

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



USER NAME = kritzm	DESIGNED - CLS	REVISED -
PLOT SCALE =	CHECKED - ATB	REVISED -
PLOT DATE = 11/20/2014	DRAWN - MRK	REVISED -
	CHECKED - CLS	REVISED -

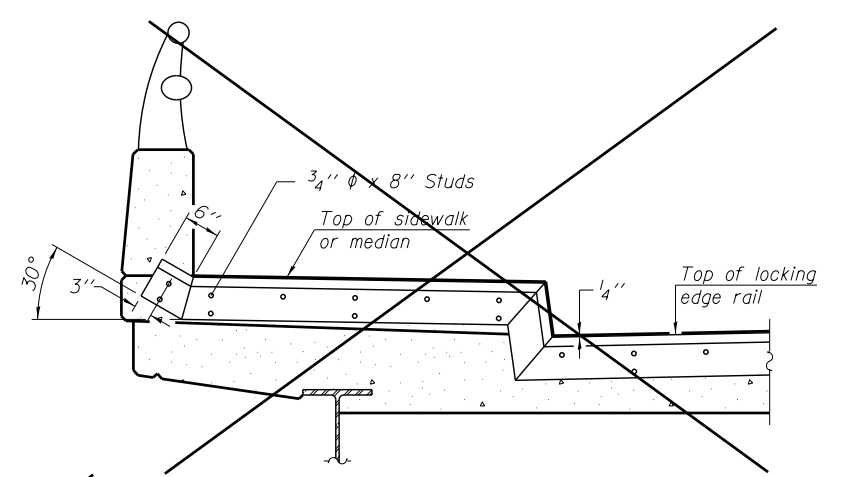
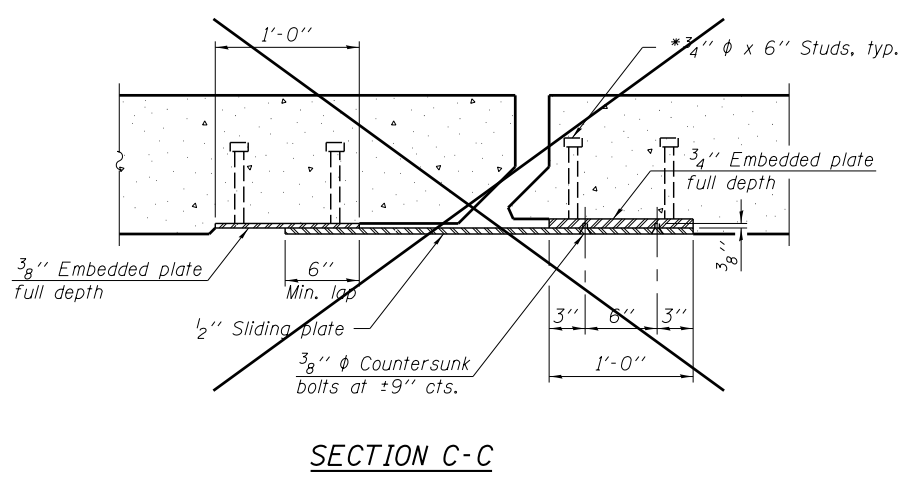
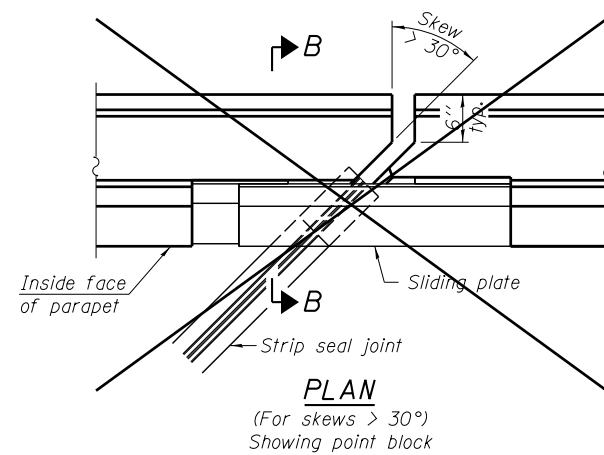
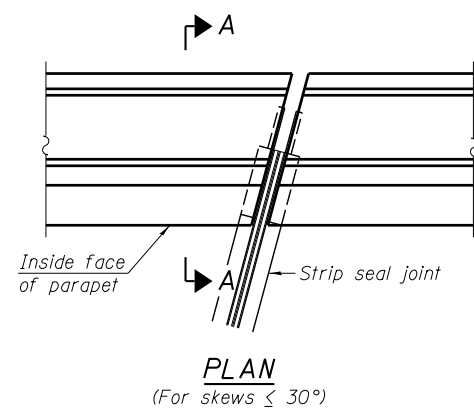
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

MODULAR EXPANSION JOINT DETAILS II  
 I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

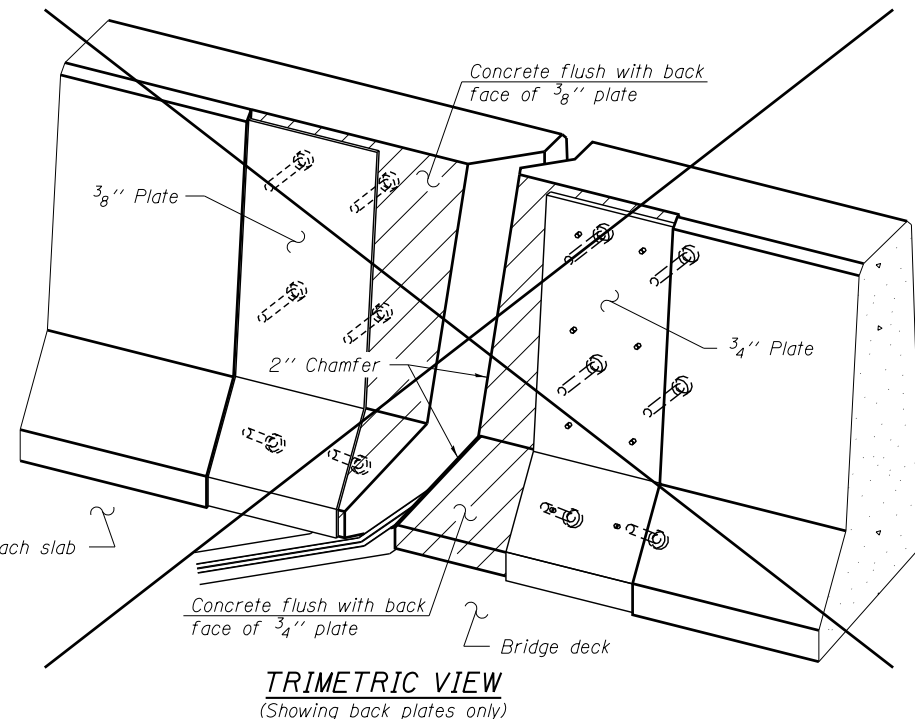
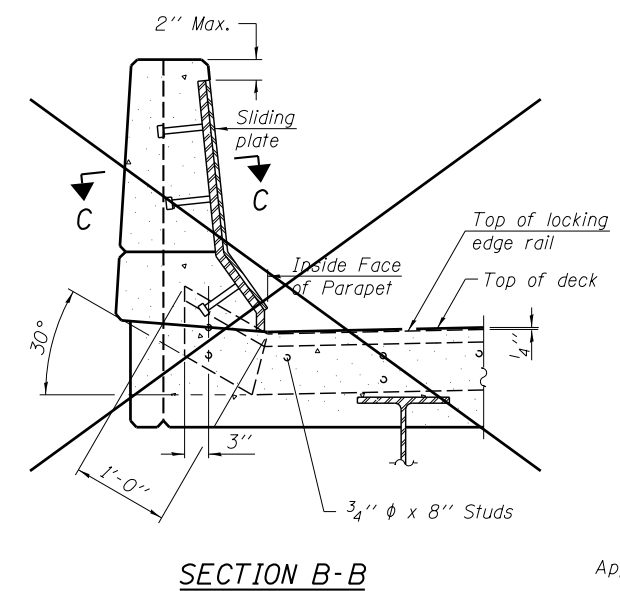
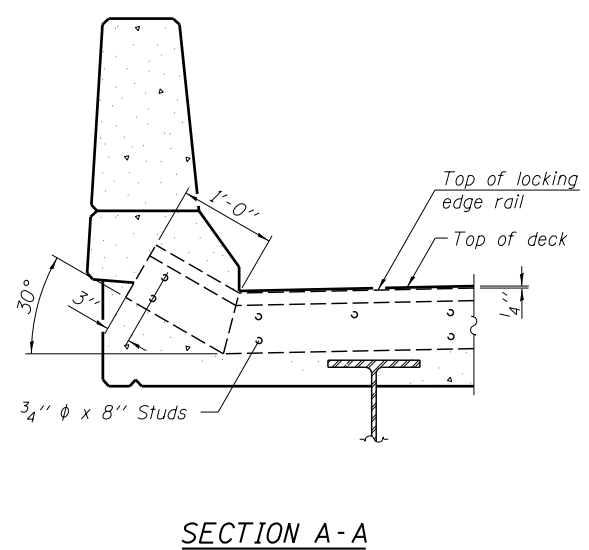
F.A.I. RE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	601
CONTRACT NO. 60L70				
ILLINOIS FED. AID PROJECT				

SHEET NO. S-109 OF S-248 SHEETS

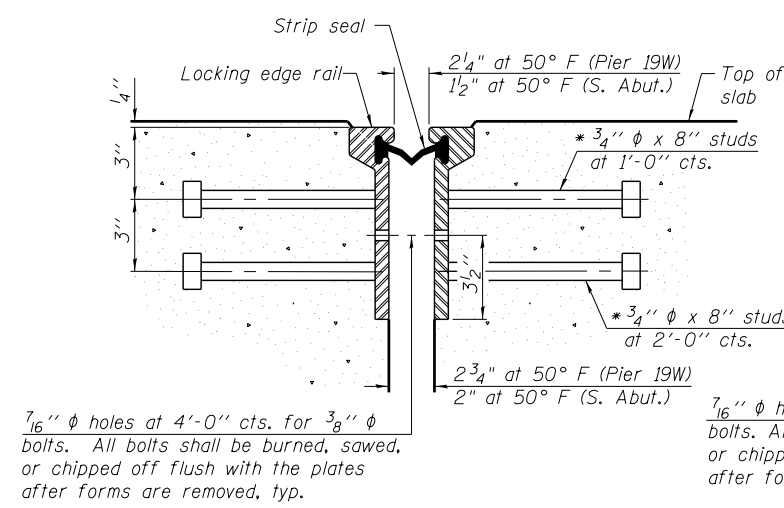
188\_0160000\_60L70\_ExpB\_Mod II.dgn



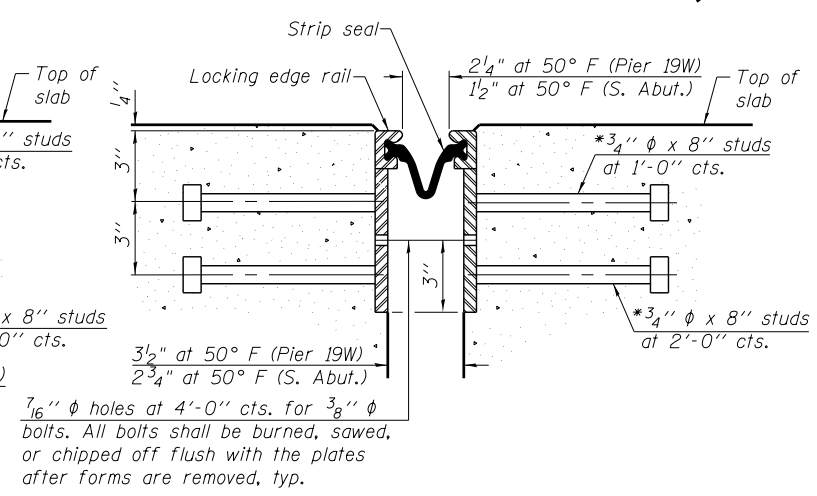
**TYPICAL END TREATMENT AT SIDEWALK OR MEDIAN**  
 Shorter plates with a single row of studs at 12" cts. may be necessary on medians which are shallower than 9". See manufacturer's recommendation.



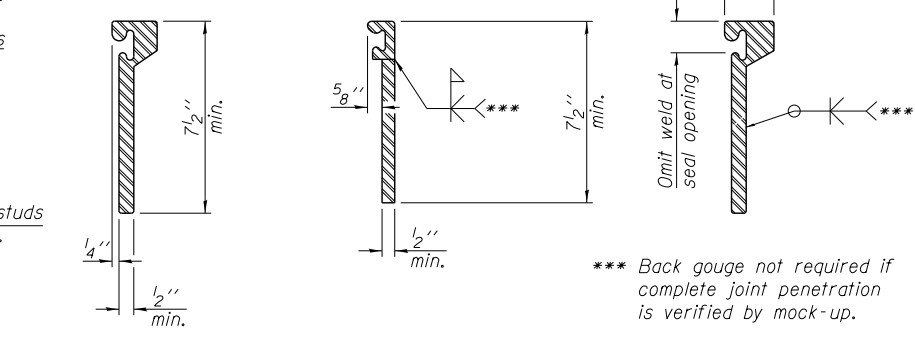
**NOTES:**  
 The strip seal shall be made continuous and shall have a minimum thickness of 1/4". The configuration of the strip seal shall match the configuration of the Locking Edge Rails. Open or "webbed" strip seal gland configurations are not permitted. The gland shall be sized for a maximum rated movement of 4 inches.  
 The Locking Edge Rails depicted are conceptual only, except for the minimum dimensions shown. The actual configuration of the Locking Edge Rails and matching strip seal may vary from manufacturer to manufacturer. Flanged edge rails will not be allowed. Locking Edge Rails may be spliced at slope discontinuities.  
 The manufacturer's recommended installation methods shall be followed.  
 The joint opening and deck dimensions detailed on the superstructure are based on a rolled rail expansion joint. If the Contractor elects to use the welded rail expansion joint, the opening and deck dimensions shall be modified according to the dimensions detailed on this sheet. Required modifications shall be made at no additional cost to the State.  
 All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications. Maximum space between rail segments shall be 3/16", sealed with a suitable sealant. Joints in rails within 10 ft. of curbs shall be welded.



**SECTION THRU ROLLED RAIL JOINT**



**SECTION THRU WELDED RAIL JOINT**



**ROULDED EXTRUDED RAIL**  
**WELDED RAIL**  
**LOCKING EDGE RAIL SPLICE**  
 The inside of the locking edge rail groove shall be free of weld residue.  
 Rolled rail shown, welded rail similar.

**LOCKING EDGE RAILS**

**BILL OF MATERIAL**

Item	Unit	Total
Preformed Joint Strip Seal	Foot	84.0

\* Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Specs., automatically end welded.

EJ-SSJ

1-27-12



USER NAME = kritzm	DESIGNED - CLS	REVISED -
PLOT SCALE =	CHECKED - EJO	REVISED -
PLOT DATE = 11/20/2014	DRAWN - MRK	REVISED -
	CHECKED - CLS	REVISED -

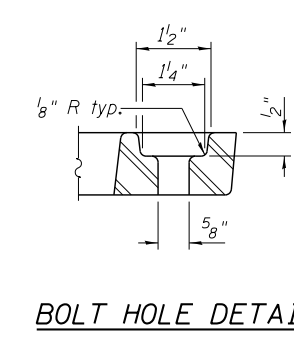
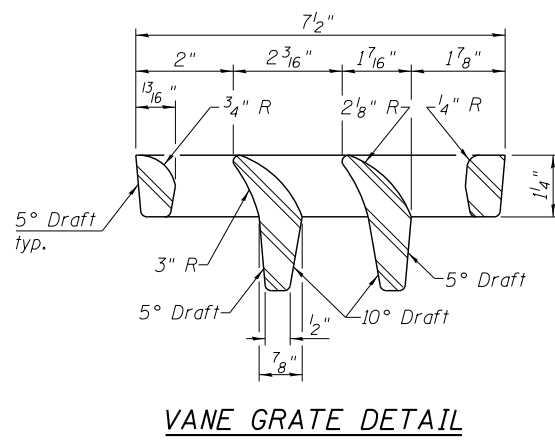
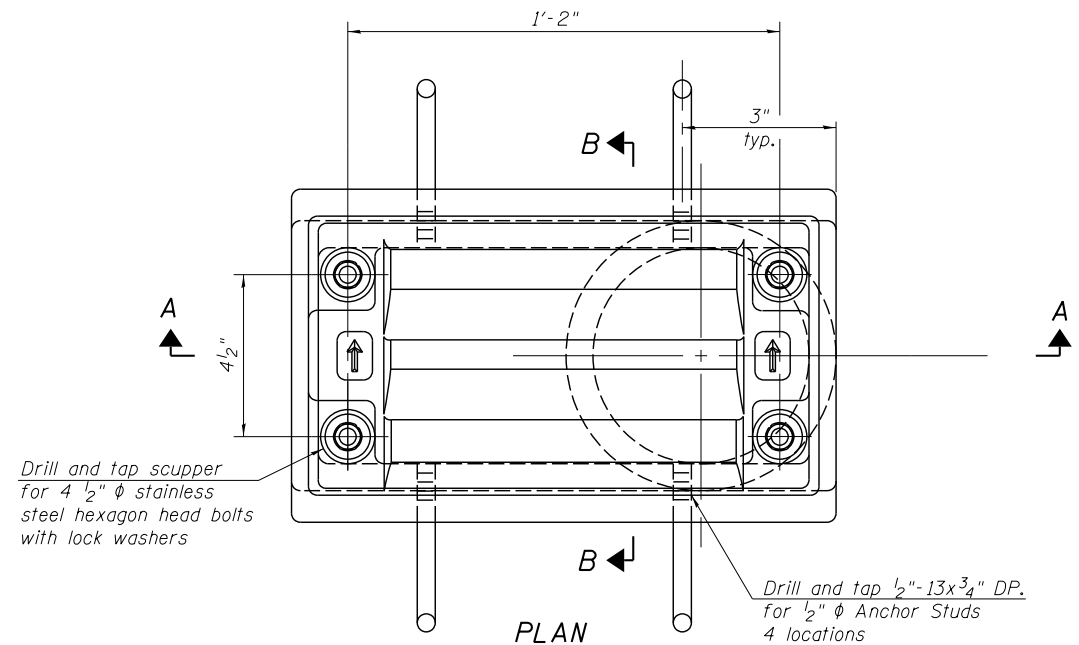
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

EXPANSION JOINT - PIER 19W & SOUTH ABUTMENT - S.N.016-1505  
 I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

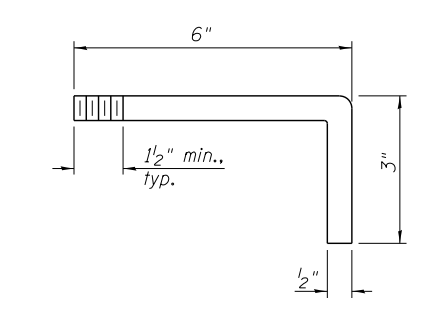
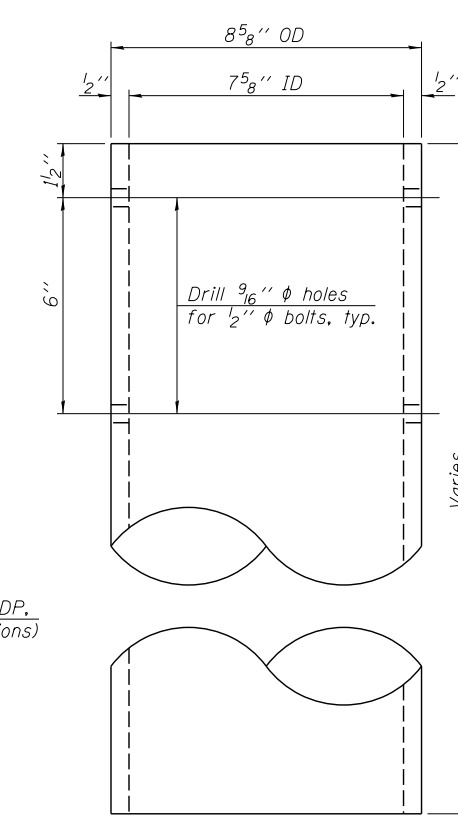
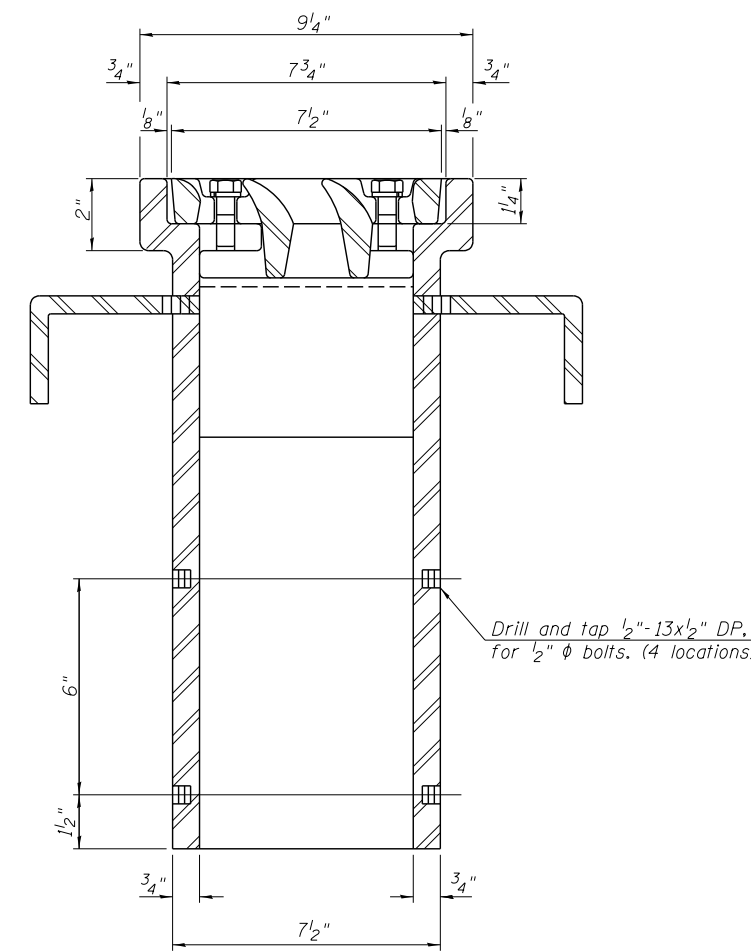
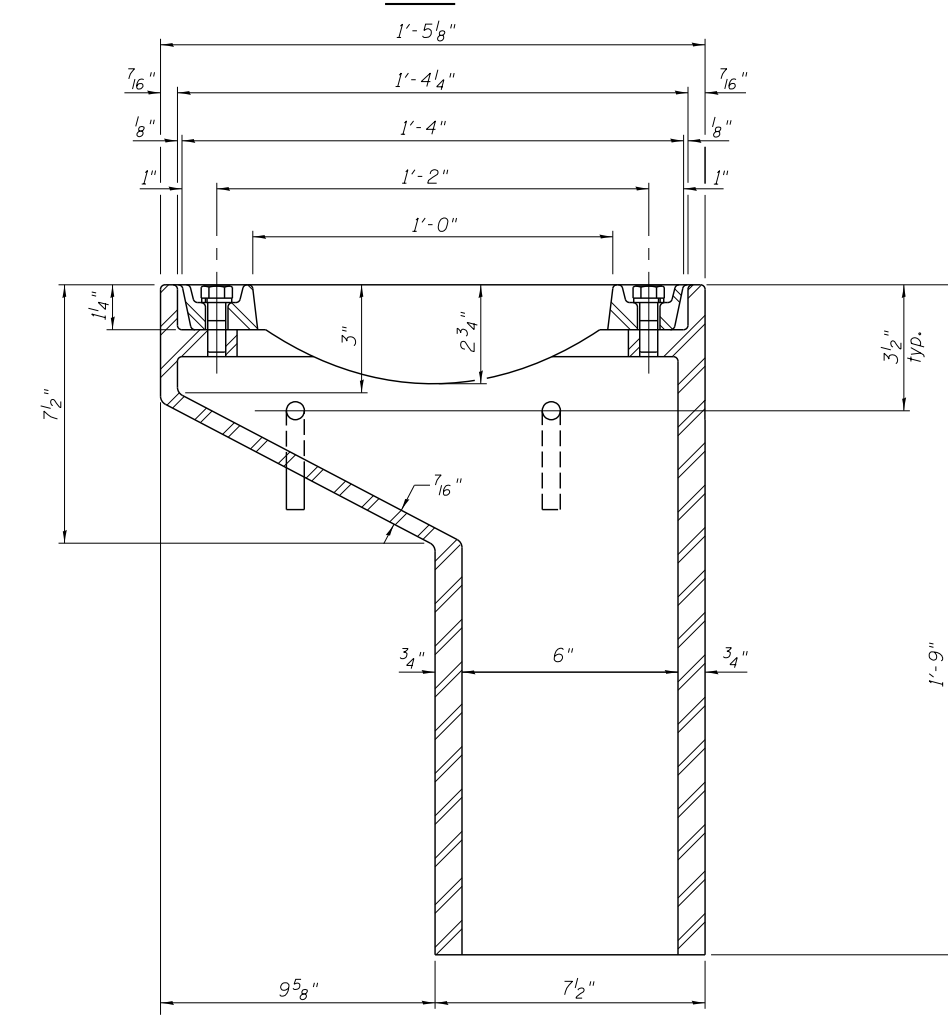
SHEET NO. S-110 OF S-248 SHEETS

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 602
				CONTRACT NO. 60L70
ILLINOIS FED. AID PROJECT				

189\_0161505\_60L70\_EXP9\_19W-South.dgn



**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.



**BILL OF MATERIAL**

ITEM	UNIT	QUANTITY
Drainage Scupper, DS-11	Each	36

200\_0160000\_60L70\_SCUP.dgn

DS-11      7-1-10

**AECOM**

USER NAME = kritz	DESIGNED - CLS	REVISED -
PLOT SCALE =	CHECKED - ATB	REVISED -
PLOT DATE = 11/20/2014	DRAWN - MRK	REVISED -
	CHECKED - CLS	REVISED -

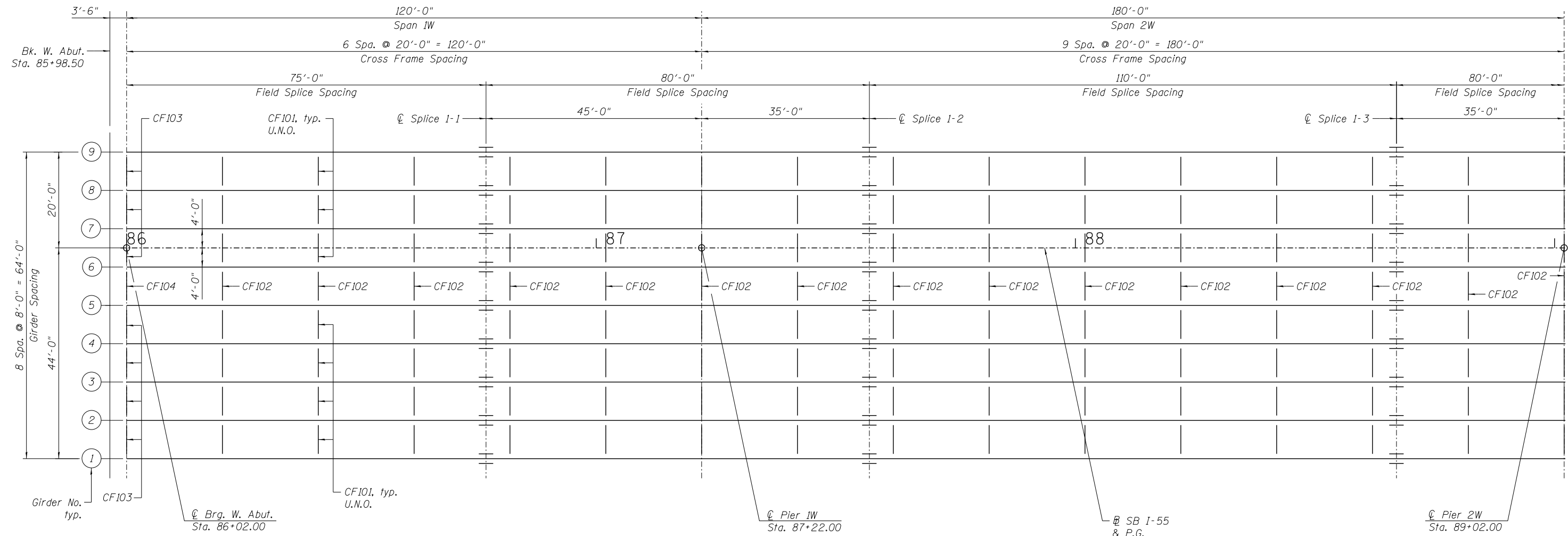
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**DRAINAGE SCUPPER, DS-11**  
**I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-111 OF S-248 SHEETS

F.A.I. RE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	603

CONTRACT NO. 60L70  
 ILLINOIS FED. AID PROJECT



FRAMING PLAN I - S.N. 016-1501

**NOTES:**

1. See Sheet S-125 for girder elevation.
2. See Sheets S-134 & S-135 for camber & top of web elevations.
3. See Sheet S-142 for moment tables & reaction tables.
4. See Sheet S-150 for girder bolted field splice details.
5. See Sheets S-153 for girder cross frame details.

