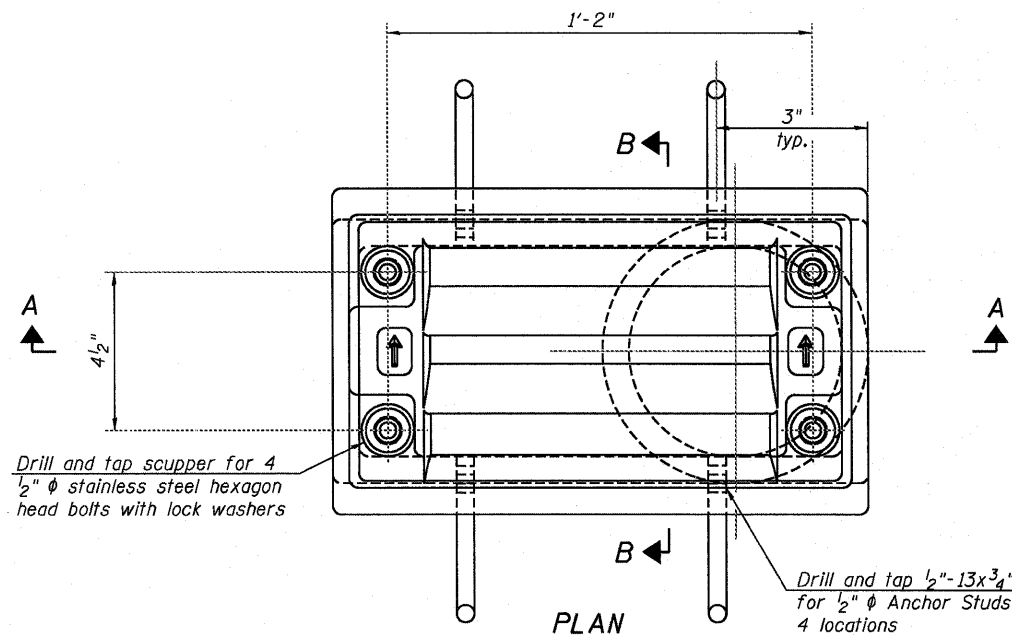
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70	82-1-B-2	ST. CLAIR	399	221
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		



\*Number of beams and rails determined by manufacturer.  
 \*\* Blockout dimensions to be verified by Contractor with Joint Manufacturer.

D:\11-082622-082622-76C76-S95-ME.DWG

	USER NAME = Scott Whitney	DESIGNED - JLA	REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>MODULAR EXPANSION JOINT - DETAILS AT PIERS</b> <b>I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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PLOT DATE = 6/7/2011	DRAWN - SAW	REVISED -	DATE - 07-01-2011	REVISED -	SCALE: NONE	SHEET S-95 OF S-234 SHEETS	S.N. 082-0322 & S.N. 082-0324	CONTRACT NO. 76C76		
							FED. ROAD DIST. NO.	[ILLINOIS] FED. AID PROJECT		



**BILL OF MATERIAL**

ITEM	UNIT	QUANTITY
Drainage Scupper, DS-11	Each	19

**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.

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 the cast iron scupper frame. Fillet or full penetration welds shall be used for the weldments. Details shall be submitted to the Engineer for approval. Structural steel weldments shall not be substituted for the cast iron scupper grate. Structural steel frames and downspouts shall be galvanized according to AASHTO M111.

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-11.

Alternate fiberglass downspout conforming to ASTM D 2996 with a short-time rupture strength hoop tensile stress of 30,000 psi min. may be used in lieu of the cast iron or steel equivalent.

DB1R1-0820322-0820324-76C76-S96-Scupper-DS-11.dgn

DS-11 11-1-09



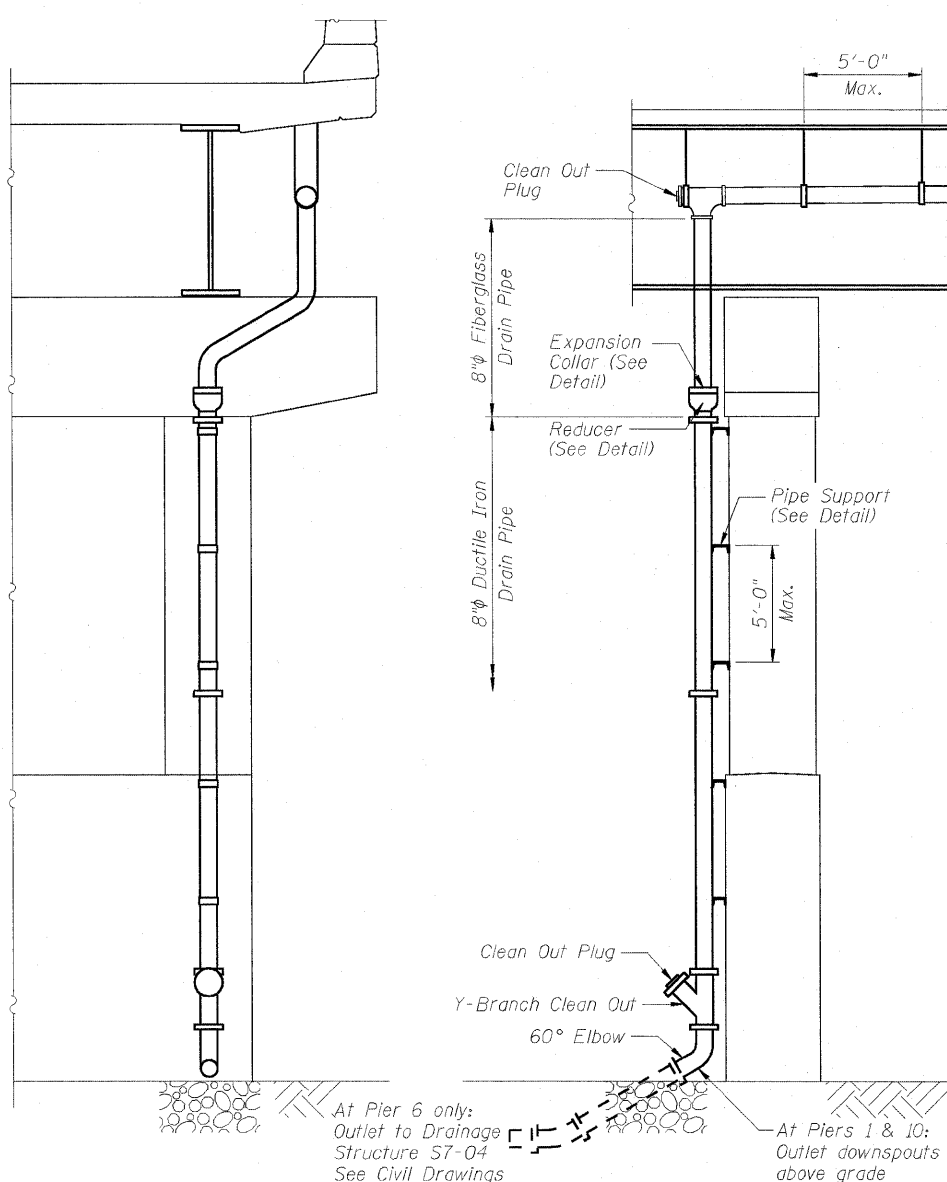
USER NAME = Scott Whitney	DESIGNED - JLA	REVISED -
PLOT SCALE = 2,0000' / IN.	CHECKED - DAZ	REVISED -
PLOT DATE = 6/7/2011	DRAWN - SAW	REVISED -
	DATE - 07-01-2011	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

DRAINAGE SCUPPER, DS-11  
I-70E OVER I-55, CSX & KCS RAILROADS

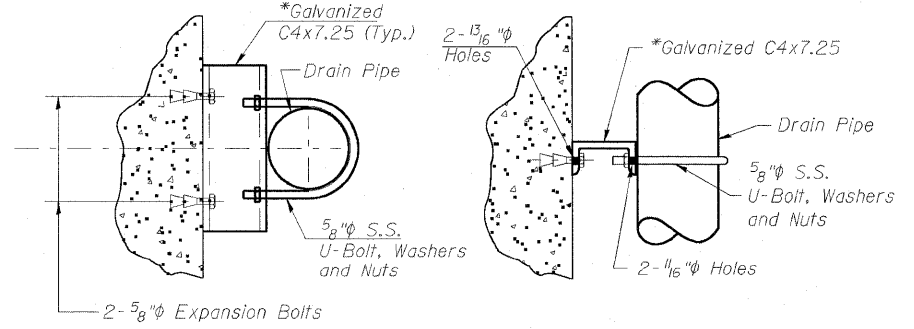
SCALE: NONE SHEET S-96 OF S-234 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	223
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		



**ELEVATION VIEW**  
(Looking East-Pier 1)  
(Looking West-Piers 6 & 10)

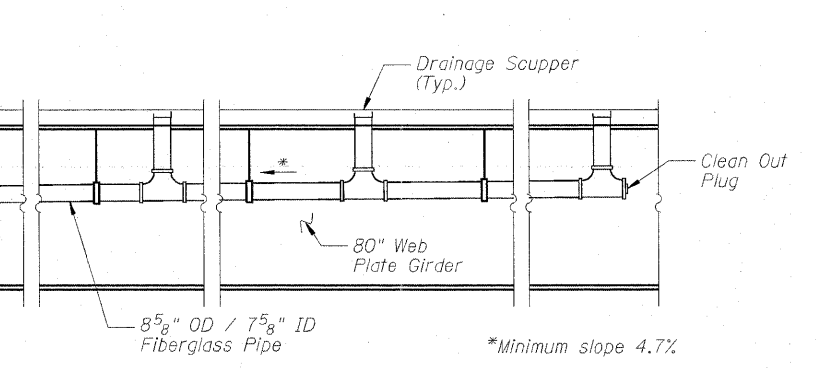
**DRAINAGE SYSTEM**  
 • Pier 1 S.N. 082-0322  
 • Pier 6 S.N. 082-0324  
 • Pier 10 S.N. 082-0322



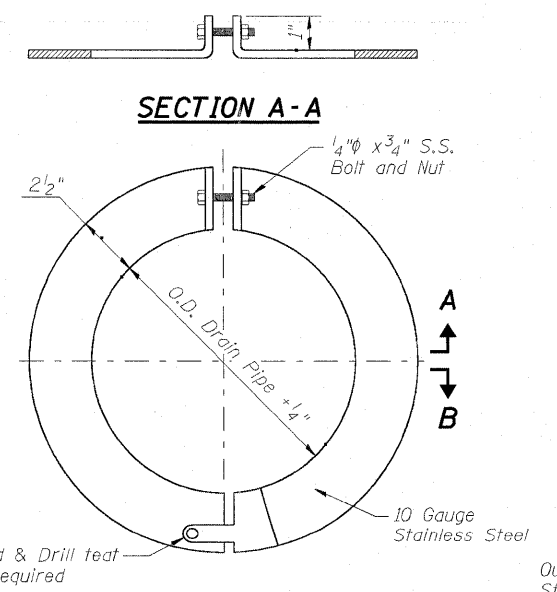
**PLAN**

**ELEVATION**

**PIPE SUPPORT DETAIL**  
 \*Provide curved C6x8.2 to fit Round Pier Columns where needed

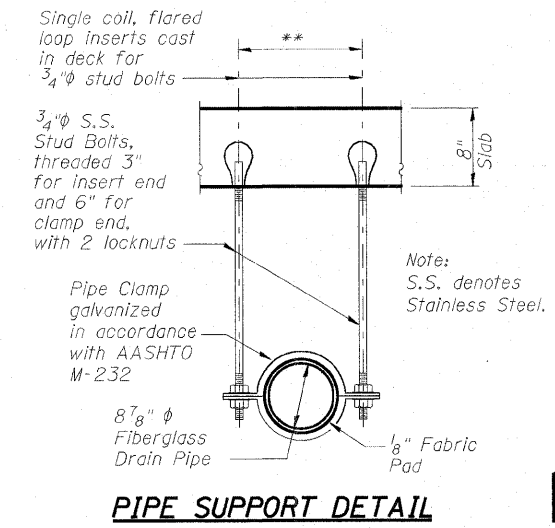


**END VIEW**  
(Looking North-Pier 1)  
(Looking South-Piers 6 & 10)



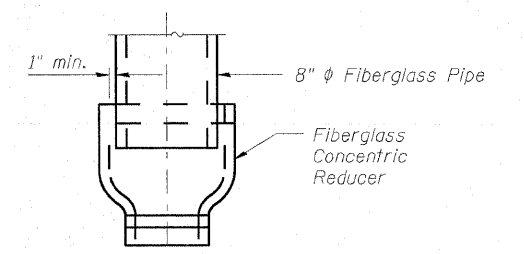
**SECTION A-A**

**SECTION B-B**  
**DETAIL OF EXPANSION COLLAR**



**PIPE SUPPORT DETAIL**

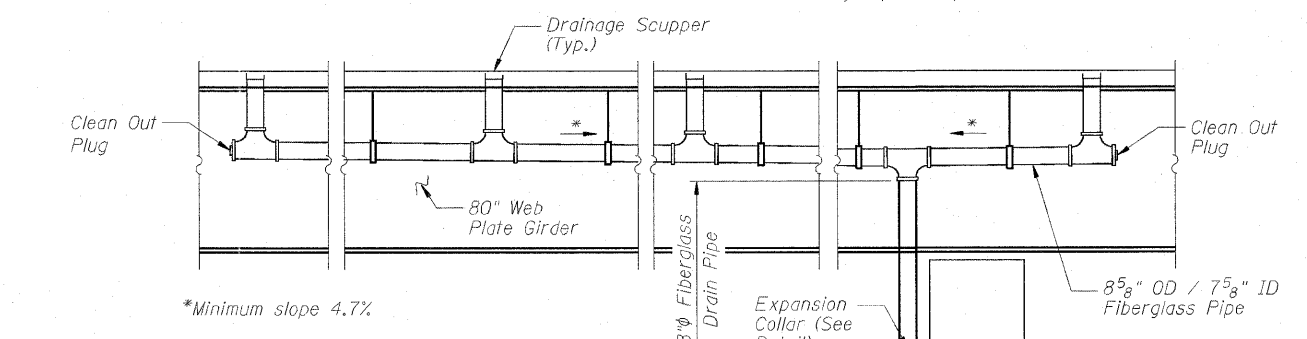
\*\* Dimension as required by Pipe Clamp



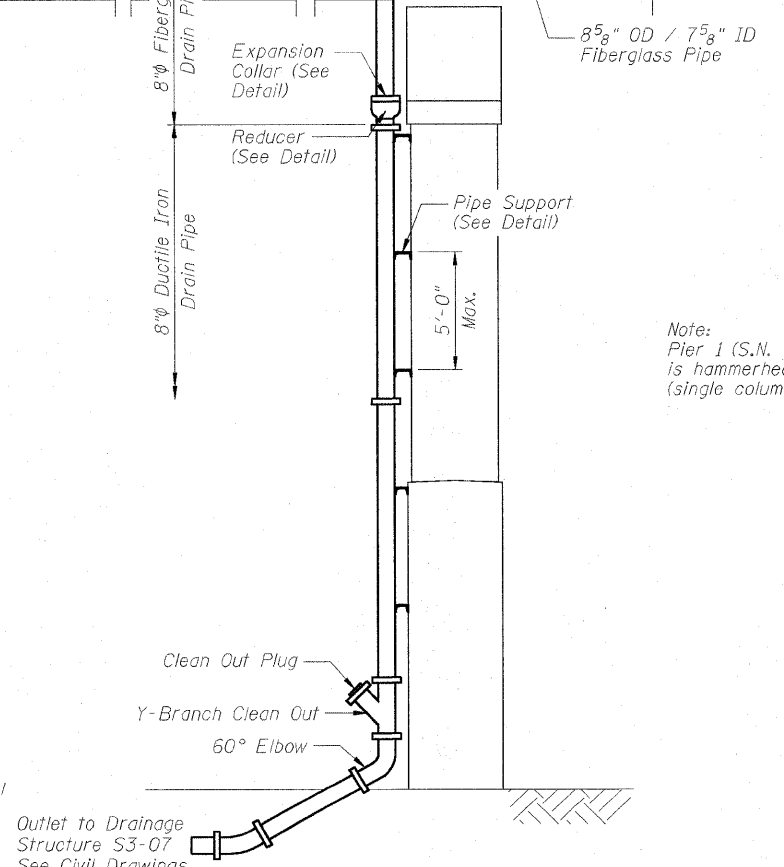
**REDUCER DETAIL**

**BILL OF MATERIAL**

ITEM	UNIT	QUANTITY
Drainage System	L. Sum	1

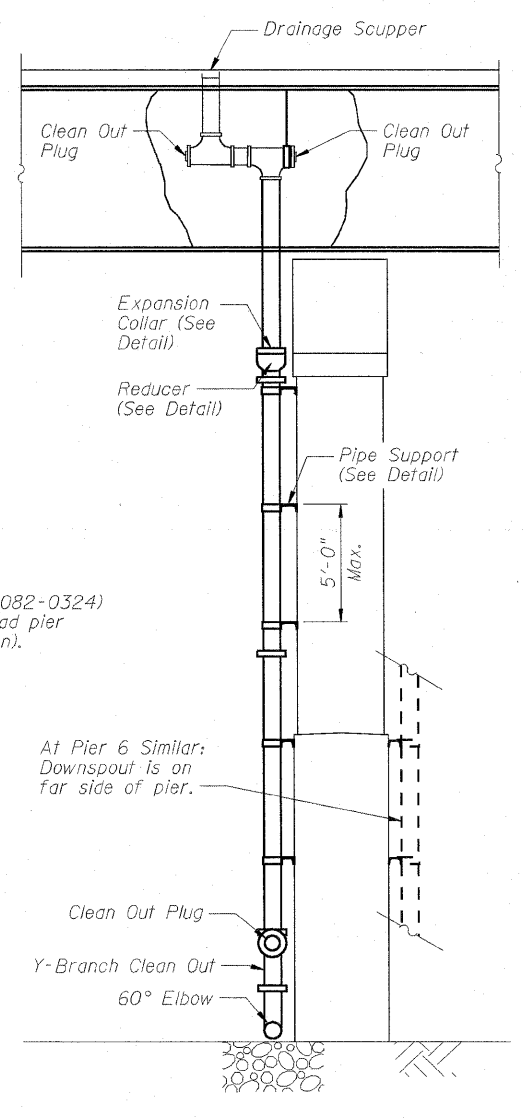


\*Minimum slope 4.7%



**END VIEW**  
(Looking North)

**DRAINAGE SYSTEM**  
• Pier 5 S.N. 082-0322



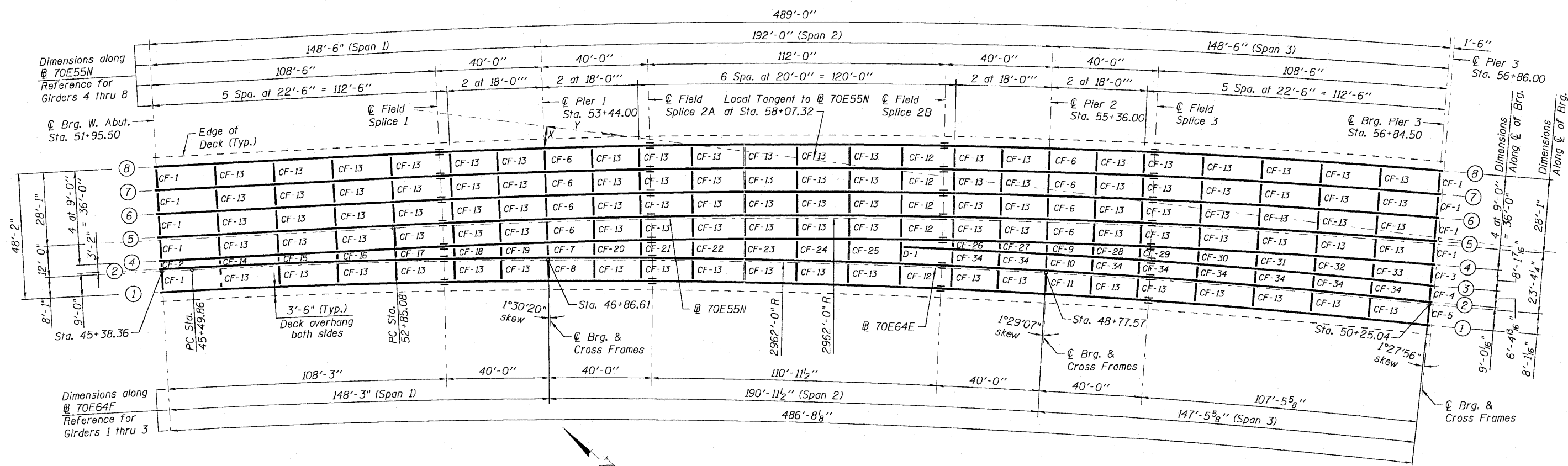
**END VIEW**  
(Looking North)

**DRAINAGE SYSTEM**  
 • Pier 6 S.N. 082-0322 (Similar)  
 • Pier 12 S.N. 082-0322  
 • Pier 1 S.N. 082-0324 (Similar)

D:\P1\0820322-0820324-76C75-597-Drains\p5\stnmodjn



K:\projects\08204656\08204656.dwg 082-0322 & 0324 11/1/2011 11:00:00 AM 082-0322-0324-76C76-5001 Framing-Unit-1.dwg



**FRAMING PLAN - UNIT 1**

- Notes:
1. For Cross Frame Details ("CF-") See Sheets S-127 to S-129 of S-234.
  2. For Moment & Reaction Tables See Sheet S-125 of S-234.
  3. For Header Detail ("D-1") See Sheet S-99 of S-234.

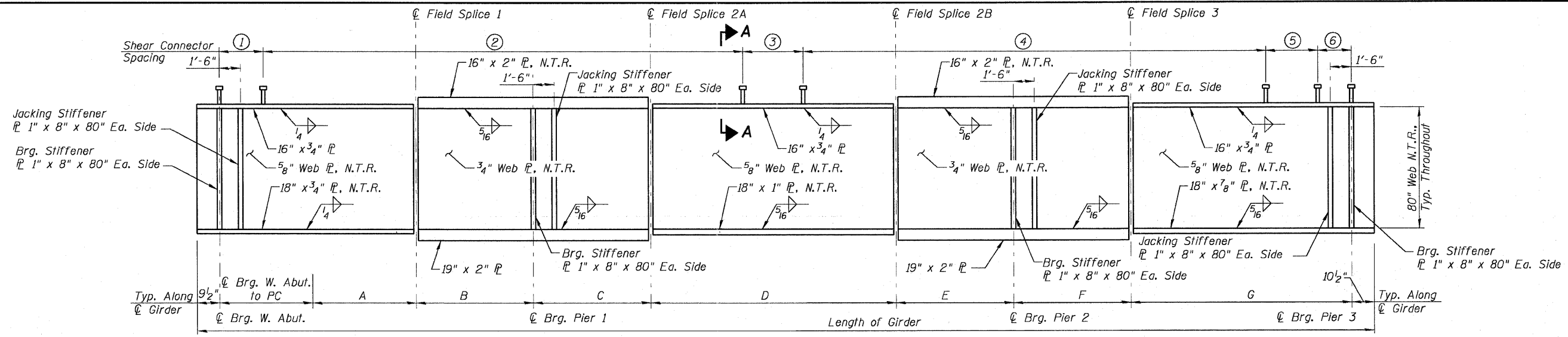


USER NAME =	DESIGNED - P.J.L.	REVISED -
PLOT SCALE = 0.250000' / IN.	DRAWN - BRD	REVISED -
PLOT DATE = 6/30/2011	CHECKED - CHY	REVISED -
	DATE - 07-01-11	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

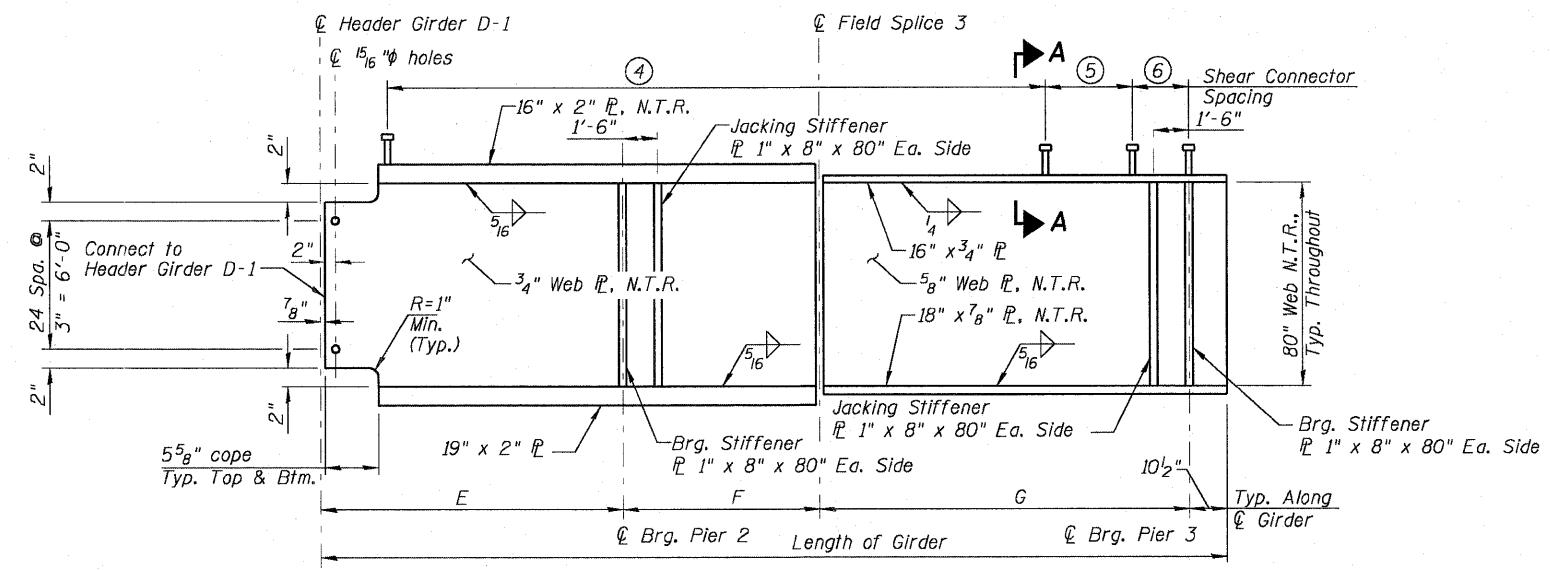
<b>FRAMING PLAN - UNIT 1 - I</b>	
<b>I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>	
SCALE:	TO STA.
SHEET S-98 OF S-234 SHEETS	STA. TO STA.

F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 225
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

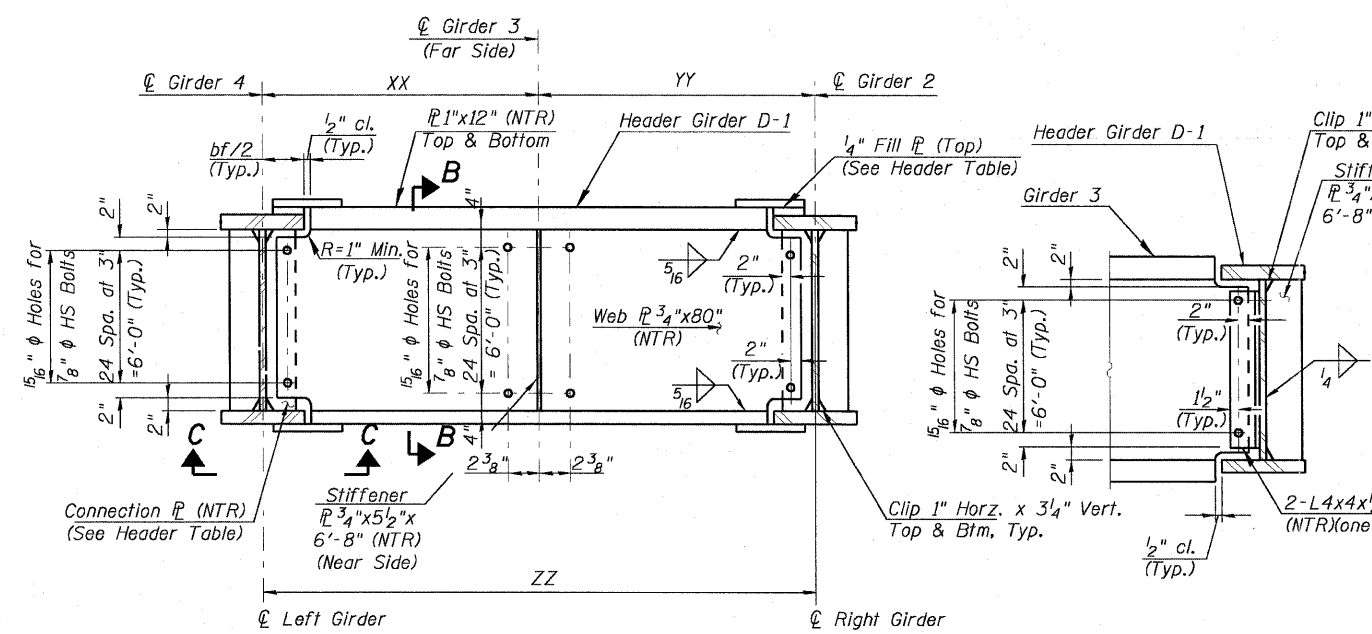


**GIRDER ELEVATION - UNIT 1 - GIRDERS 1, 2 & 4 - 8**

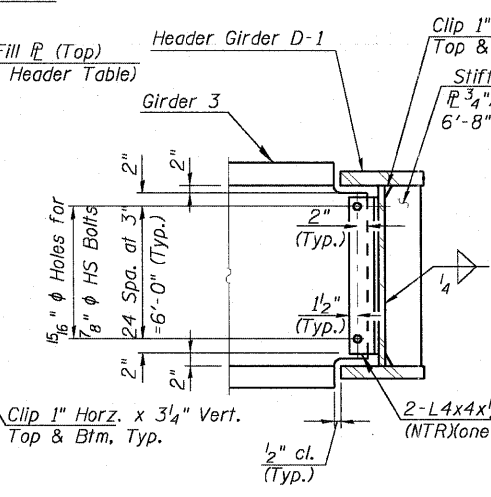
- Notes:  
 1. Load carrying components designated "N.T.R." shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.  
 2. All steel on this sheet shall be AASHTO M270, Grade 50 Steel.



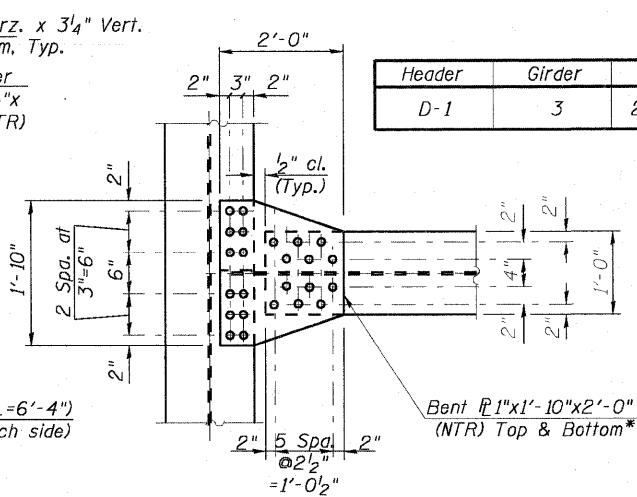
**GIRDER ELEVATION - UNIT 1 - GIRDER 3**



**UNIT 1 - HEADER GIRDER D-1 ELEVATION**  
 (Girder 3 omitted for clarity)  
 (Looking up Station)



**SECTION B-B**



**SECTION C-C**

\* Gusset Plate to be bent at flange edge to accommodate slope of Header Girder

**HEADER GIRDER TABLE**

Header	Girder	XX	YY	ZZ	bf/2	Connection P	Fill P
D-1	3	2'-10 7/16"	6'-4 13/16"	9'-3 1/4"	8" Top 9" Btm.	P 3/4" x 7 1/2" x 6'-8" (NTR)	P 1/4" x 7" x 1'-10" Top; None Bottom

**HEADER SKEW TABLE**

Header	Right Girder	Skew	Left Girder	Skew
D-1	2	0°	4	1.487° FL

Girder 3 is at right angles to Header D-1  
 FL = Forward Left

I:\Projects\6804689\S-99\Drawings\6804689-1\Drawings\Structural\082-0322\Sheet\082-0322-0324-76C76-5092-Framing-Unit-1.dgn  
 6/30/2011 10:00 AM



USER NAME =	DESIGNED - PUL	REVISED -
PLOT SCALE = 0=2.0000' 1" / IN.	DRAWN - BRD	REVISED -
PLOT DATE = 6/30/2011	CHECKED - CHY	REVISED -
	DATE - 07-01-11	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

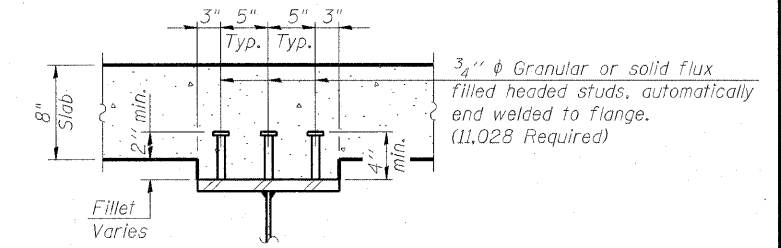
**FRAMING PLAN - UNIT 1 - II  
 I-70E OVER I-55, CSX & KCS RAILROADS**

SCALE: SHEET S-99 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 226
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT				

Baseline 70E55N No studs on splices: Shift studs 1/2 each way & cut adjacent space in half.

SHEAR CONNECTOR SPACING TABLE						
Location	1	2	3	4	5	6
Girder 1	6 Spaces @ 11" = 5'-6"	228 Spaces @ 12" = 228'-0"	24 Spaces @ 10" = 20'-0"	226 Spaces @ 12" = 226'-0"	6 Spaces @ 11" = 5'-6"	1 Space @ 7"
Girder 2	6 Spaces @ 11" = 5'-6"	228 Spaces @ 12" = 228'-0"	24 Spaces @ 10" = 20'-0"	226 Spaces @ 12" = 226'-0"	8 Spaces @ 11" = 7'-4"	
Girder 3				198 Spaces @ 12" = 198'-0"	5 Spaces @ 11" = 4'-7"	2 Spaces @ 7" = 1'-2"
Girder 4	6 Spaces @ 11" = 5'-6"	229 Spaces @ 12" = 229'-0"	24 Spaces @ 10" = 20'-0"	227 Spaces @ 12" = 227'-0"	7 Spaces @ 11" = 6'-5"	
Girder 5	6 Spaces @ 11" = 5'-6"	229 Spaces @ 12" = 229'-0"	24 Spaces @ 10" = 20'-0"	229 Spaces @ 12" = 229'-0"	5 Spaces @ 11" = 4'-7"	2 Spaces @ 7" = 1'-2"
Girder 6	6 Spaces @ 11" = 5'-6"	229 Spaces @ 12" = 229'-0"	24 Spaces @ 10" = 20'-0"	230 Spaces @ 12" = 230'-0"	6 Spaces @ 11" = 5'-6"	1 Space @ 7"
Girder 7	6 Spaces @ 11" = 5'-6"	230 Spaces @ 12" = 230'-0"	24 Spaces @ 10" = 20'-0"	230 Spaces @ 12" = 230'-0"	7 Spaces @ 11" = 6'-5"	
Girder 8	6 Spaces @ 11" = 5'-6"	230 Spaces @ 12" = 230'-0"	24 Spaces @ 10" = 20'-0"	232 Spaces @ 12" = 232'-0"	5 Spaces @ 11" = 4'-7"	2 Spaces @ 7" = 1'-2"



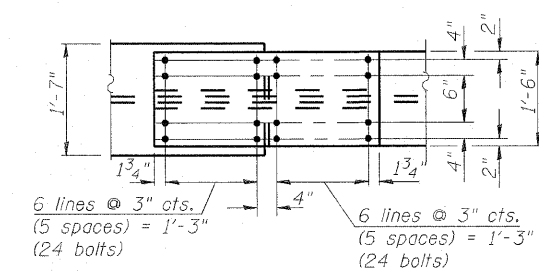
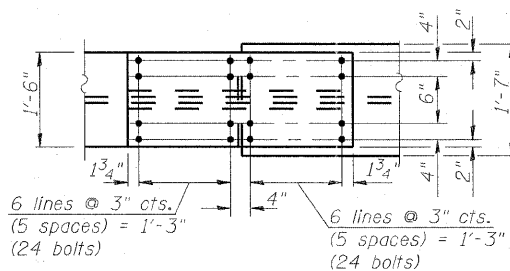
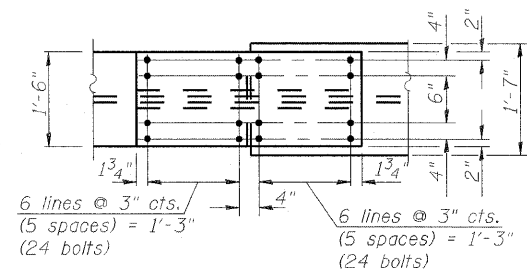
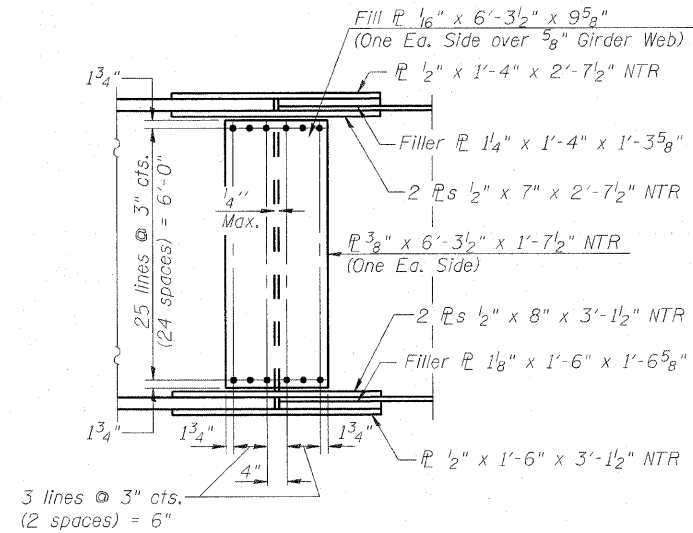
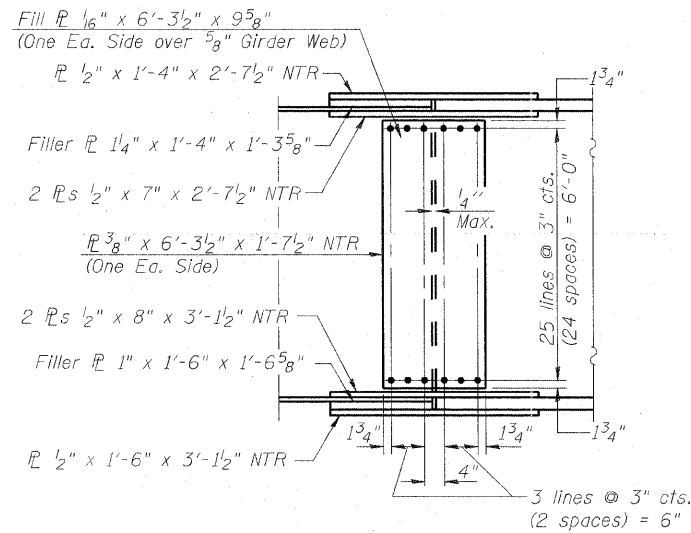
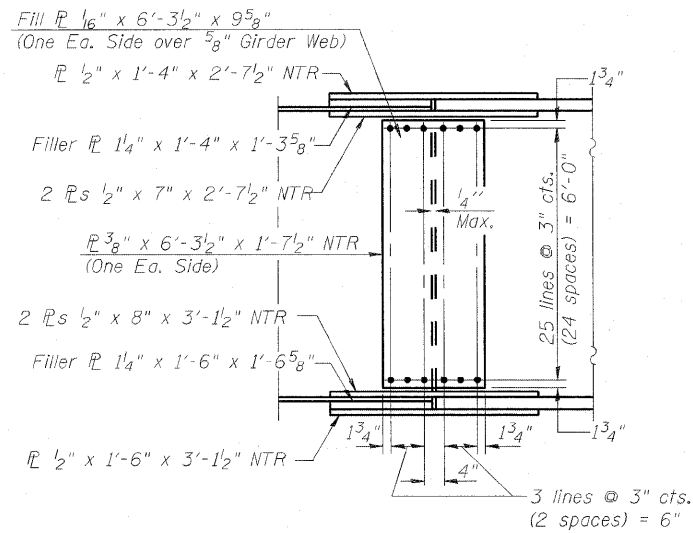
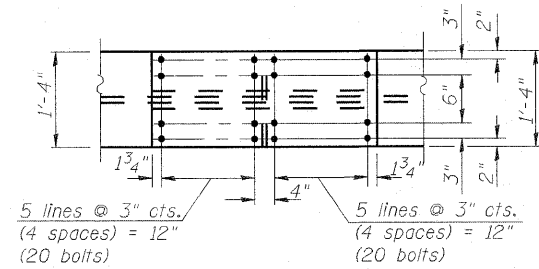
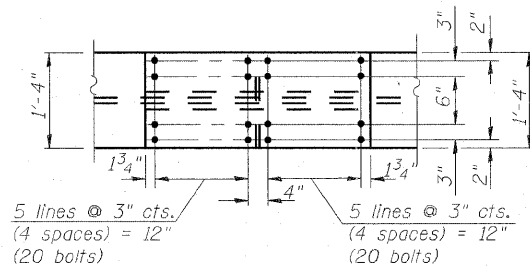
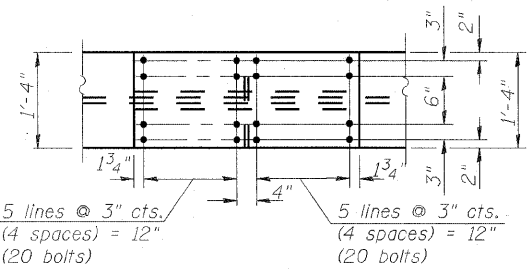
SECTION A-A

Baseline 70E55N

GIRDER DIMENSIONS										
Location	Tangent	Curved								Length of Girder
	CL. Brg W. Abut. to PC	Radius	A	B	C	D	E	F	G	
Girder 1	11.503	2,953.917	96.488	40.103	39.678	110.656	40.100	39.681	107.386	487.263
Girder 2	11.503	2,962.917	96.782	39.988	40.036	110.993	39.989	40.036	107.483	488.477
Girder 3		2,969.317						55.876	40.289	107.551
Girder 4	89.576	2,954.083	18.874	39.893	39.893	111.701	39.893	39.893	108.210	489.599
Girder 5	89.576	2,963.083	18.931	40.015	40.015	112.041	40.015	40.015	108.540	490.813
Girder 6	89.576	2,972.083	18.989	40.136	40.136	112.381	40.136	40.136	108.869	492.027
Girder 7	89.576	2,981.083	19.046	40.258	40.258	112.722	40.258	40.258	109.199	493.240
Girder 8	89.576	2,990.083	19.104	40.379	40.379	113.062	40.379	40.379	109.529	494.454

Local Tangent to Baseline 70E55N at Sta. 58+07.32

GIRDER LAYOUT DIMENSIONS																
Location	CL. Brg. W. Abut		Field Splice 1		Pier 1		Field Splice 2A		Field Splice 2B		Pier 2		Field Splice 3		Cl. Brg. Pier 3	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
Girder 1	-604.204	-81.404	-497.628	-64.016	-457.900	-58.545	-418.524	-53.663	-308.405	-42.846	-268.409	-39.946	-228.797	-37.611	-121.479	-33.961
Girder 2	-605.783	-72.543	-498.917	-55.109	-459.303	-49.652	-419.571	-44.724	-309.116	-33.875	-269.233	-30.981	-229.267	-28.623	-121.852	-24.966
Girder 3					Begin Girder 3 =		-325.536	-28.800	-309.623	-27.495	-269.819	-24.605	-229.600	-22.231	-122.117	-18.569
Girder 4	-606.339	-69.426	-499.560	-50.463	-460.197	-43.982	-420.750	-38.034	-309.914	-24.218	-270.214	-20.301	-230.465	-16.920	-122.454	-10.456
Girder 5	-607.917	-60.565	-501.082	-41.593	-461.599	-35.092	-422.032	-29.126	-310.858	-15.268	-271.037	-11.339	-231.167	-7.948	-122.827	-1.464
Girder 6	-609.496	-51.705	-502.604	-32.722	-463.001	-26.202	-423.314	-20.217	-311.802	-6.318	-271.860	-2.377	-231.869	1.025	-123.200	7.529
Girder 7	-611.074	-42.844	-504.126	-23.852	-464.403	-17.312	-424.596	-11.309	-312.747	2.633	-272.684	6.586	-232.571	9.997	-123.573	16.521
Girder 8	-612.653	-33.984	-505.648	-14.981	-465.805	-8.422	-425.878	-2.401	-313.691	11.583	-273.507	15.548	-233.273	18.970	-123.946	25.513



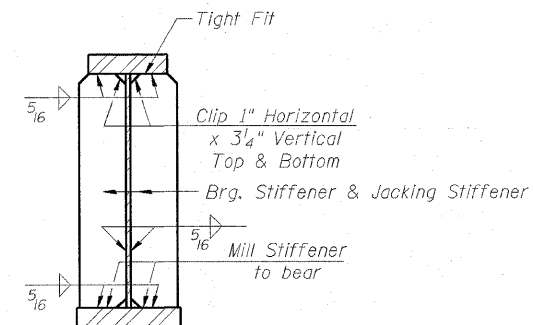
**FIELD SPLICE 1 DETAIL**  
(7 Required)

**FIELD SPLICE 2A & 2B DETAIL**  
(Field Splice 2A Opposite Hand)  
(14 Required)

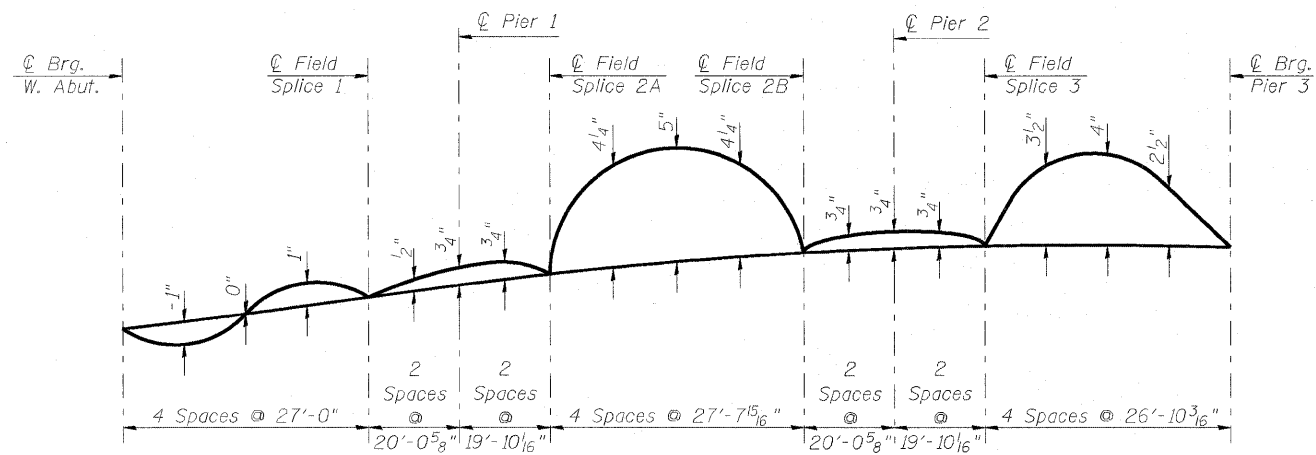
**FIELD SPLICE 3 DETAIL**  
(8 Required)

Notes:

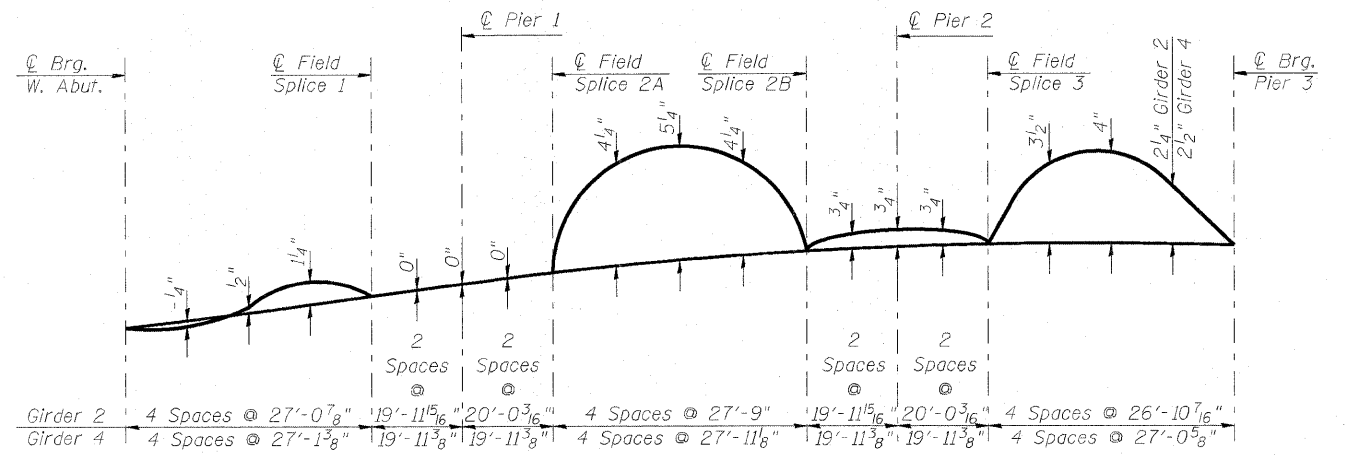
1. AASHTO M270 Grade 50 steel shall be used for all splice plates, except fill plates which may be AASHTO M270 Grade 36 or 50.
2. Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness (Zone 2), including all flange and web splice plates (except fill plates).
3. Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts. Bolts 7/8 in.  $\phi$ , holes 15/16 in.  $\phi$ , unless otherwise noted. Design assumes threads in shear plane and Class A slip surface.
4. The Contractor is alerted that differences in web thickness across the splice create a slight misalignment of the webs that may need to be accounted for when detailing cross frames in shop drawings in order to properly control geometry and avoid any fit-up issues. The web fill plates are shown with one each side of web; alternatively, they may be detailed and installed on the same side of the web at rows of adjacent splices in order to minimize girder spacing differences at these locations.



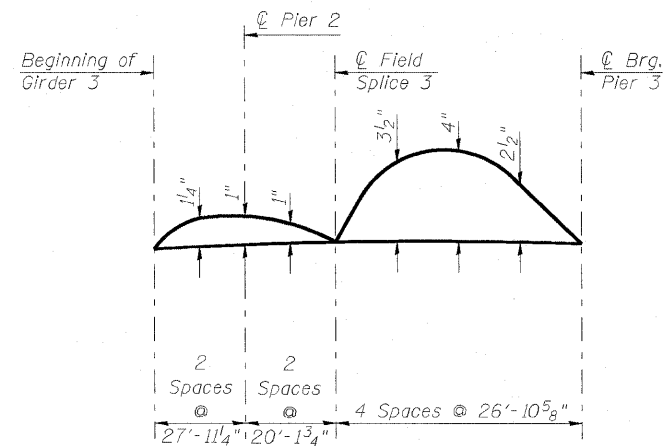
**SECTION AT PIERS & ABUTMENT**



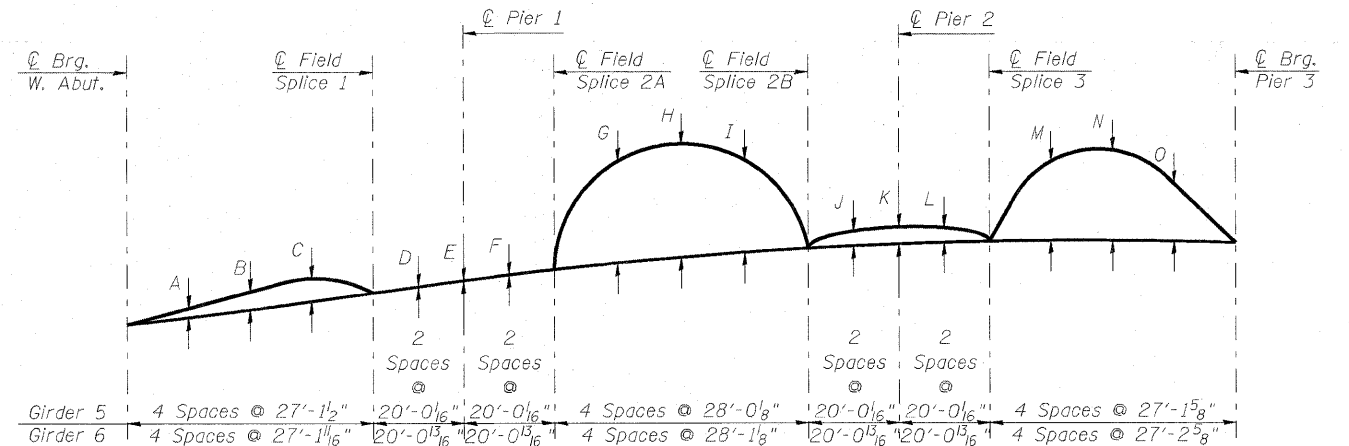
**CAMBER DIAGRAM - STR. NO. 082-0322 - UNIT 1 - GIRDER 1**



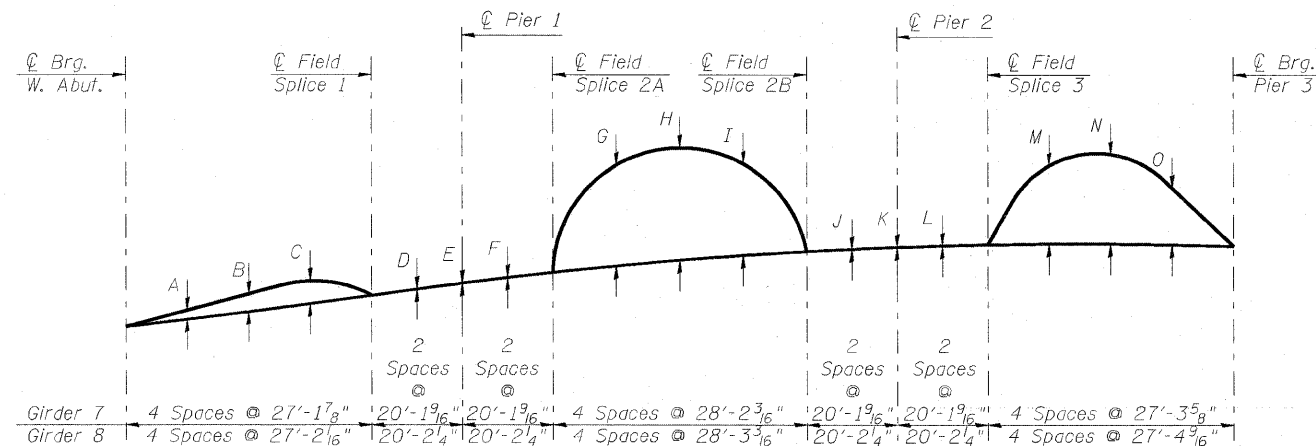
**CAMBER DIAGRAM - STR. NO. 082-0322 - UNIT 1 - GIRDERS 2 & 4**



**CAMBER DIAGRAM - STR. NO. 082-0322 - UNIT 1 - GIRDER 3**



**CAMBER DIAGRAM - STR. NO. 082-0322 - UNIT 1 - GIRDERS 5 & 6**



**CAMBER DIAGRAM - STR. NO. 082-0322 - UNIT 1 - GIRDERS 7 & 8**

TOP OF WEB CAMBER\* - STR. NO. 082-0322 - UNIT 1 - GIRDERS 5 & 6

Girder	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5	1/2"	1"	1 1/2"	0"	0"	0"	4 1/4"	5 1/4"	4 1/4"	3 1/4"	3 1/4"	1/2"	3 3/4"	4 1/4"	2 3/4"
6	0"	1/2"	1 1/4"	0"	0"	0"	4 1/4"	5 1/4"	4 1/4"	3 1/4"	1/2"	1/2"	3 3/4"	4 1/4"	2 3/4"

\*For fabrication use only.

TOP OF WEB CAMBER\* - STR. NO. 082-0322 - UNIT 1 - GIRDERS 7 & 8

Girder	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
7	1/4"	3/4"	1 1/4"	0"	0"	0"	4 1/4"	5 1/4"	4 1/4"	0"	0"	0"	3 3/4"	4 1/4"	2 3/4"
8	1/2"	1"	1 1/2"	0"	0"	0"	4 1/4"	5 1/4"	4 1/2"	0"	0"	0"	2 3/4"	4 1/4"	3"

\*For fabrication use only.

TOP OF WEB ELEVATIONS\* - STR. NO. 082-0322 - UNIT 1

Girder	⊙ Brg. W. Abut.	⊙ Spl. 1	⊙ Brg. Pier 1	⊙ Spl. 2A	⊙ Spl. 2B	⊙ Brg. Pier 2	⊙ Spl. 3	⊙ Brg. Pier 3
1	453.96	457.10	458.41	459.60	461.83	462.22	462.49	462.34
2	454.18	457.42	458.67	459.92	462.13	462.53	462.80	462.65
3	Beginning of Girder 3 = 462.15					462.74	463.03	462.87
4	454.26	457.58	458.86	460.14	462.47	462.90	463.20	463.14
5	454.47	457.89	459.17	460.45	462.78	463.21	463.52	463.45
6	454.61	458.20	459.48	460.76	463.09	463.50	463.83	463.75
7	454.62	458.50	459.79	461.07	463.40	463.76	464.13	464.06
8	454.60	458.80	460.09	461.38	463.71	464.07	464.44	464.37

\*For fabrication use only.



USER NAME =  
 PLOT SCALE = 0/2" = 1' / IN.  
 PLOT DATE = 6/30/2011

DESIGNED - PUL  
 DRAWN - BRD  
 CHECKED - CHY  
 DATE - 07-01-11

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**GIRDER CAMBER & TOP OF WEB ELEVATIONS - UNIT 1  
 I-70E OVER I-55, CSX & KCS RAILROADS**

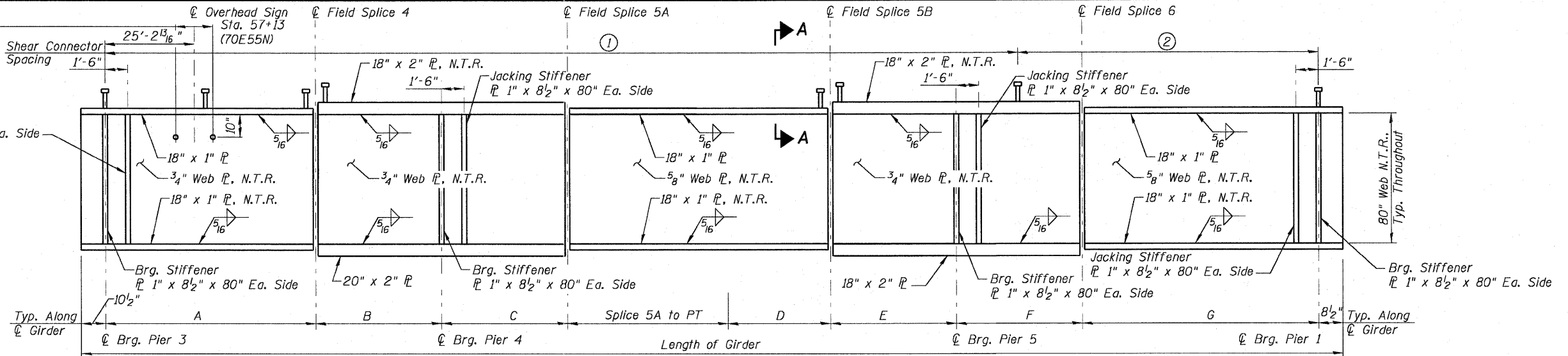
SCALE: SHEET S-102 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	229
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				



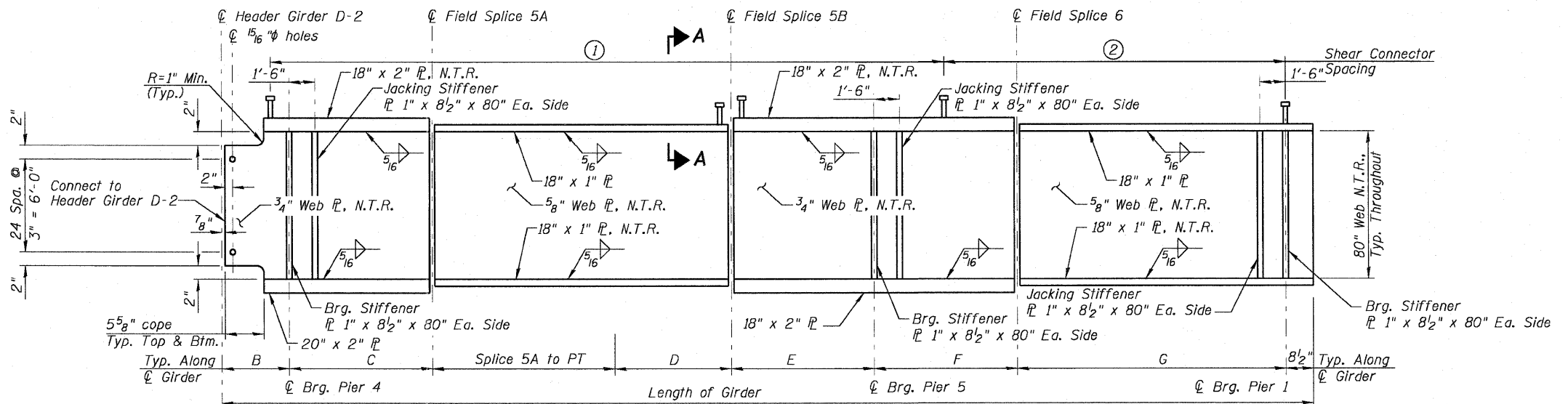
$\frac{15}{16}$ "  $\phi$  holes for 15-7/8" bolts.  
See Sheet S-76 of S-234 for details of L4x3x1/2 bolted to G1 near face & far face at overhead sign support. Cost included in Furnishing and Erecting Structural Steel.

Jacking Stiffener  
P 1" x 8 1/2" x 80" Ea. Side



**GIRDER ELEVATION - UNIT 2 - GIRDERS 1 - 4**

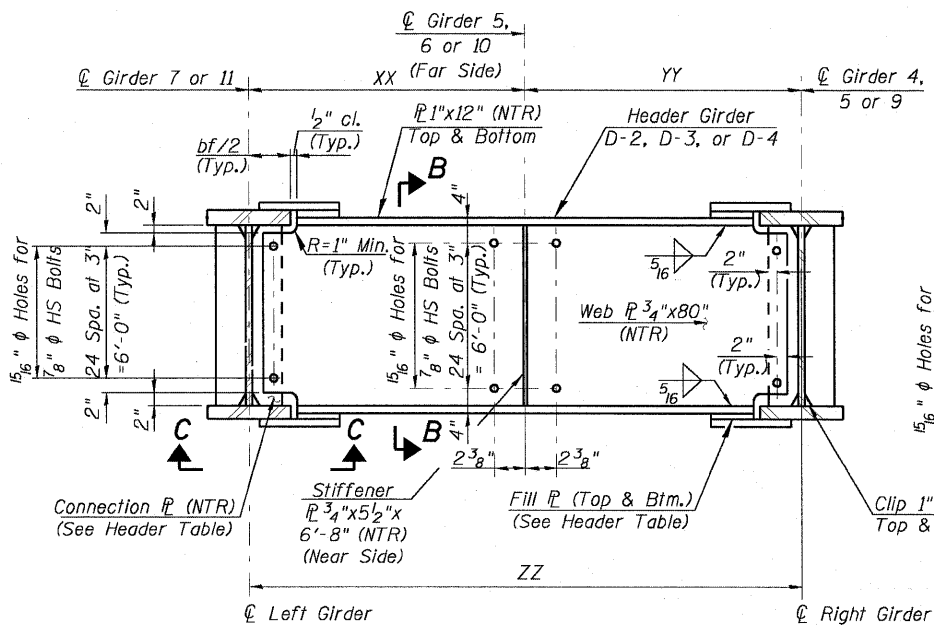
Notes:  
1. Load carrying components designated "N.T.R." shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.  
2. All steel on this sheet shall be AASHTO M270, Grade 50 Steel.



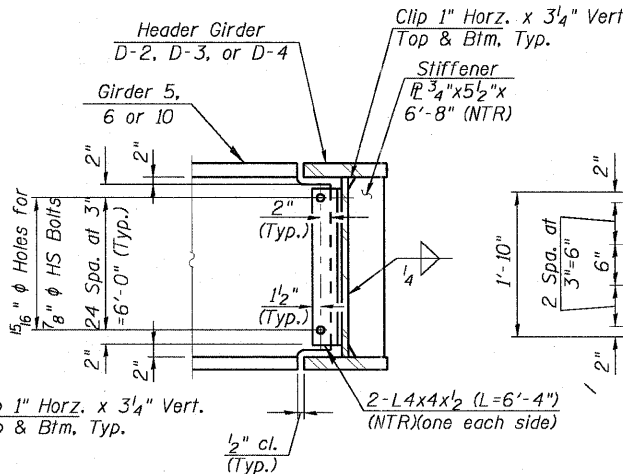
**GIRDER ELEVATION - UNIT 2 - GIRDER 5**

**HEADER GIRDER TABLE**

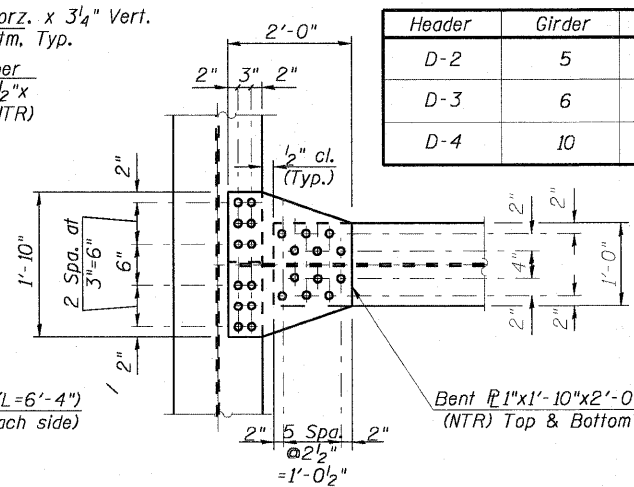
Header	Girder	XX	YY	ZZ	bf/2	Connection P	Fill P
D-2	5	3'-7 1/8"	7'-2"	10'-9 1/8"	9" Top 10" Btm.	P 3/4" x 8 1/2" x 6'-8" (NTR)	P 1" x 1'-0" x 1'-4 1/2" Top & Bottom
D-3	6	9'-0"	2'-8 1/8"	11'-8 1/8"	9" Top & Btm.	P 3/4" x 8 1/2" x 6'-8" (NTR)	None
D-4	10	2'-8 7/16"	6'-8"	9'-4 7/16"	9" Top & Btm.	P 3/4" x 8 1/2" x 6'-8" (NTR)	None



**UNIT 2 - HEADER GIRDERS D-2, D-3 & D-4 ELEVATION**  
(Girder 5, 6 or 10 omitted for clarity)  
(Looking up Station)



**SECTION B-B**



**SECTION C-C**

\* Gusset Plate to be bent at flange edge to accommodate slope of Header Girder

**HEADER SKEW TABLE**

Header	Right Girder	Skew	Left Girder	Skew
D-2	4	0°	7	1.656° FL
D-3	5	4.235° FR	7	0°
D-4	9	0°	11	1.837° FL

Girders 5, 6 & 10 are at right angles to Headers D-2, D-3 & D-4, respectively.  
FR = Forward Right  
FL = Forward Left



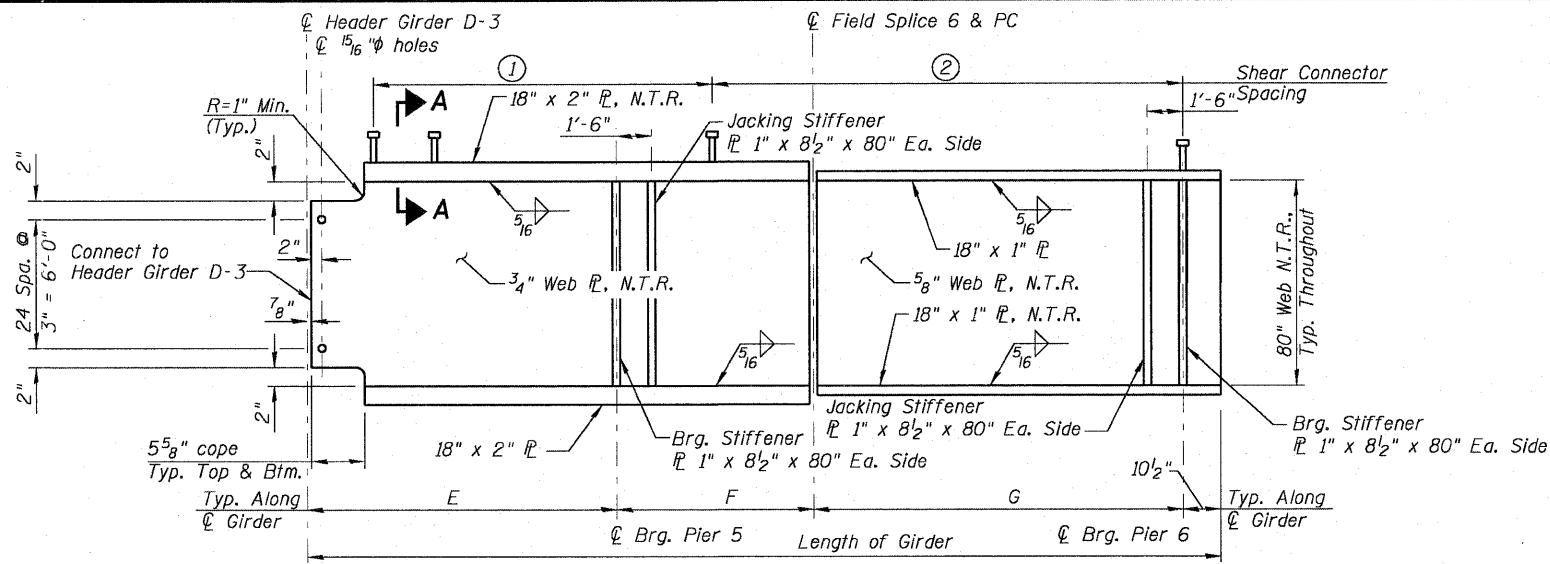
USER NAME =	DESIGNED - PUL	REVISED -
PLOT SCALE = 0.25/0.200 1/4" = 1"	DRAWN - BRD	REVISED -
PLOT DATE = 6/30/2011	CHECKED - CHY	REVISED -
	DATE - 07-01-11	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN - UNIT 2 - II  
I-70E OVER I-55, CSX & KCS RAILROADS

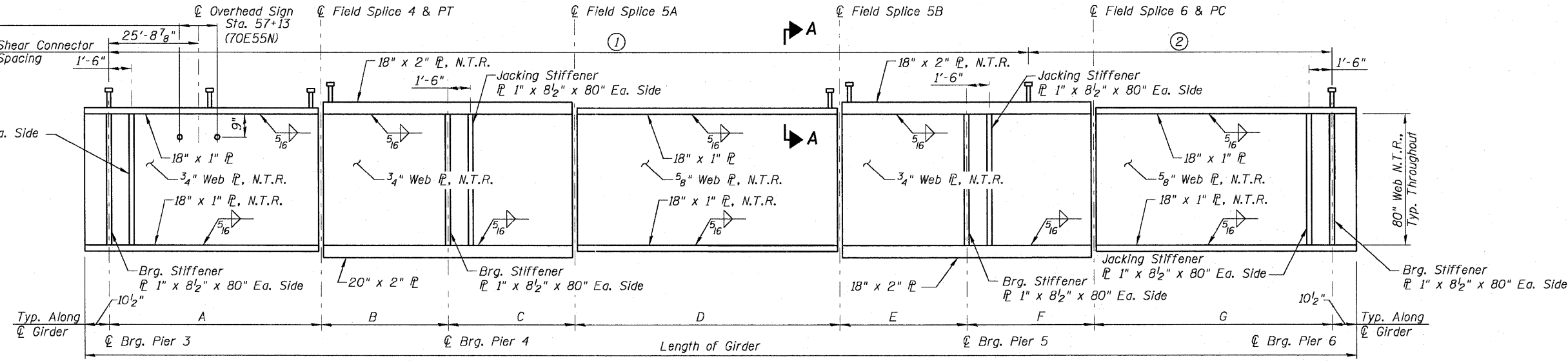
SCALE: SHEET S-104 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE. TO	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 231
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				



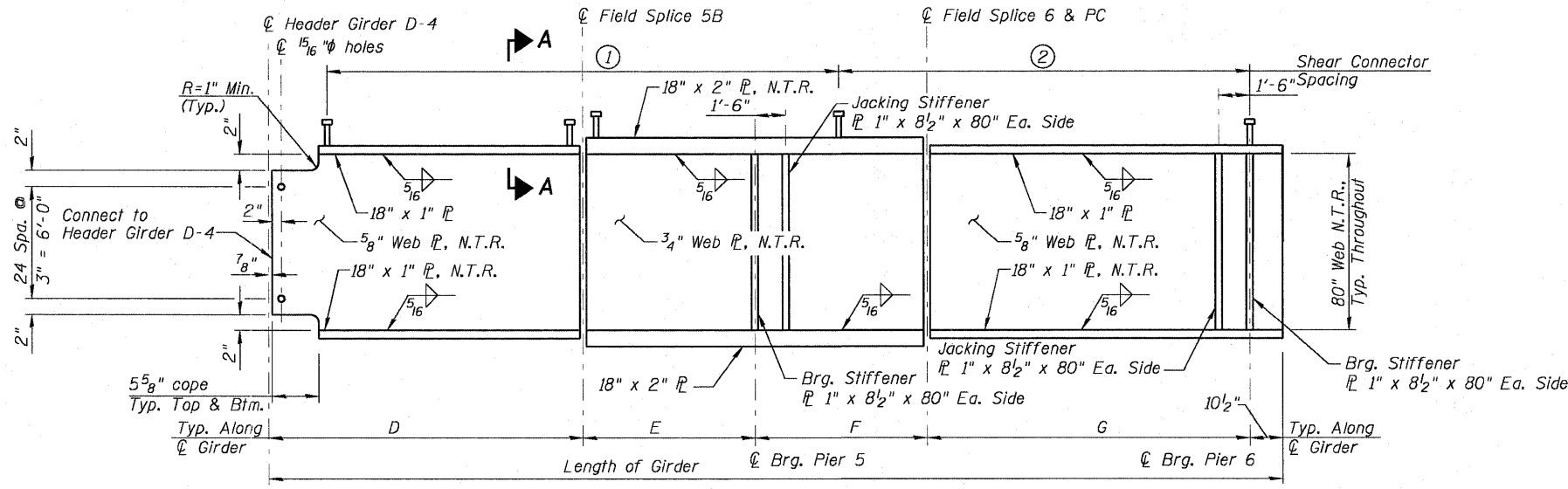
**GIRDER ELEVATION - UNIT 2 - GIRDER 6**

5/16" φ holes for 14-7/8" φ bolts.  
See Sheet S-76 of S-234 for details of L4x3x1/2 bolted to G11 near face & far face at overhead sign support. Cost included in Furnishing and Erecting Structural Steel.



**GIRDER ELEVATION - UNIT 2 - GIRDERS 7 - 9 & 11**

Notes:  
1. Load carrying components designated "N.T.R." shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.  
2. All steel on this sheet shall be AASHTO M270, Grade 50 Steel.



**GIRDER ELEVATION - UNIT 2 - GIRDER 10**



USER NAME =	DESIGNED - P.J.L.	REVISED -
PLOT SCALE = 0/2.0000 1" / IN.	DRAWN - BRD	REVISED -
PLOT DATE = 6/30/2011	CHECKED - CHY	REVISED -
	DATE - 07-01-11	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

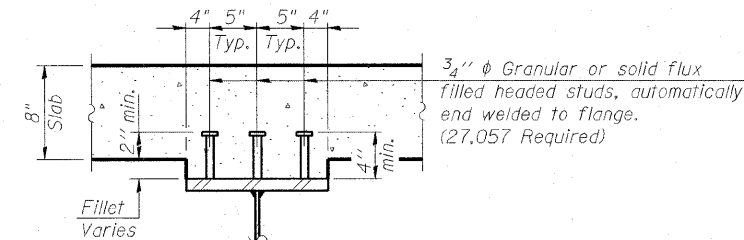
FRAMING PLAN - UNIT 2 - III  
I-70E OVER I-55, CSX & KCS RAILROADS  
SCALE: SHEET S-105 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 232
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				



Baseline 70E55N No studs on splices: Shift studs 1/2 each way & cut adjacent space in half.