201\_0161501\_60L70\_Framing Plan\_1.dgn



USER NAME =	kritz	DESIGNED -	CLS	REVISED -	
		CHECKED -	ATB	REVISED -	
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PLOT DATE =	11/20/2014	CHECKED -	CLS	REVISED -	

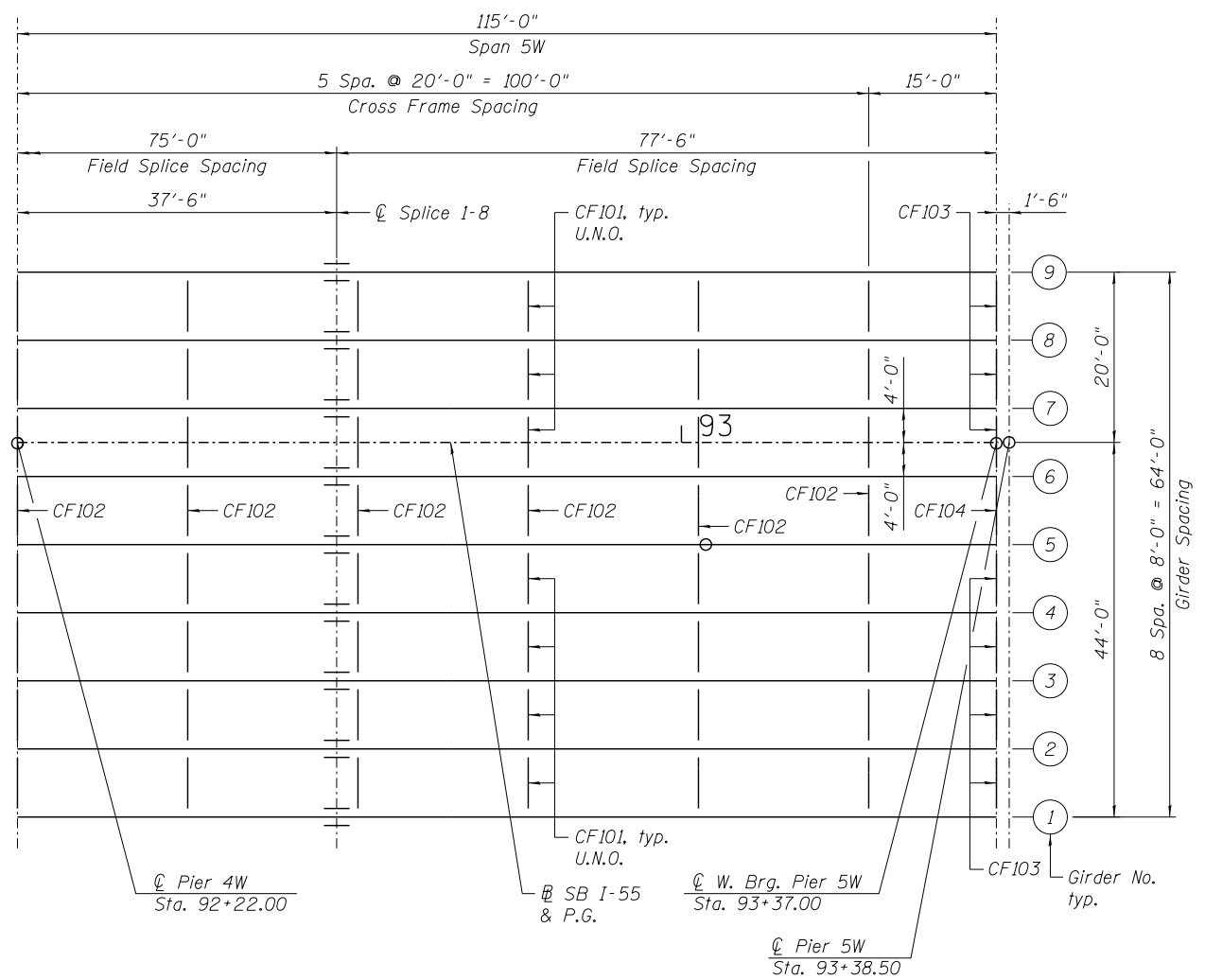
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

GIRDER FRAMING PLAN I - S.N. 016-1501  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-112 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	604
				CONTRACT NO. 60L70
ILLINOIS FED. AID PROJECT				





**FRAMING PLAN III - S.N. 016-1501**

**NOTES:**

1. See Sheet S-125 for girder elevation.
2. See Sheets S-134 & S-135 for camber & top of web elevations.
3. See Sheet S-142 for moment tables & reaction tables.
4. See Sheet S-150 for girder bolted field splice details.
5. See Sheets S-153 for girder cross frame details.

203\_0161501\_60L70\_Framing Plan\_III.dgn



USER NAME = kritz	DESIGNED - CLS	REVISED -
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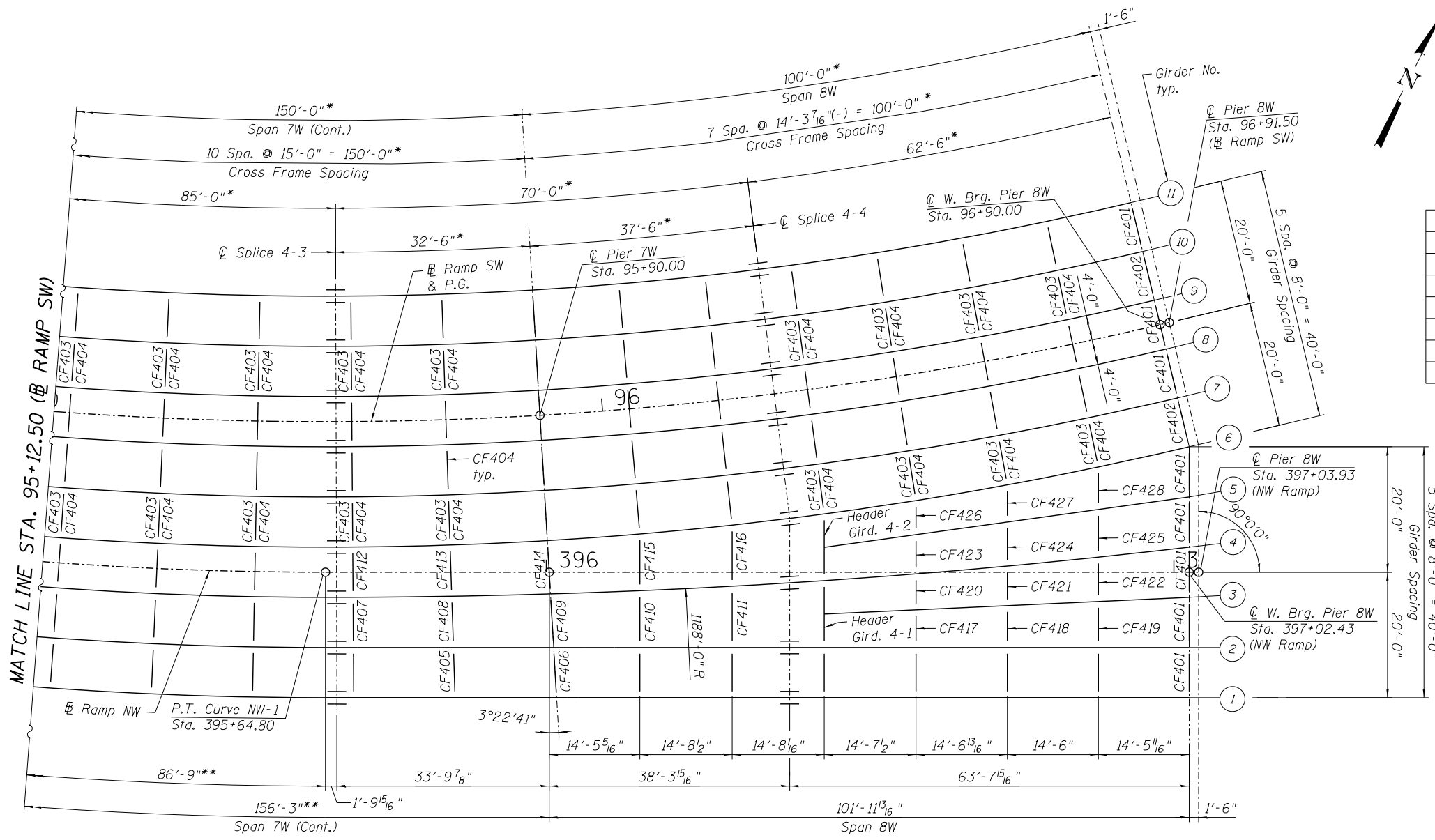
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**GIRDER FRAMING PLAN III - S.N. 016-1501  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-114 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 60L70				
ILLINOIS FED. AID PROJECT				





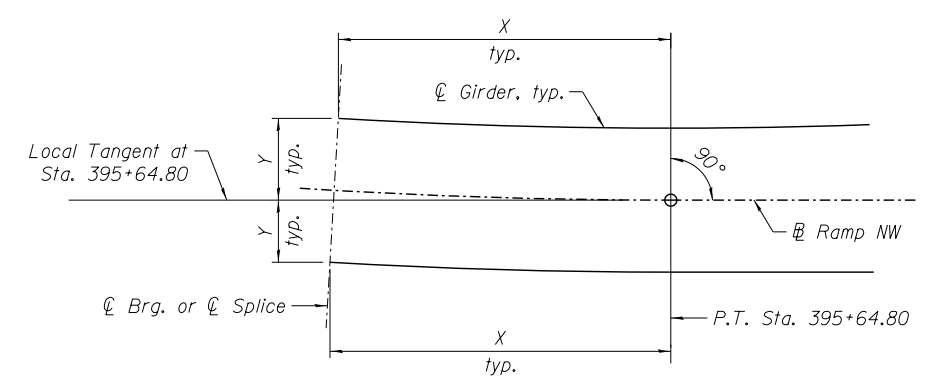
**GIRDER SPACING TABLE**

Girder Spa.	Pier 5W	Pier 6W	Pier 7W	Headers	Pier 8W
G1 to G2	8'-0"	8'-0"	8'-0 3/16"	8'-0"	8'-0"
G2 to G3	N/A	N/A	N/A	5'-4"	8'-0"
G3 to G4	N/A	N/A	N/A	5'-4"	8'-0"
G4 to G5	N/A	N/A	N/A	5'-3 3/4"	8'-0"
G5 to G6	N/A	N/A	N/A	5'-3 3/4"	8'-0"
G2 to G4	8'-0"	8'-0"	8'-6 11/16"	10'-8"	N/A
G4 to G6	8'-0"	8'-0"	8'-6 3/16"	10'-7 1/2"	N/A

\*Measured along the Ramp SW.  
 \*\*Measured along the Ramp NW.  
**FRAMING PLAN IV - S.N. 016-1504 (UNIT 1)**

**GIRDER COORDINATES - S.N. 016-1504 (UNIT 1)**  
 (All Dimensions in Feet)

Girder	E. Brg. Pier 5W		Splice 4-1		Pier 6W		Splice 4-2		Splice 4-3		Pier 7W		Splice 4-4		W. Brg. Pier 8W	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
11	-203.54	82.30	-147.70	63.83	-112.49	55.41	-81.59	49.98	1.64	44.00	33.00	44.97	69.05	48.27	128.36	58.91
10	-206.47	74.85	-149.81	56.11	-114.10	47.58	-82.76	42.06	1.66	36.00	33.47	36.99	70.03	40.33	130.22	51.13
9	-209.40	67.41	-151.92	48.40	-115.70	39.74	-83.92	34.15	1.68	28.00	33.94	29.00	71.02	32.39	132.07	43.35
8	-212.32	59.96	-154.03	40.68	-117.31	31.90	-85.09	26.23	1.71	20.00	34.41	21.01	72.01	24.46	133.93	35.56
7	-215.25	52.52	-156.14	32.96	-118.92	24.07	-86.25	18.32	1.73	12.00	34.88	13.03	72.99	16.52	135.78	27.78
6	-218.18	45.07	-158.25	25.25	-120.52	16.23	-87.42	10.40	1.75	4.00	35.35	5.04	73.98	8.58	137.64	20.00
4	-221.11	37.63	-160.36	17.53	-122.13	8.39	-88.58	2.49	1.78	-4.00	35.86	-3.46	73.98	-1.69	137.64	4.00
2	-224.03	30.18	-162.47	9.81	-123.74	0.56	-89.75	-5.43	1.80	-12.00	36.36	-12.00	73.98	-12.00	137.64	-12.00
1	-226.96	22.74	-164.58	2.09	-125.35	-7.28	-90.91	-13.34	1.82	-20.00	36.83	-20.00	73.98	-20.00	137.64	-20.00



**CURVED GIRDER LAYOUT**  
 (X Measured along Local Tangent)

- NOTES:**
1. See Sheets S-126 and S-127 for girder elevation.
  2. See Sheet S-136 for camber & top of web elevations.
  3. See Sheets S-143 and S-144 for moment tables & reaction tables.
  4. See Sheet S-150 for girder bolted field splice details.
  5. See Sheet S-154 for girder cross frame details.

205\_0161504\_60L70\_Framing Plans\_V.dgn



USER NAME = kritzm	DESIGNED - JXH	REVISED -
	CHECKED - CLS	REVISED -
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STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

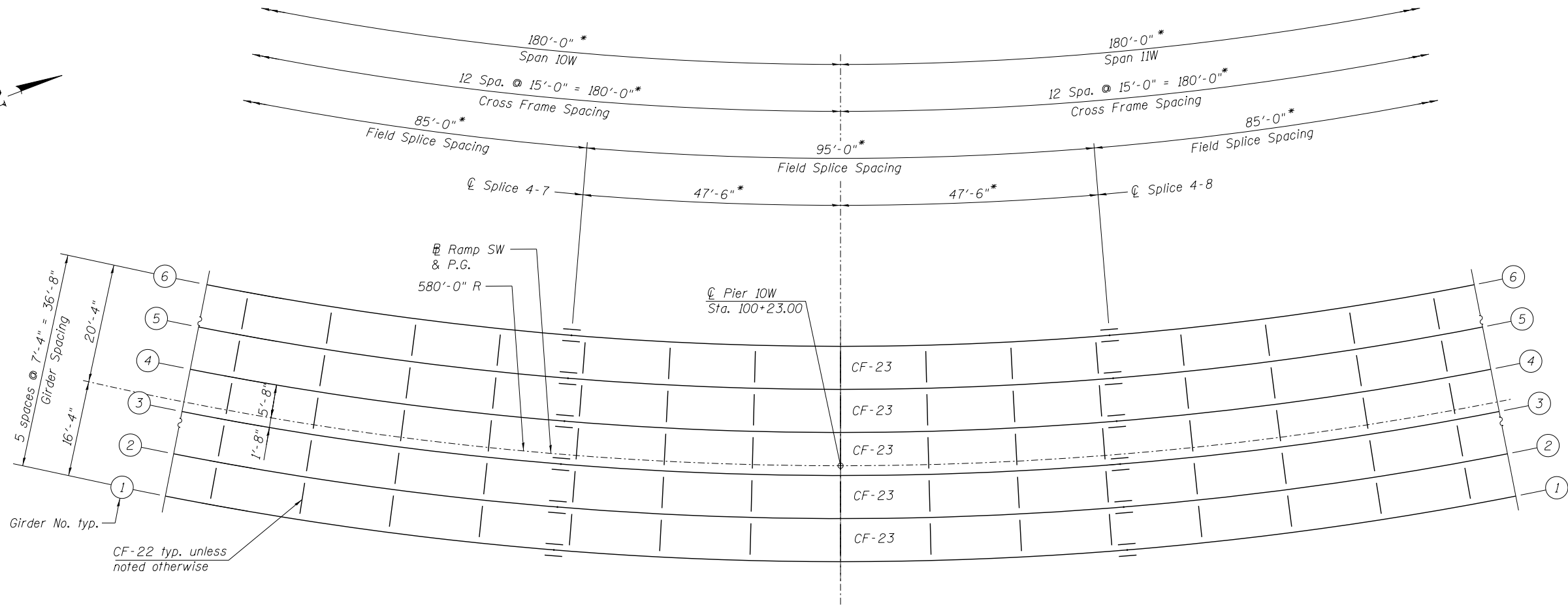
**GIRDER FRAMING PLAN V - S.N. 016-1504 (UNIT 1)**  
**I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-116 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	608
				CONTRACT NO. 60L70
ILLINOIS FED. AID PROJECT				







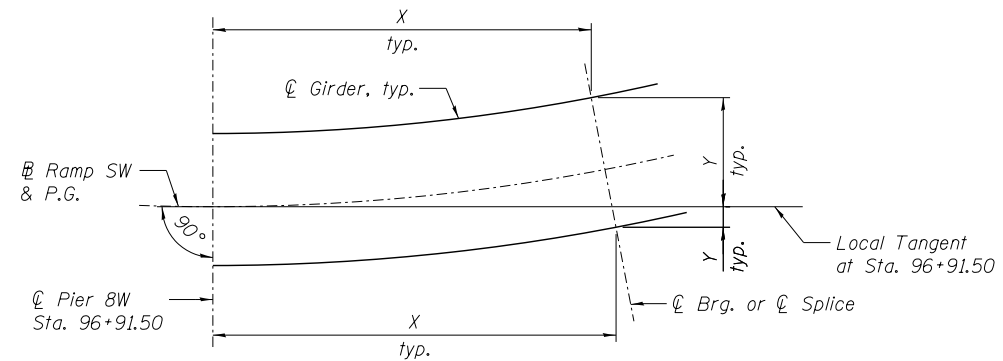
**FRAMING PLAN VII - S.N. 016-1504 (UNIT 2)**

\* Measured along the Ramp SW (S.N. 016-1504) with all the piers radial to alignment.

**GIRDER COORDINATES - S.N. 016-1504 (UNIT 2)**

(All Dimensions in Feet)

Girder	Splice 4-7		Pier 10W		Splice 4-8	
	X	Y	X	Y	X	Y
1	280.468	53.738	322.579	78.446	362.528	106.516
2	277.019	60.210	318.612	84.614	358.070	112.339
3	273.570	66.682	314.645	90.782	353.612	118.162
4	270.121	73.153	310.679	96.950	349.154	123.984
5	266.672	79.625	306.712	103.117	344.696	129.807
6	263.223	86.097	302.745	109.285	340.238	135.629



**CURVED GIRDER LAYOUT**

(X Measured along Local Tangent)

**NOTES:**

1. See Sheet S-128 & S-129 for girder elevations.
2. See Sheet S-137 for camber & top of web elevations.
3. See Sheets S-145 for moment tables & reaction tables.
4. See Sheet S-151 for girder bolted field splice details.
5. See Sheets S-155 for girder cross frame details.

207\_0161504\_60L70\_FRAM7.dgn



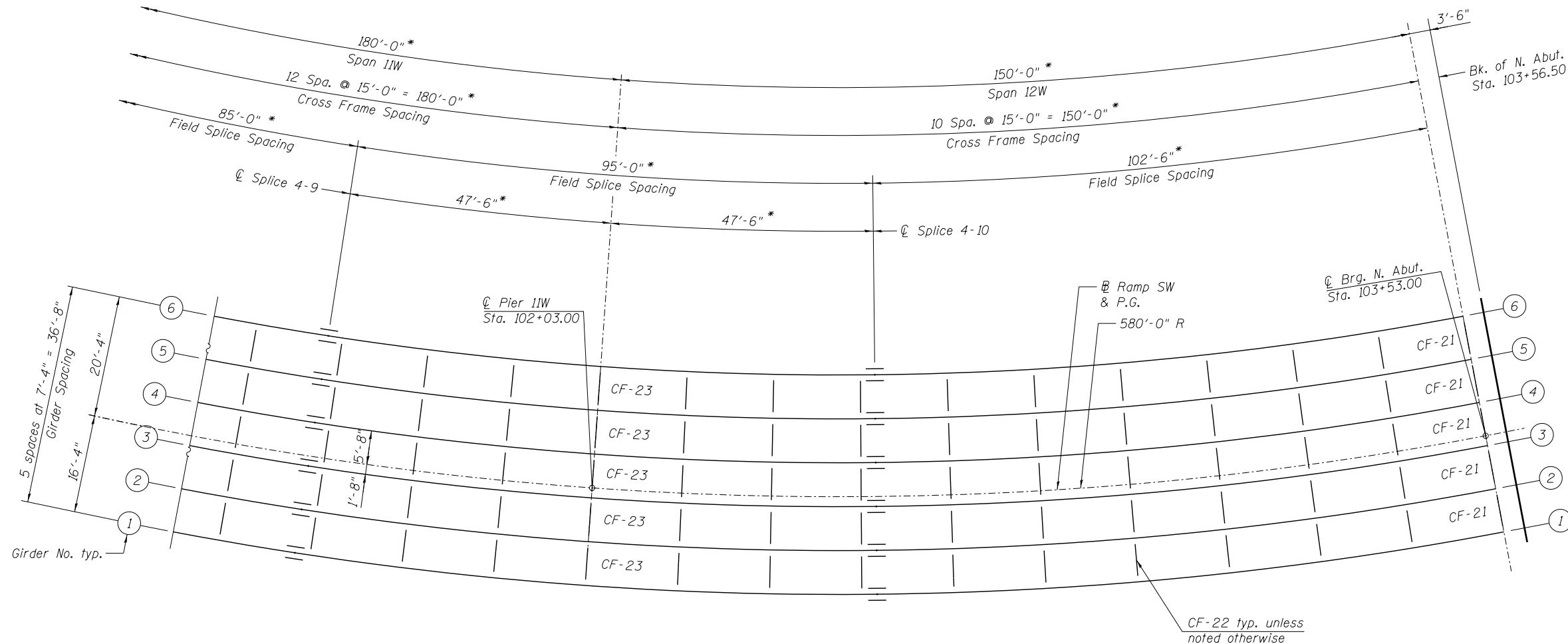
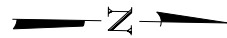
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PLOT DATE = 11/20/2014	CHECKED - TH	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**GIRDER FRAMING PLAN VII - S.N. 016-1504 (UNIT 2)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 610
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	

SHEET NO. S-118 OF S-248 SHEETS



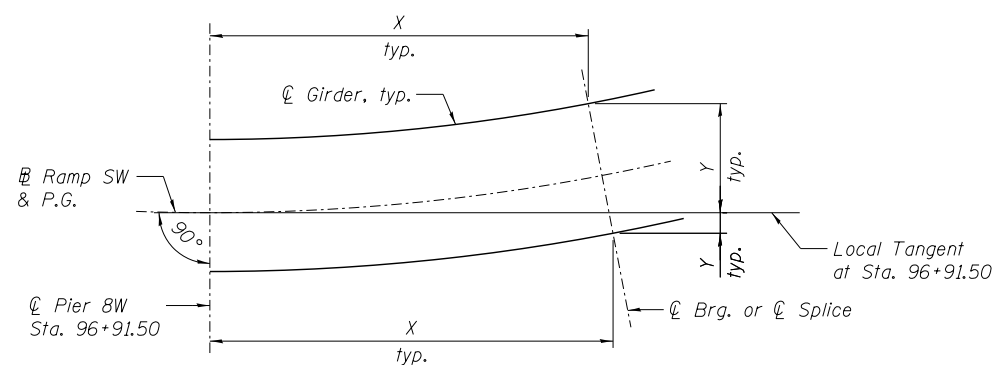
**FRAMING PLAN VIII - S.N. 016-1504 (UNIT 2)**

\* Measured along the  $\bar{R}$  Ramp SW (S.N. 016-1504) with all the piers and abutment radial to alignment.

**GIRDER COORDINATES - S.N. 016-1504 (UNIT 2)**

(All Dimensions in Feet)

Girder	Splice 4-9		Pier 11W		Splice 4-10		$\bar{C}$ Brg. N. Abut.	
	X	Y	X	Y	X	Y	X	Y
1	427.784	164.531	460.337	200.918	489.805	239.847	541.977	331.255
2	422.523	169.640	454.676	205.580	483.782	244.030	535.312	334.313
3	417.263	174.749	449.015	210.242	477.758	248.213	528.647	337.372
4	412.002	179.859	443.355	214.903	471.735	252.396	521.982	340.431
5	406.741	184.968	437.694	219.565	465.712	256.579	515.317	343.490
6	401.481	190.077	432.033	224.227	459.689	260.761	508.653	346.549



**CURVED GIRDER LAYOUT**

(X Measured along Local Tangent)

**NOTES:**

1. See Sheet S-128 & S-129 for girder elevations.
2. See Sheet S-137 for camber & top of web elevations.
3. See Sheets S-145 for moment tables & reaction tables.
4. See Sheet S-151 for girder bolted field splice details.
5. See Sheets S-155 for girder cross frame details.

208\_0161504\_60L70\_FRAMB.dgn



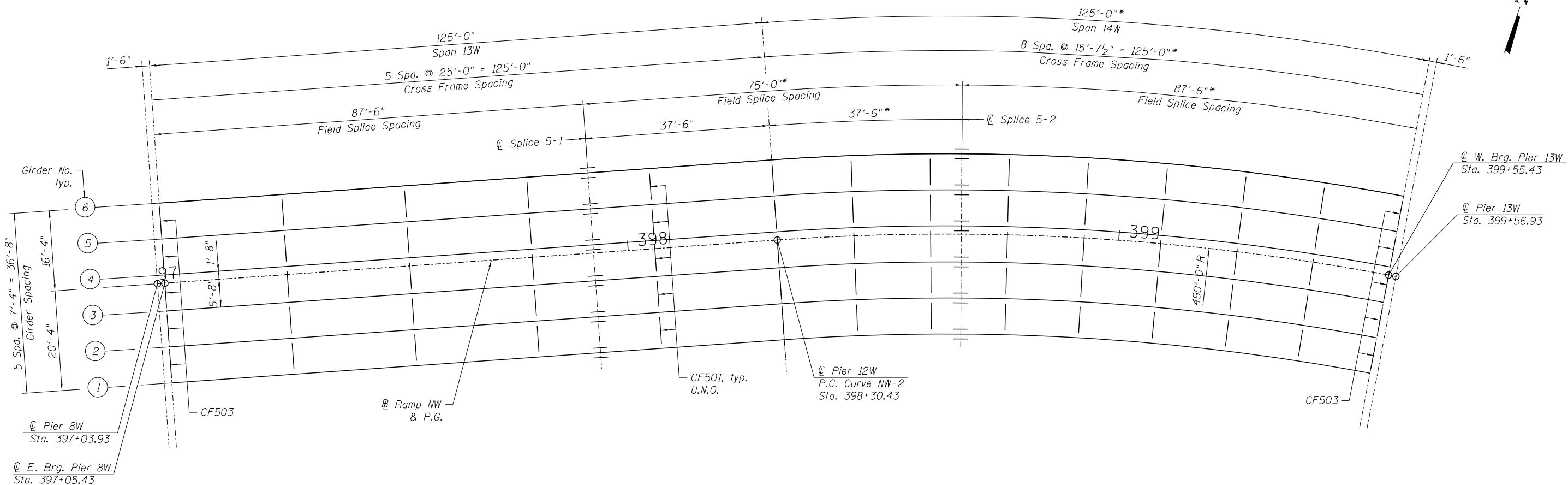
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PLOT DATE = 11/20/2014	DRAWN - AMV	REVISED -
	CHECKED - TH	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**GIRDER FRAMING PLAN VIII - S.N. 016-1504 (UNIT 2)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-119 OF S-248 SHEETS

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 611
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	



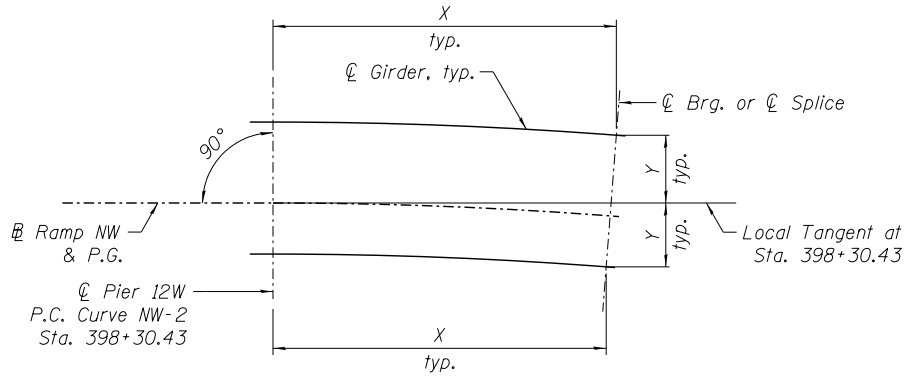
**FRAMING PLAN IX - S.N. 016-1505 (UNIT 1)**

\*Measured along the Ramp NW (S.N. 016-1505) with all the abutments and piers radial to alignment.

**GIRDER COORDINATES - S.N. 016-1505 (UNIT 1)**

(All Dimensions in Feet)

Girder	☉ Splice 5-2		☉ W. Brg. Pier 13W	
	X	Y	X	Y
1	35.909	-21.708	118.457	-35.517
2	36.469	-14.396	120.330	-28.427
3	37.030	-7.084	122.202	-21.337
4	37.591	0.228	124.074	-14.246
5	38.152	7.539	125.946	-7.156
6	38.712	14.851	127.819	-0.065



**CURVED GIRDER LAYOUT**  
(X Measured along Local Tangent)

**NOTES:**

1. See Sheet S-130 for girder elevation.
2. See Sheet S-138 for camber & top of web elevations.
3. See Sheet S-146 for moment tables & reaction tables.
4. See Sheet S-152 for girder bolted field splice details.
5. See Sheets S-156 for girder cross frame details.

209\_0161505\_60L70\_Framing Plan\_IX.dgn



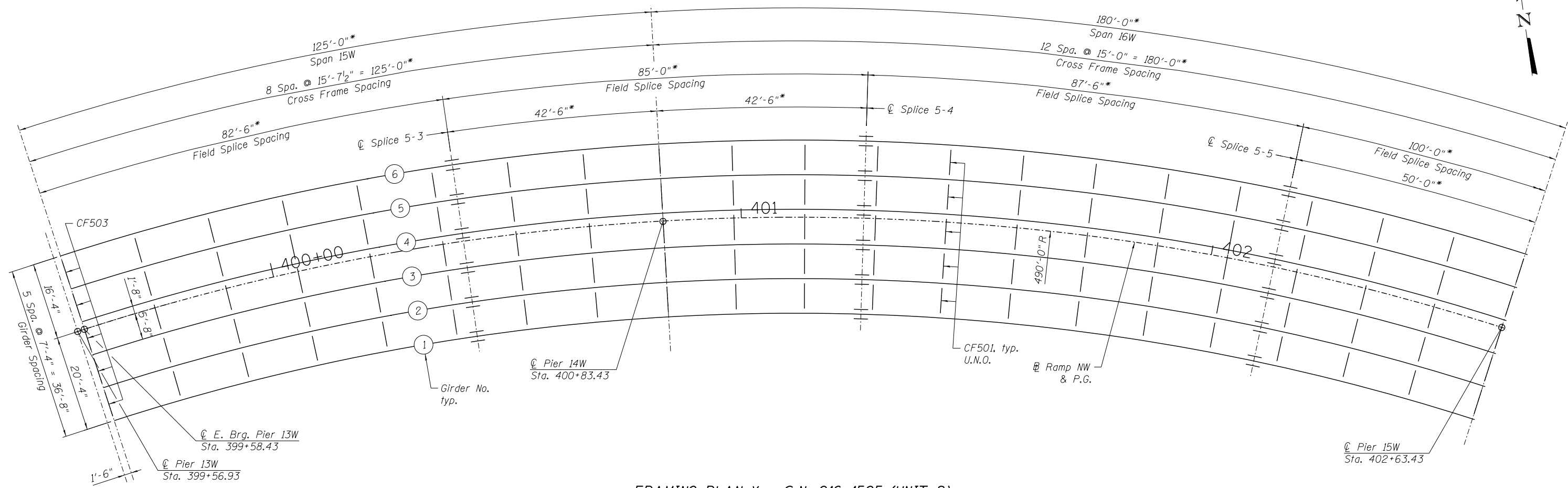
USER NAME = kritzm	DESIGNED - CLS	REVISED -
PLOT SCALE =	CHECKED - ATB	REVISED -
PLOT DATE = 11/20/2014	DRAWN - DD	REVISED -
	CHECKED - CLS	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**GIRDER FRAMING PLAN IX - S.N. 016-1505 (UNIT 1)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-120 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	612
				CONTRACT NO. 60L70
ILLINOIS FED. AID PROJECT				



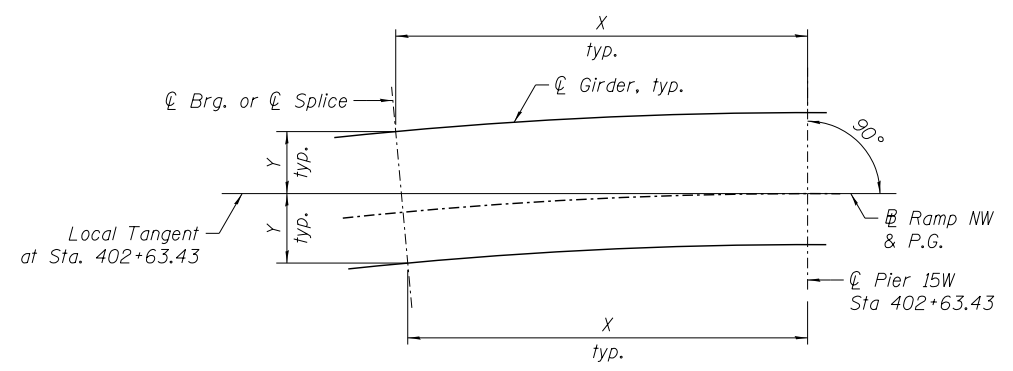
**FRAMING PLAN X - S.N. 016-1505 (UNIT 2)**

\*Measured along the Ramp NW (S.N. 016-1505) with all the abutments and piers radial to alignment.

**GIRDER COORDINATES - S.N. 016-1505 (UNIT 2)**

(All Dimensions in Feet)

Girder	E. Brg. Pier 13W		Splice 5-3		Pier 14W		Splice 5-4		Splice 5-5	
	X	Y	X	Y	X	Y	X	Y	X	Y
1	-273.778	-108.382	-206.013	-67.927	-168.676	-51.668	-130.071	-38.704	-47.842	-22.776
2	-278.071	-102.437	-209.230	-61.337	-171.310	-44.824	-132.102	-31.657	-48.589	-15.481
3	-282.365	-96.492	-212.446	-54.747	-173.944	-37.980	-134.133	-24.611	-49.336	-8.186
4	-286.659	-90.547	-215.663	-48.157	-176.577	-31.136	-136.164	-17.564	-50.083	-0.891
5	-290.953	-84.602	-218.880	-41.567	-179.211	-24.292	-138.195	-10.518	-50.830	6.404
6	-295.246	-78.657	-222.097	-34.976	-181.845	-17.447	-140.226	-3.471	-51.577	13.700



**CURVED GIRDER LAYOUT**  
(X Measured along Local Tangent)

**NOTES:**

1. See Sheet S-131 for girder elevation.
2. See Sheet S-139 for camber & top of web elevations.
3. See Sheet S-147 for moment tables & reaction tables.
4. See Sheet S-152 for girder bolted field splice details.
5. See Sheets S-156 for girder cross frame details.

210\_0161505\_60L70\_Framing Plan\_x.dgn



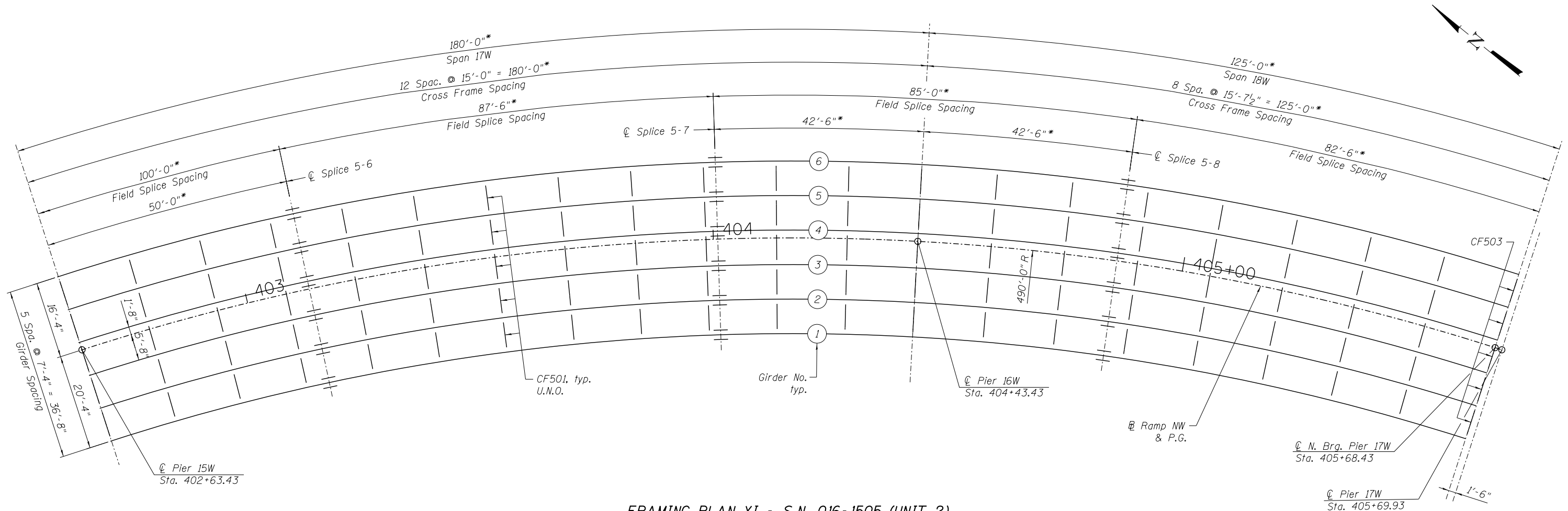
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PLOT DATE = 11/20/2014	DRAWN - DD	REVISED -
	CHECKED - CLS	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**GIRDER FRAMING PLAN X - S.N. 016-1505 (UNIT 2)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-121 OF S-248 SHEETS

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 613
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	



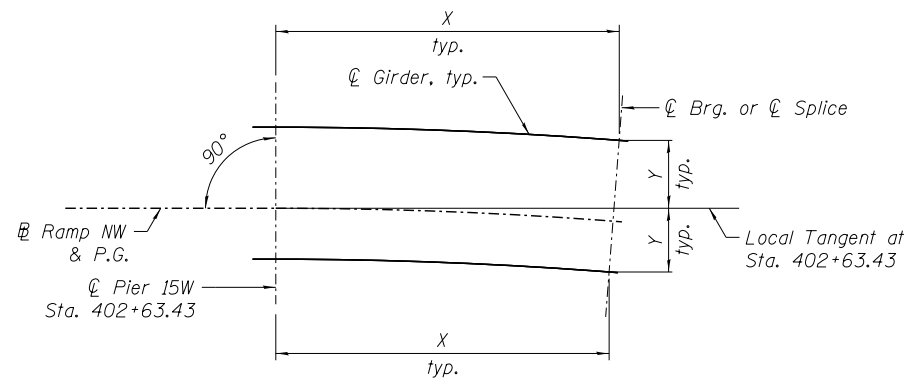
**FRAMING PLAN XI - S.N. 016-1505 (UNIT 2)**

\*Measured along the Ramp NW (S.N. 016-1505) with all the abutments and piers radial to alignment.

**GIRDER COORDINATES - S.N. 016-1505 (UNIT 2)**

(All Dimensions in Feet)

Girder	☐ Splice 5-6		☐ Splice 5-7		☐ Pier 16W		☐ Splice 5-8		☐ N. Brg. Pier 17W	
	X	Y	X	Y	X	Y	X	Y	X	Y
1	47.842	-22.776	130.071	-38.704	168.676	-51.668	206.013	-67.927	273.778	-108.382
2	48.589	-15.481	132.102	-31.657	171.310	-44.824	209.230	-61.337	278.071	-102.437
3	49.336	-8.186	134.133	-24.611	173.944	-37.980	212.447	-54.747	282.365	-96.492
4	50.083	-0.891	136.164	-17.564	176.577	-31.136	215.663	-48.157	286.659	-90.547
5	50.830	6.404	138.195	-10.518	179.211	-24.292	218.880	-41.567	290.953	-84.602
6	51.577	13.700	140.226	-3.471	181.845	-17.447	222.097	-34.976	295.246	-78.657



**CURVED GIRDER LAYOUT**  
(X Measured along Local Tangent)

**NOTES:**

1. See Sheet S-131 for girder elevation.
2. See Sheet S-139 for camber & top of web elevations.
3. See Sheet S-147 for moment tables & reaction tables.
4. See Sheet S-152 for girder bolted field splice details.
5. See Sheets S-156 for girder cross frame details.

211-0161505\_60L70-Framing Plan\_X1.dgn



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PLOT DATE = 11/20/2014

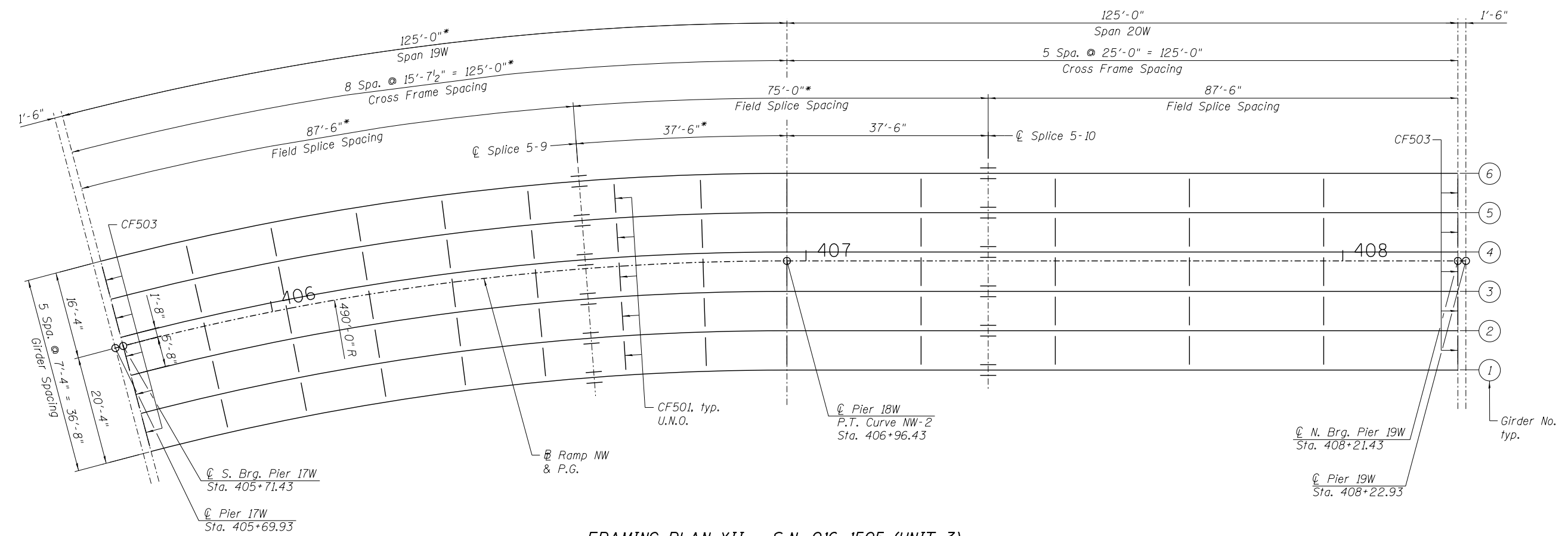
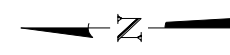
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REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

GIRDER FRAMING PLAN XI - S.N. 016-1505 (UNIT 2)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

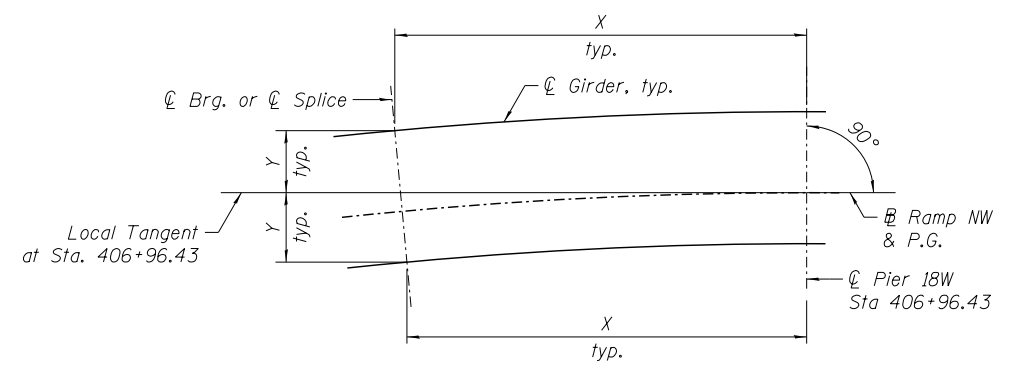
SHEET NO. S-122 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	614
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	



**FRAMING PLAN XII - S.N. 016-1505 (UNIT 3)**

\*Measured along the Ramp NW (S.N. 016-1505) with all the abutments and piers radial to alignment.



**CURVED GIRDER LAYOUT**  
(X Measured along Local Tangent)

**GIRDER COORDINATES - S.N. 016-1505 (UNIT 3)**

(All Dimensions in Feet)

Girder	☉ S. Brg. Pier 17W		☉ Splice 5-9	
	X	Y	X	Y
1	-118.457	-35.517	-35.909	-21.708
2	-120.330	-28.427	-36.469	-14.396
3	-122.202	-21.337	-37.030	-7.084
4	-124.074	-14.246	-37.591	0.228
5	-125.946	-7.156	-38.152	7.539
6	-127.819	-0.065	-38.712	14.851

**NOTES:**

1. See Sheet S-132 for girder elevation.
2. See Sheet S-140 for camber & top of web elevations.
3. See Sheet S-148 for moment tables & reaction tables.
4. See Sheet S-152 for girder bolted field splice details.
5. See Sheet S-156 for girder cross frame details.

212\_0161505\_60L70\_Framing Plan\_XII.dgn



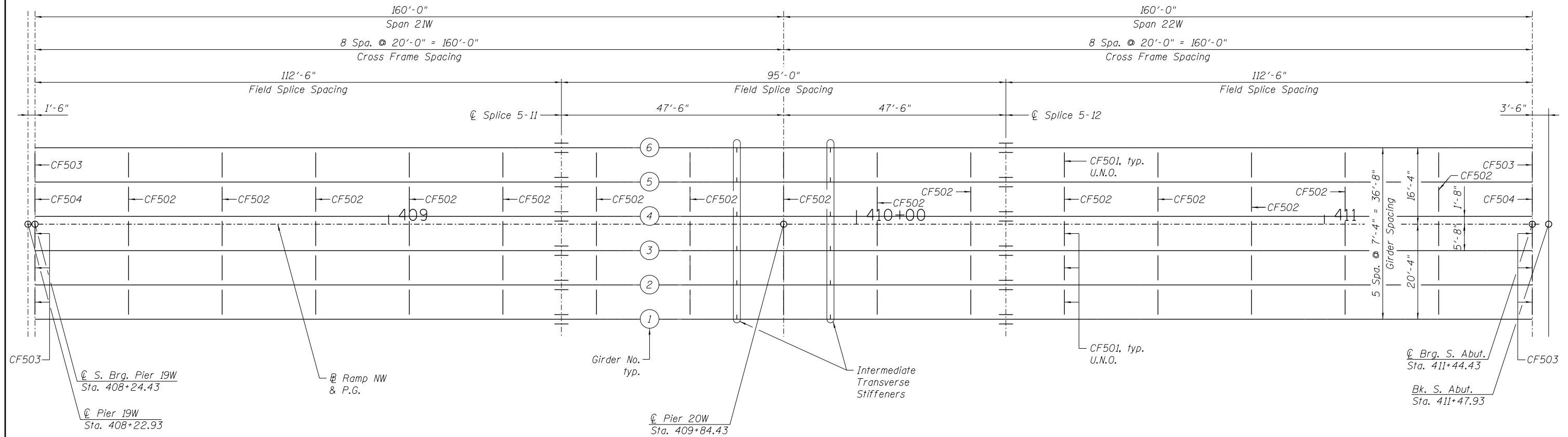
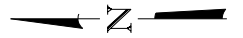
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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**GIRDER FRAMING PLAN XII - S.N. 016-1505 (UNIT 3)**  
**I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-123 OF S-248 SHEETS

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 615
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	



FRAMING PLAN IX - S.N. 016-1505 (UNIT 4)

**NOTES:**

1. See Sheet S-133 for girder elevation.
2. See Sheet S-141 for camber & top of web elevations.
3. See Sheet S-149 for moment tables & reaction tables.
4. See Sheet S-152 for girder bolted field splice details.
5. See Sheet S-156 for girder cross frame details.

213\_0161505\_60L70\_Framing Plan\_XIII.dgn



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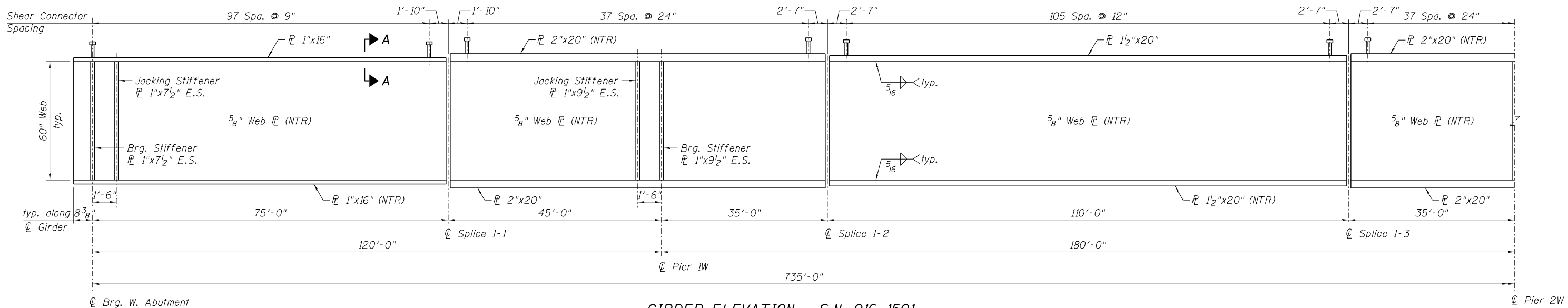
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

GIRDER FRAMING PLAN XIII - S.N. 016-1505 (UNIT 4)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

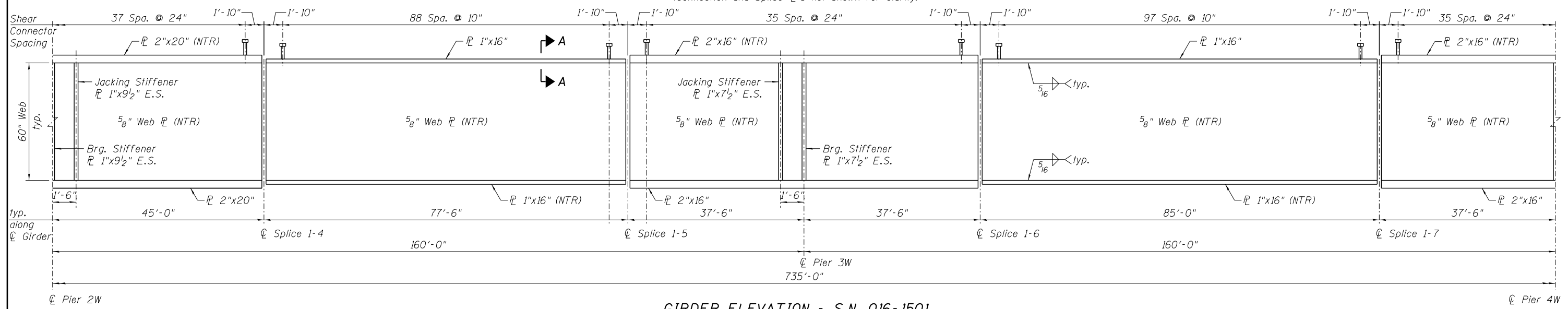
SHEET NO. S-124 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	