SHEAR CONNECTOR SPACING TABLE		
Location	1	2
Girder 1	713 Spaces @ 6" = 356'-6"	192 Spaces @ 7" = 112'-0"
Girder 2	714 Spaces @ 6" = 357'-0"	193 Spaces @ 7" = 112'-7"
Girder 3	716 Spaces @ 6" = 358'-0"	193 Spaces @ 7" = 112'-7"
Girder 4	717 Spaces @ 6" = 358'-6"	194 Spaces @ 7" = 113'-2"
Girder 5	459 Spaces @ 6" = 229'-6"	191 Spaces @ 7" = 111'-5"
Girder 6	182 Spaces @ 6" = 91'-0"	199 Spaces @ 7" = 116'-1"
Girder 7	749 Spaces @ 6" = 374'-6"	196 Spaces @ 7" = 114'-4"
Girder 8	755 Spaces @ 6" = 377'-6"	190 Spaces @ 7" = 110'-10"
Girder 9	754 Spaces @ 6" = 377'-0"	190 Spaces @ 7" = 110'-10"
Girder 10	387 Spaces @ 6" = 193'-6"	179 Spaces @ 7" = 104'-5"
Girder 11	774 Spaces @ 6" = 387'-0"	171 Spaces @ 7" = 99'-9"



SECTION A-A

Baseline 70E55N

GIRDER DIMENSIONS										
Location	Radius				Splice 5A to PT	Tangent				Length of Girder
	Radius	A	B	C		D	E	F	G	
Girder 1	2,953.917	115.021	34.195	33.619	79.248	32.620	32.676	35.324	105.848	470.135
Girder 2	2,962.917	115.602	33.978	34.043	79.490	32.620	34.150	33.850	105.848	471.164
Girder 3	2,971.917	116.183	33.761	34.467	79.731	32.620	35.625	32.375	105.848	472.194
Girder 4	2,980.917	116.765	33.543	34.891	79.972	32.620	37.099	30.901	105.848	473.223
Girder 5	2,988.083	119.114	35.228	35.228	80.165	32.620	38.273	29.727	105.848	341.684
Location	Radius				Splice 5A to PT	Tangent				Length of Girder
	Radius	A	B	C		D	E	F	Radius	
Girder 6	2,964.917	119.935	30.682	35.000	114.000	55.535	46.744	1,106.083	104.797	207.952
Girder 7	2,973.917	120.299	30.682	35.000	114.000	40.702	44.577	1,097.083	103.944	490.592
Girder 8	2,982.917	120.664	30.682	35.000	114.000	42.869	42.410	1,088.083	103.092	490.103
Girder 9	2,990.917	120.664	30.682	35.000	114.000	45.037	40.243	1,079.083	102.239	489.614
Girder 10	2,990.083	120.953	30.698	35.018	114.059	46.642	38.637	1,072.417	101.607	298.762
Girder 11	2,990.083	120.953	30.698	35.018	114.059	48.550	36.773	1,063.417	100.755	488.556

Local Tangent to Baseline 70E55N at Sta. 60+72.28

GIRDER LAYOUT DIMENSIONS																
Location	CL. Brg. Pier 3		Field Splice 4		Pier 4		Field Splice 5A		Field Splice 5B		Pier 5		Field Splice 6		Cl. Brg. Pier 1	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
Girder 1	-383.473	-33.915	-268.460	-34.451	-234.281	-35.474	-200.690	-36.865	-89.058	-44.065	-56.472	-46.478	-21.244	-49.086	84.315	-56.903
Girder 2	-383.837	-24.920	-268.243	-25.453	-234.281	-26.468	-200.267	-27.875	-88.394	-35.090	-54.337	-37.611	-20.579	-40.111	84.980	-47.927
Girder 3	-384.201	-15.924	-268.026	-16.456	-234.281	-17.462	-199.843	-18.885	-87.729	-26.114	-52.202	-28.745	-19.915	-31.136	85.644	-38.952
Girder 4	-384.565	-6.928	-267.809	-7.459	-234.281	-8.457	-199.420	-9.895	-87.064	-17.139	-50.067	-19.878	-19.250	-22.160	86.309	-29.977
Girder 5	Begin Girder 5 =		-253.384	-0.672	-234.281	-1.285	-199.082	-2.736	-86.535	-9.992	-48.367	-12.818	-18.721	-15.013	86.838	-22.829
Girder 6					Begin Girder 6 =		-102.281	-6.083	-85.280	-6.083	-46.745	-6.083	0.000	-6.083	104.640	-1.123
Girder 7	-384.865	0.491	-264.963	2.917	-234.281	2.917	-199.281	2.917	-85.280	2.917	-44.578	2.917	0.000	2.917	103.788	7.837
Girder 8	-385.229	9.484	-264.963	11.917	-234.281	11.917	-199.281	11.917	-85.280	11.917	-42.410	11.917	0.000	11.917	102.937	16.797
Girder 9	-385.593	18.477	-264.963	20.917	-234.281	20.917	-199.281	20.917	-85.280	20.917	-40.243	20.917	0.000	20.917	102.085	25.756
Girder 10					Begin Girder 10 =		-196.281	27.583	-85.280	27.583	-38.638	27.583	0.000	27.583	101.455	32.393
Girder 11	-385.883	25.638	-264.963	28.084	-234.281	29.068	-199.281	30.191	-85.280	33.848	-36.755	35.404	0.000	36.583	100.603	41.353



USER NAME =  
 PLOT SCALE = 0.2" = 1'-0"  
 PLOT DATE = 5/30/2011

DESIGNED - P.J.L.  
 DRAWN - BRD  
 CHECKED - CHY  
 DATE - 07-01-11

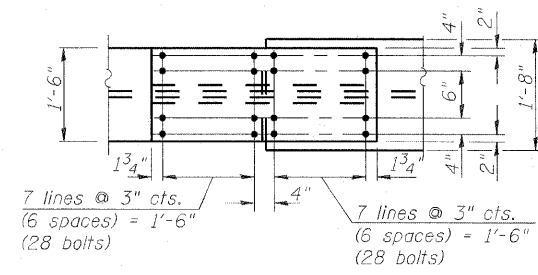
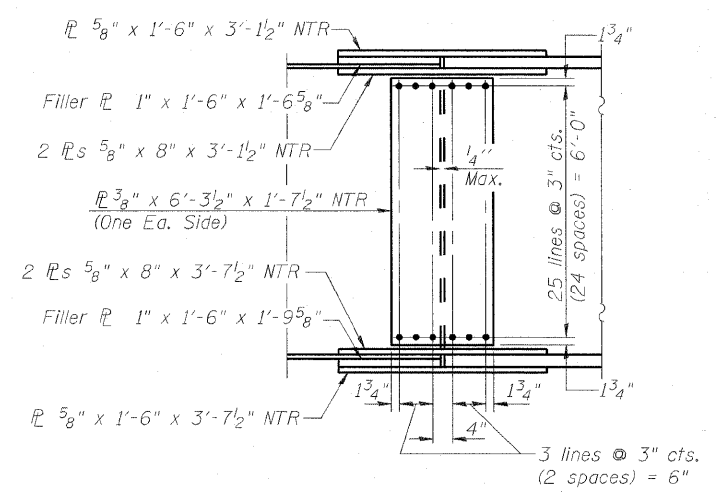
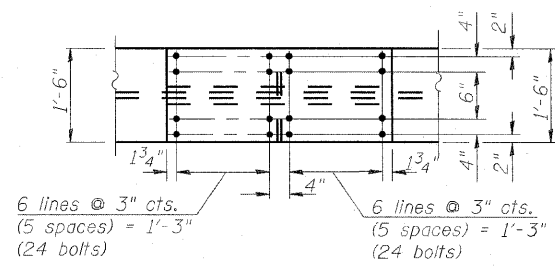
REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

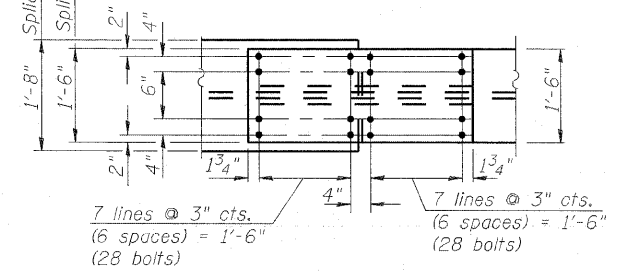
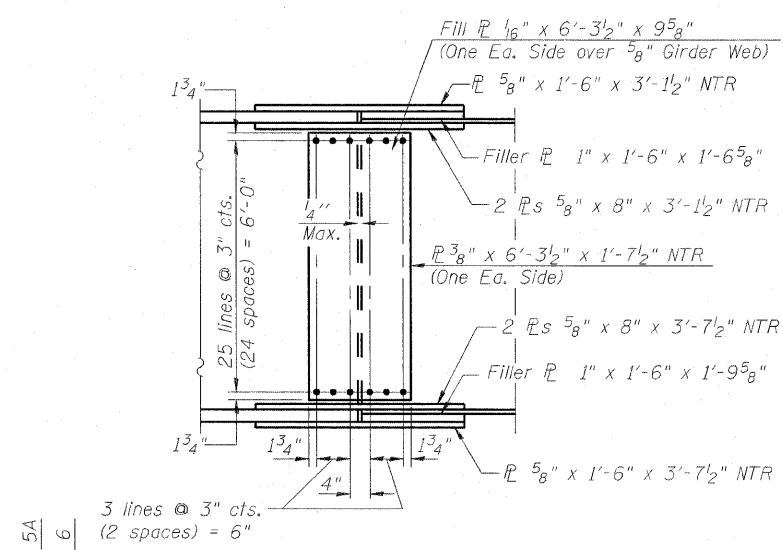
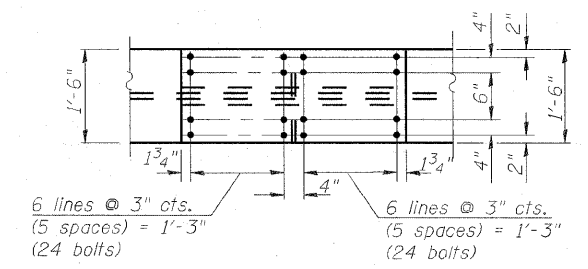
STRUCTURAL STEEL DETAILS - UNIT 2 - I  
 I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: SHEET S-106 OF S-234 SHEETS STA. TO STA.

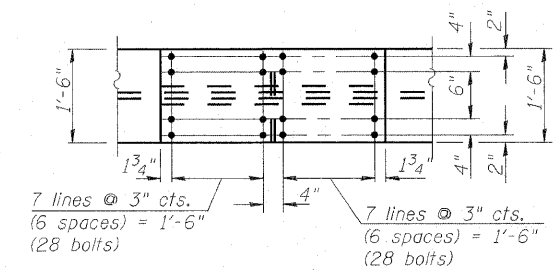
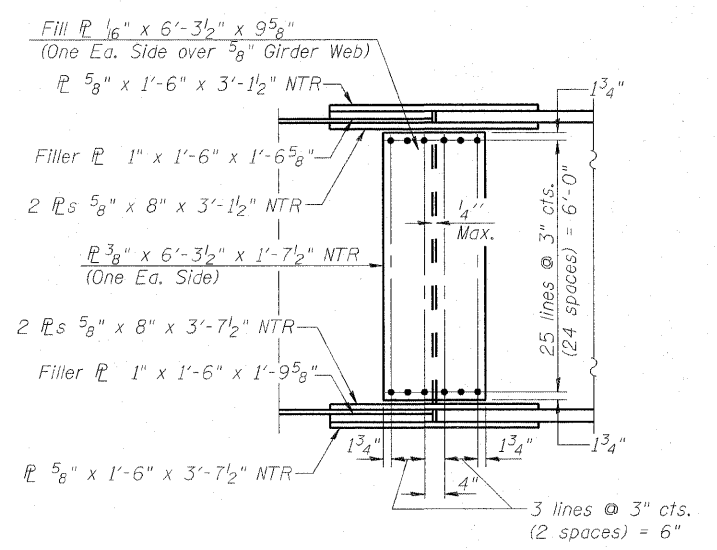
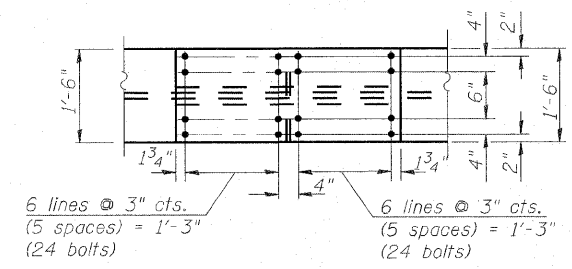
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	233
S.N. 082-0322 & S.N. 082-0324			CONTRACT NO. 76C76	
FED. ROAD DIST. NO.			ILLINOIS FED. AID PROJECT	



**FIELD SPLICE 4 DETAIL**  
(8 Required)

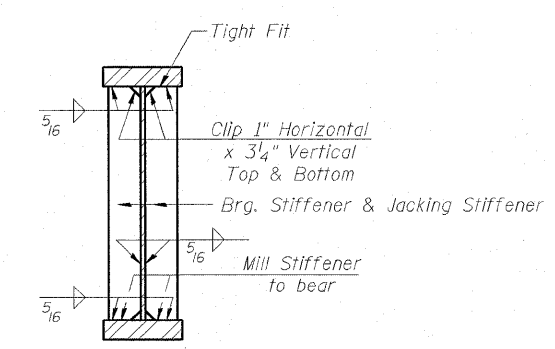


**FIELD SPLICE 5A & 6 DETAIL**  
(20 Required)



**FIELD SPLICE 5B DETAIL**  
(10 Required)

- Notes:
1. AASHTO M270 Grade 50 steel shall be used for all splice plates, except fill plates which may be AASHTO M270 Grade 36 or 50.
  2. Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness (Zone 2), including all flange and web splice plates (except fill plates).
  3. Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts. Bolts 7/8 in.  $\phi$ , holes 15/16 in.  $\phi$ , unless otherwise noted. Design assumes threads in shear plane and Class A slip surface.
  4. The Contractor is alerted that differences in web thickness across the splice create a slight misalignment of the webs that may need to be accounted for when detailing cross frames in shop drawings in order to properly control geometry and avoid any fit-up issues. The web fill plates are shown with one each side of web; alternatively, they may be detailed and installed on the same side of the web at rows of adjacent splices in order to minimize girder spacing differences at these locations.



**SECTION AT PIERS**

K:\projects\082-0322 & 0324\figover\082-0322-0324\01.dwg 082-0322-0324\01.dwg 082-0322-0324\01.dwg 082-0322-0324\01.dwg 082-0322-0324\01.dwg

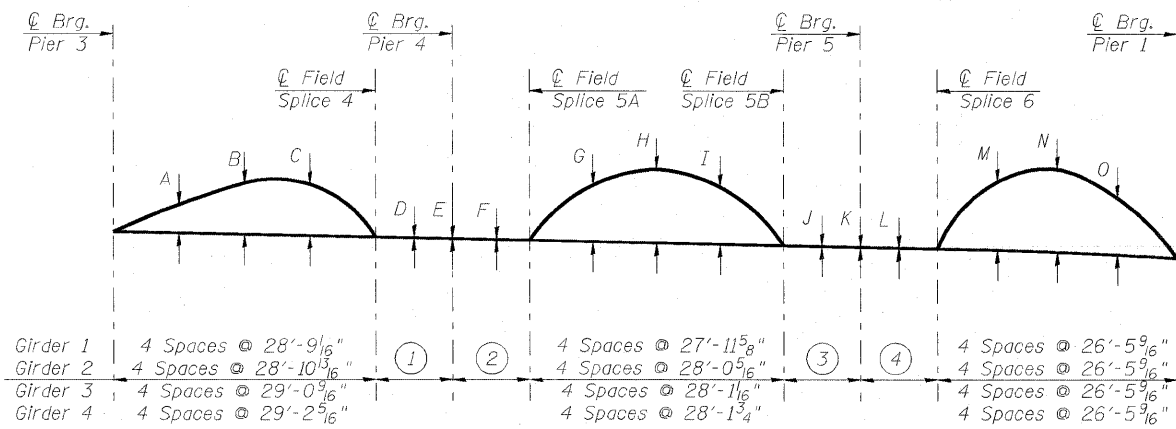


USER NAME =	DESIGNED - P.J.L.	REVISED -
PLOT SCALE = 0x2 1/4" IN.	DRAWN - BRD	REVISED -
PLOT DATE = 6/30/2011	CHECKED - CHY	REVISED -
	DATE - 07-01-11	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

<b>STRUCTURAL STEEL DETAILS - UNIT 2 - II</b>	
<b>I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>	
SCALE:	SHEET S-107 OF S-234 SHEETS
STA.	TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	234
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

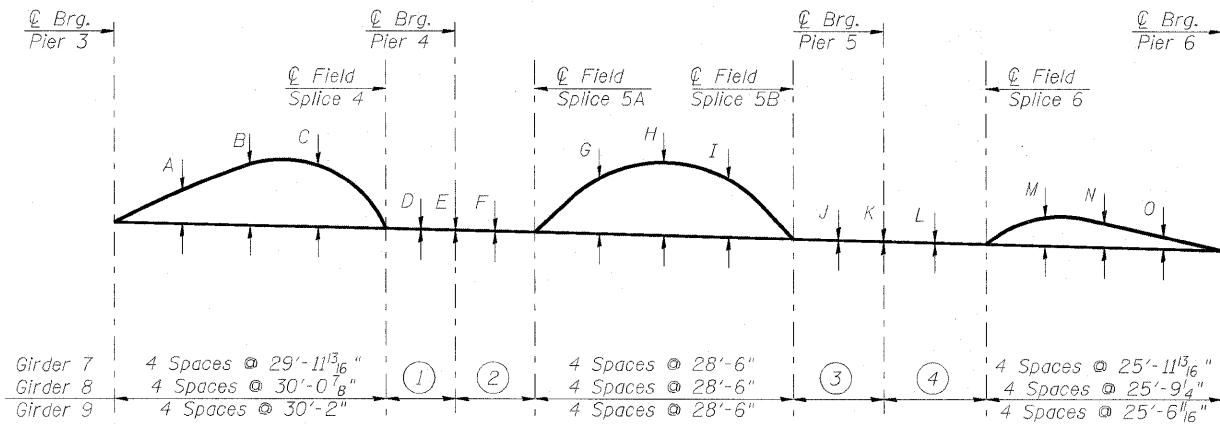


CAMBER DIAGRAM - STR. NO. 082-0322 - UNIT 2 - GIRDERS 1 - 4

2 Spaces @				
Girder	①	②	③	④
1	17'-1 <sup>3</sup> / <sub>16</sub> "	16'-9 <sup>1</sup> / <sub>16</sub> "	16'-4 <sup>1</sup> / <sub>16</sub> "	17'-7 <sup>5</sup> / <sub>16</sub> "
2	16'-11 <sup>7</sup> / <sub>8</sub> "	17'-0 <sup>1</sup> / <sub>4</sub> "	17'-0 <sup>7</sup> / <sub>8</sub> "	16'-11 <sup>7</sup> / <sub>8</sub> "
3	16'-10 <sup>9</sup> / <sub>16</sub> "	17'-2 <sup>13</sup> / <sub>16</sub> "	17'-9 <sup>3</sup> / <sub>4</sub> "	16'-2 <sup>1</sup> / <sub>4</sub> "
4	16'-9 <sup>1</sup> / <sub>4</sub> "	17'-5 <sup>3</sup> / <sub>8</sub> "	18'-6 <sup>5</sup> / <sub>8</sub> "	15'-5 <sup>3</sup> / <sub>8</sub> "

TOP OF WEB CAMBER* - STR. NO. 082-0322 - UNIT 2 - GIRDERS 1 & 4															
Girder	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	1 <sup>1</sup> / <sub>4</sub> "	2 <sup>1</sup> / <sub>4</sub> "	2 <sup>1</sup> / <sub>4</sub> "	0"	0"	0"	1 <sup>3</sup> / <sub>4</sub> "	1 <sup>3</sup> / <sub>4</sub> "	1 <sup>3</sup> / <sub>4</sub> "	0"	0"	0"	3 <sup>1</sup> / <sub>4</sub> "	3 <sup>3</sup> / <sub>4</sub> "	2 <sup>1</sup> / <sub>2</sub> "
2	1 <sup>1</sup> / <sub>4</sub> "	2 <sup>1</sup> / <sub>4</sub> "	2"	0"	0"	0"	2 <sup>1</sup> / <sub>4</sub> "	2 <sup>1</sup> / <sub>2</sub> "	2 <sup>1</sup> / <sub>4</sub> "	0"	0"	0"	3 <sup>1</sup> / <sub>4</sub> "	3 <sup>3</sup> / <sub>4</sub> "	2 <sup>1</sup> / <sub>2</sub> "
3	1 <sup>1</sup> / <sub>4</sub> "	2 <sup>1</sup> / <sub>4</sub> "	2"	0"	0"	0"	2 <sup>3</sup> / <sub>4</sub> "	3 <sup>1</sup> / <sub>4</sub> "	2 <sup>3</sup> / <sub>4</sub> "	0"	0"	0"	3 <sup>1</sup> / <sub>4</sub> "	3 <sup>3</sup> / <sub>4</sub> "	2 <sup>1</sup> / <sub>2</sub> "
4	1 <sup>1</sup> / <sub>4</sub> "	2"	2"	0"	0"	0"	3"	3 <sup>1</sup> / <sub>2</sub> "	3"	0"	0"	0"	3 <sup>1</sup> / <sub>4</sub> "	3 <sup>1</sup> / <sub>2</sub> "	2 <sup>1</sup> / <sub>2</sub> "

\*For fabrication use only.

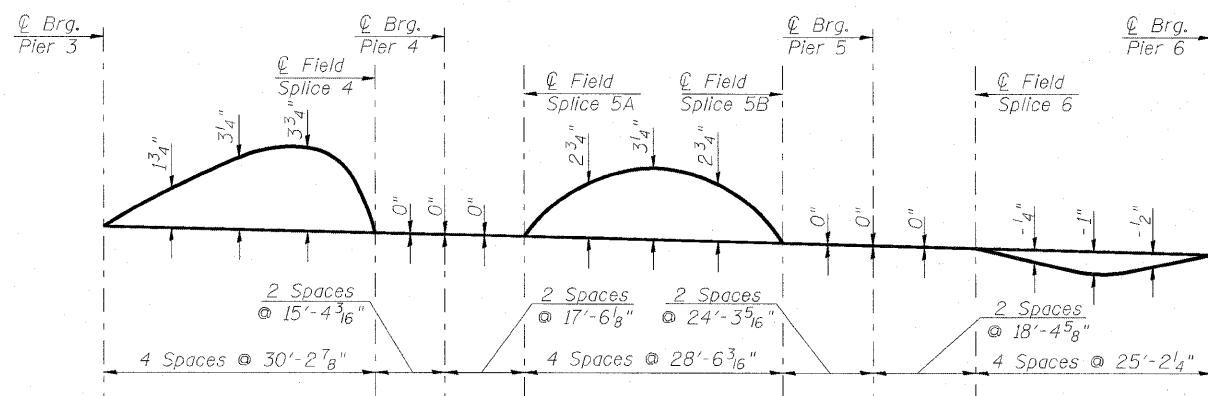


CAMBER DIAGRAM - STR. NO. 082-0322 - UNIT 2 - GIRDERS 7 - 9

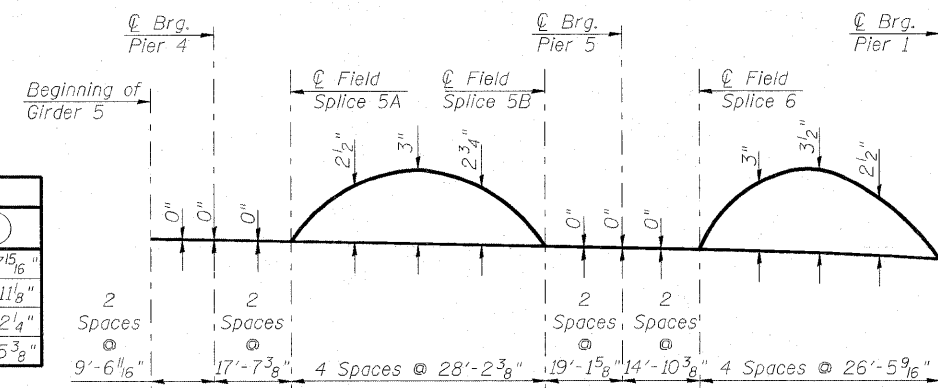
2 Spaces @				
Girder	①	②	③	④
7	15'-4 <sup>1</sup> / <sub>16</sub> "	17'-6"	20'-4 <sup>3</sup> / <sub>16</sub> "	22'-3 <sup>7</sup> / <sub>16</sub> "
8	15'-4 <sup>1</sup> / <sub>16</sub> "	17'-6"	21'-5 <sup>3</sup> / <sub>16</sub> "	21'-2 <sup>7</sup> / <sub>16</sub> "
9	15'-4 <sup>1</sup> / <sub>16</sub> "	17'-6"	22'-6 <sup>1</sup> / <sub>4</sub> "	20'-1 <sup>1</sup> / <sub>16</sub> "

TOP OF WEB CAMBER* - STR. NO. 082-0322 - UNIT 2 - GIRDERS 7 - 9															
Girder	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
7	1 <sup>1</sup> / <sub>2</sub> "	2 <sup>1</sup> / <sub>4</sub> "	2 <sup>1</sup> / <sub>4</sub> "	0"	0"	0"	2 <sup>3</sup> / <sub>4</sub> "	3 <sup>1</sup> / <sub>4</sub> "	3"	0"	0"	0"	1 <sup>3</sup> / <sub>4</sub> "	1 <sup>3</sup> / <sub>4</sub> "	1"
8	1 <sup>1</sup> / <sub>2</sub> "	2 <sup>3</sup> / <sub>4</sub> "	2 <sup>3</sup> / <sub>4</sub> "	0"	0"	0"	2 <sup>3</sup> / <sub>4</sub> "	3 <sup>1</sup> / <sub>4</sub> "	3"	0"	0"	0"	1 <sup>1</sup> / <sub>4</sub> "	1"	3 <sup>3</sup> / <sub>4</sub> "
9	1 <sup>3</sup> / <sub>4</sub> "	3"	3 <sup>1</sup> / <sub>4</sub> "	0"	0"	0"	2 <sup>3</sup> / <sub>4</sub> "	3 <sup>1</sup> / <sub>4</sub> "	3"	0"	0"	0"	3 <sup>3</sup> / <sub>4</sub> "	1 <sup>1</sup> / <sub>4</sub> "	1 <sup>1</sup> / <sub>4</sub> "

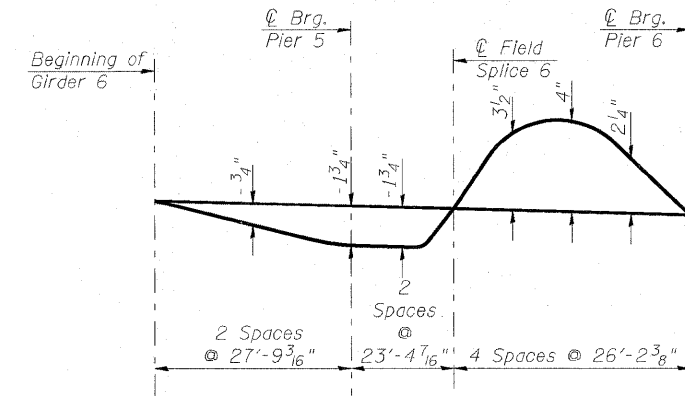
\*For fabrication use only.



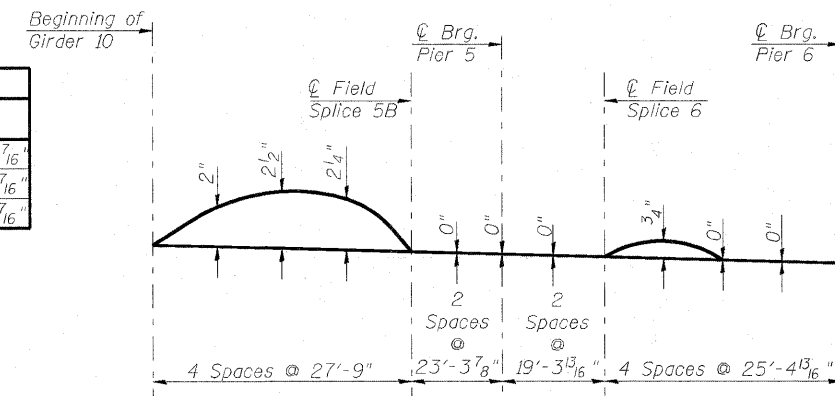
CAMBER DIAGRAM - STR. NO. 082-0322 - UNIT 2 - GIRDER 11



CAMBER DIAGRAM - STR. NO. 082-0322 - UNIT 2 - GIRDER 5



CAMBER DIAGRAM - STR. NO. 082-0322 - UNIT 2 - GIRDER 6



CAMBER DIAGRAM - STR. NO. 082-0322 - UNIT 2 - GIRDER 10

TOP OF WEB ELEVATIONS* - STR. NO. 082-0322 - UNIT 2									
Girder	© Brg. Pier 3	© Spl. 4	© Brg. Pier 4	© Spl. 5A	© Spl. 5B	© Brg. Pier 5	© Spl. 6	© Brg. Pier 1	© Brg. Pier 6
1	462.30	461.63	461.42	461.22	460.79	460.69	460.59	459.85	
2	462.61	461.93	461.73	461.54	460.95	460.77	460.58	459.59	
3	462.92	462.23	462.04	461.86	461.11	460.83	460.57	459.34	
4	463.22	462.48	462.29	462.10	461.24	460.90	460.61	459.11	
5	Beginning of Girder 5 = 462.46		462.38	462.22	461.33	460.98	460.72	458.97	
6	Beginning of Girder 6 = 461.56					461.10	460.99		460.65
7	463.47	462.65	462.46	462.24	461.37	461.10	460.79	460.12	
8	463.78	462.89	462.63	462.33	461.18	460.77	460.36	459.60	
9	464.08	463.13	462.80	462.41	460.99	460.43	459.93	459.08	
10	Beginning of Girder 10 = 462.52		460.90	460.17	459.57	459.57	458.69		
11	464.33	463.33	462.94	462.50	460.77	459.86	459.17	458.17	

\*For fabrication use only.



USER NAME =  
 PLOT SCALE = 0.1667" / 1"  
 PLOT DATE = 6/30/2011

DESIGNED - P.J.L.  
 DRAWN - BRD  
 CHECKED - CHY  
 DATE - 07-01-11

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

GIRDER CAMBER & TOP OF WEB ELEVATIONS - UNIT 2  
 I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: SHEET S-108 OF S-234 SHEETS STA. TO STA.

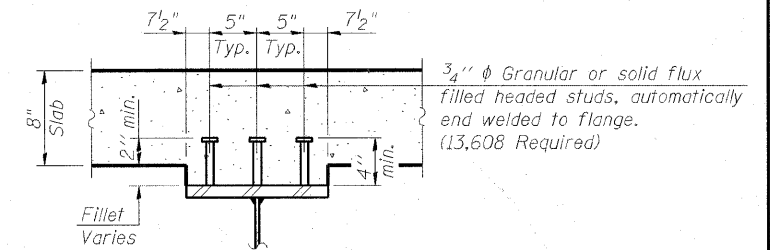
F.A.I. RTE. 70 SECTION 82-1-B-2 COUNTY ST. CLAIR TOTAL SHEETS 399 SHEET NO. 235  
 S.N. 082-0322 & S.N. 082-0324 CONTRACT NO. 76C76  
 FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT



Baseline 70E55N No studs on splices: Shift studs 1/2 each way & cut adjacent space in half.

SHEAR CONNECTOR SPACING TABLE

Location	1	2	3	4
Girder 1	15 Spaces @ 10" = 12'-6"	743 Spaces @ 12" = 743'-0"	11 Spaces @ 10" = 9'-2"	1 Space @ 9"
Girder 2	15 Spaces @ 10" = 12'-6"	737 Spaces @ 12" = 737'-0"	11 Spaces @ 10" = 9'-2"	1 Space @ 9"
Girder 3	15 Spaces @ 10" = 12'-6"	731 Spaces @ 12" = 731'-0"	11 Spaces @ 10" = 9'-2"	1 Space @ 9"
Girder 4	15 Spaces @ 10" = 12'-6"	725 Spaces @ 12" = 725'-0"	11 Spaces @ 10" = 9'-2"	1 Space @ 9"
Girder 5	15 Spaces @ 10" = 12'-6"	719 Spaces @ 12" = 719'-0"	11 Spaces @ 10" = 9'-2"	1 Space @ 9"
Girder 6	15 Spaces @ 10" = 12'-6"	713 Spaces @ 12" = 713'-0"	11 Spaces @ 10" = 9'-2"	1 Space @ 9"



SECTION A-A

Baseline 70E55N

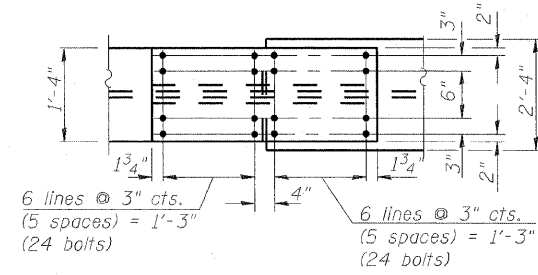
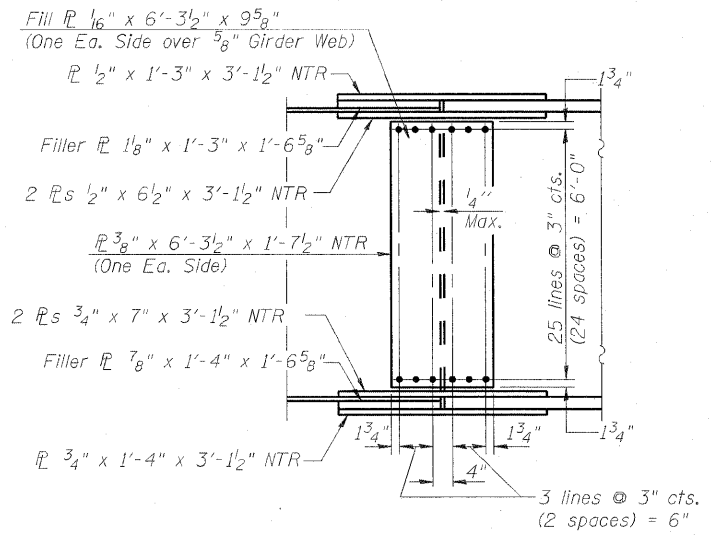
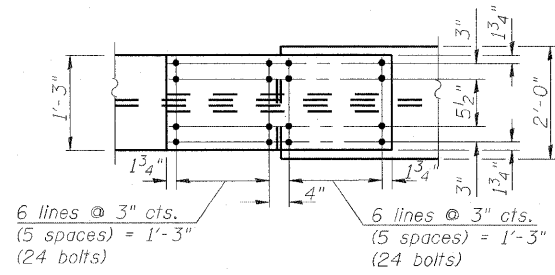
GIRDER DIMENSIONS

Location	Radius	A	B	C	D	E	F	G	H	I	J	Length of Girder
Girder 1	1,106.417	103.098	50.292	50.292	128.747	50.292	50.292	128.747	50.292	50.292	103.098	767.189
Girder 2	1,097.750	102.290	49.898	49.898	127.738	49.898	49.898	127.738	49.898	49.898	102.290	761.193
Girder 3	1,089.083	101.483	49.504	49.504	126.730	49.504	49.504	126.730	49.504	49.504	101.483	755.198
Girder 4	1,080.417	100.675	49.110	49.110	125.721	49.110	49.110	125.721	49.110	49.110	100.675	749.202
Girder 5	1,071.750	99.868	48.716	48.716	124.713	48.716	48.716	124.713	48.716	48.716	99.868	743.206
Girder 6	1,063.083	99.060	48.322	48.322	123.704	48.322	48.322	123.704	48.322	48.322	99.060	737.210

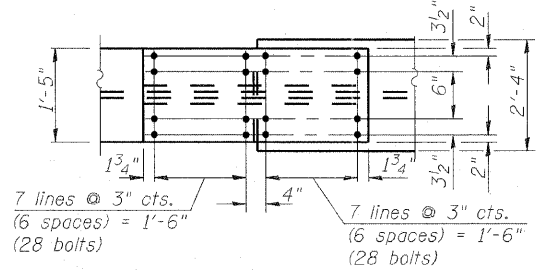
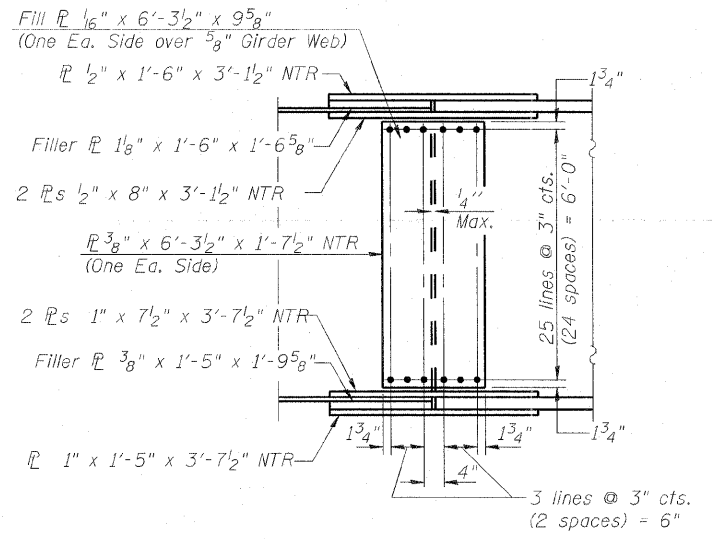
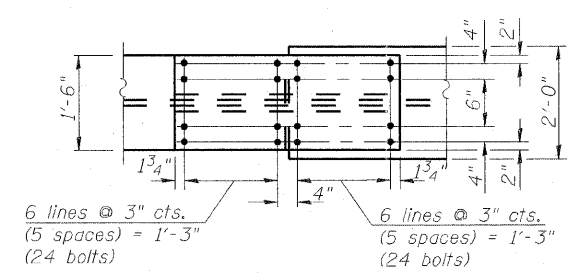
Local Tangent to Baseline 70E55N at Sta. 60+72.28

GIRDER LAYOUT DIMENSIONS

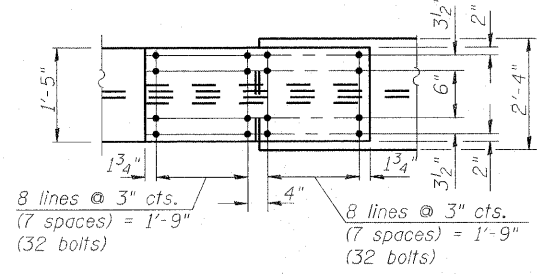
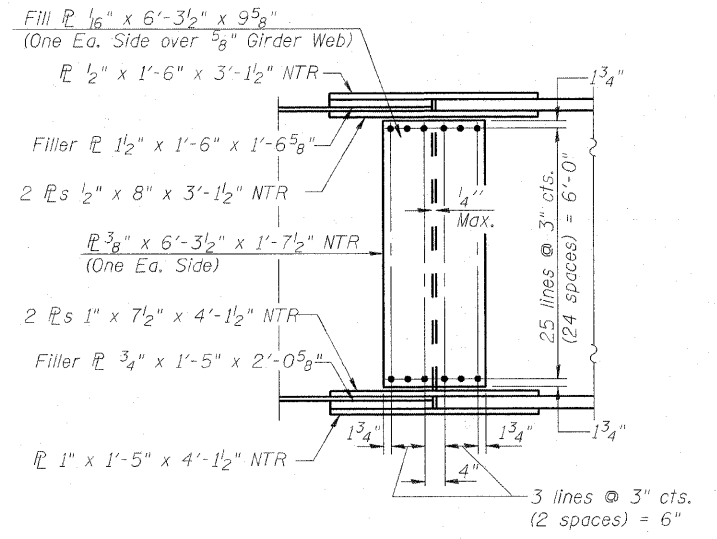
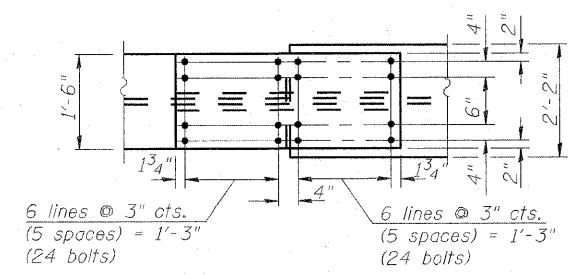
Location	Cl. Brg. Pier 6		Field Splice 7		Pier 7		Field Splice 8A		Field Splice 8B		Pier 8		Field Splice 9A		Field Splice 9B		Pier 9		Field Splice 10		Cl. Brg. Pier 10	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
Girder 1	107.675	-1.165	209.668	13.631	258.815	24.280	307.427	37.152	428.746	80.032	474.649	100.567	519.572	123.167	629.470	190.096	670.165	219.638	709.475	250.999	785.394	320.697
Girder 2	106.831	7.461	208.025	22.141	256.787	32.707	305.019	45.477	425.387	88.021	470.931	108.396	515.502	130.819	624.539	197.223	664.915	226.534	703.918	257.649	779.242	326.801
Girder 3	105.988	16.086	206.383	30.650	254.760	41.133	302.611	53.802	422.029	96.011	467.213	116.224	511.432	138.470	619.608	204.351	659.666	233.430	698.360	264.300	773.090	332.905
Girder 4	105.144	24.712	204.741	39.160	252.733	49.559	300.202	62.128	418.671	104.000	463.495	124.053	507.362	146.122	614.678	211.478	654.416	240.326	692.803	270.950	766.938	339.010
Girder 5	104.301	33.337	203.098	47.670	250.705	57.985	297.794	70.453	415.312	111.990	459.777	131.882	503.293	153.773	609.747	218.605	649.167	247.222	687.246	277.600	760.786	345.114
Girder 6	103.458	41.963	201.456	56.179	248.678	66.411	295.386	78.779	411.954	119.979	456.059	139.710	499.223	161.425	604.816	225.733	643.917	254.118	681.688	284.250	754.634	351.219



**FIELD SPLICE 7 & 10 DETAIL**  
(Field Splice 10 Opposite Hand)  
(12 Required)

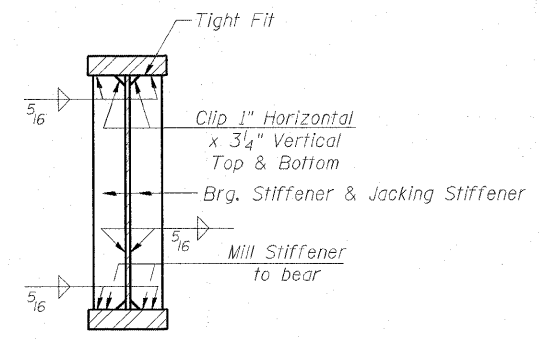


**FIELD SPLICE 8A & 9B DETAIL**  
(Field Splice 8A Opposite Hand)  
(12 Required)



**FIELD SPLICE 8B & 9A DETAIL**  
(Field Splice 9A Opposite Hand)  
(12 Required)

- Notes:
1. AASHTO M270 Grade 50 steel shall be used for all splice plates, except fill plates which may be AASHTO M270 Grade 36 or 50.
  2. Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness (Zone 2), including all flange and web splice plates (except fill plates).
  3. Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts. Bolts 7/8 in.  $\phi$ , holes 15/16 in.  $\phi$ , unless otherwise noted. Design assumes threads in shear plane and Class A slip surface.
  4. The Contractor is alerted that differences in web thickness across the splice create a slight misalignment of the webs that may need to be accounted for when detailing cross frames in shop drawings in order to properly control geometry and avoid any fit-up issues. The web fill plates are shown with one each side of web; alternatively, they may be detailed and installed on the same side of the web at rows of adjacent splices in order to minimize girder spacing differences at these locations.



**SECTION AT PIERS**

I:\projects\082\0322 & 0324 - I-70E over I-55, CSX & KCS Railroads\Drawings\Steel\Detail\082-0322-0324-0324-SteelDetail-03.dgn



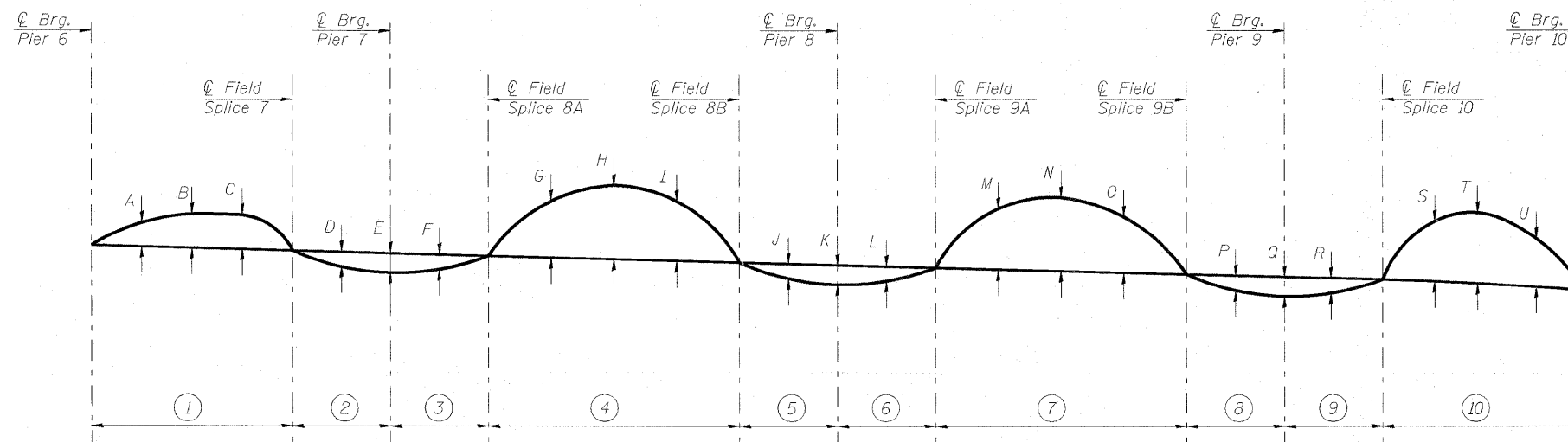
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PLOT SCALE = 0/2" = 1' / IN.	DRAWN - BRD	REVISED -
PLOT DATE = 6/20/2011	CHECKED - CHY	REVISED -
	DATE - 07-01-11	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**STRUCTURAL STEEL DETAILS - UNIT 3 - II  
I-70E OVER I-55, CSX & KCS RAILROADS**

SCALE: SHEET S-1111 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 238
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				



**CAMBER DIAGRAM - STR. NO. 082-0322 - UNIT 3**

TOP OF WEB CAMBER\* - STR. NO. 082-0322 - UNIT 3

Girder	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	1 1/4"	2"	2"	-3/4"	-1 1/4"	-3/4"	3 1/2"	4 1/4"	3 1/2"	-1"	-1 1/2"	-1"	4"	4"	3 1/2"	-3/4"	-1 1/4"	-3/4"	3 1/4"	3 3/4"	2 3/4"
2	1"	2"	2"	-3/4"	-1 1/4"	-3/4"	3 1/4"	4"	3 1/4"	-1"	-1 1/4"	-1"	3 3/4"	4"	3 1/4"	-3/4"	-1 1/4"	-3/4"	3 1/4"	3 3/4"	2 1/2"
3	1"	1 3/4"	2"	-3/4"	-1"	-3/4"	3 1/4"	4"	3 1/4"	-3/4"	-1 1/4"	-3/4"	3 3/4"	3 3/4"	3 1/4"	-3/4"	-1"	-3/4"	3 1/4"	3 3/4"	2 1/2"
4	1"	1 3/4"	1 3/4"	-3/4"	-1"	-3/4"	3"	3 3/4"	3 1/4"	-3/4"	-1 1/4"	-3/4"	3 1/2"	3 3/4"	3"	-3/4"	-1"	-3/4"	3 1/4"	3 3/4"	2 1/2"
5	1"	1 3/4"	1 3/4"	-1/2"	-1"	-3/4"	3"	3 3/4"	3"	-3/4"	-1"	-3/4"	3 1/2"	3 1/2"	3"	-1/2"	-1"	-1/2"	3 1/4"	3 1/2"	2 1/2"
6	1"	1 3/4"	1 3/4"	-1/2"	-1"	-1/2"	3"	3 1/2"	3"	-3/4"	-1"	-3/4"	3 1/4"	3 1/2"	3"	-1/2"	-1"	-1/2"	3 1/4"	3 1/2"	2 1/2"

\*For fabrication use only.

	4 Spaces	2 Spaces	2 Spaces	4 Spaces	2 Spaces	2 Spaces	4 Spaces	2 Spaces	2 Spaces	4 Spaces
Girder	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
1	25'-9 5/8"	25'-1 3/4"	25'-1 3/4"	32'-2 1/4"	25'-1 3/4"	25'-1 3/4"	32'-2 1/4"	25'-1 3/4"	25'-1 3/4"	25'-9 5/8"
2	25'-6 7/8"	24'-11 3/8"	24'-11 3/8"	31'-11 3/8"	24'-11 3/8"	24'-11 3/8"	31'-11 3/8"	24'-11 3/8"	24'-11 3/8"	25'-6 7/8"
3	25'-4 7/8"	24'-9"	24'-9"	31'-8 3/8"	24'-9"	24'-9"	31'-8 3/8"	24'-9"	24'-9"	25'-4 7/8"
4	25'-2"	24'-6 1/8"	24'-6 1/8"	31'-5 3/8"	24'-6 1/8"	24'-6 1/8"	31'-5 3/8"	24'-6 1/8"	24'-6 1/8"	25'-2"
5	24'-11 5/8"	24'-4 5/8"	24'-4 5/8"	31'-2 5/8"	24'-4 5/8"	24'-4 5/8"	31'-2 5/8"	24'-4 5/8"	24'-4 5/8"	24'-11 5/8"
6	24'-9 3/8"	24'-1 5/8"	24'-1 5/8"	30'-11 5/8"	24'-1 5/8"	24'-1 5/8"	30'-11 5/8"	24'-1 5/8"	24'-1 5/8"	24'-9 3/8"

TOP OF WEB ELEVATIONS\* - STR. NO. 082-0322 - UNIT 3

Girder	℄ Brg. Pier 6	℄ Spl. 7	℄ Brg. Pier 7	℄ Spl. 8A	℄ Spl. 8B	℄ Brg. Pier 8	℄ Spl. 9A	℄ Spl. 9B	℄ Brg. Pier 9	℄ Spl. 10	℄ Brg. Pier 10
1	460.67	459.90	459.53	459.36	458.45	457.98	457.76	457.01	456.50	456.20	454.90
2	460.16	459.40	459.02	458.85	457.94	457.49	457.25	456.50	455.99	455.70	454.39
3	459.66	458.90	458.53	458.34	457.43	456.98	456.74	455.98	455.51	455.20	453.89
4	459.16	458.39	458.02	457.82	456.92	456.47	456.24	455.47	455.00	454.70	453.39
5	458.66	457.89	457.52	457.31	456.41	455.98	455.73	454.96	454.49	454.19	452.89
6	458.15	457.39	457.01	456.80	455.90	455.48	455.22	454.44	453.98	453.69	452.38

\*For fabrication use only.

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USER NAME =  
 DRAWN - BRD  
 PLOT SCALE = 0.1667" / IN.  
 PLOT DATE = 6/30/2011

DESIGNED - PUL  
 CHECKED - CHY  
 DATE - 07-01-11

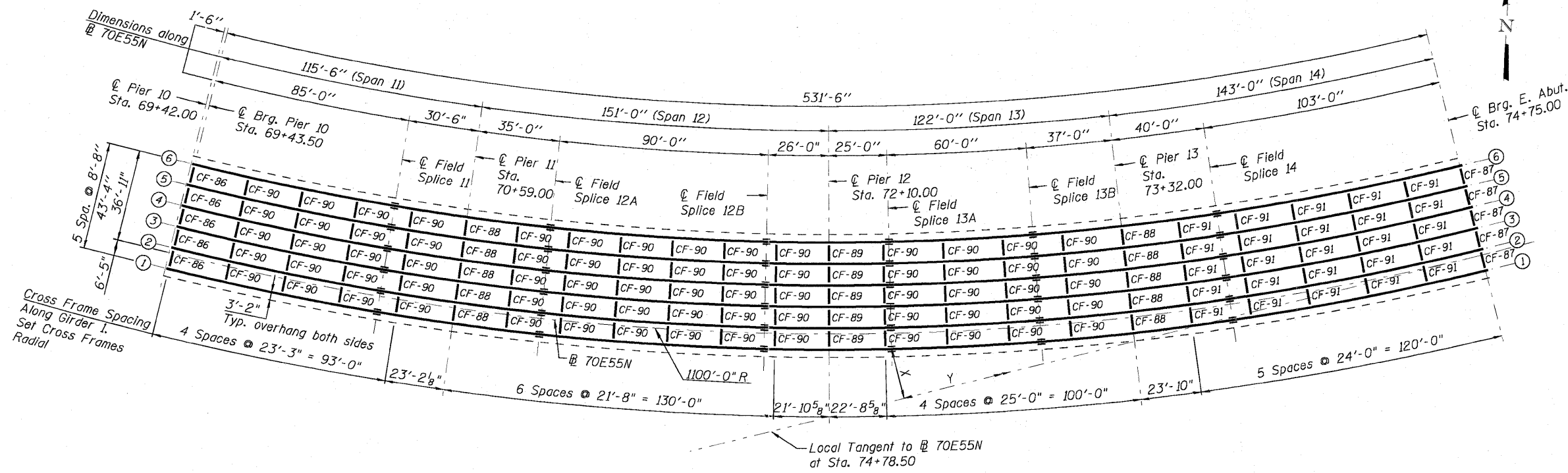
REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**GIRDER CAMBER & TOP OF WEB ELEVATIONS - UNIT 3  
 I-70E OVER I-55, CSX & KCS RAILROADS**

SCALE: SHEET S-112 OF S-234 SHEETS STA. TO STA.

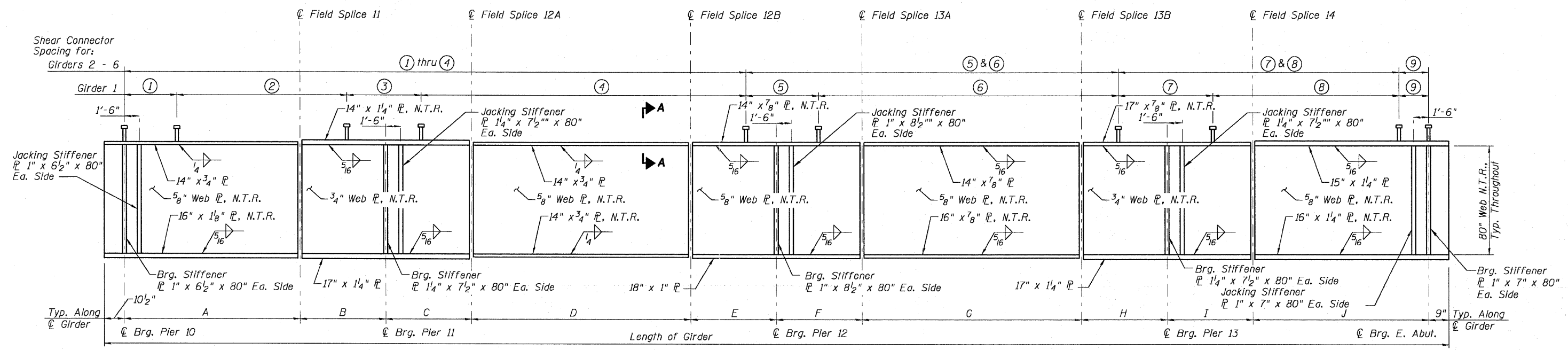
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	239
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		



**FRAMING PLAN - UNIT 4**

Notes:  
 1. For Cross Frame Details ("CF-...") See Sheets S-127 to S-129 of S-234.  
 2. For Moment & Reaction Tables See Sheet S-126 of S-234.

Notes:  
 1. Load carrying components designated "N.T.R." shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.  
 2. All steel on this sheet shall be AASHTO M270, Grade 50 Steel.



**GIRDER ELEVATION - UNIT 4**



USER NAME =	DESIGNED - P.J.L.	REVISED -
PLOT SCALE = 0.250000' / IN.	DRAWN - BRD	REVISED -
PLOT DATE = 6/30/2011	CHECKED - CHY	REVISED -
	DATE - 07-01-11	REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

FRAMING PLAN - UNIT 4  
 I-70E OVER I-55, CSX & KCS RAILROADS  
 SCALE: SHEET S-113 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE. TO	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
S.N. 082-0322 & S.N. 082-0324	82-1-B-2	ST. CLAIR	399	240
FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT	CONTRACT NO. 76C76		

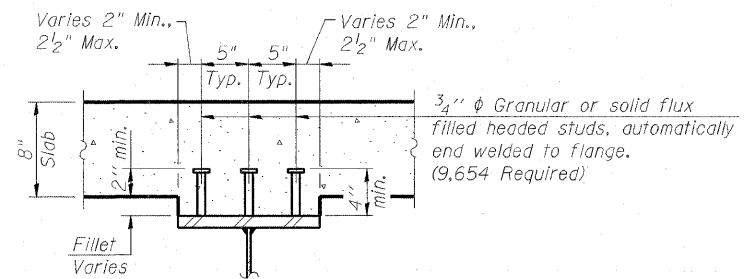


Baseline 70E55N No studs on splices: Shift studs 1/2 each way & cut adjacent space in half.

SHEAR CONNECTOR SPACING TABLE									
Location	1	2	3	4	5	6	7	8	9
Girder 1	6 Spaces @ 11" = 5'-6"	108 Spaces @ 12" = 108'-0"	12 Spaces @ 11" = 11'-0"	137 Spaces @ 12" = 137'-0"	32 Spaces @ 10" = 26'-8"	95 Spaces @ 12" = 95'-0"	18 Spaces @ 10" = 15'-0"	136 Spaces @ 12" = 136'-0"	1 Space @ 5"
Girder 2	265 Spaces @ 12" = 265'-0"				134 Spaces @ 11" = 122'-10"		142 Spaces @ 12" = 142'-0"		1 Space @ 7"
Girder 3	263 Spaces @ 12" = 263'-0"				133 Spaces @ 11" = 121'-11"		140 Spaces @ 12" = 140'-0"		2 Spaces @ 8" = 1'-4"
Girder 4	261 Spaces @ 12" = 261'-0"				132 Spaces @ 11" = 121'-0"		139 Spaces @ 12" = 139'-0"		1 Space @ 12"
Girder 5	259 Spaces @ 12" = 259'-0"				130 Spaces @ 11" = 119'-2"		139 Spaces @ 12" = 139'-0"		1 Space @ 8"
Girder 6	257 Spaces @ 12" = 257'-0"				128 Spaces @ 11" = 117'-4"		138 Spaces @ 12" = 138'-0"		2 Spaces @ 8" = 1'-4"

Baseline 70E55N

GIRDER DIMENSIONS												
Location	Radius	A	B	C	D	E	F	G	H	I	J	Length of Girder
Girder 1	1,106.417	85.496	30.678	35.204	90.525	26.152	25.146	60.350	37.216	40.233	103.601	536.225
Girder 2	1,097.750	84.826	30.438	34.928	89.816	25.947	24.949	59.877	36.924	39.918	102.789	532.038
Girder 3	1,089.083	84.156	30.197	34.653	89.107	25.742	24.752	59.405	36.633	39.603	101.978	527.850
Girder 4	1,080.417	83.487	29.957	34.377	88.398	25.537	24.555	58.932	36.341	39.288	101.166	523.663
Girder 5	1,071.750	82.817	29.717	34.101	87.689	25.332	24.358	58.459	36.050	38.973	100.355	519.475
Girder 6	1,063.083	82.147	29.476	33.825	86.980	25.127	24.161	57.986	35.758	38.658	99.543	515.288



SECTION A-A

Local Tangent to Baseline 70E55N at Sta. 74+78.50

GIRDER LAYOUT DIMENSIONS																						
Location	CL. Brg. Pier 10		Field Splice 11		Pier 11		Field Splice 12A		Field Splice 12B		Pier 12		Field Splice 13A		Field Splice 13B		Pier 13		Field Splice 14		CL. Brg. E. Abut.	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
Girder 1	517.155	121.885	440.105	84.882	411.793	73.071	378.915	60.490	292.692	33.000	267.392	26.380	242.925	20.581	183.716	8.943	146.919	3.381	106.954	-1.235	3.520	-6.411
Girder 2	513.104	129.547	436.658	92.833	408.568	81.115	375.947	68.633	290.399	41.358	265.298	34.790	241.022	29.036	182.277	17.489	145.769	11.971	106.116	7.391	3.493	2.256
Girder 3	509.053	137.209	433.211	100.785	405.342	89.159	372.979	76.775	288.107	49.716	263.203	43.200	239.119	37.491	180.837	26.035	144.618	20.561	105.278	16.017	3.465	10.922
Girder 4	505.002	144.870	429.763	108.736	402.116	97.203	370.011	84.918	285.814	58.074	261.109	51.610	237.216	45.947	179.398	34.582	143.467	29.151	104.441	24.643	3.438	19.589
Girder 5	500.951	152.532	426.316	116.688	398.891	105.247	367.043	93.060	283.521	66.432	259.014	60.019	235.314	54.402	177.959	43.128	142.316	37.741	103.603	33.269	3.410	28.255
Girder 6	496.900	160.194	422.868	124.639	395.665	113.291	364.075	101.203	281.228	74.789	256.920	68.429	233.411	62.857	176.520	51.674	141.165	46.331	102.765	41.895	3.383	36.922



USER NAME =  
 PLOT SCALE = 8x2 1/4" / IN.  
 PLOT DATE = 6/30/2011

DESIGNED - P.J.L.  
 DRAWN - BRD  
 CHECKED - CHY  
 DATE - 07-01-11

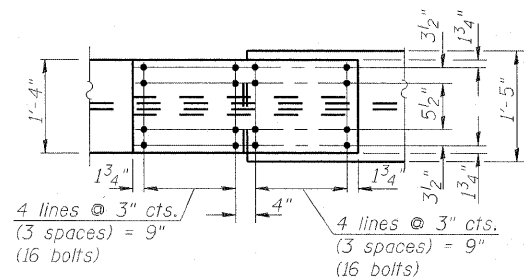
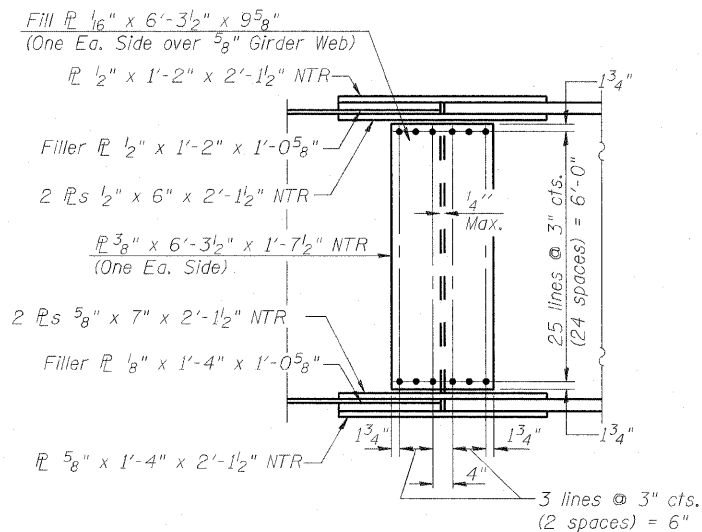
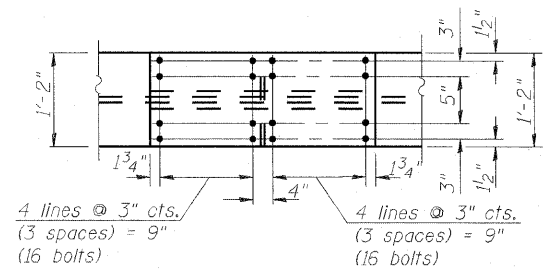
REVISED -  
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STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

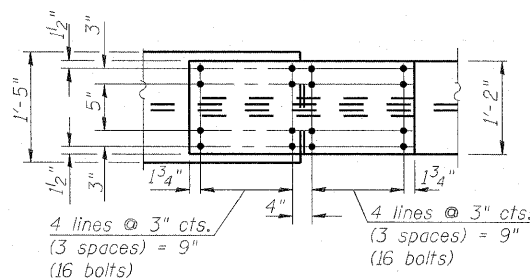
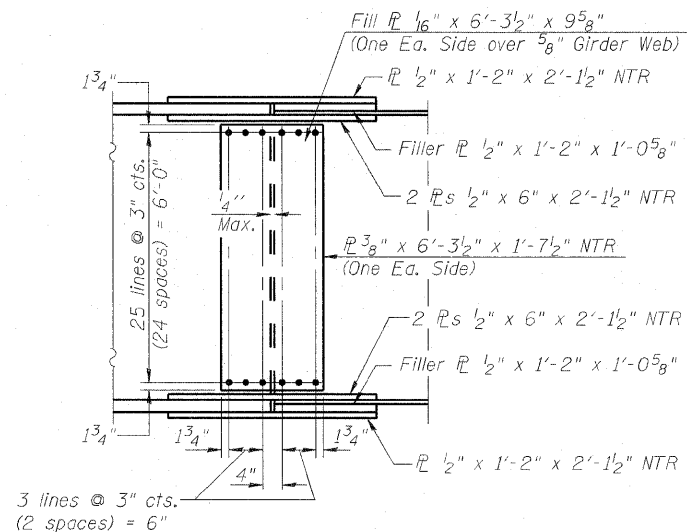
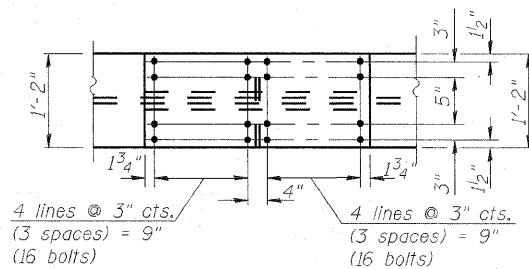
STRUCTURAL STEEL DETAILS - UNIT 4 - I  
 I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: SHEET S-114 OF S-234 SHEETS STA. TO STA.

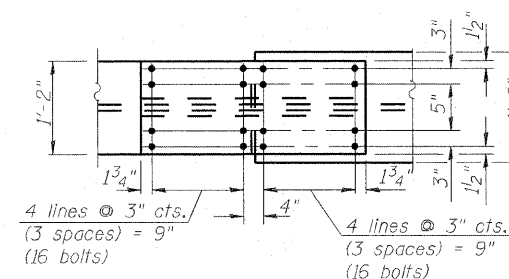
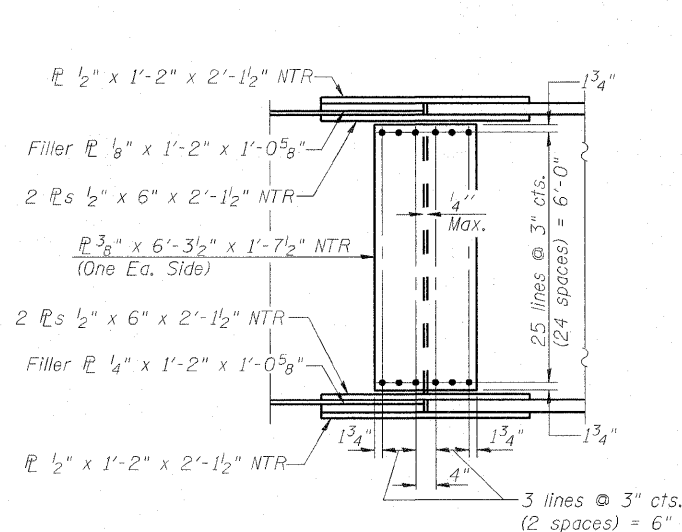
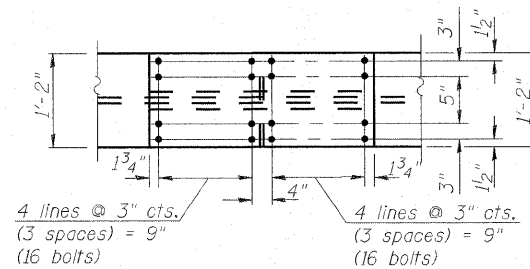
F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 241
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		



**FIELD SPLICE 11 DETAIL**  
(6 Required)



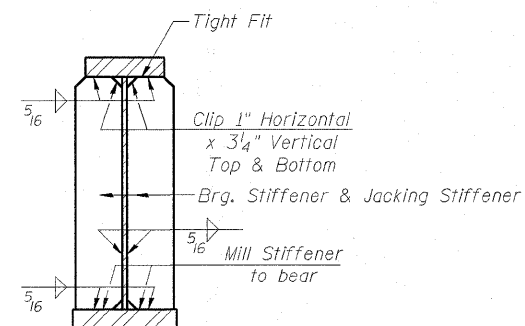
**FIELD SPLICE 12A DETAIL**  
(6 Required)



**FIELD SPLICE 12B DETAIL**  
(6 Required)

Notes:

- AASHTO M270 Grade 50 steel shall be used for all splice plates, except fill plates which may be AASHTO M270 Grade 36 or 50.
- Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness (Zone 2), including all flange and web splice plates (except fill plates).
- Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts. Bolts  $\frac{7}{8}$  in.  $\phi$ , holes  $\frac{15}{16}$  in.  $\phi$ , unless otherwise noted. Design assumes threads in shear plane and Class A slip surface.
- The Contractor is alerted that differences in web thickness across the splice create a slight misalignment of the webs that may need to be accounted for when detailing cross frames in shop drawings in order to properly control geometry and avoid any fit-up issues. The web fill plates are shown with one each side of web; alternatively, they may be detailed and installed on the same side of the web at rows of adjacent splices in order to minimize girder spacing differences at these locations.



**SECTION AT PIERS & ABUTMENT**



USER NAME =  
DESIGNED - PUL  
DRAWN - BRD  
PLOT SCALE = 8x2 1/4" / IN.  
CHECKED - CHY  
PLOT DATE = 6/30/2011  
DATE - 07-01-11

DESIGNED - PUL  
DRAWN - BRD  
CHECKED - CHY  
DATE - 07-01-11

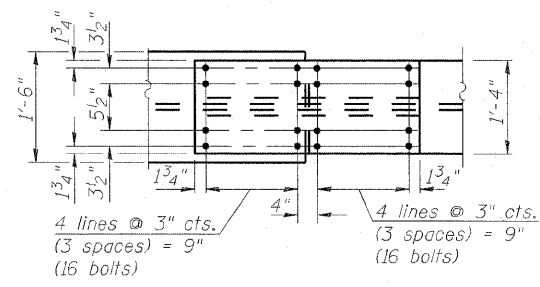
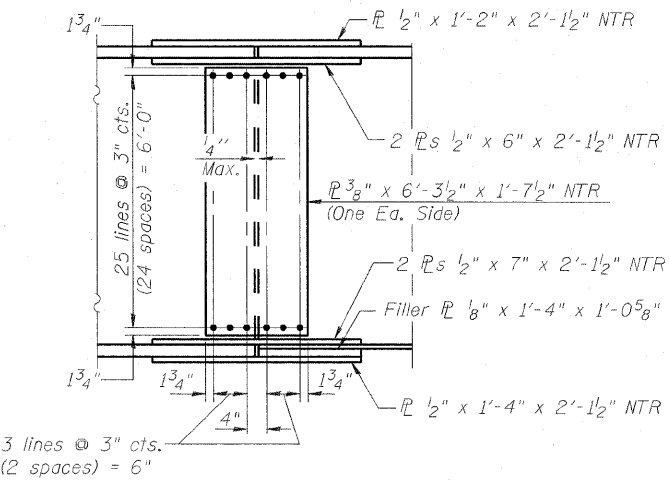
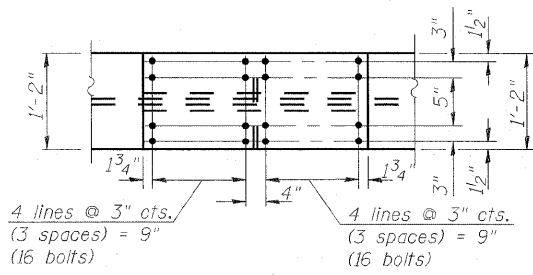
REVISED -  
REVISED -  
REVISED -  
REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

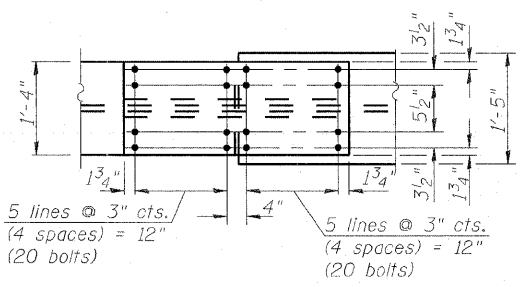
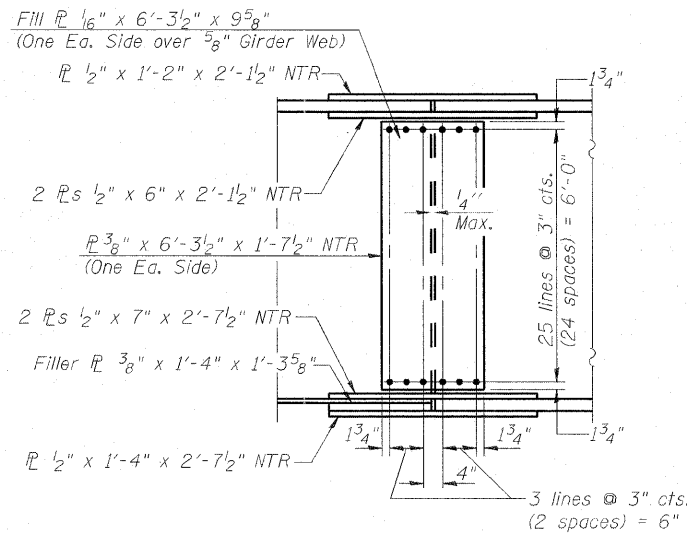
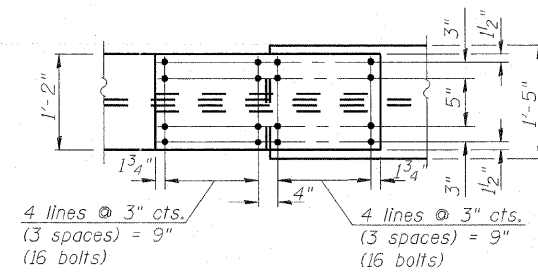
STRUCTURAL STEEL DETAILS - UNIT 4 - II  
I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: SHEET S-115 OF S-234 SHEETS STA. TO STA.

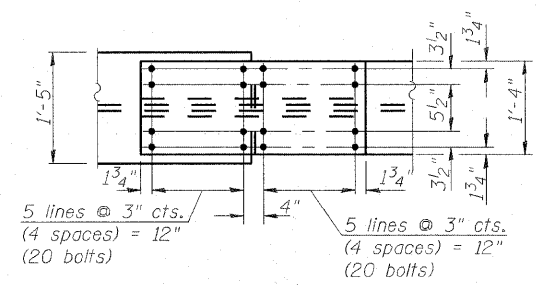
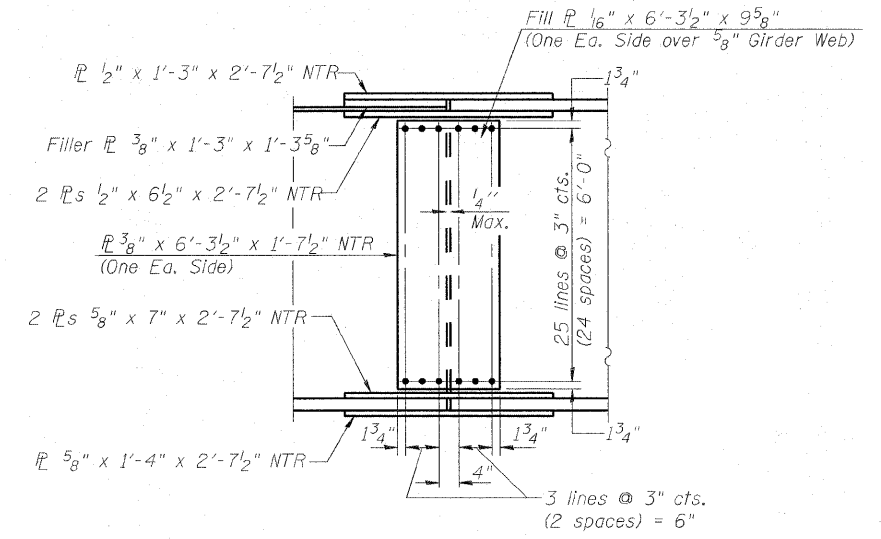
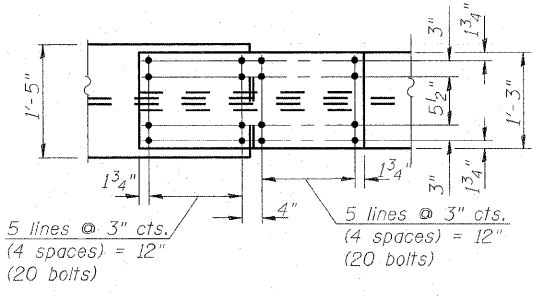
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	242
S.N. 082-0322 & S.N. 082-0324			CONTRACT NO. 76C76	
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				



**FIELD SPLICE 13A DETAIL**  
(6 Required)



**FIELD SPLICE 13B DETAIL**  
(6 Required)



**FIELD SPLICE 14 DETAIL**  
(6 Required)

- Notes:
- AASHTO M270 Grade 50 steel shall be used for all splice plates, except fill plates which may be AASHTO M270 Grade 36 or 50.
  - Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness (Zone 2), including all flange and web splice plates (except fill plates).
  - Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts. Bolts 7/8 in.  $\phi$ , holes 15/16 in.  $\phi$ , unless otherwise noted. Design assumes threads in shear plane and Class A slip surface.
  - The Contractor is alerted that differences in web thickness across the splice create a slight misalignment of the webs that may need to be accounted for when detailing cross frames in shop drawings in order to properly control geometry and avoid any fit-up issues. The web fill plates are shown with one each side of web; alternatively, they may be detailed and installed on the same side of the web at rows of adjacent splices in order to minimize girder spacing differences at these locations.



USER NAME =  
DESIGNED - P.J.L.  
DRAWN - BRD  
PLOT SCALE = 0.02" = 1' / IN.  
CHECKED - CHY  
PLOT DATE = 6/30/2011  
DATE - 07-01-11

DESIGNED - P.J.L.  
DRAWN - BRD  
CHECKED - CHY  
DATE - 07-01-11

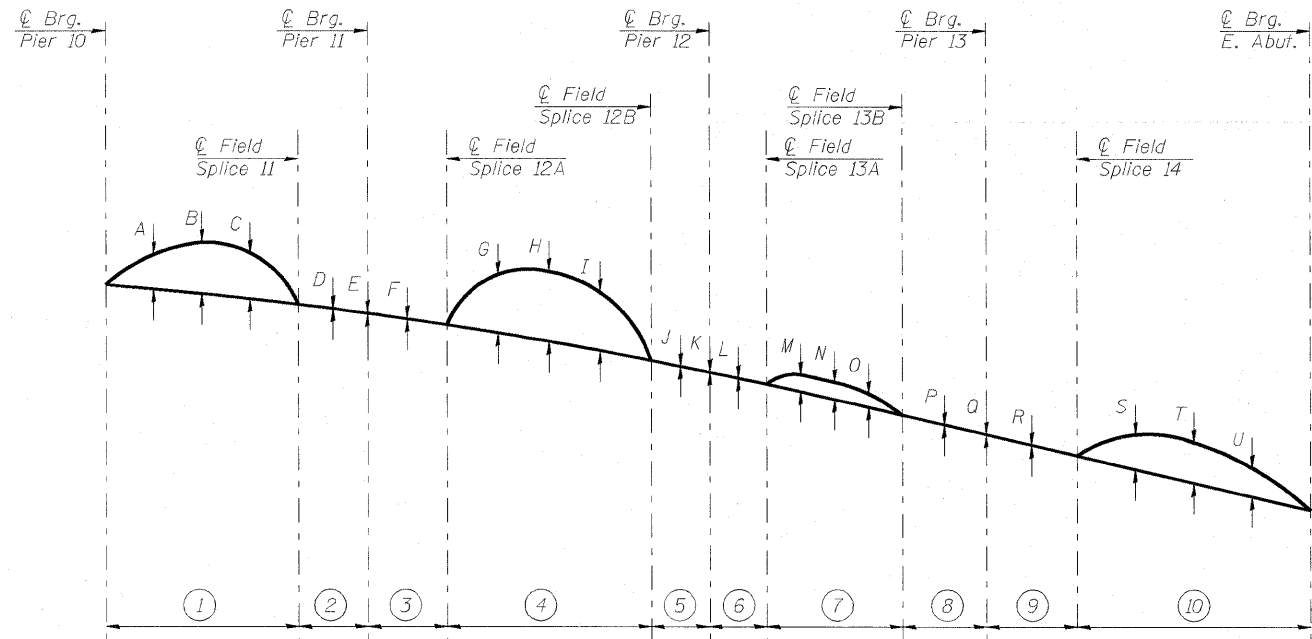
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS - UNIT 4 - III  
I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: SHEET S-116 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	243
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

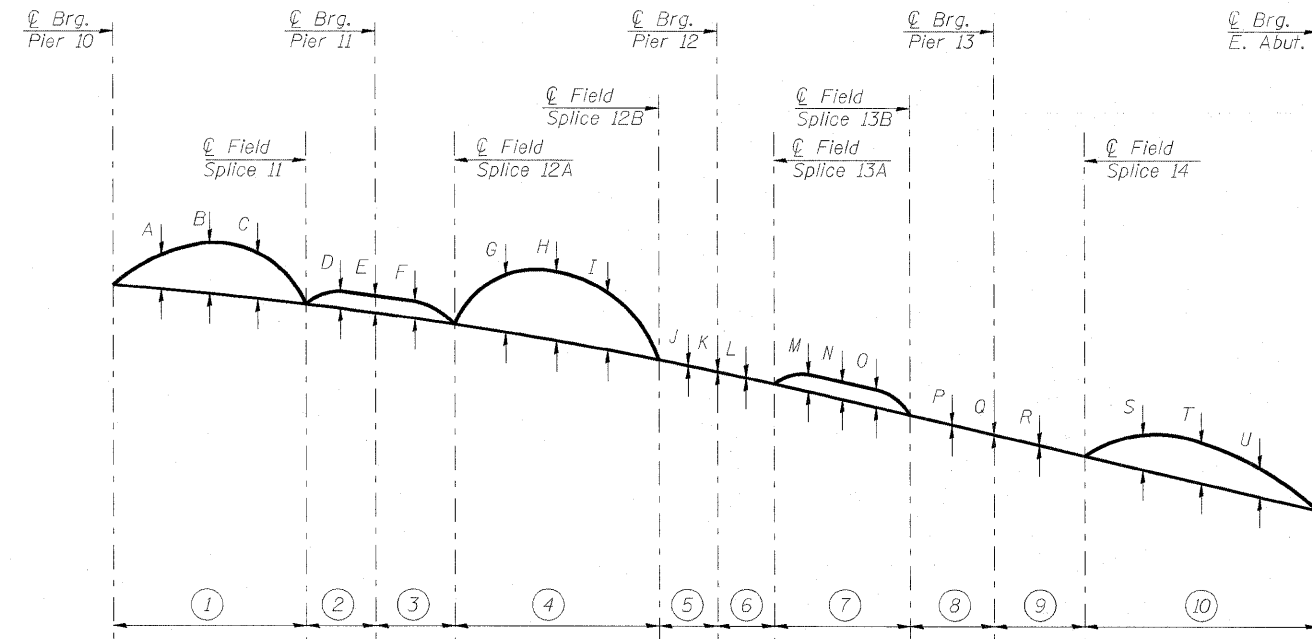


**CAMBER DIAGRAM - STR. NO. 082-0322 - UNIT 4 - GIRDERS 1 - 3**

	4 Spaces	2 Spaces	2 Spaces	4 Spaces	2 Spaces	2 Spaces	4 Spaces	2 Spaces	2 Spaces	4 Spaces
Girder	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	21'-4 1/2"	15'-4 1/8"	17'-7 1/4"	22'-7 9/16"	13'-0 5/16"	12'-6 7/8"	15'-1 1/8"	18'-7 5/16"	20'-1 3/8"	25'-10 3/16"
2	21'-2 1/2"	15'-2 5/8"	17'-5 9/16"	22'-5 7/16"	12'-11 1/16"	12'-5 1/16"	14'-11 5/8"	18'-5 9/16"	19'-11 1/2"	25'-8 3/8"
3	21'-0 7/16"	15'-1 3/16"	17'-3 5/16"	22'-3 5/16"	12'-10 7/16"	12'-4 1/2"	14'-10 3/16"	18'-3 13/16"	19'-9 5/8"	25'-5 15/16"

TOP OF WEB CAMBER* - STR. NO. 082-0322 - UNIT 4 - GIRDERS 1 - 3																					
Girder	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	1 1/2"	2 1/4"	2"	0"	0"	0"	2 3/4"	3 1/4"	2 1/2"	0"	0"	0"	3/4"	3/4"	1/2"	0"	0"	0"	1 1/2"	2"	1 1/4"
2	1 1/2"	2 1/4"	2"	0"	0"	0"	2 1/2"	3 1/4"	2 1/2"	0"	0"	0"	3/4"	3/4"	1/2"	0"	0"	0"	1 1/2"	1 3/4"	1 1/4"
3	1 1/2"	2 1/4"	2"	0"	0"	0"	2 1/2"	3"	2 1/4"	0"	0"	0"	3/4"	3/4"	1/2"	0"	0"	0"	1 1/2"	1 3/4"	1 1/4"

\*For fabrication use only.



**CAMBER DIAGRAM - STR. NO. 082-0322 - UNIT 4 - GIRDERS 4 - 6**

TOP OF WEB ELEVATIONS* - STR. NO. 082-0322 - UNIT 4											
Girder	¢ Brg. Pier 10	¢ Spl. 11	¢ Brg. Pier 11	¢ Spl. 12A	¢ Spl. 12B	¢ Brg. Pier 12	¢ Spl. 13A	¢ Spl. 13B	¢ Brg. Pier 13	¢ Spl. 14	¢ Brg. E. Abut.
1	454.84	452.64	451.64	450.48	446.63	445.24	443.90	440.45	438.35	436.08	429.94
2	454.33	452.14	451.13	449.98	446.13	444.74	443.40	439.95	437.85	435.57	429.44
3	453.83	451.63	450.63	449.47	445.62	444.23	442.90	439.45	437.34	435.06	428.94
4	453.33	451.13	450.18	448.96	445.11	443.73	442.40	438.95	436.84	434.54	428.44
5	452.83	450.63	449.68	448.45	444.60	443.22	441.90	438.46	436.33	434.03	427.93
6	452.32	450.13	449.17	447.95	444.09	442.72	441.40	437.96	435.82	433.52	427.43

\*For fabrication use only.