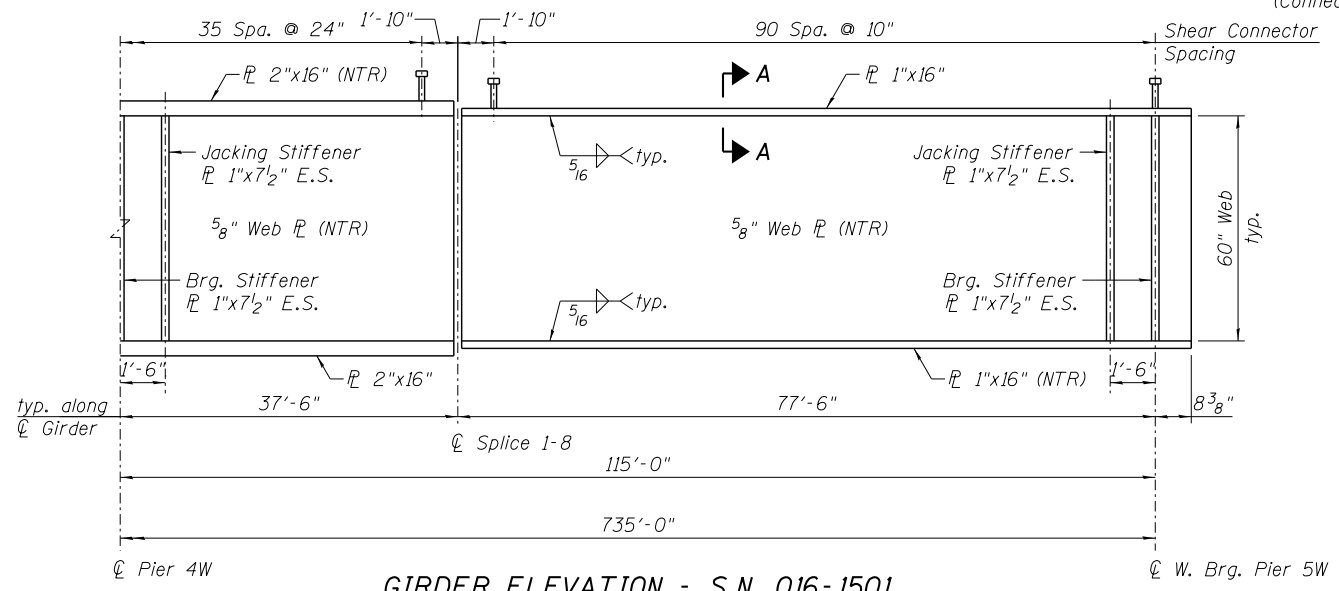




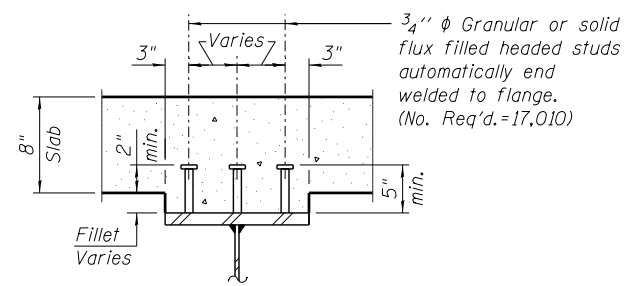
**GIRDER ELEVATION - S.N. 016-1501**  
(Connection and Splice R's not shown for clarity)



**GIRDER ELEVATION - S.N. 016-1501**  
(Connection and Splice R's not shown for clarity)



**GIRDER ELEVATION - S.N. 016-1501**  
(Connection and Splice R's not shown for clarity)



**SECTION A-A**

- NOTES:**
1. See Sheets S-112 thru S-114 for girder framing plan.
  2. See Sheets S-134 thru S-135 for camber & top of web elevations.
  3. See Sheet S-142 for moment tables & reaction tables.
  4. See Sheet S-150 for girder bolted field splice details.
  5. See Sheets S-153 for girder cross frame details.
  6. All structural steel shall be AASHTO M270 Grade 50.
  7. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

221\_0161501\_60L70\_Girder Elevations.dgn



USER NAME =	krizm	DESIGNED -	CLS	REVISED -	
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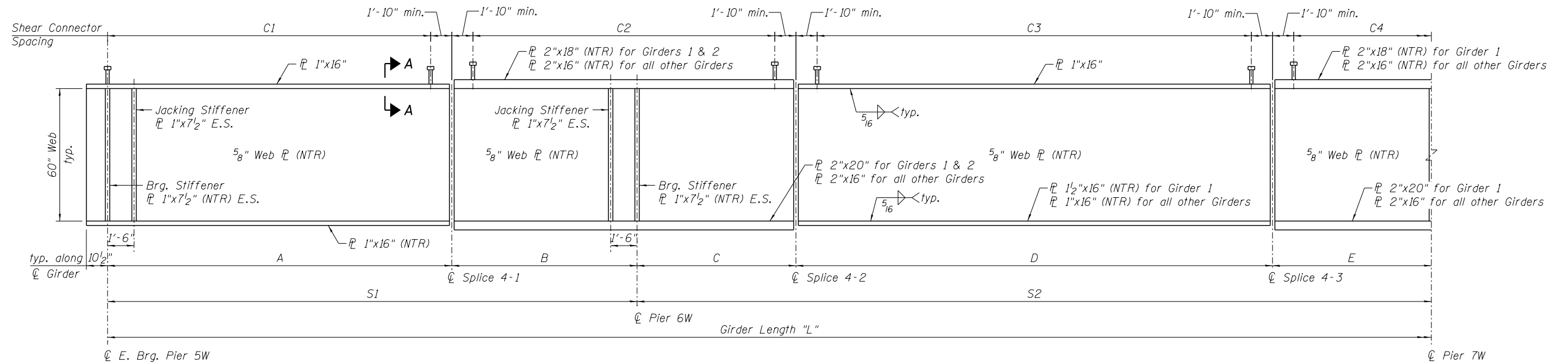
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**GIRDER ELEVATIONS I - S.N. 016-1501**  
**I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

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CONTRACT NO. 60L70				

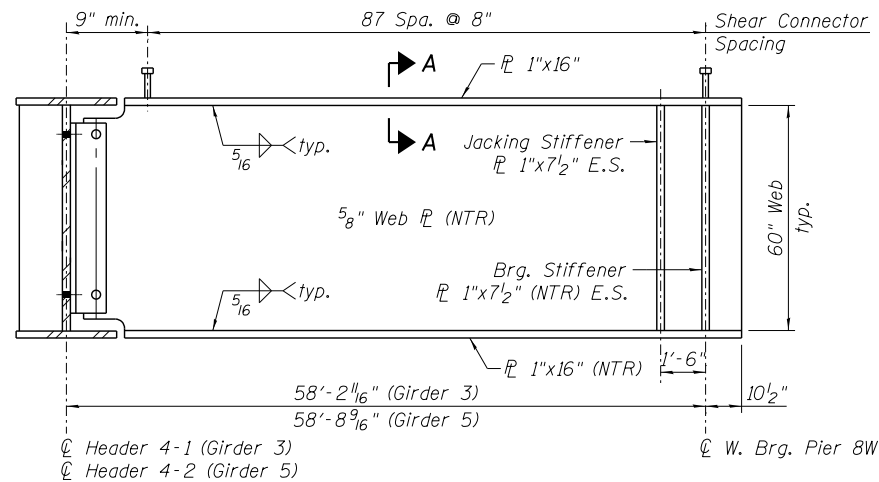
SHEET NO. S-125 OF S-248 SHEETS

ILLINOIS FED. AID PROJECT



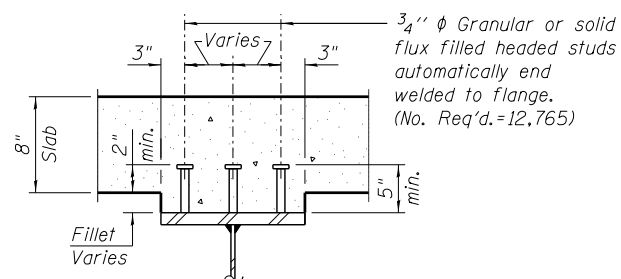
**ELEVATION - GIRDERS 1, 2, 4, 6 THRU 11, S.N. 016-1504 (UNIT 1)**

(Connection and Splice  $\bar{r}$ 's not shown for clarity)

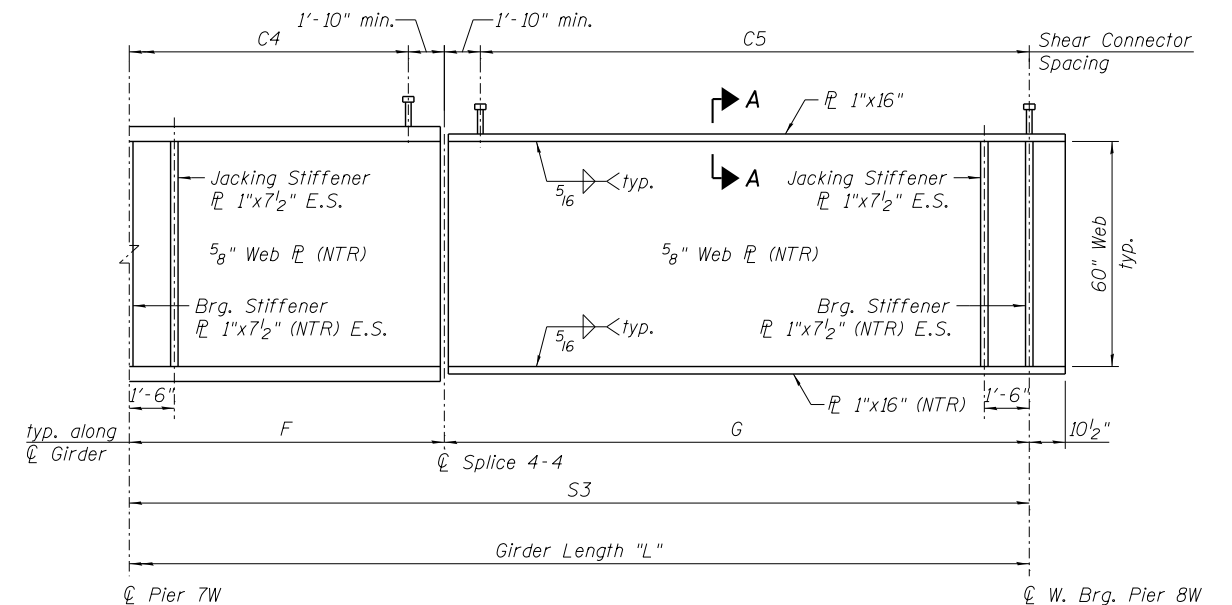


**ELEVATION - GIRDERS 3 AND 5, S.N. 016-1504 (UNIT 1)**

(Connection and Splice  $\bar{r}$ 's not shown for clarity)



**SECTION A-A**



**ELEVATION - GIRDERS 1, 2, 4, 6 THRU 11, S.N. 016-1504 (UNIT 1)**

(Connection and Splice  $\bar{r}$ 's not shown for clarity)

**GIRDER DIMENSIONS - S.N. 016-1504 (UNIT 1)**

(All dimensions in Feet)

Girder	Radius	Radius 2	L*	S1	S2	S3	A	B	C	D	E	F	G	C1	C2	C3	C4	C5
1	624.000	-	369.928	107.700	161.422	100.806	67.355	40.345	34.966	91.448	35.008	37.147	63.659	99 Spa. @ 8"	72 Spa. @ 12"	135 Spa. @ 8"	69 Spa. @ 12"	93 Spa. @ 8"
2	616.000	-	366.930	106.300	159.352	101.278	66.472	39.828	34.517	90.276	34.559	37.619	63.659	97 Spa. @ 8"	71 Spa. @ 12"	133 Spa. @ 8"	69 Spa. @ 12"	93 Spa. @ 8"
4	608.000	1,188.000	364.243	104.900	157.257	102.086	65.590	39.310	34.069	89.103	34.084	38.166	63.921	96 Spa. @ 8"	70 Spa. @ 12"	131 Spa. @ 8"	69 Spa. @ 12"	93 Spa. @ 8"
6	600.000	-	362.172	103.500	155.172	103.500	64.707	38.793	33.621	87.931	33.621	38.793	64.707	95 Spa. @ 8"	69 Spa. @ 12"	129 Spa. @ 8"	69 Spa. @ 12"	95 Spa. @ 8"
7	592.000	-	357.303	102.100	153.103	102.100	63.824	38.276	33.172	86.759	33.172	38.276	63.824	93 Spa. @ 8"	68 Spa. @ 12"	128 Spa. @ 8"	68 Spa. @ 12"	93 Spa. @ 8"
8	584.000	-	352.434	100.700	151.034	100.700	62.941	37.759	32.724	85.586	32.724	37.759	62.941	92 Spa. @ 8"	67 Spa. @ 12"	126 Spa. @ 8"	67 Spa. @ 12"	92 Spa. @ 8"
9	576.000	-	347.566	99.300	148.966	99.300	62.059	37.241	32.276	84.414	32.276	37.241	62.059	91 Spa. @ 8"	66 Spa. @ 12"	124 Spa. @ 8"	66 Spa. @ 12"	91 Spa. @ 8"
10	568.000	-	342.697	97.900	146.897	97.900	61.176	36.724	31.828	83.241	31.828	36.724	61.176	89 Spa. @ 8"	65 Spa. @ 12"	122 Spa. @ 8"	65 Spa. @ 12"	89 Spa. @ 8"
11	560.000	-	337.828	96.500	144.828	96.500	60.293	36.207	31.379	82.069	31.379	36.207	60.293	88 Spa. @ 8"	64 Spa. @ 12"	121 Spa. @ 8"	64 Spa. @ 12"	88 Spa. @ 8"

\* Girder Length "L" excludes girder ends beyond first & last bearings.

**NOTES:**

1. See Sheets S-115 and S-116 for girder framing plan.
2. See Sheet S-136 for camber & top of web elevations.
3. See Sheets S-143 and S-144 for moment tables & reaction tables.
4. See Sheet S-150 for girder bolted field splice details.
5. See Sheet S-154 for girder cross frame details.
6. All structural steel shall be AASHTO M270 Grade 50.
7. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

222.0161504\_60L70\_Girder Elevations\_II.dgn



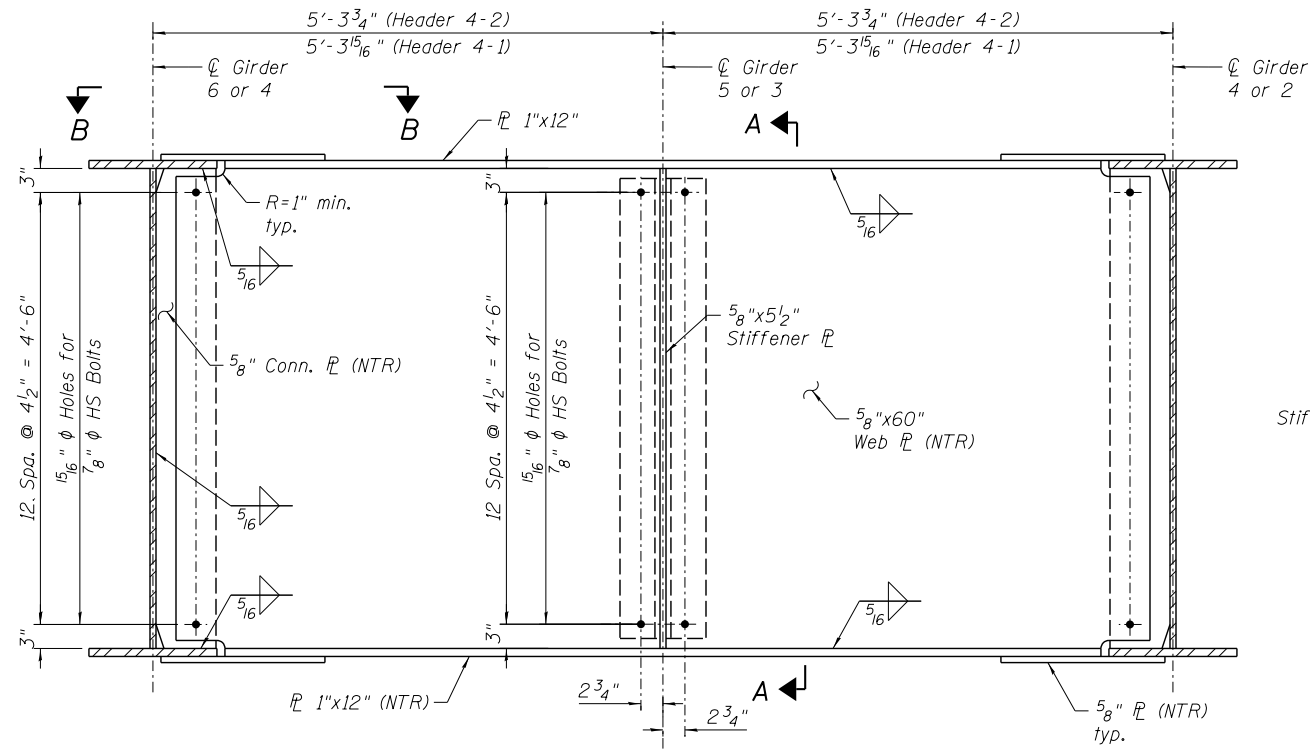
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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

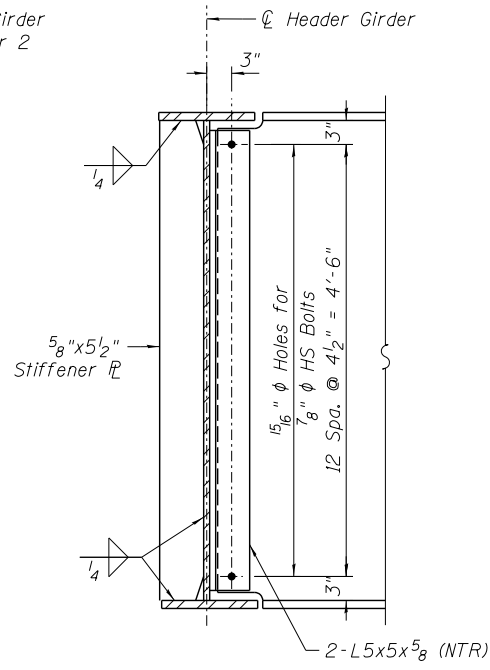
**GIRDER ELEVATIONS II - S.N.016-1504 (UNIT 1)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-126 OF S-248 SHEETS

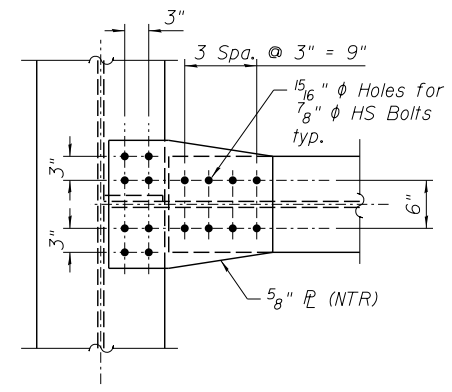
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	618
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	



**HEADER GIRDER ELEVATION**  
(Looking upstation)



**SECTION A-A**



**SECTION B-B**

**NOTES:**

1. See Sheets S-115 and S-116 for girder framing plan.
2. See Sheet S-136 for camber & top of web elevations.
3. See Sheets S-143 and S-144 for moment tables & reaction tables.
4. See Sheet S-150 for girder bolted field splice details.
5. See Sheet S-154 for girder cross frame details.
6. All structural steel shall be AASHTO M270 Grade 50.
7. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

223.0161504\_60L70\_Girder Elevations\_III.dgn



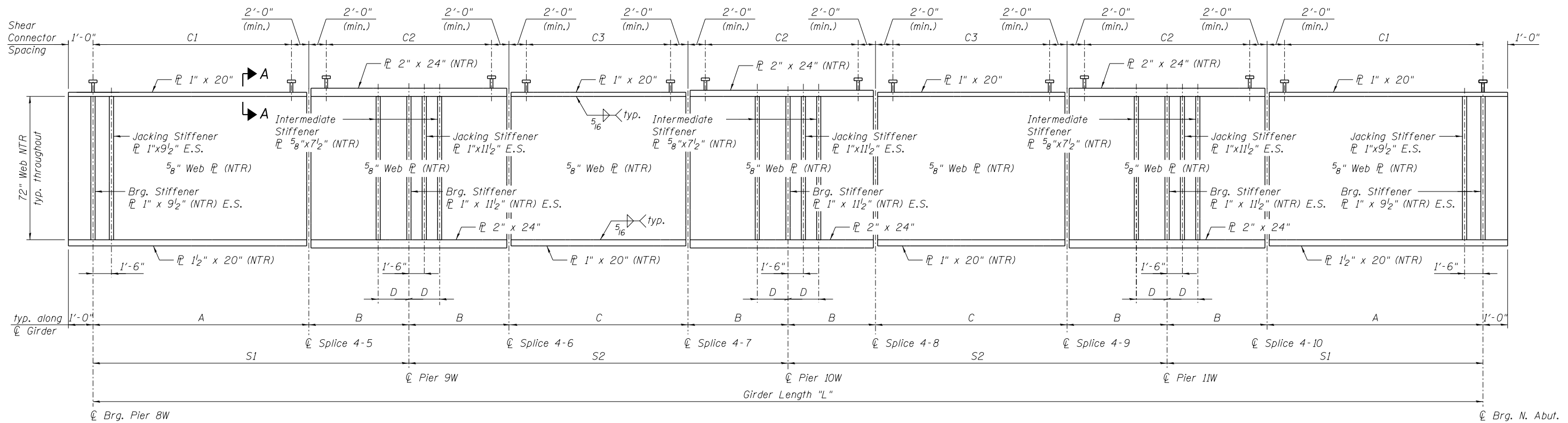
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PLOT DATE = 11/20/2014	CHECKED - DD	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**GIRDER ELEVATIONS III - S.N. 016-1504 (UNIT 1)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-127 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	619
ILLINOIS FED. AID PROJECT			CONTRACT NO. 60L70	



**GIRDERS 1, 2 & 3**  
**GIRDER ELEVATION - S.N. 016-1504 - (UNIT 2)**

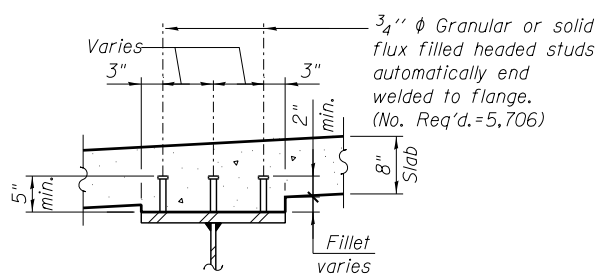
Intermediate stiffeners are on the inside face of fascia girders and on one side of interior girders.

**GIRDER DIMENSIONS - S.N. 016-1504 (UNIT 2)**

(All dimensions in Feet)      \*\*Studs shall commence from  $\varnothing$  bearing

Girder	Radius	L*	S1	S2	A	B	C	D	C1**	C2	C3
Girder 1	596.333	678.586	154.224	185.069	105.386	48.838	87.394	7.711	124 Spa @ 10"	94 Spa @ 12"	100 Spa @ 10"
Girder 2	589.000	670.242	152.328	182.793	104.091	48.237	86.319	7.616	102 Spa @ 12"	79 Spa @ 14"	82 Spa @ 12"
Girder 3	581.667	661.896	150.431	180.517	102.794	47.637	85.244	7.522	101 Spa @ 12"	68 Spa @ 16"	70 Spa @ 14"

\* Girder Length "L" excludes girder ends beyond first & last bearings.



**SECTION A-A**

- NOTES:**
1. See Sheets S-117 thru S-119 for girder framing plan.
  2. See Sheets S-137 for camber & top of web elevations.
  3. See Sheet S-145 for moment tables & reaction tables.
  4. See Sheet S-151 for girder bolted field splice details.
  5. See Sheet S-155 for girder cross frame details.
  6. All structural steel shall be AASHTO M270 Grade 50.
  7. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

224\_0161504\_60L70\_GIRER4.dgn

**RME** Rubinos & Messia Engineers, Inc.  
 200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482

USER NAME = AVasonis	DESIGNED - TH	REVISED -
	CHECKED - MR	REVISED -
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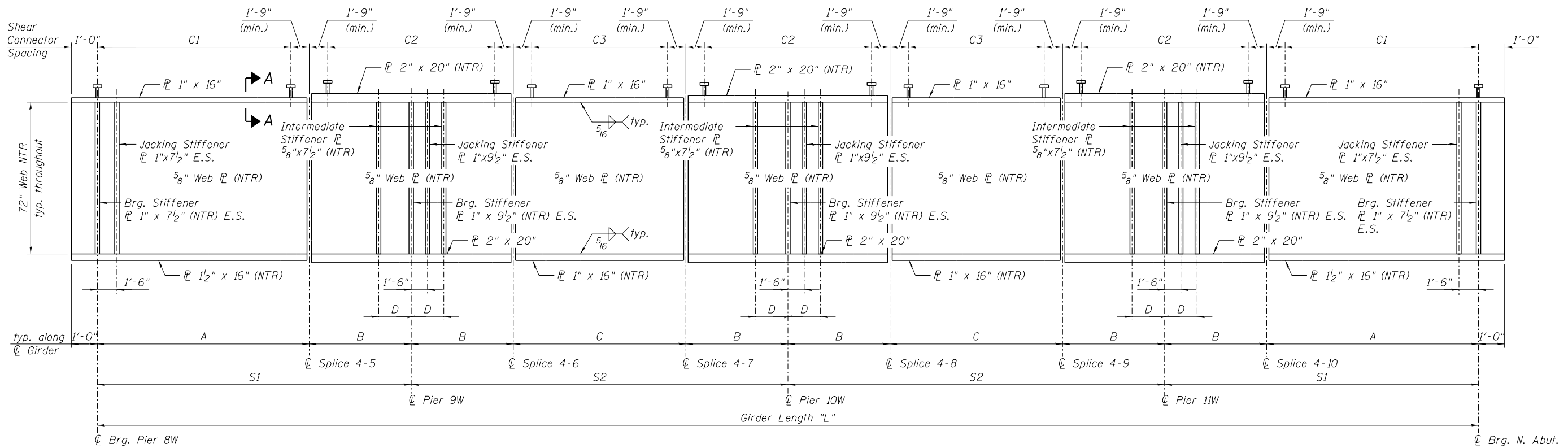
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**GIRDER ELEVATIONS IV - S.N. 016-1504 (UNIT 2)**  
**I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	620
				CONTRACT NO. 60L70

SHEET NO. S-128 OF S-248 SHEETS

ILLINOIS FED. AID PROJECT



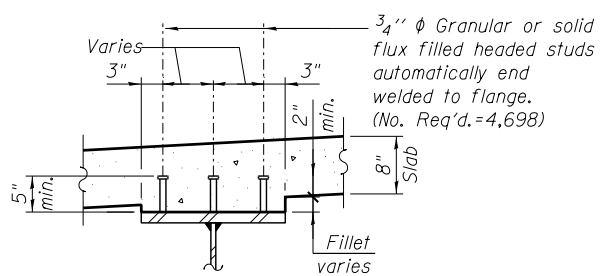
**GIRDERS 4, 5 & 6**  
**GIRDER ELEVATION - S.N. 016-1504 - (UNIT 2)**

Intermediate stiffeners are on the inside face of fascia girders and on one side of interior girders.

**GIRDER DIMENSIONS - S.N. 016-1504 (UNIT 2)**  
 (All dimensions in Feet)

Girder	Radius	L*	S1	S2	A	B	C	D	C1	C2	C3
Girder 4	574.333	653.551	148.534	178.241	101.499	47.036	84.169	7.427	100 Spa @ 12"	68 Spa @ 16"	69 Spa @ 14"
Girder 5	567.000	645.206	146.638	175.965	100.203	46.435	83.095	7.332	84 Spa @ 14"	67 Spa @ 16"	68 Spa @ 14"
Girder 6	559.667	636.862	144.741	173.690	98.907	45.835	82.020	7.237	83 Spa @ 14"	66 Spa @ 16"	67 Spa @ 14"

\* Girder Length "L" excludes girder ends beyond first & last bearings.



**SECTION A-A**

- NOTES:**
- See Sheets S-117 thru S-119 for girder framing plan.
  - See Sheets S-137 for camber & top of web elevations.
  - See Sheet S-145 for moment tables & reaction tables.
  - See Sheet S-151 for girder bolted field splice details.
  - See Sheet S-155 for girder cross frame details.
  - All structural steel shall be AASHTO M270 Grade 50.
  - Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

225\_0161504\_60L70\_GIR5.dgn

**RME** Rubinos & Messia Engineers, Inc.  
 200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482

USER NAME = AVasonis	DESIGNED - TH	REVISED -
PLOT SCALE =	CHECKED - MR	REVISED -
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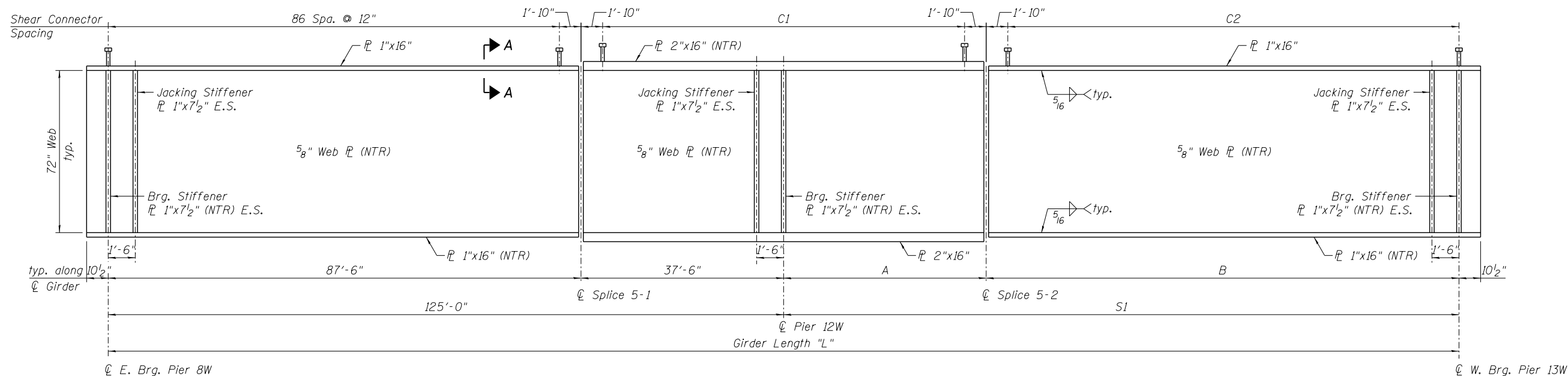
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**GIRDER ELEVATIONS V - S.N. 016-1504 (UNIT 2)**  
**I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	621
				CONTRACT NO. 60L70

SHEET NO. S-129 OF S-248 SHEETS

ILLINOIS FED. AID PROJECT

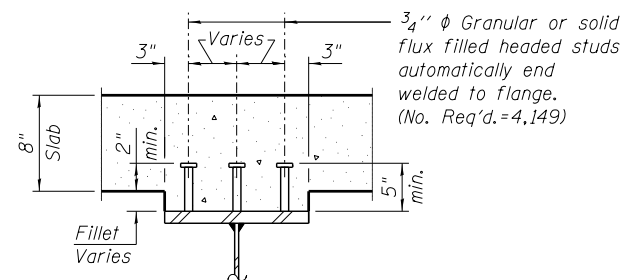


**GIRDER ELEVATION - S.N. 016-1505 (UNIT 1)**  
 (Connection and Splice  $\bar{r}$ 's not shown for clarity)

**GIRDER DIMENSIONS - S.N. 016-1505 (UNIT 1)**  
 (All dimensions in Feet)

Girder	Radius	L*	S1	A	B	C1	C2
1	469.667	244.751	119.751	35.944	83.807	56 Spa. @ 15"	82 Spa. @ 12"
2	477.000	246.644	121.644	36.505	85.139	53 Spa. @ 16"	84 Spa. @ 12"
3	484.333	248.537	123.537	37.066	86.471	53 Spa. @ 16"	85 Spa. @ 12"
4	491.667	250.430	125.430	37.628	87.803	54 Spa. @ 16"	86 Spa. @ 12"
5	499.000	252.323	127.323	38.189	89.135	54 Spa. @ 16"	87 Spa. @ 12"
6	506.333	254.217	129.217	38.750	90.467	58 Spa. @ 15"	97 Spa. @ 11"

\* Girder Length "L" excludes girder ends beyond first & last bearings.



**SECTION A-A**

**NOTES:**

1. See Sheet S-120 for girder framing plan.
2. See Sheet S-138 for camber & top of web elevations.
3. See Sheet S-146 for moment tables & reaction tables.
4. See Sheet S-152 for girder bolted field splice details.
5. See Sheet S-156 for girder cross frame details.
6. All structural steel shall be AASHTO M270 Grade 50.
7. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

226.0161505\_60L70\_Girder Elevations\_V1.dgn



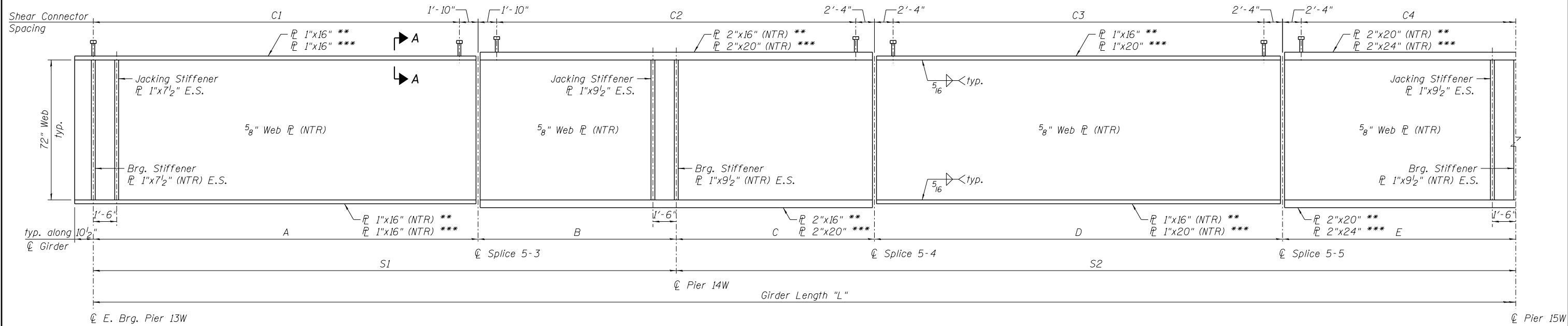
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**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**GIRDER ELEVATIONS VI - S.N. 016-1505 (UNIT 1)  
 I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

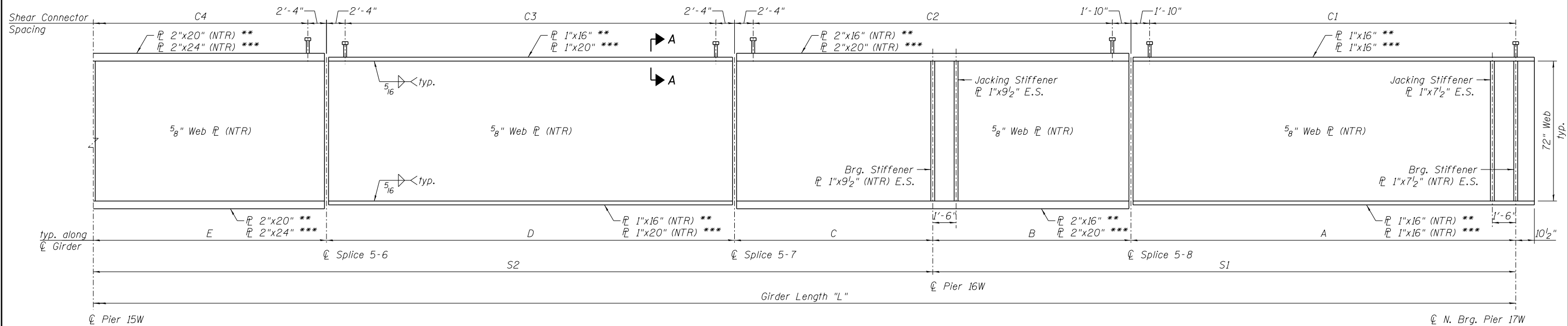
SHEET NO. S-130 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	622
				CONTRACT NO. 60L70
ILLINOIS FED. AID PROJECT				



**GIRDER ELEVATION - S.N. 016-1505 (UNIT 2)**

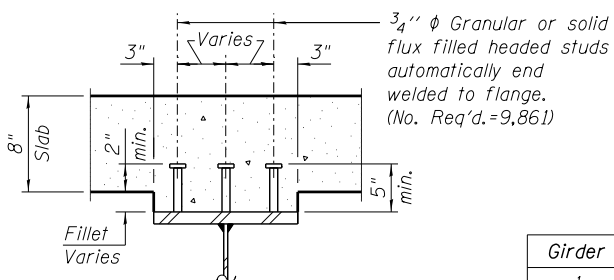
(Connection and Splice P's not shown for clarity)



**GIRDER ELEVATION - S.N. 016-1505 (UNIT 2)**

(Connection and Splice P's not shown for clarity)

\*\* Girders 1, 2, 3  
 \*\*\* Girders 4, 5, 6



**SECTION A-A**

**GIRDER DIMENSIONS - S.N. 016-1505 (UNIT 2)**

(All dimensions in Feet)

Girder	Radius	L*	S1	S2	A	B	C	D	E	C1	C2	C3	C4
1	469.667	584.563	119.751	172.531	79.014	40.736	40.736	83.869	47.925	77 Spa. @ 12"	58 Spa. @ 16"	79 Spa. @ 12"	68 Spa. @ 16"
2	477.000	593.737	121.644	175.224	80.271	41.372	41.372	85.179	48.673	78 Spa. @ 12"	59 Spa. @ 16"	80 Spa. @ 12"	69 Spa. @ 16"
3	484.333	602.911	123.537	177.918	81.529	42.009	42.009	86.488	49.422	79 Spa. @ 12"	59 Spa. @ 16"	82 Spa. @ 12"	70 Spa. @ 16"
4	491.667	612.085	125.430	180.612	82.786	42.645	42.645	87.798	50.170	80 Spa. @ 12"	60 Spa. @ 16"	83 Spa. @ 12"	71 Spa. @ 16"
5	499.000	621.259	127.323	183.306	84.043	43.281	43.281	89.107	50.918	81 Spa. @ 12"	61 Spa. @ 16"	84 Spa. @ 12"	72 Spa. @ 16"
6	506.333	630.433	129.217	186.000	85.300	43.917	43.917	90.417	51.667	111 Spa. @ 9"	84 Spa. @ 12"	103 Spa. @ 10"	99 Spa. @ 12"

\* Girder Length "L" excludes girder ends beyond first & last bearings.

**NOTES:**

1. See Sheets S-121 and S-122 for girder framing plan.
2. See Sheet S-139 for camber & top of web elevations.
3. See Sheet S-147 for moment tables & reaction tables.
4. See Sheet S-152 for girder bolted field splice details.
5. See Sheet S-156 for girder cross frame details.
6. All structural steel shall be AASHTO M270 Grade 50.
7. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

227\_0161505\_60L70\_Girder Elevations\_VII.dgn



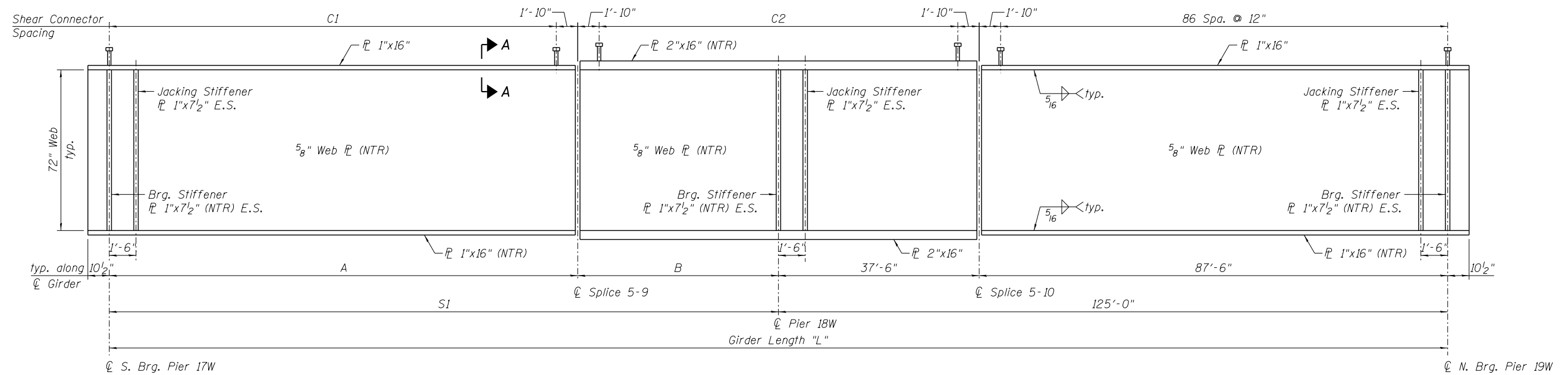
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PLOT DATE = 11/20/2014	DRAWN - DD	REVISED -
	CHECKED - CLS	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**GIRDER ELEVATIONS VII - S.N. 016-1505 (UNIT 2)  
 I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-131 OF S-248 SHEETS

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 623
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	

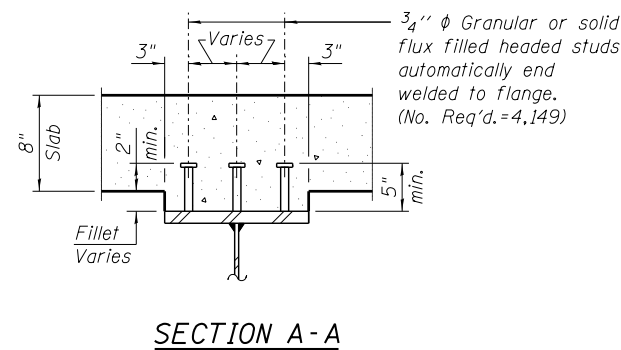


**GIRDER ELEVATION - S.N. 016-1505 (UNIT 3)**  
 (Connection and Splice PL's not shown for clarity)

**GIRDER DIMENSIONS - S.N. 016-1505 (UNIT 3)**  
 (All dimensions in Feet)

Girder	Radius	L*	S1	A	B	C1	C2
1	469.667	244.751	119.751	83.807	35.944	82 Spa. @ 12"	56 Spa. @ 15"
2	477.000	246.644	121.644	85.139	36.505	84 Spa. @ 12"	53 Spa. @ 16"
3	484.333	248.537	123.537	86.471	37.066	85 Spa. @ 12"	53 Spa. @ 16"
4	491.667	250.430	125.430	87.803	37.628	86 Spa. @ 12"	54 Spa. @ 16"
5	499.000	252.323	127.323	89.135	38.189	87 Spa. @ 12"	54 Spa. @ 16"
6	506.333	254.217	129.217	90.467	38.750	97 Spa. @ 11"	58 Spa. @ 15"

\* Girder Length "L" excludes girder ends beyond first & last bearings.



**NOTES:**

1. See Sheet S-123 for girder framing plan.
2. See Sheet S-140 for camber & top of web elevations.
3. See Sheet S-148 for moment tables & reaction tables.
4. See Sheet S-152 for girder bolted field splice details.
5. See Sheet S-156 for girder cross frame details.
6. All structural steel shall be AASHTO M270 Grade 50.
7. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

228.0161505\_60L70\_Girder Elevations\_VIII.dgn



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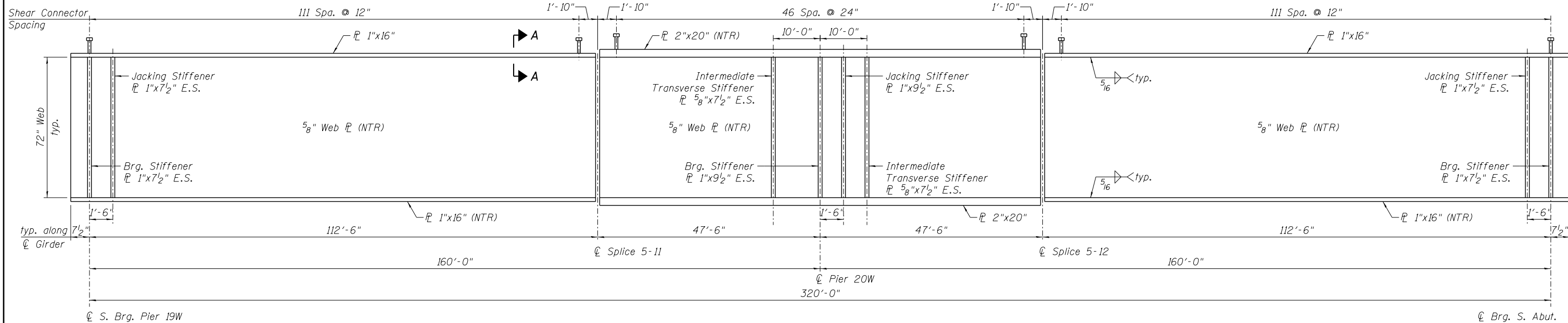
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**GIRDER ELEVATIONS VIII - S.N. 016-1505 (UNIT 3)  
 I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

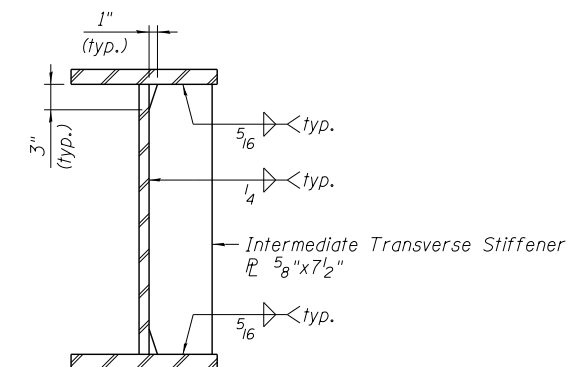
SHEET NO. S-132 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	624
				CONTRACT NO. 60L70
ILLINOIS FED. AID PROJECT				

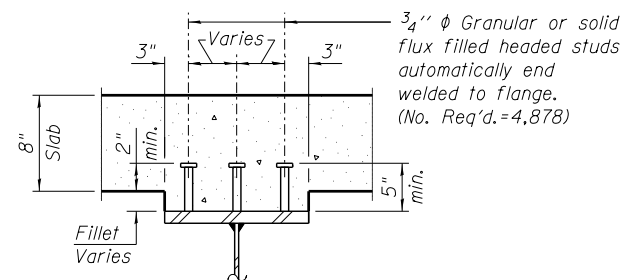




**GIRDER ELEVATION - S.N. 016-1505 (UNIT 4)**  
 (Connection and Splice  $\bar{r}$ 's not shown for clarity)



**INTERMEDIATE TRANSVERSE STIFFENER DETAIL**



**SECTION A-A**

**NOTES:**

1. See Sheet S-124 for girder framing plan.
2. See Sheet S-141 for camber & top of web elevations.
3. See Sheet S-149 for moment tables & reaction tables.
4. See Sheet S-152 for girder bolted field splice details.
5. See Sheet S-156 for girder cross frame details.
6. All structural steel shall be AASHTO M270 Grade 50.
7. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

229\_0161505\_60L70\_Girder Elevations\_IX.dgn



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**STATE OF ILLINOIS  
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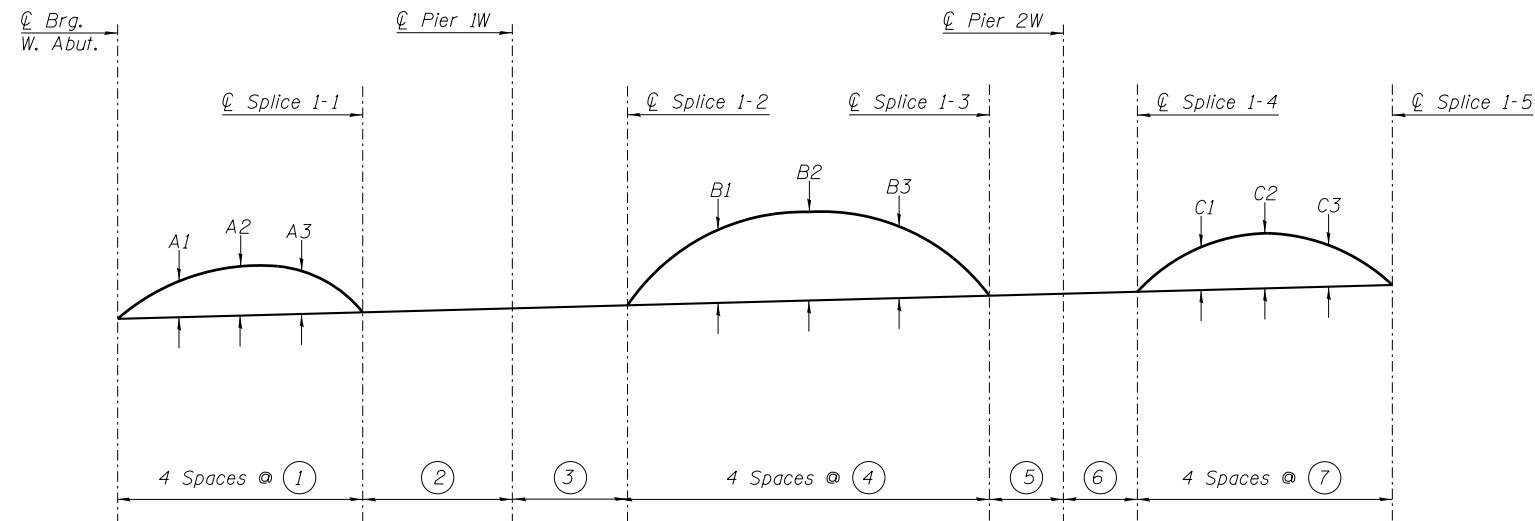
**GIRDER ELEVATIONS IX - S.N. 016-1505 (UNIT 4)  
 I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-133 OF S-248 SHEETS

F.A.I. RE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	625
				CONTRACT NO. 60L70
ILLINOIS FED. AID PROJECT				

**NOTES:**

1. See Sheets S-112 thru S-114 for girder framing plan.
2. See Sheet S-125 for girder elevation.
3. See Sheet S-142 for moment tables & reaction tables.
4. See Sheet S-150 for girder bolted field splice details.
5. See Sheet S-153 for girder cross frame details.



**CAMBER DIAGRAM - S.N. 016-1501**

(℄ Brg. W. Abut. to ℄ Splice 1-5)

TOP OF WEB ELEV * (in feet)								
Girder	℄ Brg. W. Abut.	℄ Splice 1-1	℄ Pier 1W	℄ Splice 1-2	℄ Splice 1-3	℄ Pier 2W	℄ Splice 1-4	℄ Splice 1-5
1	612.44	614.79	616.23	617.36	620.13	620.77	621.59	622.64
2	612.60	614.94	616.39	617.51	620.28	620.92	621.75	622.80
3	612.76	615.10	616.54	617.67	620.44	621.08	621.90	622.95
4	612.92	615.26	616.70	617.82	620.60	621.24	622.06	623.11
5	613.08	615.41	616.86	617.98	620.76	621.40	622.22	623.27
6	612.92	615.26	616.70	617.82	620.60	621.24	622.06	623.11
7	612.76	615.10	616.54	617.67	620.44	621.08	621.90	622.95
8	612.60	614.94	616.39	617.51	620.28	620.92	621.75	622.80
9	612.44	614.79	616.23	617.36	620.13	620.77	621.59	622.64

\*For fabrication use only.

Girder	①	②	③	④	⑤	⑥	⑦
1	18.750'	45.000'	35.000'	27.500'	35.000'	45.000'	19.375'
2	18.750'	45.000'	35.000'	27.500'	35.000'	45.000'	19.375'
3	18.750'	45.000'	35.000'	27.500'	35.000'	45.000'	19.375'
4	18.750'	45.000'	35.000'	27.500'	35.000'	45.000'	19.375'
5	18.750'	45.000'	35.000'	27.500'	35.000'	45.000'	19.375'
6	18.750'	45.000'	35.000'	27.500'	35.000'	45.000'	19.375'
7	18.750'	45.000'	35.000'	27.500'	35.000'	45.000'	19.375'
8	18.750'	45.000'	35.000'	27.500'	35.000'	45.000'	19.375'
9	18.750'	45.000'	35.000'	27.500'	35.000'	45.000'	19.375'

CAMBER ORDINATES									
Girder	A1	A2	A3	B1	B2	B3	C1	C2	C3
1	1"	1 1/2"	1 1/4"	3 3/4"	4 3/4"	3 3/4"	2 1/2"	3"	2 1/2"
2	1"	1 1/2"	1 1/4"	3 3/4"	4 3/4"	3 3/4"	2 1/2"	3"	2 1/2"
3	1"	1 1/2"	1 1/4"	3 3/4"	4 3/4"	3 3/4"	2 1/2"	3"	2 1/2"
4	1"	1 1/2"	1 1/4"	3 3/4"	4 3/4"	3 3/4"	2 1/2"	3"	2 1/2"
5	1"	1 1/2"	1 1/4"	3 3/4"	4 3/4"	3 3/4"	2 1/2"	3"	2 1/2"
6	1"	1 1/2"	1 1/4"	3 3/4"	4 3/4"	3 3/4"	2 1/2"	3"	2 1/2"
7	1"	1 1/2"	1 1/4"	3 3/4"	4 3/4"	3 3/4"	2 1/2"	3"	2 1/2"
8	1"	1 1/2"	1 1/4"	3 3/4"	4 3/4"	3 3/4"	2 1/2"	3"	2 1/2"
9	1"	1 1/2"	1 1/4"	3 3/4"	4 3/4"	3 3/4"	2 1/2"	3"	2 1/2"

241\_0161501\_60L70\_Girder Camber\_1.dgn



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DEPARTMENT OF TRANSPORTATION

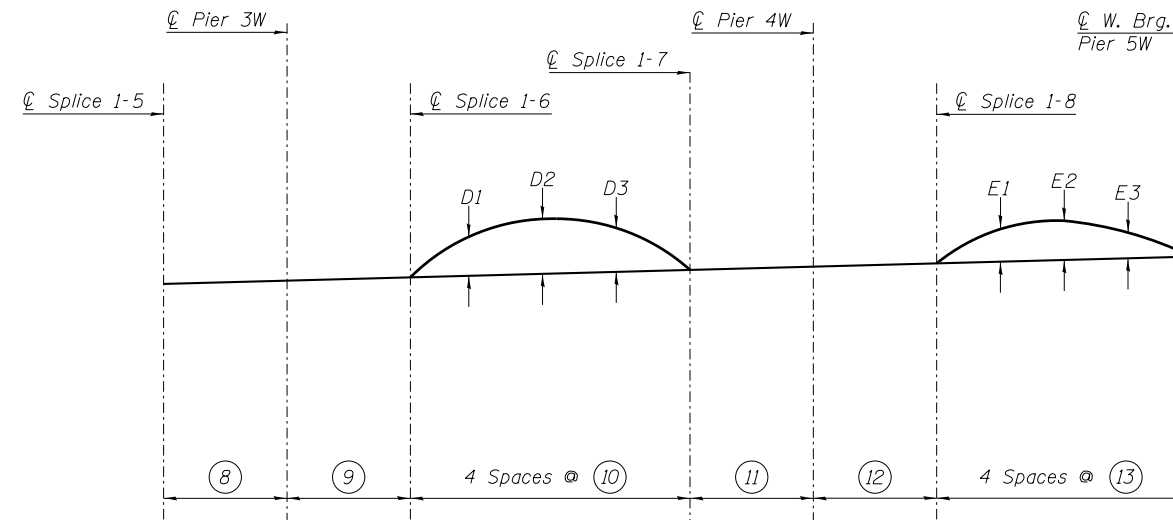
GIRDER CAMBER I - S.N. 016-1501  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-134 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	626
ILLINOIS FED. AID PROJECT				CONTRACT NO. 60L70

**NOTES:**

1. See Sheets S-112 thru S-114 for girder framing plan.
2. See Sheet S-125 for girder elevation.
3. See Sheet S-142 for moment tables & reaction tables.
4. See Sheet S-150 for girder bolted field splice details.
5. See Sheet S-153 for girder cross frame details.