	4 Spaces	2 Spaces	2 Spaces	4 Spaces	2 Spaces	2 Spaces	4 Spaces	2 Spaces	2 Spaces	4 Spaces
Girder	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
4	20'-10 7/16"	14'-11 3/4"	17'-2 1/4"	22'-1 3/16"	12'-9 1/4"	12'-3 5/16"	14'-8 13/16"	18'-2 1/8"	19'-7 3/4"	25'-3 1/2"
5	20'-8 7/16"	14'-10 5/16"	17'-0 5/8"	21'-11 1/16"	12'-8"	12'-2 5/8"	14'-7 3/8"	18'-0 5/16"	19'-5 13/16"	25'-1 1/16"
6	20'-6 7/16"	14'-8 7/8"	16'-10 9/16"	21'-8 15/16"	12'-6 3/4"	12'-0 15/16"	14'-5 15/16"	17'-10 9/16"	19'-3 15/16"	24'-10 5/8"

TOP OF WEB CAMBER* - STR. NO. 082-0322 - UNIT 4 - GIRDER 4 - 6																					
Girder	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
4	1 1/2"	2 1/4"	2"	1/2"	3/4"	1/2"	2 1/2"	3"	2 1/4"	0"	0"	0"	3/4"	3/4"	1/2"	0"	0"	0"	1 1/4"	1 1/2"	1"
5	1 1/2"	2"	2"	1/2"	3/4"	3/4"	2 1/2"	3"	2 1/4"	0"	0"	0"	3/4"	3/4"	3/4"	0"	0"	0"	1 1/4"	1 1/2"	1"
6	1 1/2"	2"	2"	3/4"	3/4"	3/4"	2 1/2"	3"	2 1/4"	0"	0"	0"	3/4"	3/4"	3/4"	0"	0"	0"	1 1/4"	1 1/4"	1"

\*For fabrication use only.



USER NAME =  
 PLOT SCALE = 0.1667" / 1"  
 PLOT DATE = 6/30/2011

DESIGNED - PUL  
 DRAWN - BRD  
 CHECKED - CHY  
 DATE - 07-01-11

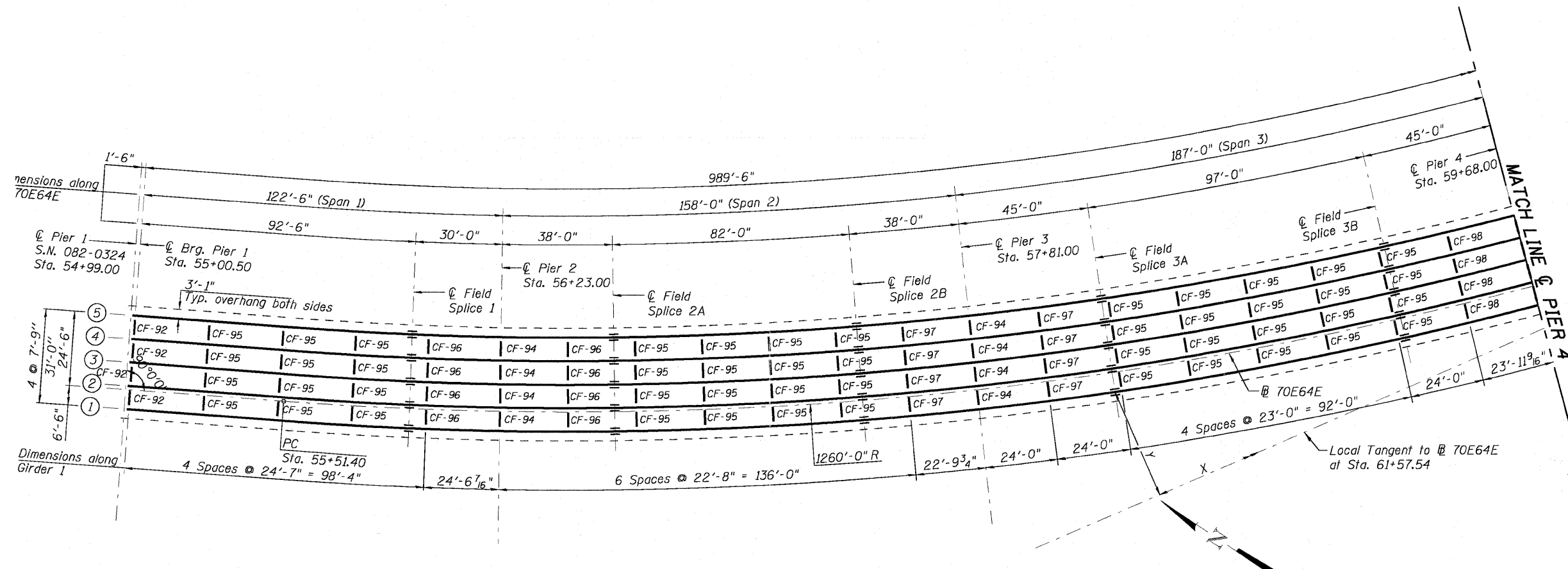
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STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

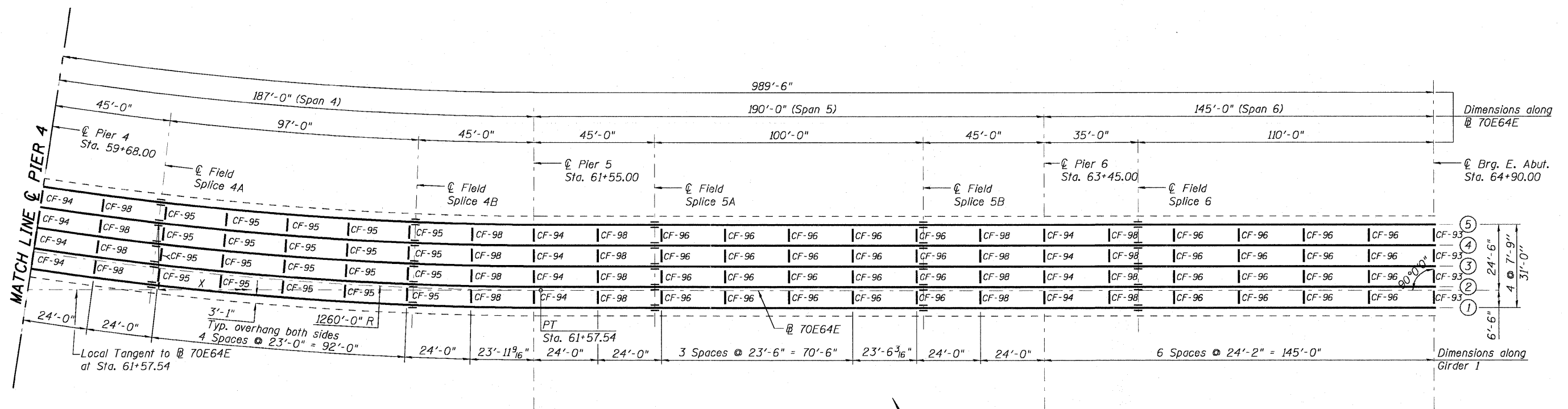
GIRDER CAMBER & TOP OF WEB ELEVATIONS - UNIT 4  
 I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: SHEET S-117 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	244
S.N. 082-0322 & S.N. 082-0324			CONTRACT NO. 76C76	
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				



**FRAMING PLAN - 082-0324 - PIERS 1 - 4**



**FRAMING PLAN - 082-0324 - PIER 4 - E. ABUT.**

- Notes:  
 1. For Cross Frame Details ("CF-...") See Sheets S-127 to S-129 of S-234.  
 2. For Moment & Reaction Tables See Sheet S-126 of S-234.



USER NAME =  
 PLOT SCALE = 8x2.80200 "/ IN.  
 PLOT DATE = 6/30/2011

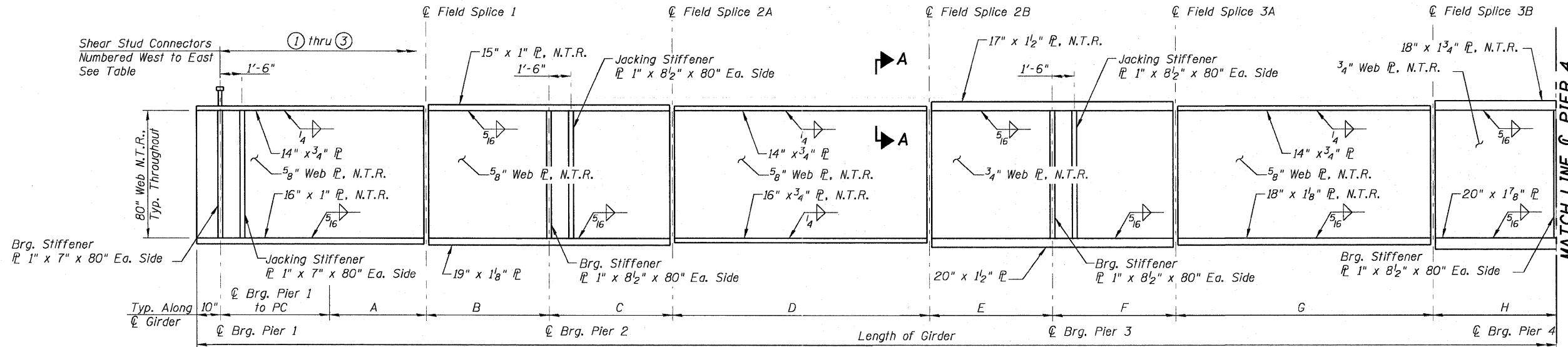
DESIGNED - PJL  
 DRAWN - BRD  
 CHECKED - CHY  
 DATE - 07-01-11

REVISED -  
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 REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

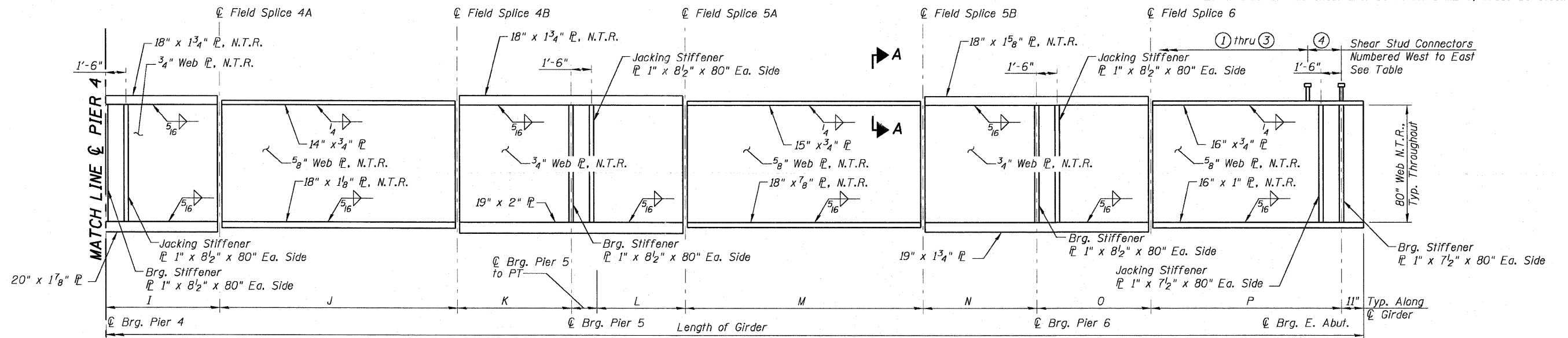
**FRAMING PLAN - S.N. 082-0324 - I**  
**I-70E OVER I-55, CSX & KCS RAILROADS**  
 SCALE: SHEET S-118 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	245
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		



GIRDER ELEVATION - 082-0324 - PIERS 1 - 4

- Notes:  
 1. Load carrying components designated "N.T.R." shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.  
 2. All steel on this sheet shall be AASHTO M270, Grade 50 Steel.



GIRDER ELEVATION - 082-0324 - PIER 4 - E. ABUT.

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 6/30/2011 10:00:00 AM 100%



USER NAME =	DESIGNED - PUL
PLOT SCALE = 0.250000 "/td> <td>DRAWN - BRD</td>	DRAWN - BRD
PLOT DATE = 6/30/2011	CHECKED - CHY
	DATE - 07-01-11

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REVISED -
REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN- S.N. 082-0324 - II  
I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: SHEET S-119 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	246
S.N. 082-0322 & S.N. 082-0324			CONTRACT NO. 76C76	
FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT				

Baseline 70E64E No studs on splices: Shift studs 1/2 each way & cut adjacent space in half.

SHEAR CONNECTOR SPACING TABLE

Location	①	②	③	④
Girder 1	121 Spaces @ 12" = 121'-0"	15 Spaces @ 11" = 13'-9"	857 Spaces @ 12" = 857'-0"	1 Space @ 10 1/2"
Girder 2	988 Spaces @ 12" = 988'-0"			1 Space @ 10"
Girder 3	984 Spaces @ 12" = 984'-0"			2 Spaces @ 6 1/2" = 1'-1"
Girder 4	980 Spaces @ 12" = 980'-0"			2 Spaces @ 8" = 1'-4"
Girder 5	976 Spaces @ 12" = 976'-0"			2 Spaces @ 9" = 1'-6"

Baseline 70E64E

GIRDER DIMENSIONS

Location	Tangent		Radius											Tangent					Length of Girder	
	CL. Brg. Pier 1 to PC	Radius	A	B	C	D	E	F	G	H	I	J	K	CL. Brg. Pier 5 to PT	L	M	N	O		P
Girder 1	50.900	1,266.500	41.815	30.153	38.196	82.423	38.196	45.232	97.500	45.232	45.232	97.500	45.232	2.551	42.460	100.000	45.000	35.000	110.000	994.377
Girder 2	50.900	1,258.750	41.559	29.968	37.962	81.919	37.962	44.955	96.904	44.955	44.955	96.904	44.955	2.536	42.460	100.000	45.000	35.000	110.000	990.649
Girder 3	50.900	1,251.000	41.303	29.784	37.728	81.414	37.728	44.679	96.307	44.679	44.679	96.307	44.679	2.520	42.460	100.000	45.000	35.000	110.000	986.920
Girder 4	50.900	1,243.250	41.047	29.599	37.495	80.910	37.495	44.402	95.711	44.402	44.402	95.711	44.402	2.505	42.460	100.000	45.000	35.000	110.000	983.192
Girder 5	50.900	1,235.500	40.791	29.415	37.261	80.406	37.261	44.125	95.114	44.125	44.125	95.114	44.125	2.489	42.460	100.000	45.000	35.000	110.000	979.464

Local Tangent to Baseline 70E64E at Sta. 61+57.54

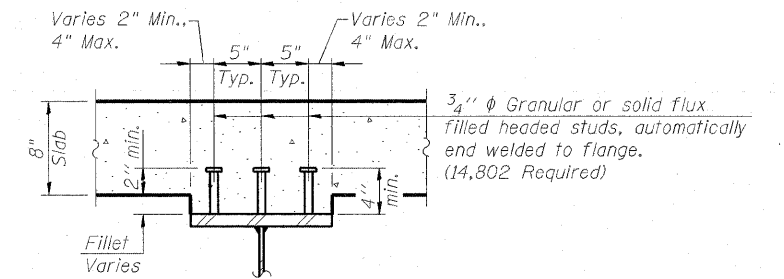
GIRDER LAYOUT DIMENSIONS

Location	CL. Brg. Pier 1		Field Splice 1		Pier 2		Field Splice 2A		Field Splice 2B		Pier 3		Field Splice 3A		Field Splice 3B		Pier 4	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
Girder 1	-631.159	160.795	-548.655	118.510	-535.225	105.772	-486.282	90.576	-409.201	61.427	-372.875	49.634	-329.416	37.091	-234.389	15.378	-189.800	7.803
Girder 2	-627.573	167.666	-545.297	125.495	-518.135	112.835	-483.306	97.732	-406.697	68.761	-370.593	57.040	-327.401	44.574	-232.955	22.994	-188.639	15.465
Girder 3	-623.987	174.536	-541.940	132.480	-514.945	119.898	-480.330	104.888	-404.193	76.096	-368.311	64.447	-325.385	52.057	-231.521	30.610	-187.478	23.128
Girder 4	-620.401	181.406	-538.583	139.465	-511.755	126.961	-477.355	112.044	-401.689	83.430	-366.029	71.853	-323.369	59.540	-230.086	38.226	-186.316	30.790
Girder 5	-616.815	188.277	-535.225	146.450	-508.565	134.024	-474.379	119.200	-399.185	90.764	-363.748	79.260	-321.353	67.024	-228.652	45.842	-185.155	38.453

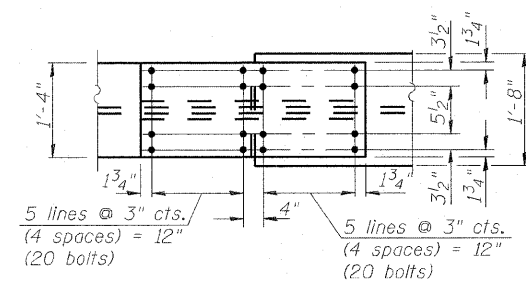
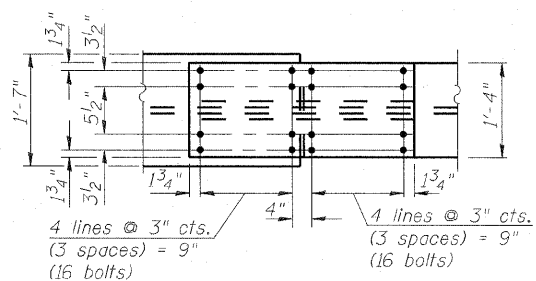
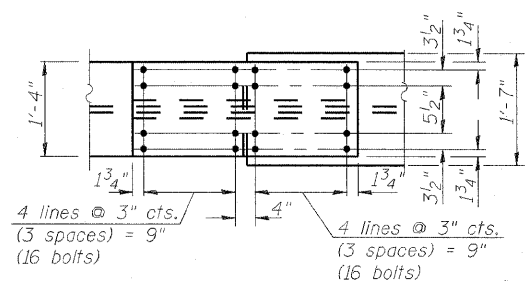
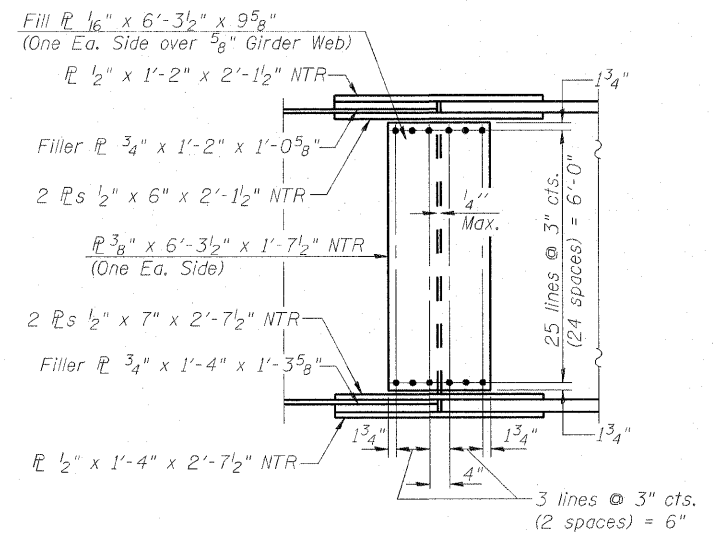
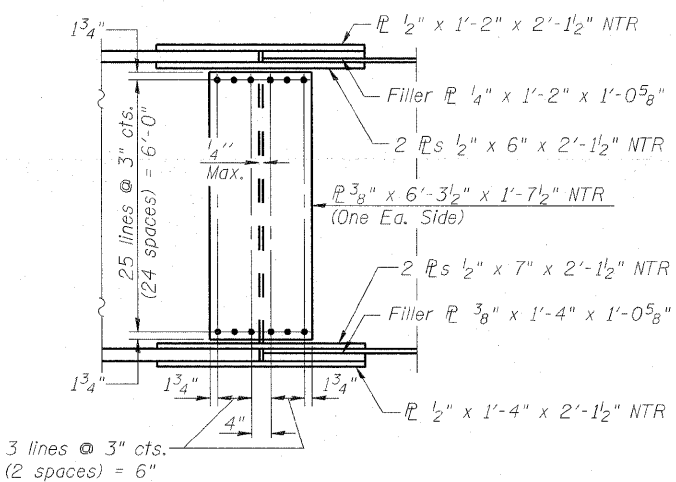
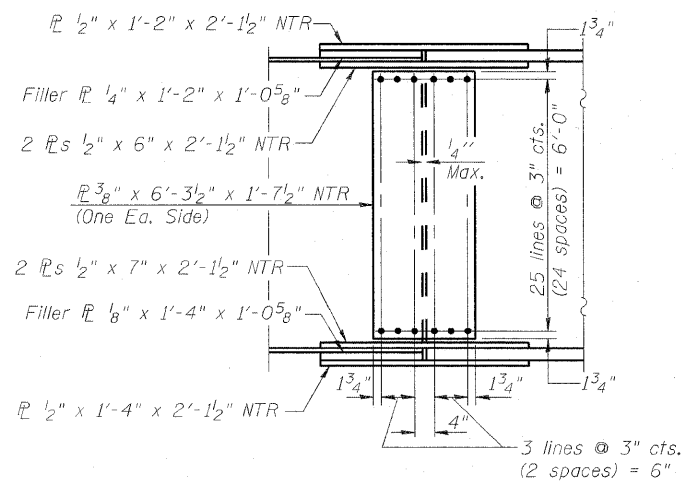
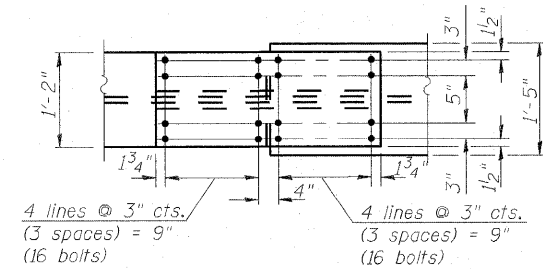
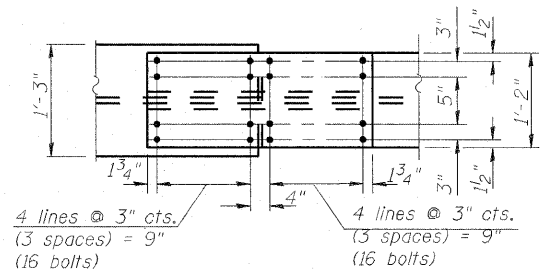
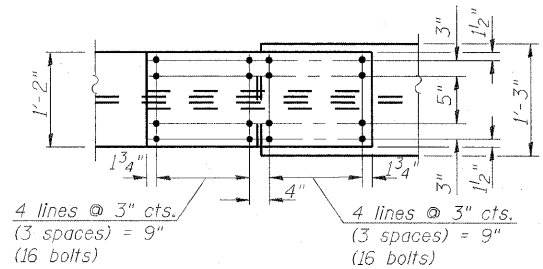
Local Tangent to Baseline 70E64E at Sta. 61+57.54

GIRDER LAYOUT DIMENSIONS

Location	Field Splice 4A		Field Splice 4B		Pier 5		Field Splice 5A		Field Splice 5B		Pier 6		Field Splice 6		CL. Brg. E. Abut.	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
Girder 1	-144.966	1.824	-47.772	-5.599	-2.551	-6.497	42.462	-6.500	142.460	-6.500	187.460	-6.500	222.460	-6.500	332.462	-6.500
Girder 2	-144.078	9.523	-47.480	2.146	-2.536	1.253	42.462	1.250	142.460	1.250	187.460	1.250	222.460	1.250	332.462	1.250
Girder 3	-143.191	17.222	-47.188	9.890	-2.520	9.003	42.462	9.000	142.460	9.000	187.460	9.000	222.460	9.000	332.462	9.000
Girder 4	-142.304	24.921	-46.895	17.635	-2.505	16.752	42.462	16.750	142.460	16.750	187.460	16.750	222.460	16.750	332.462	16.750
Girder 5	-141.417	32.620	-46.603	25.379	-2.489	24.502	42.462	24.500	142.460	24.500	187.460	24.500	222.460	24.500	332.462	24.500



SECTION A-A



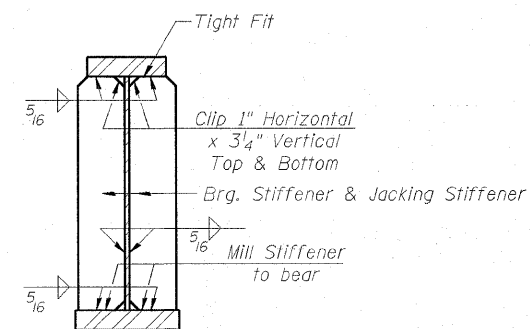
**FIELD SPLICE 1 DETAIL**  
(5 Required)

**FIELD SPLICE 2A DETAIL**  
(5 Required)

**FIELD SPLICE 2B DETAIL**  
(5 Required)

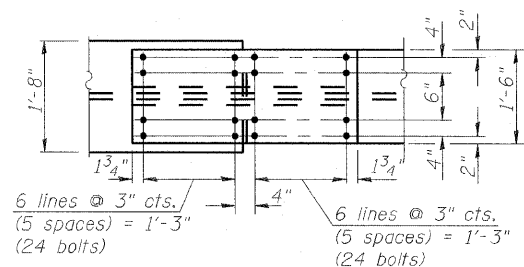
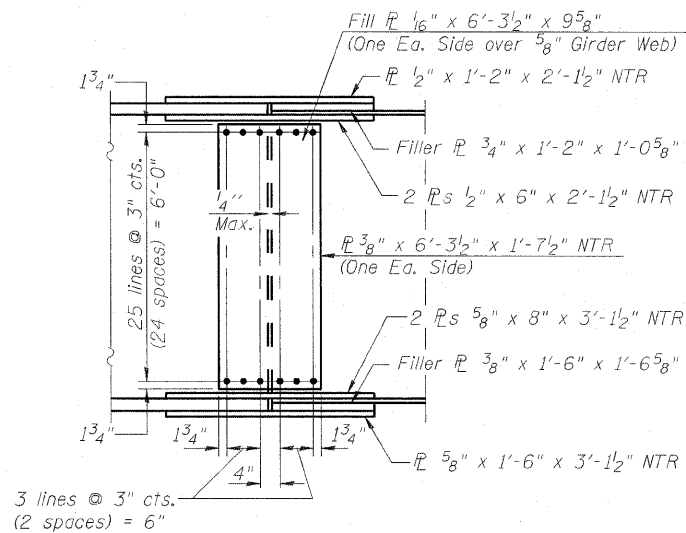
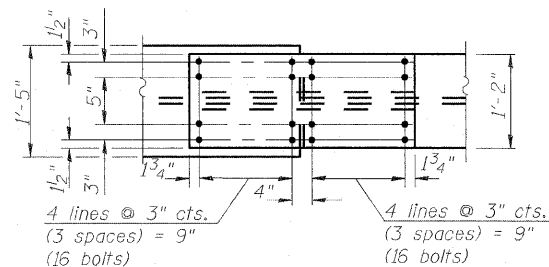
Notes:

1. AASHTO M270 Grade 50 steel shall be used for all splice plates, except fill plates which may be AASHTO M270 Grade 36 or 50.
2. Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness (Zone 2), including all flange and web splice plates (except fill plates).
3. Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts. Bolts 7/8 in.  $\phi$ , holes 15/16 in.  $\phi$ , unless otherwise noted. Design assumes threads in shear plane and Class A slip surface.
4. The Contractor is alerted that differences in web thickness across the splice create a slight misalignment of the webs that may need to be accounted for when detailing cross frames in shop drawings in order to properly control geometry and avoid any fit-up issues. The web fill plates are shown with one each side of web; alternatively, they may be detailed and installed on the same side of the web at rows of adjacent splices in order to minimize girder spacing differences at these locations.

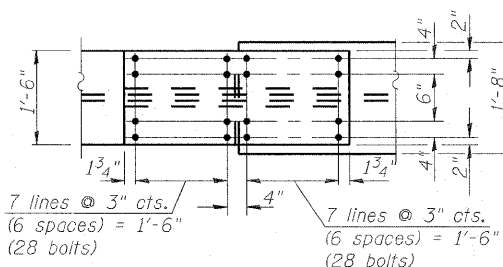
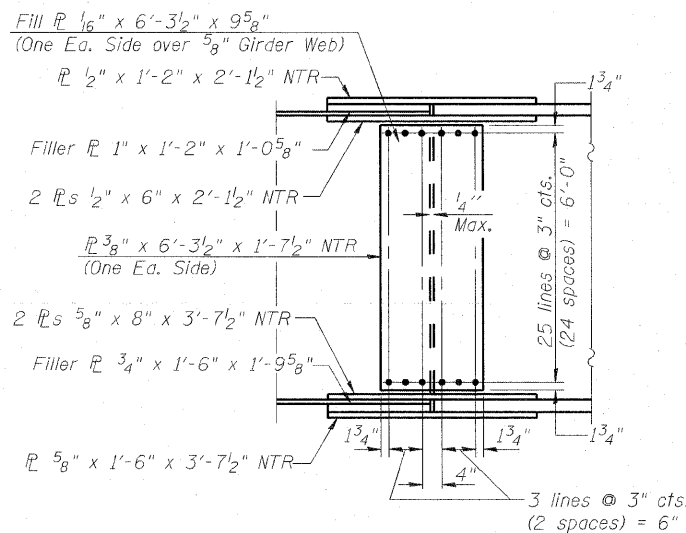
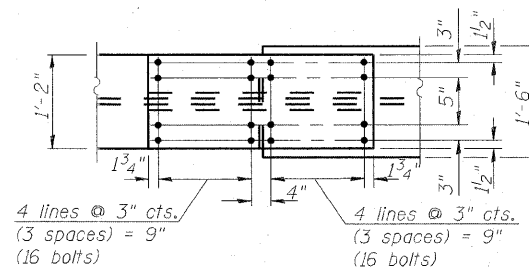


**SECTION AT PIERS & ABUTMENT**

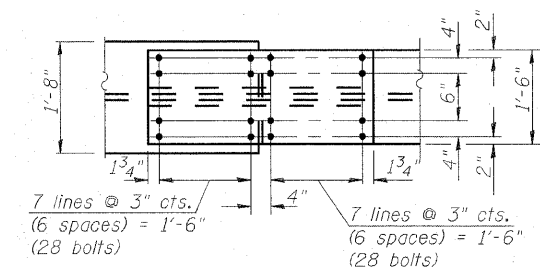
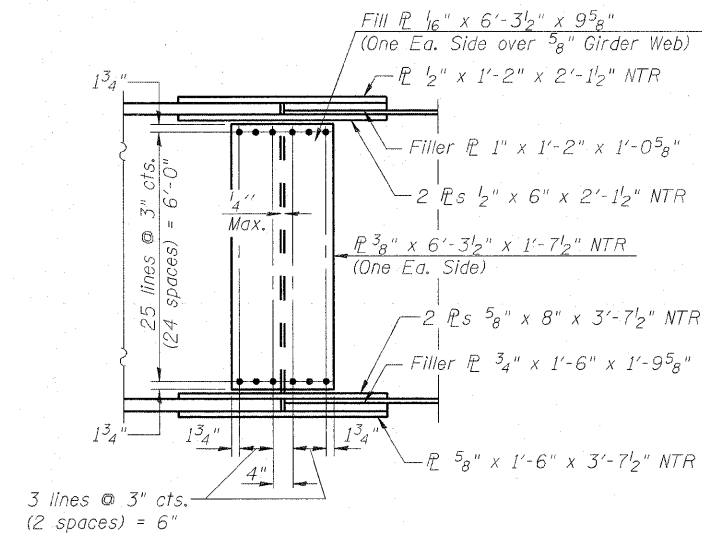
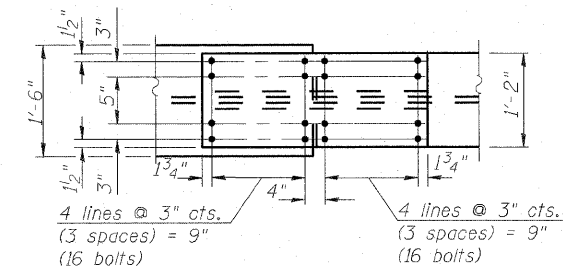




**FIELD SPLICE 3A DETAIL**  
(5 Required)



**FIELD SPLICE 3B DETAIL**  
(5 Required)



**FIELD SPLICE 4A DETAIL**  
(5 Required)

Notes:

- AASHTO M270 Grade 50 steel shall be used for all splice plates, except fill plates which may be AASHTO M270 Grade 36 or 50.
- Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness (Zone 2), including all flange and web splice plates (except fill plates).
- Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts. Bolts  $\frac{7}{8}$  in.  $\phi$ , holes  $\frac{15}{16}$  in.  $\phi$ , unless otherwise noted. Design assumes threads in shear plane and Class A slip surface.
- The Contractor is alerted that differences in web thickness across the splice create a slight misalignment of the webs that may need to be accounted for when detailing cross frames in shop drawings in order to properly control geometry and avoid any fit-up issues. The web fill plates are shown with one each side of web; alternatively, they may be detailed and installed on the same side of the web at rows of adjacent splices in order to minimize girder spacing differences at these locations.



USER NAME =	DESIGNED - P.J.L.	REVISED -
PLOT SCALE = 8x2 1/2" / 1"	DRAWN - BRD	REVISED -
PLOT DATE = 6/30/2011	CHECKED - CHY	REVISED -
	DATE - 07-01-11	REVISED -

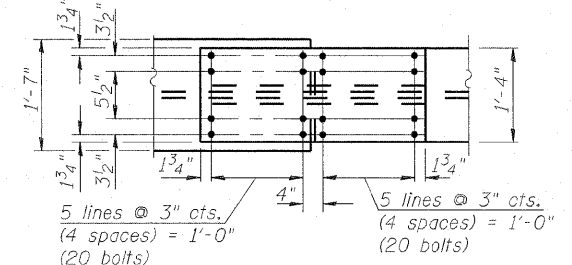
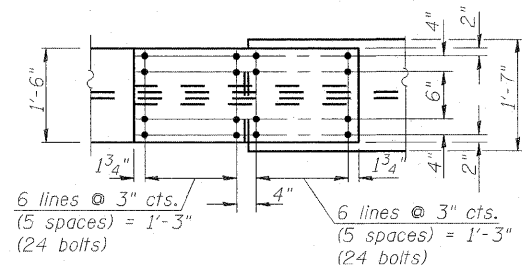
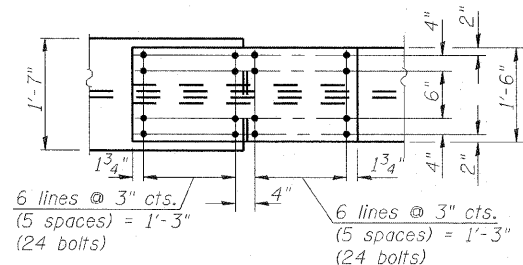
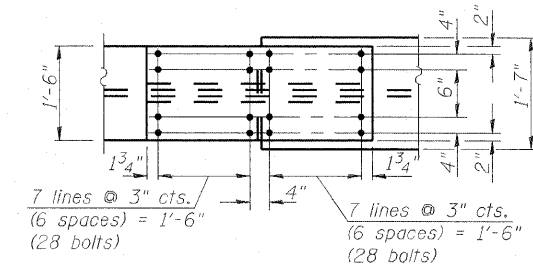
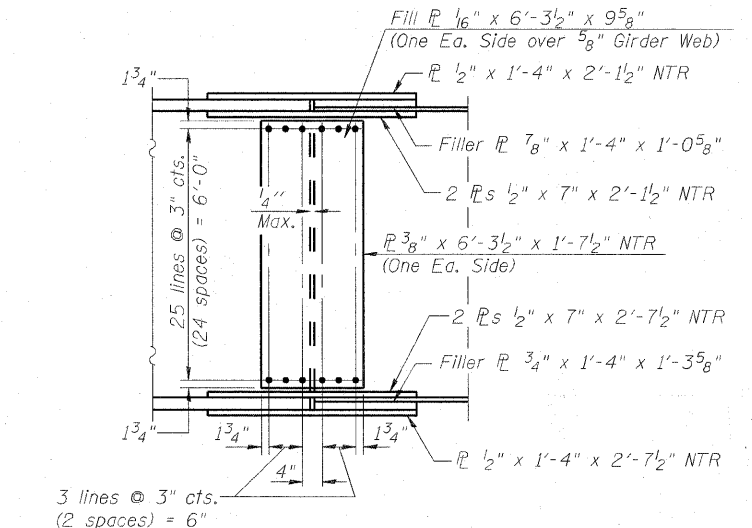
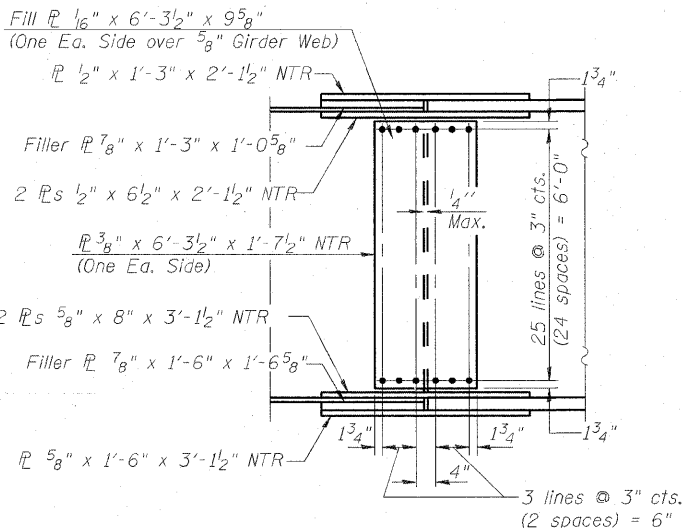
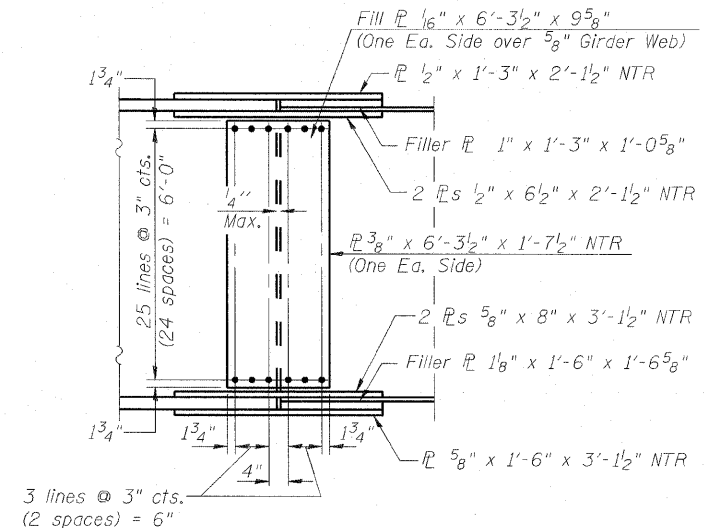
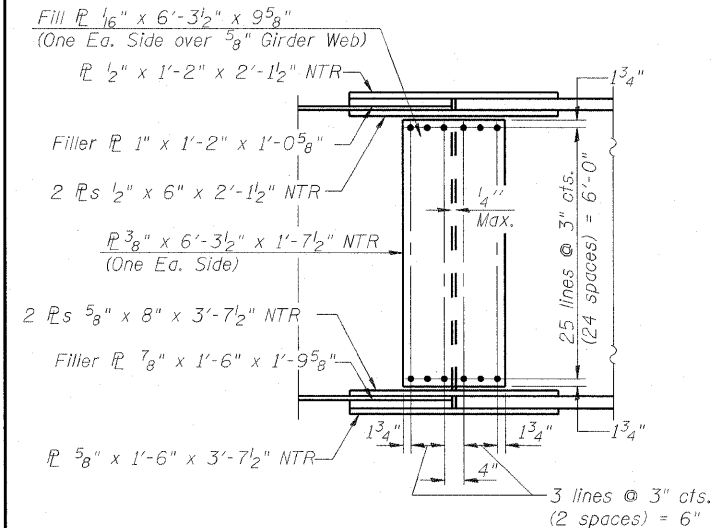
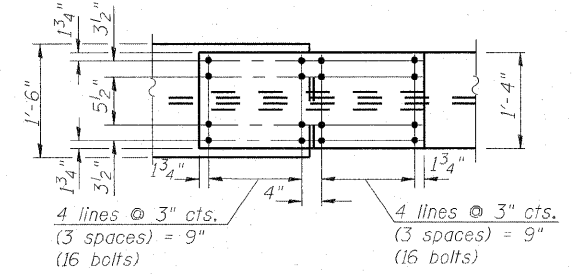
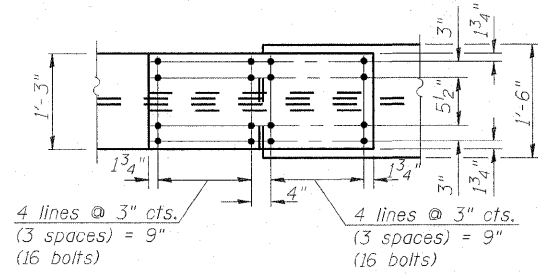
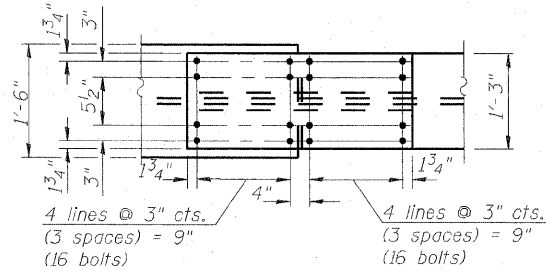
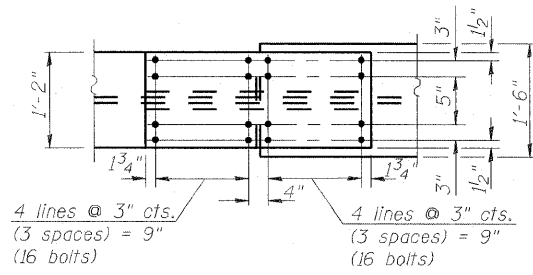
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS - S.N. 082-0324 - III  
I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: SHEET S-122 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 249
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

I:\projects\08046508\082-0322 & 0324 - Figure\08046508-master-com\steel\structural\082-0322-0324-76C76-SD25-SteelDet-0324-3.dgn



**FIELD SPLICE 4B DETAIL**  
(5 Required)

**FIELD SPLICE 5A DETAIL**  
(5 Required)

**FIELD SPLICE 5B DETAIL**  
(5 Required)

**FIELD SPLICE 6 DETAIL**  
(5 Required)

- Notes:
- AASHTO M270 Grade 50 steel shall be used for all splice plates, except fill plates which may be AASHTO M270 Grade 36 or 50.
  - Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness (Zone 2), including all flange and web splice plates (except fill plates).
  - Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts. Bolts 7/8 in.  $\phi$ , holes 15/16 in.  $\phi$ , unless otherwise noted. Design assumes threads in shear plane and Class A slip surface.
  - The Contractor is alerted that differences in web thickness across the splice create a slight misalignment of the webs that may need to be accounted for when detailing cross frames in shop drawings in order to properly control geometry and avoid any fit-up issues. The web fill plates are shown with one each side of web; alternatively, they may be detailed and installed on the same side of the web at rows of adjacent splices in order to minimize girder spacing differences at these locations.

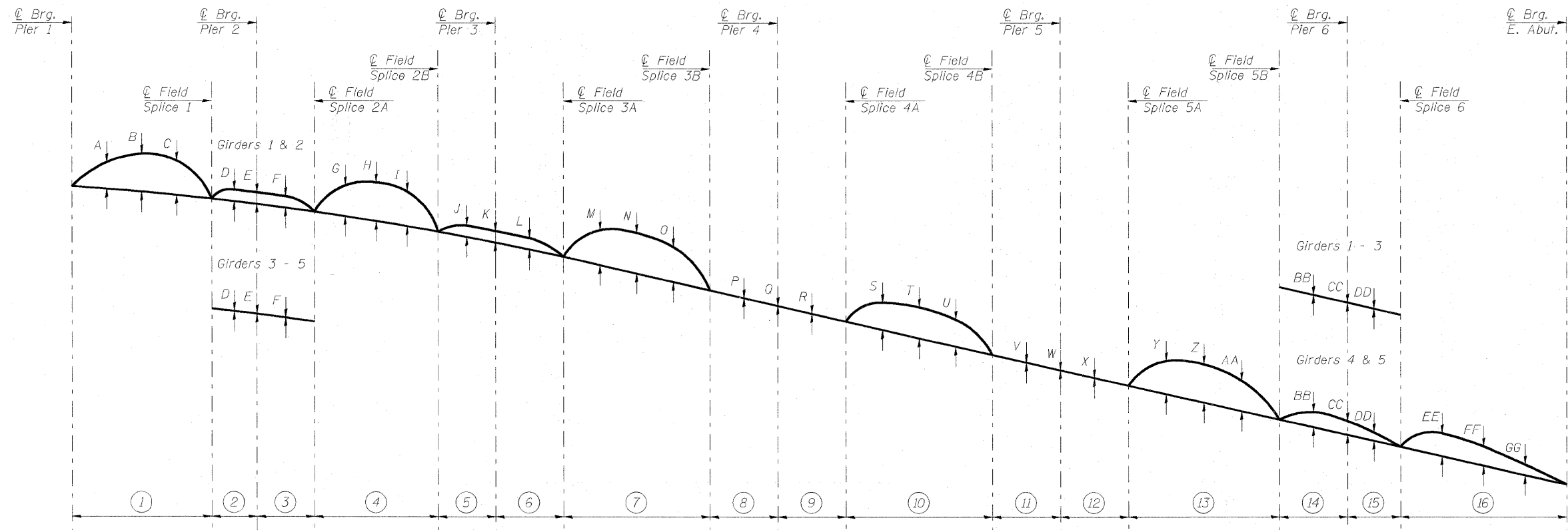


USER NAME =	DESIGNED - P.J.L.	REVISED -
PLOT SCALE = 1/4" = 1'-0"	DRAWN - BRD	REVISED -
PLOT DATE = 6/30/2011	CHECKED - DBB	REVISED -
	DATE - 07-01-11	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

STRUCTURAL STEEL DETAILS - S.N. 082-0324 - IV  
I-70E OVER I-55, CSX & KCS RAILROADS  
SCALE: SHEET S-123 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 250
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				



**CAMBER DIAGRAM - S.N. 082-0324**

TOP OF WEB CAMBER\* - STR. NO. 082-0324

Girder	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	1 3/4"	2 3/4"	2 1/4"	3/4"	3/4"	3/4"	2"	2 1/2"	2 1/4"	3/4"	3/4"	3/4"	2 1/2"	3"	2 3/4"	0"	0"	0"
2	1 3/4"	2 1/2"	2 1/4"	3/4"	3/4"	3/4"	2"	2 1/2"	2 1/4"	3/4"	3/4"	3/4"	2 1/2"	2 3/4"	2 3/4"	0"	0"	0"
3	1 3/4"	2 1/2"	2 1/4"	0"	0"	0"	2"	2 1/2"	2 1/4"	3/4"	3/4"	3/4"	2 1/4"	2 3/4"	2 1/2"	0"	0"	0"
4	1 3/4"	2 3/4"	2 1/4"	0"	0"	0"	2"	2 1/2"	2 1/4"	3/4"	3/4"	3/4"	2 1/4"	2 1/2"	2 1/2"	0"	0"	0"
5	1 3/4"	2 3/4"	2 1/4"	0"	0"	0"	2"	2 1/2"	2 1/4"	3/4"	1"	3/4"	2 1/4"	2 1/2"	2 1/4"	0"	0"	0"

Girder	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	GG
1	2 1/2"	3"	2 3/4"	0"	0"	0"	2 3/4"	3"	2 3/4"	0"	0"	0"	2"	1 3/4"	3/4"
2	2 1/2"	2 3/4"	2 1/2"	0"	0"	0"	2 1/2"	2 3/4"	2 1/2"	0"	0"	0"	1 3/4"	1 1/2"	1/2"
3	2 1/2"	2 1/2"	2 1/4"	0"	0"	0"	2 1/2"	2 3/4"	2 1/4"	0"	0"	0"	1 1/2"	1 1/4"	1/2"
4	2 1/4"	2 1/4"	2"	0"	0"	0"	2 1/2"	2 3/4"	2 1/4"	3/4"	1/2"	1/4"	1 1/2"	1 1/4"	1/2"
5	2"	2 1/4"	1 3/4"	0"	0"	0"	2 1/2"	2 3/4"	2 1/4"	1"	3/4"	1/2"	1 1/2"	1 1/4"	1/2"

\*For fabrication use only.

TOP OF WEB ELEVATIONS\* - STR. NO. 082-0324

Girder	Q Brg. Pier 1	Q Spl. 1	Q Brg. Pier 2	Q Spl. 2A	Q Spl. 2B	Q Brg. Pier 3	Q Spl. 3A	Q Spl. 3B	Q Brg. Pier 4
1	459.78	457.89	457.02	455.77	452.41	450.62	448.36	442.77	440.16
2	459.56	457.48	456.59	455.33	451.98	450.18	447.92	442.33	439.73
3	459.33	457.07	456.11	454.90	451.54	449.74	447.48	441.90	439.30
4	459.12	456.66	455.69	454.46	451.11	449.31	447.04	441.46	438.86
5	458.95	456.25	455.27	454.03	450.68	448.89	446.59	441.02	438.43

Girder	Q Spl. 4A	Q Spl. 4B	Q Brg. Pier 5	Q Spl. 5A	Q Spl. 5B	Q Brg. Pier 6	Q Spl. 6	Q Brg. E. Abut.
1	437.56	432.03	429.37	436.72	420.81	418.17	416.12	410.04
2	437.13	431.61	429.06	426.52	420.89	418.29	416.26	410.16
3	436.70	431.19	428.76	426.32	420.95	418.39	416.40	410.27
4	436.27	430.76	428.44	426.13	420.99	418.52	416.52	410.39
5	435.84	430.34	428.14	425.93	421.03	418.62	416.63	410.51

\*For fabrication use only.

Girder	4 Spaces	2 Spaces	2 Spaces	4 Spaces	2 Spaces	2 Spaces	4 Spaces	2 Spaces	2 Spaces	4 Spaces	2 Spaces	2 Spaces	4 Spaces	2 Spaces	2 Spaces	4 Spaces
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1	23'-2 1/8"	15'-0 15/16"	19'-1 3/8"	20'-7 1/4"	19'-1 3/8"	22'-7 3/8"	24'-4 1/2"	22'-7 3/8"	22'-7 3/8"	24'-4 1/2"	22'-7 3/8"	22'-6 1/8"	25'-0"	22'-6"	17'-6"	27'-6"
2	23'-1 3/8"	14'-11 13/16"	18'-11 3/4"	20'-5 3/4"	18'-11 3/4"	22'-5 3/4"	24'-2 1/16"	22'-5 3/4"	22'-5 3/4"	24'-2 1/16"	22'-5 3/4"	22'-6"	25'-0"	22'-6"	17'-6"	27'-6"
3	23'-0 5/8"	14'-10 11/16"	18'-10 3/8"	20'-4 1/4"	18'-10 3/8"	22'-4 1/8"	24'-0 15/16"	22'-4 1/8"	22'-4 1/8"	24'-0 15/16"	22'-4 1/8"	22'-5 7/8"	25'-0"	22'-6"	17'-6"	27'-6"
4	22'-11 13/16"	14'-9 5/8"	18'-9"	20'-2 3/4"	18'-9"	22'-2 7/16"	23'-11 1/8"	22'-2 7/16"	22'-2 7/16"	23'-11 1/8"	22'-2 7/16"	22'-5 13/16"	25'-0"	22'-6"	17'-6"	27'-6"
5	22'-11 1/16"	14'-8 1/2"	18'-7 9/16"	20'-1 13/16"	18'-7 9/16"	22'-0 3/4"	23'-9 5/16"	22'-0 3/4"	22'-0 3/4"	23'-9 5/16"	22'-0 3/4"	22'-5 11/16"	25'-0"	22'-6"	17'-6"	27'-6"

\*For fabrication use only.



USER NAME =  
 DESIGNED - PUL  
 DRAWN - BRD  
 CHECKED - CHY  
 PLOT DATE = 6/30/2011

REVISOR -  
 REVISION -  
 REVISION -  
 REVISION -  
 DATE - 07-01-11

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

GIRDER CAMBER & TOP OF WEB ELEVATIONS - S.N. 082-0324  
 I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: SHEET S-124 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 251
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

H:\projects\08046609\082-0322 & 0324 - Tjgover\908\_ced\901\_drawing\76e0b-master-com\1d1d1d1d\structural\082-0322-sheet-1-082-0322-0324-76C76-5D28-MomentTables-1.dgn

	0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.6 Sp. 3	
$I_s$	(in <sup>4</sup> )	68,188	149,228	75,008	149,228	71,685
$I_c(n)$	(in <sup>4</sup> )	155,606	166,668	174,587	166,668	165,203
$I_c(3n)$	(in <sup>4</sup> )	115,242	166,668	127,817	166,668	121,646
$S_s$	(in <sup>3</sup> )	1,707	3,720	1,977	3,720	1,842
$S_c(n)$	(in <sup>3</sup> )	2,371	3,876	2,717	3,876	2,544
$S_c(3n)$	(in <sup>3</sup> )	2,142	3,876	2,462	3,876	2,302
$S_{xt}$	(in <sup>3</sup> )	2,174	3,823	2,520	3,822	2,342
DC1	(k/')	1.22	1.41	1.24	1.41	1.23
M <sub>DC1</sub>	(k)	1,443	4,242	1,507	4,279	1,515
DC2	(k/')	0.26	0.26	0.26	0.26	0.26
M <sub>DC2</sub>	(k)	229	548	215	537	221
DW	(k/')	0.45	0.45	0.45	0.45	0.45
M <sub>DW</sub>	(k)	557	1,363	578	1,371	581
M <sub>L + IM</sub>	(k)	2,469	3,244	2,632	3,239	2,518
M <sub>u</sub> (Strength I)	(k)	7,246	13,709	7,626	13,745	7,448
M <sub>bt</sub>	(k)	6	18	13	19	6
$f_s$ DC1	(ksi)	10.1	13.7	9.1	13.8	9.9
$f_s$ DC2	(ksi)	1.3	1.7	1.0	1.7	1.2
$f_s$ DW	(ksi)	3.1	4.2	2.8	4.2	3.0
$f_s$ 1.3(L+IM)	(ksi)	16.2	13.1	15.1	13.0	15.4
$f_t$	(ksi)	1.7	1.9	3.0	1.9	1.6
$f_s$ (Service II)	(ksi)	30.8	32.7	28.1	32.7	29.5
$f_s$ (Total)(Strength I)	(ksi)	40.8	43.1	37.3	43.2	39.1
$F_{cr}$ (Service II)	(ksi)	47.5	47.5	47.5	47.5	47.5
$V_r$	(k)	50.7	55.1		57.7	50.9
$F_{cr}$	(ksi)	50.0	50.0	50.0	50.0	50.0

	W. Abut.	Pier 1	Pier 2	Pier 3	
R <sub>DC1</sub>	(k)	61.0	249.1	250.5	62.2
R <sub>DC2</sub>	(k)	9.9	35.9	35.4	9.7
R <sub>DW</sub>	(k)	22.2	82.5	82.9	22.7
R <sub>L + IM</sub>	(k)	99.2	202.6	201.7	101.1
R <sub>Total</sub>	(k)	192.3	570.1	570.5	195.7

\* The moments & reactions given are the maximum for interior girders. Forces are typically larger for an exterior girder. Structural design is based on maximum girder forces.

	0.4 Sp. 4	Pier 4	0.5 Sp. 5	Pier 5	0.6 Sp. 6	
$I_s$	(in <sup>4</sup> )	91,502	159,584	85,719	153,056	85,719
$I_c(n)$	(in <sup>4</sup> )	186,957	176,555	157,220	169,394	176,363
$I_c(3n)$	(in <sup>4</sup> )	139,548	176,555	119,004	169,394	132,886
$S_s$	(in <sup>3</sup> )	2,232	3,912	2,091	3,644	2,091
$S_c(n)$	(in <sup>3</sup> )	2,941	4,057	2,629	3,783	2,721
$S_c(3n)$	(in <sup>3</sup> )	2,661	4,057	2,391	3,783	2,488
$S_{xt}$	(in <sup>3</sup> )	2,753	4,013	2,482	3,737	2,544
DC1	(k/')	1.29	1.43	0.93	1.41	1.26
M <sub>DC1</sub>	(k)	1,706	3,961	1,495	3,977	1,616
DC2	(k/')	0	0	0.26	0	0.26
M <sub>DC2</sub>	(k)	90	203	206	317	331
DW	(k/')	0.41	0.38	0.37	0.38	0.39
M <sub>DW</sub>	(k)	595	1,486	706	1,474	632
M <sub>L + IM</sub>	(k)	3,311	4,129	2,360	4,227	2,526
M <sub>u</sub> (Strength I)	(k)	8,932	14,660	7,315	14,976	7,802
M <sub>bt</sub>	(k)	5	0	12	0	2
$f_s$ DC1	(ksi)	9.2	12.1	8.6	13.1	9.3
$f_s$ DC2	(ksi)	0.4	0.6	1.0	1.0	1.6
$f_s$ DW	(ksi)	2.7	4.4	3.5	4.7	3.0
$f_s$ 1.3(L+IM)	(ksi)	17.6	15.9	14.0	17.4	14.5
$f_t$	(ksi)	1.2	0.0	2.9	0.0	0.4
$f_s$ (Service II)	(ksi)	29.8	33.0	27.2	36.2	28.4
$f_s$ (Total)(Strength I)	(ksi)	39.6	43.9	36.2	48.1	37.7
$F_{cr}$ (Service II)	(ksi)	47.5	47.5	47.5	47.5	47.5
$V_r$	(k)	146.6	152.4		159.7	114.2
$F_{cr}$	(ksi)	50.0	50.0	50.0	50.0	50.0

	Pier 3	Pier 4	Pier 5	Pier 6	
R <sub>DC1</sub>	(k)	67.5	341.9	241.0	65.5
R <sub>DC2</sub>	(k)	2.2	-0.2	17.4	12.0
R <sub>DW</sub>	(k)	23.9	117.2	87.6	24.6
R <sub>L + IM</sub>	(k)	141.1	266.9	271.0	141.5
R <sub>Total</sub>	(k)	234.7	725.8	617.0	243.6

$I_s, S_s$ : Non-composite moment of inertia and section modulus of the steel section used for computing  $f_s$  (Total-Strength I, and Service II) due to non-composite dead loads (in<sup>4</sup> and in<sup>3</sup>).  
 $I_c(n), S_c(n)$ : Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing  $f_s$  (Total-Strength I, and Service II) due to short-term composite live loads (in<sup>4</sup> and in<sup>3</sup>).  
 $I_c(3n), S_c(3n)$ : Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing  $f_s$  (Total-Strength I, and Service II) due to long-term composite (superimposed) dead loads (in<sup>4</sup> and in<sup>3</sup>).  
 $S_{xt}$ : Section modulus about the major axis of section to the controlling flange, tension or compression, taken as yield moment with respect to the controlling flange over the yield strength of the controlling flange (in<sup>3</sup>).  
 DC1: Un-factored non-composite dead load (kips/ft.).  
 M<sub>DC1</sub>: Un-factored moment due to non-composite dead load (kip-ft.).  
 DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).  
 M<sub>DC2</sub>: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).  
 DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).  
 M<sub>DW</sub>: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).  
 M<sub>L + IM</sub>: Un-factored live load moment plus dynamic load allowance (impact)(kip-ft.).  
 M<sub>u</sub> (Strength I): Factored design moment (kip-ft.).  
 1.25 (M<sub>DC1</sub> + M<sub>DC2</sub>) + 1.5 M<sub>DW</sub> + 1.75 M<sub>L + IM</sub>  
 M<sub>bt</sub>: Factored lateral bending moment for controlling flange plate (kip-ft.).  
 $f_t$ : Factored calculated normal stress at edge of flange for controlling flange plate due to lateral bending (kip-ft.).  
 $f_s$  (Service II): Sum of stresses as computed from the moments below (ksi).  
 M<sub>DC1</sub> + M<sub>DC2</sub> + M<sub>DW</sub> + 1.3 M<sub>L + IM</sub>  
 $f_s$  (Total)(Strength I): Sum of stresses as computed from the moments below on non-compact section (ksi).  
 1.25 (M<sub>DC1</sub> + M<sub>DC2</sub>) + 1.5 M<sub>DW</sub> + 1.75 M<sub>L + IM</sub>  
 $F_{cr}$  (Service II): Critical flange stress at Service II computed according to Article 6.10.4.2 (ksi).  
 $F_{cr}$ : Critical flange stress computed according to Article 6.10.7 or 6.10.8 (ksi).  
 $V_r$ : Maximum factored shear range computed according to Article 6.10.10.

Note:

M<sub>L</sub> and R<sub>L</sub> include the effects of centrifugal force and superelevation.



USER NAME =	DESIGNED - P.J.L.	REVISED -
	DRAWN - BRD	REVISED -
PLOT SCALE = 0.2" = 1' / IN.	CHECKED - CHY	REVISED -
PLOT DATE = 6/30/2011	DATE - 07-01-11	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

MOMENT AND REACTION TABLES - I  
I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: SHEET S-125 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 252
S.N. 082-0322 & S.N. 082-0324			CONTRACT NO. 76C76	
FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT				

K:\projects\608045608\082-0322-0322 & 0324\figover\082-0322-values\082-0322-values\082-0322-0324\_76C76\_5029\_MomentTables-2.dgn

INTERIOR GIRDER MOMENT TABLE - S.N. 082-0322 - UNIT 3\*
Table with 8 columns (0.4 Sp. 7 to 0.6 Sp. 10) and 26 rows (I\_s, I\_e(n), I\_e(3n), S\_s, S\_c(n), S\_c(3n), S\_xt, DC1, M\_dc1, DC2, M\_dc2, DW, MDW, M\_L + IM, M\_u (Strength I), M\_bt, f\_s DC1, f\_s DC2, f\_s DW, f\_s 1.3(L+IM), f\_t, f\_s (Service II), f\_s (Total)(Strength I), F\_or (Service II), V\_f, F\_or).

INTERIOR GIRDER MOMENT TABLE - S.N. 082-0322 - UNIT 4\*
Table with 8 columns (0.4 Sp. 11 to 0.6 Sp. 14) and 26 rows (I\_s, I\_e(n), I\_e(3n), S\_s, S\_c(n), S\_c(3n), S\_xt, DC1, M\_dc1, DC2, M\_dc2, DW, MDW, M\_L + IM, M\_u (Strength I), M\_bt, f\_s DC1, f\_s DC2, f\_s DW, f\_s 1.3(L+IM), f\_t, f\_s (Service II), f\_s (Total)(Strength I), F\_or (Service II), V\_f, F\_or).

INTERIOR GIRDER REACTION TABLE - S.N. 082-0322-UNIT 3\*
Table with 5 columns (Pier 6 to Pier 10) and 6 rows (R\_dc1, R\_dc2, R\_DW, R\_L + IM, R\_Total).

INTERIOR GIRDER REACTION TABLE - S.N. 082-0322-UNIT 4\*
Table with 5 columns (Pier 10 to E. Abut.) and 6 rows (R\_dc1, R\_dc2, R\_DW, R\_L + IM, R\_Total).

INTERIOR GIRDER MOMENT TABLE - S.N. 082-0324\*
Large table with 12 columns (0.4 Sp. 1 to 0.6 Sp. 6) and 26 rows (I\_s, I\_e(n), I\_e(3n), S\_s, S\_c(n), S\_c(3n), S\_xt, DC1, M\_dc1, DC2, M\_dc2, DW, MDW, M\_L + IM, M\_u (Strength I), M\_bt, f\_s DC1, f\_s DC2, f\_s DW, f\_s 1.3(L+IM), f\_t, f\_s (Service II), f\_s (Total)(Strength I), F\_or (Service II), V\_f, F\_or).

INTERIOR GIRDER REACTION TABLE - S.N. 082-0324\*
Table with 7 columns (Pier 1 to E. Abut.) and 6 rows (R\_dc1, R\_dc2, R\_DW, R\_L + IM, R\_Total).

I\_s, S\_s: Non-composite moment of inertia and section modulus of the steel section used for computing f\_s (Total-Strength I, and Service II) due to non-composite dead loads (in.4 and in.3).
I\_e(n), S\_c(n): Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f\_s (Total-Strength I, and Service II) due to short-term composite live loads (in.4 and in.3).
I\_e(3n), S\_c(3n): Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f\_s (Total-Strength I, and Service II) due to long-term composite (superimposed) dead loads (in.4 and in.3).
S\_xt: Section modulus about the major axis of section to the controlling flange, tension or compression, taken as yield moment with respect to the controlling flange over the yield strength of the controlling flange (in.3).
DC1: Un-factored non-composite dead load (kips/ft.).
M\_dc1: Un-factored moment due to non-composite dead load (kip-ft.).
DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).
M\_dc2: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).
DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).
M\_DW: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).
M\_L + IM: Un-factored live load moment plus dynamic load allowance (impact)(kip-ft.).
M\_u (Strength I): Factored design moment (kip-ft.).
1.25 (M\_dc1 + M\_dc2) + 1.5 M\_DW + 1.75 M\_L + IM
M\_bt: Factored lateral bending moment for controlling flange plate (kip-ft.).
f\_t: Factored calculated normal stress at edge of flange for controlling flange plate due to lateral bending (kip-ft.).
f\_s (Service II): Sum of stresses as computed from the moments below (ksi).
M\_dc1 + M\_dc2 + M\_DW + 1.3 M\_L + IM
f\_s (Total)(Strength I): Sum of stresses as computed from the moments below on non-compact section (ksi).
1.25 (M\_dc1 + M\_dc2) + 1.5 M\_DW + 1.75 M\_L + IM
F\_or (Service II): Critical flange stress at Service II computed according to Article 6.10.4.2 (ksi).
F\_or: Critical flange stress computed according to Article 6.10.7 or 6.10.8 (ksi).
V\_f: Maximum factored shear range computed according to Article 6.10.10.

\* The moments & reactions given are the maximum for interior girders. Forces are typically larger for an exterior girder. Structural design is based on maximum girder forces.

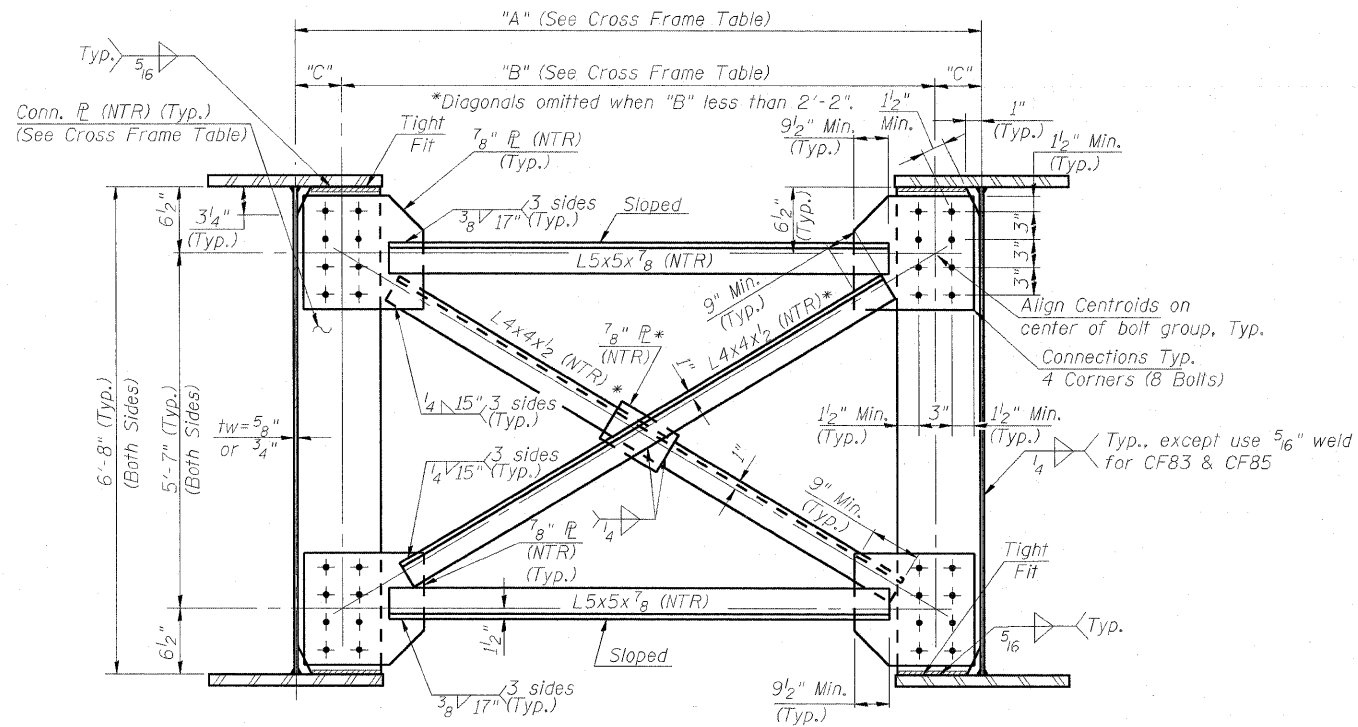


Table with 4 columns: USER NAME, DESIGNED, DRAWN, PLOT SCALE, PLOT DATE, CHECKED, DATE, REVISED.

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION

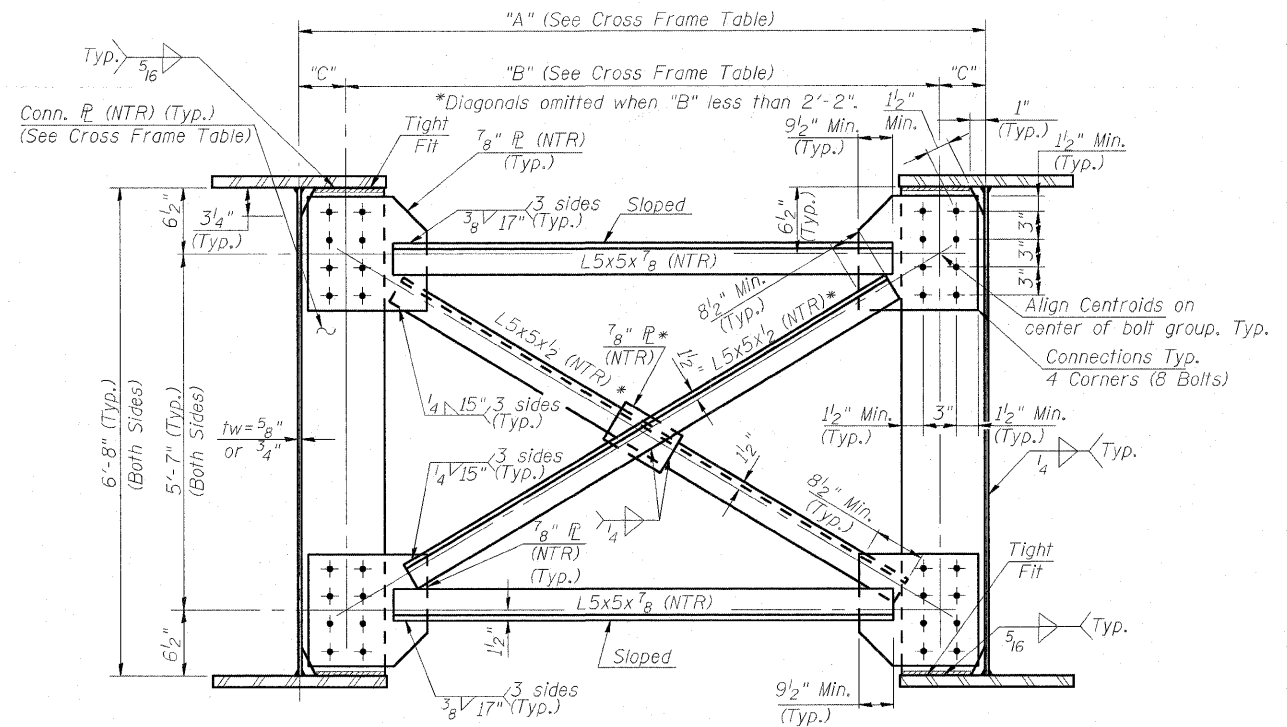
MOMENT AND REACTION TABLES - II I-70E OVER I-55, CSX & KCS RAILROADS

Table with 6 columns: F.A.I. RTE., SECTION, COUNTY, TOTAL SHEETS, SHEET NO., S.N., CONTRACT NO., FED. ROAD DIST. NO., ILLINOIS FED. AID PROJECT.



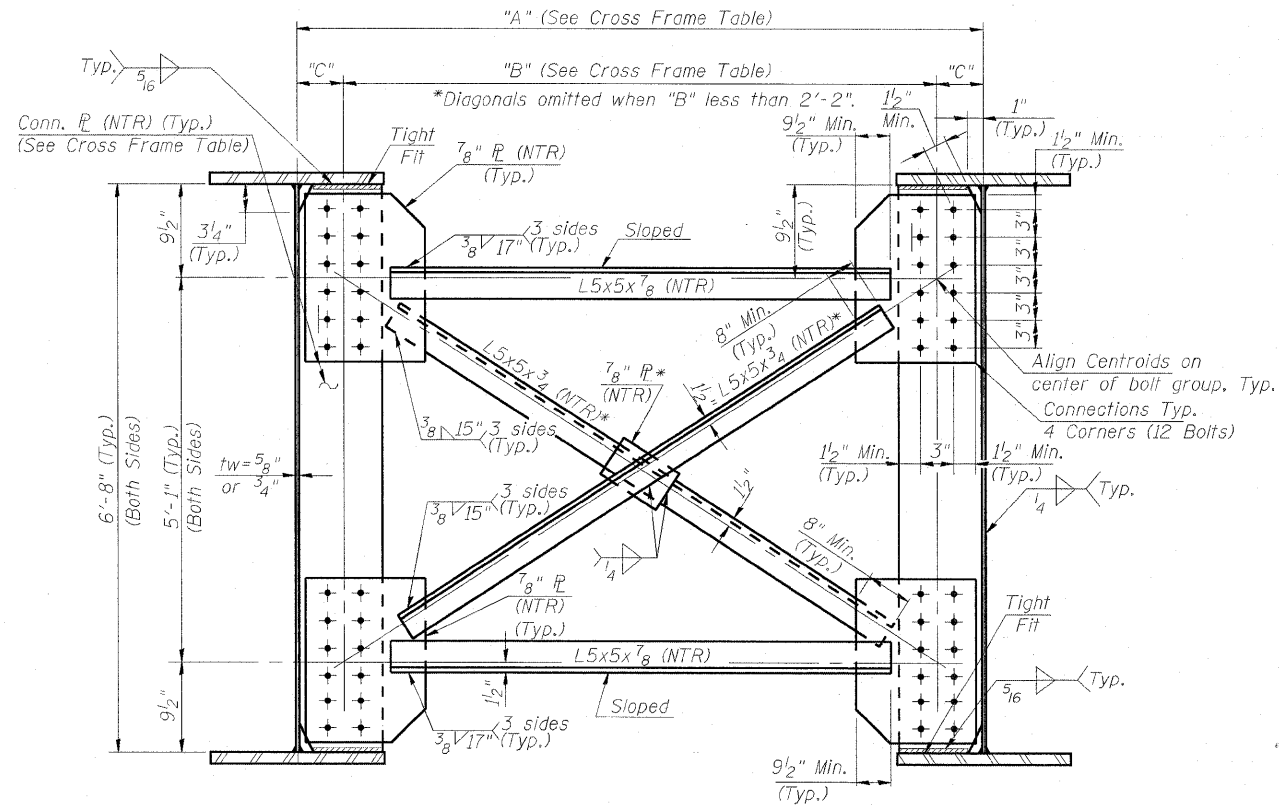
**INTERIOR CROSS FRAME - TYPE I**

(517 Required)  
Use in all Units except Unit 2.



**INTERIOR CROSS FRAME - TYPE II**

(151 Required)  
Use in Unit 2.

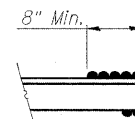


**INTERIOR CROSS FRAME - TYPE III**

(5 Required)  
Use astride Headers in Unit 1.

\*Diagonals omitted when "B" less than 2'-2".

- Cross Frame Notes:
- See Framing Plans for location of girder cross frames.
  - AASHTO M270 Grade 50 steel shall be used for all cross frames, connection plates, and bearing stiffeners, unless otherwise noted.
  - Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness (Zone 2).
  - Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts. Bolts 7/8 in. φ, holes 15/16 in. φ, unless otherwise noted.
  - Field reaming shall not exceed that permitted in Article 505.08(I) of the Standard Specifications. If any field reaming is required, two hardened washers are required for each oversized bolt hole.
  - The Contractor is alerted that differences in web thickness across the splice create a slight misalignment of the webs that may need to be accounted for when detailing cross frames in shop drawings in order to properly control geometry and avoid any fit-up issues. The web fill plates are shown with one each side of web; alternatively, they may be detailed and installed on the same side of the web at rows of adjacent splices in order to minimize girder spacing differences at these locations.
  - Welding:**  
Balance weld lengths for both 3 sided & 4 sided welds about the centroid of angle to avoid weld eccentricity. Minimum length of any fillet weld = 4 x weld size ≥ 1 1/2". Minimum total length of weld & length along the outstanding leg are shown:



- Steel Erection Notes:
- Erection shall be accomplished by a steel erection contractor or sub-contractor certified as an Advanced Certified Steel Erector (ACSE) by the American Institute of Steel Construction (AISC). See special provision for "Erection of Complex Steel Structures".
  - All cross frames between girders shall be installed with erection pins and bolts in accordance with erection plan submitted to and approved by the Engineer. Individual cross frames at supports may be temporarily disconnected to install bearing anchor rods.
  - The calculated deflections of the primary girders under steel self-weight shall be used to detail the cross frame connections, and to erect the structural steel such that girders will be plumb within a tolerance of ± 1/8 in. per vertical foot throughout the length of the girder system when supporting their own weight.
  - The Contractor shall either:
    - Ream cross frame connection holes during shop assembly, or
    - Provide detailing and fabrication controls acceptable to the Engineer which ensures accuracy such that field reaming will not exceed the amount permitted in Article 505.08(I) of the Standard Specifications.