**CAMBER DIAGRAM - S.N. 016-1501 (CONTINUED)**

(Centerline Splice 1-5 to Centerline W. Brg. Pier 5W)

TOP OF WEB ELEV * (in feet) (CONTINUED)							
Girder	Centerline Splice 1-5	Centerline Pier 3W	Centerline Splice 1-6	Centerline Splice 1-7	Centerline Pier 4W	Centerline Splice 1-8	Centerline W. Brg. Pier 5W
1	622.64	622.99	623.34	624.34	624.81	625.29	626.63
2	622.80	623.15	623.50	624.36	624.76	625.16	626.34
3	622.95	623.30	623.65	624.38	624.71	625.03	626.06
4	623.11	623.46	623.81	624.41	624.66	624.90	625.77
5	623.27	623.62	623.97	624.44	624.61	624.78	625.49
6	623.11	623.46	623.81	624.28	624.45	624.62	625.20
7	622.95	623.30	623.65	624.12	624.29	624.46	624.92
8	622.80	623.15	623.50	623.97	624.14	624.30	624.63
9	622.64	622.99	623.34	623.81	623.98	624.15	624.35

\*For fabrication use only.

Girder	⑧	⑨	⑩	⑪	⑫	⑬
1	37.500'	37.500'	21.250'	37.500'	37.500'	19.375'
2	37.500'	37.500'	21.250'	37.500'	37.500'	19.375'
3	37.500'	37.500'	21.250'	37.500'	37.500'	19.375'
4	37.500'	37.500'	21.250'	37.500'	37.500'	19.375'
5	37.500'	37.500'	21.250'	37.500'	37.500'	19.375'
6	37.500'	37.500'	21.250'	37.500'	37.500'	19.375'
7	37.500'	37.500'	21.250'	37.500'	37.500'	19.375'
8	37.500'	37.500'	21.250'	37.500'	37.500'	19.375'
9	37.500'	37.500'	21.250'	37.500'	37.500'	19.375'

CAMBER ORDINATES (CONTINUED)						
Girder	D1	D2	D3	E1	E2	E3
1	1"	2"	1 1/2"	1"	1 1/4"	0 3/4"
2	1 1/2"	2 1/4"	2"	1"	1 1/4"	0 3/4"
3	1 1/2"	2 1/4"	2"	1"	1 1/4"	0 3/4"
4	1 1/2"	2 1/4"	2"	1"	1 1/4"	0 3/4"
5	2 1/4"	2 3/4"	2 1/4"	1"	1 1/4"	0 3/4"
6	2 1/4"	2 3/4"	2 1/4"	1"	1 1/4"	0 3/4"
7	2 1/2"	3"	2 1/2"	1 1/2"	1 1/2"	1"
8	2 1/2"	3"	2 1/2"	1 1/4"	1 3/4"	1"
9	2 1/2"	3"	2 1/2"	1 1/2"	2"	1 1/4"

242.0161501-60L70\_Girder Camber\_II.dgn



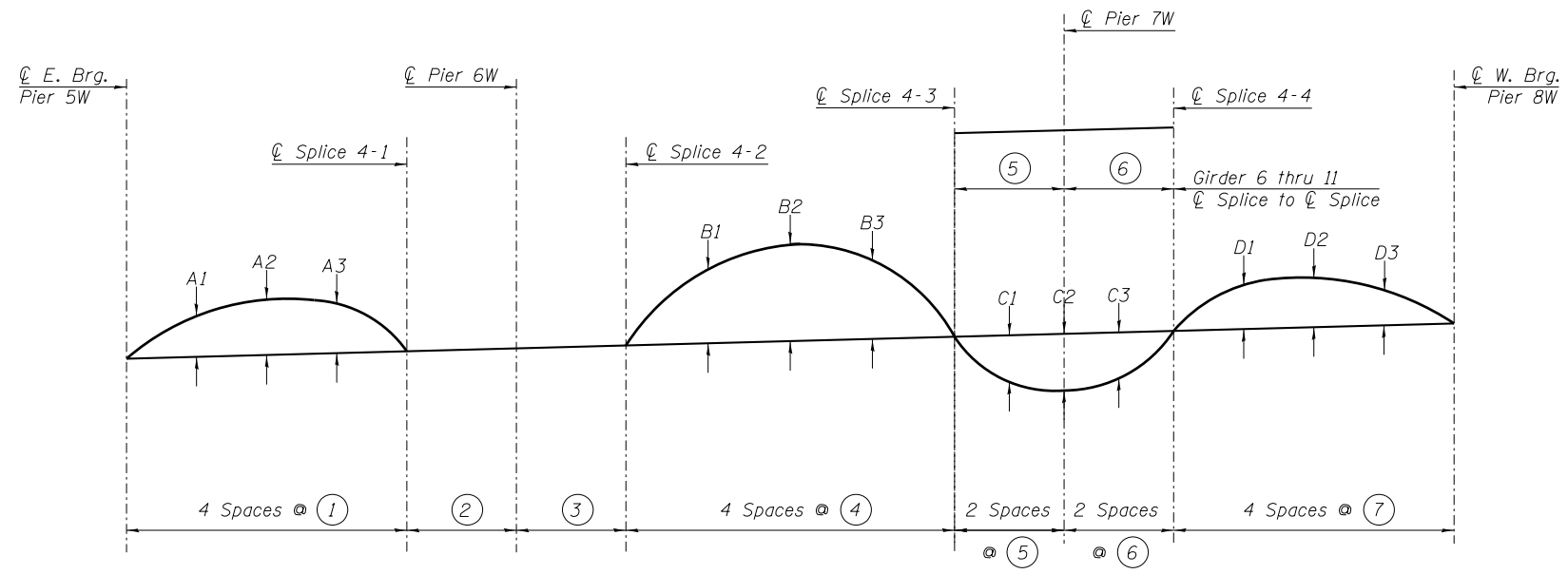
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

GIRDER CAMBER II - S.N. 016-1501  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-135 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	627
CONTRACT NO. 60L70				ILLINOIS FED. AID PROJECT



**CAMBER DIAGRAM - S.N. 016-1504 (UNIT 1)**  
**(GIRDERS 1,2,4,6 THRU 11)**

\*\* Elevation shown are measured at  $\bar{C}$  Header 4-1 for Girder 3 and  $\bar{C}$  Header 4-2 for Girder 5.

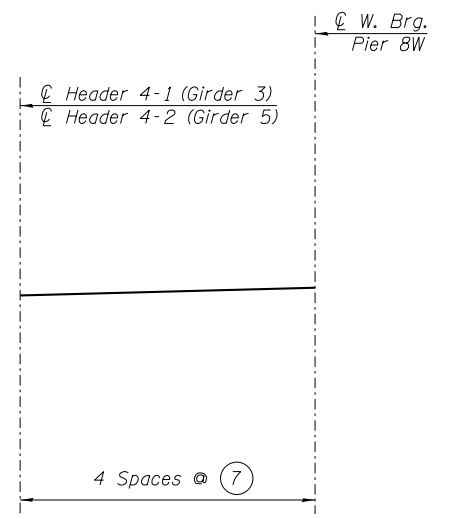
**NOTES:**

1. See Sheets S-115 thru S-116 for girder framing plan.
2. See Sheets S-126 and S-127 for girder elevation.
3. See Sheets S-143 thru S-144 for moment tables & reaction tables.
4. See Sheet S-150 for girder bolted field splice details.
5. See Sheets S-154 for girder cross frame details.

TOP OF WEB ELEV * (in feet) - UNIT 1								
Girder	$\bar{C}$ E. Brg. Pier 5W	$\bar{C}$ Splice 4-1	$\bar{C}$ Pier 6W	$\bar{C}$ Splice 4-2	$\bar{C}$ Splice 4-3	$\bar{C}$ Pier 7W	$\bar{C}$ Splice 4-4	$\bar{C}$ W. Brg. Pier 8W
1	626.68	627.61	627.92	628.19	627.90	627.69	627.91	628.63
2	626.39	627.19	627.49	627.75	627.64	627.53	627.76	628.47
3	-	-	-	-	-	-	627.85**	628.31
4	626.10	626.77	627.05	627.30	627.39	627.35	627.57	628.14
5	-	-	-	-	-	-	627.64**	627.99
6	625.81	626.35	626.62	626.86	627.14	627.24	627.36	627.82
7	625.51	625.93	626.19	626.42	626.89	627.03	627.19	627.65
8	625.22	625.51	625.76	625.98	626.45	626.59	626.76	627.22
9	624.93	625.09	625.34	625.55	626.01	626.16	626.32	626.79
10	624.64	624.67	624.91	625.11	625.58	625.72	625.89	626.36
11	624.35	624.26	624.48	624.68	625.14	625.29	625.46	625.92

\*For fabrication use only.

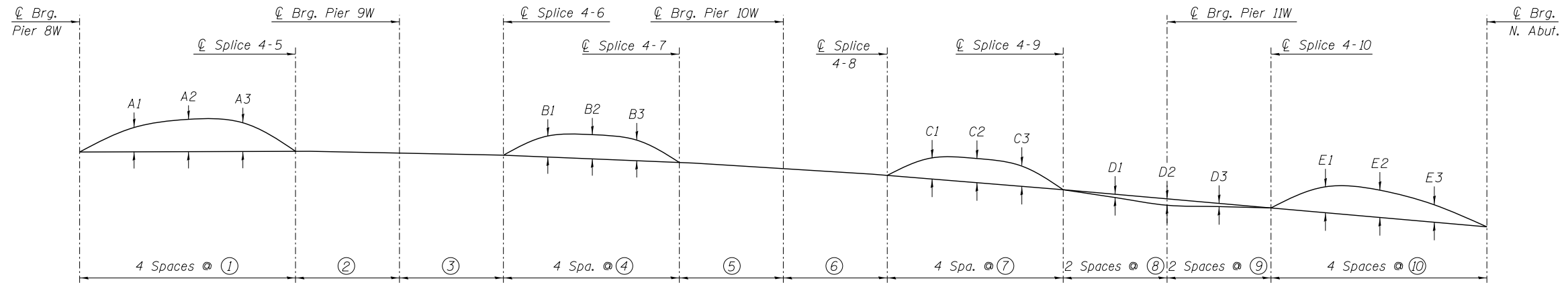
Girder	①	②	③	④	⑤	⑥	⑦
1	16.839'	40.345'	34.966'	22.862'	17.504'	18.573'	15.915'
2	16.618'	39.828'	34.517'	22.569'	17.280'	18.809'	15.915'
3	-	-	-	-	-	-	58.224'
4	16.397'	39.310'	34.069'	22.276'	17.042'	19.083'	15.980'
5	-	-	-	-	-	-	58.714'
6	16.177'	38.793'	33.621'	21.983'	33.621'	38.793'	16.177'
7	15.956'	38.276'	33.172'	21.690'	33.172'	38.276'	15.956'
8	15.735'	37.759'	32.724'	21.397'	32.724'	37.759'	15.735'
9	15.515'	37.241'	32.276'	21.103'	32.276'	37.241'	15.515'
10	15.294'	36.724'	31.828'	20.810'	31.828'	36.724'	15.294'
11	15.073'	36.207'	31.379'	20.517'	31.379'	36.207'	15.073'



**CAMBER DIAGRAM - S.N. 016-1504 (UNIT 1)**  
**(GIRDERS 3 AND 5)**

CAMBER ORDINATES - UNIT 1												
Girder	A1	A2	A3	B1	B2	B3	C1	C2	C3	D1	D2	D3
1	0 3/4"	1 1/4"	0 3/4"	3 1/4"	4 1/2"	3 1/2"	1 1/2"	2 1/2"	1 1/4"	0 3/4"	1"	0 1/2"
2	0 3/4"	1 1/4"	0 3/4"	3"	4"	3 1/4"	1 1/4"	2"	1"	0 3/4"	1"	0 1/2"
3	-	-	-	-	-	-	-	-	-	-	-	-
4	0 1/2"	1"	0 3/4"	2 1/2"	3 1/2"	3"	0 3/4"	1 1/2"	0 3/4"	0 3/4"	1"	0 1/2"
5	-	-	-	-	-	-	-	-	-	-	-	-
6	0 1/2"	1"	0 3/4"	2 1/2"	3 1/4"	2 3/4"	0"	0"	0"	0 3/4"	1"	0 1/2"
7	0 1/2"	1"	0 3/4"	2 1/4"	3"	2 1/2"	0"	0"	0"	0 3/4"	1"	0 1/2"
8	0 1/2"	1"	0 3/4"	2 1/4"	2 3/4"	2 1/2"	0"	0"	0"	0 3/4"	1"	0 1/2"
9	0 1/2"	1"	0 3/4"	2"	2 3/4"	2 1/2"	0"	0"	0"	0 3/4"	1"	0 1/2"
10	0 1/2"	1"	0 3/4"	2"	2 3/4"	2 1/2"	0"	0"	0"	0 3/4"	1"	0 1/2"
11	0 1/2"	1"	0 3/4"	2"	2 3/4"	2 1/4"	0"	0"	0"	0 3/4"	1"	0 1/2"

243.0161504\_60L70\_Girder\_Camber\_III\_Unit\_1.dgn



**CAMBER DIAGRAM - S.N. 016-1504 - (UNIT 2)**

TOP OF WEB ELEVATIONS * (in feet) - UNIT 2											
Girder	℄ E. Brg Pier 8W	℄ Splice 4-5	Pier 9W	℄ Splice 4-6	℄ Splice 4-7	Pier 10W	℄ Splice 4-8	℄ Splice 4-9	Pier 11W	℄ Splice 4-10	℄ Brg. N. Abut.
1	627.75	628.19	627.79	627.39	626.06	624.89	623.71	620.86	619.17	617.64	613.99
2	627.50	627.76	627.37	627.00	625.66	624.48	623.30	620.46	618.76	617.22	613.60
3	627.11	627.35	626.98	626.60	625.26	624.09	622.91	620.07	618.36	616.81	613.20
4	626.71	626.94	626.58	626.21	624.86	623.68	622.50	619.67	617.95	616.39	612.81
5	626.31	626.53	626.17	625.82	624.46	623.29	622.11	619.28	617.55	615.98	612.41
6	625.92	626.12	625.77	625.43	624.07	622.89	621.71	618.89	617.15	615.58	612.01

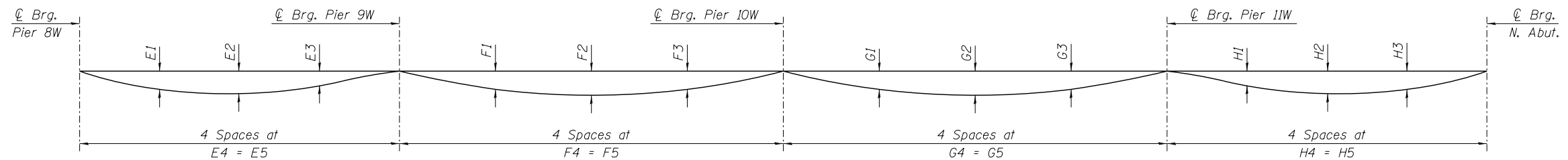
\*For fabrication use only.

**NOTES:**

- See Sheets S-117 thru S-119 for girder framing plan.
- See Sheets S-128 and S-129 for girder elevations.
- See Sheet S-145 for moment tables & reaction tables.
- See Sheet S-151 for girder bolted field splice details.
- See Sheet S-155 for girder cross frame details.
- 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.
- See Sheet S-157 for Dead Load Deflection Diagram S.N. 016-1504 (Unit 1).

Girder	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩
1	26.346	48.837	48.837	21.848	48.837	48.837	21.848	24.419	24.419	26.346
2	26.023	48.237	48.237	21.580	48.237	48.237	21.580	24.118	24.118	26.023
3	25.699	47.636	47.636	21.311	47.636	47.636	21.311	23.818	23.818	25.699
4	25.375	47.036	47.036	21.042	47.036	47.036	21.042	23.518	23.518	25.375
5	25.051	46.435	46.435	20.774	46.435	46.435	20.774	23.218	23.218	25.051
6	24.727	45.835	45.835	20.505	45.835	45.835	20.505	22.917	22.917	24.727

CAMBER ORDINATES - UNIT 2															
Girder	A1	A2	A3	B1	B2	B3	C1	C2	C3	D1	D2	D3	E1	E2	E3
1	3 3/4"	5"	3 3/4"	2 3/4"	3 3/4"	2 3/4"	2 3/4"	3 1/2"	2 3/4"	1/2"	1"	1/2"	2 1/2"	3 1/4"	2 1/4"
2	3"	4 3/4"	3 1/2"	2 3/4"	3 1/2"	2 3/4"	2 3/4"	3 1/2"	2 3/4"	1/2"	1"	1/2"	2 1/4"	3"	2"
3	2 3/4"	4 1/4"	3 1/4"	2 3/4"	3 1/2"	2 3/4"	2 3/4"	3 1/2"	2 3/4"	1/2"	1"	1/2"	2 1/4"	3"	1 3/4"
4	2 3/4"	4"	3"	2 3/4"	3 1/2"	2 3/4"	2 3/4"	3 3/4"	3"	1/2"	1"	1/2"	2 1/4"	3"	1 3/4"
5	2 1/2"	3 3/4"	2 3/4"	2 3/4"	3 1/2"	2 3/4"	2 3/4"	3 3/4"	3"	1/2"	1"	1/2"	2"	2 3/4"	1 3/4"
6	2 1/2"	3 1/2"	2 1/2"	2 3/4"	3 1/2"	2 3/4"	2 3/4"	3 3/4"	2 3/4"	1/2"	1"	1/2"	2"	2 1/2"	1 1/2"



**DEAD LOAD DEFLECTION DIAGRAM - S.N. 016-1504 (UNIT 2)**

(Includes weight of structural steel only.)

Girder No.	DEAD LOAD DEFLECTIONS - STEEL SELF WEIGHT ONLY - 016-1504 (UNIT 2)																			
	Span 9W					Span 10W					Span 11W					Span 12W				
	E1	E2	E3	E4	E5	F1	F2	F3	F4	F5	G1	G2	G3	G4	G5	H1	H2	H3	H4	H5
1	1"	1 1/4"	0 1/2"	38'-6 5/8"	154'-2 3/4"	0 1/4"	0 5/8"	0 3/8"	46'-3 1/4"	185'-0 7/8"	0 3/8"	0 5/8"	0 1/4"	46'-3 1/4"	185'-0 7/8"	0 1/2"	1 1/8"	1"	38'-6 5/8"	154'-2 3/4"
2	0 7/8"	1"	0 1/2"	38'-1"	152'-3 7/8"	0 1/4"	0 5/8"	0 3/8"	45'-8 3/8"	182'-9 1/2"	0 3/8"	0 5/8"	0 1/4"	45'-8 3/8"	182'-9 1/2"	0 1/2"	1"	0 7/8"	38'-1"	152'-3 7/8"
3	0 3/4"	0 7/8"	0 1/2"	37'-7 1/4"	150'-5 1/4"	0 1/4"	0 5/8"	0 3/8"	45'-1 1/2"	180'-6 1/4"	0 3/8"	0 5/8"	0 1/4"	45'-1 1/2"	180'-6 1/4"	0 1/2"	0 7/8"	0 3/4"	37'-7 1/4"	150'-5 1/4"
4	0 3/4"	0 3/4"	0 3/8"	37'-1 5/8"	148'-6 3/8"	0 1/4"	0 5/8"	0 1/4"	44'-6 3/4"	178'-2 7/8"	0 1/4"	0 5/8"	0 1/4"	44'-6 3/4"	178'-2 7/8"	0 3/8"	0 3/4"	0 5/8"	37'-1 5/8"	148'-6 3/8"
5	0 5/8"	0 3/4"	0 3/8"	36'-7 7/8"	146'-7 5/8"	0 1/4"	0 5/8"	0 1/4"	43'-11 7/8"	175'-11 5/8"	0 1/4"	0 5/8"	0 1/4"	43'-11 7/8"	175'-11 5/8"	0 3/8"	0 3/4"	0 5/8"	36'-7 7/8"	146'-7 5/8"
6	0 1/2"	0 5/8"	0 1/4"	36'-2 1/4"	144'-8 7/8"	0 1/4"	0 1/2"	0 1/4"	43'-5"	173'-8 1/4"	0 1/4"	0 1/2"	0 1/4"	43'-5"	173'-8 1/4"	0 1/4"	0 5/8"	0 1/2"	36'-2 1/4"	144'-8 7/8"

244\_0161504\_60L70\_GIRC4.dgn



USER NAME = AVasonis	DESIGNED - TH	REVISED -
PLOT SCALE =	CHECKED - MR	REVISED -
PLOT DATE = 11/20/2014	DRAWN - AMV	REVISED -
	CHECKED - TH	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

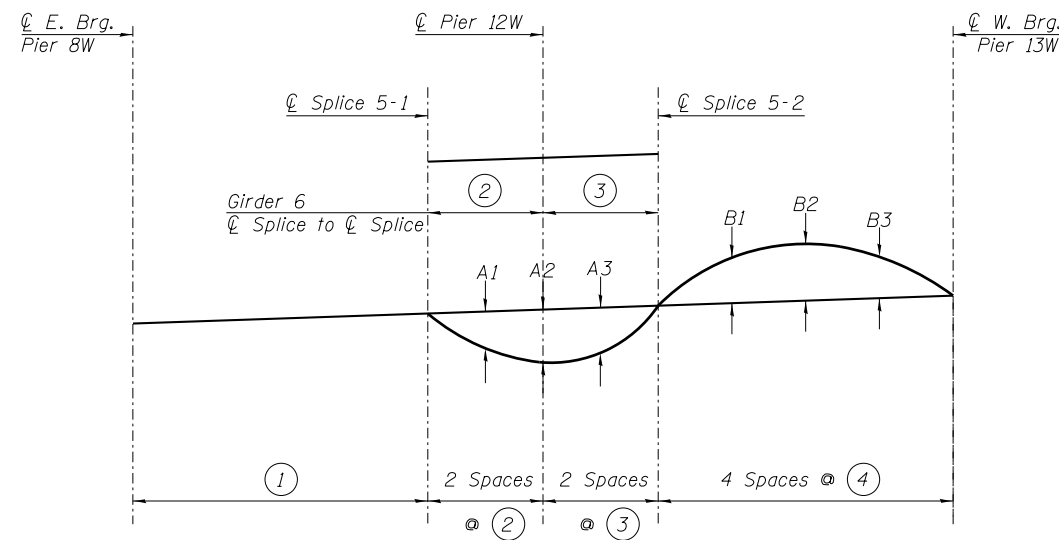
**GIRDER CAMBER IV - S.N.016-1504 (UNIT 2)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-137 OF S-248 SHEETS

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 629
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	

**NOTES:**

1. See Sheet S-120 for girder framing plan.
2. See Sheet S-130 for girder elevation.
3. See Sheet S-146 for moment tables & reaction tables.
4. See Sheet S-152 for girder bolted field splice details.
5. See Sheet S-156 for girder cross frame details.



**CAMBER DIAGRAM - S.N. 016-1505 (UNIT 1)**

TOP OF WEB ELEVATIONS* (in feet) - UNIT 1					
Girder	☐ E. Brg. Pier 8W	☐ Splice 5-1	☐ Pier 12W	☐ Splice 5-2	☐ W. Brg. Pier 13W
1	628.64	628.71	629.12	629.93	633.04
2	628.50	628.89	629.45	630.36	633.45
3	628.35	629.08	629.78	630.78	633.86
4	628.21	629.26	630.12	631.21	634.27
5	628.07	629.44	630.45	631.64	634.68
6	627.93	629.63	630.83	632.07	635.09

\*For fabrication use only.

CAMBER ORDINATES - UNIT 1										
Girder	A1	A2	A3	B1	B2	B3	①	②	③	④
1	1 1/2"	2 1/2"	2"	0 3/4"	1"	0 3/4"	87.500'	18.750'	17.972'	20.952'
2	1 1/4"	2 1/4"	1 3/4"	1"	1 1/4"	1"	87.500'	18.750'	18.253'	21.285'
3	1"	1 3/4"	1 1/4"	1 1/4"	1 1/2"	1"	87.500'	18.750'	18.533'	21.618'
4	0 3/4"	1 1/2"	0 3/4"	1 1/2"	1 3/4"	1 1/4"	87.500'	18.750'	18.814'	21.951'
5	0 3/4"	1"	0 1/4"	1 3/4"	2"	1 1/2"	87.500'	18.750'	19.094'	22.284'
6	0"	0"	0"	1 3/4"	2 1/4"	1 1/2"	87.500'	37.500'	38.750'	22.617'

245\_0161505\_60L70\_Girder\_Camber\_V\_Unit 1.dgn



USER NAME = kritzm	DESIGNED - VP	REVISED -
	CHECKED - DD	REVISED -
PLOT SCALE =	DRAWN - MRK	REVISED -
PLOT DATE = 11/20/2014	CHECKED - DD	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

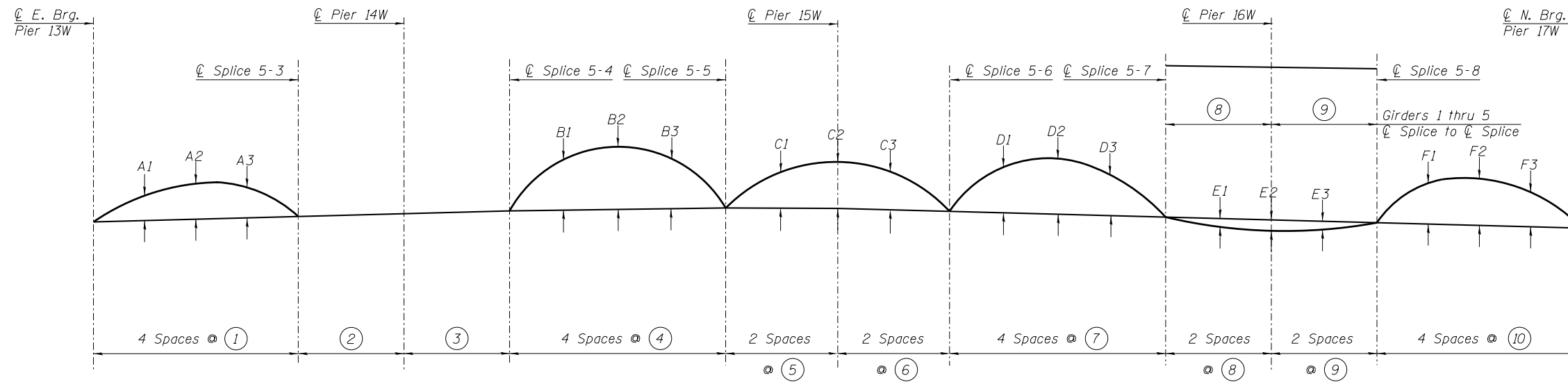
**GIRDER CAMBER V - S.N. 016-1505 (UNIT 1)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-138 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	630
				CONTRACT NO. 60L70
ILLINOIS FED. AID PROJECT				

**NOTES:**

1. See Sheets S-121 and S-122 for girder framing plan.
2. See Sheet S-131 for girder elevation.
3. See Sheet S-147 for moment tables & reaction tables.
4. See Sheet S-152 for girder bolted field splice details.
5. See Sheet S-156 for girder cross frame details.