USER NAME =  
PLOT SCALE = 0/2" = 1' / IN.  
PLOT DATE = 8/15/2011

DESIGNED - P.J.L.  
DRAWN - BRD  
CHECKED - CHY  
DATE - 08-12-11

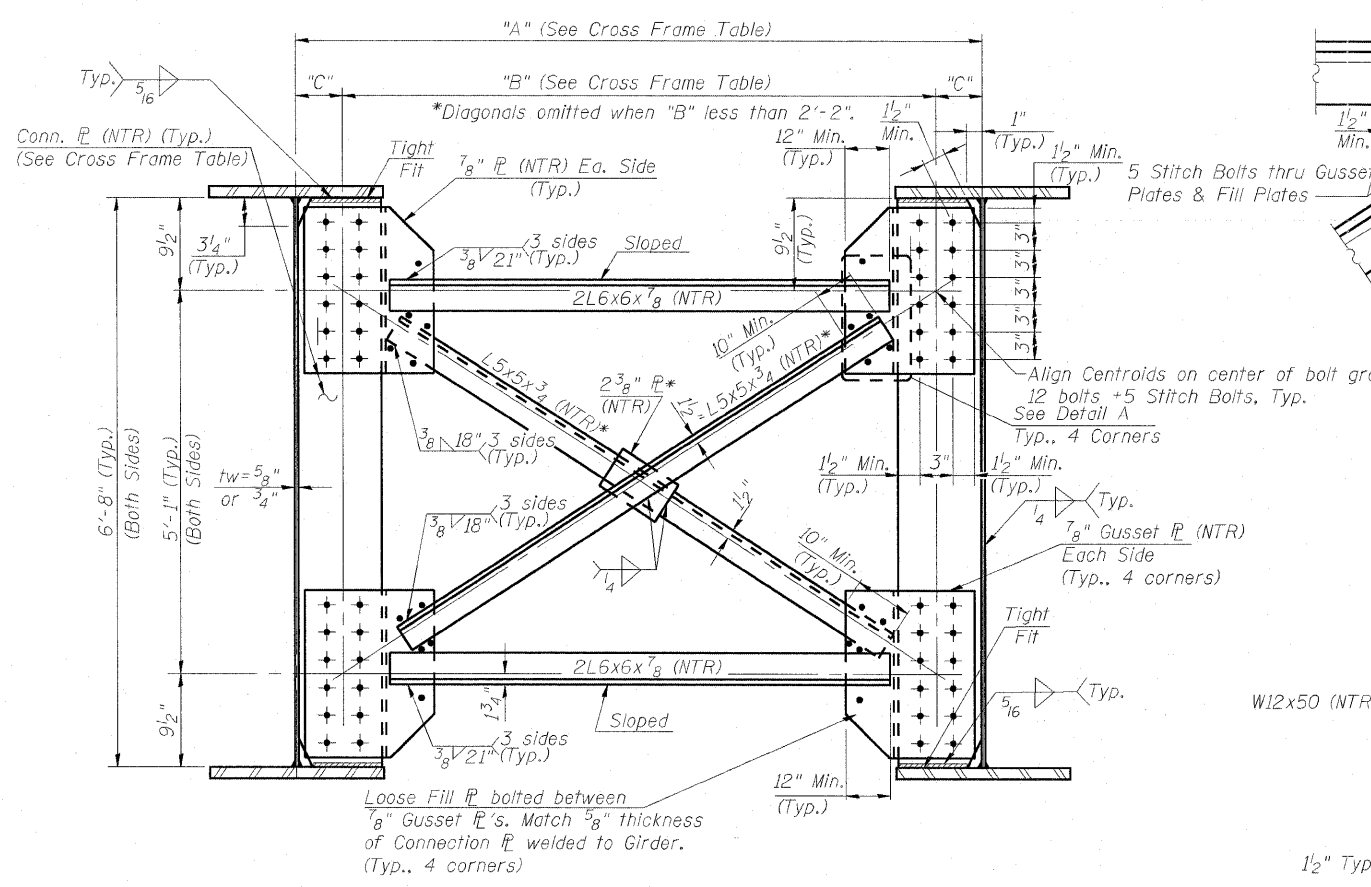
REVISED -  
REVISED -  
REVISED -  
REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

CROSS FRAME DETAILS - I  
I-70E OVER I-55, CSX & KCS RAILROADS

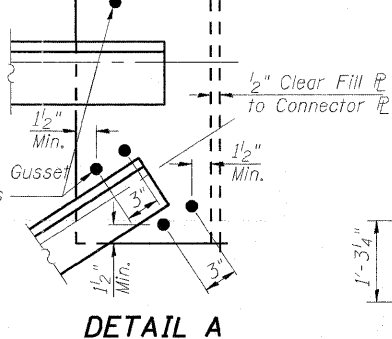
SCALE: SHEET S-127 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	254
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

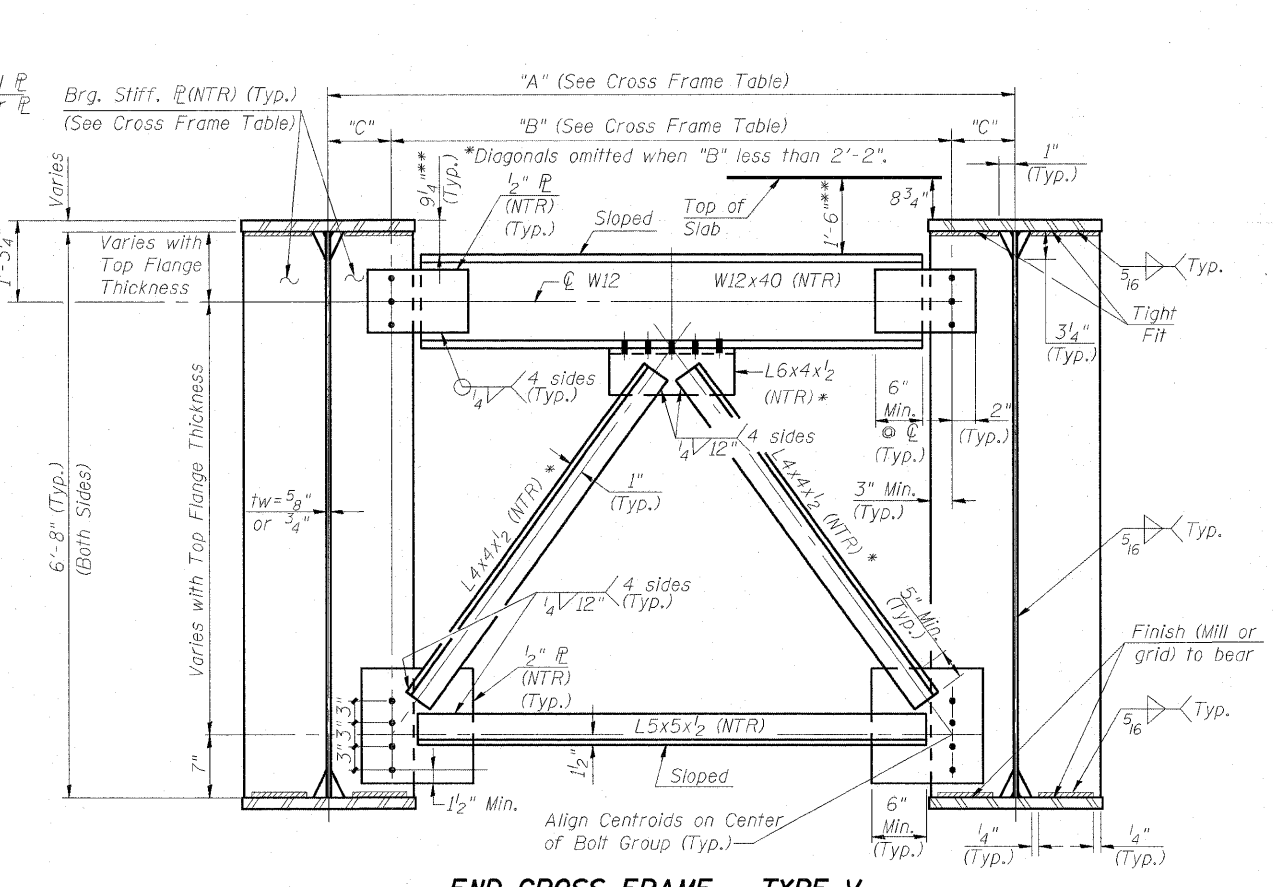


**INTERIOR CROSS FRAME - TYPE IV**

(15 Required)  
Use astride Headers in Unit 2.  
"A" (See Cross Frame Table)

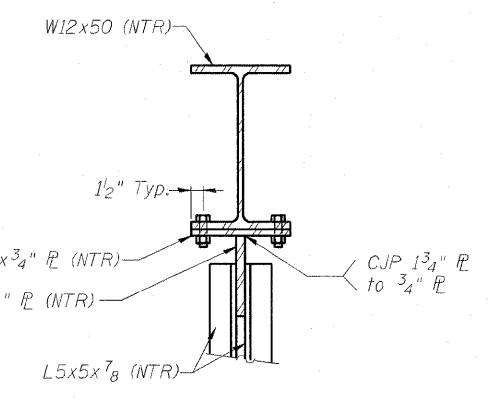


**DETAIL A**

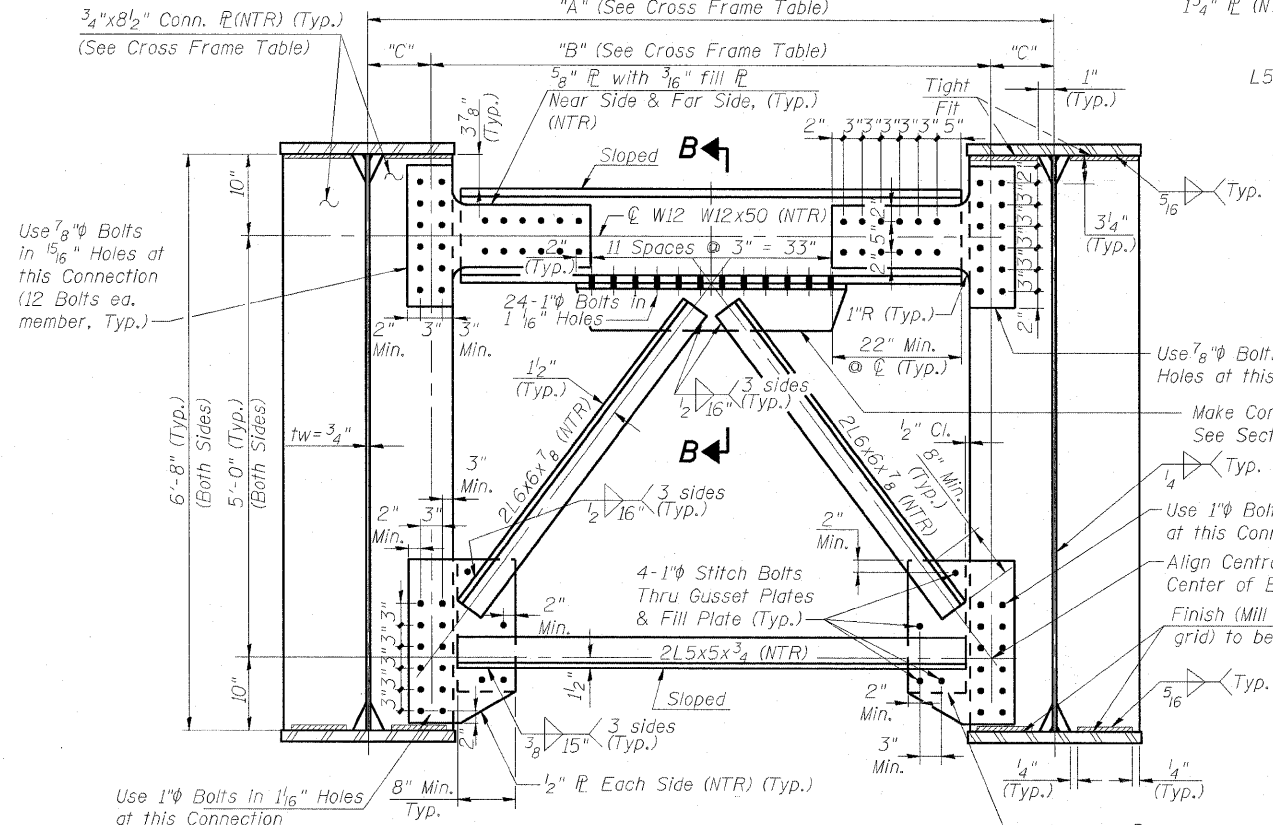


**END CROSS FRAME - TYPE V**

(57 Required)  
\*\*Contractor to coordinate dimension with Modular Joint Manufacturer & increase if necessary to fit support boxes within thickened end slab.

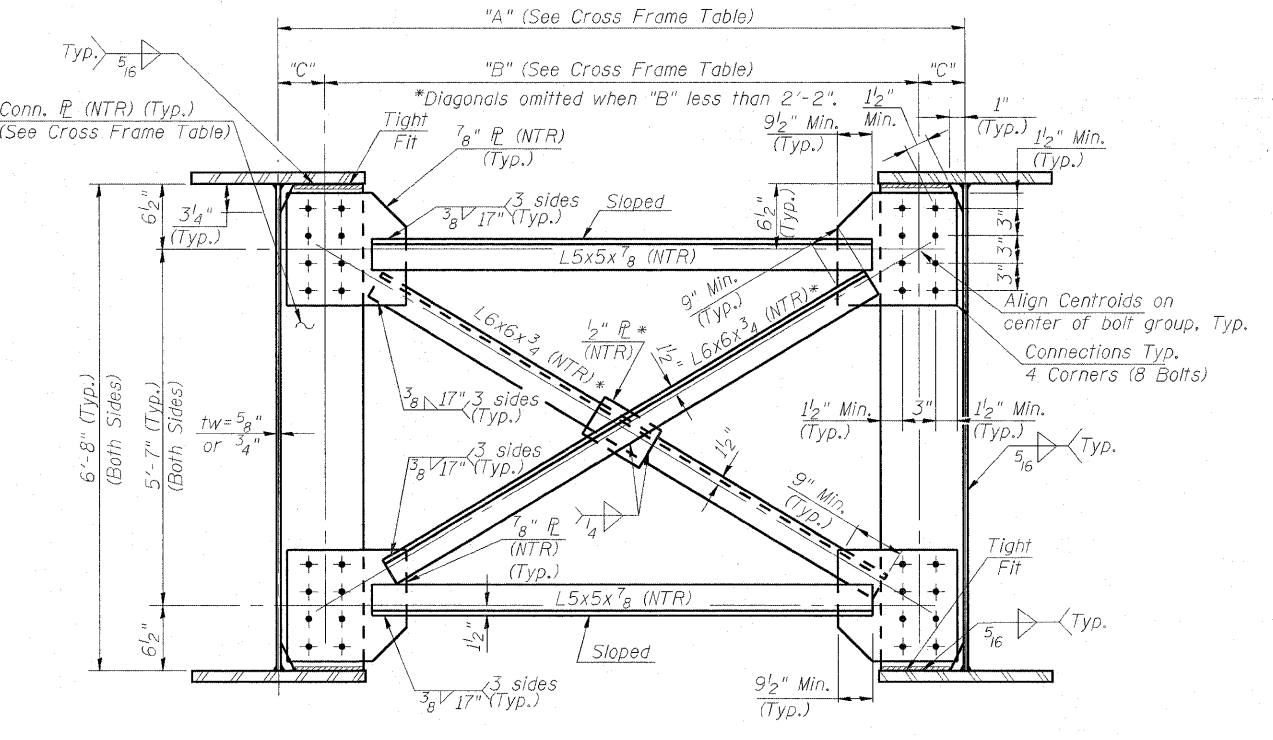


**SECTION B-B**



**END CROSS FRAME TYPE VI**

(1 Required at Gore of Unit 2)



**INTERIOR CROSS FRAME - TYPE VII - AT PIERS**

(81 Required)



USER NAME =	DESIGNED - P.J.L.	REVISED -
PLOT SCALE = 3/8" = 1'-0"	DRAWN - BRD	REVISED -
PLOT DATE = 8/15/2011	CHECKED - CHY	REVISED -
	DATE - 08-12-11	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**CROSS FRAME DETAILS - II  
I-70E OVER I-55, CSX & KCS RAILROADS**

SCALE: SHEET S-128 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	255
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO. ILLINOIS		FED. AID PROJECT		





S.N. 082-0322  
Sta. 57+95.50  
C. Brg. W. Abut.  
(Exp.)

8  
7  
6  
5  
4  
3  
2  
1

C. Pier 1  
(Exp.)

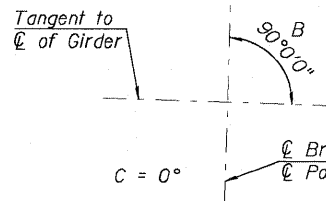
Origin point for Exp./Contraction

C. Pier 2  
(Fixed)

C. Brg. Pier 3  
(Exp.)

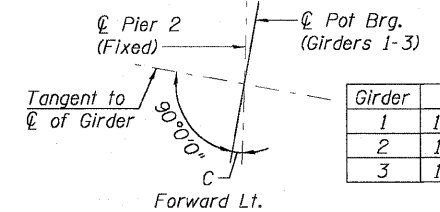
S.N. 082-0322  
Sta. 56+86.00  
C. Pier 3

8  
7  
6  
5  
4  
3  
2  
1



**PIER 2  
GIRDERS 4-8**

**BEARING LAYOUT PLAN - UNIT 1**

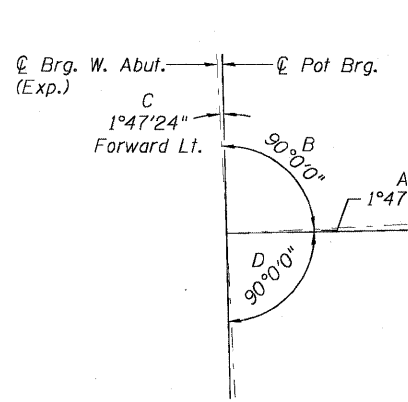


**PIER 2  
GIRDERS 1-3**

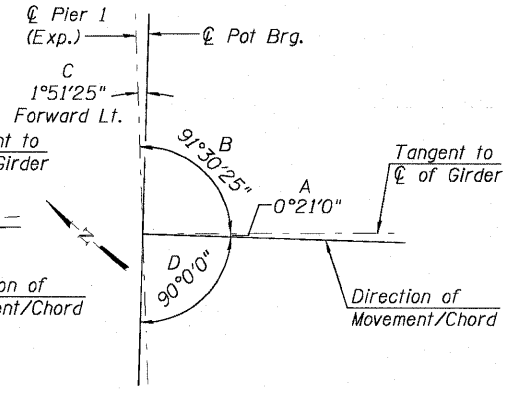
Girder	C
1	1°29'22"
2	1°29'05"
3	1°28'54"

Note:  
Girder Chord is constructed as a straight line from C bearing at a Fixed Pier, in the direction of expansion, to C bearing at each Expansion Pier. Only one chord per Expansion Pier is indicated. All other chords are parallel to the one shown chord and pass thru C Exp. Brg. at each Girder.

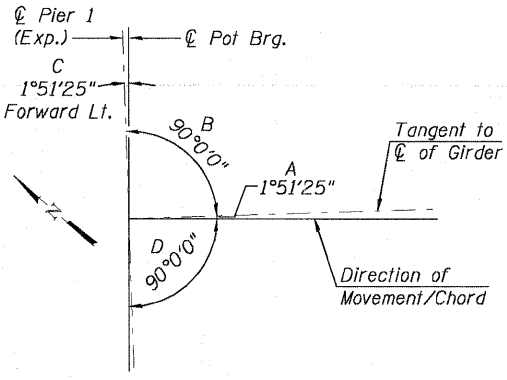
Notes:  
A = Angle between Tangent to Girder and Direction of Movement/Chord.  
B = Angle between Tangent to Girder and C of Pier or Abutment.  
C = Setting angle between C of Bearing Base Plate and C of Pier or Abutment.  
D = Set Bearing Base Plates at right angles to the Direction of Movement/Chord.



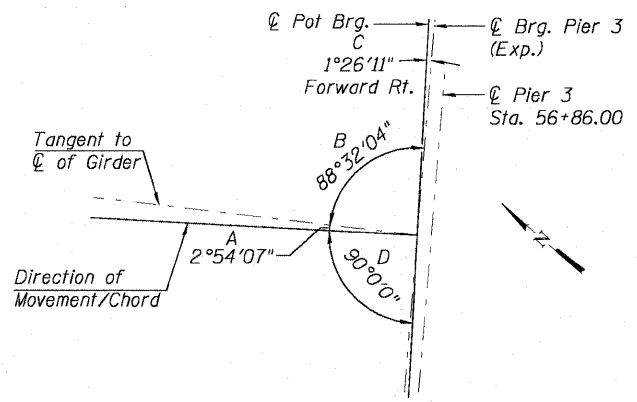
**W. ABUT.**



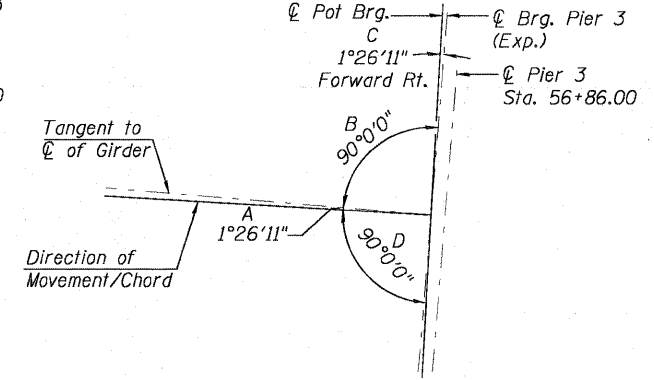
**PIER 1  
GIRDERS 1-2**



**PIER 1  
GIRDERS 4-8**



**PIER 3  
GIRDERS 1-3**



**PIER 3  
GIRDERS 4-8**

**BEARING ORIENTATION- UNIT 1**



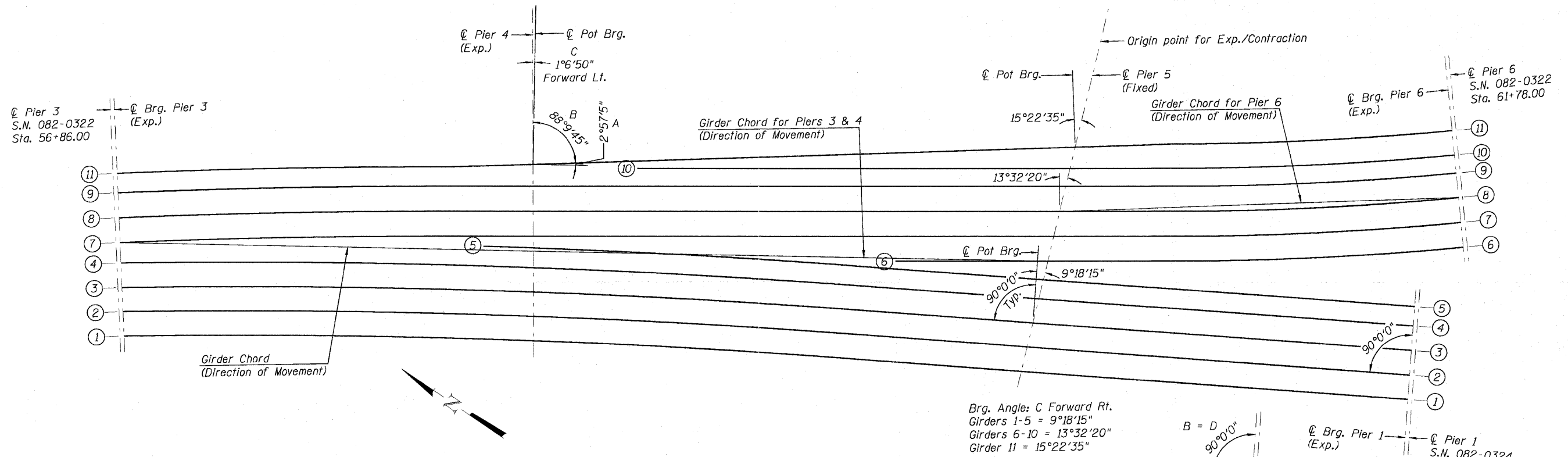
USER NAME =	DESIGNED - LLV	REVISED -
PLOT SCALE = 8x2.0000" 1" / IN.	DRAWN - BRD	REVISED -
PLOT DATE = 5/27/2011	CHECKED - PJL	REVISED -
	DATE - 07-01-11	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

BEARING ORIENTATION DETAILS - UNIT 1  
I-70E OVER I-55, CSX & KCS RAILROADS

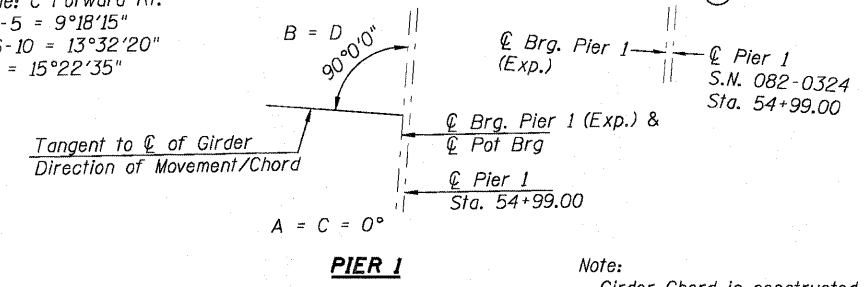
SCALE: SHEET S-130 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	257
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				



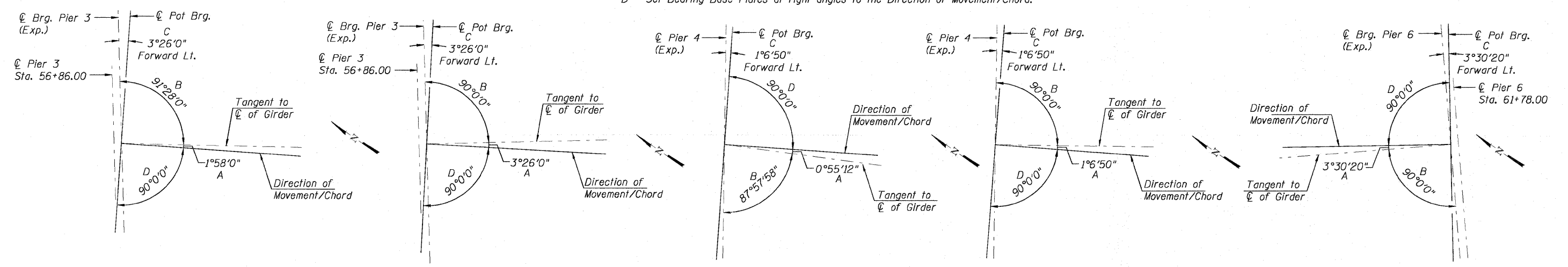
**BEARING LAYOUT PLAN - UNIT 2**

Brg. Angle: C Forward Rt.  
 Girders 1-5 = 9°18'15"  
 Girders 6-10 = 13°32'20"  
 Girder 11 = 15°22'35"



Note:  
 Girder Chord is constructed as a straight line from C bearing at a Fixed Pier, in the direction of expansion, to C bearing at each Expansion Pier. Only one chord per Expansion Pier is indicated. All other chords are parallel to the one shown chord and pass thru C Exp. Brg. at each Girder.

- Notes:  
 A = Angle between Tangent to Girder and Direction of Movement/Chord.  
 B = Angle between Tangent to Girder and C of Pier or Abutment.  
 C = Setting angle between C of Bearing Base Plate and C of Pier or Abutment.  
 D = Set Bearing Base Plates at right angles to the Direction of Movement/Chord.



**PIER 3  
GIRDERS 1-4**

**PIER 3  
GIRDERS 7-11**

**PIER 4  
GIRDERS 1-5**

**PIER 4  
GIRDERS 7-9**

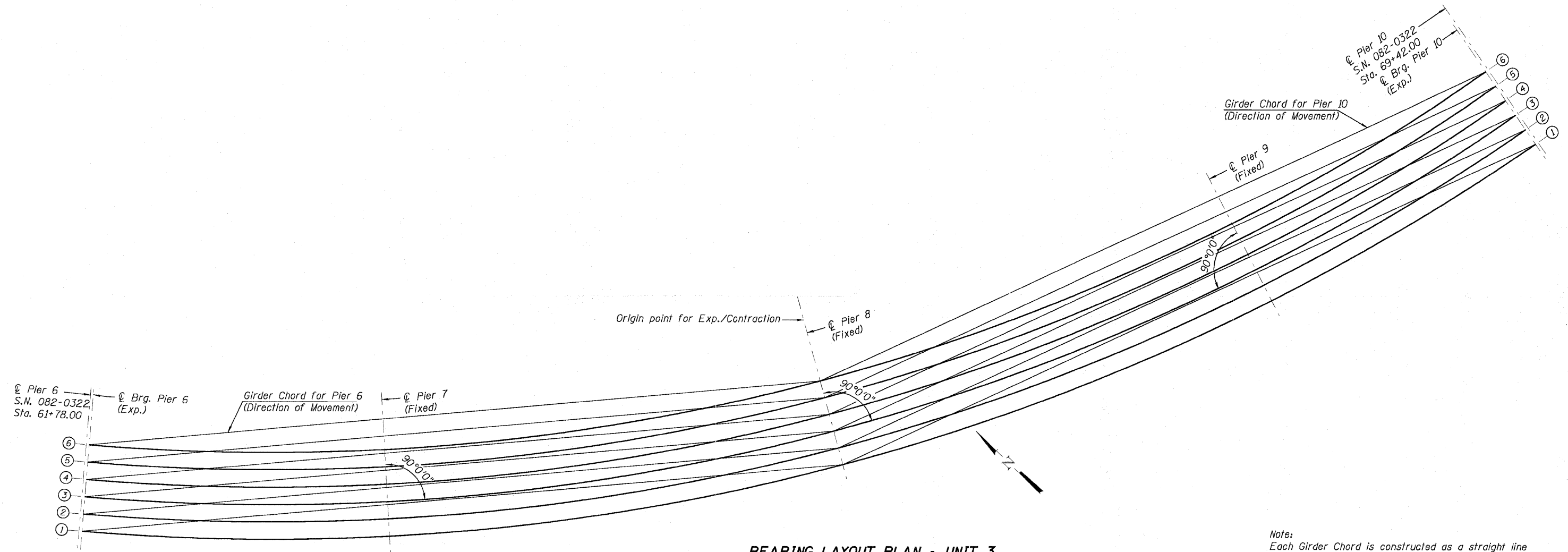
**PIER 6**

**BEARING ORIENTATION- UNIT 2**

<b>AECOM</b>	USER NAME =	DESIGNED - LLV	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>BEARING ORIENTATION DETAILS - UNIT 2 I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE = 0x2.0000" 1" / IN.	DRAWN - BRD	REVISED -			70	82-1-B-2	ST. CLAIR	399	258
	PLOT DATE = 6/27/2011	CHECKED - PJL	REVISED -			S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT

K:\projects\108094689\sm082-0322 & 0324\figover\108094689\figover\76c76\master\comp\struct\bearing\unit2.dgn

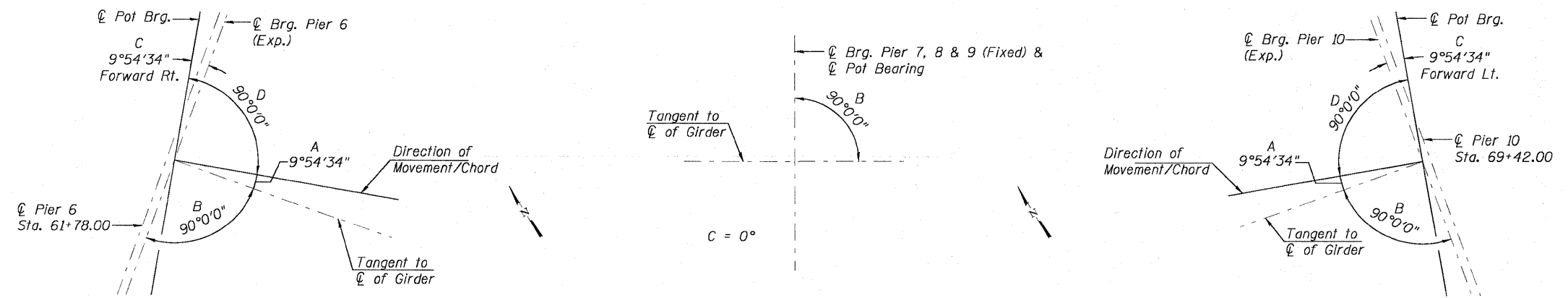
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**BEARING LAYOUT PLAN - UNIT 3**

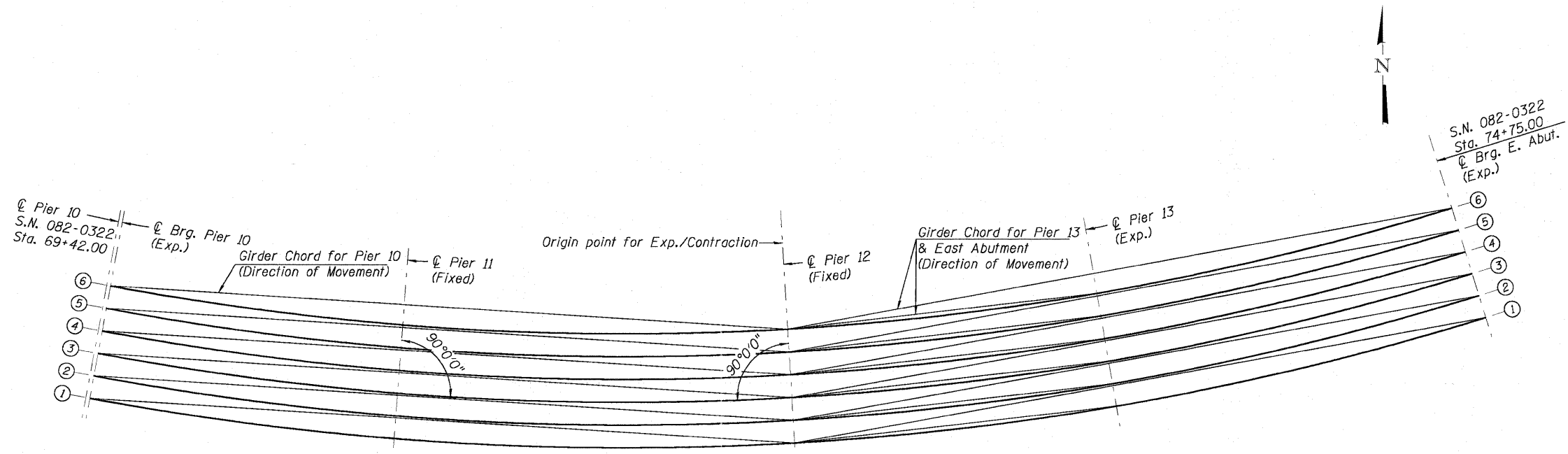
Note:  
Each Girder Chord is constructed as a straight line from ℄ bearing at a Fixed Pier, in the direction of expansion, to ℄ bearing at each Expansion Pier.

- Notes:
- A = Angle between Tangent to Girder and Direction of Movement/Chord.
  - B = Angle between Tangent to Girder and ℄ of Pier or Abutment.
  - C = Setting angle between ℄ of Bearing Base Plate and ℄ of Pier or Abutment.
  - D = Set Bearing Base Plates at right angles to the Direction of Movement/Chord.



**BEARING ORIENTATION- UNIT 3**

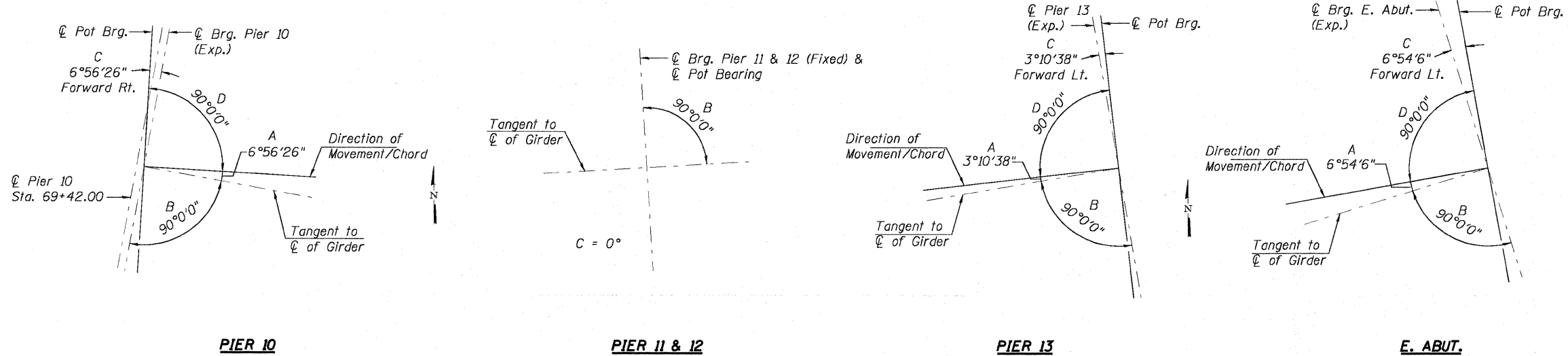
<b>AECOM</b>	USER NAME =	DESIGNED - LLV	REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>BEARING ORIENTATION DETAILS - UNIT 3</b>		F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
	PLOT SCALE = 0=2.0000' = 1" / IN.	DRAWN - BRD	REVISED -		<b>I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>							
	PLOT DATE = 6/27/2011	CHECKED - PJL	REVISED -		SCALE:	SHEET S-132 OF S-234 SHEETS	STA.	TO STA.	S.N. 082-0322 & S.N. 082-0324 CONTRACT NO. 76C76			
		DATE - 07-01-11	REVISED -					FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				



**BEARING LAYOUT PLAN - UNIT 4**

Note:  
Each Girder Chord is constructed as a straight line from  $\text{C}$  bearing at a Fixed Pier, in the direction of expansion, to  $\text{C}$  bearing at each Expansion Pier.

- Notes:
- A = Angle between Tangent to Girder and Direction of Movement/Chord.
  - B = Angle between Tangent to Girder and  $\text{C}$  of Pier or Abutment.
  - C = Setting angle between  $\text{C}$  of Bearing Base Plate and  $\text{C}$  of Pier or Abutment.
  - D = Set Bearing Base Plates at right angles to the Direction of Movement/Chord.



**BEARING ORIENTATION- UNIT 4**



USER NAME =	DESIGNED - LLV	REVISED -
PLOT SCALE = 0.2,0000' = 1" IN.	DRAWN - BRD	REVISED -
PLOT DATE = 6/27/2011	CHECKED - PJL	REVISED -
	DATE - 07-01-11	REVISED -

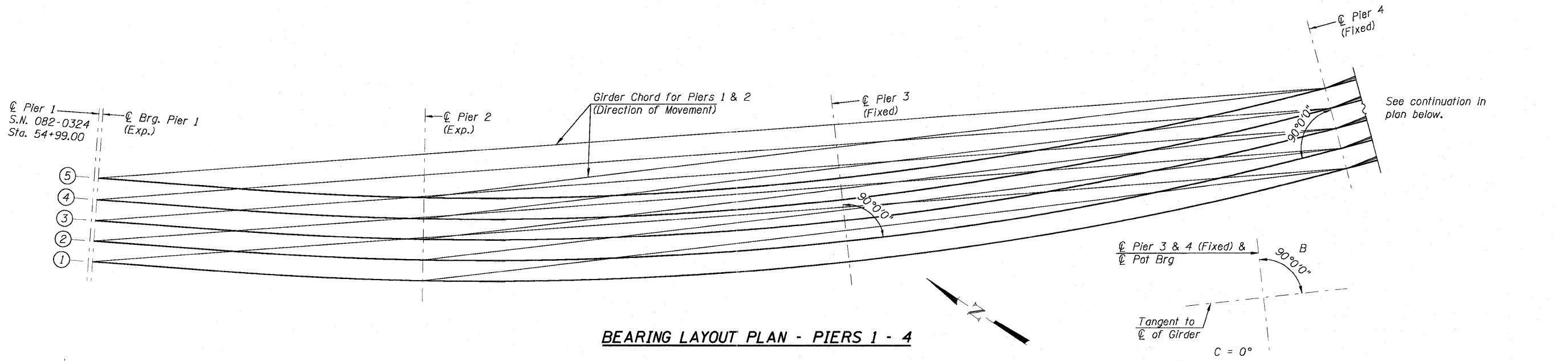
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**BEARING ORIENTATION DETAILS- UNIT 4  
I-70E OVER I-55, CSX & KCS RAILROADS**

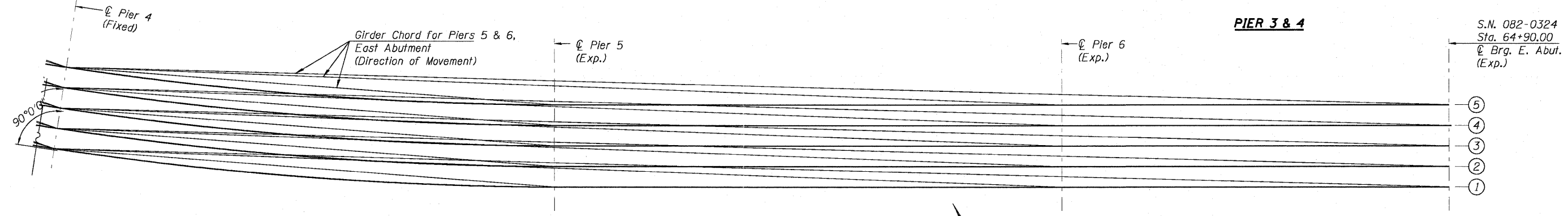
SCALE: SHEET S-133 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE:	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	260
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

K:\proj\lrc\15\08016606\082-0322 & 0324\11\08016606\082-0322\082-0324-0324-76C76-5E94-Bearing\unit-4.dgn

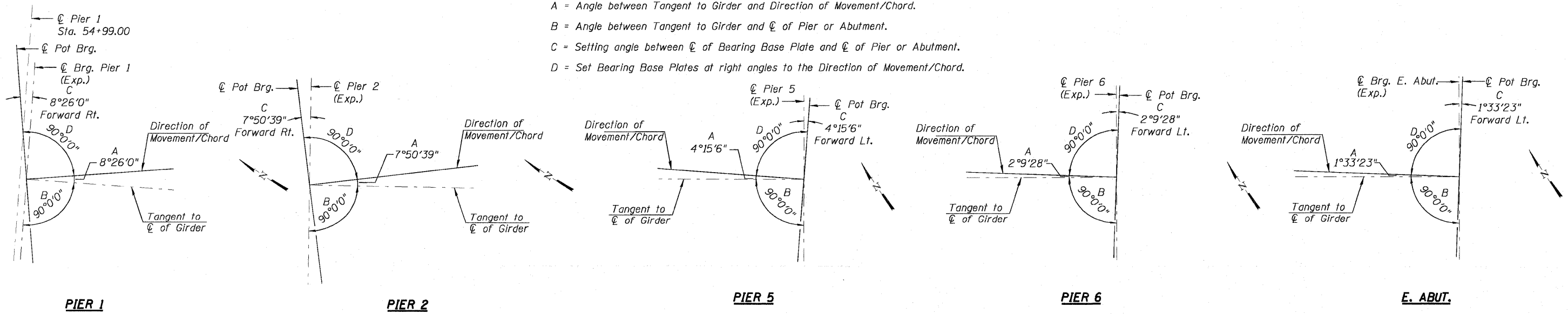


**BEARING LAYOUT PLAN - PIERS 1 - 4**



**BEARING LAYOUT PLAN - PIERS 4 - E. ABUT**

**Notes:**  
 A = Angle between Tangent to Girder and Direction of Movement/Chord.  
 B = Angle between Tangent to Girder and  $\phi$  of Pier or Abutment.  
 C = Setting angle between  $\phi$  of Bearing Base Plate and  $\phi$  of Pier or Abutment.  
 D = Set Bearing Base Plates at right angles to the Direction of Movement/Chord.



**BEARING ORIENTATION- 082-0324**

**Note:**  
 Each Girder Chord is constructed as a straight line from  $\phi$  bearing at a Fixed Pier, in the direction of expansion, to  $\phi$  bearing at each Expansion Pier.



USER NAME =	DESIGNED - LLV	REVISED -
PLOT SCALE = 0:2.0000 1" / IN.	DRAWN - BRD	REVISED -
PLOT DATE = 6/27/2011	CHECKED - PJL	REVISED -
	DATE - 07-01-11	REVISED -

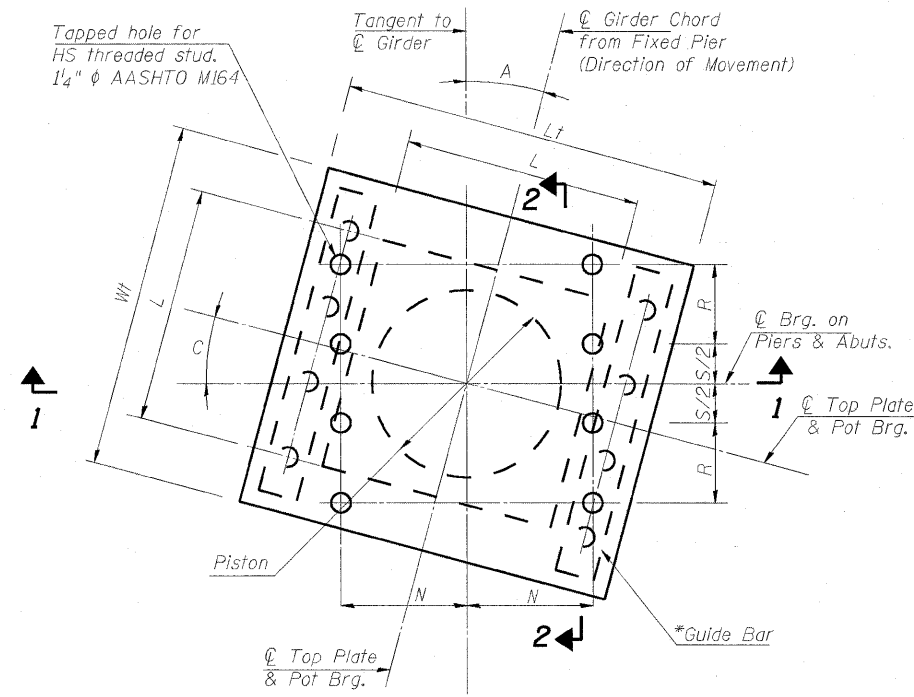
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**BEARING ORIENTATION DETAILS - S.N. 082-0324  
 I-70E OVER I-55, CSX & KCS RAILROADS**

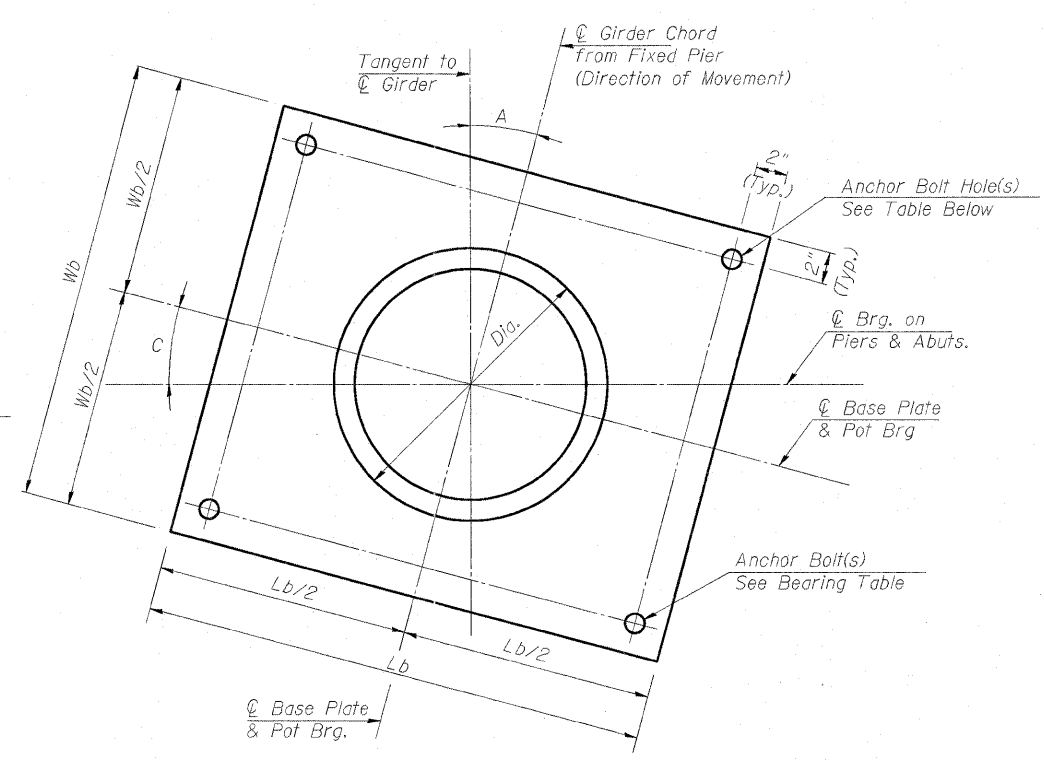
SCALE: SHEET S-134 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE. TO	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

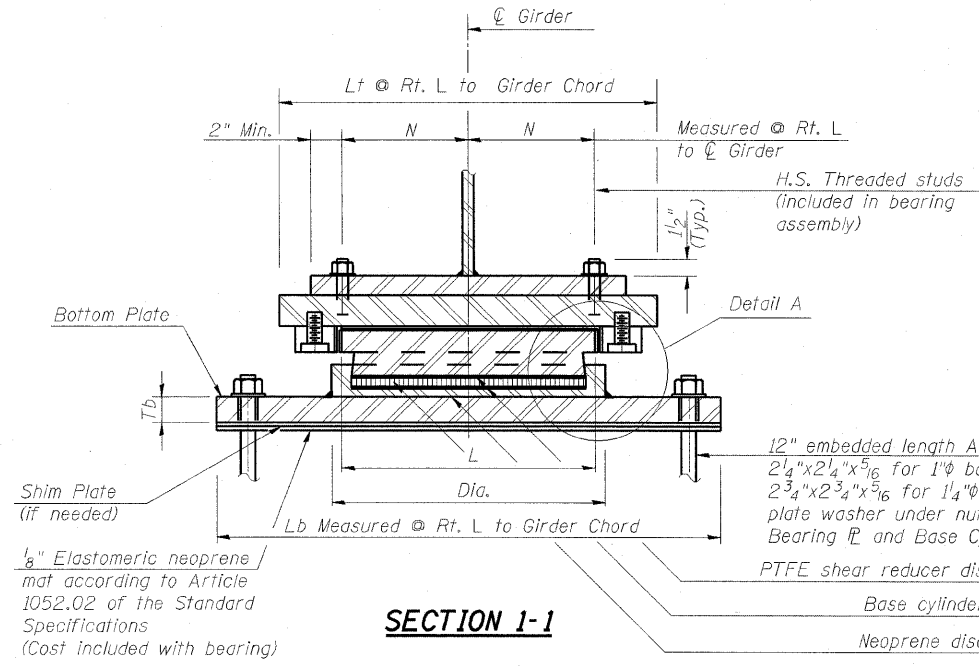
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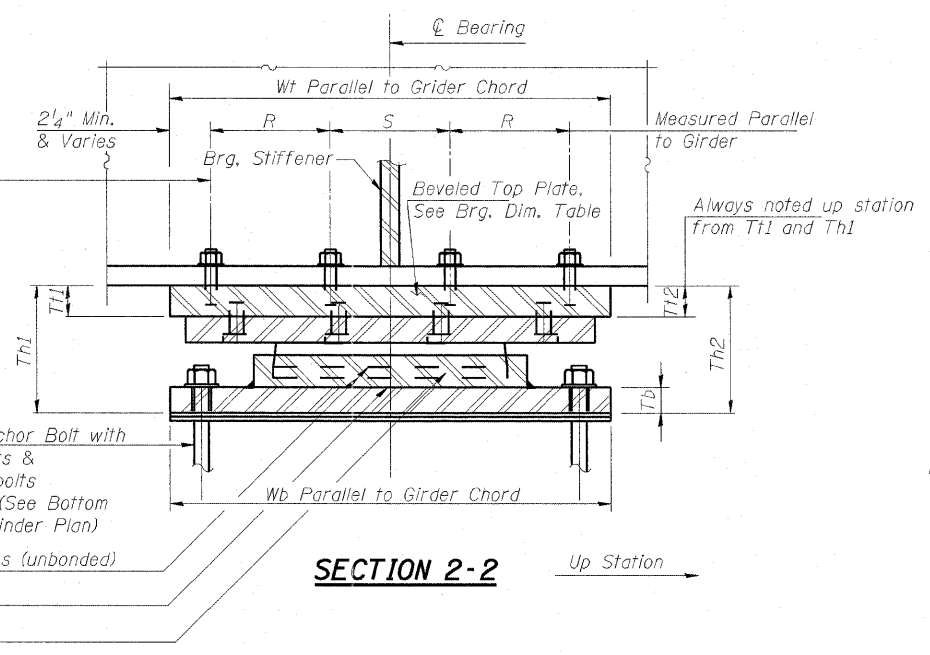
**TOP BEARING PLATE AND PISTON PLAN**



**BOTTOM BEARING PLATE AND BASE CYLINDER PLAN**



**SECTION 1-1**

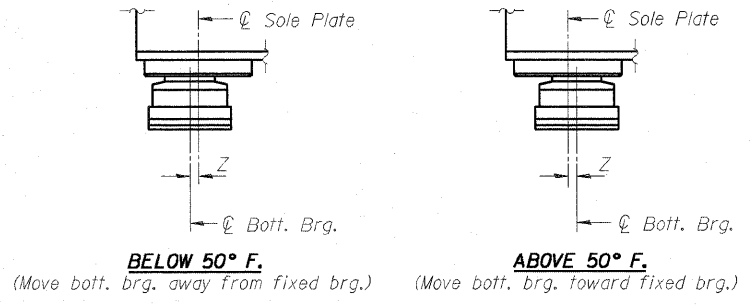


**SECTION 2-2**

**BASE PLATE HOLE TABLE**

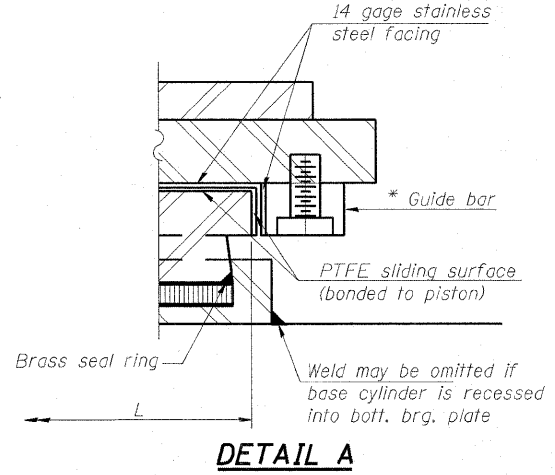
Anchor Bolt φ	Max. Hole φ
1"	1 1/2"
1 1/4"	1 3/4"

**Notes:**  
 The Structural Steel for the top & bottom bearing plates shall be AASHTO M270 Grade 50.  
 For anchor bolt type and details see Bearing Dimensions Table.  
 Top & bottom plates, threaded studs, washers & shim plates are included in the cost of the Bearings.  
 Anchor bolts for bearings shall be placed in holes drilled in the concrete through holes in the bottom bearing plate after members are in place.  
 Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.  
 The 1/8" PTFE sheet shall be bonded directly to the piston with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces.  
 Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.



**SETTING ANCHOR BOLTS AT EXP. BRG.**

Z = 1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50° F. See Bearing Orientation Details for Expansion/Contraction lengths.



**DETAIL A**

\* As alternates to the bolted connection shown, the guide bars may be connected to the top bearing plate by groove welds or the guide bars and top bearing plate may be fabricated as a single piece. Avoid interference with Guide Bar bolts and Top Plate mounting bolts.



USER NAME =	DESIGNED - LLV	REVISED -
PLOT SCALE = 0/2" = 1' / IN.	DRAWN - BRD	REVISED -
PLOT DATE = 6/27/2011	CHECKED - PJL	REVISED -
	DATE - 07-01-11	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

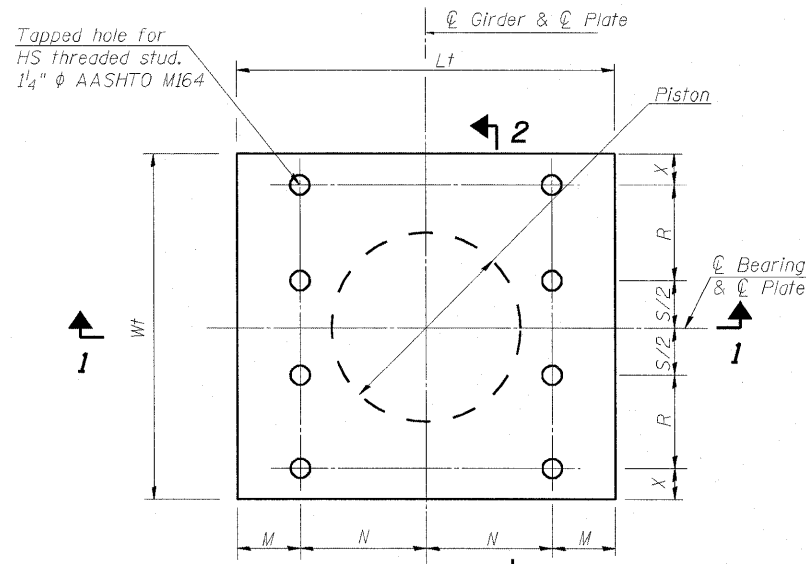
**EXPANSION POT BEARING ASSEMBLIES - I  
 I-70E OVER I-55, CSX & KCS RAILROADS**

SCALE: SHEET S-135 OF S-234 SHEETS STA. TO STA.

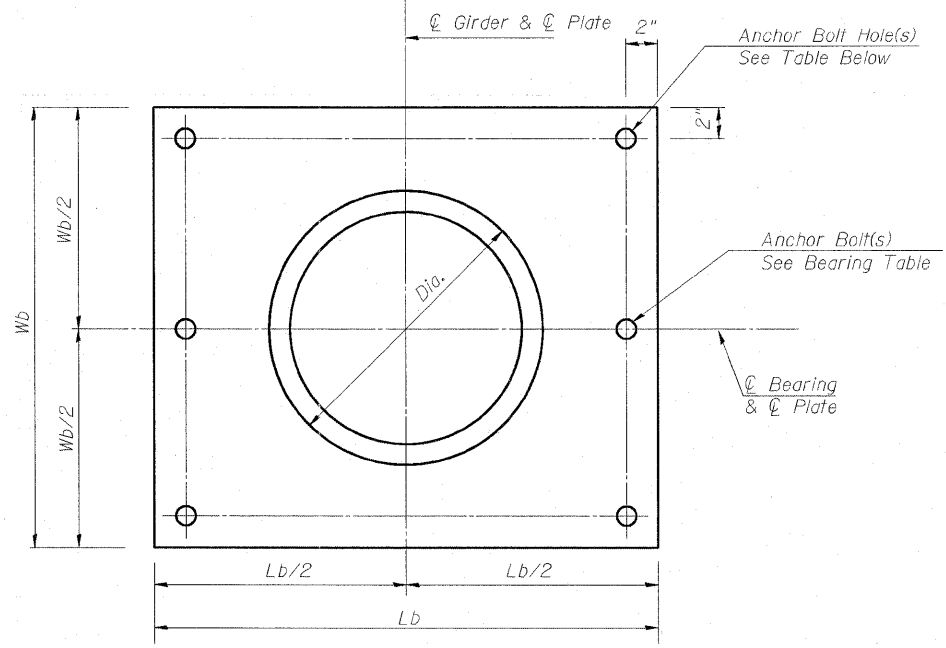
F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 262
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT				

R:\projects\80046508\80046508-082-0322 & 0324 - F:\jgover\1100\_cad\901\_drawing\76cell\master\consolidated\structural\082-0322\sheet\082-0322-0324\_76C76-SE06-P01.E-1.dgn

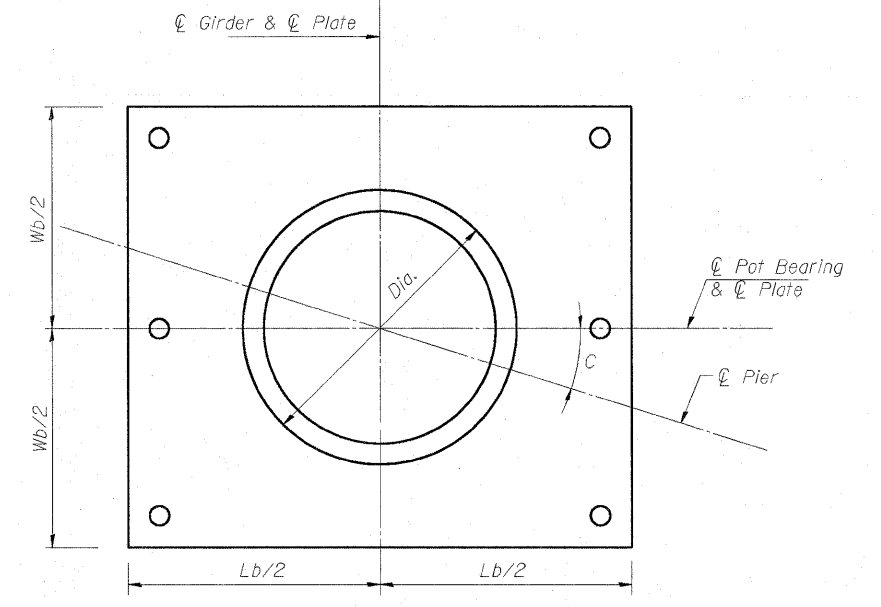




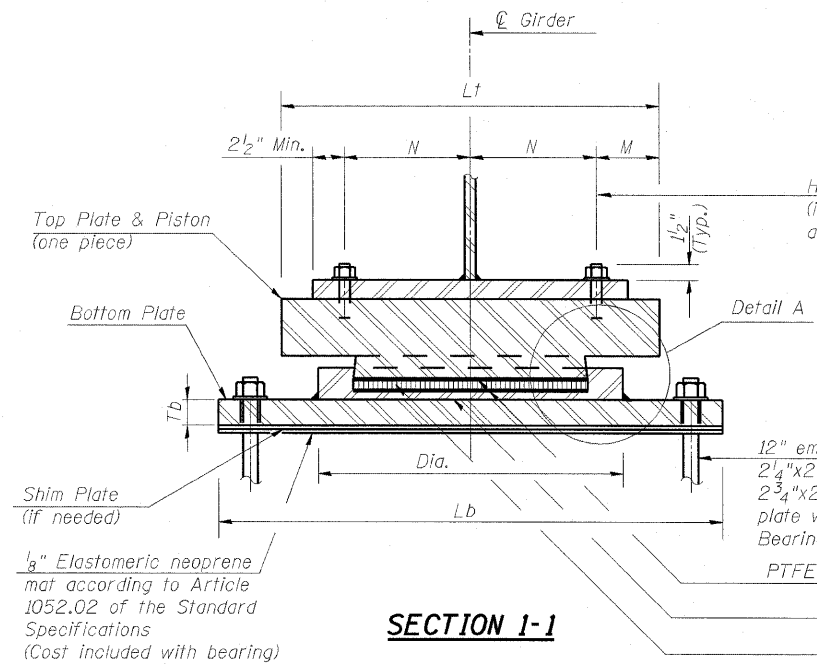
**TOP BEARING PLATE AND PISTON PLAN**



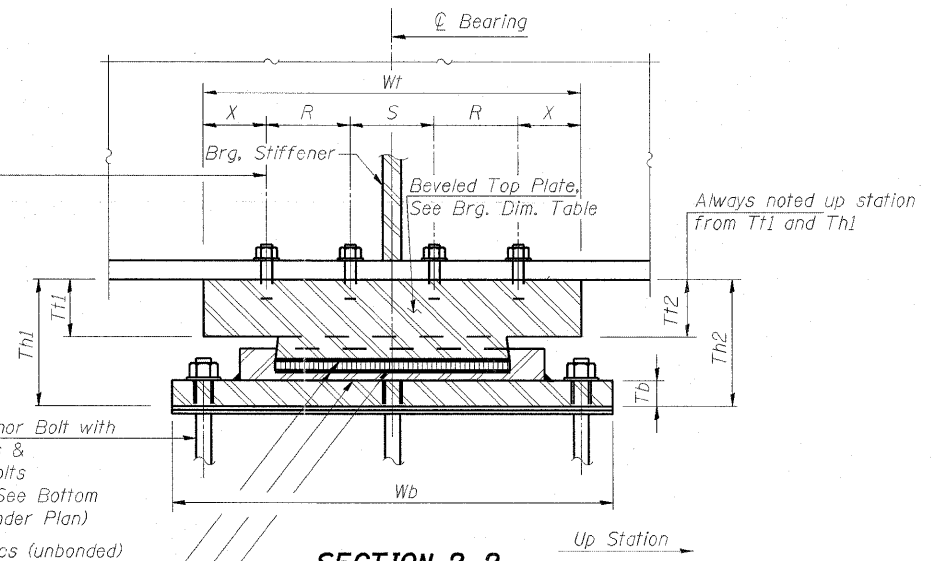
**BOTTOM BEARING PLATE AND BASE CYLINDER PLAN @ 90° PIERS**



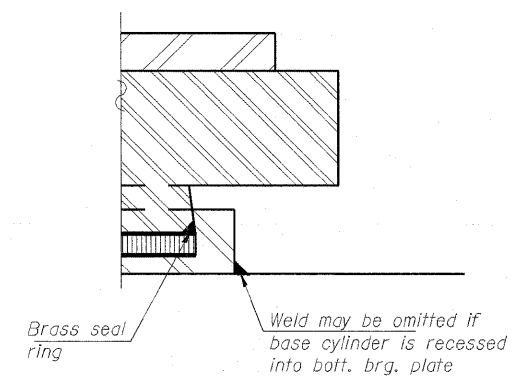
**BOTTOM BEARING PLATE AND BASE CYLINDER PLAN PIERS 2 & 5**



**SECTION 1-1**



**SECTION 2-2**



**DETAIL A**

**Notes:**  
 The Structural Steel for the top & bottom bearing plates shall be AASHTO M270 Grade 50.  
 For anchor bolt type and details see Bearing Dimensions Table.  
 Top & bottom plates, threaded studs, washers & shim plates are included in the cost of the Bearings.  
 Anchor bolts for bearings shall be placed in holes drilled in the concrete through holes in the bottom bearing plate after members are in place.  
 Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.  
 Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

**BASE PLATE HOLE TABLE**

Anchor Bolt $\phi$	Max. Hole $\phi$
1"	1 1/2"
1 1/2"	1 3/4"

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USER NAME =	DESIGNED - LLV	REVISED -
PLOT SCALE = 0/2" = 1" / IN.	DRAWN - BRD	REVISED -
PLOT DATE = 6/27/2011	CHECKED - PJL	REVISED -
	DATE - 07-01-11	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**FIXED POT BEARING ASSEMBLIES - I  
I-70E OVER I-55, CSX & KCS RAILROADS**

SCALE: SHEET S-137 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 264
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				



**FIXED BEARING DIMENSIONS TABLE**

Brg. Location	Vertical Design Load (kips)	Lateral Design Load (kips)	Bottom Bearing Plate			Top Bearing Plate											Anchor Bolt $\phi$ in.	Anchor Bolt Specification Grade	C Setting Angle (Degrees)	
			Tb in.	Lb in.	Wb in.	Top Plate		Lt in.	Wt in.	M in.	N in.	R in.	S in.	X in.	Th1 in.	Th2 in.				Dia. in.
						T11 in.	T12 in.													
S.N. 082-0322																				
Unit 1, Pier 2	600	115	1 <sup>3</sup> / <sub>4</sub>	35	33	2 <sup>1</sup> / <sub>2</sub>	2 <sup>3</sup> / <sub>4</sub>	25	25	6 <sup>1</sup> / <sub>2</sub>	6	6	6	3 <sup>1</sup> / <sub>2</sub>	8 <sup>1</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>2</sub>	21 <sup>3</sup> / <sub>8</sub>	1	Gr. 55	Girder 1 1°29'22" Girder 2 1°29'5" Girder 3 1°28'54" Girders 4-8 0°
Unit 2, Pier 5	700	194	1 <sup>3</sup> / <sub>4</sub>	36	36	2 <sup>1</sup> / <sub>8</sub>	2 <sup>3</sup> / <sub>4</sub>	26	26	7	6	6	6	4	8 <sup>5</sup> / <sub>8</sub>	8 <sup>1</sup> / <sub>2</sub>	23 <sup>5</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>4</sub>	Gr. 55	Girders 1-5 9°18'15"
	700	194	1 <sup>3</sup> / <sub>4</sub>	36	36	3	2 <sup>3</sup> / <sub>4</sub>	26	26	7	6	6	6	4	8 <sup>3</sup> / <sub>4</sub>	8 <sup>1</sup> / <sub>2</sub>	23 <sup>5</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>4</sub>	Gr. 55	Girders 6-10 13°32'20" Girder 11 15°22'35"
Unit 3, Pier 7	800	102	1 <sup>3</sup> / <sub>4</sub>	37	37	3 <sup>1</sup> / <sub>4</sub>	3	27	27	3 <sup>1</sup> / <sub>2</sub>	10	7	7	3	9 <sup>1</sup> / <sub>4</sub>	9	25	1	Gr. 36	0°
Unit 3, Pier 8	800	139	1 <sup>3</sup> / <sub>4</sub>	37	37	3 <sup>1</sup> / <sub>4</sub>	3	27	27	3 <sup>1</sup> / <sub>2</sub>	10	7	7	3	9 <sup>1</sup> / <sub>4</sub>	9	25	1 <sup>1</sup> / <sub>4</sub>	Gr. 36	0°
Unit 3, Pier 9	800	87	1 <sup>3</sup> / <sub>4</sub>	37	37	3 <sup>1</sup> / <sub>4</sub>	3	27	27	3 <sup>1</sup> / <sub>2</sub>	10	7	7	3	9 <sup>1</sup> / <sub>4</sub>	9	25	1	Gr. 36	0°
Unit 4, Pier 11	500	115	1 <sup>1</sup> / <sub>2</sub>	31	31	3	2 <sup>3</sup> / <sub>8</sub>	20	20	5	5	4	6	3	8 <sup>1</sup> / <sub>8</sub>	7 <sup>1</sup> / <sub>2</sub>	19 <sup>3</sup> / <sub>8</sub>	1	Gr. 55	0°
Unit 4, Pier 12	500	152	1 <sup>1</sup> / <sub>2</sub>	31	31	3 <sup>3</sup> / <sub>8</sub>	3 <sup>3</sup> / <sub>8</sub>	20	20	4	6	4	6	3	8 <sup>1</sup> / <sub>2</sub>	7 <sup>1</sup> / <sub>2</sub>	19 <sup>3</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>4</sub>	Gr. 36	0°
S.N. 082-0324																				
Pier 3	700	158	1 <sup>3</sup> / <sub>4</sub>	36	36	4	2 <sup>3</sup> / <sub>4</sub>	26	26	7	6	6	6	4	9 <sup>1</sup> / <sub>8</sub>	8 <sup>5</sup> / <sub>8</sub>	23 <sup>5</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>4</sub>	Gr. 36	0°
Pier 4	700	110	1 <sup>3</sup> / <sub>4</sub>	36	36	4 <sup>1</sup> / <sub>4</sub>	2 <sup>3</sup> / <sub>4</sub>	26	26	7	6	6	6	4	10 <sup>1</sup> / <sub>8</sub>	8 <sup>5</sup> / <sub>8</sub>	23 <sup>5</sup> / <sub>8</sub>	1	Gr. 55	0°

**BILL OF MATERIAL**

Item	Unit	Total
High Load Multi-Rotation Bearings, Fixed 500K	Each	12
High Load Multi-Rotation Bearings, Fixed 700K	Each	21
High Load Multi-Rotation Bearings, Fixed 800K	Each	18
High Load Multi-Rotation Bearings, Fixed 600K	Each	8
Anchor Bolts, 1"	Each	186
Anchor Bolts, 1 <sup>1</sup> / <sub>4</sub> "	Each	168

**Notes:**

Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

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 PLOT DATE = 8/15/2011

DESIGNED - LLV  
 DRAWN - BRD  
 CHECKED - PJL  
 DATE - 08-12-11

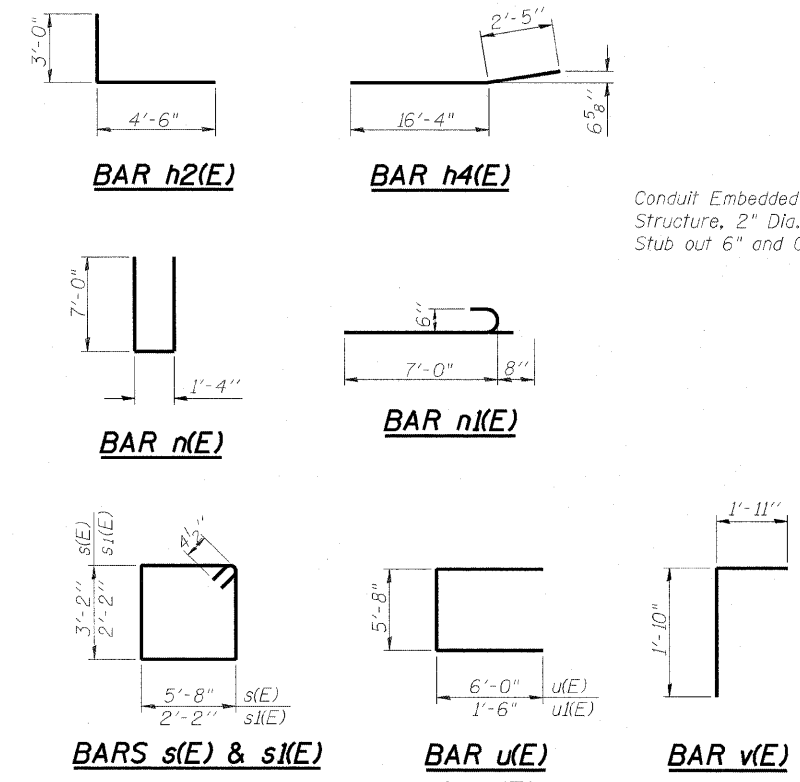
REVISED -  
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 REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

FIXED POT BEARING ASSEMBLIES - II  
 I-70E OVER I-55, CSX & KCS RAILROADS

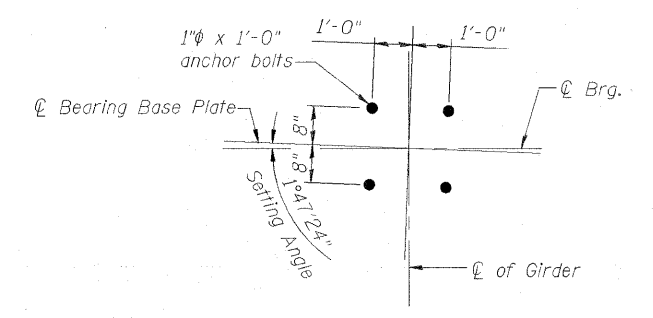
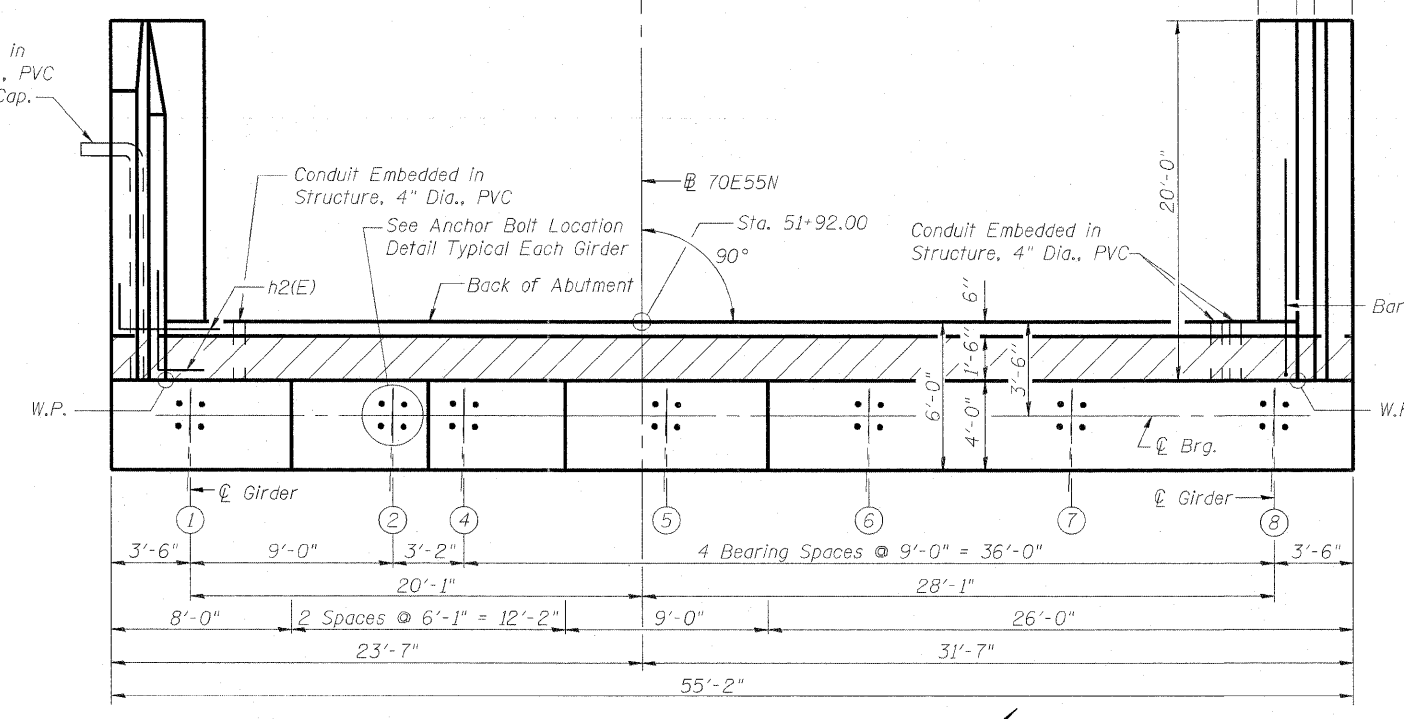
SCALE: SHEET S-138 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TO	82-1-B-2	ST. CLAIR	399	265
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

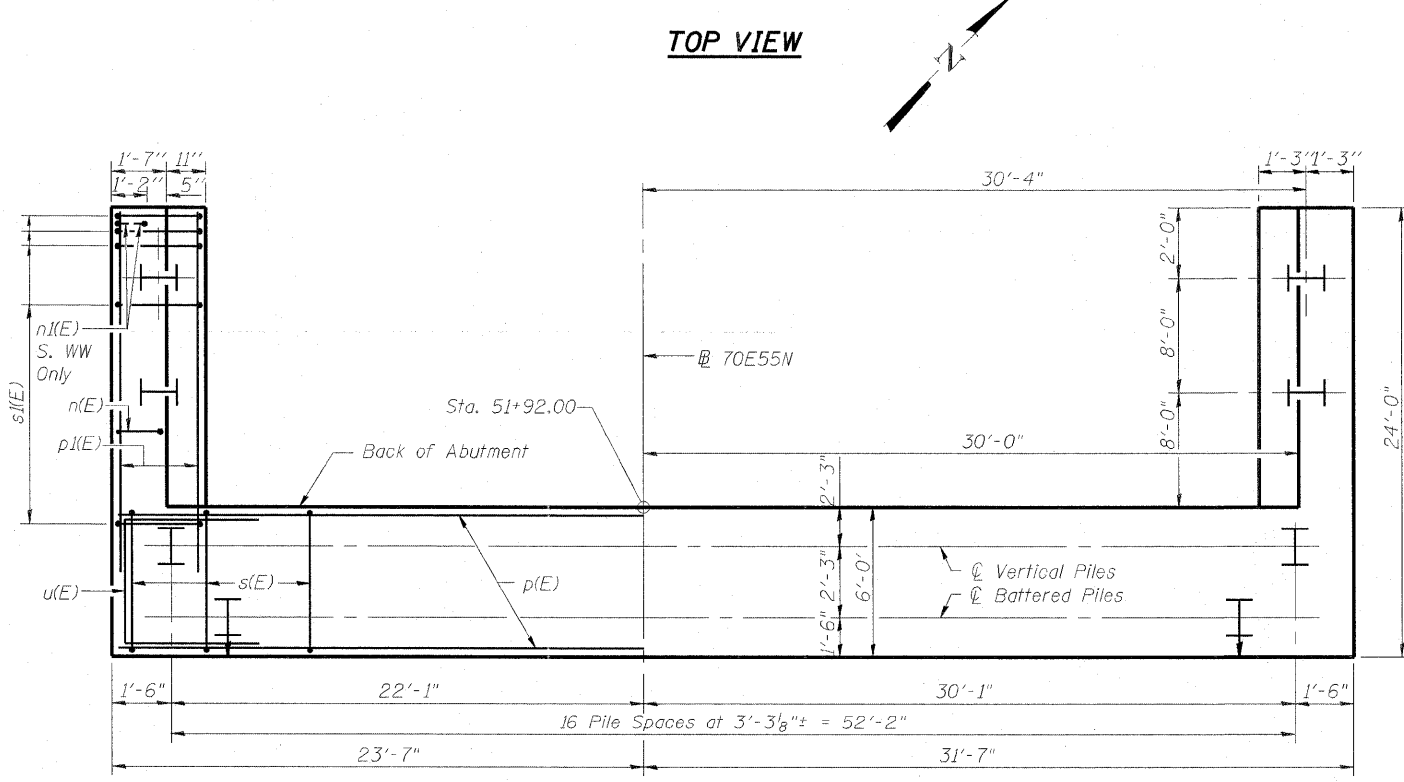


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Conduit Embedded in Structure, 2" Dia., PVC Stub out 6" and Cap.



**ANCHOR BOLT LOCATION DETAIL**



**PLAN-PILE CAP**

**PILE DATA**  
 Type: HP 12x63  
 Nominal Required Bearing: 400 kips  
 Factored Resistance Available: 200 kips  
 Est. Length: 122'  
 No. Production Piles: 20  
 No. Test Piles: 1  
 Piles shall be driven through 2'-0" diameter precored holes extended to Elev. 405.00 according to Article 512.09C of the Standard Specifications. Cost included in Driving Piles.

**ABUTMENT BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h(E)	14	#5	51'-8"	
h1(E)	5	#6	51'-8"	
h2(E)	36	#5	7'-6"	
h3(E)	45	#4	19'-8"	
h4(E)	11	#4	19'-9"	
n(E)	39	#6	15'-4"	
n1(E)	6	#6	7'-8"	
p(E)	18	#7	54'-10"	
p1(E)	12	#7	23'-0"	
p2(E)	8	#5	34'-8"	
s(E)	50	#4	18'-5"	
s1(E)	40	#4	9'-5"	
u(E)	8	#6	17'-8"	
u1(E)	36	#4	8'-8"	
v(E)	52	#5	3'-9"	
v1(E)	52	#4	3'-11"	
v2(E)	42	#6	11'-4"	
v3(E)	3	#6	11'-5"	
v4(E)	39	#6	11'-7"	
v5(E)	52	#5	11'-3"	
v6(E)	52	#5	9'-3"	
Porous Granular Embankment, Special		Cu. Yd.	152.6	
Structure Excavation		Cu. Yd.	171.6	
Concrete Structures		Cu. Yd.	101.8	
Concrete Encasement		Cu. Yd.	7.3	
Reinforcement Bars, Epoxy Coated		Pound	10,180	
Bar Splicers		Each	53	
Slope Wall 4 Inch		Sq. Yd.	842.7	
Furnishing Steel Piles HP 12x63		Foot	2,440	
Driving Piles		Foot	2,440	
Test Pile Steel HP12x63		Each	1	
Concrete Sealer		Sq. Ft.	1,017	
Geocomposite Wall Drain		Sq. Yd.	58	
Pipe Underdrains for Structures 4"		Foot	95	
Conduit Embedded in Structure, 2" Dia., PVC		Foot	14	
Conduit Embedded in Structure, 4" Dia., PVC		Foot	6	

For details of Bar Splicers, see sheet S-188 of S-234.  
 For details of piles and Concrete Encasement, see sheet S-187 of S-234.