**CAMBER DIAGRAM - S.N. 016-1505 (UNIT 2)**

TOP OF WEB ELEVATIONS* (in feet) - UNIT 2											
Girder	☐ E. Brg. Pier 13W	☐ Splice 5-3	☐ Pier 14W	☐ Splice 5-4	☐ Splice 5-5	☐ Pier 15W	☐ Splice 5-6	☐ Splice 5-7	☐ Pier 16W	☐ Splice 5-8	☐ N. Brg. Pier 17W
1	633.15	636.02	637.50	638.99	640.23	639.85	638.90	635.64	633.91	632.18	628.96
2	633.56	636.43	637.92	639.41	640.64	640.26	639.31	636.06	634.32	632.59	629.37
3	633.97	636.85	638.33	639.82	641.06	640.67	639.73	636.47	634.74	633.00	629.78
4	634.38	637.26	638.75	640.24	641.48	641.08	640.15	636.89	635.15	633.42	630.19
5	634.79	637.68	639.17	640.66	641.90	641.50	640.57	637.31	635.57	633.83	630.60
6	635.20	638.09	639.59	641.08	642.32	641.91	640.99	637.73	635.93	634.25	631.01

\*For fabrication use only.

CAMBER ORDINATES - UNIT 2											
Girder	A1	A2	A3	B1	B2	B3	①	②	③	④	
1	1"	1 3/4"	1 1/2"	4 3/4"	6"	4 3/4"	19.754'	40.736'	40.736'	20.967'	
2	1"	1 3/4"	1 1/2"	4 3/4"	6"	4 3/4"	20.068'	41.372'	41.372'	21.295'	
3	1"	1 3/4"	1 1/2"	5"	6 1/4"	5"	20.382'	42.009'	42.009'	21.622'	
4	1 1/4"	2"	1 3/4"	5"	6 1/4"	5"	20.696'	42.645'	42.645'	21.949'	
5	1 1/4"	2"	1 3/4"	5 1/4"	6 1/2"	5 1/4"	21.011'	43.281'	43.281'	22.277'	
6	1 1/4"	2"	1 3/4"	5 1/4"	6 1/2"	5 1/4"	21.325'	43.917'	43.917'	22.604'	

CAMBER ORDINATES - UNIT 2 (CONTINUED)					
Girder	C1	C2	C3	⑤	⑥
1	2 3/4"	3 1/2"	2 3/4"	23.963'	23.963'
2	2 3/4"	3 1/2"	2 3/4"	24.337'	24.337'
3	2 1/2"	3 1/4"	2 1/2"	24.711'	24.711'
4	2 1/2"	3 1/4"	2 1/2"	25.085'	25.085'
5	2 1/4"	3"	2 1/4"	25.459'	25.459'
6	2 1/4"	3"	2 1/4"	25.833'	25.833'

CAMBER ORDINATES - UNIT 2 (CONTINUED)													
Girder	D1	D2	D3	E1	E2	E3	F1	F2	F3	⑦	⑧	⑨	⑩
1	3 1/2"	4 1/4"	3"	0"	0"	0"	1 1/4"	1 3/4"	1"	20.967'	40.736'	40.736'	19.754'
2	3 1/2"	4 1/4"	3"	0"	0"	0"	1 1/4"	1 3/4"	1"	21.295'	41.372'	41.372'	20.068'
3	3 3/4"	4 1/2"	3 1/4"	0"	0"	0"	1 1/4"	1 3/4"	1"	21.622'	42.009'	42.009'	20.382'
4	3 3/4"	4 1/2"	3 1/4"	0"	0"	0"	1 1/2"	2"	1 1/4"	21.949'	42.645'	42.645'	20.696'
5	4"	4 3/4"	3 1/2"	0"	0"	0"	1 1/2"	2"	1 1/4"	22.277'	43.281'	43.281'	21.011'
6	4"	4 3/4"	3 1/2"	0 1/4"	0 3/4"	0 1/4"	1 1/2"	2"	1 1/4"	22.604'	43.917'	43.917'	21.325'

246\_0161505\_60170\_Girder\_Camber\_VI\_Unit\_2.dgn



USER NAME = kritzm  
 DESIGNED - VP  
 CHECKED - DD  
 PLOT SCALE =  
 DRAWN - MRK  
 PLOT DATE = 11/20/2014  
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 DEPARTMENT OF TRANSPORTATION

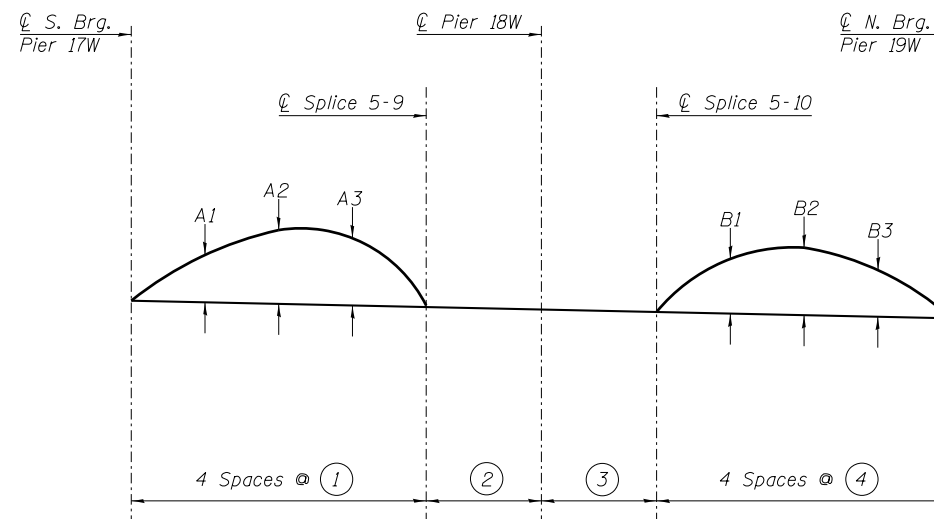
GIRDER CAMBER VI - S.N. 016-1505 (UNIT 2)  
 I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-139 OF S-248 SHEETS

F.A.I. RE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	631
CONTRACT NO. 60L70				
ILLINOIS FED. AID PROJECT				

**NOTES:**

1. See Sheets S-123 for girder framing plan.
2. See Sheet S-132 for girder elevation.
3. See Sheet S-148 for moment tables & reaction tables.
4. See Sheet S-152 for girder bolted field splice details.
5. See Sheets S-156 for girder cross frame details.



**CAMBER DIAGRAM - S.N. 016-1505 (UNIT 3)**

TOP OF WEB ELEVATIONS* (in feet) - UNIT 3					
Girder	℄ S. Brg. Pier 17W	℄ Splice 5-9	℄ Pier 18W	℄ Splice 5-10	℄ N. Brg. Pier 19W
1	628.84	625.26	624.15	623.00	619.57
2	629.25	625.68	624.43	623.14	619.72
3	629.66	626.11	624.70	623.27	619.86
4	630.07	626.53	624.97	623.41	620.01
5	630.48	626.96	625.24	623.55	620.16
6	630.89	627.39	625.51	623.70	620.30

\*For fabrication use only.

CAMBER ORDINATES - UNIT 3										
Girder	A1	A2	A3	B1	B2	B3	①	②	③	④
1	1"	1 3/4"	1 1/4"	1 1/4"	1 3/4"	1"	20.952'	35.944'	37.500'	21.875'
2	1 1/4"	2"	1 1/2"	1 1/4"	1 3/4"	1"	21.285'	36.505'	37.500'	21.875'
3	1 1/4"	2"	1 1/2"	1 1/4"	1 1/2"	1"	21.618'	37.066'	37.500'	21.875'
4	1 1/2"	2 1/4"	1 3/4"	1 1/4"	1 1/2"	1"	21.951'	37.628'	37.500'	21.875'
5	1 1/2"	2 1/2"	1 3/4"	1 1/4"	1 1/2"	1"	22.284'	38.189'	37.500'	21.875'
6	1 3/4"	2 3/4"	2"	1 1/4"	1 1/2"	1"	22.617'	38.750'	37.500'	21.875'

247\_0161505\_60L70\_Girder\_Camber\_VII\_Unit 3.dgn



USER NAME = kritzm	DESIGNED - VP	REVISED -
	CHECKED - DD	REVISED -
PLOT SCALE =	DRAWN - MRK	REVISED -
PLOT DATE = 11/20/2014	CHECKED - DD	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**GIRDER CAMBER VII - S.N.016-1505 (UNIT 3)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

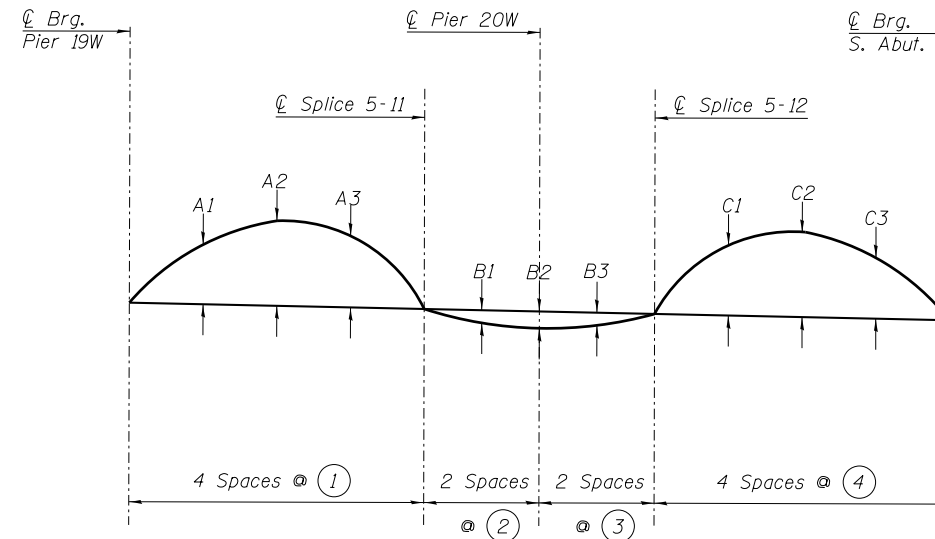
SHEET NO. S-140 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	632
CONTRACT NO. 60L70				ILLINOIS FED. AID PROJECT



**NOTES:**

1. See Sheet S-124 for girder framing plan.
2. See Sheet S-133 for girder elevation.
3. See Sheet S-149 for moment tables & reaction tables.
4. See Sheet S-152 for girder bolted field splice details.
5. See Sheet S-156 for girder cross frame details.



**CAMBER DIAGRAM - S.N. 016-1505 (UNIT 4)**

TOP OF WEB ELEVATIONS* (in feet) - UNIT 4					
Girder	☉ S. Brg. Pier 19W	☉ Splice 5-11	☉ Pier 20W	☉ Splice 5-12	☉ Brg. S. Abut.
1	619.45	614.95	612.97	611.15	606.65
2	619.60	615.09	613.11	611.29	606.80
3	619.74	615.24	613.26	611.44	606.94
4	619.89	615.39	613.41	611.59	607.09
5	620.04	615.53	613.55	611.73	607.24
6	620.18	615.68	613.70	611.88	607.38

\*For fabrication use only.

CAMBER ORDINATES - UNIT 4													
Girder	A1	A2	A3	B1	B2	B3	C1	C2	C3	①	②	③	④
1	2"	3"	2 1/4"	0 1/2"	1"	0 1/2"	2 1/4"	3"	2"	28.125'	23.750'	23.750'	28.125'
2	2"	3"	2 1/4"	0 1/2"	1"	0 1/2"	2 1/4"	3"	2"	28.125'	23.750'	23.750'	28.125'
3	2"	3"	2 1/4"	0 1/2"	1"	0 1/2"	2 1/4"	3"	2"	28.125'	23.750'	23.750'	28.125'
4	2"	3"	2 1/4"	0 1/2"	1"	0 1/2"	2 1/4"	3"	2"	28.125'	23.750'	23.750'	28.125'
5	2"	3"	2 1/4"	0 1/2"	1"	0 1/2"	2 1/4"	3"	2"	28.125'	23.750'	23.750'	28.125'
6	2"	3"	2 1/4"	0 1/2"	1"	0 1/2"	2 1/4"	3"	2"	28.125'	23.750'	23.750'	28.125'

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	CHECKED - DD	REVISED -
PLOT SCALE =	DRAWN - MRK	REVISED -
PLOT DATE = 11/20/2014	CHECKED - DD	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**GIRDER CAMBER VIII - S.N. 016-1505 (UNIT 4)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-141 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	633
CONTRACT NO. 60L70				ILLINOIS FED. AID PROJECT

INTERIOR GIRDER MOMENT TABLE										
	0.4 Sp. 1W	Pier 1W	0.5 Sp. 2W	Pier 2W	0.5 Sp. 3W	Pier 3W	0.5 Sp. 4W	Pier 4W	0.6 Sp. 5W	
$I_s$	(in <sup>4</sup> )	41,021	88,157	67,995	88,157	41,021	72,775	41,021	72,775	41,021
$I_c(n)$	(in <sup>4</sup> )	88,398	-	125,799	-	88,398	-	88,398	-	88,398
$I_c(3n)$	(in <sup>4</sup> )	65,898	-	95,898	-	65,898	-	65,898	-	65,898
$I_c(cr)$	(in <sup>4</sup> )	-	97,761	-	97,761	-	82,287	-	82,287	-
$S_s$	(in <sup>3</sup> )	1,323	2,755	2,159	2,755	1,323	2,274	1,323	2,274	1,323
$S_c(n)$	(in <sup>3</sup> )	1,758	-	2,617	-	1,758	-	1,758	-	1,758
$S_c(3n)$	(in <sup>3</sup> )	1,601	-	2,427	-	1,601	-	1,601	-	1,601
$S_c(cr)$	(in <sup>3</sup> )	-	2,855	-	2,855	-	2,380	-	2,380	-
DC1	(k/')	1.07	1.24	1.17	1.24	1.07	1.18	1.07	1.18	1.07
$M_{DC1}$	(k)	724	3,156	1,753	3,238	760	2,607	1,082	2,543	788
DC2	(k/')	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
$M_{DC2}$	(k)	136	465	242	498	121	429	166	394	140
DW	(k/')	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
$M_{DW}$	(k)	264	938	523	1,016	245	861	361	782	274
$M_{\psi} + IM$	(k)	1,666	2,381	2,209	2,561	1,890	2,368	1,755	2,173	1,607
$M_u$ (Strength I)	(k)	4,387	10,100	7,144	10,676	4,776	9,231	5,173	8,647	4,383
$\phi_r M_n$	(k)	9,063	12,856	13,154	12,853	9,050	10,751	8,849	10,754	9,026
$f_s$ DC1	(ksi)	6.57	13.75	9.75	14.10	6.89	13.76	9.81	13.42	7.15
$f_s$ DC2	(ksi)	1.02	1.95	1.20	2.09	0.91	2.16	1.24	1.99	1.05
$f_s$ DW	(ksi)	1.98	3.94	2.59	4.27	1.84	4.34	2.71	3.94	2.05
$f_s$ ( $\psi + IM$ )	(ksi)	11.37	10.01	10.13	10.76	12.90	11.94	11.98	10.95	10.97
$f_s$ (Service II)	(ksi)	24.35	32.65	26.70	34.46	26.41	35.78	29.34	33.59	24.51
0.95R <sub>n</sub> F <sub>yf</sub>	(ksi)	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50
$f_s$ (Total)(Strength I)	(ksi)	-	-	-	-	-	-	-	-	-
$\phi_r F_n$	(ksi)	-	-	-	-	-	-	-	-	-
V <sub>r</sub>	(k)	51.50	57.30	40.40	55.10	48.00	57.10	55.50	56.80	51.00

INTERIOR GIRDER REACTION TABLE							
	W. Abut.	Pier 1W	Pier 2W	Pier 3W	Pier 4W	Pier 5W-W	
R <sub>DC1</sub>	(k)	42.8	209.3	210.7	183.3	182.4	43.9
R <sub>DC2</sub>	(k)	8.2	34.3	34.9	32.3	31.7	8.0
R <sub>DW</sub>	(k)	14.7	64.1	65.6	59.9	58.4	14.8
R $\psi + IM$	(k)	87.0	178.3	179.9	174.6	170.6	86.2
R <sub>Total</sub>	(k)	152.6	486.1	491.1	450.1	443.0	152.8

EXTERIOR GIRDER MOMENT TABLE										
	0.4 Sp. 1W	Pier 1W	0.5 Sp. 2W	Pier 2W	0.5 Sp. 3W	Pier 3W	0.5 Sp. 4W	Pier 4W	0.6 Sp. 5W	
$I_s$	(in <sup>4</sup> )	41,021	88,157	67,995	88,157	41,021	72,775	41,021	72,775	41,021
$I_c(n)$	(in <sup>4</sup> )	87,245	-	124,143	-	87,245	-	87,245	-	87,245
$I_c(3n)$	(in <sup>4</sup> )	64,962	-	94,758	-	64,962	-	64,962	-	64,962
$I_c(cr)$	(in <sup>4</sup> )	-	97,290	-	97,290	-	81,825	-	81,825	-
$S_s$	(in <sup>3</sup> )	1,323	2,755	2,159	2,755	1,323	2,274	1,323	2,274	1,323
$S_c(n)$	(in <sup>3</sup> )	1,751	-	2,608	-	1,751	-	1,751	-	1,751
$S_c(3n)$	(in <sup>3</sup> )	1,593	-	2,418	-	1,593	-	1,593	-	1,593
$S_c(cr)$	(in <sup>3</sup> )	-	2,851	-	2,851	-	2,376	-	2,376	-
DC1	(k/')	1.14	1.31	1.25	1.31	1.14	1.25	1.14	1.25	1.14
$M_{DC1}$	(k)	740	3,210	1,772	3,293	770	2,656	1,093	2,591	804
DC2	(k/')	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29
$M_{DC2}$	(k)	228	724	380	773	216	670	271	615	230
DW	(k/')	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
$M_{DW}$	(k)	231	832	480	905	219	762	332	688	241
$M_{\psi} + IM$	(k)	1,945	2,884	2,607	3,163	2,229	2,909	2,100	2,609	1,868
$M_u$ (Strength I)	(k)	4,960	11,213	7,972	11,975	5,462	10,391	5,878	9,605	4,923
$\phi_r M_n$	(k)	9,015	12,845	13,094	12,842	9,003	10,739	8,803	10,742	8,979
$f_s$ DC1	(ksi)	6.71	13.98	9.85	14.34	6.98	14.01	9.91	13.67	7.29
$f_s$ DC2	(ksi)	1.72	3.05	1.89	3.25	1.63	3.38	2.04	3.11	1.73
$f_s$ DW	(ksi)	1.74	3.50	2.38	3.81	1.65	3.85	2.50	3.48	1.82
$f_s$ ( $\psi + IM$ )	(ksi)	13.33	12.14	11.99	13.32	15.28	14.69	14.39	13.18	12.80
$f_s$ (Service II)	(ksi)	27.50	36.32	29.71	38.72	30.12	40.35	33.16	37.39	27.48
0.95R <sub>n</sub> F <sub>yf</sub>	(ksi)	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50
$f_s$ (Total)(Strength I)	(ksi)	-	-	-	-	-	-	-	-	-
$\phi_r F_n$	(ksi)	-	-	-	-	-	-	-	-	-
V <sub>r</sub>	(k)	61.60	69.40	50.90	68.60	57.90	71.60	52.50	71.10	61.40

EXTERIOR GIRDER REACTION TABLE							
	W. Abut.	Pier 1W	Pier 2W	Pier 3W	Pier 4W	Pier 5W-W	
R <sub>DC1</sub>	(k)	43.8	214.2	215.6	187.9	187.0	44.8
R <sub>DC2</sub>	(k)	12.1	49.6	50.5	46.8	45.7	12.0
R <sub>DW</sub>	(k)	12.3	54.8	56.2	51.0	49.5	12.5
R $\psi + IM$	(k)	85.3	181.3	186.6	180.1	174.0	84.9
R <sub>Total</sub>	(k)	153.5	499.9	508.8	465.8	456.3	154.1

$I_s, S_s$ : 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) in uncracked sections 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) in uncracked sections, due to long-term composite (superimposed) dead loads (in<sup>4</sup> and in<sup>3</sup>).

$I_c(cr), S_c(cr)$ : Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing  $f_s$  (Total-Strength I and Service II) in cracked sections, due to both short-term composite live loads and long-term composite (superimposed) dead loads (in<sup>4</sup> and in<sup>3</sup>).

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.).

$M_{\psi} + IM$ : Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

$M_u$  (Strength I): Factored design moment (kip-ft.).

$1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{\psi} + IM$

$\phi_r M_n$ : Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

$f_s$  DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).

$M_{DC1} / S_s$

$f_s$  DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).

$M_{DC2} / S_c(3n)$  or  $M_{DC2} / S_c(cr)$  as applicable.

$f_s$  DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).

$M_{DW} / S_c(3n)$  or  $M_{DW} / S_c(cr)$  as applicable.

$f_s$  ( $\psi + IM$ ): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).

$M_{\psi} + IM / S_c(n)$  or  $M_{\psi} + IM / S_c(cr)$  as applicable.

$f_s$  (Service II): Sum of stresses as computed below (ksi).

$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3 f_s (\psi + IM)$

0.95R<sub>n</sub>F<sub>yf</sub>: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

$f_s$  (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).

$1.25 (f_{sDC1} + f_{sDC2}) + 1.5 f_{sDW} + 1.75 f_s (\psi + IM)$

$\phi_r F_n$ : Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

V<sub>r</sub>: Maximum factored shear range in span computed according to Article 6.10.10.

261\_0161501\_60L70\_Gir-der M&R Tables\_1.dgn



USER NAME =	kr1tzm	DESIGNED -	DD	REVISED -	
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PLOT SCALE =		DRAWN -	DD	REVISED -	
PLOT DATE =	11/20/2014	CHECKED -	CLS	REVISED -	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

GIRDER MOMENT & REACTION TABLES I - S.N. 016-1501  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

F.A.I. RE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	634
				CONTRACT NO. 60L70
				ILLINOIS FED. AID PROJECT

SHEET NO. S-142 OF S-248 SHEETS

EXTERIOR GIRDER 1 MOMENT TABLE						
	0.4 Sp. 6W	Pier 6W	0.5 Sp. 7W	Pier 7W	0.6 Sp. 8W	
$I_s$	(in <sup>4</sup> )	41,021	84,176	48,027	84,176	41,021
$I_c(n)$	(in <sup>4</sup> )	91,631	-	111,778	-	91,631
$I_c(3n)$	(in <sup>4</sup> )	67,970	-	81,052	-	67,970
$I_c(cr)$	(in <sup>4</sup> )	-	94,233	-	94,233	-
$S_s$	(in <sup>3</sup> )	1,323	2,723	1,699	2,723	1,323
$S_c(n)$	(in <sup>3</sup> )	1,790	-	2,271	-	1,790
$S_c(3n)$	(in <sup>3</sup> )	1,627	-	2,070	-	1,627
$S_c(cr)$	(in <sup>3</sup> )	-	2,837	-	2,837	-
$S_{xc}$	(in <sup>3</sup> )	42.7	133.3	64.0	133.3	42.7
DC1	(k/')	1.12	1.27	1.15	1.27	1.12
M <sub>DC1</sub>	('k)	549	2,740	1,436	2,826	487
DC2	(k/')	0.29	0.29	0.29	0.29	0.29
M <sub>DC2</sub>	('k)	164	603	298	588	134
DW	(k/')	0.30	0.30	0.30	0.30	0.30
M <sub>DW</sub>	('k)	175	745	469	783	169
$M_{\frac{1}{2}} \cdot IM$	('k)	2,007	2,742	2,555	2,865	1,660
$f_t$ (Strength I)	(ksi)	3.4	5.7	8.9	0.0	0.0
$M_u + \frac{1}{3} f_t S_{xc}$	('k)	4,670	10,116	7,358	10,456	3,935
$\phi_r M_n$	('k)	-	-	-	-	-
$f_s$ DC1	(ksi)	5.0	12.1	10.1	12.5	4.4
$f_s$ DC2	(ksi)	1.2	2.6	1.7	2.5	1.0
$f_s$ DW	(ksi)	1.3	3.2	2.7	3.3	1.2
$f_s$ ( $\frac{1}{2} + IM$ )	(ksi)	13.5	11.6	13.5	12.1	11.1
$f_t$ (Service II)	(ksi)	2.5	4.3	6.7	0.0	0.0
$f_s + \frac{1}{2}$ (Service II)	(ksi)	26.2	35.0	35.5	34.0	21.1
$0.95R_n F_{yf}$	(ksi)	47.5	47.5	47.5	47.5	47.5
$f_s + \frac{1}{3}$ (Total)(Strength I)	(ksi)	34.3	45.2	45.5	44.9	28.1
$\phi_r F_n$	(ksi)	50.0	50.0	50.0	50.0	50.0
V <sub>r</sub>	(k)	69.6	69.4	67.9	83.4	60.6

EXTERIOR GIRDER 1 REACTION TABLE					
	Pier 5W-E	Pier 6W	Pier 7W	Pier 8W-W	
R <sub>DC1</sub>	(k)	39.8	167.7	203.2	36.2
R <sub>DC2</sub>	(k)	10.5	38.8	44.2	9.2
R <sub>DW</sub>	(k)	11.4	45.1	55.5	10.5
$R_{\frac{1}{2}} \cdot IM$	(k)	102.6	160.1	201.2	88.3
R <sub>Total</sub>	(k)	164.2	411.6	504.1	144.2

INTERIOR GIRDER 2 MOMENT TABLE						
	0.4 Sp. 6W	Pier 6W	0.5 Sp. 7W	Pier 7W	0.6 Sp. 8W	
$I_s$	(in <sup>4</sup> )	41,021	84,176	41,021	72,775	41,021
$I_c(n)$	(in <sup>4</sup> )	92,821	-	92,821	-	89,198
$I_c(3n)$	(in <sup>4</sup> )	68,990	-	68,990	-	65,969
$I_c(cr)$	(in <sup>4</sup> )	-	94,751	-	83,116	-
$S_s$	(in <sup>3</sup> )	1,323	2,723	1,323	2,274	1,323
$S_c(n)$	(in <sup>3</sup> )	1,797	-	1,797	-	1,776
$S_c(3n)$	(in <sup>3</sup> )	1,635	-	1,635	-	1,610
$S_c(cr)$	(in <sup>3</sup> )	-	2,842	-	2,393	-
$S_{xc}$	(in <sup>3</sup> )	42.7	133.3	42.7	85.3	42.7
DC1	(k/')	1.06	1.22	1.06	1.20	1.06
M <sub>DC1</sub>	('k)	527	2,769	1,172	2,450	372
DC2	(k/')	0.29	0.29	0.29	0.29	0.29
M <sub>DC2</sub>	('k)	92	437	170	363	55
DW	(k/')	0.40	0.40	0.40	0.40	0.40
M <sub>DW</sub>	('k)	189	830	407	779	172
$M_{\frac{1}{2}} \cdot IM$	('k)	1,780	2,669	1,995	2,352	1,513
$f_t$ (Strength I)	(ksi)	3.0	5.5	10.5	0.0	0.0
$M_u + \frac{1}{3} f_t S_{xc}$	('k)	4,176	9,944	5,792	8,801	3,440
$\phi_r M_n$	('k)	-	-	-	-	-
$f_s$ DC1	(ksi)	4.8	12.2	10.6	12.9	3.4
$f_s$ DC2	(ksi)	0.7	1.8	1.2	1.8	0.4
$f_s$ DW	(ksi)	1.4	3.5	3.0	3.9	1.3
$f_s$ ( $\frac{1}{2} + IM$ )	(ksi)	11.9	11.3	13.3	11.8	10.2
$f_t$ (Service II)	(ksi)	2.3	4.1	7.9	0.0	0.0
$f_s + \frac{1}{2}$ (Service II)	(ksi)	23.4	34.3	36.1	34.0	18.4
$0.95R_n F_{yf}$	(ksi)	47.5	47.5	47.5	47.5	47.5
$f_s + \frac{1}{3}$ (Total)(Strength I)	(ksi)	30.7	44.4	46.1	44.9	24.5
$\phi_r F_n$	(ksi)	50.0	50.0	50.0	50.0	50.0
V <sub>r</sub>	(k)	76.3	77.1	61.6	81.6	73.5

INTERIOR GIRDER 2 REACTION TABLE					
	Pier 5W-E	Pier 6W	Pier 7W	Pier 8W-W	
R <sub>DC1</sub>	(k)	37.8	206.4	173.3	35.2
R <sub>DC2</sub>	(k)	6.9	36.4	28.6	7.1
R <sub>DW</sub>	(k)	12.7	63.3	57.4	12.7
$R_{\frac{1}{2}} \cdot IM$	(k)	112.7	221.0	184.9	92.8
R <sub>Total</sub>	(k)	170.0	527.1	444.3	147.7

$I_s, S_s$ : 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) in uncracked sections 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) in uncracked sections due to long-term composite (superimposed) dead loads (in.<sup>4</sup> and in.<sup>3</sup>).