USER NAME =	DESIGNED - DDB	REVISED -
PLOT SCALE = 0.166667' / IN.	DRAWN - BRD	REVISED -
PLOT DATE = 6/27/2011	CHECKED - LLV	REVISED -
	DATE - 07-01-11	REVISED -

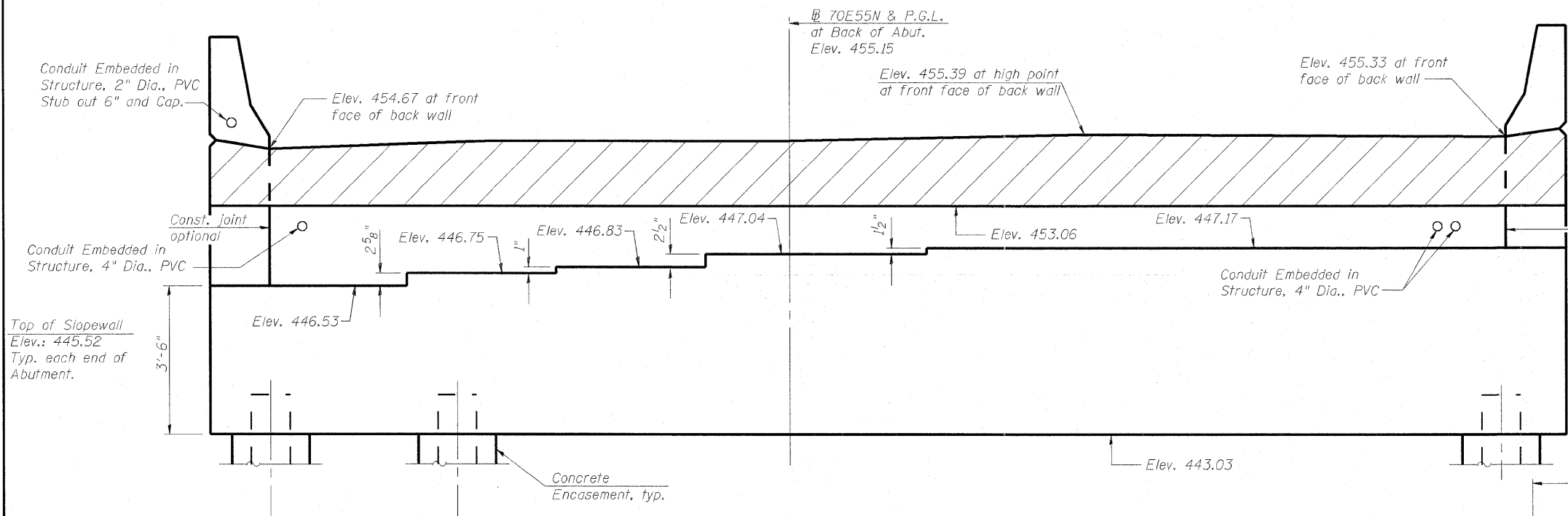
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**ABUTMENTS - S.N. 082-0322 - W. ABUTMENT - PLANS  
 I-70E OVER I-55, CSX & KCS RAILROADS**

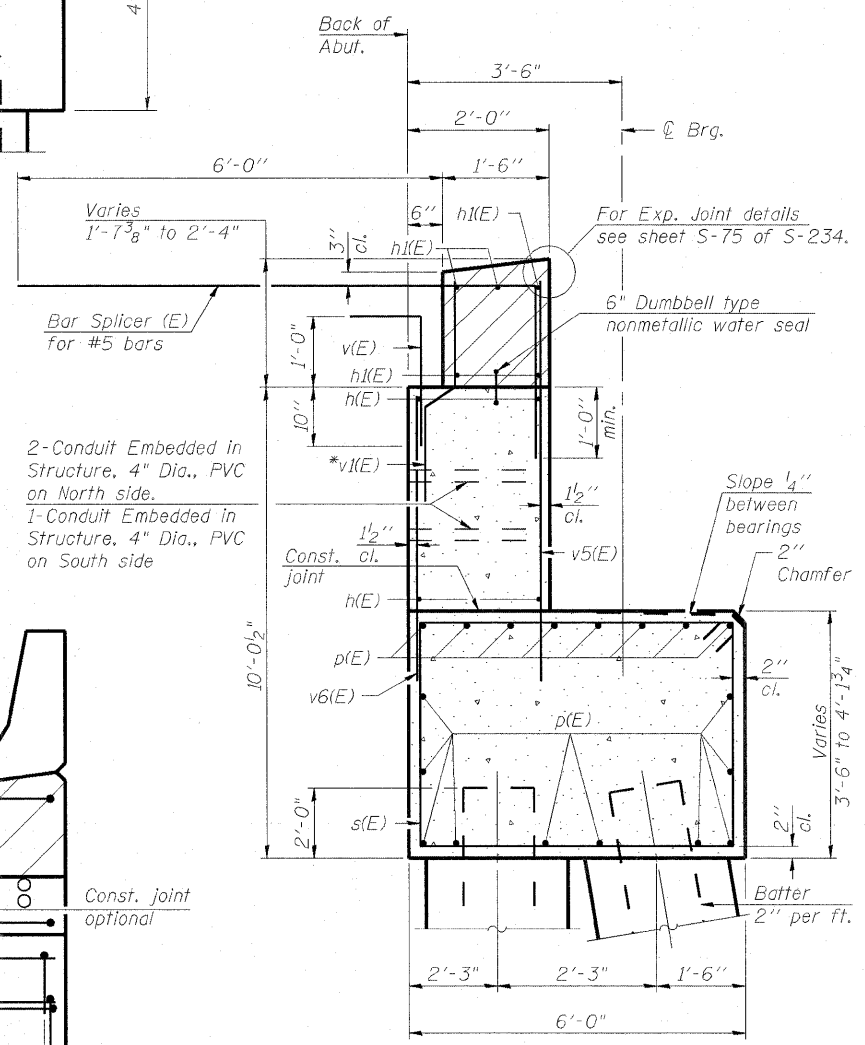
SCALE: SHEET S-139 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TO	82-1-B-2	ST. CLAIR	399	266
S.N. 082-0322 & S.N. 082-0324	CONTRACT NO. 76C76			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

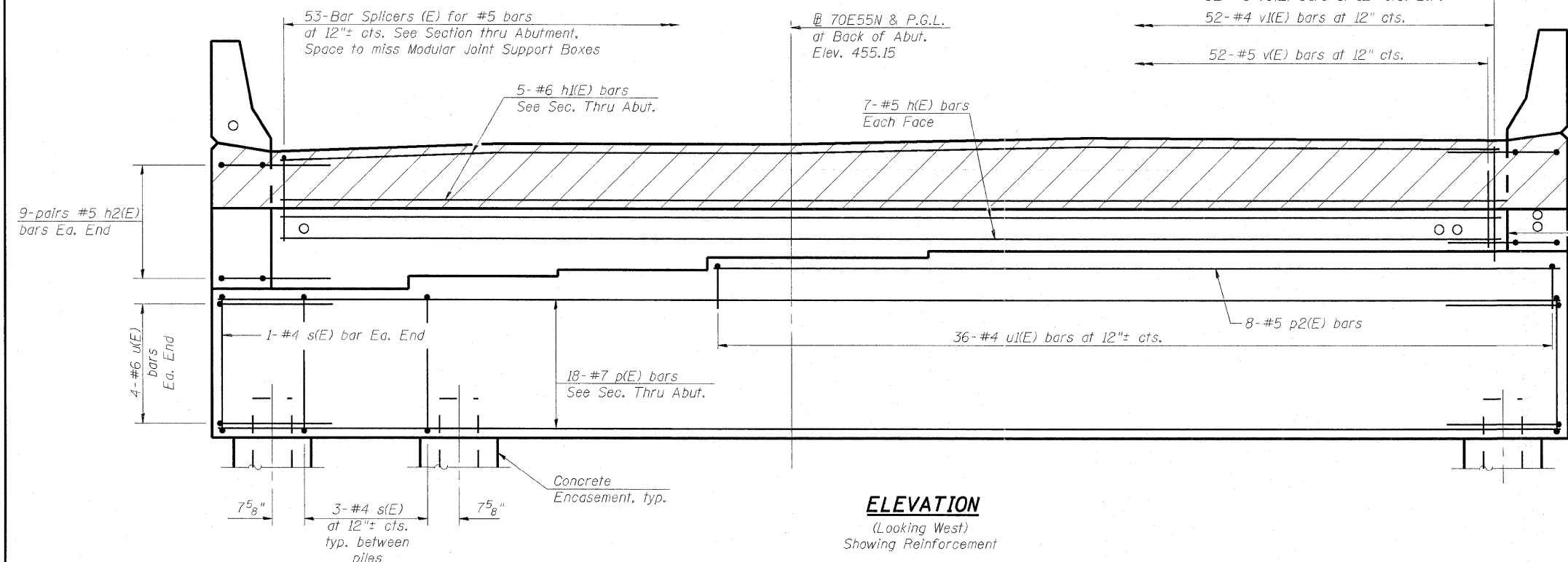
Notes:  
 Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure. Space reinforcement in cap to miss anchor bolts. Pour steps monolithically with cap. Quantity of concrete in end post included with Concrete Superstructure on sheet S-78 of S-234. For Concrete Encasement details, see sheet S-187 of S-234. See Electrical Plans for conduit termination details. All exposed surfaces of back wall, bridge seats, and front face of pile cap shall be treated with Concrete Sealer.



**ELEVATION**  
 (Looking West)  
 Showing Dimensions



**SEC. THRU ABUT.**  
 \* Cut in field as required.



**ELEVATION**  
 (Looking West)  
 Showing Reinforcement



USER NAME =  
 PLOT SCALE = 8/166667' / IN.  
 PLOT DATE = 6/27/2011

DESIGNED - DDB	REVISED -
DRAWN - BRD	REVISED -
CHECKED - LLV	REVISED -
DATE - 07-01-11	REVISED -

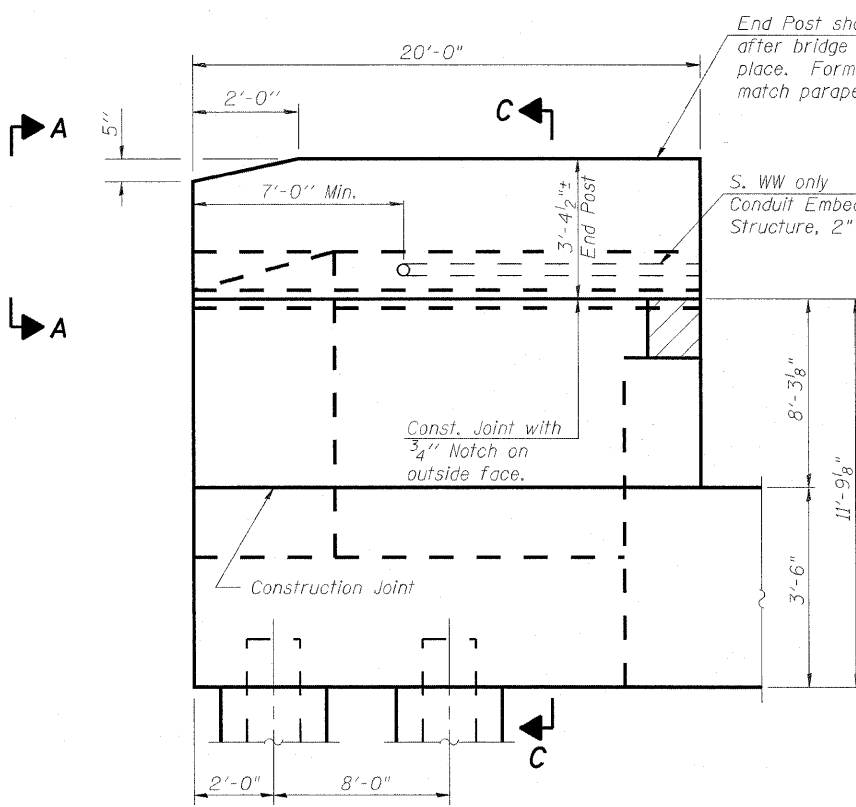
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

ABUTMENTS - S.N. 082-0322 - W. ABUTMENT - ELEVATIONS  
 I-70E OVER I-55, CSX & KCS RAILROADS

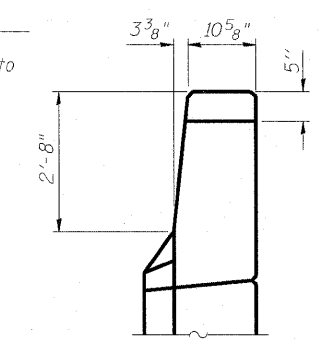
SCALE: SHEET S-140 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 267
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

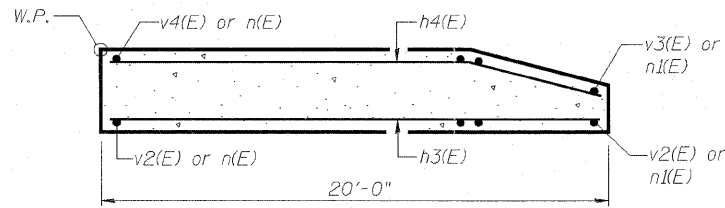
R:\projects\08046509\082-0322 & 0324 - I-70E OVER I-55, CSX & KCS RAILROADS\Drawings\76C76\76C76-5F02-0322-WAbut-2.dgn



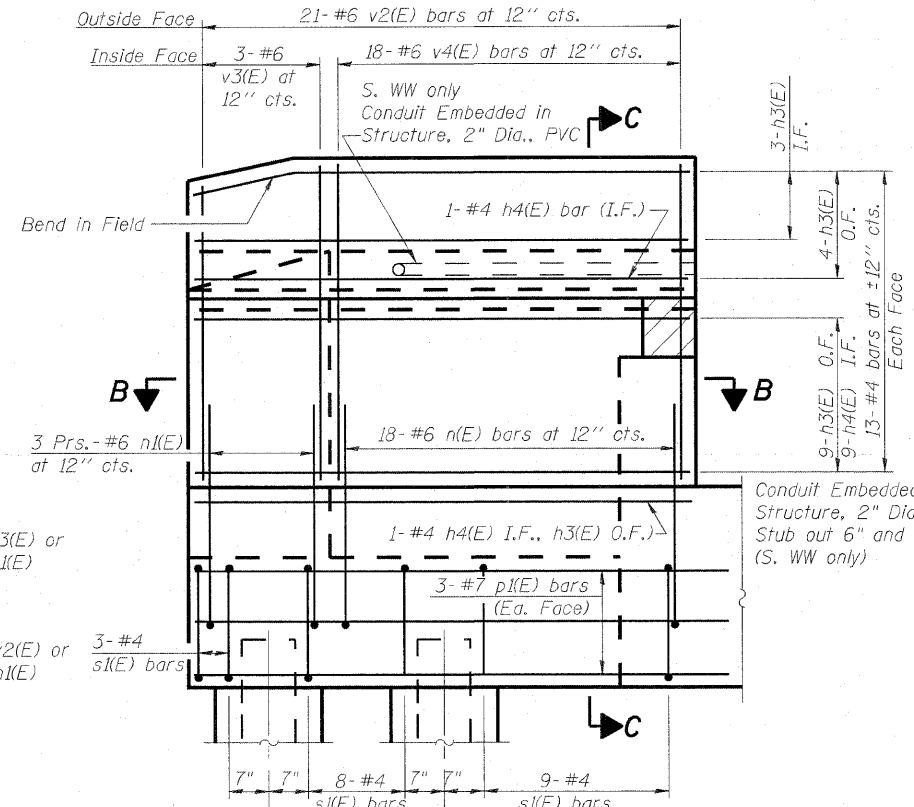
**SOUTH WING WALL ELEVATION**  
Showing Dimensions



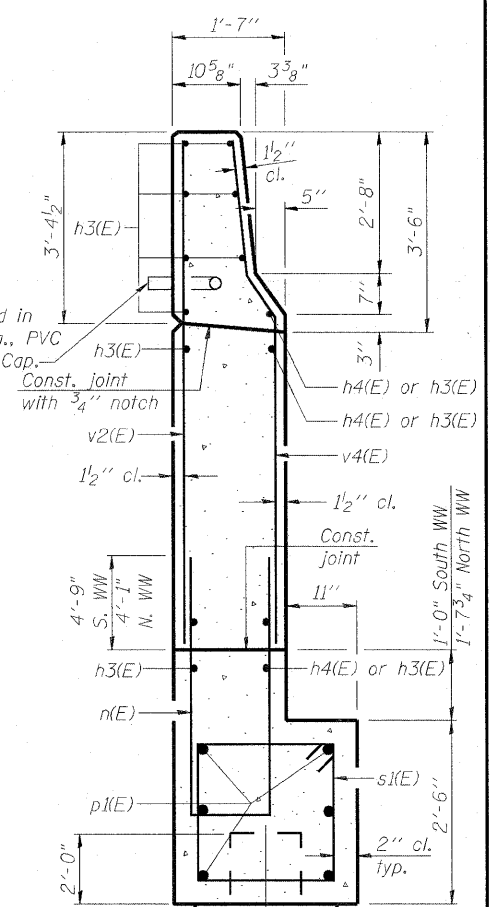
**SOUTH VIEW A-A**



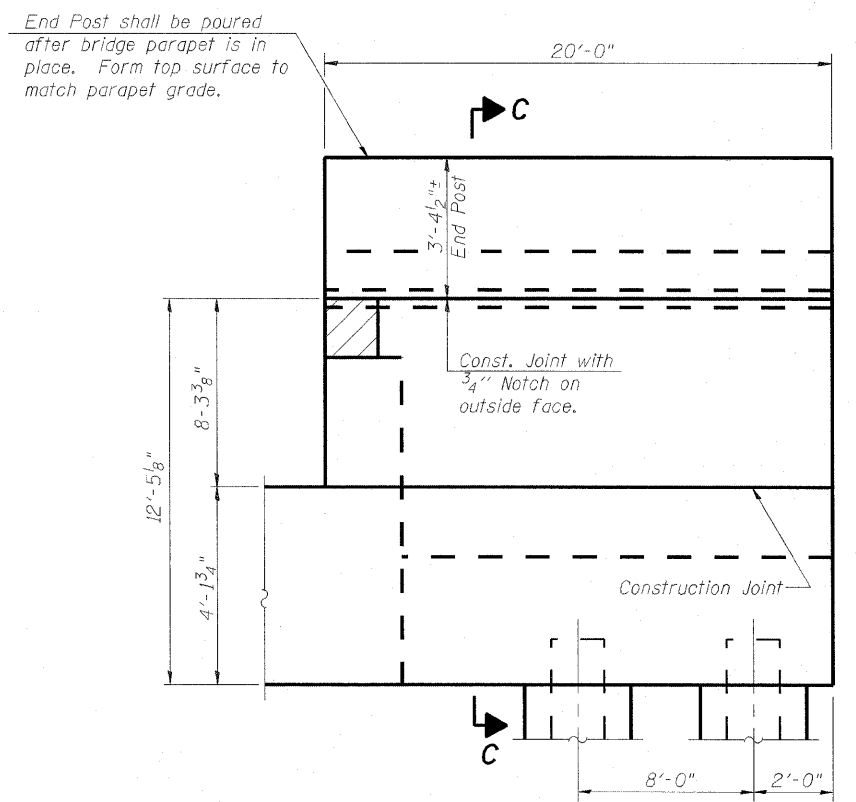
**SECTION B-B**



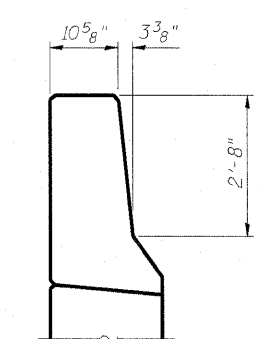
**SOUTH WING WALL ELEVATION**  
Showing Reinforcement



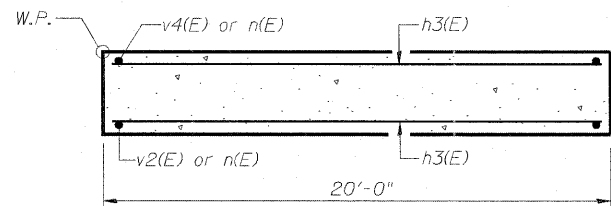
**SECTION C-C**



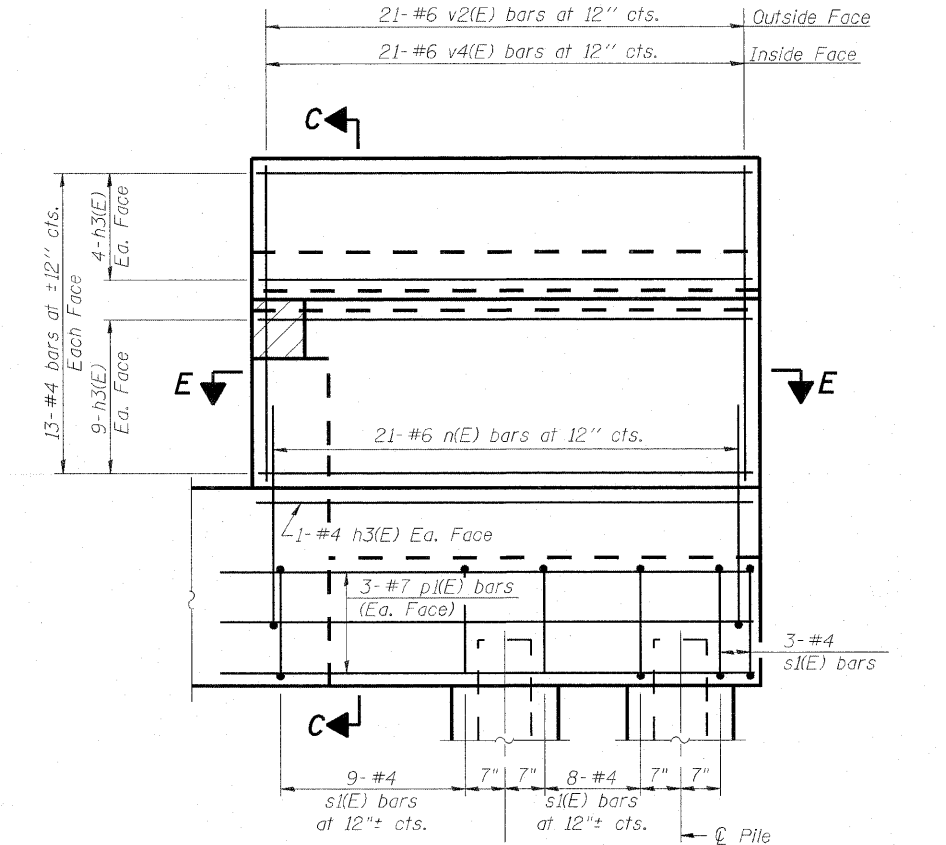
**NORTH WING WALL ELEVATION**  
Showing Dimensions



**NORTH VIEW D-D**



**SECTION E-E**



**NORTH WING WALL ELEVATION**  
Showing Reinforcement

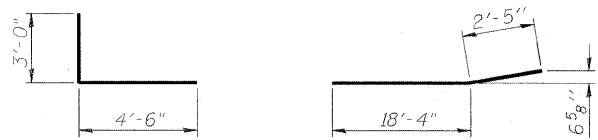


USER NAME =	DESIGNED - DDB	REVISED -
PLOT SCALE = 0:2 1/2" = 1"	DRAWN - BRD	REVISED -
PLOT DATE = 5/27/2011	CHECKED - LLV	REVISED -
	DATE - 07-01-11	REVISED -

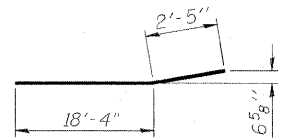
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ABUTMENTS - S.N. 082-0322 - W. ABUTMENT - DETAILS  
I-70E OVER I-55, CSX & KCS RAILROADS

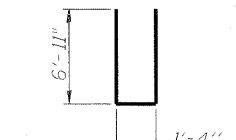
F.A.I. RTE. TO	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 268
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
SCALE: SHEET S-141 OF S-234 SHEETS		STA. TO STA.		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		



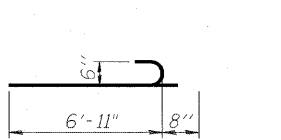
**BAR h282(E)**



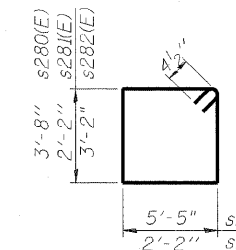
**BAR h284(E)**



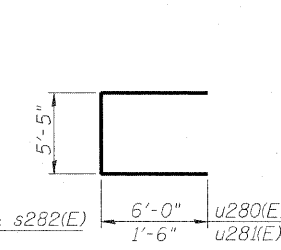
**BAR n280(E)**



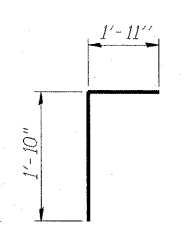
**BAR n281(E)**



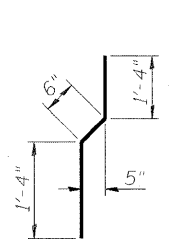
**BARS s280(E), s281(E) & s282(E)**



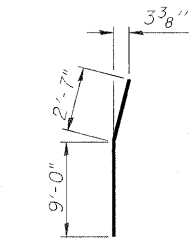
**BAR u280(E) & u281(E)**



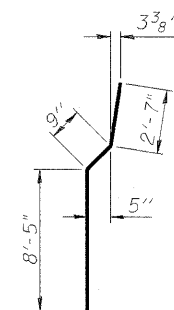
**BAR v280(E)**



**BAR v281(E)**



**BAR v283(E)**

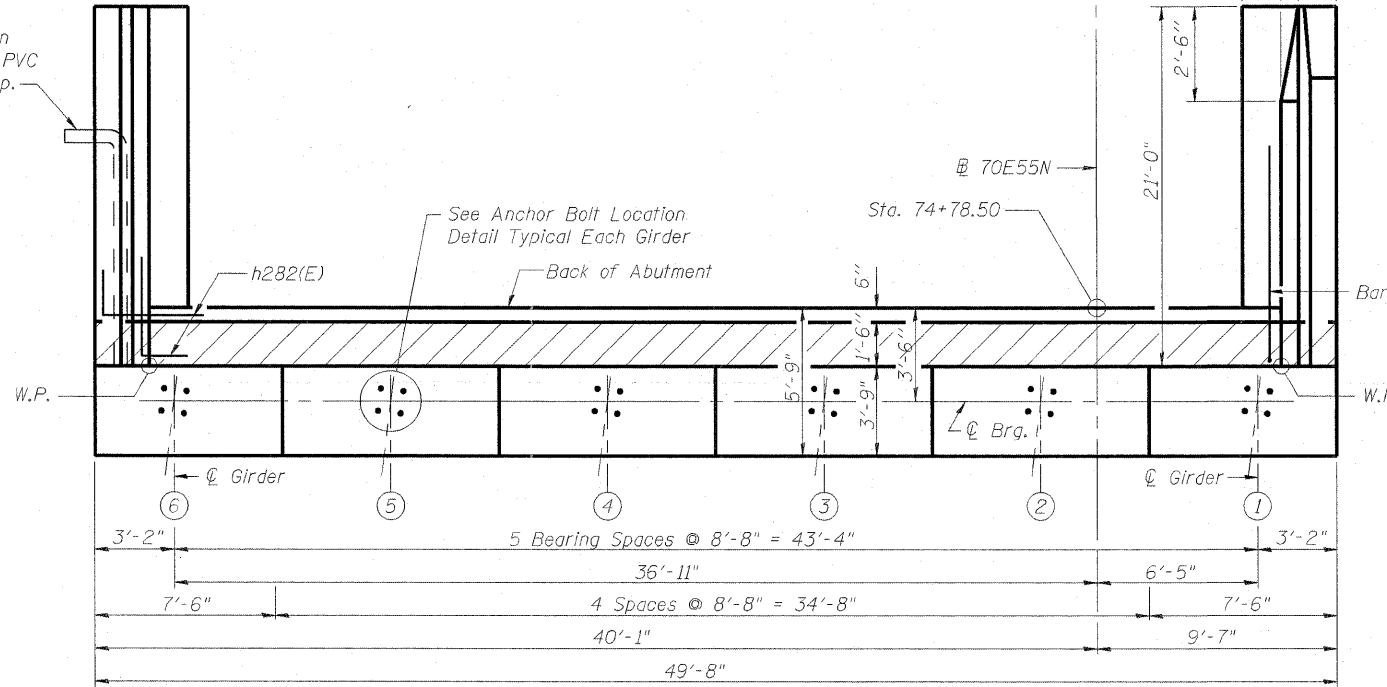


**BAR v284(E)**

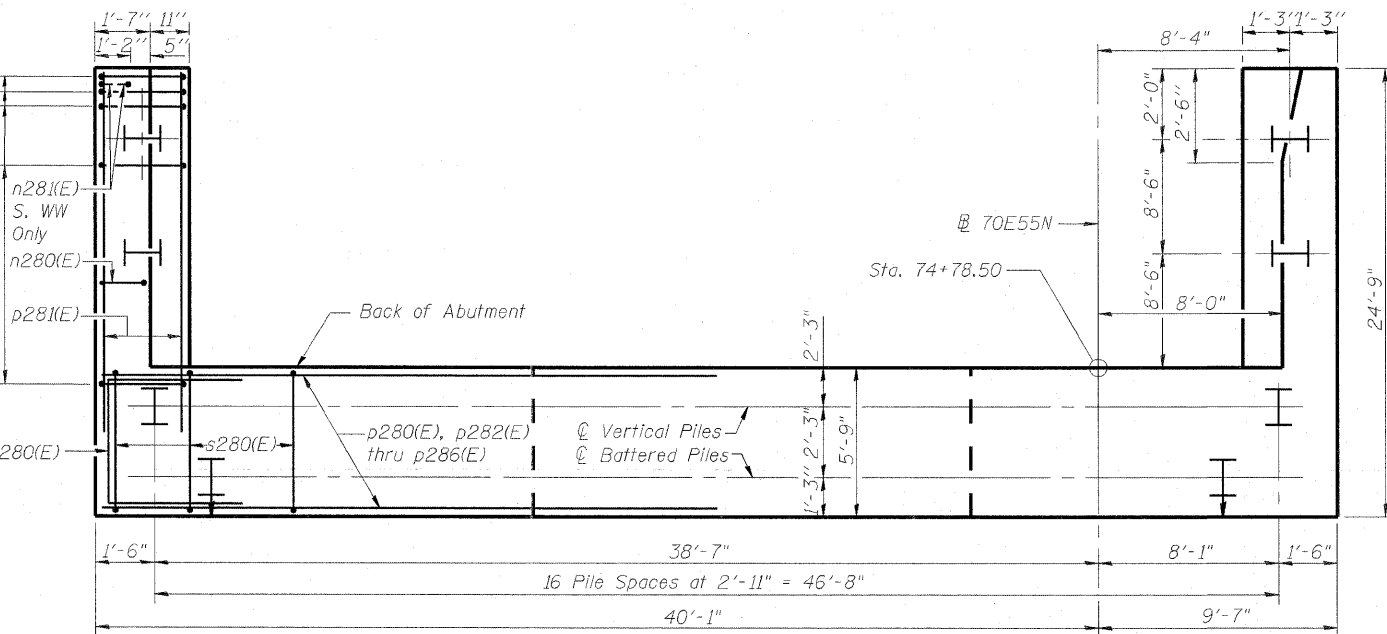
**PILE DATA**

Type: HP 12x63  
 Nominal Required Bearing: 400 kips  
 Factored Resistance Available: 200 kips  
 Est. Length: 119'  
 No. Production Piles: 21  
 No. Test Piles: 0  
 Piles shall be driven through 2'-0" diameter precored holes extended to Elev. 400.00 according to Article 512.09C of the Standard Specifications. Cost included in Driving Piles.

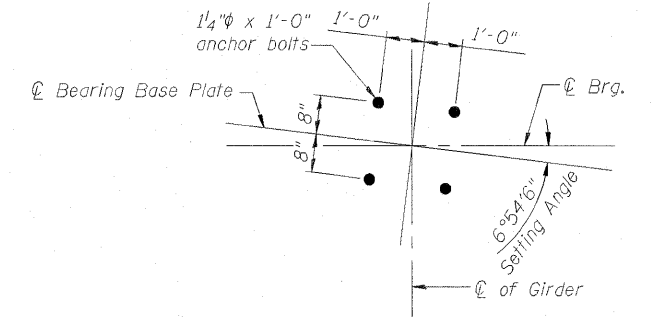
Conduit Embedded in Structure, 2" Dia., PVC Stub out 6" and Cap.



**TOP VIEW**



**PLAN-PILE CAP**



**ANCHOR BOLT LOCATION DETAIL**

**ABUTMENT BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h280(E)	14	#5	46'-2"	
h281(E)	5	#6	46'-2"	
h282(E)	44	#5	7'-6"	
h283(E)	45	#4	20'-8"	
h284(E)	11	#4	20'-9"	
n280(E)	41	#6	15'-2'	
n281(E)	6	#6	7'-7"	
p280(E)	6	#7	17'-3'	
p281(E)	12	#7	24'-0'	
p282(E)	28	#7	23'-0"	
p283(E)	8	#7	15'-10"	
p284(E)	16	#5	11'-0"	
p285(E)	8	#5	7'-2"	
p286(E)	4	#7	49'-4"	
s280(E)	33	#4	18'-11"	
s281(E)	42	#4	9'-5"	
s282(E)	19	#4	17'-11"	
u280(E)	8	#6	17'-5"	
u281(E)	30	#4	8'-5"	
v280(E)	47	#5	3'-9"	
v281(E)	47	#4	3'-2"	
v282(E)	44	#6	11'-6"	
v283(E)	3	#6	11'-7"	
v284(E)	41	#6	11'-9"	
v285(E)	47	#5	10'-6"	
v286(E)	47	#5	9'-2"	
Porous Granular Embankment, Special		Cu. Yd.	142.1	
Structure Excavation		Cu. Yd.	18.6	
Concrete Structures		Cu. Yd.	101.9	
Concrete Encasement		Cu. Yd.	7.3	
Reinforcement Bars, Epoxy Coated		Pound	10,230	
Bar Splicers		Each	47	
Slope Wall 4 Inch		Sq. Yd.	42.8	
Furnishing Steel Piles HP 12x63		Foot	2,499	
Driving Piles		Foot	2,499	
Pile Shoes		Each	21	
Concrete Sealer		Sq. Ft.	907	
Geocomposite Wall Drain		Sq. Yd.	55	
Pipe Underdrains for Structures 4"		Foot	70	
Conduit Embedded in Structure, 2" Dia., PVC		Foot	15	

For details of Bar Splicers, see sheet S-188 of S-234.  
 For details of piles and Concrete Encasement, see sheet S-187 of S-234.  
 C Brg. is radial to @ 70E55N at Sta. 74+75.00.  
 Wingwalls shall be constructed along horizontal curve.



USER NAME =	DESIGNED - DDB	REVISED -
PLOT SCALE = 8/166667" / 1/4"	DRAWN - BRD	REVISED -
PLOT DATE = 6/27/2011	CHECKED - LLV	REVISED -
	DATE - 07-01-11	REVISED -

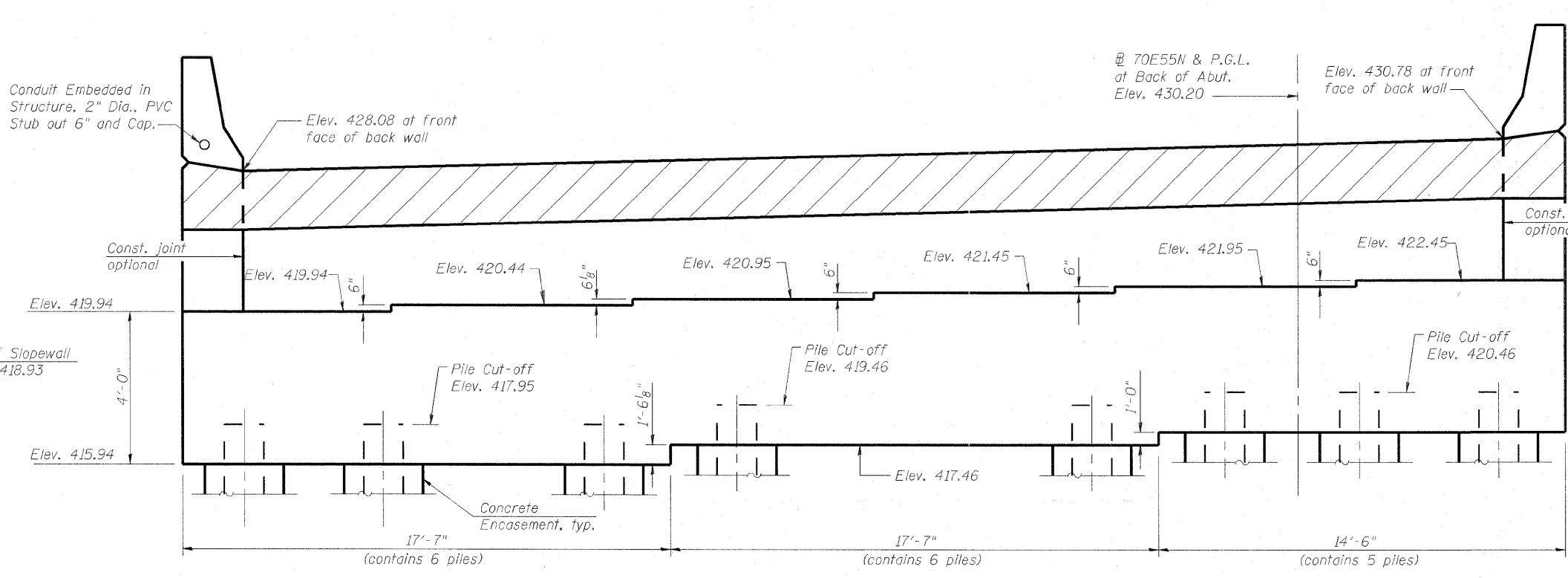
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**ABUTMENTS - S.N. 082-0322 - E. ABUTMENT - PLANS**  
**I-70E OVER I-55, CSX & KCS RAILROADS**

SCALE: SHEET S-142 OF S-234 SHEETS TO STA.

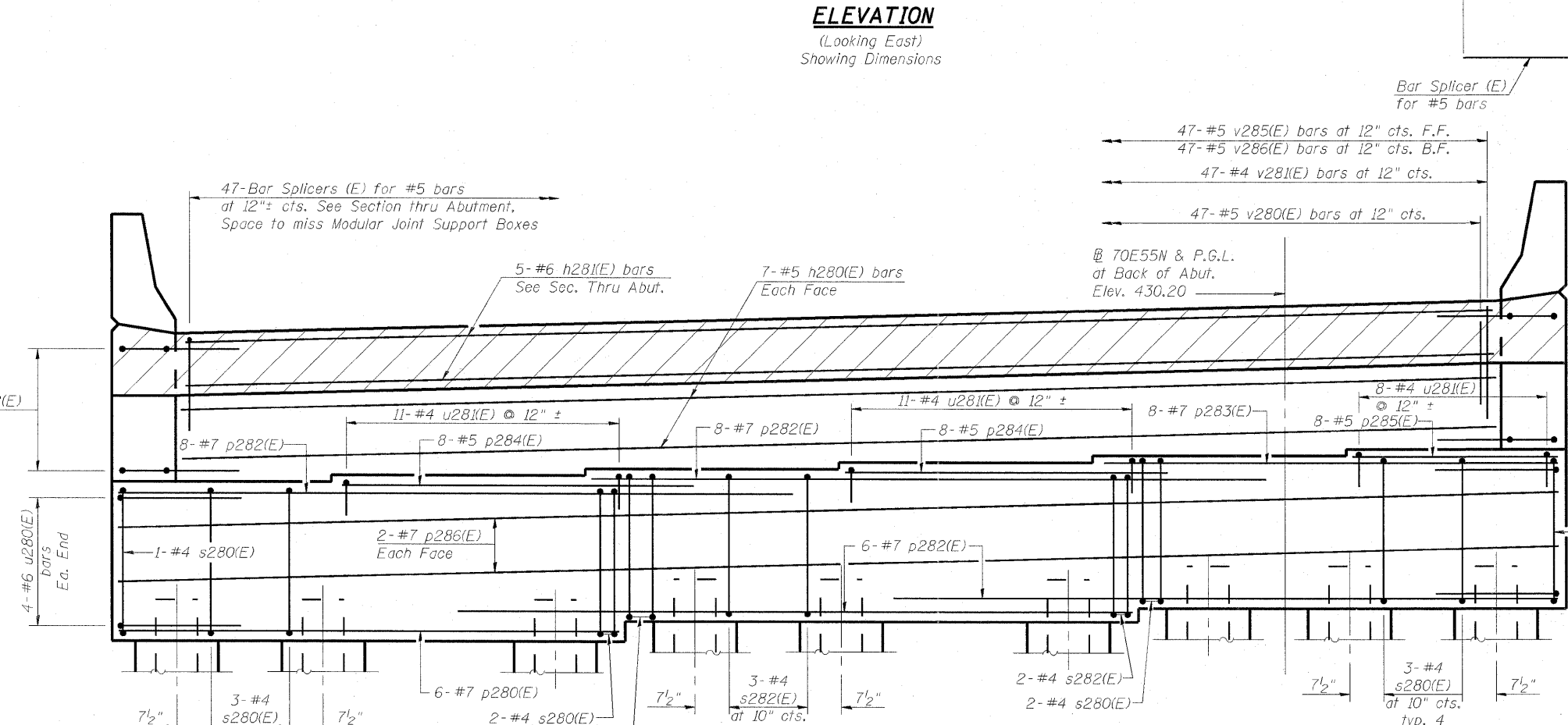
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TO	82-1-B-2	ST. CLAIR	399	269
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

I:\projects\08046509\08046509-0322 & 0324 - Flyover\1000 - cad\101 - drawings\76560 - master - console\dwg\structural\082-0322\sheet\082-0322-0324-76560-0322-0322-0322.dwg  
 6/27/2011 10:00 AM 76560 - master - console\dwg\structural\082-0322\sheet\082-0322-0324-76560-0322-0322-0322.dwg



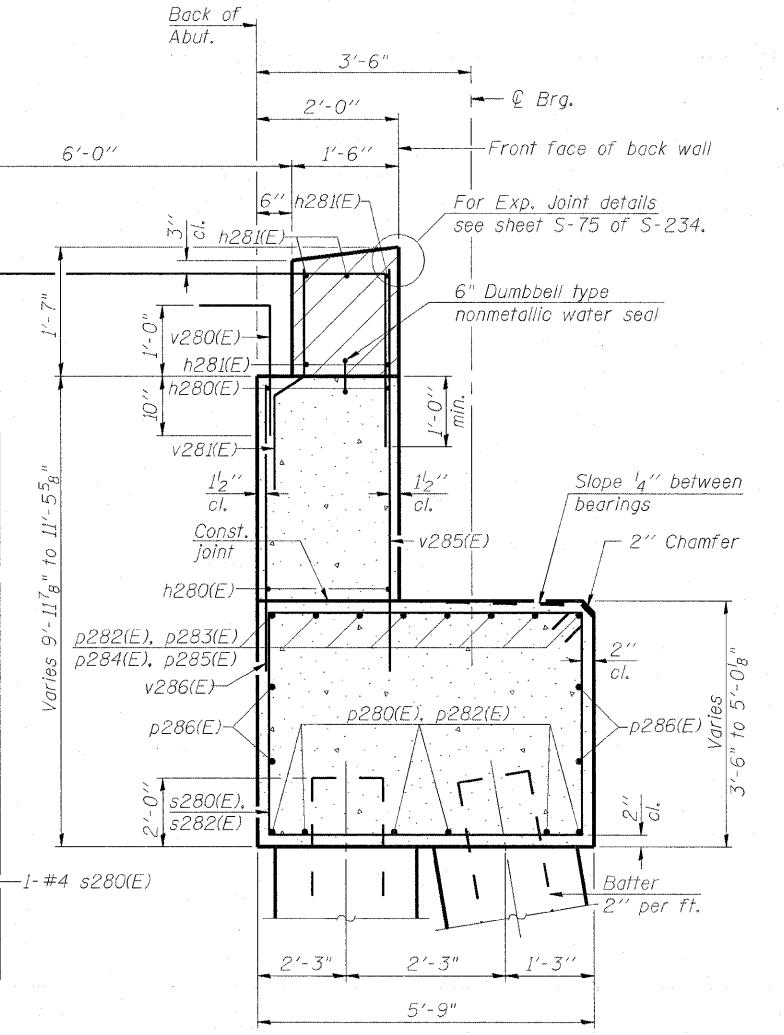
**ELEVATION**  
(Looking East)  
Showing Dimensions

**Notes:**  
 Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure. Space reinforcement in cap to miss anchor bolts. Pour steps monolithically with cap. Quantity of concrete in end post included with Concrete Superstructure on sheet S-78 of S-234. For Concrete Encasement details, see sheet S-187 of S-234. All dimensions are radial. Wingwall shall be constructed along horizontal curve. See Electrical Plans for conduit termination details. All exposed surfaces of back wall, bridge seats, and front face of pile cap shall be treated with Concrete Sealer.



**ELEVATION**  
(Looking East)  
Showing Reinforcement

**Note:**  
 All dimensions are radial. Wingwall shall be constructed along horizontal curve.



**SEC. THRU ABUT.**



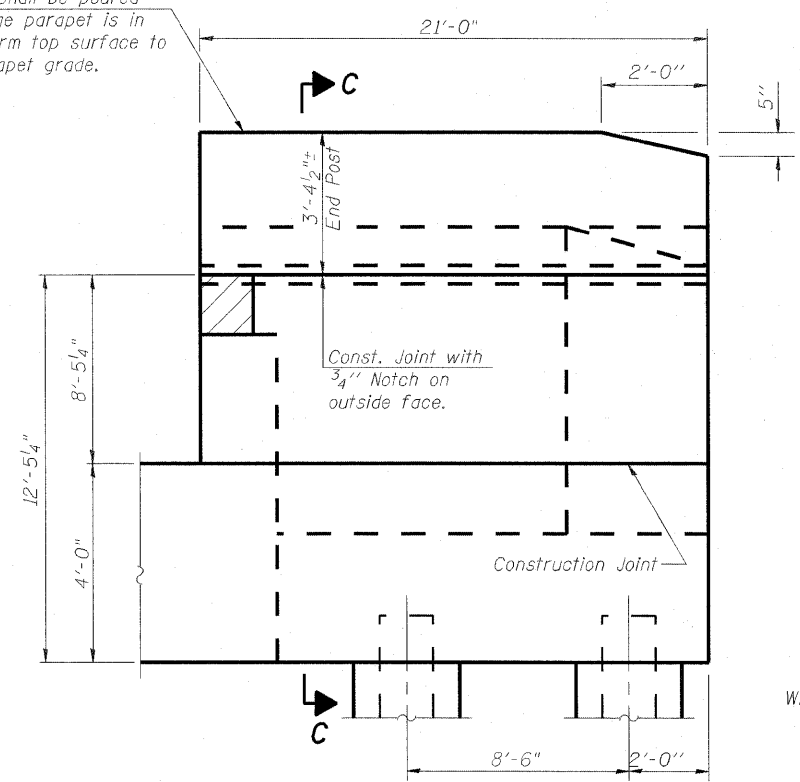
USER NAME =	DESIGNED - DDB	REVISED -
PLOT SCALE = 0.168667" / 1"	DRAWN - BRD	REVISED -
PLOT DATE = 6/27/2011	CHECKED - LLV	REVISED -
	DATE - 07-01-11	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

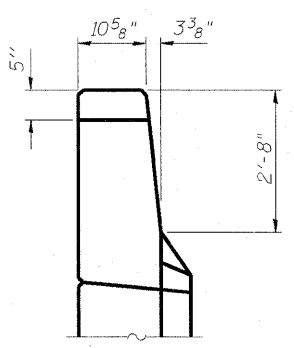
**ABUTMENTS - S.N. 082-0322 - E. ABUTMENT - ELEVATIONS**  
**I-70E OVER I-55, CSX & KCS RAILROADS**  
 SCALE: SHEET S-143 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 270
S.N. 082-0322 & S.N. 082-0324			CONTRACT NO. 76C76	
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

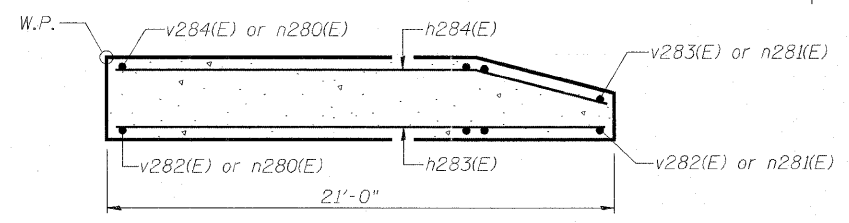
End Post shall be poured after bridge parapet is in place. Form top surface to match parapet grade.



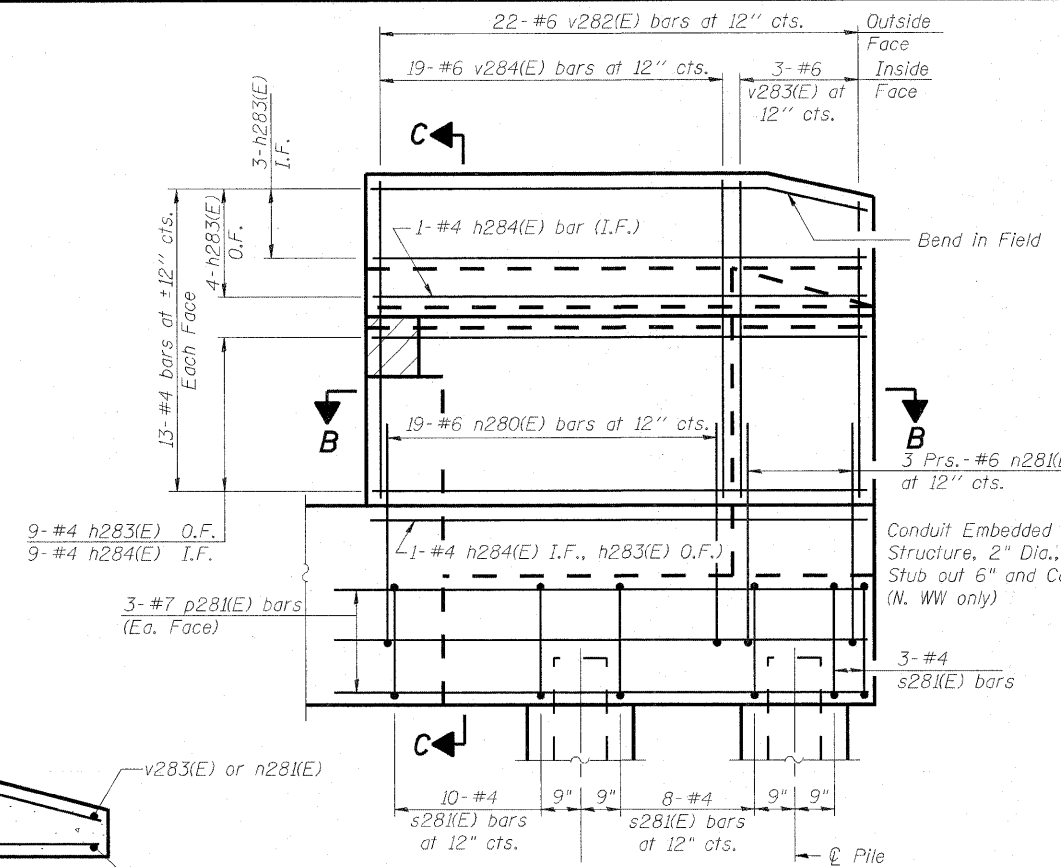
**SOUTH WING WALL ELEVATION**  
Showing Dimensions



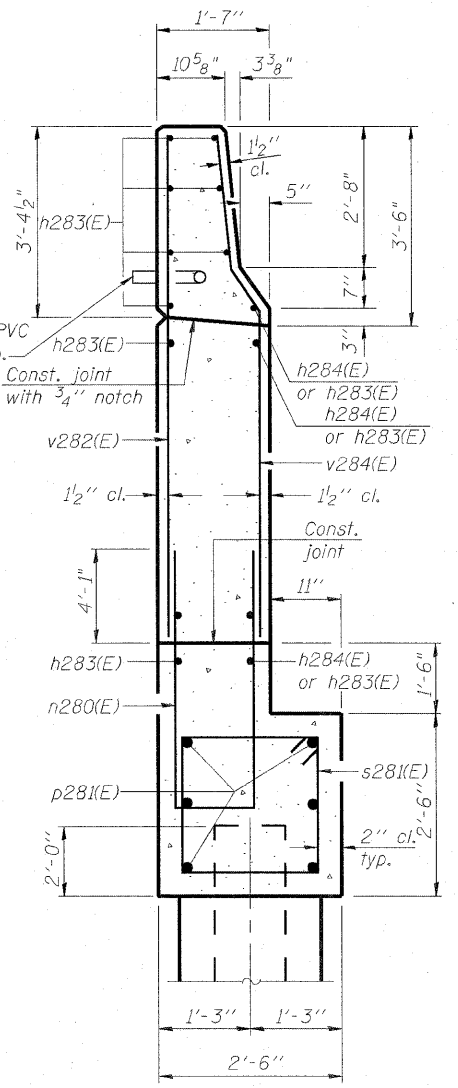
**SOUTH VIEW A-A**



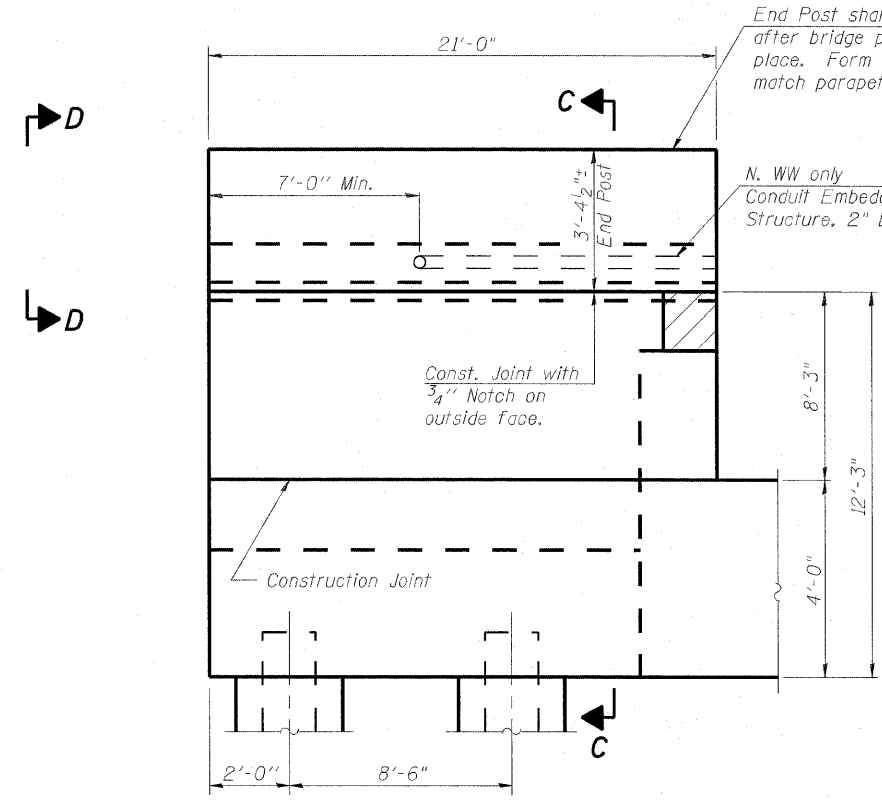
**SECTION B-B**



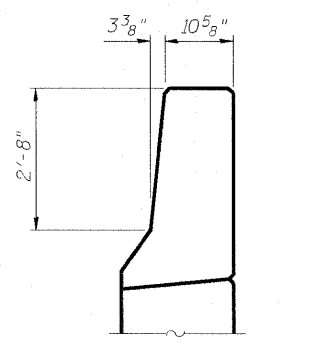
**SOUTH WING WALL ELEVATION**  
Showing Reinforcement



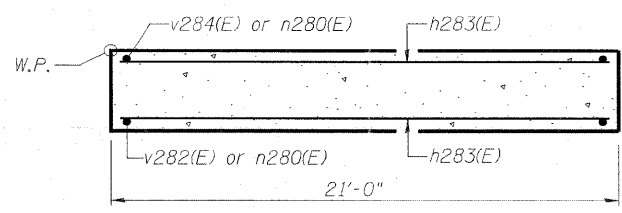
**SECTION C-C**



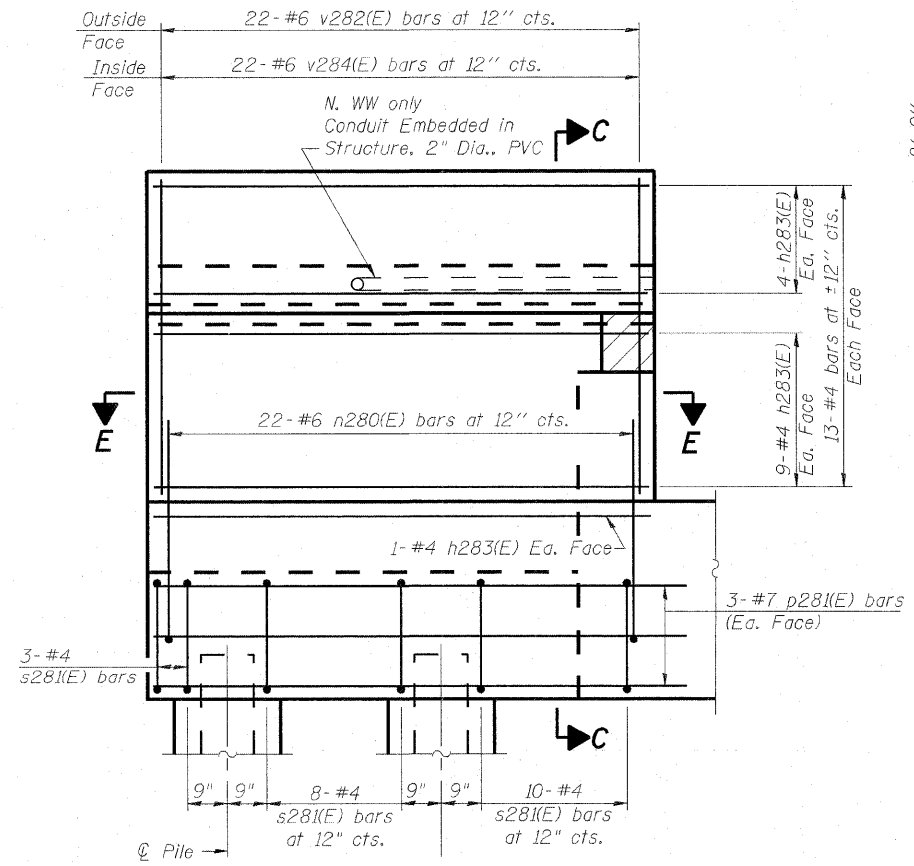
**NORTH WING WALL ELEVATION**  
Showing Dimensions



**NORTH VIEW D-D**



**SECTION E-E**



**NORTH WING WALL ELEVATION**  
Showing Reinforcement



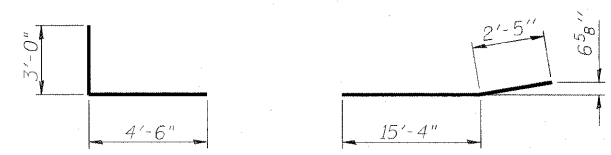
USER NAME =	DESIGNED - DDB	REVISED -
PLOT SCALE = 0/2" = 1' / IN.	DRAWN - BRD	REVISED -
PLOT DATE = 6/27/2011	CHECKED - LLV	REVISED -
	DATE - 07-01-11	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ABUTMENTS - S.N. 082-0322 - E. ABUTMENT - DETAILS  
I-70E OVER I-55, CSX & KCS RAILROADS

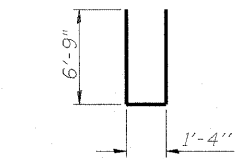
SCALE: SHEET S-144 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 271
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

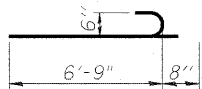


BAR h422(E)

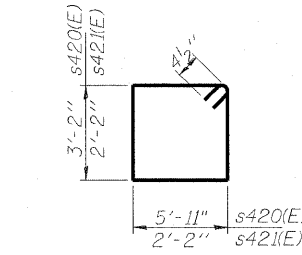
BAR h424(E)



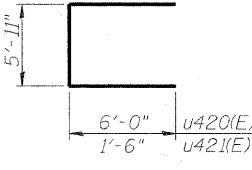
BAR n420(E)



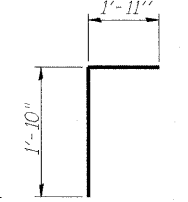
BAR n42(E)



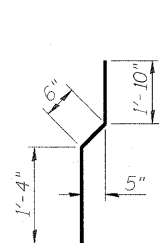
BARS s420(E) & s42(E)



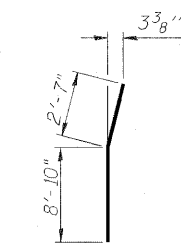
BAR u420(E) & u42(E)



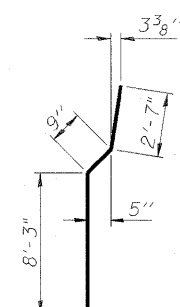
BAR v420(E)



BAR v42(E)



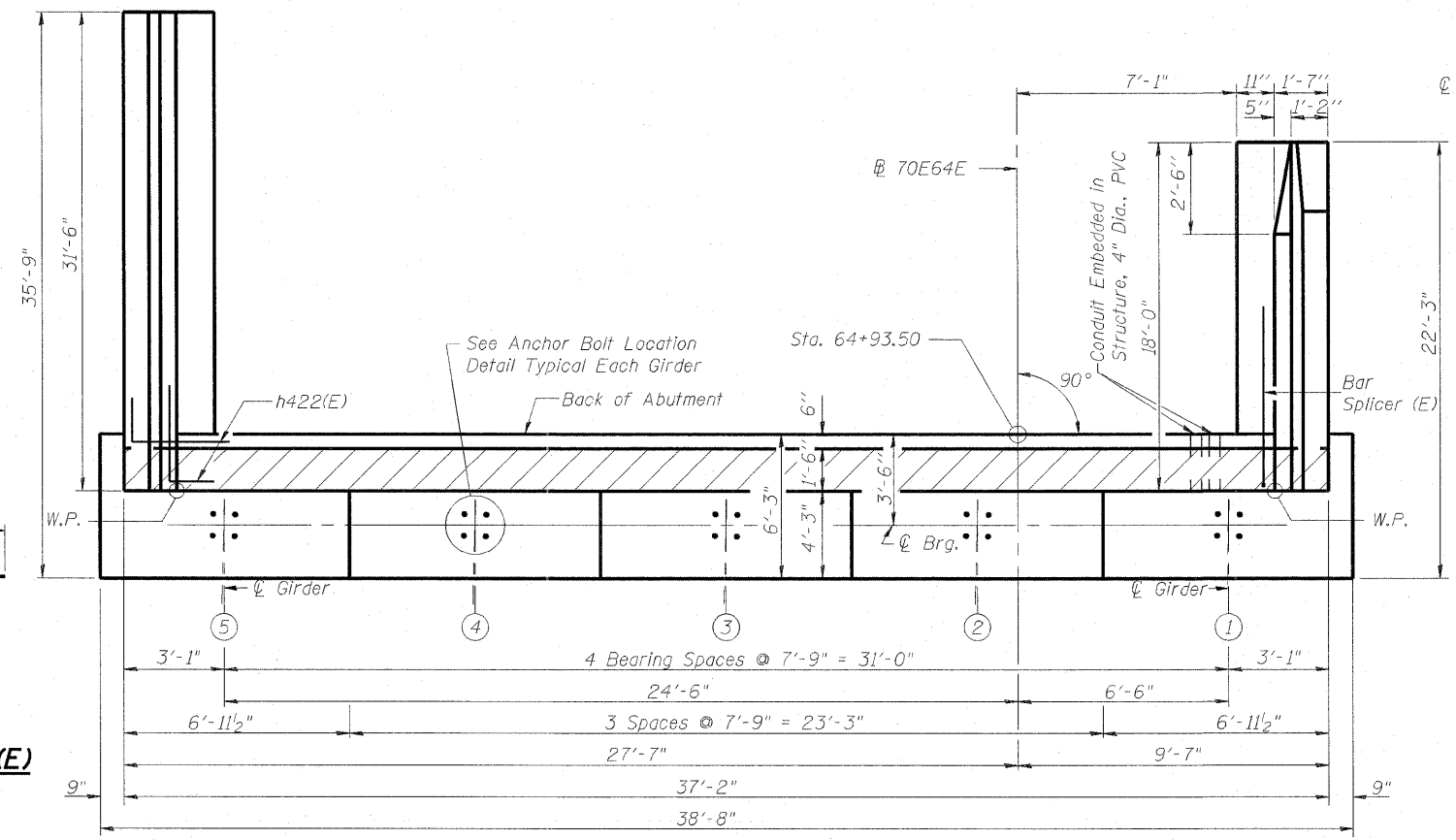
BAR v423(E)



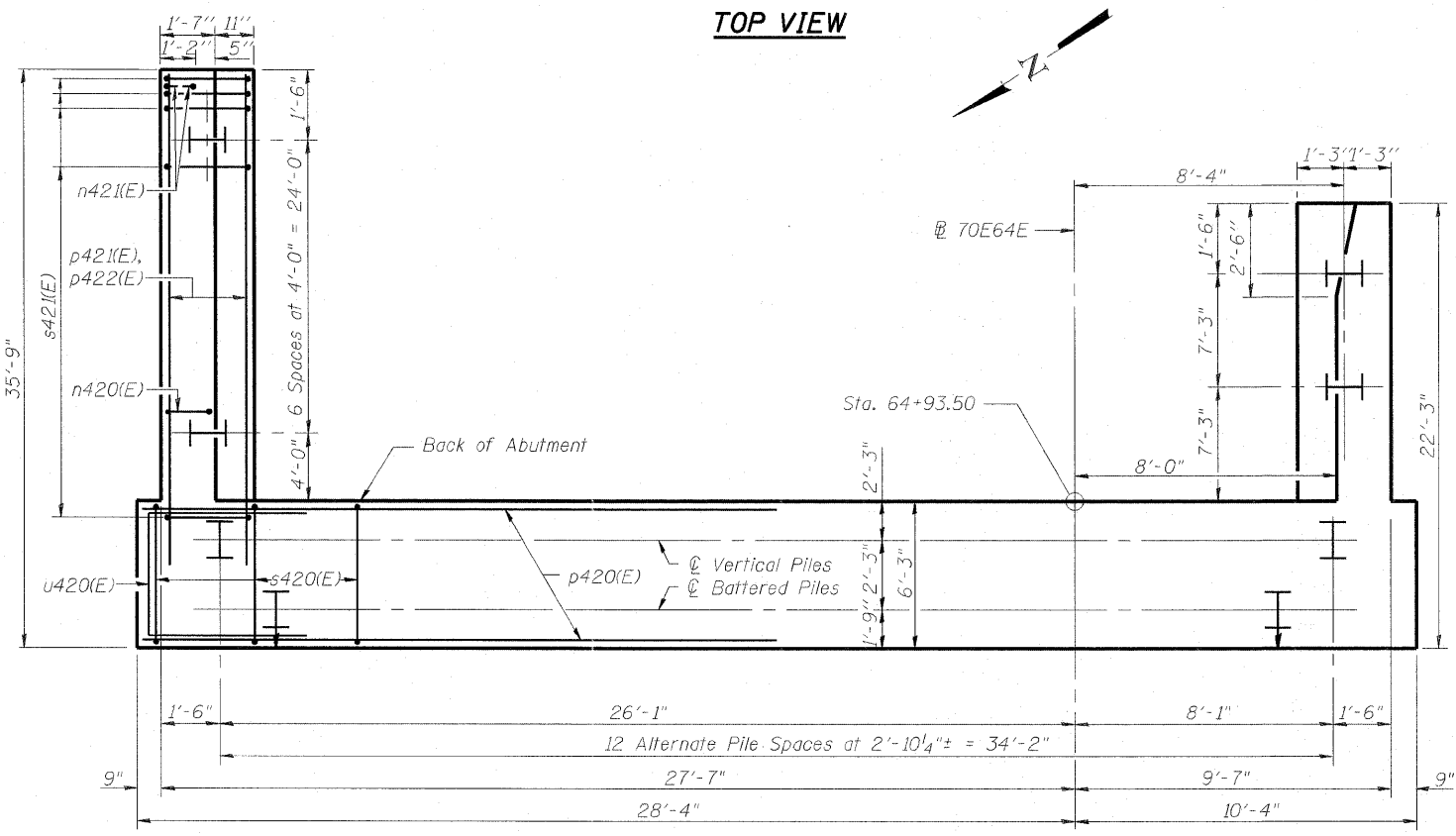
BAR v424(E)

**PILE DATA**

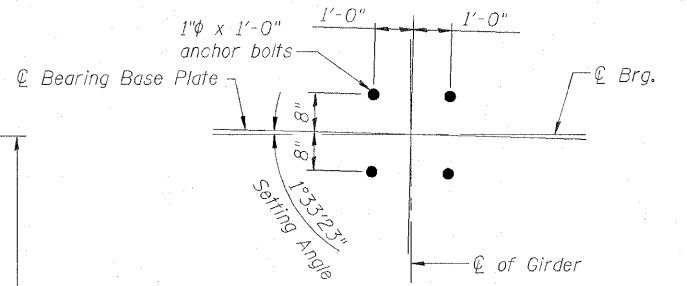
Type: HP 12x63  
 Nominal Required Bearing: 400 kips  
 Factored Resistance Available: 200 kips  
 Est. Length: 101'  
 No. Production Piles: 22  
 No. Test Piles: 0



TOP VIEW



PLAN-PILE CAP



ANCHOR BOLT LOCATION DETAIL

**ABUTMENT BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h420(E)	14	#5	33'-8"	
h421(E)	5	#6	33'-8"	
h422(E)	36	#5	7'-6"	
h423(E)	17	#4	17'-8"	
h424(E)	11	#4	17'-9"	
h426(E)	28	#4	31'-2"	
n420(E)	48	#6	14'-10"	
n421(E)	6	#6	7'-5"	
p420(E)	18	#7	38'-4"	
p421(E)	6	#7	21'-0"	
p422(E)	6	#9	34'-6"	
p423(E)	8	#5	15'-1"	
s420(E)	38	#4	18'-11"	
s421(E)	62	#4	9'-5"	
u420(E)	8	#6	17'-11"	
u421(E)	15	#4	8'-11"	
v420(E)	34	#5	3'-9"	
v421(E)	34	#4	3'-8"	
v422(E)	51	#6	11'-4"	
v423(E)	3	#6	11'-5"	
v424(E)	48	#6	11'-7"	
v425(E)	34	#5	10'-6"	
v426(E)	34	#5	9'-1"	
Porous Granular Embankment, Special		Cu. Yd.	98.9	
Structure Excavation		Cu. Yd.	224.0	
Concrete Structures		Cu. Yd.	87.4	
Concrete Encasement		Cu. Yd.	7.7	
Reinforcement Bars, Epoxy Coated		Pound	9,410	
Bar Splicers		Each	35	
Slope Wall 4 Inch		Sq. Yd.	79.7	
Furnishing Steel Piles HP 12x63		Foot	2,222	
Driving Piles		Foot	2,222	
Pile Shoes		Each	22	
Concrete Sealer		Sq. Ft.	726	
Geocomposite Wall Drain		Sq. Yd.	38	
Pipe Underdrains for Structures 4"		Foot	57	
Conduit Embedded in Structure, 4" Dia., PVC		Foot	4	

For details of Bar Splicers, see sheet S-188 of S-234.  
 For details of piles and Concrete Encasement, see sheet S-187 of S-234.



USER NAME =	DESIGNED - DDB	REVISED -
PLOT SCALE = 1/4" = 1'-0"	DRAWN - BRD	REVISED -
PLOT DATE = 6/27/2011	CHECKED - LLV	REVISED -
	DATE - 07-01-11	REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

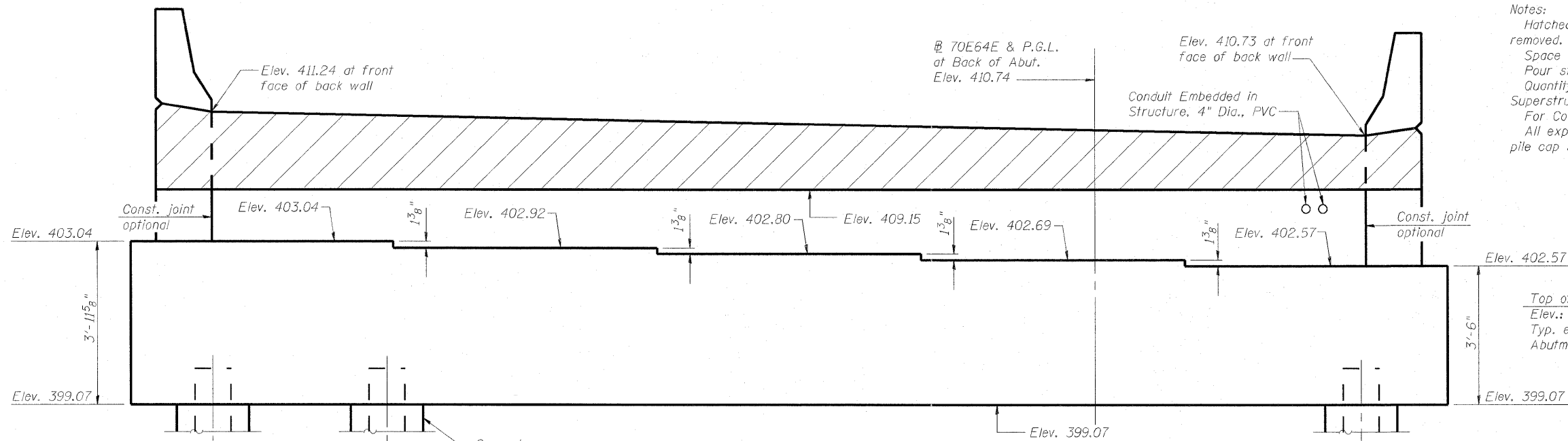
ABUTMENTS - S.N. 082-0324 - E. ABUTMENT - PLANS  
 I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: SHEET S-145 OF S-234 SHEETS STA. TO STA.

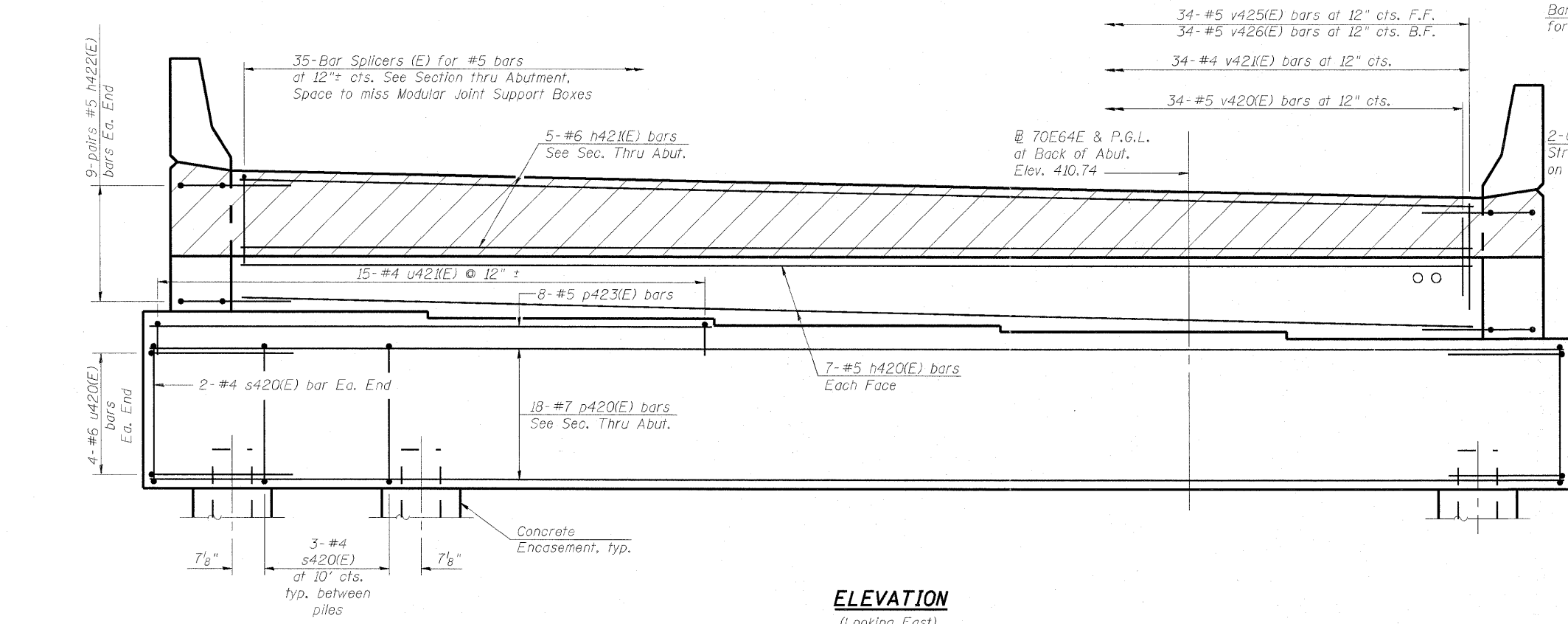
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TO	82-1-B-2	ST. CLAIR	399	272
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				



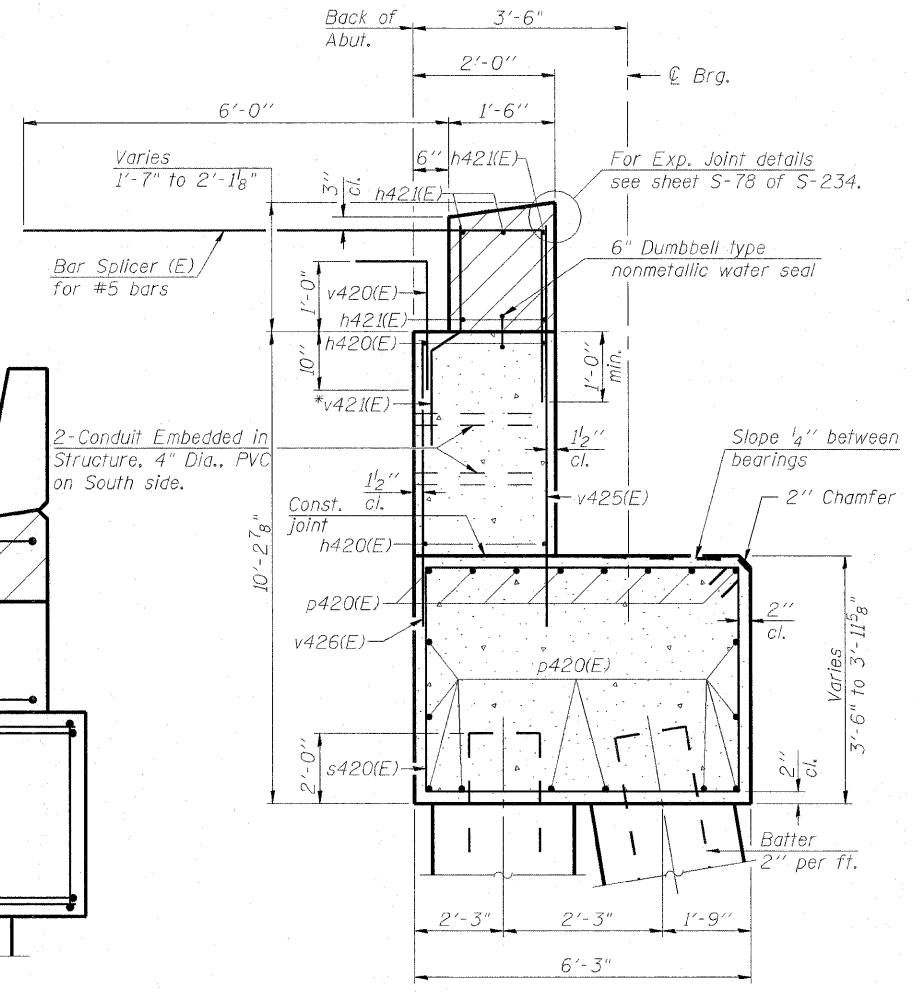
Notes:  
 Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure. Space reinforcement in cap to miss anchor bolts. Pour steps monolithically with cap. Quantity of concrete in end post included with Concrete Superstructure on sheet S-78 of S-234. For Concrete Encasement details, see sheet S-187 of S-234. All exposed surfaces of back wall, bridge seats, and front face of pile cap shall be treated with Concrete Sealer.



**ELEVATION**  
 (Looking East)  
 Showing Dimensions



**ELEVATION**  
 (Looking East)  
 Showing Reinforcement



**SEC. THRU ABUT.**  
 \*Cut in field if required.

I:\projects\08046507\082-0322 & 0324 - ELEVATIONS - CONSTRUCTION\082-0322-0324-76C76-5F98-0324-ENABUT-2.dgn  
 6/27/2011 10:00 AM  
 082-0322 & 0324 - ELEVATIONS - CONSTRUCTION\082-0322-0324-76C76-5F98-0324-ENABUT-2.dgn



USER NAME =	DESIGNED - DDB	REVISED -
PLOT SCALE = 0/2" = 1' / IN.	DRAWN - BRD	REVISED -
PLOT DATE = 6/27/2011	CHECKED - LLV	REVISED -
	DATE - 07-01-11	REVISED -

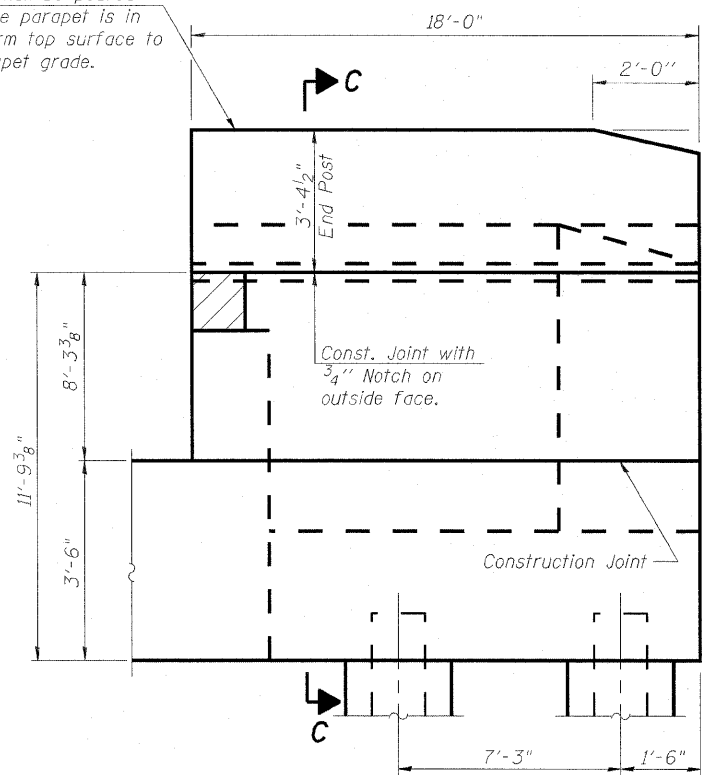
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

ABUTMENTS - S.N. 082-0324 - E. ABUTMENT - ELEVATIONS  
 I-70E OVER I-55, CSX & KCS RAILROADS

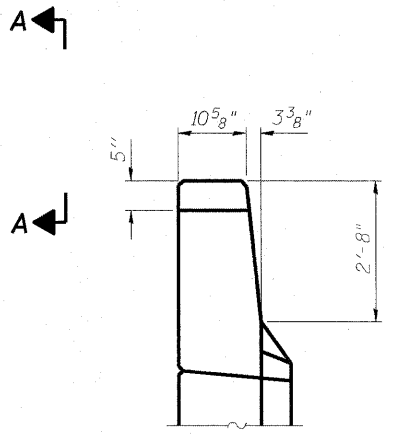
SCALE: SHEET S-146 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 273
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

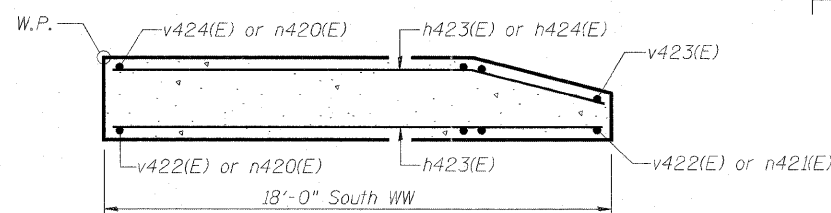
End Post shall be poured after bridge parapet is in place. Form top surface to match parapet grade.



**SOUTH WING WALL ELEVATION**  
Showing Dimensions



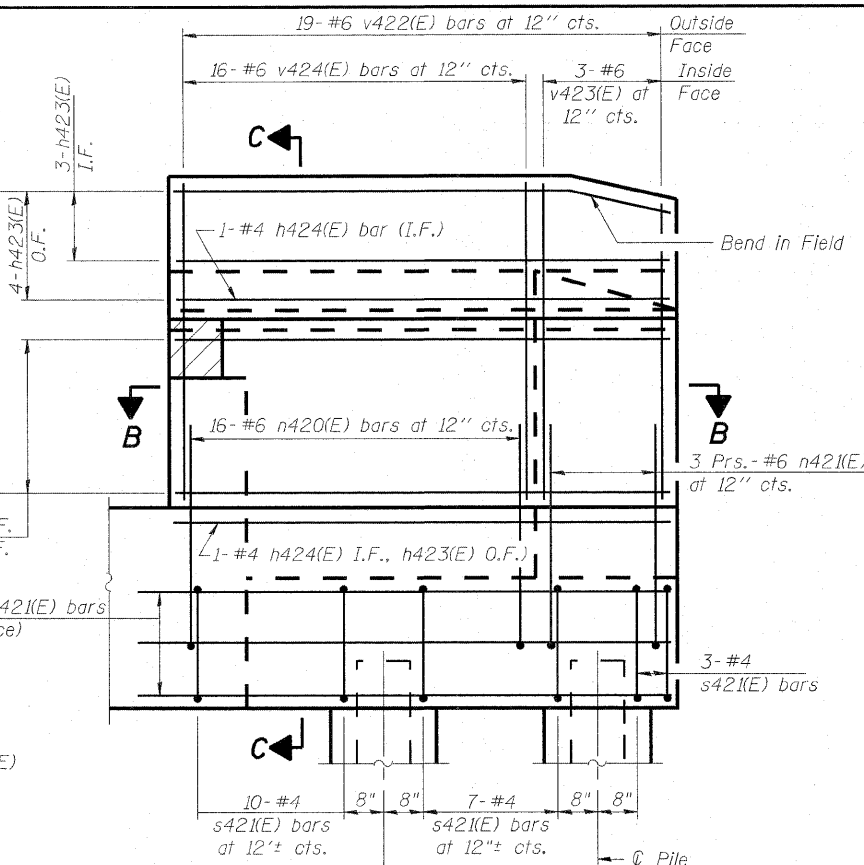
**SOUTH VIEW A-A**



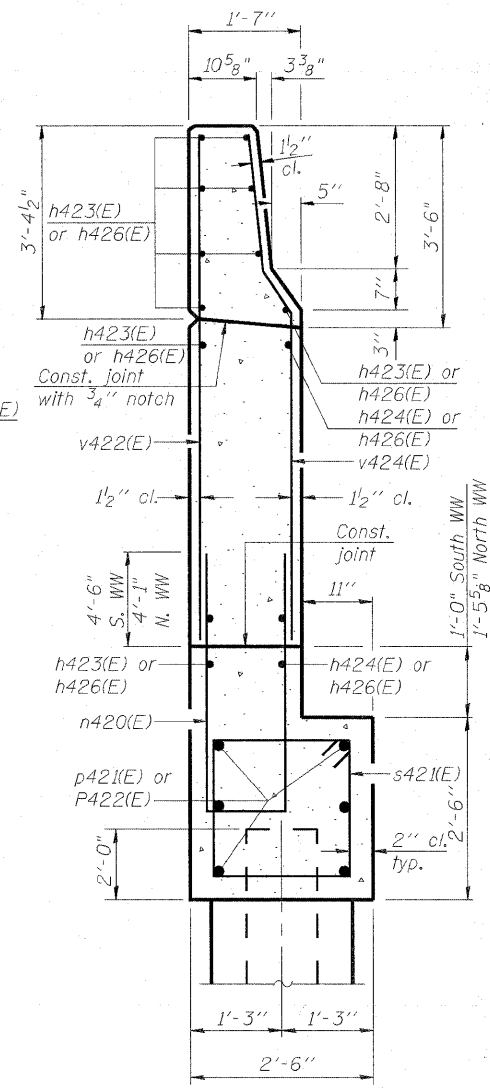
**SECTION B-B**

9-h423(E) O.F.  
9-h424(E) I.F.

3-#7 p421(E) bars  
(Ea. Face)

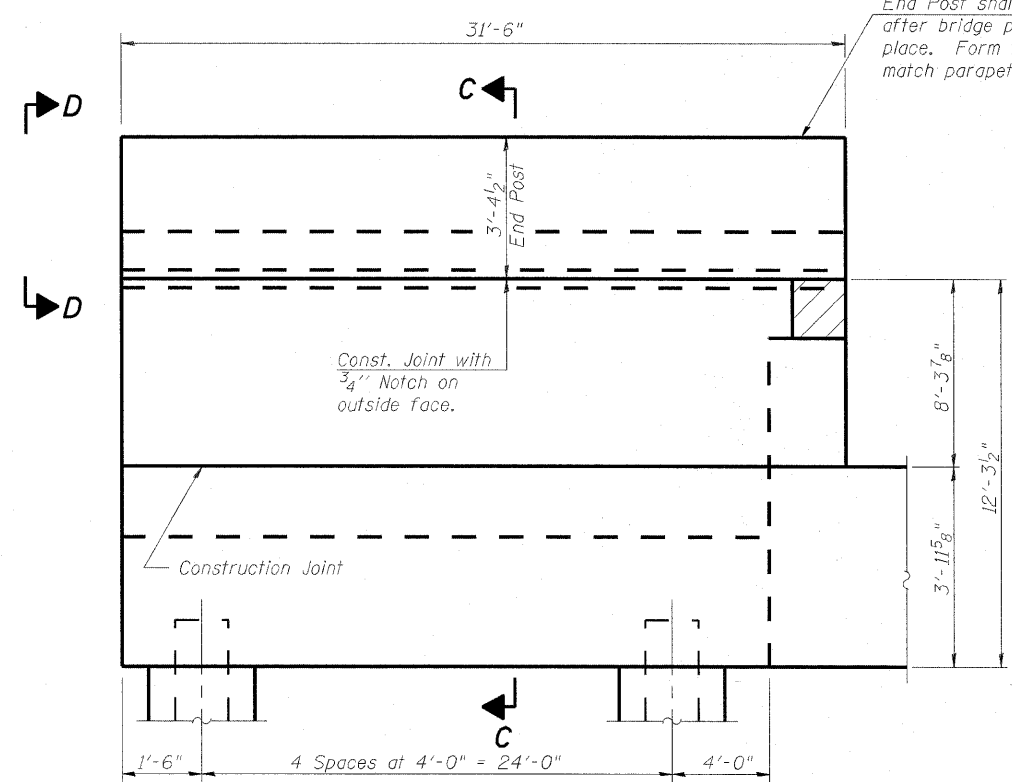


**SOUTH WING WALL ELEVATION**  
Showing Reinforcement

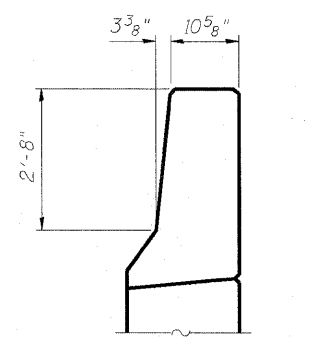


**SECTION C-C**

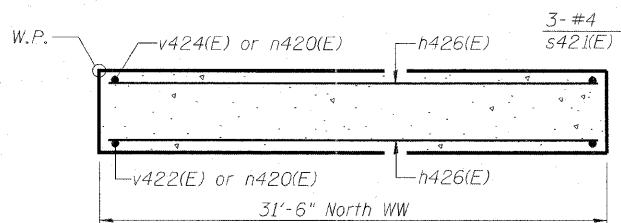
End Post shall be poured after bridge parapet is in place. Form top surface to match parapet grade.



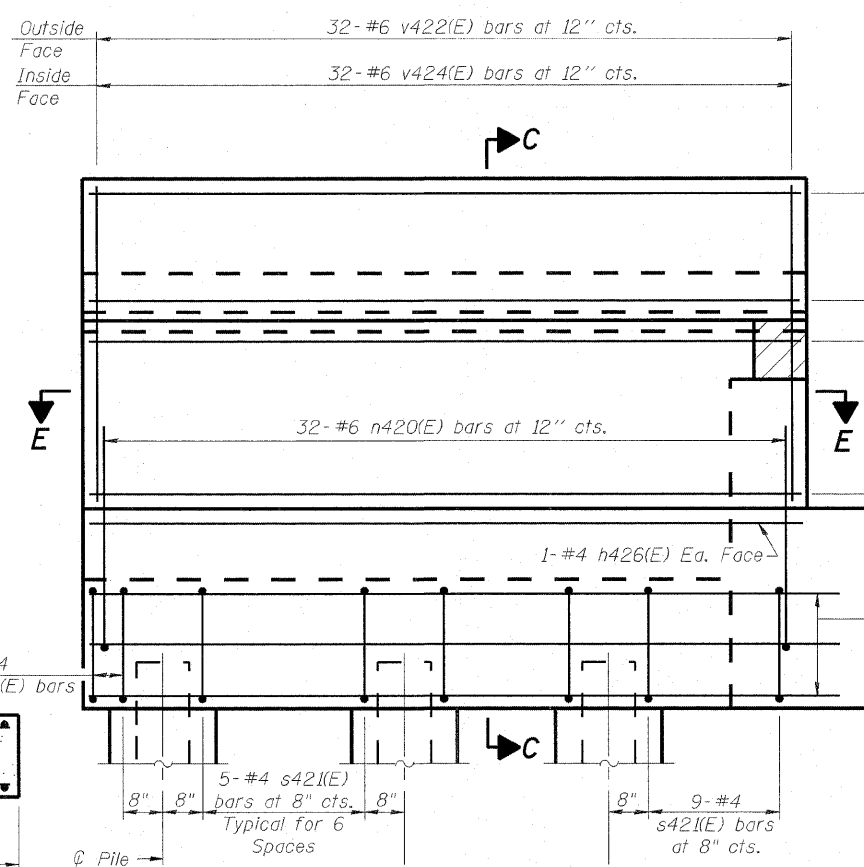
**NORTH WING WALL ELEVATION**  
Showing Dimensions



**SOUTH VIEW D-D**



**SECTION E-E**



**NORTH WING WALL ELEVATION**  
Showing Reinforcement



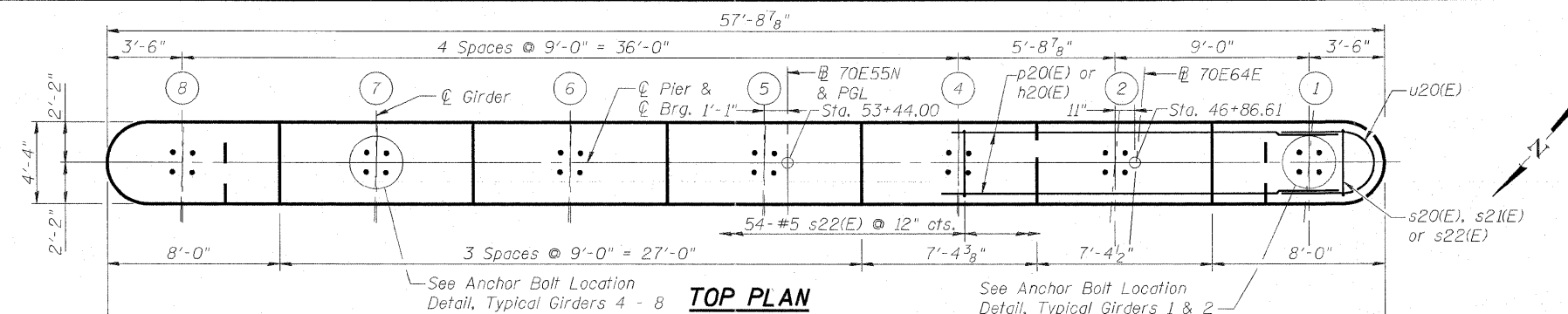
USER NAME =	DESIGNED - DDB	REVISED -
PLOT SCALE = 0/2" = 1" / IN.	DRAWN - BRD	REVISED -
PLOT DATE = 6/27/2011	CHECKED - LLV	REVISED -
	DATE - 07-01-11	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

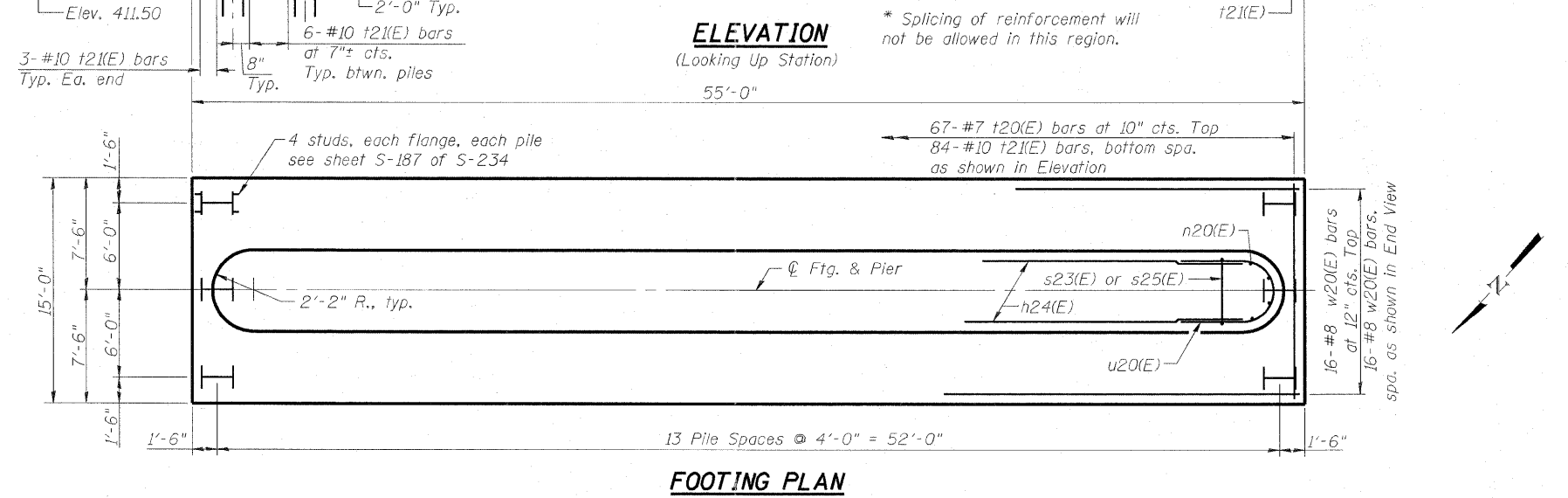
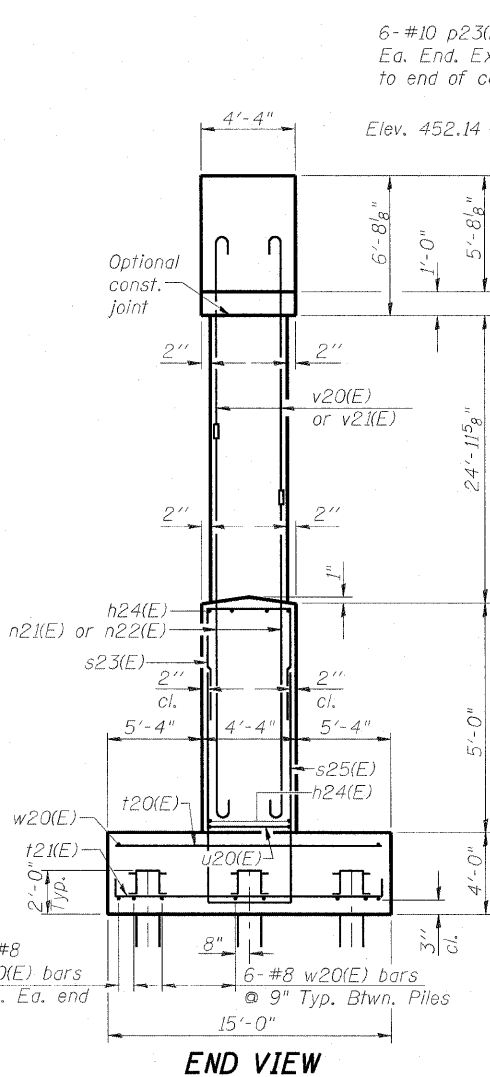
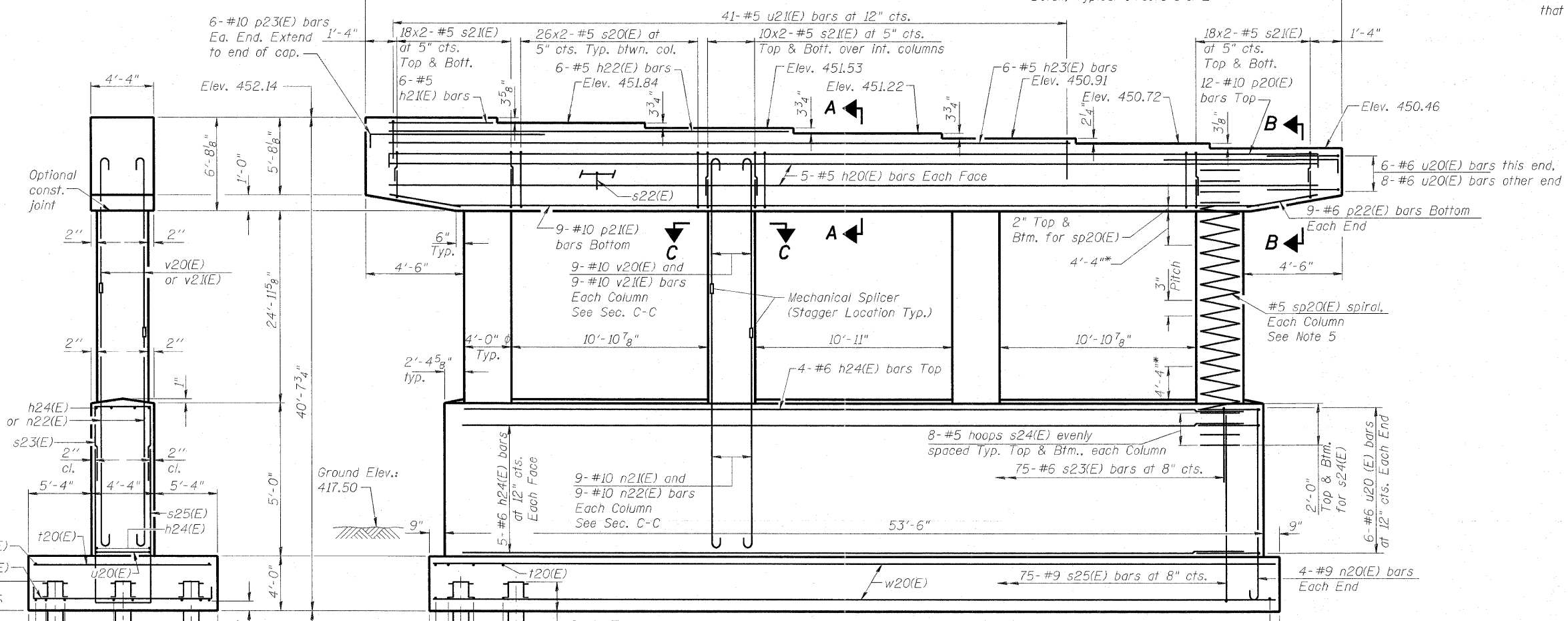
ABUTMENTS - S.N. 082-0324 - E. ABUTMENT - DETAILS  
I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: SHEET S-147 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE. TO	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 274
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				



- Notes:
- Space reinforcement in cap to miss anchor bolts.
  - Pour steps monolithically with cap.
  - For details of piles, see sheet S-187 of S-234.
  - Centerline of Pier is radial to 70E55N at Sta. 53+44.00.
  - #5 sp20(E) spiral, each column
    - Provide 1/2 extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 2" into pier cap & crashwall. Provide 4-#4 spacers or equivalent.
    - When splicing spiral reinforcement is necessary, the spirals shall be provided with 1/2 extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.
  - Contractor shall use Mechanical Splicers in columns that will fit between spirals.



**PILE DATA**

Type: HP 12x63  
 Nominal Required Bearing: 450 kips  
 Factored Resistance Available: 225 kips  
 Est. Length: 114'  
 No. Production Piles: 42  
 No. Test Piles: 0

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h20(E)	10	#5	53'-5"	—
h21(E)	6	#5	5'-8"	—
h22(E)	6	#5	23'-8"	—
h23(E)	6	#5	40'-0"	—
h24(E)	14	#6	49'-2"	—
n20(E)	8	#9	9'-9"	U
n21(E)	36	#10	11'-5"	U
n22(E)	36	#10	13'-5"	U
p20(E)	12	#10	57'-1"	U
p21(E)	9	#10	49'-9"	U
p22(E)	18	#6	5'-9"	U
p23(E)	12	#10	11'-10"	U
s20(E)	156	#5	15'-7"	□
s21(E)	224	#5	10'-8"	□
s22(E)	54	#5	5'-5"	□
s23(E)	75	#6	8'-6"	□
s24(E)	64	#5	11'-6"	□
s25(E)	75	#9	21'-0"	□
** sp20(E)	4	#5	25'-4"	~
t20(E)	67	#7	14'-8"	—
t21(E)	84	#10	18'-4"	—
u20(E)	26	#6	18'-2"	U
u21(E)	41	#5	12'-4"	U
v20(E)	36	#10	24'-2"	U
v21(E)	36	#10	22'-2"	U
w20(E)	32	#8	54'-8"	—
Structure Excavation		Cu. Yd.	249.1	
Concrete Structures		Cu. Yd.	263.6	
Reinforcement Bars, Epoxy Coated		Pound	50,860	
Furnishing Steel		Foot	4,788	
Piles HP 12x63		Foot	4,788	
Driving Piles		Each	42	
Mechanical Splicers		Each	72	

\*\* Length is height of spiral.  
 See next sheet for Bar Details and Sections.



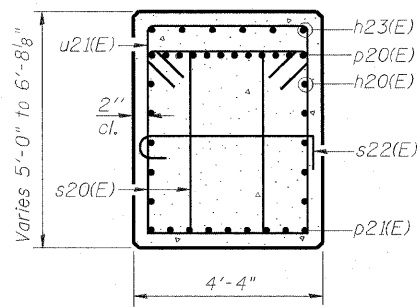
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PLOT SCALE = 8/1667' / IN.	DRAWN - BRD	REVISED -
PLOT DATE = 6/30/2011	CHECKED - LLV	REVISED -
	DATE - 07-01-11	REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

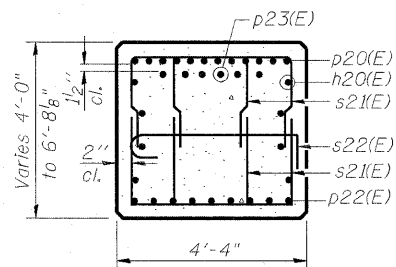
PIER - UNIT 1 - PIER 1 - PLANS & ELEVATIONS  
 I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: SHEET S-148 OF S-234 SHEETS STA. TO STA.

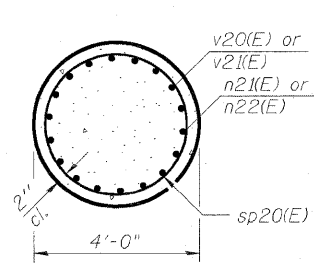
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	275
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		



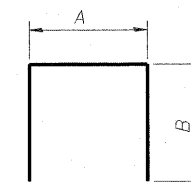
**SEC. A-A**



**SEC. B-B**



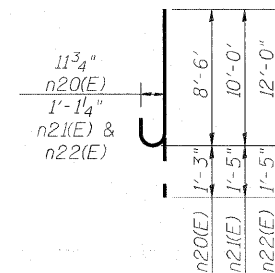
**SEC. C-C**



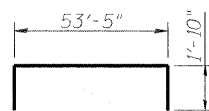
**BARS**

**A & B DIMENSIONS**

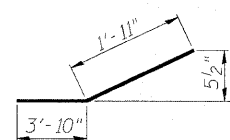
Bar	A	B
s21(E)	2'-8"	4'-0"
s23(E)	4'-0"	2'-3"
s25(E)	4'-0"	8'-6"
t21(E)	14'-8"	1'-10"
u21(E)	4'-0"	4'-2"



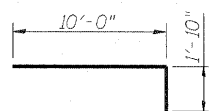
**BAR n20(E), n21(E) & n22(E)**



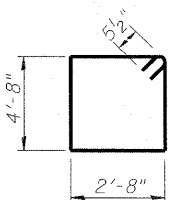
**BAR p20(E)**



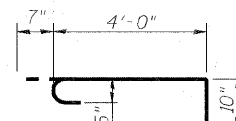
**BAR p22(E)**



**BAR p23(E)**

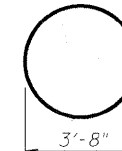


**BAR s20(E)**

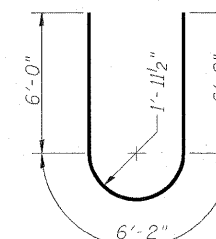


**BAR s22(E)**

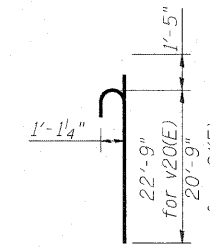
Shop welded per AWS D1.4 or mechanically spliced; cost included in Reinforcement Bars. Epoxy Coated



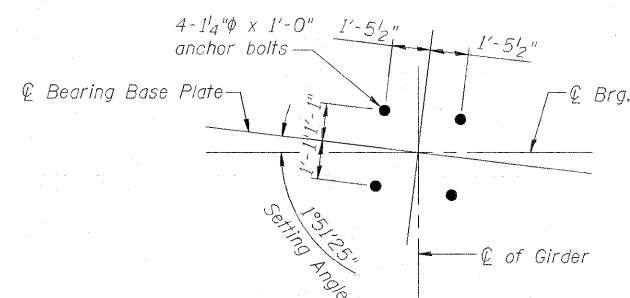
**BAR s24(E)**



**BAR u20(E)**



**BAR v20(E) or v21(E)**



**ANCHOR BOLT LOCATION DETAIL.**

K:\projects\80846508\80846508-0322 & 0324\_figover\808.ctb\01\_drawing\766766-master-consult\det\structural\808-0322\sheet\808-0322-0324\_766766-5082-Unit1-Pier1-2.dgn



USER NAME =  
 PLOT SCALE = 8/1667 "/>

DESIGNED - DDB  
 DRAWN - BRD  
 CHECKED - LLV  
 DATE - 07-01-11

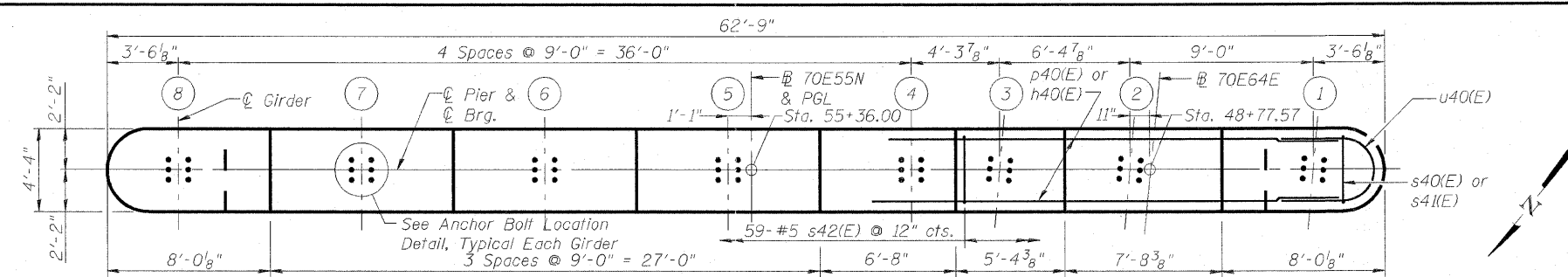
REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

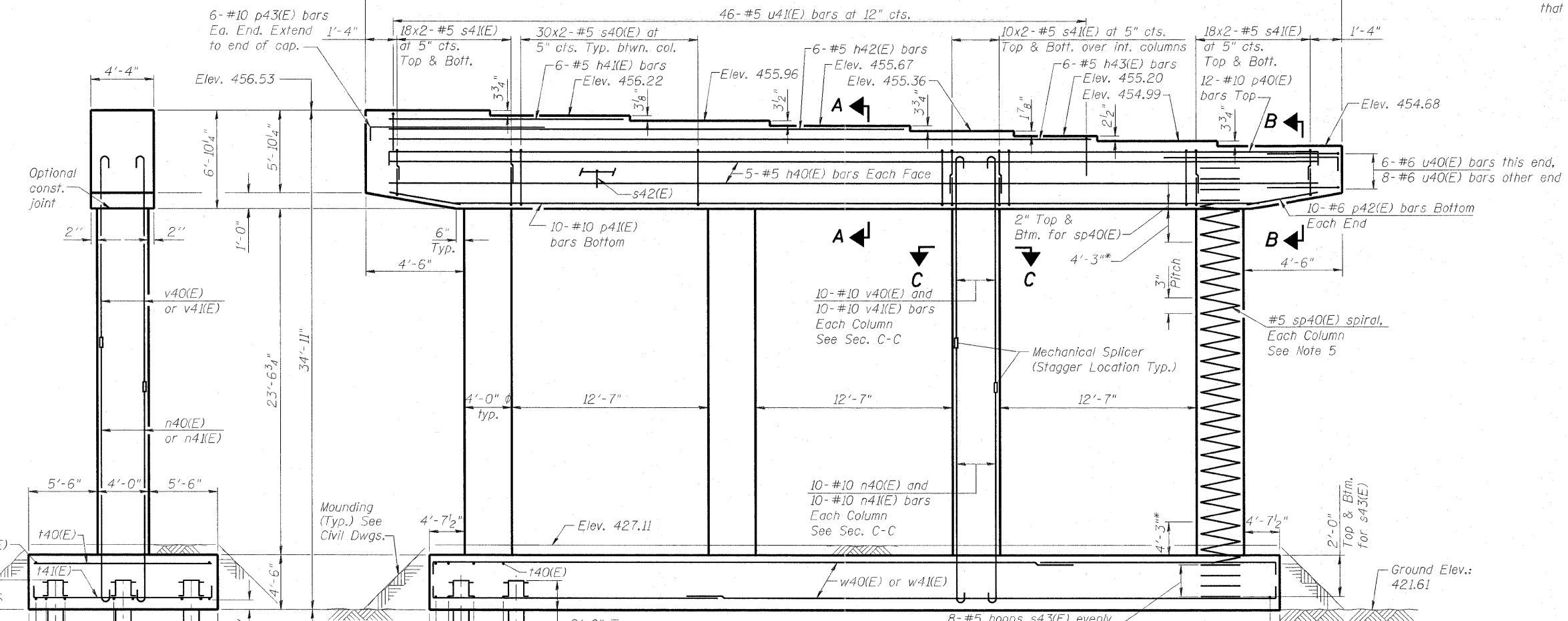
**PIER - UNIT 1 - PIER 1 - DETAILS  
 I-70E OVER I-55, CSX & KCS RAILROADS**

SCALE: SHEET S-149 OF S-234 SHEETS STA. TO STA.

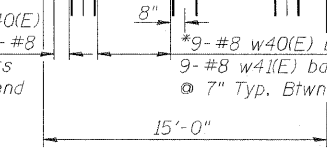
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	276
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		



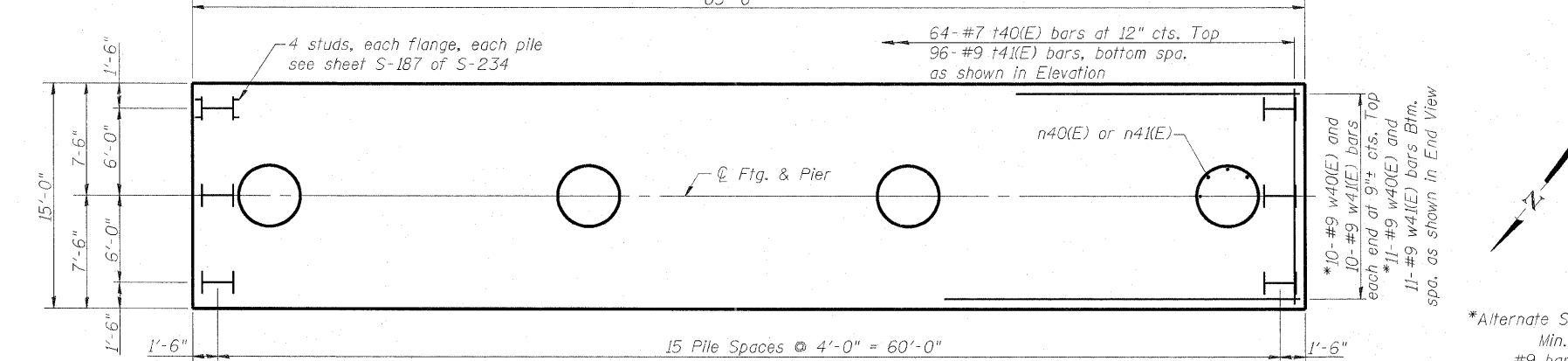
**TOP PLAN**



**ELEVATION**  
(Looking Up Station)



**END VIEW**



**FOOTING PLAN**

- Notes:
1. Space reinforcement in cap to miss anchor bolts.
  2. Pour steps monolithically with cap.
  3. For details of piles, see sheet S-187 of S-234.
  4. C of Pier is radial to 70E55N at Sta. 55+36.00.
  5. #5 sp40(E) spiral, each column  
1) Provide 1/2 extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 2" into pier cap & crashwall. Provide 4-#4 spacers or equivalent.  
2) When splicing spiral reinforcement is necessary, the spirals shall be provided with 1/2 extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.
  6. Contractor shall use Mechanical Splicers in columns that will fit between spirals.

**PILE DATA**

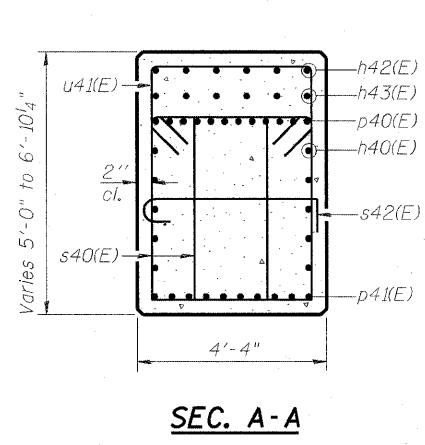
Type: HP 12x63  
 Nominal Required Bearing: 400 kips  
 Factored Resistance Available: 200 kips  
 Est. Length: 98'  
 No. Production Piles: 47  
 No. Test Piles: 1

**BILL OF MATERIAL**

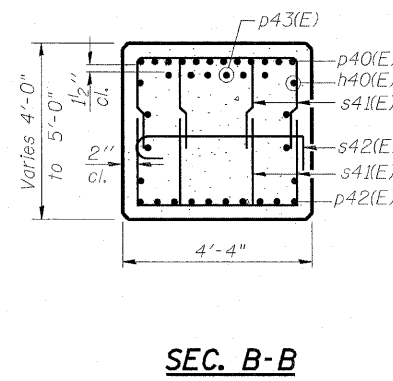
Bar	No.	Size	Length	Shape
h40(E)	10	#5	58'-5"	—
h41(E)	6	#5	14'-8"	—
h42(E)	6	#5	32'-8"	—
h43(E)	6	#5	44'-8"	—
n40(E)	40	#10	10'-5"	U
n41(E)	40	#10	13'-5"	U
p40(E)	12	#10	62'-1"	U
p41(E)	10	#10	54'-9"	U
p42(E)	20	#6	5'-9"	U
p43(E)	12	#10	11'-10"	U
s40(E)	180	#5	15'-7"	□
s41(E)	224	#5	10'-8"	□
s42(E)	59	#5	5'-5"	□
s43(E)	64	#5	11'-6"	□
sp40(E)	4	#5	24'-0"	W
t40(E)	64	#7	14'-8"	—
t41(E)	96	#9	18'-4"	—
u40(E)	14	#6	18'-2"	U
u41(E)	46	#5	11'-8"	U
v40(E)	40	#10	23'-5"	U
v41(E)	40	#10	20'-5"	U
w40(E)	42	#9	21'-10"	U
w41(E)	42	#9	50'-10"	U
Concrete Structures			Cu. Yd.	259.7
Reinforcement Bars, Epoxy Coated			Pound	49,610
Furnishing Steel				
Piles HP12x63			Foot	4,606
Driving Piles			Foot	4,606
Test Piles Steel HP12x63			Each	1
Mechanical Splicers			Each	80

\*\* Length is height of spiral.  
 See next sheet for Bar Details and Sections.

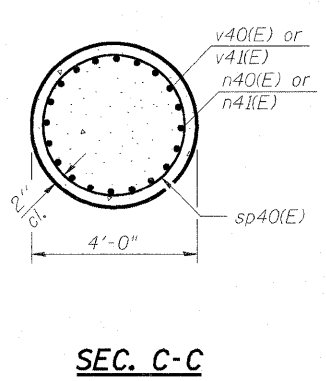
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 6/30/2011 10:00:00 AM



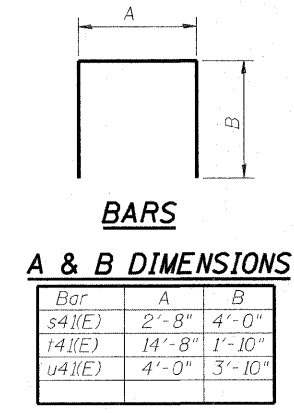
**SEC. A-A**



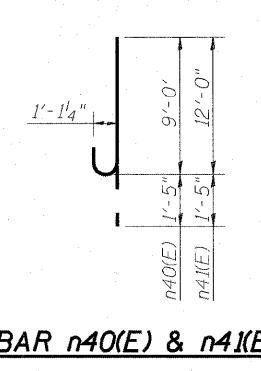
**SEC. B-B**



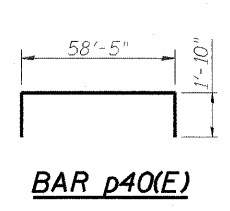
**SEC. C-C**



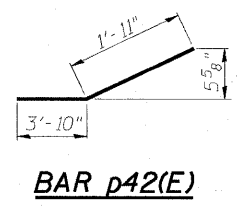
**A & B DIMENSIONS**



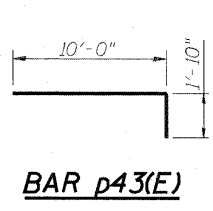
**BAR n40(E) & n41(E)**



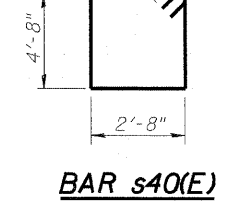
**BAR p40(E)**



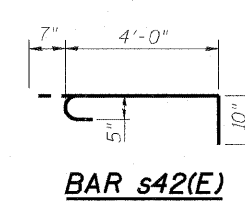
**BAR p42(E)**



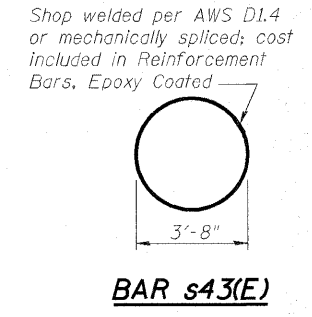
**BAR p43(E)**



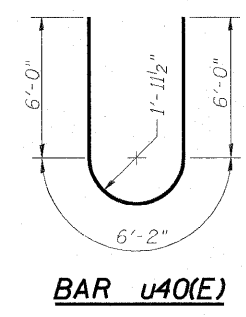
**BAR s40(E)**



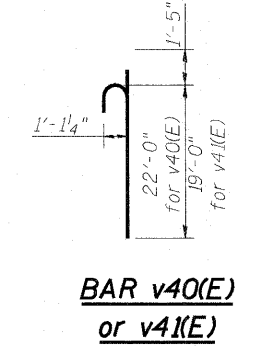
**BAR s42(E)**



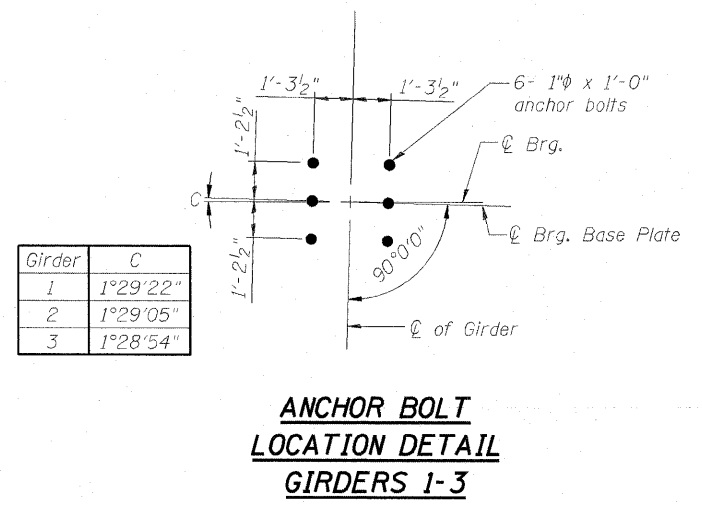
**BAR s43(E)**



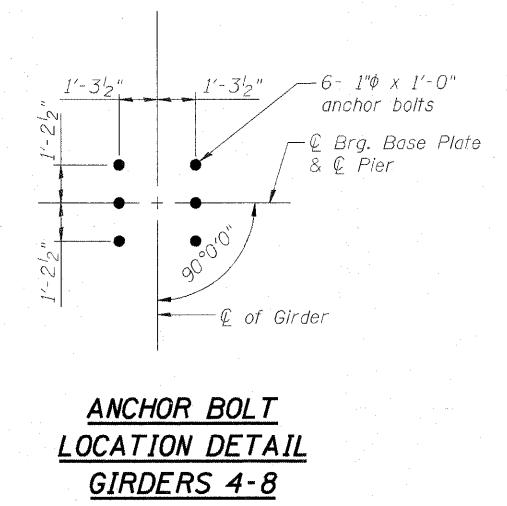
**BAR u40(E)**



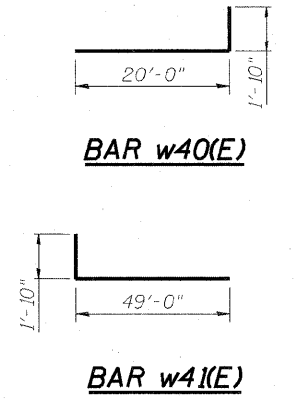
**BAR v40(E)  
or v41(E)**



**ANCHOR BOLT  
LOCATION DETAIL  
GIRDERS 1-3**



**ANCHOR BOLT  
LOCATION DETAIL  
GIRDERS 4-8**



**BAR w40(E)**

**BAR w41(E)**

I:\projects\0204650\01\082-0322-0324\01.dwg, master, consultant\structural\082-0322-0324\082-0322-0324\_76C76\_5604\_Unit1-Pier 2.dwg

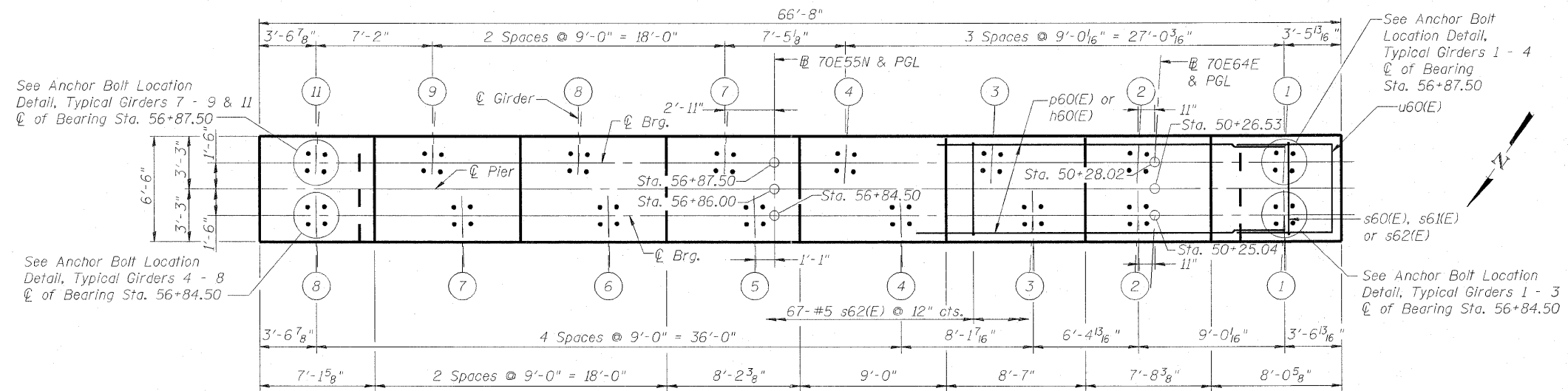


USER NAME =	DESIGNED - DDB	REVISED -
DRAWN - BRD	REVISIONS	
PLOT SCALE = 0.166667' / IN.	CHECKED - LLV	REVISED -
PLOT DATE = 6/30/2011	DATE - 07-01-11	REVISED -

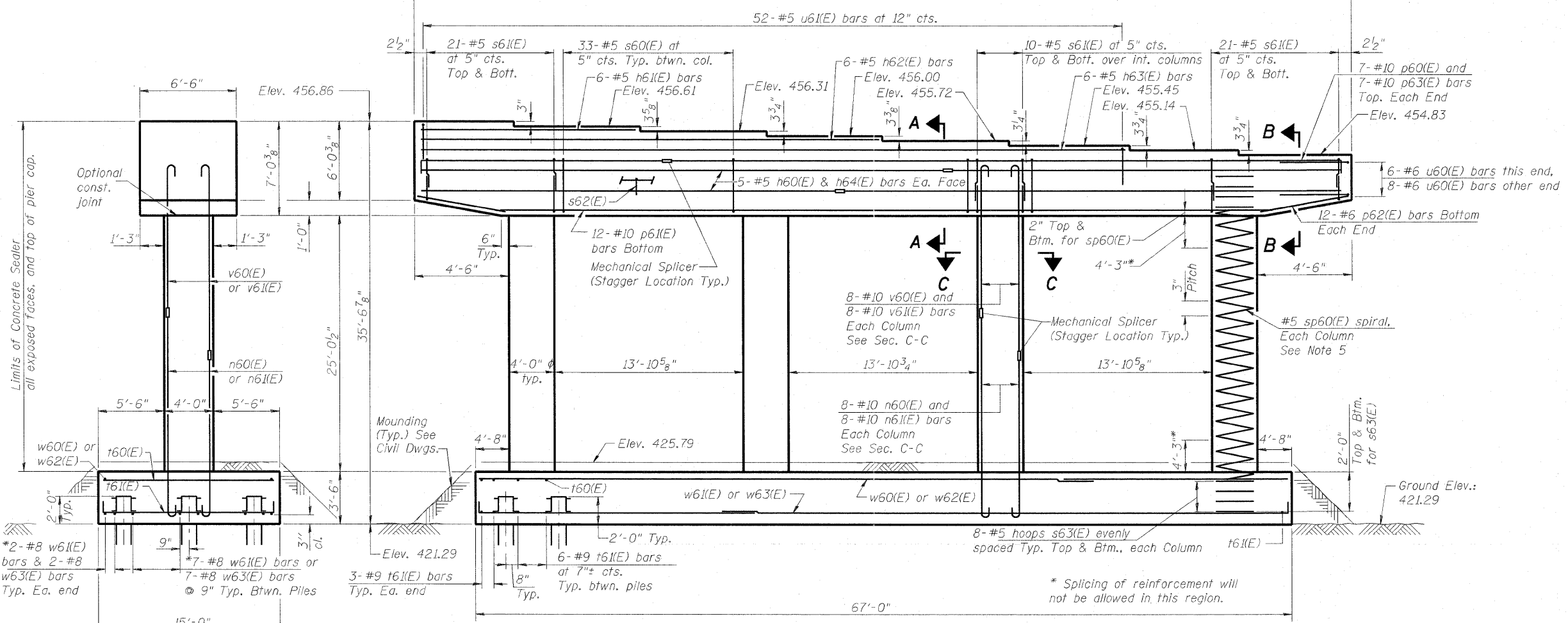
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

<b>PIER - UNIT 1 - PIER 2 - DETAILS</b>	
<b>I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>	
SCALE:	SHEET S-151 OF S-234 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	278
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT				



**TOP PLAN**



**ELEVATION**  
(Looking Up Station)

**END VIEW**

\*Alternate Splice Locations  
Min. Laps  
#7 bar: 3'-7"  
#8 bar: 4'-2"

- Notes:
1. Space reinforcement in cap to miss anchor bolts.
  2. Pour steps monolithically with cap.
  3. For details of piles, see sheet S-187 of S-234.
  4. C of Pier is radial to @ 70E55N at Sta. 56+86.00.
  5. #5 sp60(E) spiral, each column  
1) Provide 1/2 extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 2" into pier cap & crashwall. Provide 4-#4 spacers or equivalent.  
2) When splicing spiral reinforcement is necessary, the spirals shall be provided with 1/2 extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.
  6. Contractor shall use Mechanical Splicers in columns and pier cap that will fit between spirals and stirrups.

**PILE DATA**

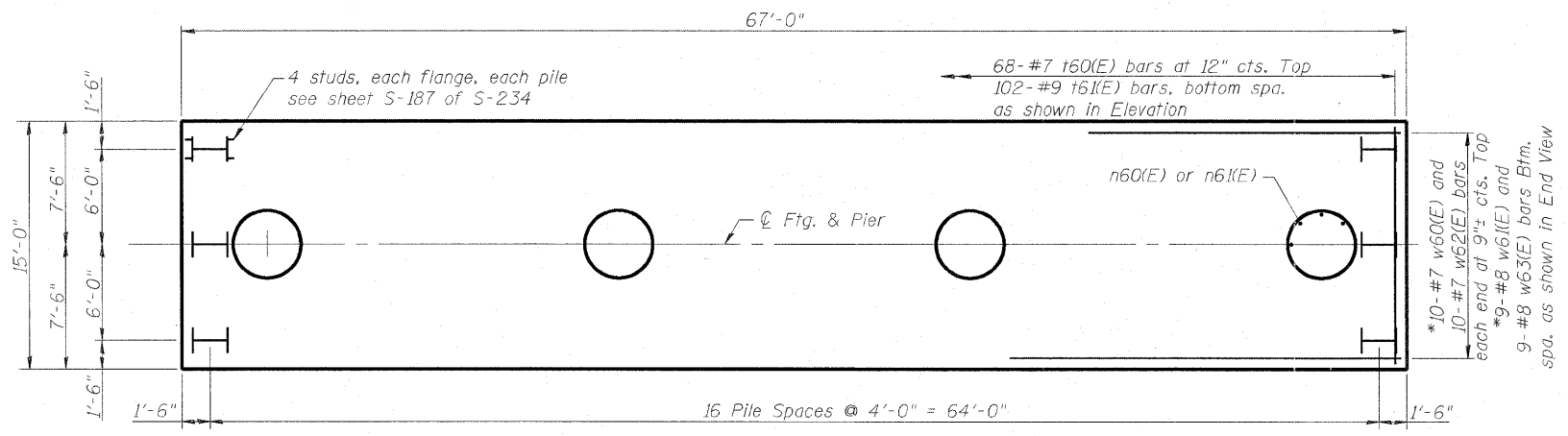
Type: HP 12x63  
Nominal Required Bearing: 400 kips  
Factored Resistance Available: 200 kips  
Est. Length: 97'  
No. Production Piles: 51  
No. Test Piles: 0

**BILL OF MATERIAL**

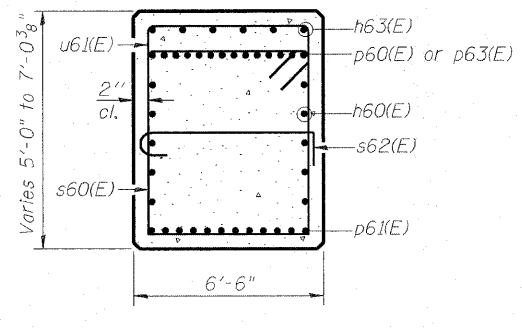
Bar	No.	Size	Length	Shape
h60(E)	10	#5	36'-4"	—
h61(E)	6	#5	15'-9"	—
h62(E)	6	#5	33'-0"	—
h63(E)	6	#5	50'-7"	—
h64(E)	10	#5	30'-0"	—
n60(E)	32	#10	10'-5"	U
n61(E)	32	#10	13'-5"	U
p60(E)	14	#10	17'-1"	
p61(E)	12	#10	58'-8"	
p62(E)	24	#6	8'-3"	
p63(E)	14	#10	52'-11"	
s60(E)	99	#5	22'-7"	□
s61(E)	124	#5	13'-6"	□
s62(E)	67	#5	7'-7"	□
s63(E)	64	#5	11'-6"	□
** sp60(E)	4	#5	25'-5"	~
t60(E)	68	#7	14'-8"	U
t61(E)	102	#9	18'-4"	U
u60(E)	14	#6	12'-2"	U
u61(E)	52	#5	14'-1"	U
v60(E)	32	#10	23'-9"	U
v61(E)	32	#10	20'-9"	U
w60(E)	20	#7	25'-0"	U
w61(E)	18	#8	26'-10"	U
w62(E)	20	#7	45'-7"	U
w63(E)	18	#8	48'-0"	U
Concrete Structures	Cu. Yd.		272.7	
Reinforcement Bars, Epoxy Coated	Pound		44,500	
Furnishing Steel Piles HP 12x63	Foot		4,947	
Driving Piles	Foot		4,947	
Mechanical Splicers	Each		88	
Concrete Sealer	Sq. Ft.		2,930	

\*\* Length is height of spiral.  
See next sheet for Bar Details and Sections.

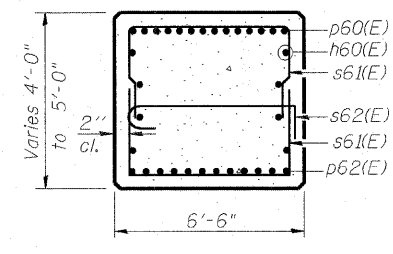
<b>AECOM</b>	USER NAME =	DESIGNED - DDB	REVISED -	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>PIER - UNIT 1 - PIER 3 - PLANS &amp; ELEVATIONS</b> <b>I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>	F.A.I. RTE. TO	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 279
	PLOT SCALE = 0.165667' / IN.	DRAWN - BRD	REVISED -			S.N. 082-0322 & S.N. 082-0324	CONTRACT NO. 76C76			
	CHECKED - LLV	REVISED -		SCALE:	SHEET S-152 OF S-234 SHEETS	STA. TO STA.	FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT			
	DATE - 07-01-11	REVISED -								



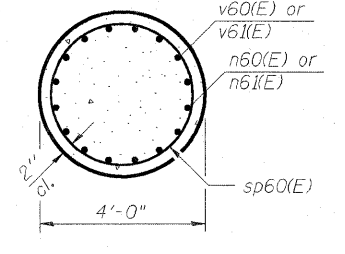
**FOOTING PLAN**



**SEC. A-A**

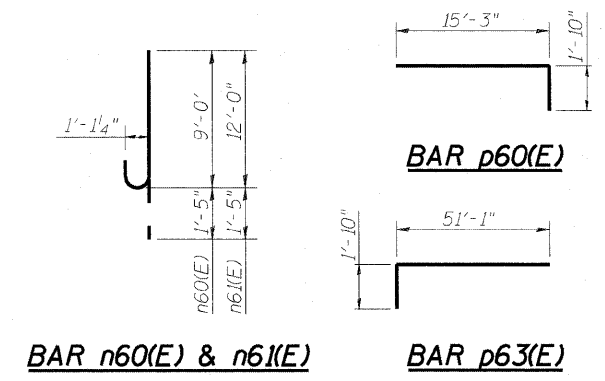


**SEC. B-B**

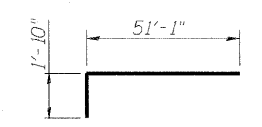


**SEC. C-C**

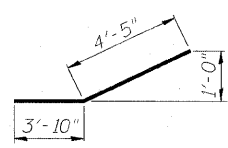
\*Alternate Splice Locations  
Min. Laps  
#7 bar: 3'-7"  
#8 bar: 4'-2"



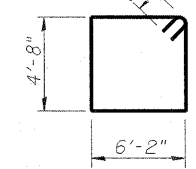
**BAR n60(E) & n61(E)**      **BAR p60(E)**



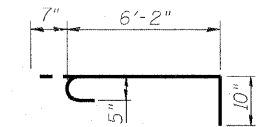
**BAR p63(E)**



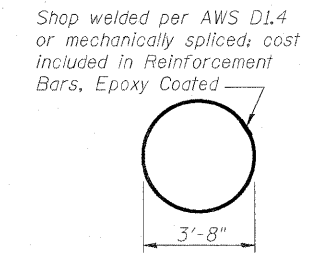
**BAR p62(E)**



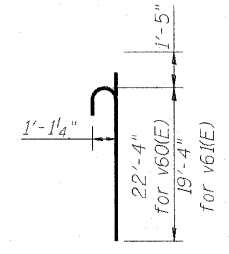
**BAR s60(E)**



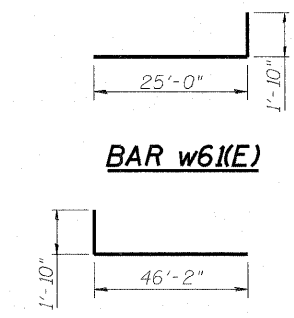
**BAR s62(E)**



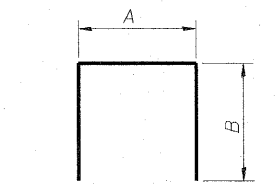
**BAR s63(E)**



**BAR v60(E) or v61(E)**

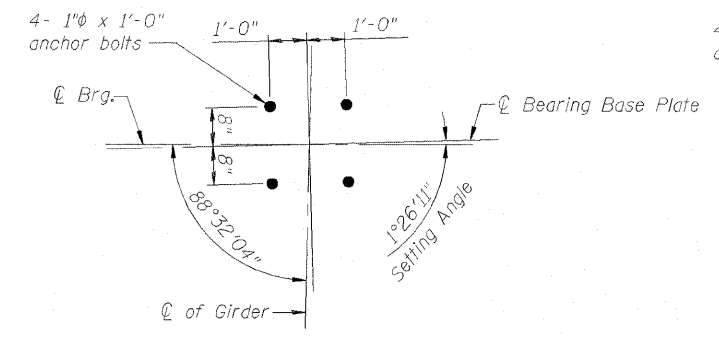


**BAR w61(E)**      **BAR w63(E)**

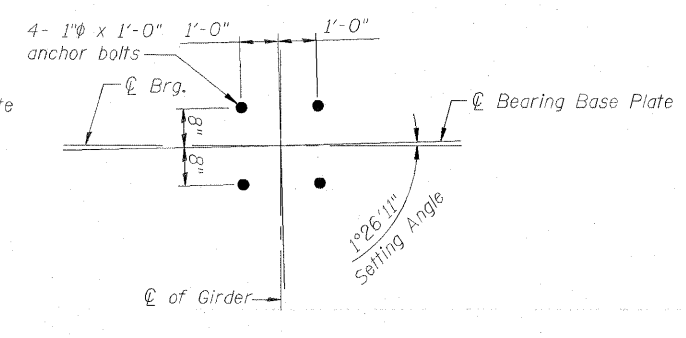


**BARS A & B DIMENSIONS**

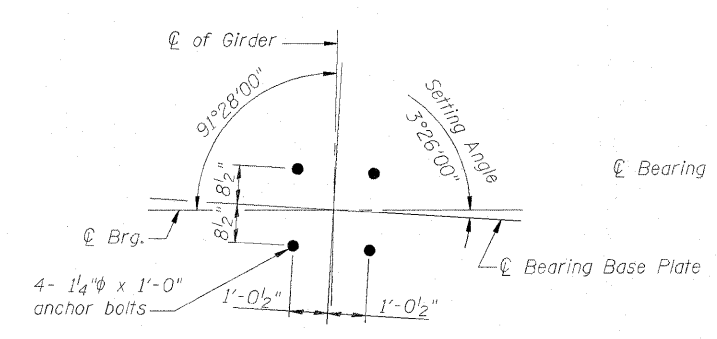
Bar	A	B
s61(E)	6'-2"	3'-8"
t61(E)	14'-8"	1'-10"
u60(E)	6'-2"	3'-0"
u61(E)	6'-1"	4'-0"



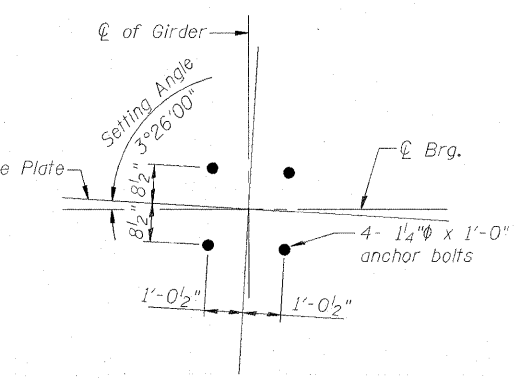
**ANCHOR BOLT LOCATION DETAIL, GIRDERS 1 - 3**  
☐ of BEARING STA. 56+84.50



**ANCHOR BOLT LOCATION DETAIL, GIRDERS 4 - 8**  
☐ of BEARING STA. 56+84.50



**ANCHOR BOLT LOCATION DETAIL, GIRDERS 1 - 4**  
☐ of BEARING STA. 56+87.50



**ANCHOR BOLT LOCATION DETAIL, GIRDERS 7 - 9 & 11**  
☐ of BEARING STA. 56+87.50



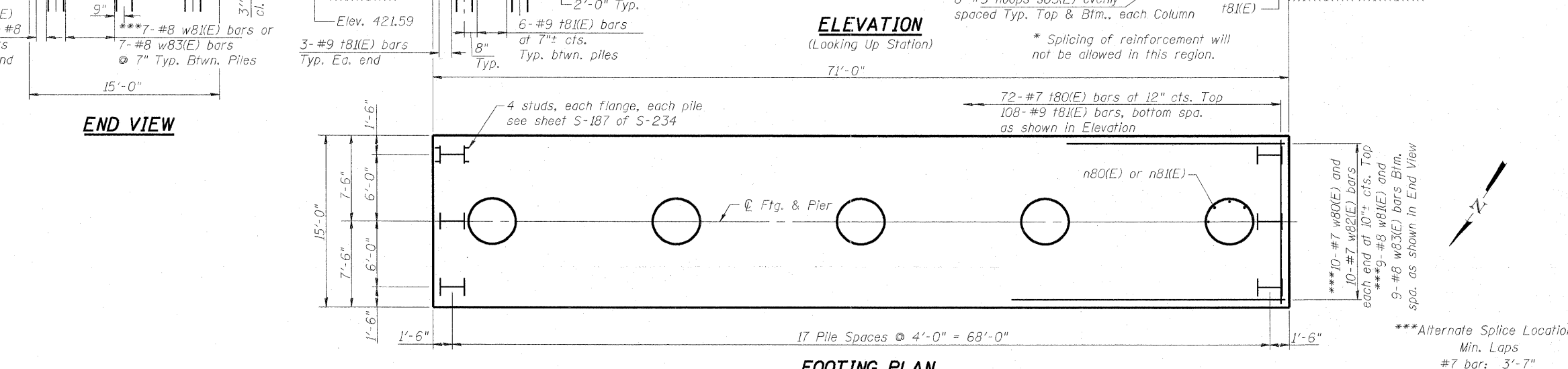
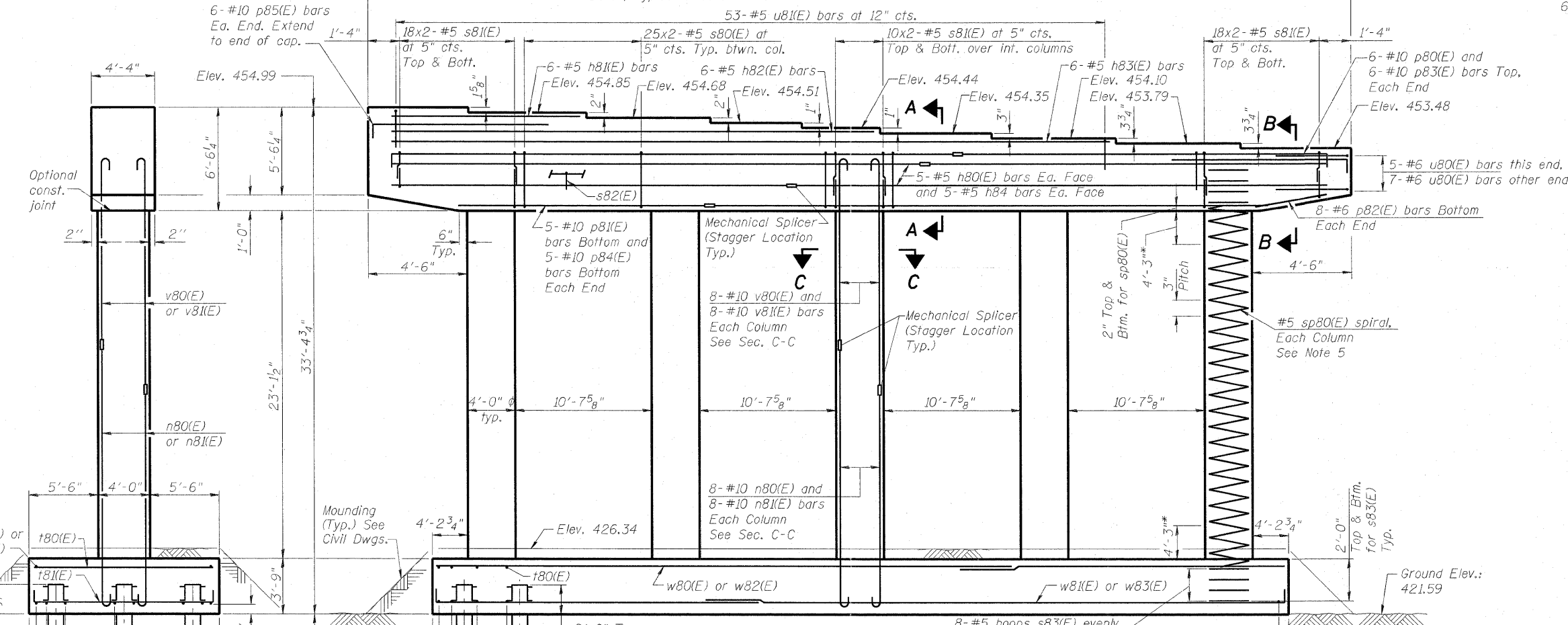
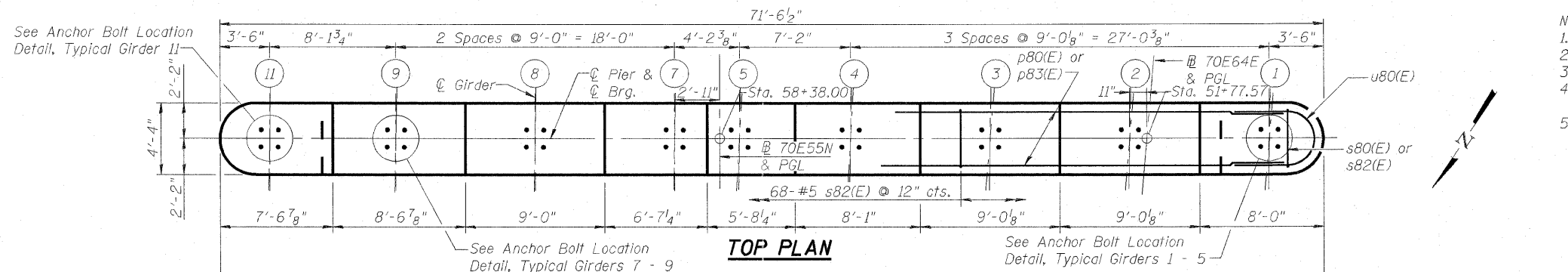
USER NAME =	DESIGNED - DDB	REVISED -
PLOT SCALE = 0.166667' / IN.	DRAWN - BRD	REVISED -
PLOT DATE = 6/30/2011	CHECKED - LLV	REVISED -
	DATE - 07-01-11	REVISED -

**STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION**

<b>PIER - UNIT 1 - PIER 3 - DETAILS</b>	
<b>I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>	
SCALE:	TO STA.
SHEET S-153 OF S-234 SHEETS	STA.

F.A.I. RTE. TO	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 280
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				





- Notes:
1. Space reinforcement in cap to miss anchor bolts.
  2. Pour steps monolithically with cap.
  3. For details of piles, see sheet S-187 of S-234.
  4. C of Pier is perpendicular to 70E55N at Sta. 58+38.00.
  5. #5 sp20(E) spiral, each column
    - 1) Provide 1/2 extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 2" into pier cap and footing. Provide 4-#4 spacers or equivalent.
    - 2) When splicing spiral reinforcement is necessary, the spirals shall be provided with 1/2 extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.
  6. Contractor shall use Mechanical Splicers in columns and pier cap that will fit between spirals and stirrups.

**PILE DATA**

Type: HP 12x63  
 Nominal Required Bearing: 400 kips  
 Factored Resistance Available: 200 kips  
 Est. Length: 97'  
 No. Production Piles: 53  
 No. Test Piles: 1

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h80(E)	10	#5	29'-8"	
h81(E)	6	#5	13'-9"	
h82(E)	6	#5	35'-1"	
h83(E)	6	#5	52'-2"	
h84(E)	10	#5	37'-6"	
n80(E)	40	#10	10'-5"	U
n81(E)	40	#10	13'-5"	U
p80(E)	12	#10	28'-0"	
p81(E)	10	#10	20'-2"	
p82(E)	16	#6	5'-9"	
p83(E)	12	#10	42'-10"	
p84(E)	10	#10	43'-4"	
p85(E)	12	#10	11'-10"	
s80(E)	200	#5	15'-7"	□
s81(E)	264	#5	10'-8"	□
s82(E)	68	#5	5'-5"	□
s83(E)	80	#5	11'-6"	□
sp80(E)	5	#5	23'-6"	W
t80(E)	72	#7	14'-8"	
t81(E)	108	#9	18'-4"	
u80(E)	12	#6	18'-2"	U
u81(E)	53	#5	11'-4"	U
v80(E)	40	#10	22'-2"	U
v81(E)	40	#10	19'-2"	U
w80(E)	20	#7	30'-2"	
w81(E)	18	#8	32'-3"	
w82(E)	20	#7	44'-5"	
w83(E)	18	#8	46'-7"	
Concrete Structures		Cu. Yd.	267.8	
Reinforcement Bars, Epoxy Coated		Pound	49,650	
Furnishing Steel Piles HP 12x63		Foot	5,141	
Driving Piles Steel HP12x63		Foot	5,141	
Test Piles Steel HP12x63		Foot	1	
Mechanical Splicers		Each	112	



USER NAME =  
 DESIGNED - DDB  
 DRAWN - BRD  
 CHECKED - LLV  
 DATE - 07-01-11

REVISIONS:  
 REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

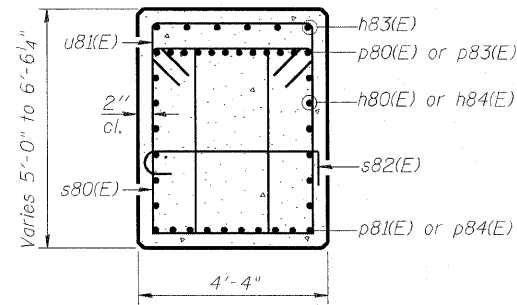
PIER - UNIT 2 - PIER 4 - PLANS & ELEVATIONS  
 I-70E OVER I-55, CSX & KCS RAILROADS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TO	82-1-B-2	ST. CLAIR	399	281
S.N. 082-0322 & S.N. 082-0324				CONTRACT NO. 76C76
FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT			

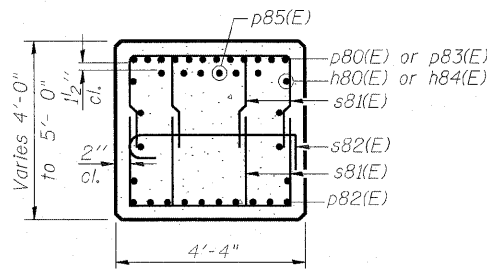
SCALE: SHEET S-154 OF S-234 SHEETS STA. TO STA.

\*\*\*Alternate Splice Locations  
 Min. Laps  
 #7 bar: 3'-7"  
 #8 bar: 4'-2"

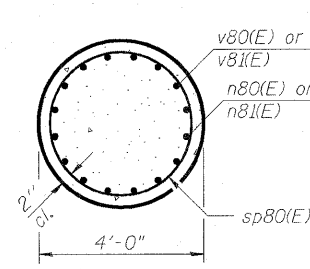
\*\* Length is height of spiral.  
 See next sheet for Bar Details and Sections.



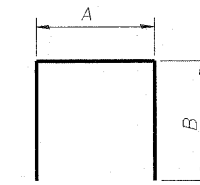
**SEC. A-A**



**SEC. B-B**



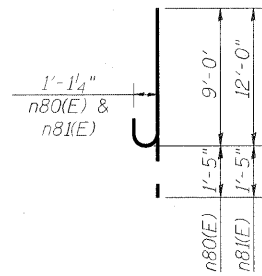
**SEC. C-C**



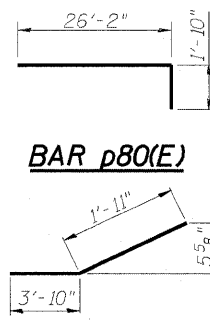
**BARS**

**A & B DIMENSIONS**

Bar	A	B
s81(E)	2'-8"	4'-0"
t81(E)	14'-8"	1'-10"
u81(E)	4'-0"	3'-10"

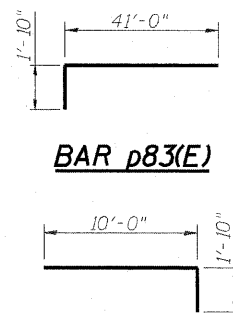


**BAR n80(E) & n81(E)**



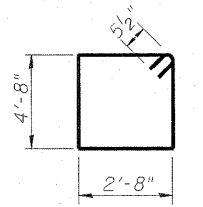
**BAR p80(E)**

**BAR p82(E)**

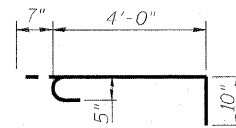


**BAR p83(E)**

**BAR p85(E)**

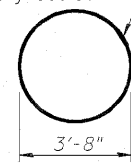


**BAR s80(E)**

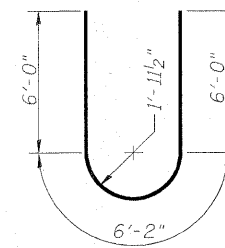


**BAR s82(E)**

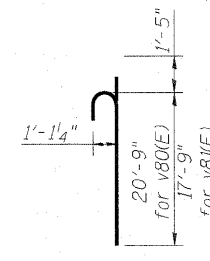
Shop welded per AWS D1.4 or mechanically spliced; cost included in Reinforcement Bars, Epoxy Coated



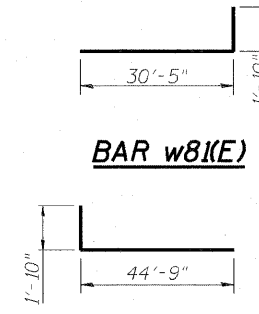
**BAR s83(E)**



**BAR u80(E)**

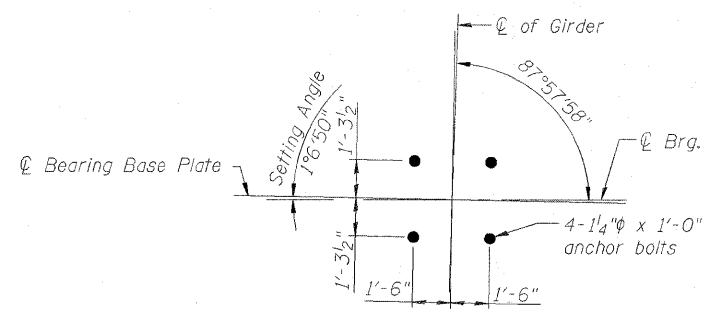


**BAR v80(E) or v81(E)**

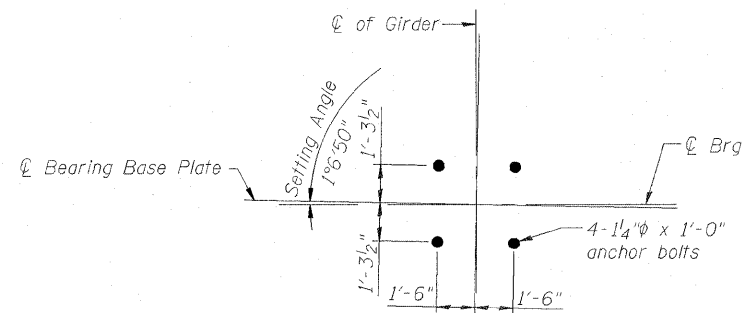


**BAR w81(E)**

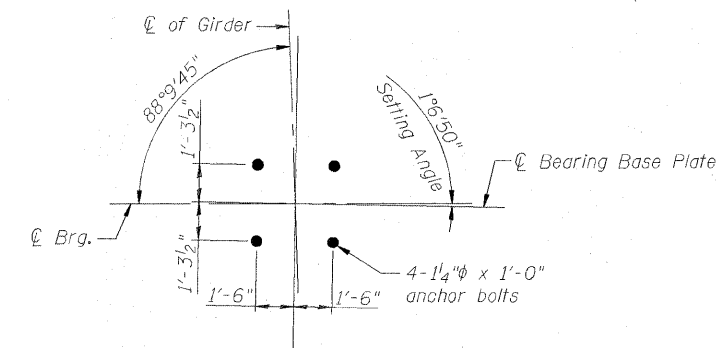
**BAR w83(E)**



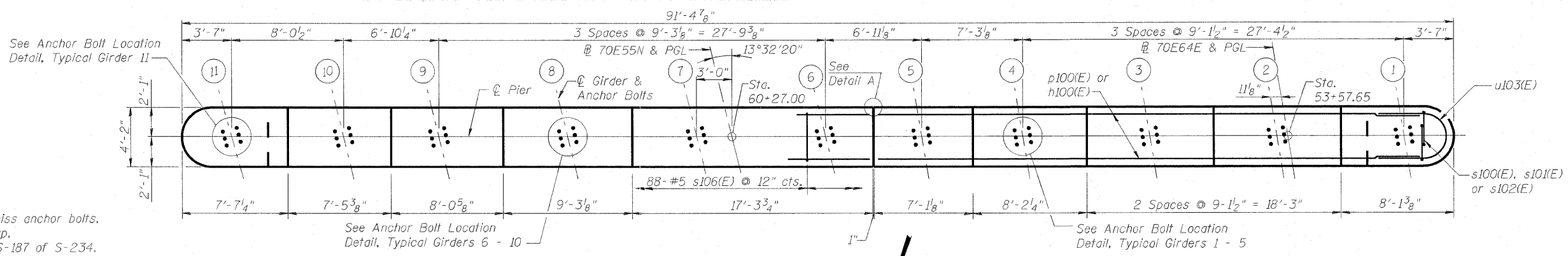
**ANCHOR BOLT LOCATION DETAIL, GIRDERS 1 - 5**



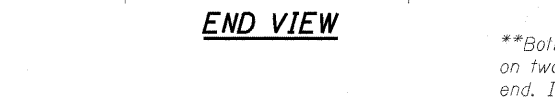
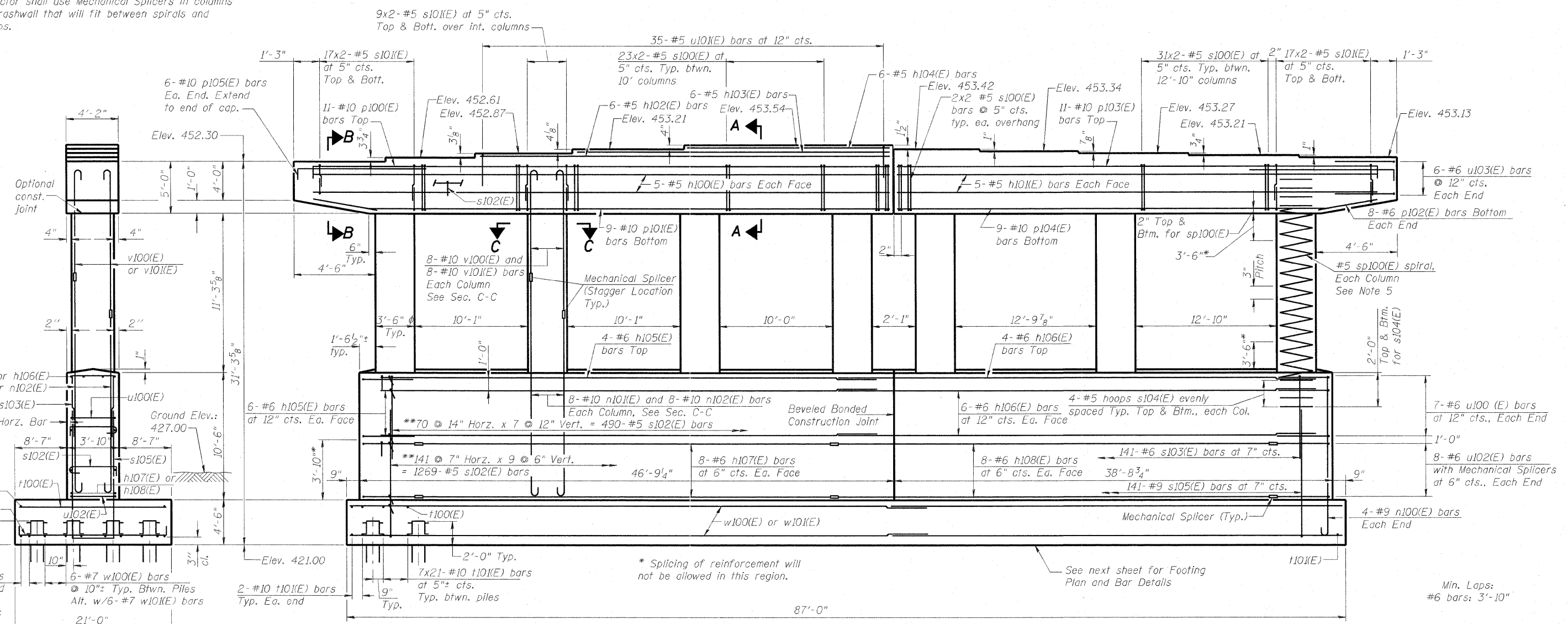
**ANCHOR BOLT LOCATION DETAIL, GIRDERS 7 - 9**



**ANCHOR BOLT LOCATION DETAIL, GIRDER II**

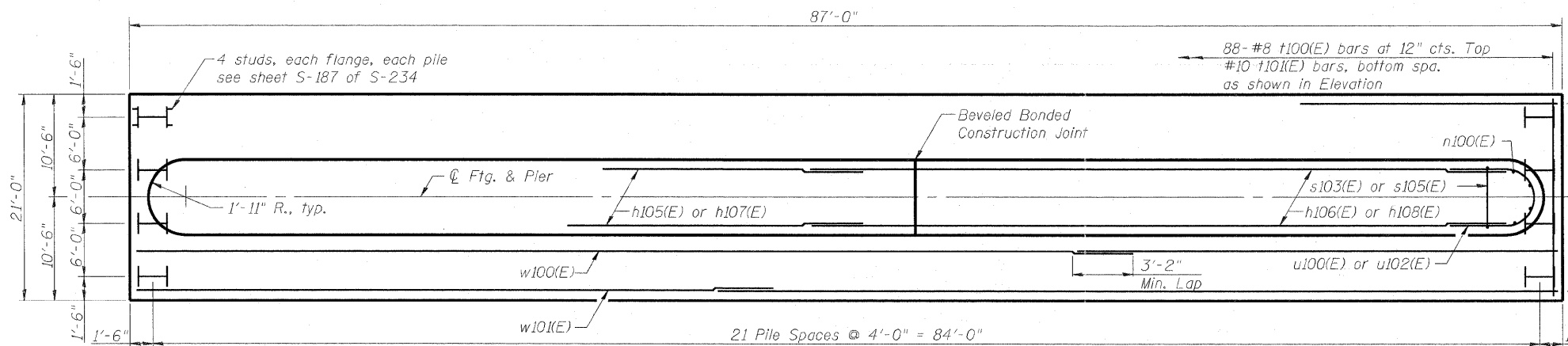


- Notes:**
1. Space reinforcement in cap to miss anchor bolts.
  2. Pour steps monolithically with cap.
  3. For details of piles, see sheet S-187 of S-234.
  4. #5 sp100(E) spiral, each column
    - 1) Provide 1/2 extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 2" into pier cap & crashwall. Provide 4-#4 spacers or equivalent.
    - 2) When splicing spiral reinforcement is necessary, the spirals shall be provided with 1/2 extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.
  5. Contractor shall use Mechanical Splicers in columns and crashwall that will fit between spirals and stirrups.



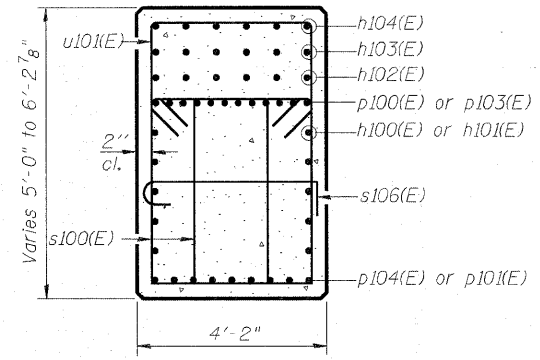
\*\*Both hooks of s102(E) bars shall engage horiz. & vert. bars and 90° hook on two successive s102(E) bars on same vert. bar shall be alternated end for end. Includes row of s102(E) bars on the top mat of pile cap.

<b>AECOM</b>	USER NAME =	DESIGNED - DDB	REVISED -	<b>STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION</b>	<b>PIER - UNIT 2 - PIER 5 - PLANS &amp; ELEVATIONS I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE = 0.166667' / IN.	CHECKED - LLV	REVISED -			TO	82-1-B-2	ST. CLAIR	399	283
	PLOT DATE = 5/30/2011	DATE - 07-01-11	REVISED -	SCALE:	SHEET S-156 OF S-234 SHEETS	STA.	TO STA.	CONTRACT NO. 76C76		



\*Alternate with 22-#7 w100(E) bars at 12" cts. Top  
#10 h10(E) bars, bottom spa. as shown in Elevation

\*22-#7 w100(E) bars at 12" cts. Top  
\*22-#7 w100(E) bars. spa. as shown in End View



**PILE DATA**

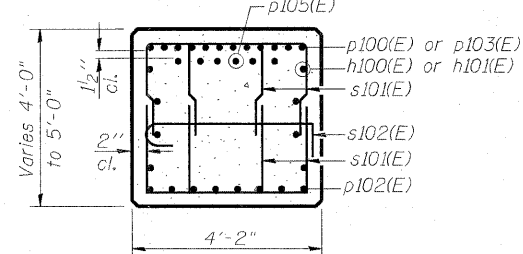
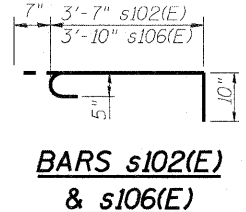
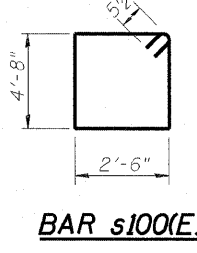
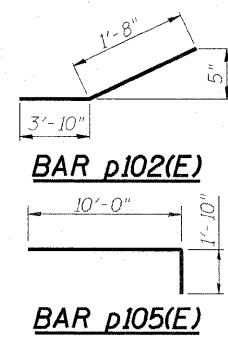
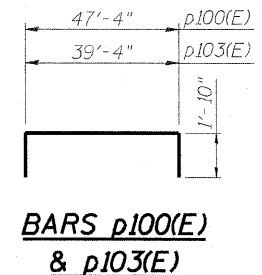
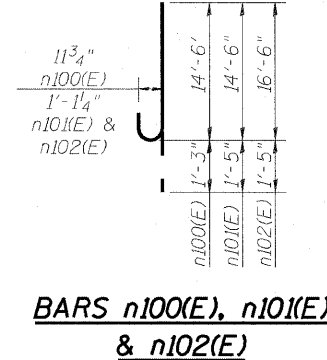
Type: HP 14x73  
Nominal Required Bearing: 500 kips  
Factored Resistance Available: 250 kips  
Est. Length: 101'  
No. Production Piles: 87  
No. Test Piles: 1

**SEC. A-A**

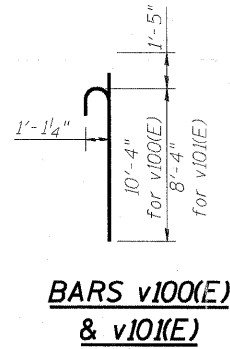
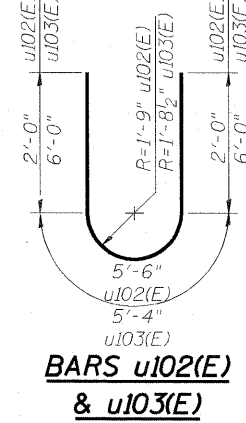
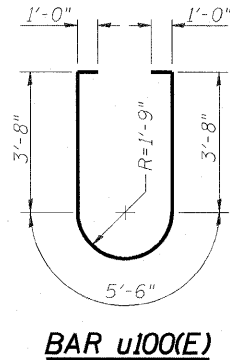
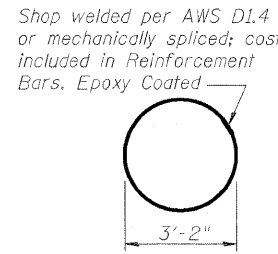
**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h100(E)	10	#5	47'-6"	
h101(E)	10	#5	39'-6"	
h102(E)	6	#5	34'-3"	
h103(E)	6	#5	26'-3"	
h104(E)	6	#5	17'-0"	
h105(E)	16	#6	44'-4"	
h106(E)	16	#6	41'-10"	
h107(E)	16	#6	37'-10"	
h108(E)	16	#6	39'-10"	
n100(E)	8	#9	15'-9"	U
n101(E)	56	#10	15'-11"	U
n102(E)	56	#10	17'-11"	U
p100(E)	11	#10	51'-0"	U
p101(E)	9	#10	45'-6"	U
p102(E)	16	#6	5'-6"	U
p103(E)	11	#10	43'-0"	U
p104(E)	9	#10	37'-6"	U
p105(E)	12	#10	11'-10"	U
s100(E)	270	#5	15'-3"	U
s101(E)	316	#5	10'-6"	U
s102(E)	1759	#5	5'-0"	U
s103(E)	141	#6	9'-4"	U
s104(E)	56	#5	9'-11"	U
s105(E)	141	#9	32'-4"	U
s106(E)	88	#5	5'-3"	U
sp100(E)	7	#5	11'-8"	U
u100(E)	14	#6	14'-10"	U
u101(E)	35	#5	11'-0"	U
u102(E)	16	#6	9'-6"	U
u103(E)	12	#6	17'-4"	U
v100(E)	56	#10	11'-9"	U
v101(E)	56	#10	9'-9"	U
w100(E)	44	#7	48'-0"	U
w101(E)	44	#7	42'-0"	U
Structure Excavation	Cu. Yd.		505.6	
Concrete Structures	Cu. Yd.		540.4	
Reinforcement Bars, Epoxy Coated	Pound		96,530	
Furnishing Steel	Foot		8,787	
Piles HP 14x73	Foot		8,787	
Driving Piles	Foot		8,787	
Test Pile Steel HP14x73	Each		1	
Mechanical Splicers	Each		160	

**FOOTING PLAN**

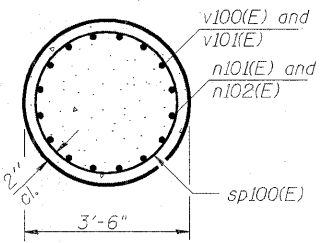


**SEC. B-B**

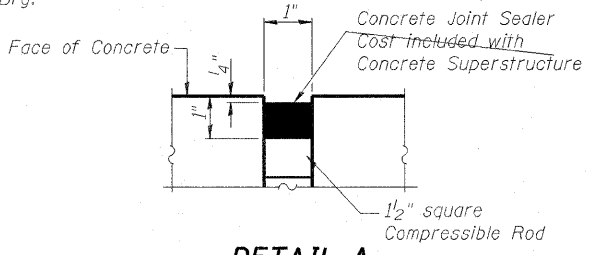
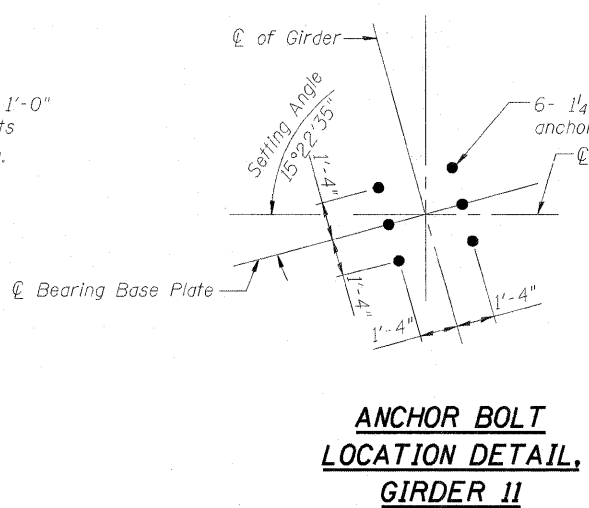
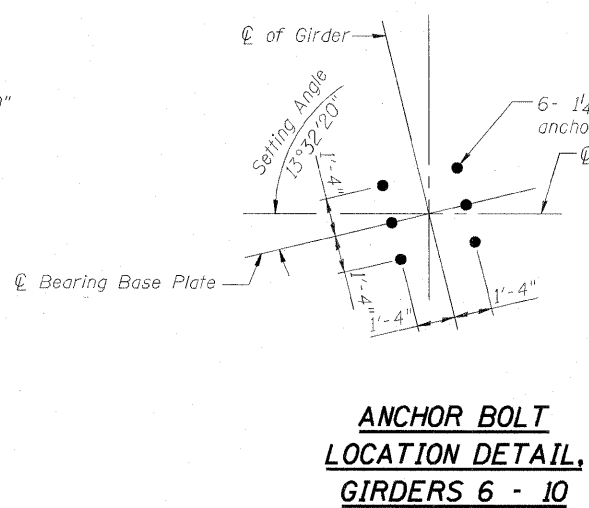
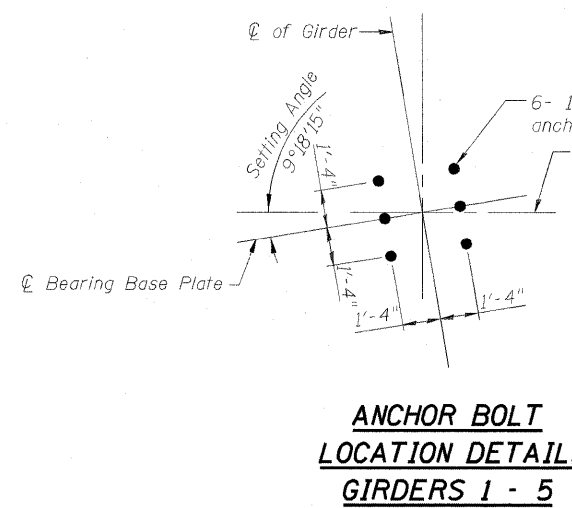


**BARS A & B DIMENSIONS**

Bar	A	B
s101(E)	2'-6"	4'-0"
s103(E)	3'-4"	3'-0"
s105(E)	3'-4"	14'-6"
h101(E)	20'-8"	1'-10"
u101(E)	3'-6"	3'-9"



**SEC. C-C**



**DETAIL A**

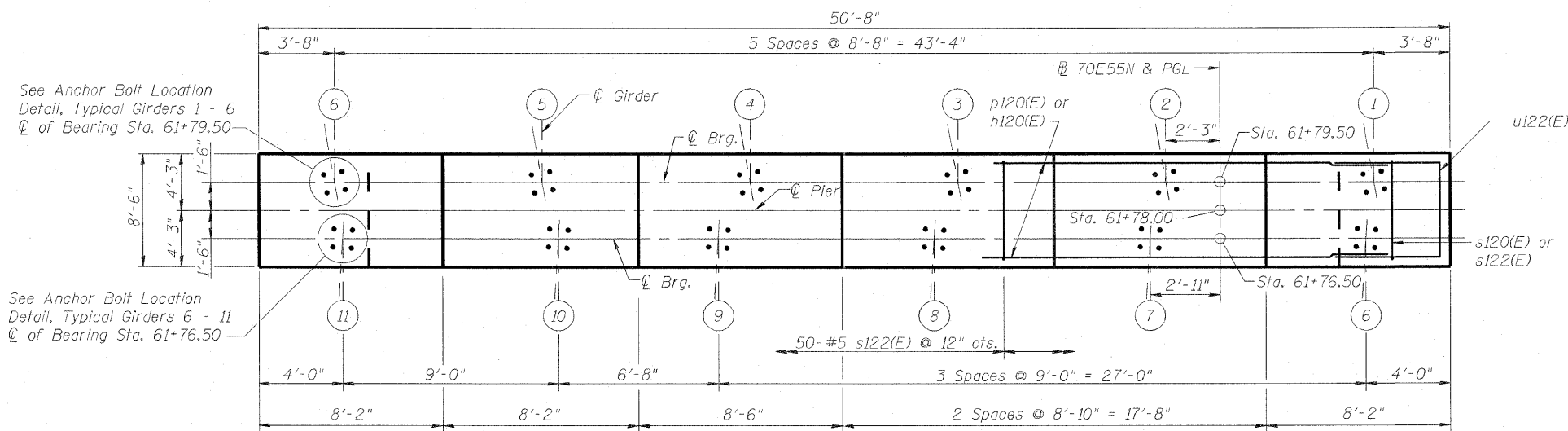


USER NAME =	DESIGNED - DDB	REVISED -
PLOT SCALE = 0.166667' / IN.	DRAWN - BRD	REVISED -
PLOT DATE = 6/30/2011	CHECKED - LLV	REVISED -
	DATE - 07-01-11	REVISED -

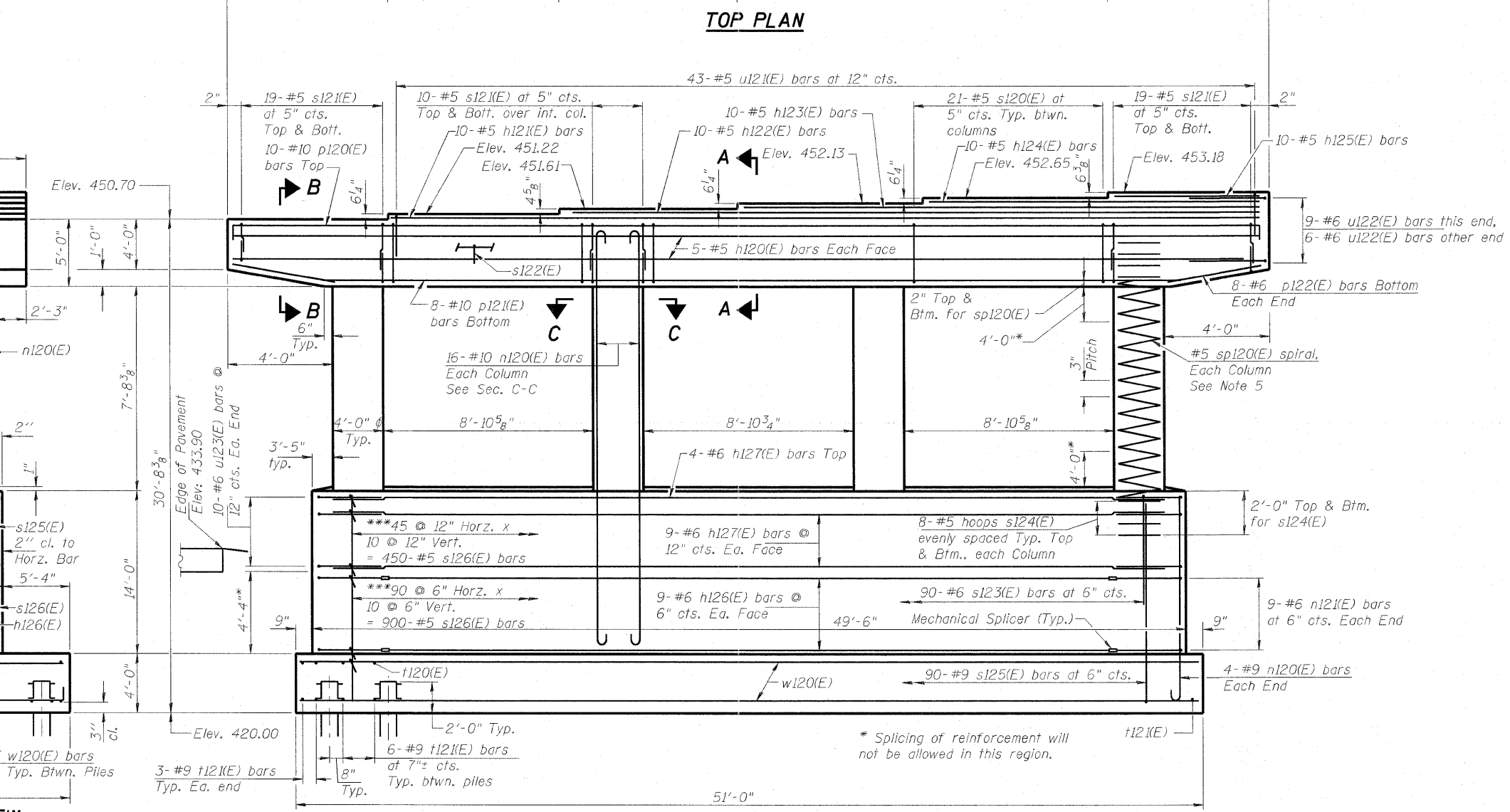
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PIER - UNIT 2 - PIER 5 - DETAILS  
I-70E OVER I-55, CSX & KCS RAILROADS  
SCALE: SHEET S-157 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TO	82-1-B-2	ST. CLAIR	399	284
S.N. 082-0322 & S.N. 082-0324	CONTRACT NO. 76C76			
FED. ROAD DIST. NO.	ILLINOIS FED. AID PROJECT			



- Notes:
1. Space reinforcement in cap to miss anchor bolts.
  2. Pour steps monolithically with cap.
  3. For details of piles, see S-187 of S-234.
  4. C of Pier is radial to 70E55N at Sta. 61+78.00.
  5. #5 sp120(E) spiral, each column
    - 1) Provide 1/2 extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 2" into pier cap & crashwall. Provide 4-#4 spacers or equivalent.
    - 2) When splicing spiral reinforcement is necessary, the spirals shall be provided with 1/2 extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.
  6. Contractor shall use Mechanical Splicers in columns that will fit between spirals.



**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h120(E)	10	#5	50'-4"	
h121(E)	10	#5	42'-2"	
h122(E)	10	#5	34'-0"	
h123(E)	10	#5	25'-6"	
h124(E)	10	#5	16'-8"	
h125(E)	10	#5	7'-10"	
h126(E)	18	#6	33'-2"	
h127(E)	22	#6	45'-2"	
n120(E)	64	#10	27'-7"	U
n121(E)	8	#9	18'-9"	U
p120(E)	10	#10	54'-0"	U
p121(E)	8	#10	43'-8"	U
p122(E)	16	#6	7'-4"	U
s120(E)	63	#5	26'-7"	□
s121(E)	116	#5	15'-6"	□
s122(E)	50	#5	9'-7"	□
s123(E)	90	#6	8'-4"	□
s124(E)	64	#5	11'-6"	□
s125(E)	90	#9	38'-10"	□
s126(E)	1350	#5	5'-6"	□
sp120(E)	4	#5	8'-1"	W
t120(E)	60	#7	14'-8"	U
t121(E)	78	#9	18'-4"	U
u120(E)	18	#6	18'-3"	U
u121(E)	43	#5	17'-2"	U
u122(E)	15	#6	14'-1"	U
u123(E)	20	#6	15'-7"	U
w120(E)	32	#7	50'-8"	—
Structure Excavation		Cu. Yd.	270.9	
Concrete Structures		Cu. Yd.	335.2	
Reinforcement Bars, Epoxy Coated		Pound	55,680	
Furnishing Steel Piles HP 12x63		Foot	3,686	
Driving Piles		Foot	3,686	
Test Pile Steel HP12x63		Each	1	
Mechanical Splicers		Each	36	
Concrete Sailer		Sq. Ft.	3,597	

**PILE DATA**

Type: HP 12x63  
 Nominal Required Bearing: 400 kips  
 Factored Resistance Available: 200 kips  
 Est. Length: 97'  
 No. Production Piles: 38  
 No. Test Piles: 1

**END VIEW**

**ELEVATION**  
(Looking Up Station)

\*\*\*Both hooks of s126(E) bars shall engage horiz. & vert. bars and 90° hook on two successive s126(E) bars on same vert. bar shall be alternated end for end. Includes row of s126(E) bars on the top mat of pile cap.



USER NAME =  
 PLOT SCALE = 0.166667" / IN.  
 PLOT DATE = 8/15/2011

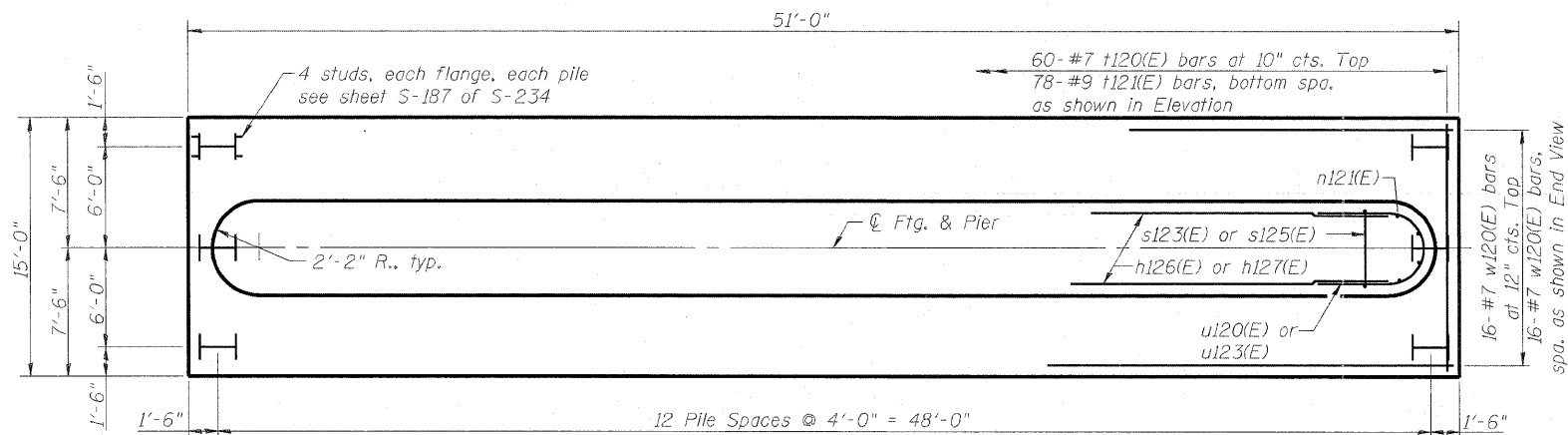
DESIGNED - DDB	REVISED -
DRAWN - BRD	REVISED -
CHECKED - LLV	REVISED -
DATE - 08-12-11	REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

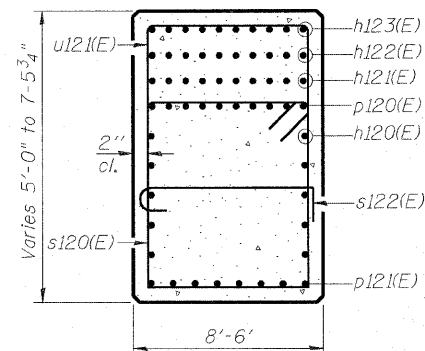
PIER - UNIT 2 - PIER 6 - PLANS & ELEVATIONS  
 I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: SHEET S-158 OF S-234 SHEETS STA. TO STA.

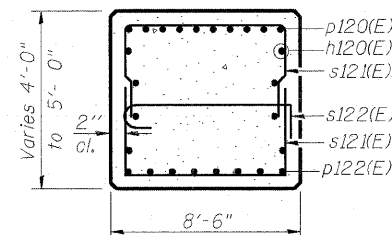
F.A.I. RTE. TO	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 285
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		



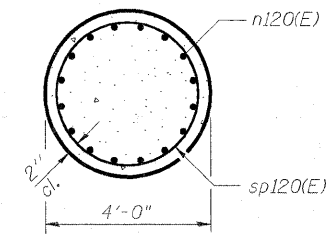
**FOOTING PLAN**



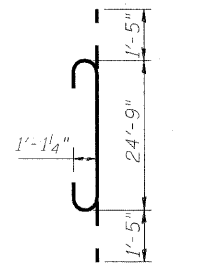
**SEC. A-A**



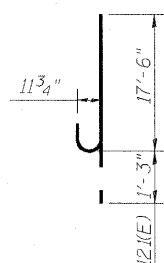
**SEC. B-B**



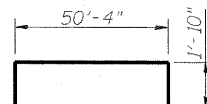
**SEC. C-C**



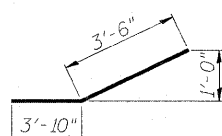
**BAR n120(E)**



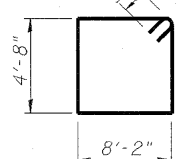
**BAR n12(E)**



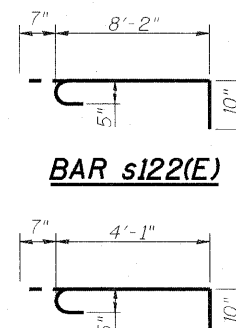
**BAR p120(E)**



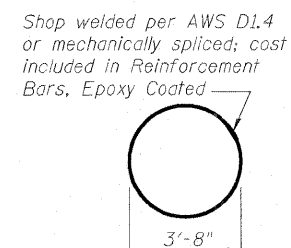
**BAR p122(E)**



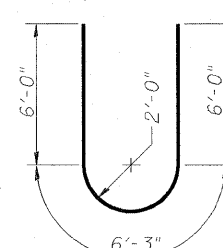
**BAR s120(E)**



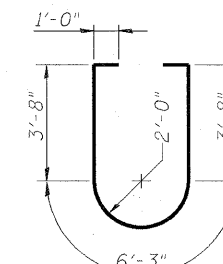
**BAR s126(E)**



**BAR s124(E)**

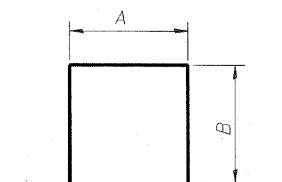


**BAR u120(E)**



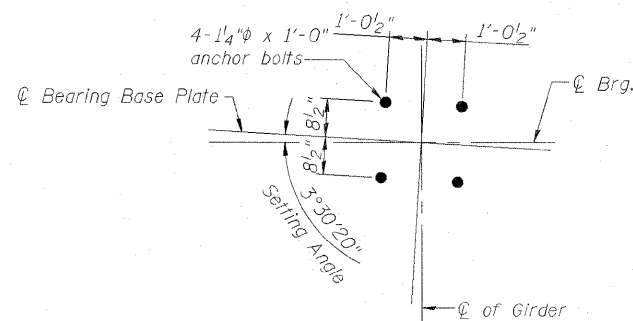
**BAR u123(E)**

Shop welded per AWS D1.4 or mechanically spliced; cost included in Reinforcement Bars, Epoxy Coated

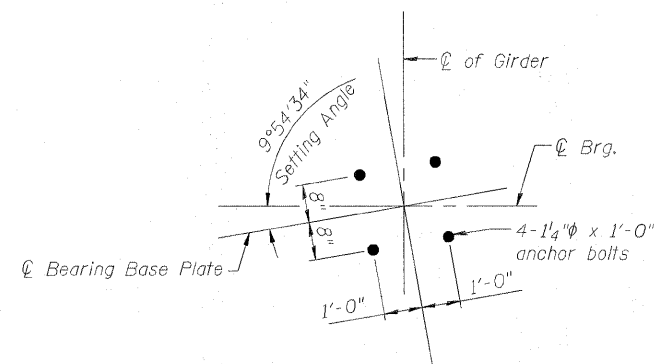


**BARS A & B DIMENSIONS**

Bar	A	B
s121(E)	8'-2"	3'-8"
s123(E)	3'-10"	2'-3"
s125(E)	3'-10"	17'-6"
t121(E)	14'-8"	1'-10"
u121(E)	8'-2"	4'-6"
u122(E)	8'-1"	3'-0"



**ANCHOR BOLT LOCATION DETAIL, GIRDERS 6 - 11**  
 C of BEARING STA. 61+76.50



**ANCHOR BOLT LOCATION DETAIL, GIRDERS 1 - 6**  
 C of BEARING STA. 61+79.50



USER NAME =  
 PLOT SCALE = 0.168667' / IN.  
 PLOT DATE = 8/15/2011

DESIGNED - DDB  
 DRAWN - BRD  
 CHECKED - LLV  
 DATE - 08-12-11

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

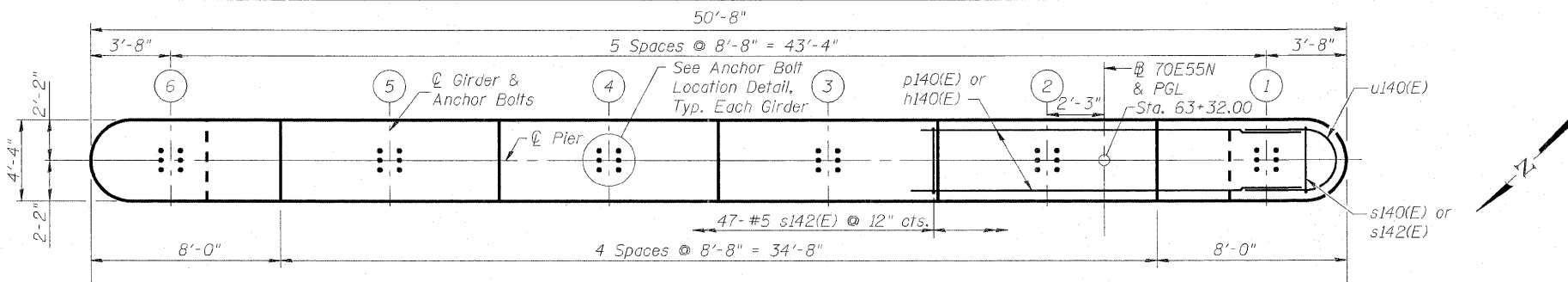
PIER - UNIT 2 - PIER 6 - DETAILS  
 I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: SHEET S-159 OF S-234 SHEETS STA. TO STA.

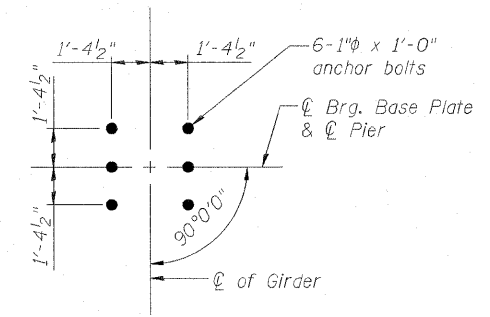
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TO	82-1-B-2	ST. CLAIR	399	286
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

**Notes:**

1. Space reinforcement in cap to miss anchor bolts.
2. Pour steps monolithically with cap.
3. For details of piles, see S-187 of S-234.
4.  $\phi$  of Pier is radial to  $\phi$  70E55N at Sta. 63+32.00.
5. #5 sp140(E) spiral, each column
  - 1) Provide 1/2 extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 2" into pier cap & crashwall. Provide 4-#4 spacers or equivalent.
  - 2) When splicing spiral reinforcement is necessary, the spirals shall be provided with 1/2 extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.
6. Contractor shall use Mechanical Splicers in columns that will fit between spirals.



**TOP PLAN**



**ANCHOR BOLT LOCATION DETAIL**

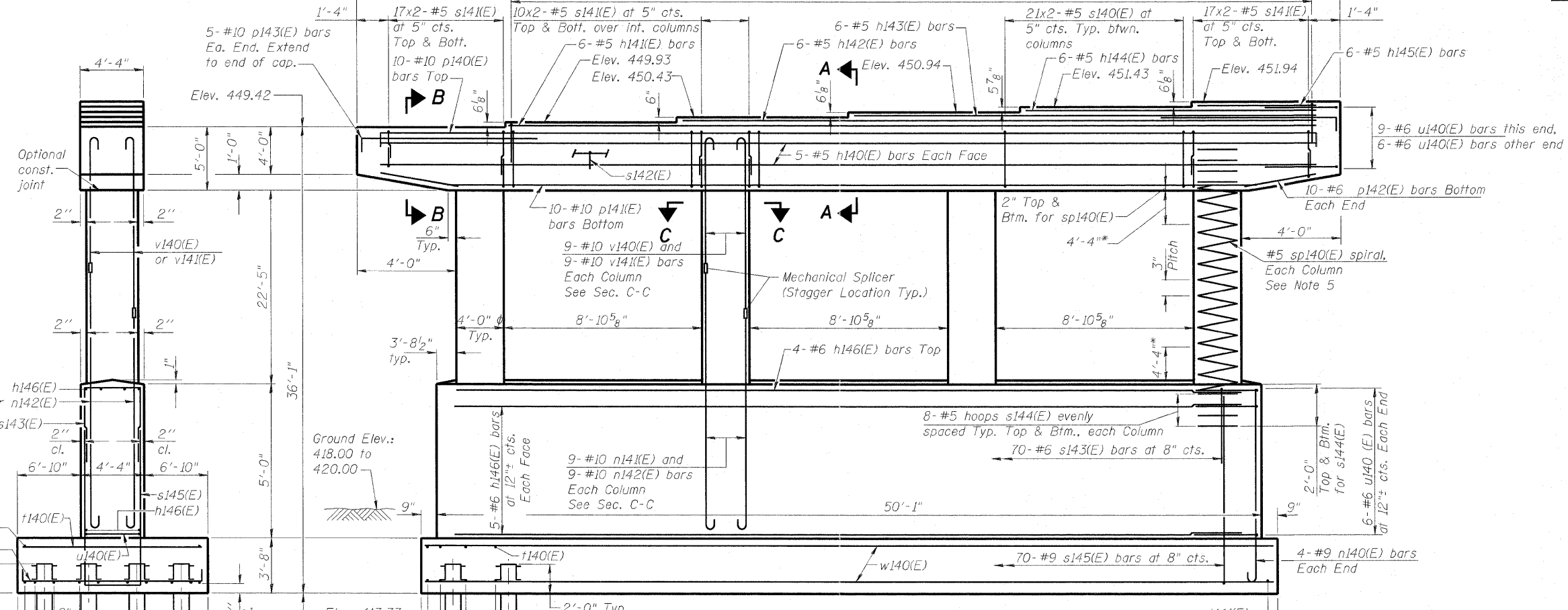
**PILE DATA**

Type: HP 12x63  
 Nominal Required Bearing: 400 kips  
 Factored Resistance Available: 200 kips  
 Est. Length: 107'  
 No. Production Piles: 48  
 No. Test Piles: 0

**BILL OF MATERIAL**

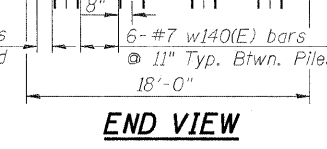
Bar	No.	Size	Length	Shape
h140(E)	10	#5	46'-4"	—
h141(E)	6	#5	40'-4"	—
h142(E)	6	#5	31'-8"	—
h143(E)	6	#5	23'-0"	—
h144(E)	6	#5	14'-4"	—
h145(E)	6	#5	5'-8"	—
h146(E)	14	#6	45'-9"	—
n140(E)	8	#9	9'-5"	—
n141(E)	36	#10	11'-5"	—
n142(E)	36	#10	13'-5"	—
p140(E)	10	#10	50'-0"	—
p141(E)	10	#10	43'-8"	—
p142(E)	20	#6	5'-3"	—
p143(E)	10	#10	11'-10"	—
s140(E)	126	#5	15'-7"	—
s141(E)	216	#5	10'-8"	—
s142(E)	47	#5	5'-5"	—
s143(E)	70	#6	8'-6"	—
s144(E)	64	#5	11'-6"	—
s145(E)	70	#9	20'-4"	—
sp140(E)	4	#5	22'-11"	—
t140(E)	63	#7	17'-8"	—
t141(E)	70	#10	21'-4"	—
u140(E)	27	#6	18'-2"	—
u141(E)	42	#5	13'-0"	—
v140(E)	36	#10	23'-8"	—
v141(E)	36	#10	19'-8"	—
w140(E)	41	#7	51'-3"	—
Structure Excavation		Cu. Yd.	256.8	
Concrete Structures		Cu. Yd.	257.2	
Reinforcement Bars, Epoxy Coated		Pound	47,690	
Furnishing Steel Piles, HP 12x63		Foot	5,136	
Driving Piles		Foot	5,136	
Pile Shoes		Each	48	
Mechanical Splicers		Each	72	

\*\* Length is height of spiral.  
 See next sheet for Bar Details and Sections.

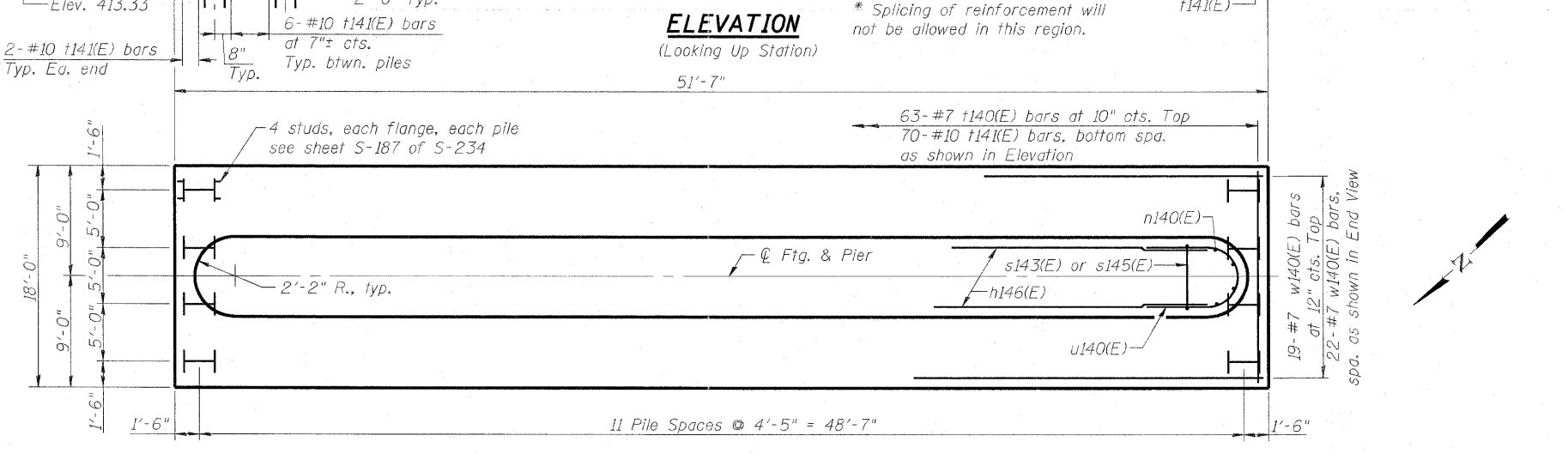


**ELEVATION**  
(Looking Up Station)

\* Splicing of reinforcement will not be allowed in this region.



**END VIEW**



**FOOTING PLAN**



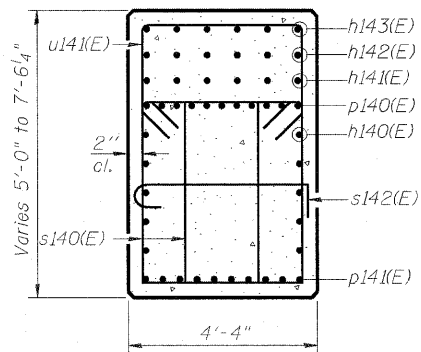
USER NAME =  
 PLOT SCALE = 8/166667" / IN.  
 PLOT DATE = 6/30/2011

DESIGNED - DDB	REVISED -
DRAWN - BRD	REVISED -
CHECKED - LLV	REVISED -
DATE - 07-01-11	REVISED -

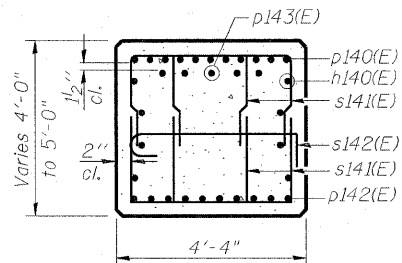
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

PIER - UNIT 3 - PIER 7 - PLANS & ELEVATIONS  
 I-70E OVER I-55, CSX & KCS RAILROADS  
 SCALE: SHEET S-160 OF S-234 SHEETS STA. TO STA.

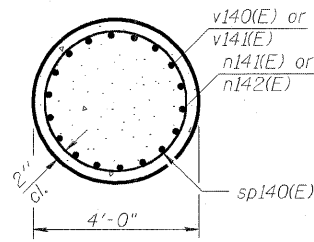
F.A.I. RTE. 70	SECTION 82-1-B-2	COUNTY ST. CLAIR	TOTAL SHEETS 399	SHEET NO. 287
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		



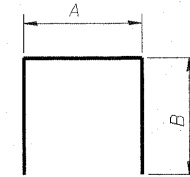
**SEC. A-A**



**SEC. B-B**



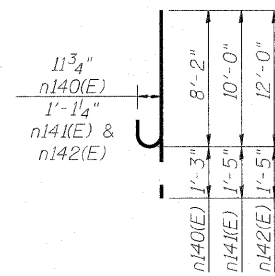
**SEC. C-C**



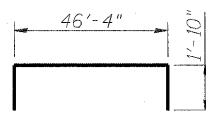
**BARS**

**A & B DIMENSIONS**

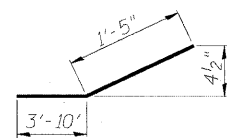
Bar	A	B
s141(E)	2'-8"	4'-0"
s143(E)	4'-0"	2'-3"
s145(E)	4'-0"	8'-2"
n141(E)	17'-8"	1'-10"
u141(E)	4'-0"	4'-6"



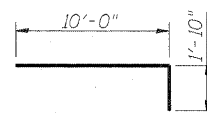
**BAR n140(E), n141(E)  
& n142(E)**



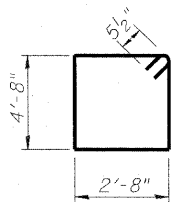
**BAR p140(E)**



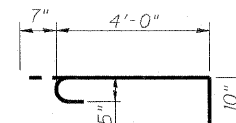
**BAR p142(E)**



**BAR p143(E)**

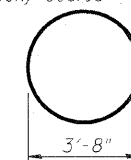


**BAR s140(E)**

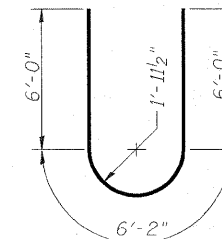


**BAR s142(E)**

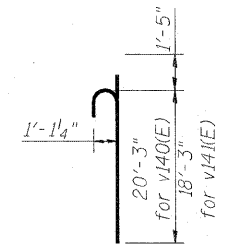
Shop welded per AWS D1.4  
or mechanically spliced; cost  
included in Reinforcement  
Bars, Epoxy Coated



**BAR s144(E)**



**BAR u140(E)**



**BAR v140(E)  
or v141(E)**



USER NAME =  
DESIGNED - DDB  
DRAWN - BRD  
CHECKED - LLLV  
DATE - 07-01-11

DESIGNED - DDB  
DRAWN - BRD  
CHECKED - LLLV  
DATE - 07-01-11

REVISED -  
REVISED -  
REVISED -  
REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

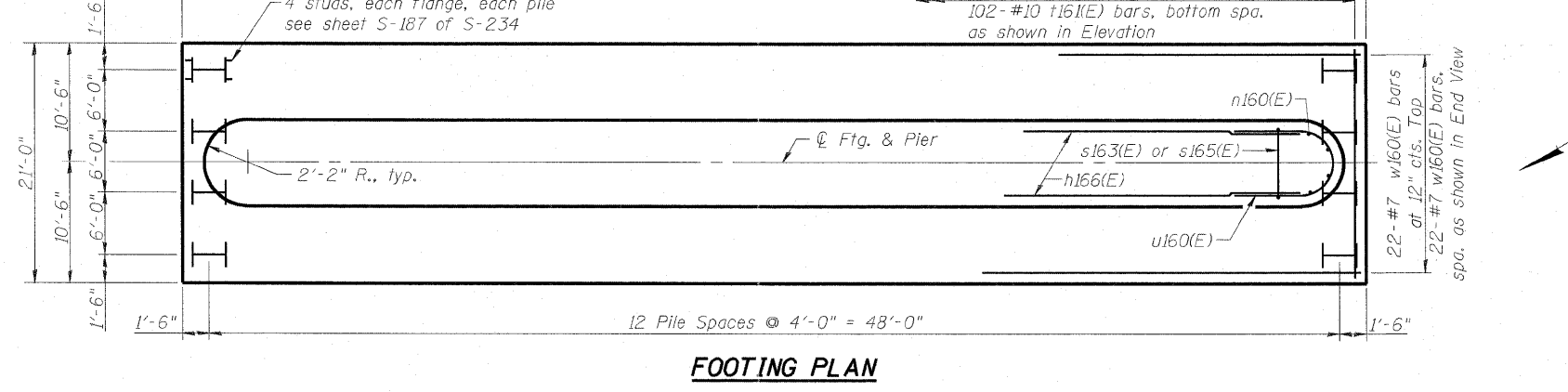
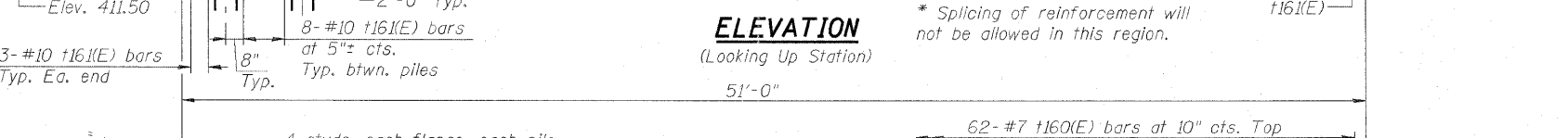
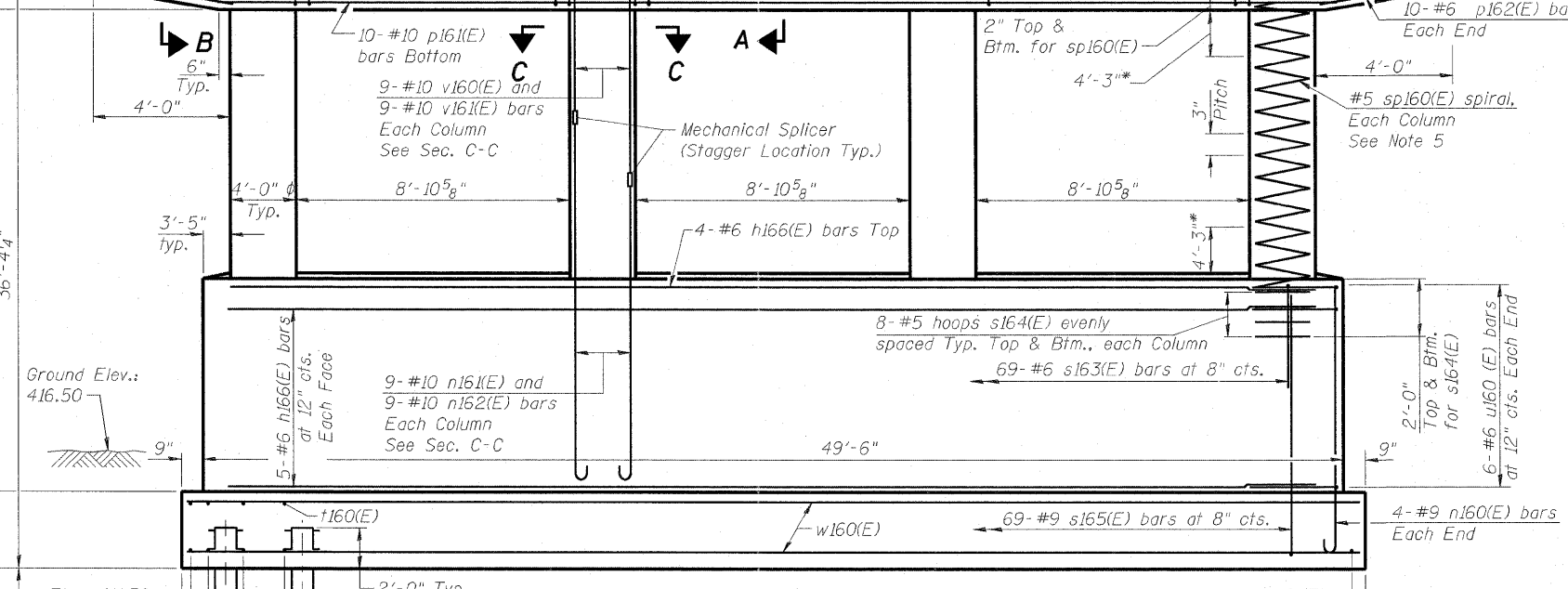
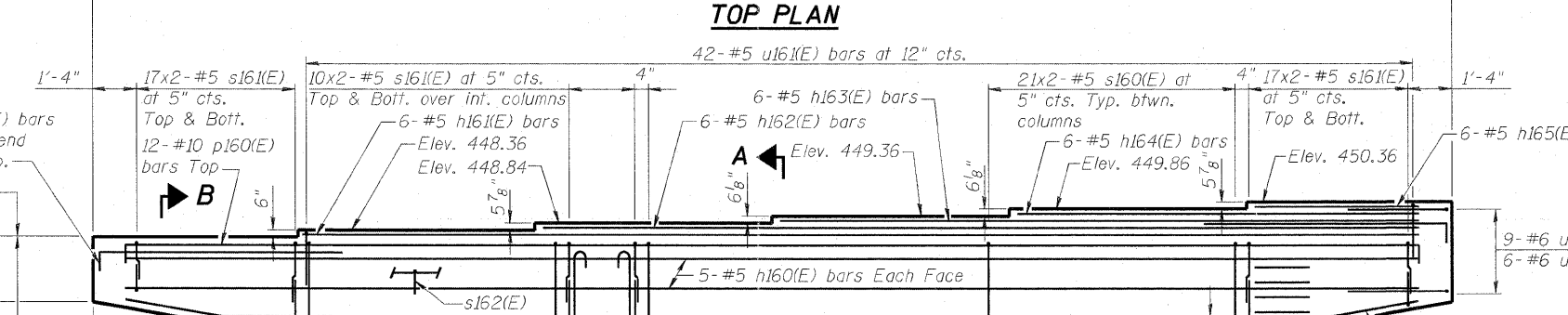
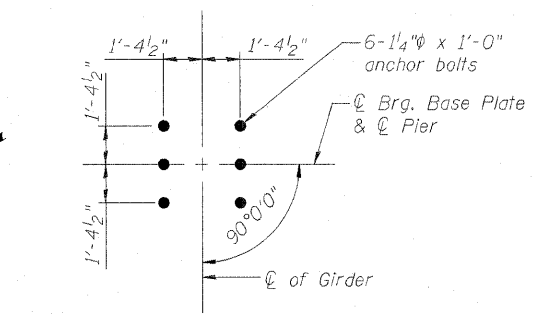
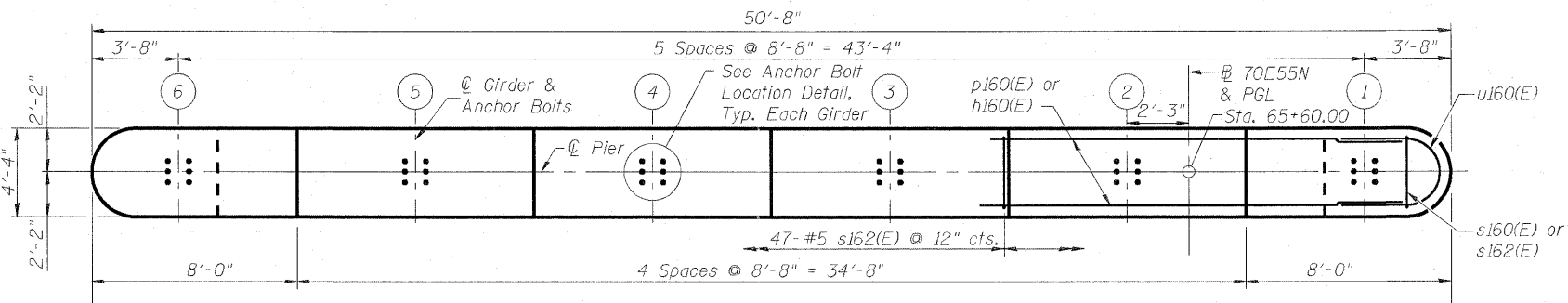
PIER - UNIT 3 - PIER 7 - DETAILS  
I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: SHEET S-161 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TO	82-1-B-2	ST. CLAIR	399	288
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				



- Notes:
1. Space reinforcement in cap to miss anchor bolts.
  2. Pour steps monolithically with cap.
  3. For details of piles, see sheet S-187 of S-234.
  4. C of Pier is radial to 70E55N at Sta. 65+60.00.
  5. #5 sp160(E) spiral, each column
  6. Contractor shall use Mechanical Splicers in columns that will fit between spirals.



**ANCHOR BOLT LOCATION DETAIL**

**PILE DATA**

Type: HP 12x63  
 Nominal Required Bearing: 400 kips  
 Factored Resistance Available: 200 kips  
 Est. Length: 106'  
 No. Production Piles: 52  
 No. Test Piles: 0

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h160(E)	10	#5	46'-4"	—
h161(E)	6	#5	40'-4"	—
h162(E)	6	#5	31'-8"	—
h163(E)	6	#5	23'-0"	—
h164(E)	6	#5	14'-4"	—
h165(E)	6	#5	5'-8"	—
h166(E)	14	#6	45'-2"	—
n160(E)	8	#9	9'-9"	U
n161(E)	36	#10	11'-5"	U
n162(E)	36	#10	13'-5"	U
p160(E)	12	#10	50'-0"	L
p161(E)	10	#10	43'-8"	L
p162(E)	20	#6	5'-3"	L
p163(E)	12	#10	11'-10"	L
s160(E)	126	#5	15'-7"	□
s161(E)	216	#5	10'-8"	□
s162(E)	47	#5	5'-5"	□
s163(E)	69	#6	8'-6"	□
s164(E)	64	#5	11'-6"	□
s165(E)	69	#9	21'-0"	□
sp160(E)	4	#5	22'-10"	W
t160(E)	62	#7	20'-8"	—
t161(E)	102	#10	24'-4"	—
u160(E)	27	#6	18'-2"	U
u161(E)	42	#5	13'-0"	U
v160(E)	36	#10	21'-7"	U
v161(E)	36	#10	19'-7"	U
w160(E)	44	#7	50'-8"	—
Structure Excavation		Cu. Yd.	254.6	
Concrete Structures		Cu. Yd.	289.0	
Reinforcement Bars, Epoxy Coated		Pound	52,800	
Furnishing Steel		Foot	5,512	
Piles, HP 12x63		Foot	5,512	
Driving Piles		Foot	5,512	
Pile Shoes		Each	52	
Mechanical Splicers		Each	72	

\*\* Length is height of spiral.  
See next sheet for Bar Details and Sections.

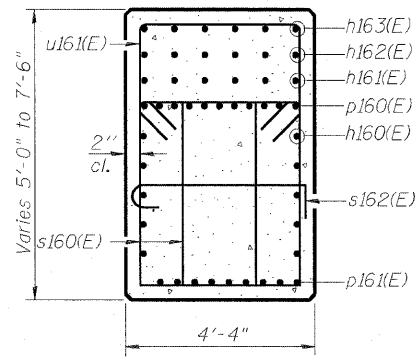


USER NAME =	DESIGNED - DDB	REVISED -
PLOT SCALE = 0.166667' / IN.	DRAWN - BRD	REVISED -
PLOT DATE = 6/30/2011	CHECKED - LLV	REVISED -
	DATE - 07-01-11	REVISED -

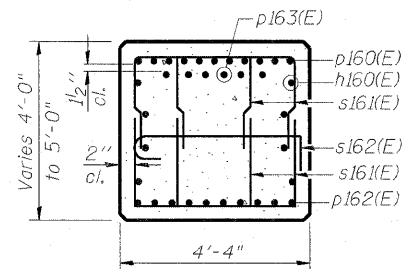
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**PIER - UNIT 3 - PIER 8 - PLANS & ELEVATIONS  
I-70E OVER I-55, CSX & KCS RAILROADS**

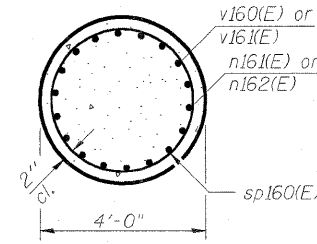
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	289
S.N. 082-0322 & S.N. 082-0324	CONTRACT NO. 76C76			
FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT				



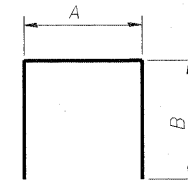
**SEC. A-A**



**SEC. B-B**



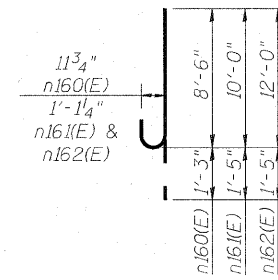
**SEC. C-C**



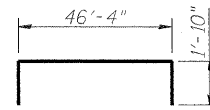
**BARS**

**A & B DIMENSIONS**

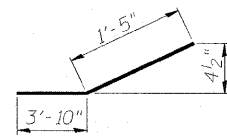
Bar	A	B
s161(E)	2'-8"	4'-0"
s163(E)	4'-0"	2'-3"
s165(E)	4'-0"	8'-6"
t161(E)	20'-8"	1'-10"
u161(E)	4'-0"	4'-6"



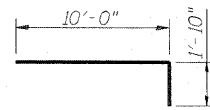
**BAR n160(E), n161(E) & n162(E)**



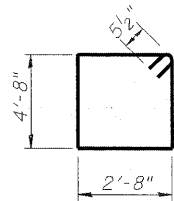
**BAR p160(E)**



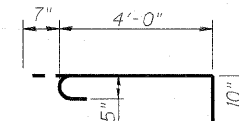
**BAR p162(E)**



**BAR p163(E)**

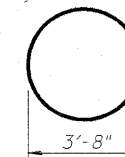


**BAR s160(E)**

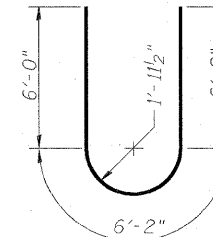


**BAR s162(E)**

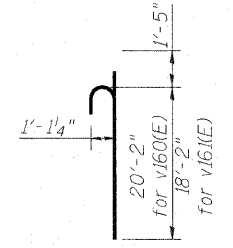
Shop welded per AWS D1.4 or mechanically spliced; cost included in Reinforcement Bars, Epoxy Coated



**BAR s164(E)**



**BAR u160(E)**



**BAR v160(E) or v161(E)**



USER NAME =  
 PLOT SCALE = 8/166667" / IN.  
 PLOT DATE = 6/30/2011

DESIGNED - DDB  
 DRAWN - BRD  
 CHECKED - LLV  
 DATE - 07-01-11

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

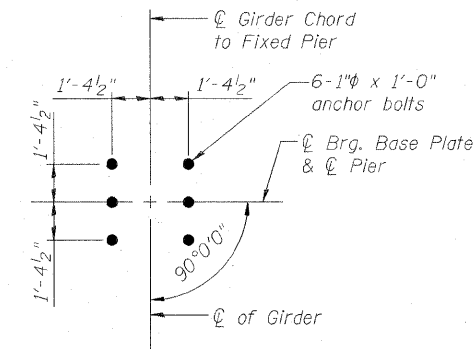
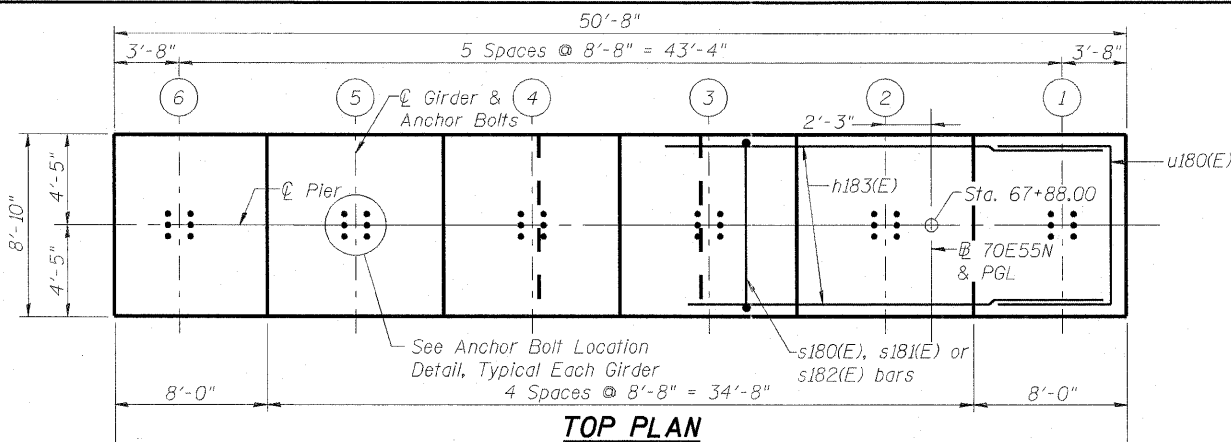
**PIER - UNIT 3 - PIER 8 - DETAILS  
 I-70E OVER I-55, CSX & KCS RAILROADS**

SCALE: SHEET S-163 OF S-234 SHEETS STA. TO STA.

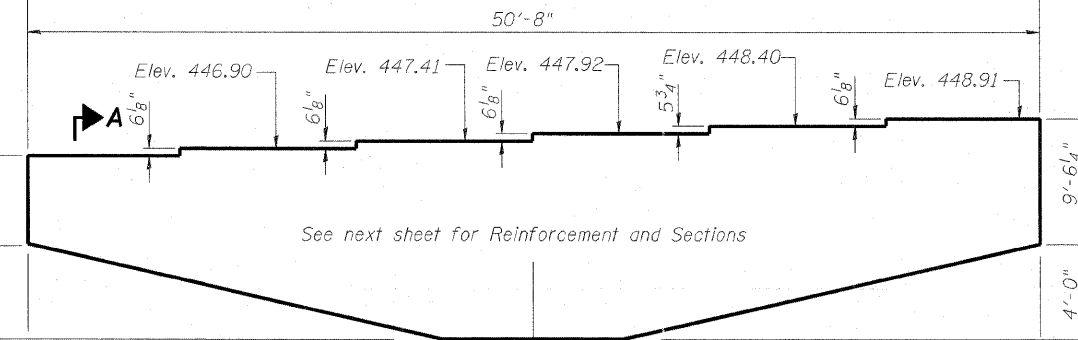
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	290
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

K:\projects\082-0322 & 0324 - I-70E over I-55, CSX & KCS RAILROADS - Unit 3 - Pier 8 - Details.dgn

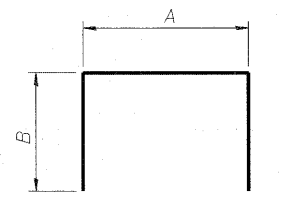
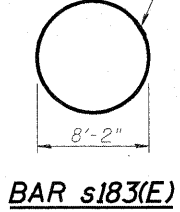
Notes:  
 1. Pour steps monolithically with cap.  
 2.  $\phi$  of Pier is radial to 70E55N at Sta. 67+88.00.



**ANCHOR BOLT LOCATION DETAIL**

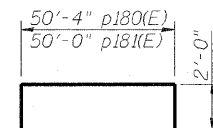


Shop welded per AWS D1.4 or mechanically spliced; cost included in Reinforcement Bars, Epoxy Coated

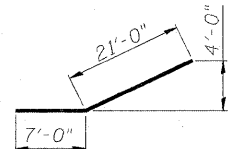


**BARS A & B DIMENSIONS**

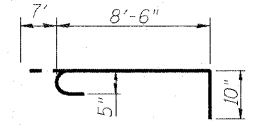
Bar	A	B
s180(E)	5'-8"	5'-8"
s181(E)	5'-8"	6'-10"
s182(E)	5'-8"	7'-10"
s185(E)	5'-8"	6'-9"
s186(E)	5'-8"	7'-5"
u180(E)	8'-5"	6'-0"
u181(E)	8'-6"	2'-6"



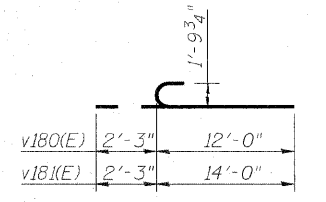
**BARS p180(E) & p181(E)**



**BAR p182(E)**



**BAR s184(E)**

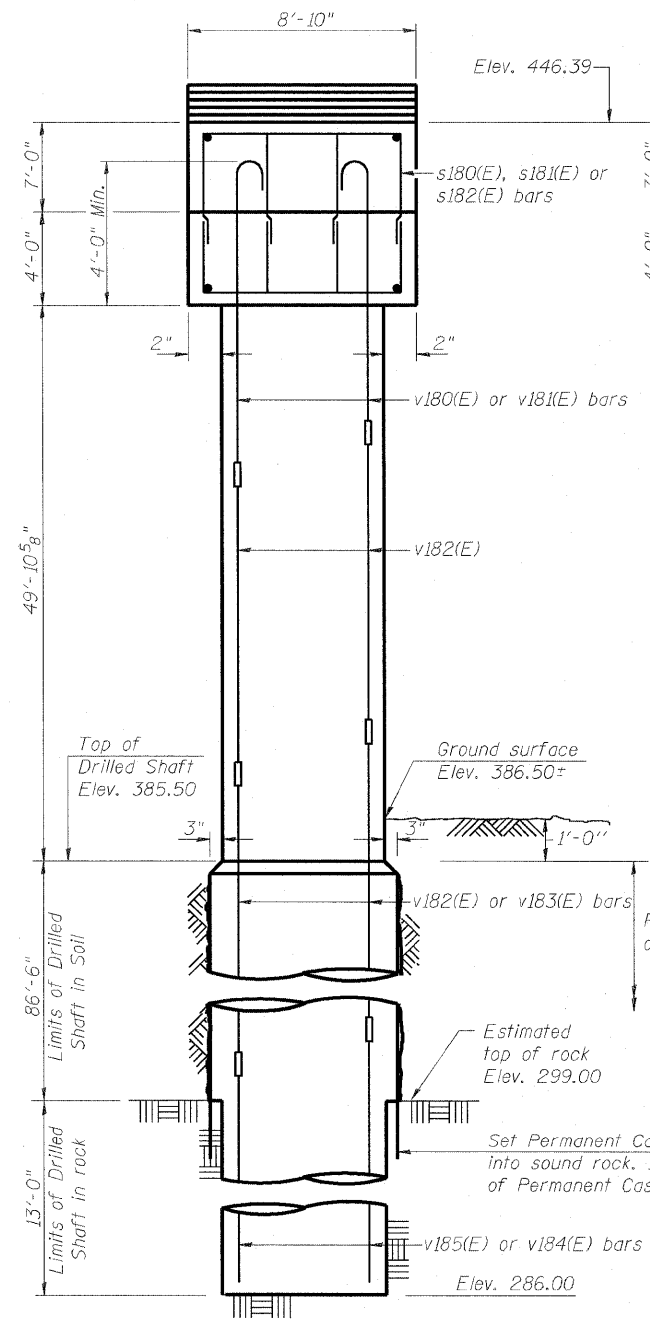


**BARS v180(E) & v181(E)**

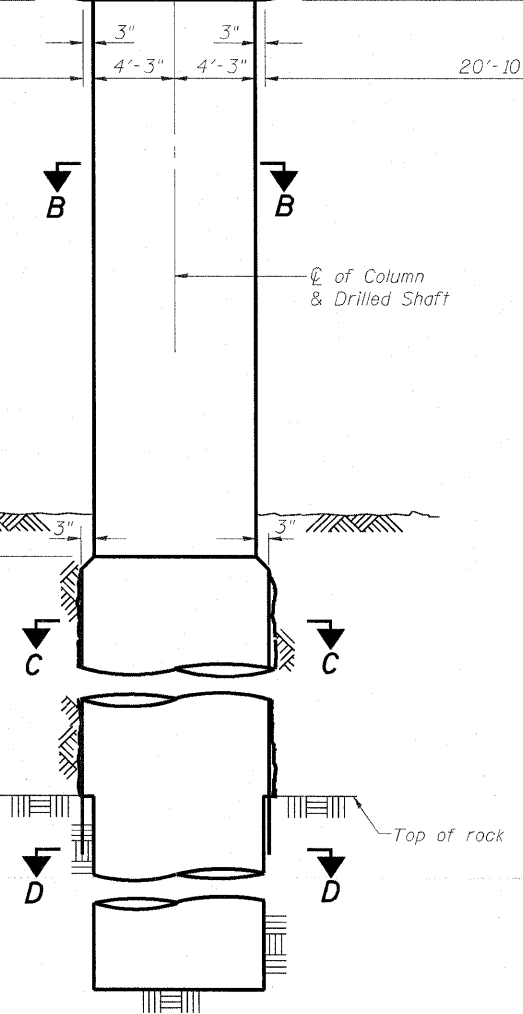
**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h180(E)	2	#7	19'-4"	—
h181(E)	2	#7	29'-9"	—
h182(E)	2	#7	40'-2"	—
h183(E)	14	#10	50'-4"	—
h184(E)	2	#10	25'-2"	—
h185(E)	2	#10	8'-0"	—
h186(E)	50	#5	11'-0"	—
h187(E)	10	#5	7'-8"	—
p180(E)	18	#11	54'-4"	—
p181(E)	18	#11	54'-0"	—
p182(E)	20	#7	28'-0"	—
s180(E)	72	#5	17'-0"	—
s181(E)	92	#5	19'-4"	—
s182(E)	160	#5	21'-4"	—
s183(E)	18	#5	25'-8"	—
s184(E)	100	#5	9'-11"	—
s185(E)	36	#5	19'-2"	—
s186(E)	92	#5	20'-6"	—
sp180(E)	1	#7	54'-0"	—
sp181(E)	2	#5	18'-7"	—
sp182(E)	2	#6	29'-2"	—
u180(E)	21	#6	20'-5"	—
u181(E)	44	#5	13'-6"	—
v180(E)	29	#14	14'-3"	—
v181(E)	29	#14	16'-3"	—
v182(E)	116	#14	30'-0"	—
v183(E)	58	#14	55'-0"	—
v184(E)	29	#14	26'-11"	—
v185(E)	29	#14	24'-11"	—
Concrete Structures		Cu. Yd.	280.9	
Reinforcement Bars, Epoxy Coated		Pound	117,500	
Drilled Shaft in Soil		Cu. Yd.	203.8	
Drilled Shaft in Rock		Cu. Yd.	27.3	
Permanent Casing		Foot	86.5	
Mechanical Splicers		Each	232	
Concrete Sealer		Sq. Ft.	1332	
Structure Excavation		Cu. Yd.	4.9	
Crosshole Sonic Logging		Each	1	

\*\* Length is height of spiral.



**END VIEW**



**ELEVATION (Looking Up Station)**



USER NAME =  
 PLOT SCALE = 0.166667" / 1"  
 PLOT DATE = 6/30/2011

DESIGNED - DDB  
 DRAWN - BRD  
 CHECKED - LLV  
 DATE - 07-01-11

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

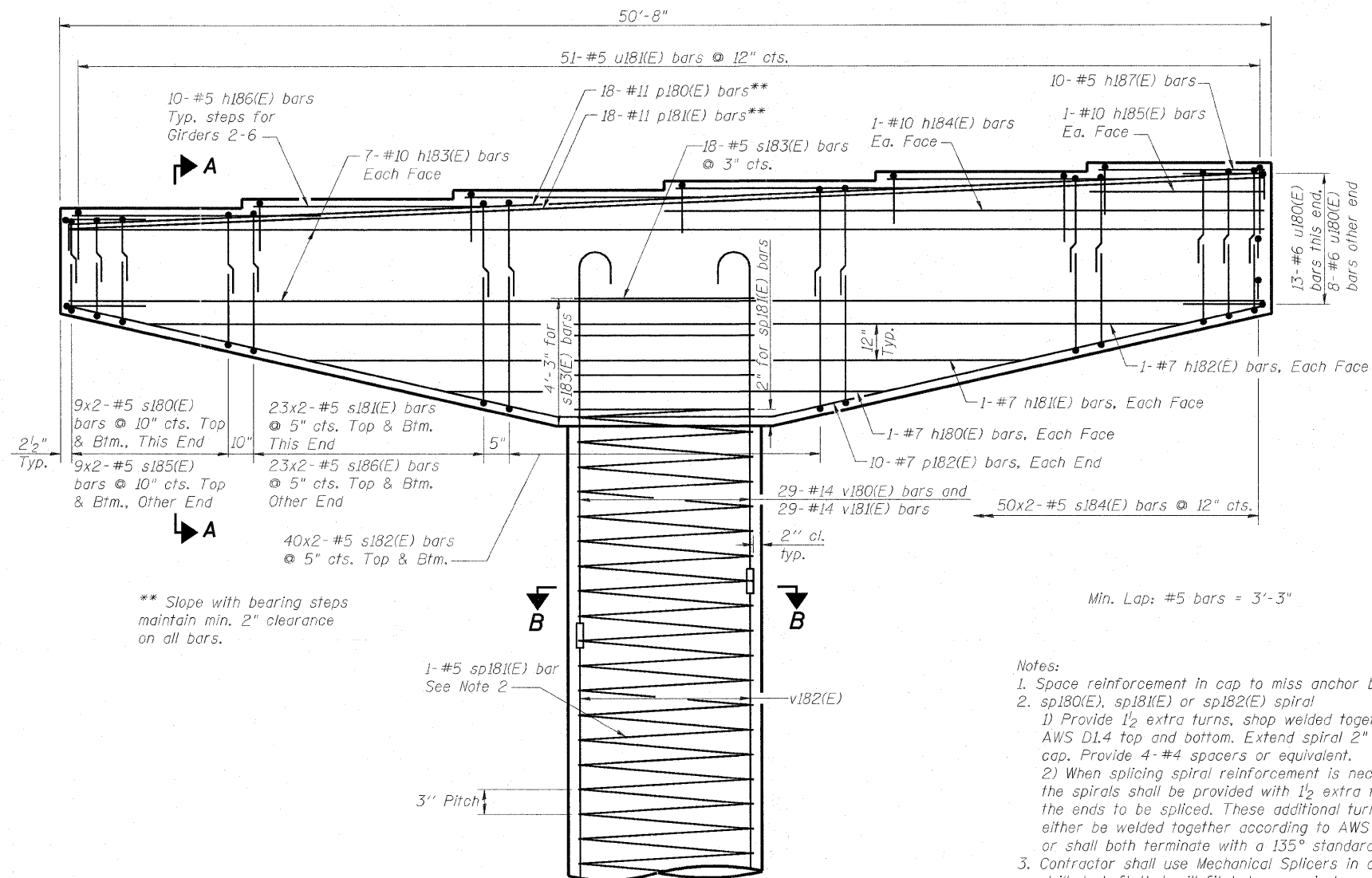
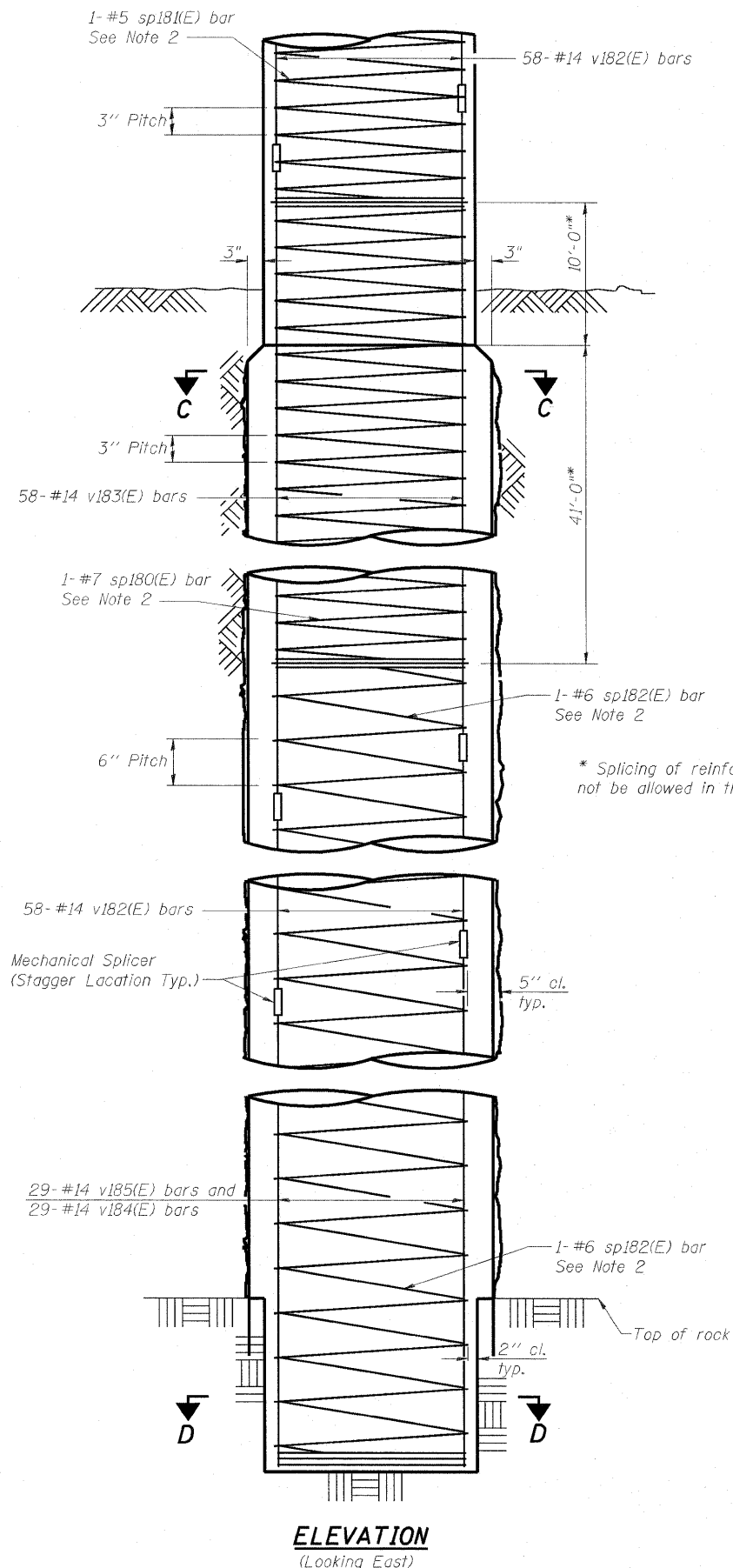
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

PIER - UNIT 3 - PIER 9 - PLAN & ELEVATIONS  
 I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: SHEET S-164 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TO	82-1-B-2	ST. CLAIR	399	291
S.N. 082-0322 & S.N. 082-0324			CONTRACT NO. 76C76	
FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT				

K:\projects\08046569\08046569.dwg 082-0322 & 0324: Figure 9-1082.ctb \\fs01\master\concrete\structure\1\082-0322\sheet\082-0322-0324\_76C76-5618\_Units\3-Pier 9-2.dwg  
 082-0322 & 0324: Figure 9-1082.ctb \\fs01\master\concrete\structure\1\082-0322\sheet\082-0322-0324\_76C76-5618\_Units\3-Pier 9-2.dwg

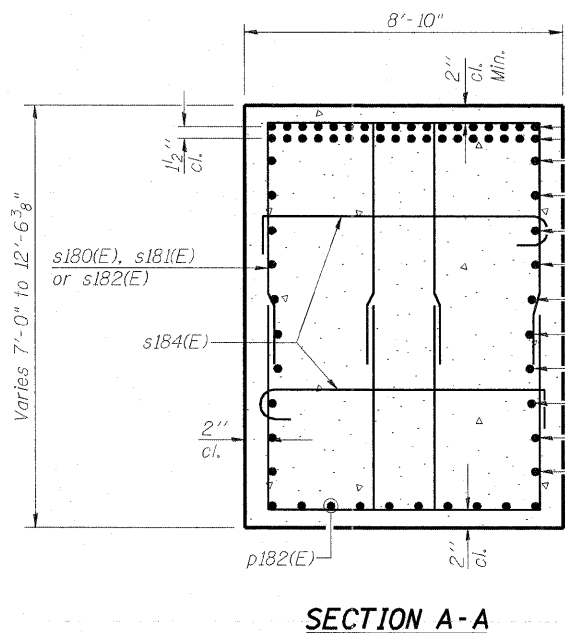


\*\* Slope with bearing steps maintain min. 2" clearance on all bars.

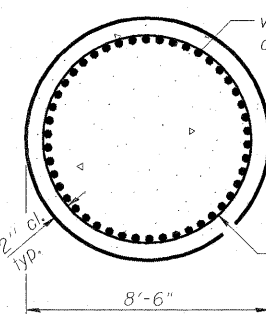
\* Splicing of reinforcement will not be allowed in this region.

Min. Lap: #5 bars = 3'-3"

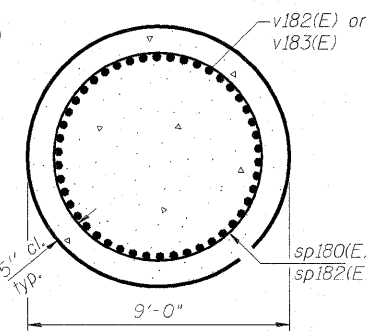
- Notes:
- Space reinforcement in cap to miss anchor bolts.
  - sp180(E), sp181(E) or sp182(E) spiral
    - Provide 1/2 extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 2" into pier cap. Provide 4-#4 spacers or equivalent.
    - When splicing spiral reinforcement is necessary, the spirals shall be provided with 1/2 extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.
  - Contractor shall use Mechanical Splicers in column and drilled shaft that will fit between spirals.
  - Contractor shall test the Drilled Shaft in accordance with special provision for Crosshole Sonic Logging.



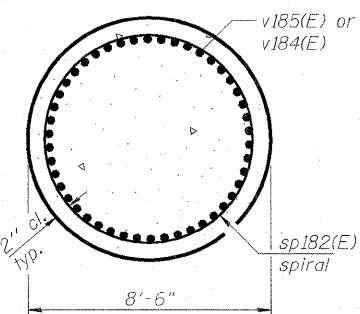
**ELEVATION**  
(Looking Up Station)



**SECTION B-B**



**SECTION C-C**



**SECTION D-D**



USER NAME =	DESIGNED -	DBB	REVISED -
PLOT SCALE = 0.156667' / IN.	DRAWN -	BRD	REVISED -
PLOT DATE = 6/30/2011	CHECKED -	LLV	REVISED -
	DATE -	07-01-11	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PIER - UNIT 3 - PIER 9 - DETAILS  
I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: SHEET S-165 OF S-234 SHEETS STA. TO STA.

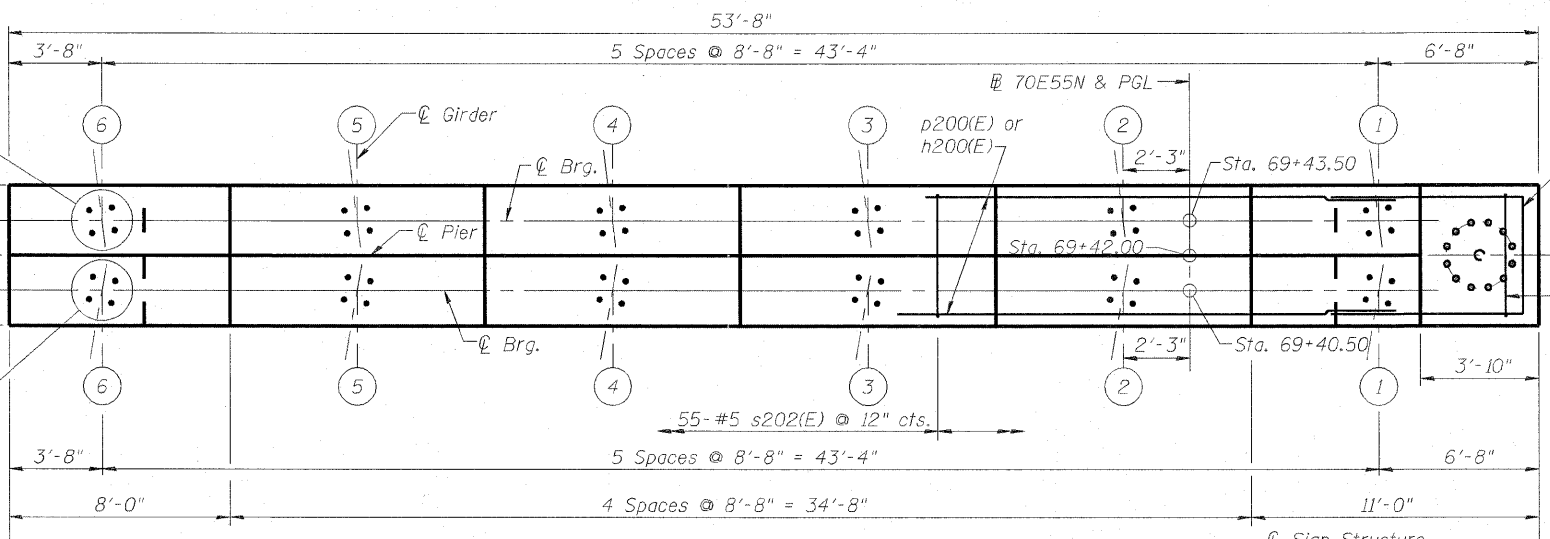
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	292
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

**TOP OF SEAT ELEVATION**

GIRDER	UNIT 3	UNIT 4
1	447.46	447.39
2	446.95	446.88
3	446.45	446.38
4	445.95	445.88
5	445.45	445.38
6	444.94	444.87

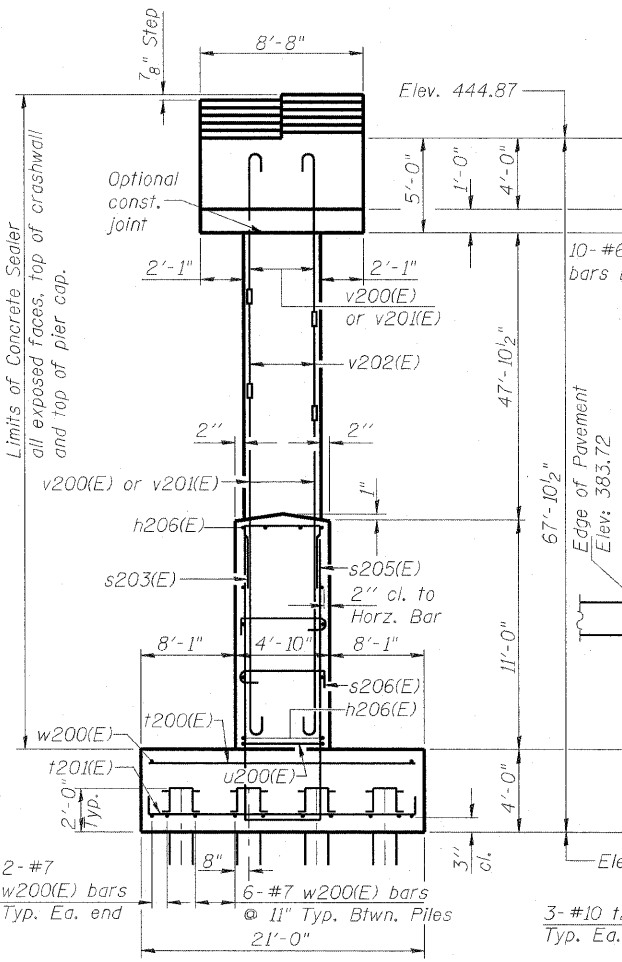
See Anchor Bolt Location Detail, Typical Girders 1 - 6  
 @ of Bearing Sta. 69+43.50

See Anchor Bolt Location Detail, Typical Girders 1 - 6  
 @ of Bearing Sta. 69+40.50

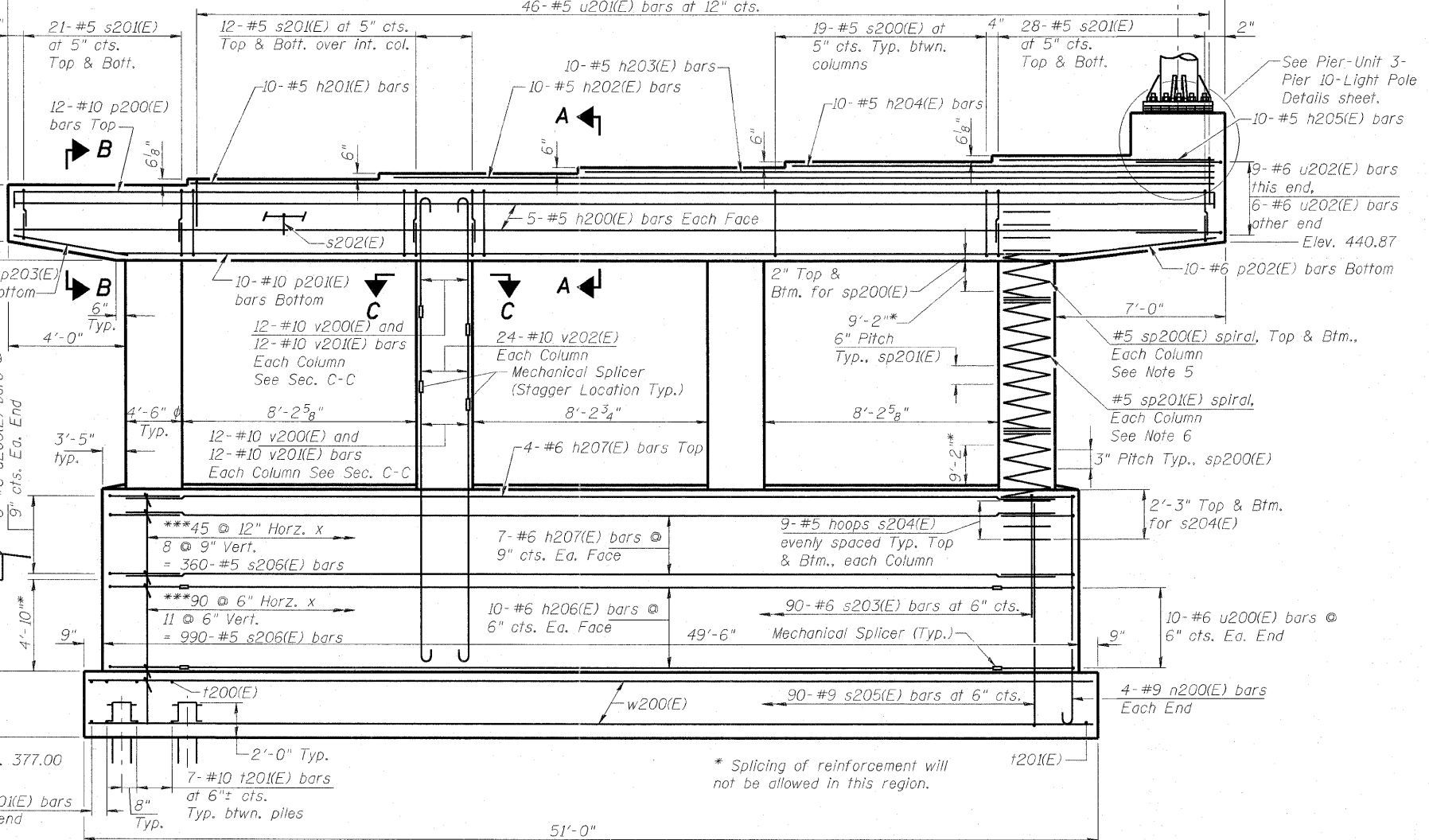


**TOP PLAN**

@ Sign Structure  
 See Cantilever Sign Structure sheets.



**END VIEW**



**ELEVATION**

(Looking Up Station)

\*\*\*Both hooks of s206(E) bars shall engage horiz. & vert. bars and 90° hook on two successive s206(E) bars on same vert. bar shall be alternated end for end. Includes row of s206(E) bars on the top mat of pile cap.

**PILE DATA**

Type: HP 12x63  
 Nominal Required Bearing: 400 kips  
 Factored Resistance Available: 200 kips  
 Est. Length: 79'  
 No. Production Piles: 52  
 No. Test Piles: 0

- Notes:
1. Space reinforcement in cap to miss anchor bolts.
  2. Pour steps monolithically with cap.
  3. For details of piles, see sheet S-234.
  4. @ of Pier is radial to @ 70E55N at Sta. 69+42.00.
  5. Provide 1/2 extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 2" into pier cap & crashwall. Provide 4-#4 spacers or equivalent.
  6. When splicing sp200(E) to sp201(E), the spirals shall be provided with 1/2 extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.
  7. Contractor shall use Mechanical Splicers in columns that will fit between spirals.

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h200(E)	10	#5	53'-4"	—
h201(E)	10	#5	45'-4"	—
h202(E)	10	#5	36'-8"	—
h203(E)	10	#5	28'-0"	—
h204(E)	10	#5	19'-4"	—
h205(E)	10	#5	10'-8"	—
h206(E)	20	#6	32'-8"	—
h207(E)	18	#6	44'-8"	—
n200(E)	8	#9	15'-9"	U
p200(E)	12	#10	57'-0"	]
p201(E)	10	#10	43'-8"	]
p202(E)	10	#6	10'-3"	]
p203(E)	10	#6	7'-3"	]
s200(E)	57	#5	26'-11"	]
s201(E)	146	#5	15'-8"	]
s202(E)	55	#5	9'-9"	]
s203(E)	90	#6	8'-10"	]
s204(E)	72	#5	13'-1"	]
s205(E)	90	#9	33'-4"	]
s206(E)	1350	#5	6'-0"	]
** sp200(E)	8	#5	10'-4"	]
** sp201(E)	4	#5	27'-7"	]
t200(E)	62	#7	20'-8"	]
t201(E)	90	#10	24'-4"	]
u200(E)	20	#6	19'-1"	U
u201(E)	46	#5	17'-4"	U
u202(E)	15	#6	14'-3"	U
u203(E)	6	#9	23'-4"	U
u204(E)	8	#6	14'-10"	U
u205(E)	12	#9	18'-6"	U
u206(E)	16	#6	16'-5"	U
v200(E)	96	#10	24'-5"	U
v201(E)	96	#10	22'-5"	U
v202(E)	96	#10	18'-0"	U
w200(E)	44	#7	50'-8"	—
Structure Excavation		Cu. Yd.	560.2	
Concrete Structures		Cu. Yd.	477.7	
Reinforcement Bars, Epoxy Coated		Pound	89,920	
Furnishing Steel Piles HP 12x63		Foot	4,108	
Driving Piles		Foot	4,108	
Pile Shoes		Each	52	
Mechanical Splicers		Each	232	
Concrete Sealer		Sq. Ft.	5,744	

\*\* Length is height of spiral.  
 See next sheet for Bar Details and Sections.



USER NAME =  
 PLOT SCALE = 0.186667' / IN.  
 PLOT DATE = 8/15/2011

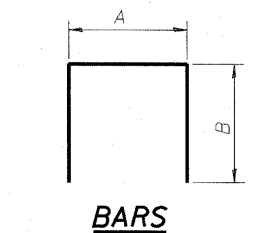
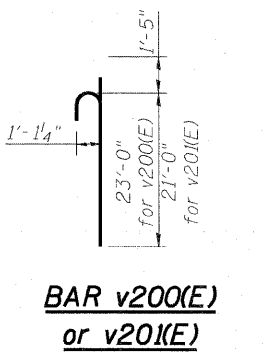
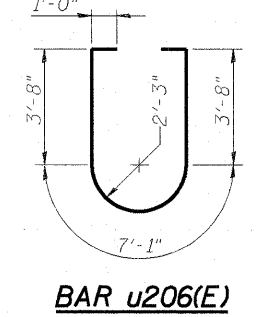
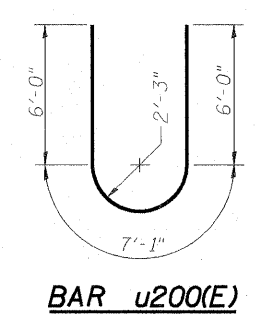
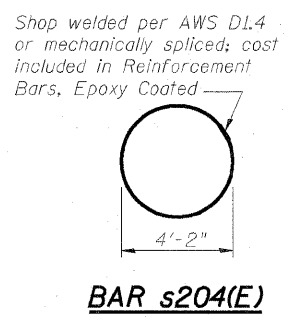
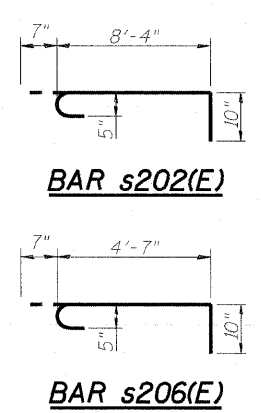
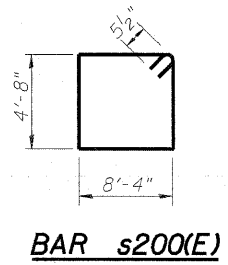
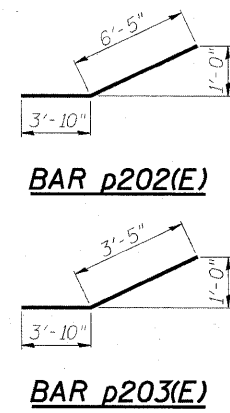
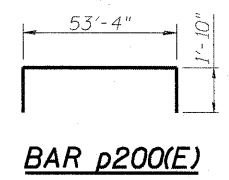
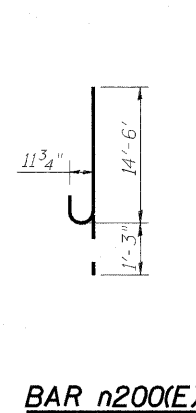
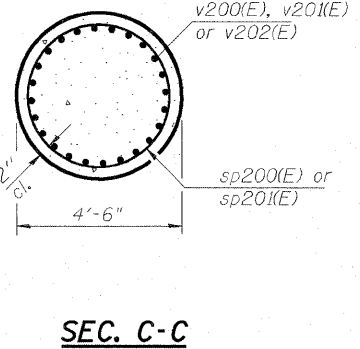
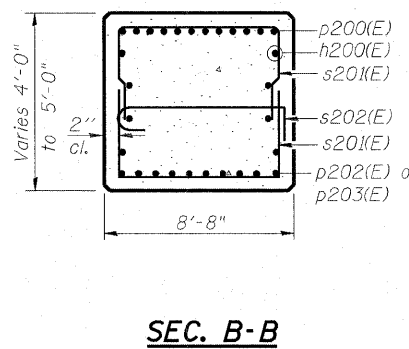
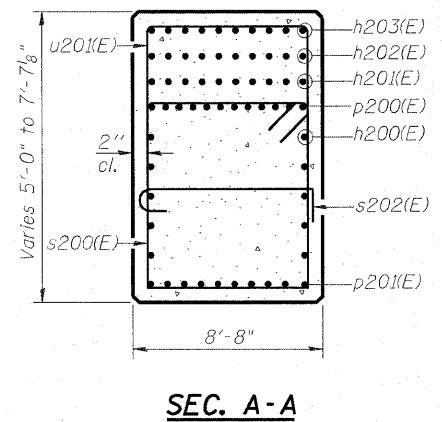
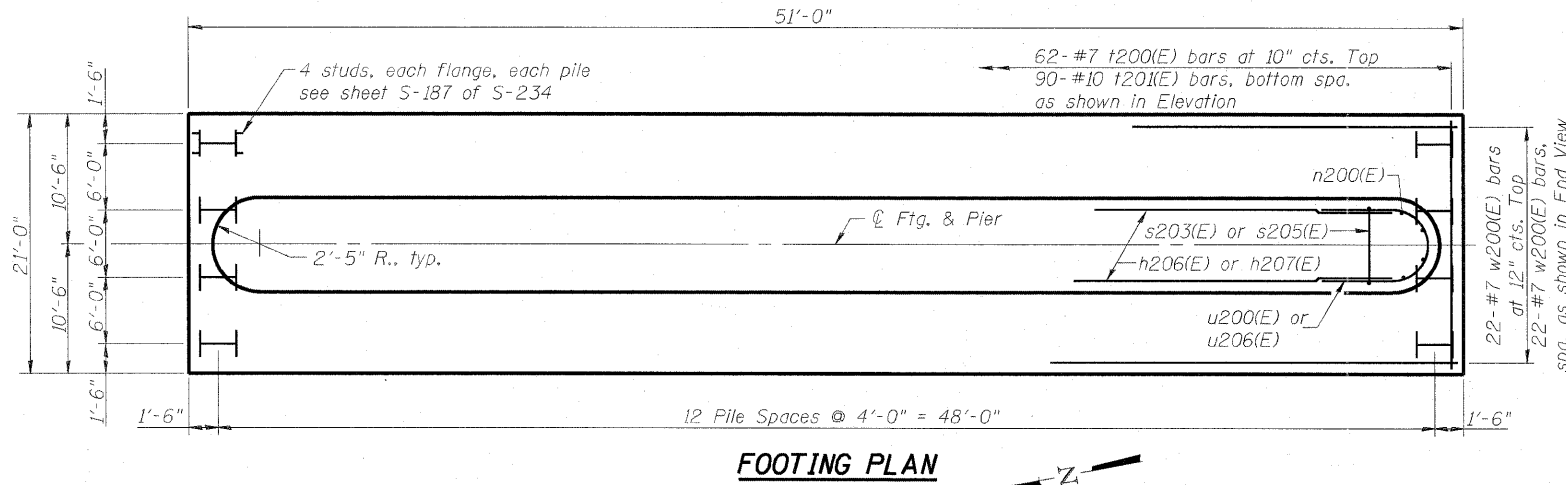
DESIGNED - DDB	REVISED -
DRAWN - BRD	REVISED -
CHECKED - LLV	REVISED -
DATE - 08-12-11	REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

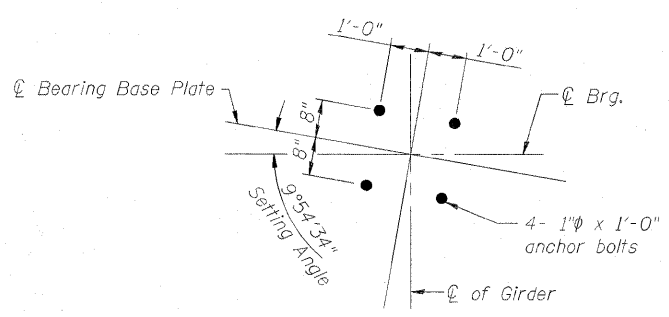
PIER - UNIT 3 - PIER 10 - PLANS & ELEVATIONS  
 I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: SHEET S-166 OF S-234 SHEETS STA. TO STA.

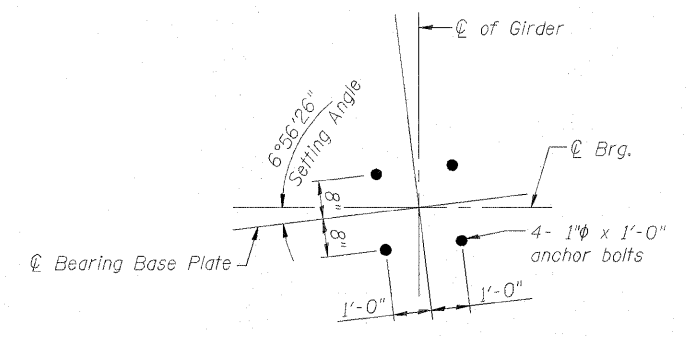
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	293
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		



Bar	A	B
s201(E)	8'-4"	3'-8"
s203(E)	4'-4"	2'-3"
s205(E)	4'-4"	14'-6"
t201(E)	20'-8"	1'-10"
u201(E)	8'-4"	4'-6"
u202(E)	8'-3"	3'-0"



**ANCHOR BOLT  
LOCATION DETAIL,  
GIRDERS 1 - 6**  
CL of BEARING STA. 69+40.50



**ANCHOR BOLT  
LOCATION DETAIL,  
GIRDERS 1 - 6**  
CL of BEARING STA. 69+43.50

K:\projects\08016629\0802-0322 & 0324 - P1000\1900.dwg 7/6/08 master-control\dwg\structural\0802-0322\sheet\0802-0324-76676-6620-Unit3-Pier10-2.dwg  
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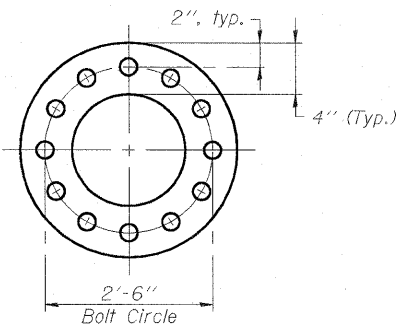


USER NAME =	DESIGNED - DDB	REVISED -
DRAWN - BRD	REVISED -	
PLLOT SCALE = 8.166667' / IN.	CHECKED - LLV	REVISED -
PLLOT DATE = 8/15/2011	DATE - 08-12-11	REVISED -

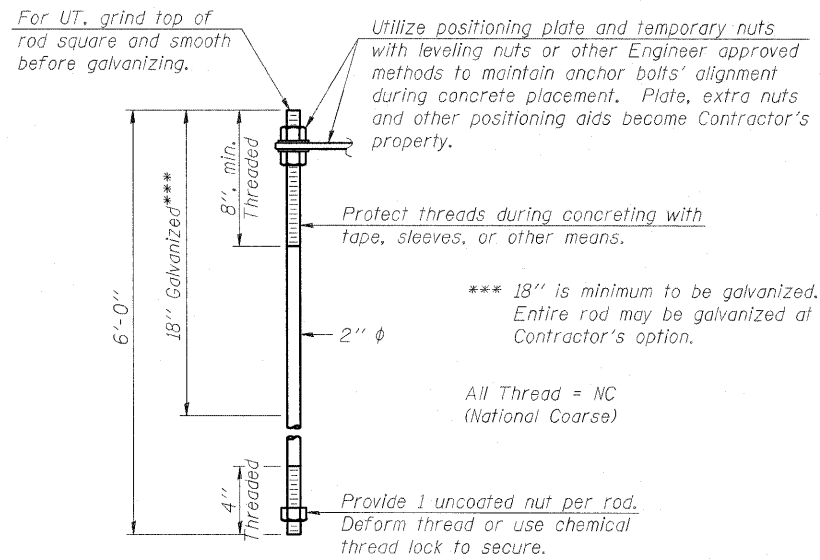
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**PIER - UNIT 3 - PIER 10 - DETAILS  
I-70E OVER I-55, CSX & KCS RAILROADS**

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	294
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		



**SUGGESTED POSITIONING PLATE**

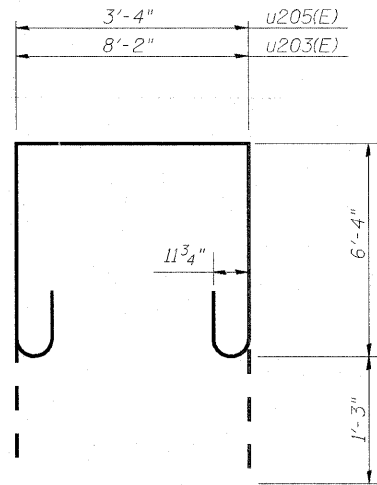


**ANCHOR ROD DETAIL**

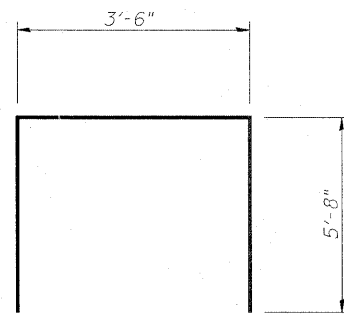
Anchor rods shall conform to AASHTO M314 Grade 105 and meet Charpy V-Notch (CVN) energy of 15 lb.-ft. at 10° F. before galvanizing. Galvanize the upper 18" (minimum\*\*\*) and associated M291, Grade A, C or DH heavy hex nuts and hardened washers per AASHTO M232. No welding shall be permitted on rods. Provide an unfinished nut at bottom, a hexagon locknut and washer above base plate and a leveling nut and washer below base plate. Nuts shall each be tightened with 200 lb.-ft. minimum torque against base plate. Before or after threading, but before galvanizing, each anchor rod shall be ultrasonically tested (UT) by a Level II or III Inspector, qualified in accord with ANSI guidelines, using a straight beam, 1/2" φ 3.5 mhz. transducer, to insure no rejectable flaws exist in the upper 18" (tension criteria).

**NOTES:**

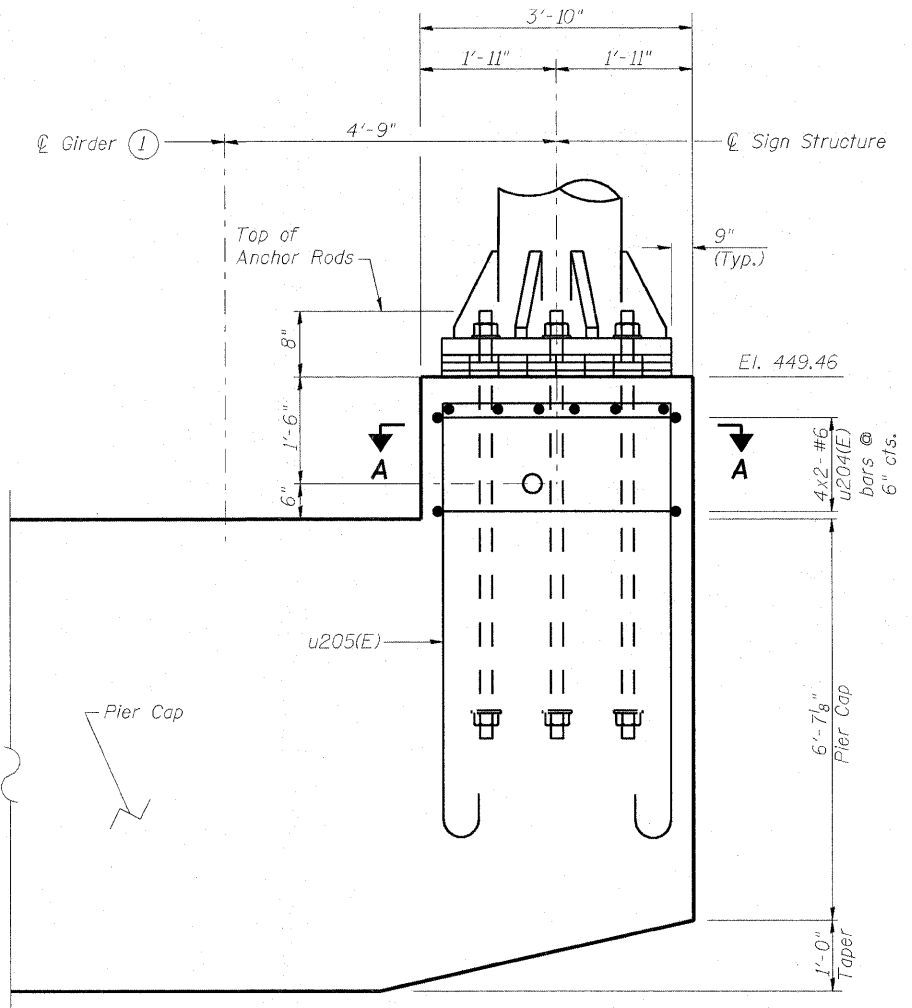
1. Work this sheet with Pier-Unit 3-Pier 10-Plans & Elevation sheet.
2. Place pedestal reinforcement to miss anchor rods.
3. Contractor shall coordinate installation with approved shop drawings for overhead sign.
4. Anchor rods shall be included in the cost of Concrete Structures.



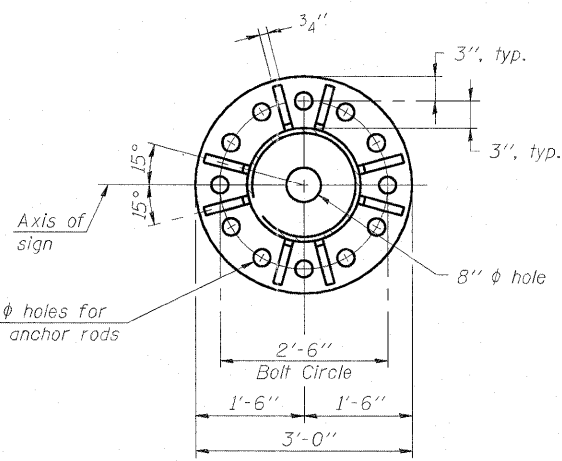
**BARS u203(E) & u205(E)**



**BAR u204(E)**

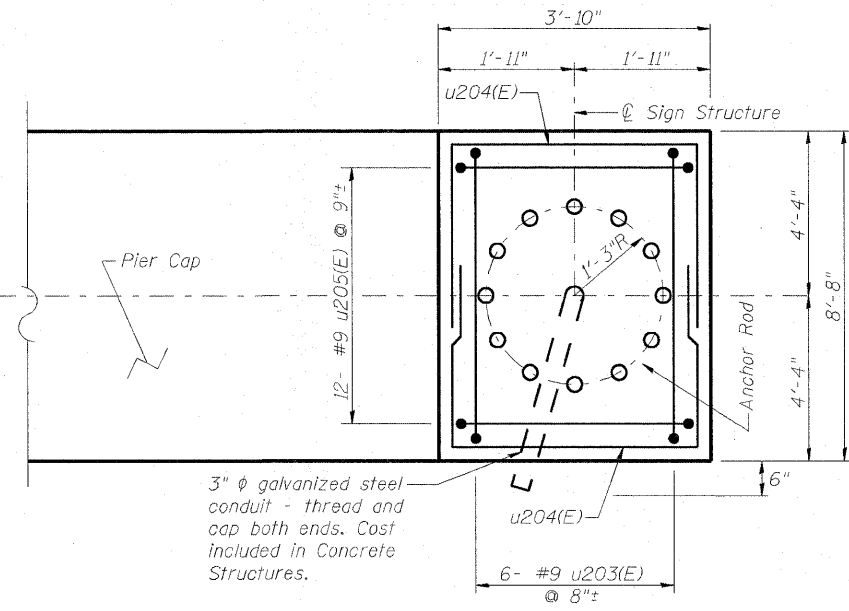


**DETAIL 1**



**BASE PLATE**

For reference only. Base plate included with sign structure.



**SECTION A-A**



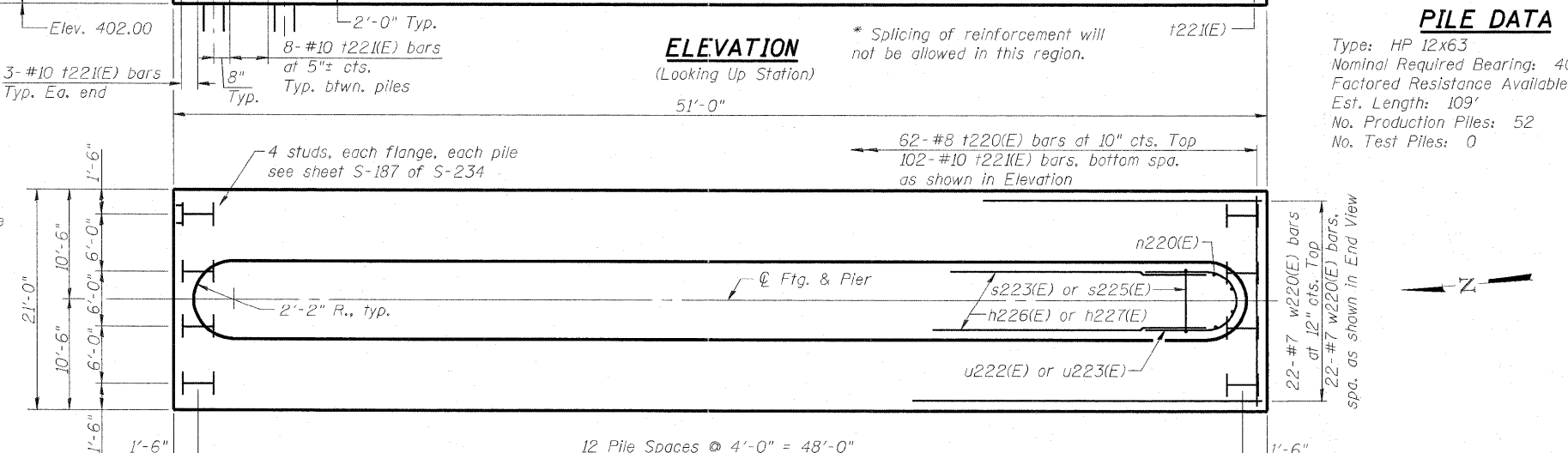
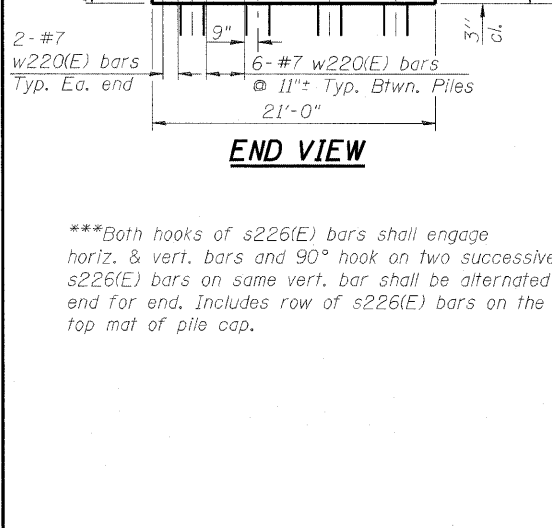
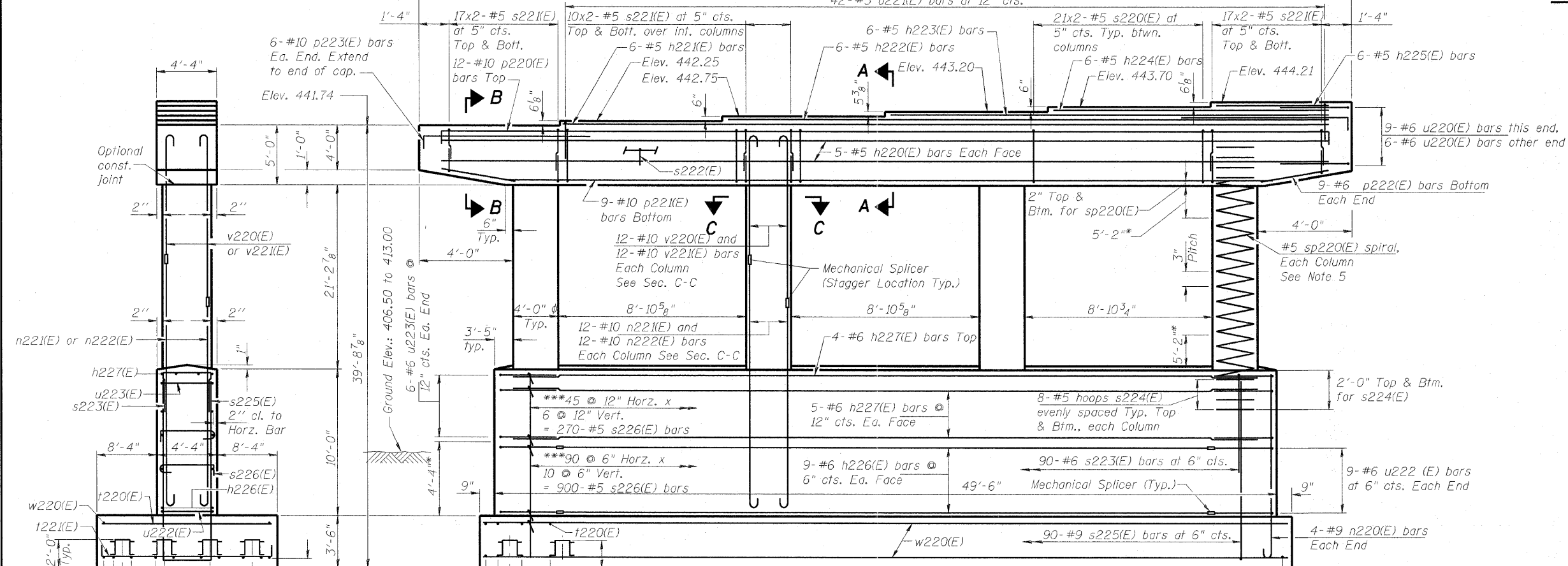
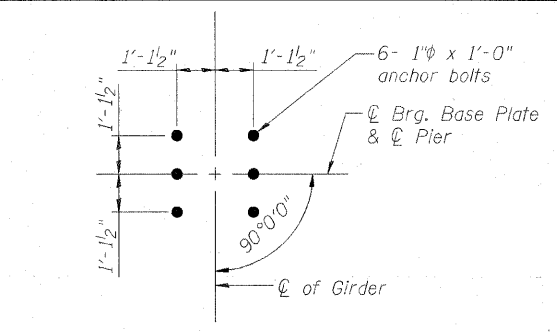
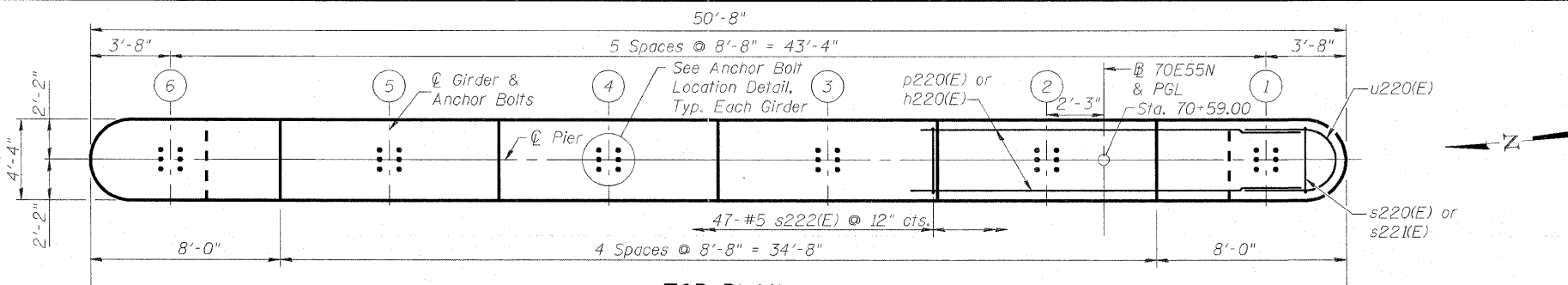
USER NAME =	DESIGNED - DDB	REVISED -
PLOT SCALE = 0.166667' / IN.	DRAWN - BRD	REVISED -
PLOT DATE = 6/30/2011	CHECKED - LLV	REVISED -
	DATE - 07-01-11	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

<b>PIER - UNIT 3 - PIER 10 - LIGHT POLE DETAILS</b>	
<b>I-70E OVER I-55, CSX &amp; KCS RAILROADS</b>	
SCALE:	SHEET S-168 OF S-234 SHEETS STA. TO STA.

F.A.J. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	295
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

- Notes:
1. Space reinforcement in cap to miss anchor bolts.
  2. Pour steps monolithically with cap.
  3. For details of piles, see sheet S-187 of S-234.
  4.  $\phi$  of Pier is radial to  $\phi$  70E55N at Sta. 70+59.00.
  5. #5 sp220(E) spiral, each column
    - 1) Provide  $\frac{1}{2}$  extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 2" into pier cap & crashwall. Provide 4-#4 spacers or equivalent.
    - 2) When splicing spiral reinforcement is necessary, the spirals shall be provided with  $\frac{1}{2}$  extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.
  6. Contractor shall use Mechanical Splicers in columns that will fit between spirals.



**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h220(E)	10	#5	46'-4"	—
h221(E)	6	#5	40'-4"	—
h222(E)	6	#5	31'-8"	—
h223(E)	6	#5	23'-0"	—
h224(E)	6	#5	14'-4"	—
h225(E)	6	#5	5'-8"	—
h226(E)	18	#6	33'-2"	—
h227(E)	14	#6	45'-2"	—
n220(E)	8	#9	14'-3"	—
n221(E)	48	#10	17'-5"	—
n222(E)	48	#10	19'-5"	—
p220(E)	12	#10	50'-0"	—
p221(E)	9	#10	43'-8"	—
p222(E)	18	#6	5'-3"	—
p223(E)	12	#10	11'-10"	—
s220(E)	126	#5	15'-7"	—
s221(E)	216	#5	10'-8"	—
s222(E)	47	#5	5'-5"	—
s223(E)	90	#6	8'-4"	—
s224(E)	64	#5	11'-6"	—
s225(E)	90	#9	29'-10"	—
s226(E)	1170	#5	5'-6"	—
sp220(E)	4	#5	21'-7"	—
t220(E)	62	#8	20'-8"	—
t221(E)	102	#10	24'-3"	—
u220(E)	15	#6	18'-2"	—
u221(E)	42	#5	13'-0"	—
u222(E)	18	#6	18'-3"	—
u223(E)	12	#6	15'-7"	—
v220(E)	48	#10	19'-8"	—
v221(E)	48	#10	17'-8"	—
w220(E)	44	#7	50'-8"	—
Structure Excavation			Cu. Yd.	407.4
Concrete Structures			Cu. Yd.	305.8
Reinforcement Bars, Epoxy Coated			Pound	70,880
Furnishing Steel			Foot	5,668
Piles, HP 12x63			Foot	5,668
Driving Piles			Each	52
Pile Shoes			Each	132
Mechanical Splicers			Each	132

**PILE DATA**

Type: HP 12x63  
 Nominal Required Bearing: 400 kips  
 Factored Resistance Available: 200 kips  
 Est. Length: 109'  
 No. Production Piles: 52  
 No. Test Piles: 0



USER NAME =  
 DESIGNED - DDB  
 DRAWN - BRD  
 CHECKED - LLV  
 DATE - 08-12-11

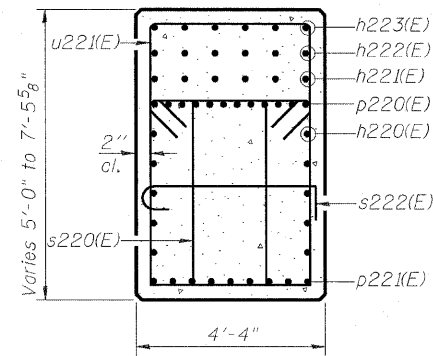
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 REVISED -  
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 REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

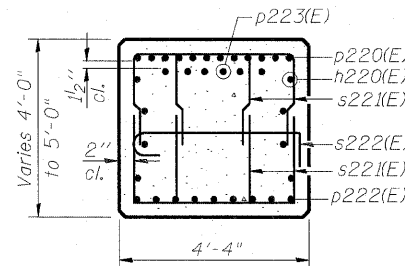
PIER - UNIT 4 - PIER 11 - PLANS & ELEVATIONS  
 I-70E OVER I-55, CSX & KCS RAILROADS  
 SCALE: SHEET S-169 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	296
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

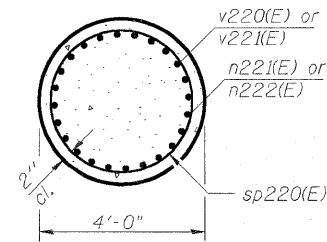




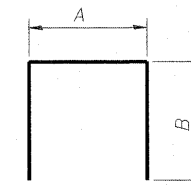
**SEC. A-A**



**SEC. B-B**

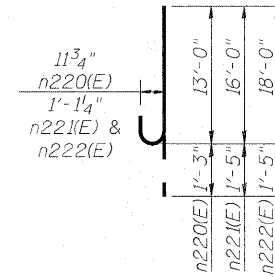


**SEC. C-C**

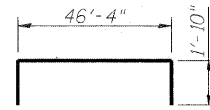


**BARS**  
**A & B DIMENSIONS**

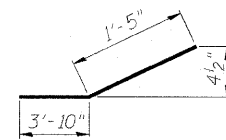
Bar	A	B
s221(E)	2'-8"	4'-0"
s223(E)	3'-10"	2'-3"
s225(E)	3'-10"	13'-0"
t221(E)	20'-8"	1'-10"
u221(E)	4'-0"	4'-6"



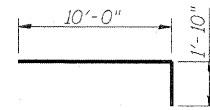
**BAR n220(E), n221(E)  
& n222(E)**



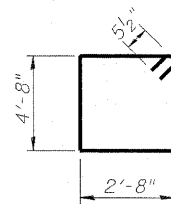
**BAR p220(E)**



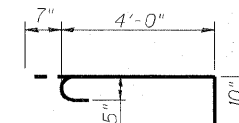
**BAR p222(E)**



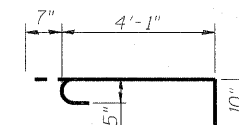
**BAR p223(E)**



**BAR s220(E)**

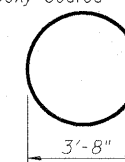


**BAR s222(E)**

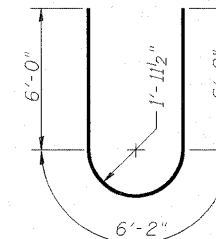


**BAR s226(E)**

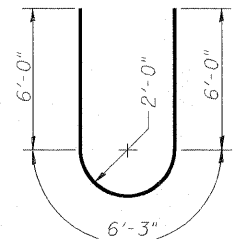
Shop welded per AWS D1.4  
or mechanically spliced; cost  
included in Reinforcement  
Bars, Epoxy Coated



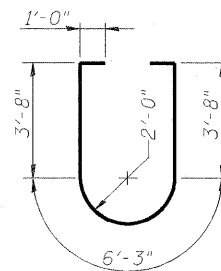
**BAR s224(E)**



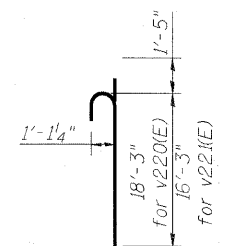
**BAR u220(E)**



**BAR u222(E)**



**BAR u223(E)**



**BAR v220(E)  
or v221(E)**



USER NAME =  
PLOT SCALE = 0.166667' / IN.  
PLOT DATE = 8/15/2011

DESIGNED - DDB  
DRAWN - BRD  
CHECKED - LLV  
DATE - 08-12-11

REVISED -  
REVISED -  
REVISED -  
REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

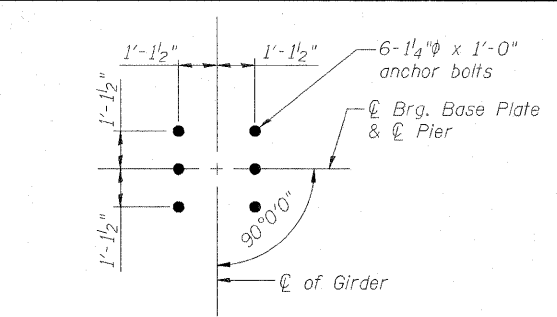
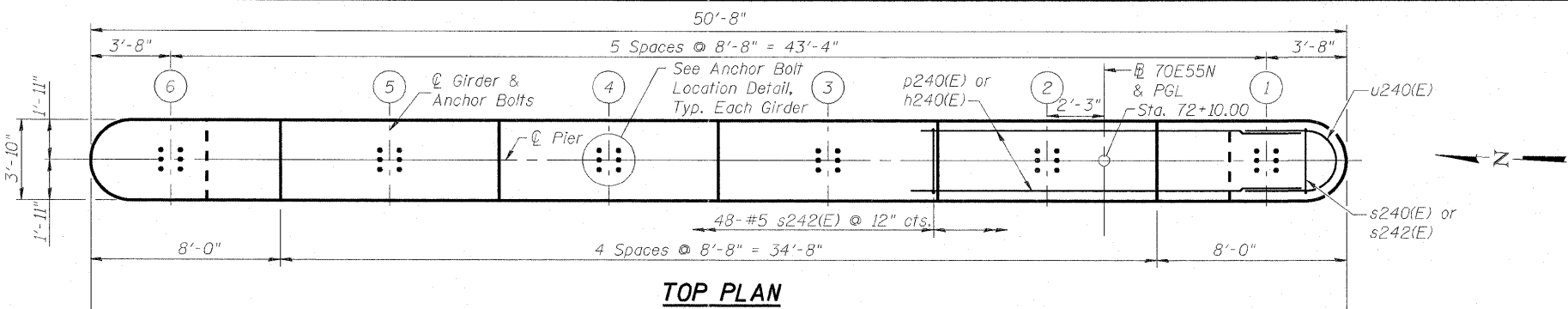
PIER - UNIT 4 - PIER 11 - DETAILS  
I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: SHEET S-170 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	297
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

K:\projects\08016609\0802-0322 & 0324 - F1gwer\980.cad\981.dwg\master-consolidated\structural\082-0322-sheet\082-0324-76C76-5623-Unit4-Pier11-2.dwg

Notes:  
 1. Space reinforcement in cap to miss anchor bolts.  
 2. Pour steps monolithically with cap.  
 3. For details of piles, see sheet S-187 of S-234.  
 4.  $\phi$  of Pier is radial to  $\phi$  70E55N at Sta. 72+10.00.  
 5. #5 sp240(E) spiral, each column  
 1) Provide  $1\frac{1}{2}$  extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 2" into pier cap & crashwall. Provide 4-#4 spacers or equivalent.  
 2) When splicing spiral reinforcement is necessary, the spirals shall be provided with  $1\frac{1}{2}$  extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.



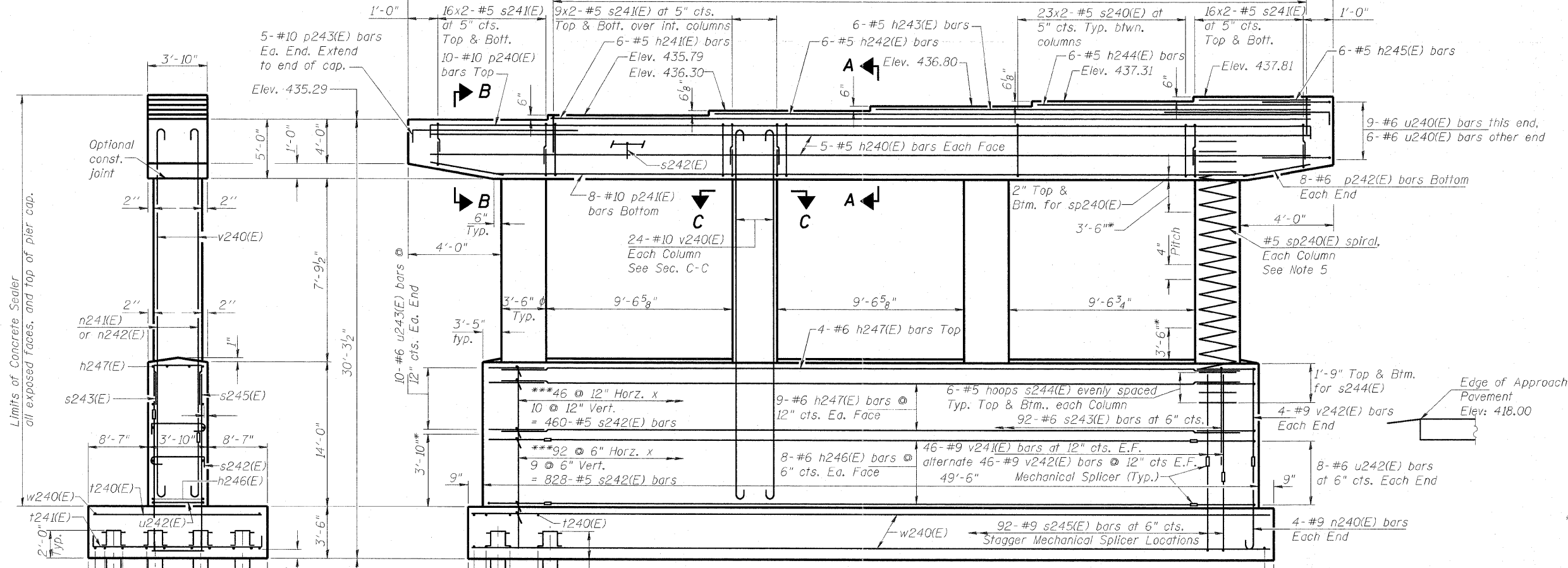
**ANCHOR BOLT LOCATION DETAIL**

**PILE DATA**  
 Type: HP 12x63  
 Nominal Required Bearing: 400 kips  
 Factored Resistance Available: 200 kips  
 Est. Length: 107'  
 No. Production Piles: 52  
 No. Test Piles: 0

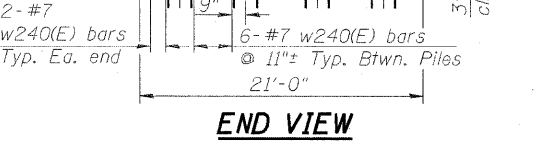
**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h240(E)	10	#5	46'-10"	—
h241(E)	6	#5	40'-7"	—
h242(E)	6	#5	31'-11"	—
h243(E)	6	#5	23'-3"	—
h244(E)	6	#5	14'-7"	—
h245(E)	6	#5	5'-11"	—
h246(E)	16	#6	33'-8"	—
h247(E)	22	#6	45'-8"	—
n240(E)	8	#9	20'-3"	U
p240(E)	10	#10	50'-6"	
p241(E)	8	#10	43'-8"	
p242(E)	16	#6	5'-6"	
p243(E)	10	#10	11'-10"	
s240(E)	138	#5	14'-11"	□
s241(E)	200	#5	10'-4"	□
s242(E)	1336	#5	5'-0"	□
s243(E)	92	#6	7'-10"	□
s244(E)	48	#5	9'-11"	□
s245(E)	92	#9	21'-4"	□
sp240(E)	4	#5	8'-2"	W
t240(E)	62	#8	20'-8"	—
t241(E)	90	#10	24'-3"	—
u240(E)	17	#6	17'-4"	U
u241(E)	42	#5	12'-6"	U
u242(E)	16	#6	17'-6"	U
u243(E)	20	#6	14'-10"	U
v240(E)	96	#10	27'-8"	□
v241(E)	92	#9	9'-0"	□
v242(E)	100	#9	7'-0"	□
w240(E)	44	#7	50'-8"	—
Structure Excavation		Cu. Yd.	305.6	
Concrete Structures		Cu. Yd.	290.7	
Reinforcement Bars, Epoxy Coated		Pound	64,920	
Furnishing Steel Piles HP12x63		Foot	5,564	
Driving Piles		Foot	5,564	
Pile Shoes		Each	52	
Mechanical Splicers		Each	224	
Concrete Sealer		Sq. Ft.	2926	

\*\* Length is height of spiral.  
 See next sheet for Bar Details and Sections.

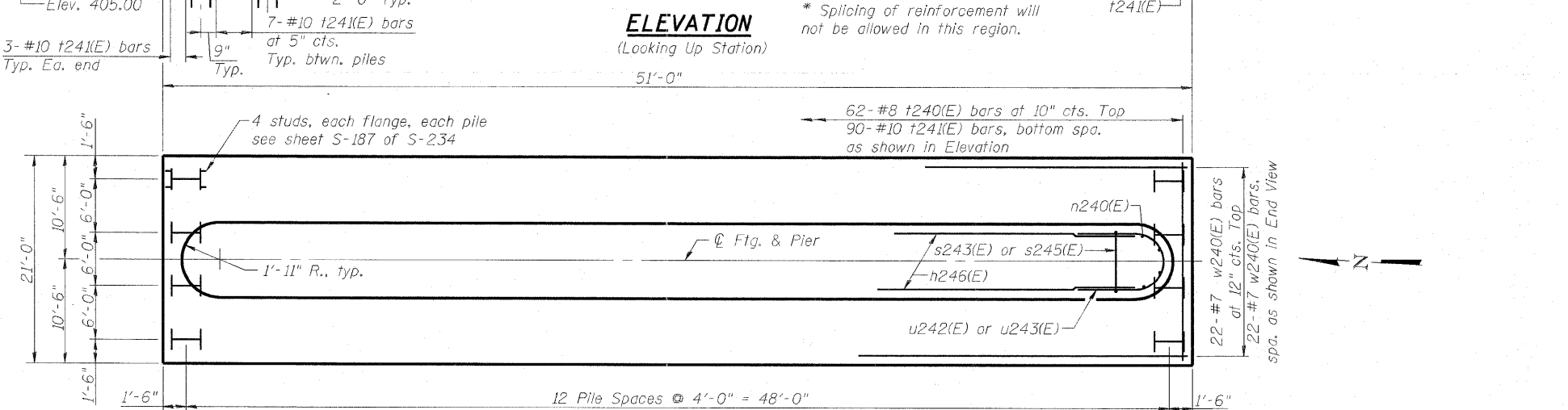


**ELEVATION**  
 (Looking Up Station)



**END VIEW**

\*\*\*Both hooks of s242(E) bars shall engage horiz. & vert. bars and 90° hook on two successive s242(E) bars on same vert. bar shall be alternated end for end. Includes row of s242(E) bars on the top mat of pile cap.



**FOOTING PLAN**

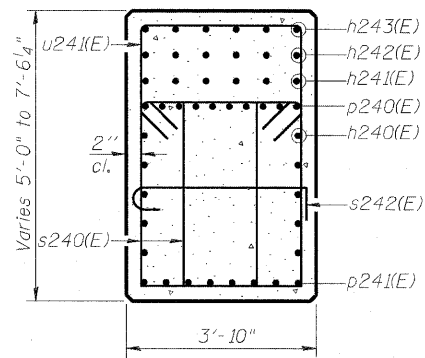
**AECOM**  
 USER NAME =  
 PLOT SCALE = 3/16" = 1' / IN.  
 PLOT DATE = 6/30/2011

DESIGNED - DDB	REVISED -
DRAWN - BRD	REVISED -
CHECKED - LLV	REVISED -
DATE - 07-01-11	REVISED -

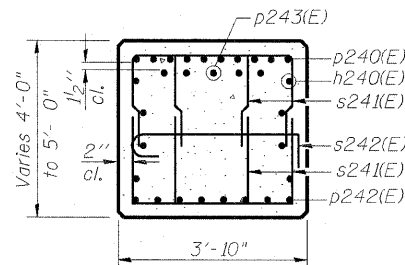
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**PIER - UNIT 4 - PIER 12 - PLANS & ELEVATIONS**  
**I-70E OVER I-55, CSX & KCS RAILROADS**  
 SCALE: SHEET S-171 OF S-234 SHEETS STA. TO STA.

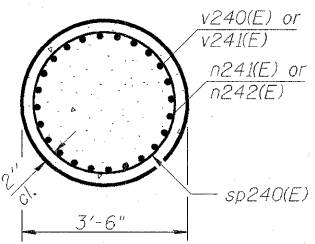
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	298
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		



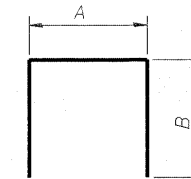
**SEC. A-A**



**SEC. B-B**



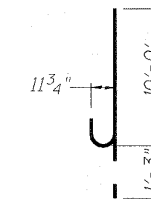
**SEC. C-C**



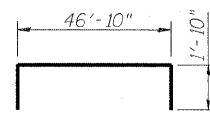
**BARS**

**A & B DIMENSIONS**

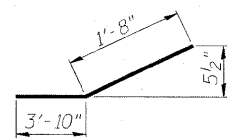
Bar	A	B
s241(E)	2'-4"	4'-0"
s243(E)	3'-4"	2'-3"
t241(E)	20'-8"	1'-10"
u241(E)	3'-6"	4'-6"



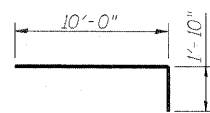
**BAR n240(E)**



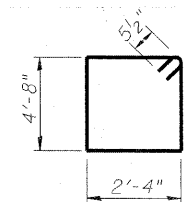
**BAR p240(E)**



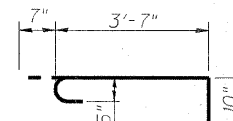
**BAR p242(E)**



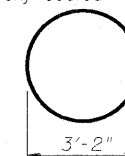
**BAR p243(E)**



**BAR s240(E)**

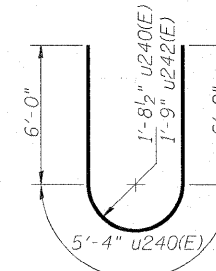


**BAR s242(E)**

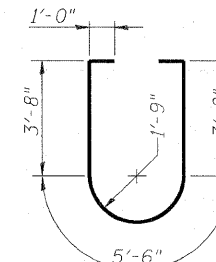


**BAR s244(E)**

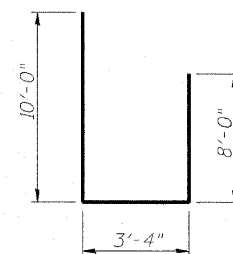
Shop welded per AWS D1.4 or mechanically spliced; cast included in Reinforcement Bars, Epoxy Coated



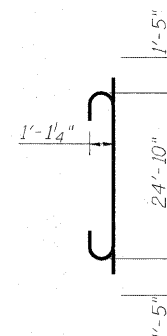
**BARS u240(E) & u242(E)**



**BAR u243(E)**



**BAR s245(E)**



**BAR v240(E)**

I:\projects\082-0322 & 0324 - Figures\082-0322 & 0324 - Figures\082-0322 - Structural\082-0322 - sheets\082-0322-0324-76C76-SC25-Unit 4-Pier 12-2.dgn



USER NAME =	DESIGNED - DDB	REVISED -
PLOT SCALE = 0.166667' / IN.	DRAWN - BRD	REVISED -
PLOT DATE = 6/30/2011	CHECKED - LLV	REVISED -
	DATE - 07-01-11	REVISED -

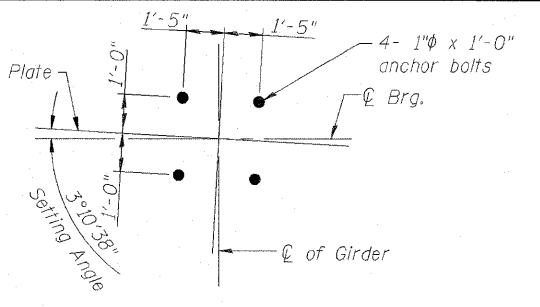
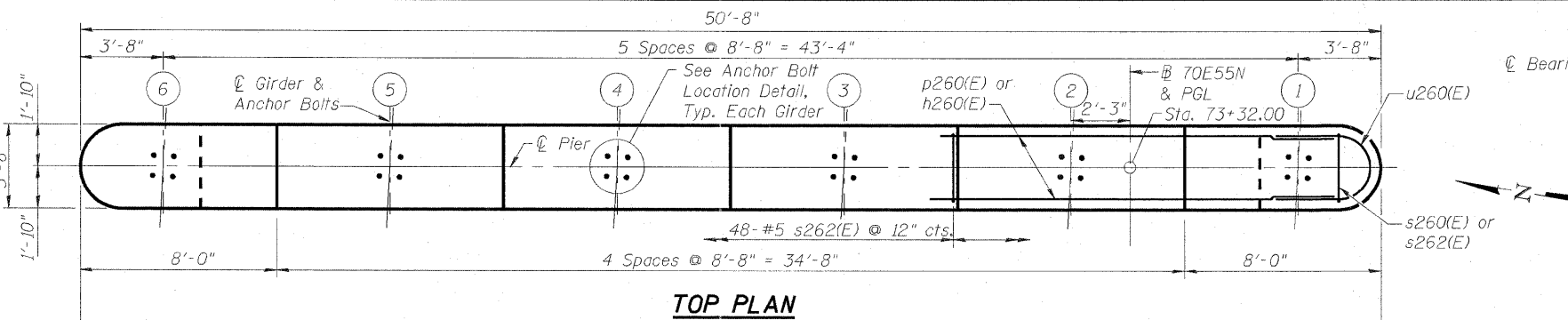
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**PIER - UNIT 4 - PIER 12 - DETAILS  
I-70E OVER I-55, CSX & KCS RAILROADS**

SCALE: SHEET S-172 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	299
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		

- Notes:
- Space reinforcement in cap to miss anchor bolts.
  - Four steps monolithically with cap.
  - For details of piles, see sheet S-187 of S-234.
  - Center of Pier is radial to B 70E55N at Sta. 73+32.00.
  - #5 sp260(E) spiral, each column
- 1) Provide 1/2 extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 2" into pier cap & crashwall. Provide 4-#4 spacers or equivalent.
- 2) When splicing spiral reinforcement is necessary, the spirals shall be provided with 1/2 extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.
6. Contractor shall use Mechanical Splicers in columns that will fit between spirals.

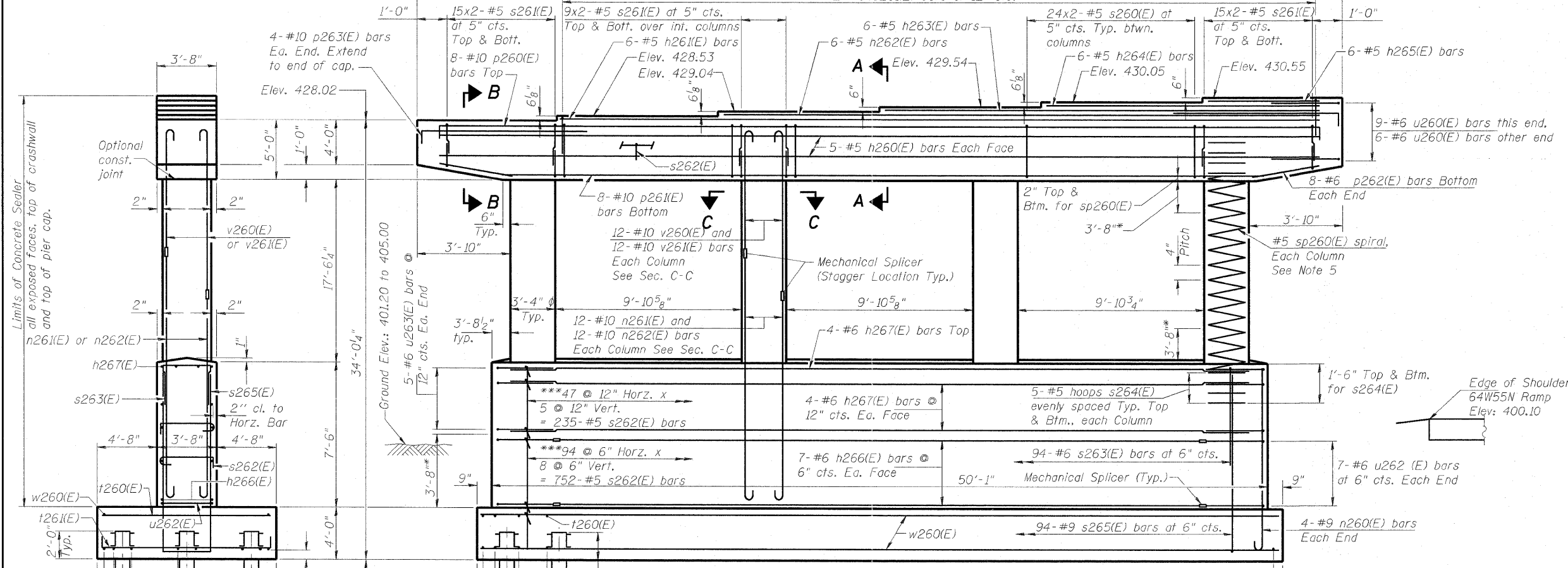


**PILE DATA**

Type: HP 12x63  
 Nominal Required Bearing: 400 kips  
 Factored Resistance Available: 200 kips  
 Est. Length: 105'  
 No. Production Piles: 36  
 No. Test Piles: 0

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h260(E)	10	#5	47'-4"	—
h261(E)	6	#5	40'-10"	—
h262(E)	6	#5	32'-2"	—
h263(E)	6	#5	23'-6"	—
h264(E)	6	#5	14'-10"	—
h265(E)	6	#5	6'-2"	—
h266(E)	14	#6	34'-5"	—
h267(E)	12	#6	46'-5"	—
n260(E)	8	#9	12'-3"	—
n261(E)	48	#10	13'-5"	—
n262(E)	48	#10	15'-5"	—
p260(E)	8	#10	50'-8"	—
p261(E)	8	#10	43'-8"	—
p262(E)	16	#6	5'-9"	—
p263(E)	8	#10	11'-10"	—
s260(E)	144	#5	14'-7"	—
s261(E)	192	#5	10'-2"	—
s262(E)	1022	#5	4'-10"	—
s263(E)	94	#6	7'-8"	—
s264(E)	40	#5	9'-5"	—
s265(E)	94	#9	25'-2"	—
sp260(E)	4	#5	17'-11"	—
t260(E)	63	#7	12'-8"	—
t261(E)	72	#10	16'-4"	—
u260(E)	15	#6	17'-1"	—
u261(E)	42	#5	11'-8"	—
u262(E)	14	#6	17'-3"	—
u263(E)	10	#6	14'-7"	—
v260(E)	48	#10	17'-5"	—
v261(E)	48	#10	15'-5"	—
w260(E)	28	#7	51'-3"	—
Structure Excavation		Cu. Yd.	350.0	
Concrete Structures		Cu. Yd.	214.6	
Reinforcement Bars, Epoxy Coated		Pound	51,850	
Furnishing Steel		Foot	3,780	
Piles, HP 12x63		Foot	3,780	
Driving Piles		Each	36	
Pile Shoes		Each	124	
Mechanical Splicers		Sq. Ft.	2,674	
Concrete Sealer		Sq. Ft.	2,674	



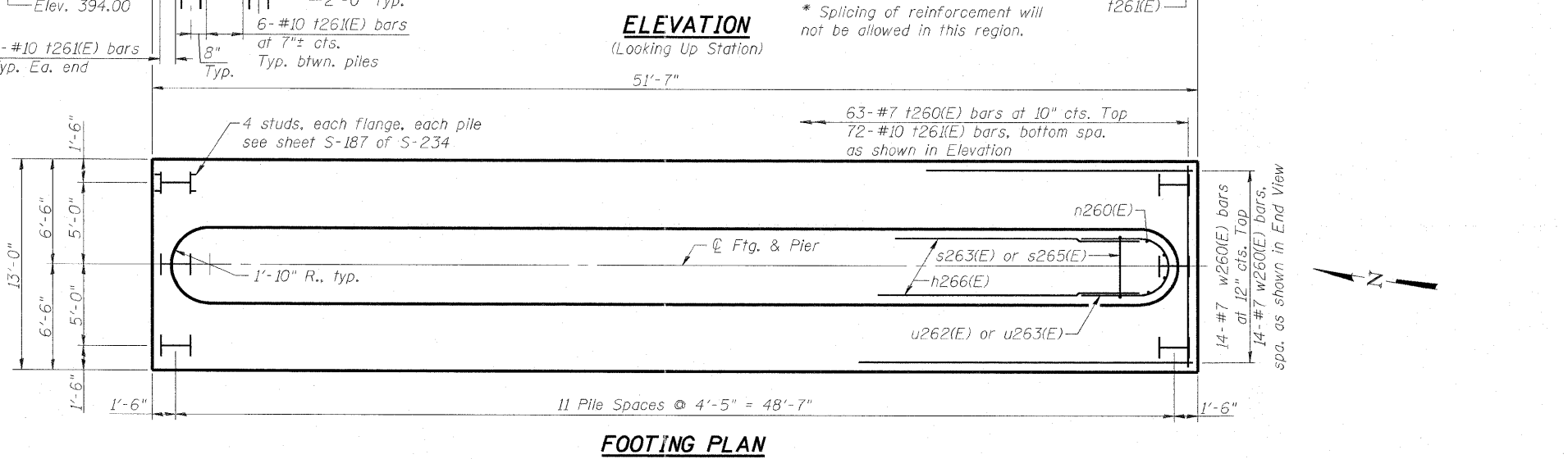
**END VIEW**

Optional const. joint

Limits of Concrete Sealer all exposed faces, top of crashwall and top of pier cap.

Labels: 2", 2", v260(E) or v261(E), 2", 2", n261(E) or n262(E), h267(E), s263(E), s265(E) 2" cl. to Horiz. Bar, s262(E), h266(E), w260(E), t260(E), t261(E), u262(E), 2'-0" Typ., 2-#7 w260(E) bars Typ. Ea. end, 5-#7 w260(E) bars @ 11" Typ. Btwn. Piles, 13'-0", 3'-8", 3'-8", 4'-8", 4'-8", 4'-8", 7'-6", 34'-0 1/4", 17'-6 1/4", 1'-0", 4'-0", 5'-0", 1'-0", 3'-8", 3'-10", 3'-4" Typ., 3'-8 1/2" Typ., 5-#6 u263(E) bars @ 12" cts. Ea. End, Ground Elev.: 401.20 to 405.00, Elev. 394.00, 2'-0" Typ., 6-#10 t261(E) bars at 7"± cts. Typ. btwn. piles, 4-#9 n260(E) bars Each End, 1'-6" Top & Btm. for s264(E), Edge of Shoulder 64W55N Ramp Elev. 400.10, 4-#9 n260(E) bars Each End, 94-#9 s265(E) bars at 6" cts., 4-#9 n260(E) bars Each End, 5-#7 w260(E) bars @ 11" Typ. Btwn. Piles, 3-#10 t261(E) bars Typ. Ea. end, Elev. 394.00, 6-#10 t261(E) bars at 7"± cts. Typ. btwn. piles, 4 studs, each flange, each pile see sheet S-187 of S-234, 63-#7 t260(E) bars at 10" cts. Top, 72-#10 t261(E) bars, bottom spa. as shown in Elevation, 14-#7 w260(E) bars at 12" cts. Top, 14-#7 w260(E) bars, spa. as shown in End View, 11 Pile Spaces @ 4'-5" = 48'-7", 1'-6", 1'-6", 13'-0", 6'-6", 5'-0", 6'-6", 5'-0", 1'-6", 1'-6"

\*\*\*Both hooks of s262(E) bars shall engage horiz. & vert. bars and 90° hook on two successive s262(E) bars on same vert. bar shall be alternated end for end. Includes row of s262(E) bars on the top mat of pile cap.



**AECOM**

USER NAME =  
 PLOT SCALE = 0.166667' / IN.  
 PLOT DATE = 6/30/2011

DESIGNED - DDB	REVISED -
DRAWN - BRD	REVISED -
CHECKED - LLV	REVISED -
DATE - 07-01-11	REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

PIER - UNIT 4 - PIER 13 - PLANS & ELEVATIONS  
 I-70E OVER I-55, CSX & KCS RAILROADS

SCALE: SHEET S-173 OF S-234 SHEETS STA. TO STA.

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
70	82-1-B-2	ST. CLAIR	399	300
S.N. 082-0322 & S.N. 082-0324		CONTRACT NO. 76C76		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		