$I_c(cr), S_c(cr)$ : Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing  $f_s$  (Total-Strength I and Service II) in cracked sections, due to both short-term composite live loads and long-term composite (superimposed) dead loads (in.<sup>4</sup> and in.<sup>3</sup>).

$S_{xc}$ : 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.).

$M_{\frac{1}{2}} \cdot IM$ : Un-factored live load moment plus dynamic load allowance (impact)(kip-ft.).

$M_u$  (Strength I): Factored design moment (kip-ft.).

$1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{\frac{1}{2}} \cdot IM$

$f_t$ : Factored calculated normal stress at edge of flange for controlling flange plate due to lateral bending, Strength I or Service II as applicable (kip-ft.).

$\phi_r M_n$ : Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

$f_s$  DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).

$M_{DC1} / S_s$

$f_s$  DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).

$M_{DC2} / S_c(3n)$  or  $M_{DC2} / S_c(cr)$  as applicable.

$f_s$  DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).

$M_{DW} / S_c(3n)$  or  $M_{DW} / S_c(cr)$  as applicable.

$f_s$  ( $\frac{1}{2} + IM$ ): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).

$M_{\frac{1}{2}} \cdot IM / S_c(n)$  or  $M_{\frac{1}{2}} \cdot IM / S_c(cr)$  as applicable.

$f_s + \frac{1}{2}$  (Service II): Sum of stresses as computed below (ksi).

$f_s DC1 + f_s DC2 + f_s DW + 1.3 f_s (\frac{1}{2} + IM) + \frac{1}{2}$

$0.95R_n F_{yf}$ : Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

$f_s + \frac{1}{3}$  (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).

$1.25 (f_s DC1 + f_s DC2) + 1.5 f_s DW + 1.75 f_s (\frac{1}{2} + IM) + \frac{1}{3}$

$\phi_r F_n$ : Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

V<sub>r</sub>: Maximum factored shear range in span computed according to Article 6.10.10.

Note:

$M_{\frac{1}{2}}$  and  $R_{\frac{1}{2}}$  include the effects of centrifugal force and superelevation.

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USER NAME =	kr1tzm	DESIGNED -	JXH	REVISED -	
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

GIRDER MOMENT & REACTION TABLES II - S.N. 016-1504 (UNIT 1)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-143 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	635
				CONTRACT NO. 60L70
				ILLINOIS FED. AID PROJECT

INTERIOR GIRDER 10 MOMENT TABLE						
	0.4 Sp. 6W	Pier 6W	0.5 Sp. 7W	Pier 7W	0.6 Sp. 8W	
$I_s$	(in <sup>4</sup> )	41,021	72,775	41,021	72,775	41,021
$I_c(n)$	(in <sup>4</sup> )	92,821	-	92,821	-	92,821
$I_c(3n)$	(in <sup>4</sup> )	68,990	-	68,990	-	68,990
$I_c(cr)$	(in <sup>4</sup> )	-	82,682	-	82,682	-
$S_s$	(in <sup>3</sup> )	1,323	2,274	1,323	2,274	1,323
$S_c(n)$	(in <sup>3</sup> )	1,797	-	1,797	-	1,797
$S_c(3n)$	(in <sup>3</sup> )	1,635	-	1,635	-	1,635
$S_c(cr)$	(in <sup>3</sup> )	-	2,388	-	2,388	-
$S_{xc}$	(in <sup>3</sup> )	42.7	85.3	42.7	85.3	42.7
DC1	(k/')	1.06	1.17	1.06	1.17	1.06
M <sub>DC1</sub>	('k)	501	2,063	941	2,053	492
DC2	(k/')	0.29	0.29	0.29	0.29	0.29
M <sub>DC2</sub>	('k)	94	292	153	292	97
DW	(k/')	0.40	0.40	0.40	0.40	0.40
M <sub>DW</sub>	('k)	165	636	316	633	165
$M_{\frac{1}{2}} \cdot IM$	('k)	1,458	2,133	1,699	2,139	1,445
$f_t$ (Strength I)	(ksi)	2.4	6.1	8.1	6.1	2.4
$M_u + \frac{1}{3} f_t S_{xc}$	('k)	3,546	7,645	4,824	7,638	3,515
$\phi_r M_n$	('k)	-	-	-	-	-
$f_s$ DC1	(ksi)	4.5	10.9	8.5	10.8	4.5
$f_s$ DC2	(ksi)	0.7	1.5	1.1	1.5	0.7
$f_s$ DW	(ksi)	1.2	3.2	2.3	3.2	1.2
$f_s$ ( $\frac{1}{2} + IM$ )	(ksi)	9.7	10.7	11.3	10.7	9.6
$f_t$ (Service II)	(ksi)	1.8	4.6	6.1	4.6	1.8
$f_s + \frac{1}{2}$ (Service II)	(ksi)	20.0	31.8	29.8	31.7	19.8
$0.95 R_n F_{yf}$	(ksi)	47.5	47.5	47.5	47.5	47.5
$f_s + \frac{1}{3}$ (Total)(Strength I)	(ksi)	26.2	41.0	38.1	41.0	26.0
$\phi_r F_n$	(ksi)	50.0	50.0	50.0	50.0	50.0
$V_f$	(k)	69.4	71.7	70.9	80.0	68.6

INTERIOR GIRDER 10 REACTION TABLE					
	Pier 5W-E	Pier 6W	Pier 7W	Pier 8W-W	
R <sub>DC1</sub>	(k)	35.8	157.0	156.6	35.6
R <sub>DC2</sub>	(k)	6.8	24.8	24.7	6.8
R <sub>DW</sub>	(k)	11.7	50.4	50.2	11.7
$R_{\frac{1}{2}} \cdot IM$	(k)	105.9	187.0	185.6	105.3
R <sub>Total</sub>	(k)	160.1	419.2	417.2	159.4

EXTERIOR GIRDER 11 MOMENT TABLE						
	0.4 Sp. 6W	Pier 6W	0.5 Sp. 7W	Pier 7W	0.6 Sp. 8W	
$I_s$	(in <sup>4</sup> )	41,021	72,775	41,021	72,775	41,021
$I_c(n)$	(in <sup>4</sup> )	91,631	-	91,631	-	91,631
$I_c(3n)$	(in <sup>4</sup> )	67,970	-	67,970	-	67,970
$I_c(cr)$	(in <sup>4</sup> )	-	82,201	-	82,201	-
$S_s$	(in <sup>3</sup> )	1,323	2,274	1,323	2,274	1,323
$S_c(n)$	(in <sup>3</sup> )	1,790	-	1,790	-	1,790
$S_c(3n)$	(in <sup>3</sup> )	1,627	-	1,627	-	1,627
$S_c(cr)$	(in <sup>3</sup> )	-	2,383	-	2,383	-
$S_{xc}$	(in <sup>3</sup> )	42.7	85.3	42.7	85.3	42.7
DC1	(k/')	1.12	1.23	1.12	1.23	1.12
M <sub>DC1</sub>	('k)	477	2,034	869	2,010	451
DC2	(k/')	0.29	0.29	0.29	0.29	0.29
M <sub>DC2</sub>	('k)	148	443	214	444	149
DW	(k/')	0.30	0.30	0.30	0.30	0.30
M <sub>DW</sub>	('k)	131	550	271	546	125
$M_{\frac{1}{2}} \cdot IM$	('k)	1,445	2,167	1,695	2,176	1,440
$f_t$ (Strength I)	(ksi)	2.4	6.1	7.8	6.0	2.3
$M_u + \frac{1}{3} f_t S_{xc}$	('k)	3,509	7,728	4,736	7,709	3,460
$\phi_r M_n$	('k)	-	-	-	-	-
$f_s$ DC1	(ksi)	4.3	10.7	7.9	10.6	4.1
$f_s$ DC2	(ksi)	1.1	2.2	1.6	2.2	1.1
$f_s$ DW	(ksi)	1.0	2.8	2.0	2.7	0.9
$f_s$ ( $\frac{1}{2} + IM$ )	(ksi)	9.7	10.9	11.4	11.0	9.7
$f_t$ (Service II)	(ksi)	1.8	4.6	5.9	4.6	1.7
$f_s + \frac{1}{2}$ (Service II)	(ksi)	19.9	32.2	29.2	32.1	19.5
$0.95 R_n F_{yf}$	(ksi)	47.5	47.5	47.5	47.5	47.5
$f_s + \frac{1}{3}$ (Total)(Strength I)	(ksi)	26.0	41.5	37.3	41.4	25.5
$\phi_r F_n$	(ksi)	50.0	50.0	50.0	50.0	50.0
$V_f$	(k)	58.0	60.7	55.6	72.8	57.4

EXTERIOR GIRDER 11 REACTION TABLE					
	Pier 5W-E	Pier 6W	Pier 7W	Pier 8W-W	
R <sub>DC1</sub>	(k)	34.5	181.5	180.0	33.6
R <sub>DC2</sub>	(k)	9.4	41.8	42.0	9.5
R <sub>DW</sub>	(k)	9.0	48.3	48.1	8.8
$R_{\frac{1}{2}} \cdot IM$	(k)	85.5	184.3	184.6	85.3
R <sub>Total</sub>	(k)	138.4	455.9	454.6	137.2

$I_s, S_s$ : 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) in uncracked sections 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) in uncracked sections due to long-term composite (superimposed) dead loads (in.<sup>4</sup> and in.<sup>3</sup>).

$I_c(cr), S_c(cr)$ : Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing  $f_s$  (Total-Strength I and Service II) in cracked sections, due to both short-term composite live loads and long-term composite (superimposed) dead loads (in.<sup>4</sup> and in.<sup>3</sup>).

$S_{xc}$ : 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.).

$M_{\frac{1}{2}} \cdot IM$ : Un-factored live load moment plus dynamic load allowance (impact)(kip-ft.).

$M_u$  (Strength I): Factored design moment (kip-ft.).

$1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{\frac{1}{2}} \cdot IM$

$f_t$ : Factored calculated normal stress at edge of flange for controlling flange plate due to lateral bending, Strength I or Service II as applicable (kip-ft.).

$\phi_r M_n$ : Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

$f_s$  DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).

$M_{DC1} / S_s$

$f_s$  DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).

$M_{DC2} / S_c(3n)$  or  $M_{DC2} / S_c(cr)$  as applicable.

$f_s$  DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).

$M_{DW} / S_c(3n)$  or  $M_{DW} / S_c(cr)$  as applicable.

$f_s$  ( $\frac{1}{2} + IM$ ): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).

$M_{\frac{1}{2}} \cdot IM / S_c(n)$  or  $M_{\frac{1}{2}} \cdot IM / S_c(cr)$  as applicable.

$f_s + \frac{1}{2}$  (Service II): Sum of stresses as computed below (ksi).

$f_s DC1 + f_s DC2 + f_s DW + 1.3 f_s (\frac{1}{2} + IM) + \frac{1}{2}$

$0.95 R_n F_{yf}$ : Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

$f_s + \frac{1}{3}$  (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).

$1.25 (f_s DC1 + f_s DC2) + 1.5 f_s DW + 1.75 f_s (\frac{1}{2} + IM) + \frac{1}{3}$

$\phi_r F_n$ : Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

$V_f$ : Maximum factored shear range in span computed according to Article 6.10.10.

Note:

$M_{\frac{1}{2}}$  and  $R_{\frac{1}{2}}$  include the effects of centrifugal force and superelevation.

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USER NAME =	krizm	DESIGNED -	JXH	REVISED -	
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PLOT SCALE =		DRAWN -	JXH	REVISED -	
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

GIRDER MOMENT & REACTION TABLES III - S.N. 016-1504 (UNIT 1)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-144 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	636
ILLINOIS FED. AID PROJECT			CONTRACT NO. 60L70	

EXTERIOR GIRDER 1 MOMENT TABLE				
	0.4 Sp. 9W or 0.6 Sp. 12W	Pier 9W or Pier 11W	0.5 Sp. 10W or 0.5 Sp. 11W	Pier 10W
$I_s$	(in <sup>4</sup> )	85149	150896	150896
$I_c(n)$	(in <sup>4</sup> )	169340	-	139520
$I_c(3n)$	(in <sup>4</sup> )	124700	-	104928
$I_c(cr)$	(in <sup>4</sup> )	-	162350	162350
$S_s$	(in <sup>3</sup> )	2536	3971	1966
$S_c(n)$	(in <sup>3</sup> )	3182	-	2489
$S_c(3n)$	(in <sup>3</sup> )	2912	-	2271
$S_c(cr)$	(in <sup>3</sup> )	-	4068	4068
$S_{xc}$	(in <sup>3</sup> )	100	192	67
$DC1$	(k/')	1.02	1.18	1.00
$M_{DC1}$	(k)	2097	4304	1048
$DC2$	(k/')	0.29	0.29	0.29
$M_{DC2}$	(k)	421	849	239
$DW$	(k/')	0.27	0.27	0.27
$M_{DW}$	(k)	616	1067	375
$M_{\xi} \cdot IM$	(k)	3534	3845	3185
$f_i$ (Strength I)	(ksi)	8.18	6.13	9.26
$M_u + 1/3 f_i S_{xc}$	(k)	10279	14738	7762
$\phi_r M_n$	(k)	-	-	-
$f_s$ DC1	(ksi)	9.92	13.01	6.40
$f_s$ DC2	(ksi)	1.73	2.50	1.26
$f_s$ DW	(ksi)	2.54	3.15	1.98
$f_s$ ( $\xi + IM$ )	(ksi)	13.33	11.34	15.35
$f_i$ (Service II)	(ksi)	6.16	4.66	6.94
$f_s + 1/2$ (Service II)	(ksi)	34.6	35.7	33.1
$0.95R_n F_{yf}$	(ksi)	47.5	47.5	47.5
$f_s + 1/3$ (Total)(Strength I)	(ksi)	44.4	46.0	42.5
$\phi_r F_n$	(ksi)	50	50	50
$V_f$	(k)	83.1	85.1	68.9

EXTERIOR GIRDER 6 MOMENT TABLE				
	0.4 Sp. 9W or 0.6 Sp. 12W	Pier 9W or Pier 11W	0.5 Sp. 10W or 0.5 Sp. 11W	Pier 10W
$I_s$	(in <sup>4</sup> )	72131	128987	62075
$I_c(n)$	(in <sup>4</sup> )	150757	-	125804
$I_c(3n)$	(in <sup>4</sup> )	110043	-	93539
$I_c(cr)$	(in <sup>4</sup> )	-	140375	140375
$S_s$	(in <sup>3</sup> )	2122	3394	1678
$S_c(n)$	(in <sup>3</sup> )	2758	-	2205
$S_c(3n)$	(in <sup>3</sup> )	2502	-	1994
$S_c(cr)$	(in <sup>3</sup> )	-	3497	3497
$S_{xc}$	(in <sup>3</sup> )	64	133	43
$DC1$	(k/')	1.00	1.12	0.96
$M_{DC1}$	(k)	1112	3445	846
$DC2$	(k/')	0.29	0.29	0.29
$M_{DC2}$	(k)	257	638	214
$DW$	(k/')	0.27	0.27	0.27
$M_{DW}$	(k)	319	861	262
$M_{\xi} \cdot IM$	(k)	1982	2767	1971
$f_i$ (Strength I)	(ksi)	6.62	6.32	9.06
$M_u + 1/3 f_i S_{xc}$	(k)	5670	11214	5178
$\phi_r M_n$	(k)	-	-	-
$f_s$ DC1	(ksi)	6.29	12.18	6.05
$f_s$ DC2	(ksi)	1.23	2.19	1.29
$f_s$ DW	(ksi)	1.53	2.95	1.58
$f_s$ ( $\xi + IM$ )	(ksi)	8.62	9.49	10.73
$f_i$ (Service II)	(ksi)	4.99	4.81	6.81
$f_s + 1/2$ (Service II)	(ksi)	22.8	32.1	26.3
$0.95R_n F_{yf}$	(ksi)	47.5	47.5	47.5
$f_s + 1/3$ (Total)(Strength I)	(ksi)	29.0	41.1	33.3
$\phi_r F_n$	(ksi)	50	50	50
$V_f$	(k)	53.6	63.2	44.5

INTERIOR GIRDER 2 MOMENT TABLE				
	0.4 Sp. 9W or 0.6 Sp. 12W	Pier 9W or Pier 11W	0.5 Sp. 10W or 0.5 Sp. 11W	Pier 10W
$I_s$	(in <sup>4</sup> )	85149	150896	150896
$I_c(n)$	(in <sup>4</sup> )	172132	-	141626
$I_c(3n)$	(in <sup>4</sup> )	126572	-	106414
$I_c(cr)$	(in <sup>4</sup> )	-	163007	163007
$S_s$	(in <sup>3</sup> )	2536	3971	1966
$S_c(n)$	(in <sup>3</sup> )	3196	-	2500
$S_c(3n)$	(in <sup>3</sup> )	2927	-	2283
$S_c(cr)$	(in <sup>3</sup> )	-	4073	4073
$S_{xc}$	(in <sup>3</sup> )	100	192	67
$DC1$	(k/')	1.06	1.22	1.03
$M_{DC1}$	(k)	1870	4534	1101
$DC2$	(k/')	0.29	0.29	0.29
$M_{DC2}$	(k)	307	721	181
$DW$	(k/')	0.37	0.37	0.37
$M_{DW}$	(k)	583	1197	373
$M_{\xi} \cdot IM$	(k)	2581	3221	2490
$f_i$ (Strength I)	(ksi)	6.39	5.74	7.70
$M_u + 1/3 f_i S_{xc}$	(k)	8130	13970	6534
$\phi_r M_n$	(k)	-	-	-
$f_s$ DC1	(ksi)	8.85	13.70	6.72
$f_s$ DC2	(ksi)	1.26	2.12	0.95
$f_s$ DW	(ksi)	2.39	3.53	1.96
$f_s$ ( $\xi + IM$ )	(ksi)	9.69	9.49	11.95
$f_i$ (Service II)	(ksi)	4.82	4.36	5.78
$f_s + 1/2$ (Service II)	(ksi)	27.5	33.9	28.1
$0.95R_n F_{yf}$	(ksi)	47.5	47.5	47.5
$f_s + 1/3$ (Total)(Strength I)	(ksi)	35.3	43.6	36.0
$\phi_r F_n$	(ksi)	50	50	50
$V_f$	(k)	54.6	57.3	49.7

EXTERIOR GIRDER 1 REACTION TABLE			
	Pier 8W or N. Abut.	Pier 9W or Pier 11W	Pier 10W
$R_{DC1}$	(k)	77.3	191.2
$R_{DC2}$	(k)	16.4	41.1
$R_{DW}$	(k)	21.0	47.3
$R_{\xi} \cdot IM$	(k)	117.6	169.0
$R_{Total}$	(k)	232.3	448.6

INTERIOR GIRDER 2 REACTION TABLE			
	Pier 8W or N. Abut.	Pier 9W or Pier 11W	Pier 10W
$R_{DC1}$	(k)	68.0	272.7
$R_{DC2}$	(k)	11.7	47.4
$R_{DW}$	(k)	20.6	74.1
$R_{\xi} \cdot IM$	(k)	93.7	200.8
$R_{Total}$	(k)	194.0	595.0

EXTERIOR GIRDER 6 REACTION TABLE			
	Pier 8W or N. Abut.	Pier 9W or Pier 11W	Pier 10W
$R_{DC1}$	(k)	47.5	246.0
$R_{DC2}$	(k)	11.1	49.2
$R_{DW}$	(k)	12.5	60.0
$R_{\xi} \cdot IM$	(k)	77.1	188.3
$R_{Total}$	(k)	148.2	543.5

$I_s, S_s$ : 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).

$I_c(n), S_c(n)$ : 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) in uncracked sections due to short term composite live loads (in.4 and in.3).

$I_c(3n), S_c(3n)$ : 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) in uncracked sections due to long-term composite (superimposed) dead loads (in.4 and in.3).

$I_c(cr), S_c(cr)$ : Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing  $f_s$  (Total-Strength I and Service II) in cracked sections, due to both short-term composite live loads and long-term composite (superimposed) dead loads (in.4 and in.3).

$S_{xc}$ : 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.).

$M_{\xi} \cdot IM$ : Un-factored live load moment plus dynamic load allowance (impact)(kip-ft.).

$M_u$  (Strength I): Factored design moment (kip-ft.).

$f_i$ : Factored calculated normal stress at edge of flange for controlling flange plate due to lateral bending, Strength I or Service II as applicable (kip-ft.).

$\phi_r M_n$ : Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

$f_s$  DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).

$M_{DC1} / S_s$

$f_s$  DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).

$M_{DC2} / S_c(3n)$  or  $M_{DC2} / S_c(cr)$  as applicable.

$f_s$  DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).

$M_{DW} / S_c(3n)$  or  $M_{DW} / S_c(cr)$  as applicable.

$f_s$  ( $\xi + IM$ ): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).

$M_{\xi} \cdot IM / S_c(n)$  or  $M_{\xi} \cdot IM / S_c(cr)$  as applicable.

$f_s + 1/2$  (Service II): Sum of stresses as computed below (ksi).

$f_s DC1 + f_s DC2 + f_s DW + 1.3 f_s (\xi + IM) + 1/2$

$0.95R_n F_{yf}$ : Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

$f_s + 1/3$  (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).

$1.25 (f_s DC1 + f_s DC2) + 1.5 f_s DW + 1.75 f_s (\xi + IM) + 1/3$

$\phi_r F_n$ : Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

$V_f$ : Maximum factored shear range in span computed according to Article 6.10.10.

Note:  
 $M_{\xi}$  and  $R_{\xi}$  include the effects of centrifugal force and superelevation.

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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

GIRDER MOMENT AND REACTION TABLES IV - S.N.016-1504 (UNIT 2)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-145 OF S-248 SHEETS

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 637
CONTRACT NO. 60L70				ILLINOIS FED. AID PROJECT

INTERIOR GIRDER 5 MOMENT TABLE				
		0.4 Sp. 13W	Pier 12W	0.6 Sp. 14W
$I_s$	(in <sup>4</sup> )	62,075	107,077	62,075
$I_c(n)$	(in <sup>4</sup> )	127,720	-	127,720
$I_c(3n)$	(in <sup>4</sup> )	94,957	-	94,957
$I_c(cr)$	(in <sup>4</sup> )	-	119,022	-
$S_s$	(in <sup>3</sup> )	1,678	2,818	1,678
$S_c(n)$	(in <sup>3</sup> )	2,215	-	2,215
$S_c(3n)$	(in <sup>3</sup> )	2,005	-	2,005
$S_c(cr)$	(in <sup>3</sup> )	-	2,933	-
$S_{xc}$	(in <sup>3</sup> )	43	85	43
DC1	(k/')	1.03	1.14	1.03
M <sub>DC1</sub>	(k)	886	2,778	1,079
DC2	(k/')	0.29	0.29	0.29
M <sub>DC2</sub>	(k)	161	465	205
DW	(k/')	0.37	0.37	0.37
M <sub>DW</sub>	(k)	318	796	383
$M_{\frac{1}{2}} + 1M$	(k)	1,658	2,147	1,792
$f_i$ (Strength I)	(ksi)	0.00	0.15	4.26
$M_u + \frac{1}{3} f_i S_{xc}$	(k)	4,687	9,009	5,377
$\phi_r M_n$	(k)	-	-	-
$f_s$ DC1	(ksi)	6.34	11.83	7.72
$f_s$ DC2	(ksi)	0.96	1.90	1.23
$f_s$ DW	(ksi)	1.90	3.26	2.29
$f_s$ ( $\frac{1}{2} + 1M$ )	(ksi)	8.98	8.78	9.71
$f_i$ (Service II)	(ksi)	0.00	0.12	3.27
$f_s + \frac{1}{2} f_i$ (Service II)	(ksi)	20.88	28.47	25.49
0.95R <sub>n</sub> F <sub>yf</sub>	(ksi)	47.50	47.50	47.50
$f_s + \frac{1}{3} f_i$ (Total)(Strength I)	(ksi)	27.70	37.47	33.03
$\phi_r F_n$	(ksi)	50.00	50.00	50.00
V <sub>r</sub>	(k)	51.60	53.10	49.40

INTERIOR GIRDER 5 REACTION TABLE				
		Pier 8W-E	Pier 12W	Pier 13W-W
R <sub>DC1</sub>	(k)	45.2	191.6	50.7
R <sub>DC2</sub>	(k)	9.0	36.8	9.8
R <sub>DW</sub>	(k)	15.3	58.9	17.2
$R_{\frac{1}{2}} + 1M$	(k)	79.0	168.7	85.7
R <sub>Total</sub>	(k)	148.5	455.9	163.4

EXTERIOR GIRDER 6 MOMENT TABLE				
		0.4 Sp. 13W	Pier 12W	0.6 Sp. 14W
$I_s$	(in <sup>4</sup> )	62,075	107,077	62,075
$I_c(n)$	(in <sup>4</sup> )	125,804	-	125,804
$I_c(3n)$	(in <sup>4</sup> )	93,539	-	93,539
$I_c(cr)$	(in <sup>4</sup> )	-	118,382	-
$S_s$	(in <sup>3</sup> )	1,678	2,818	1,678
$S_c(n)$	(in <sup>3</sup> )	2,205	-	2,205
$S_c(3n)$	(in <sup>3</sup> )	1,993	-	1,993
$S_c(cr)$	(in <sup>3</sup> )	-	2,927	-
$S_{xc}$	(in <sup>3</sup> )	43	85	43
DC1	(k/')	1.09	1.20	1.09
M <sub>DC1</sub>	(k)	852	3,011	1,260
DC2	(k/')	0.29	0.29	0.29
M <sub>DC2</sub>	(k)	236	637	308
DW	(k/')	0.27	0.27	0.27
M <sub>DW</sub>	(k)	277	734	411
$M_{\frac{1}{2}} + 1M$	(k)	1,943	2,598	2,451
$f_i$ (Strength I)	(ksi)	0.00	0.16	11.87
$M_u + \frac{1}{3} f_i S_{xc}$	(k)	5,176	10,208	6,880
$\phi_r M_n$	(k)	-	-	-
$f_s$ DC1	(ksi)	6.09	12.82	9.01
$f_s$ DC2	(ksi)	1.42	2.61	1.85
$f_s$ DW	(ksi)	1.67	3.01	2.47
$f_s$ ( $\frac{1}{2} + 1M$ )	(ksi)	10.58	10.65	13.34
$f_i$ (Service II)	(ksi)	0.00	0.12	9.05
$f_s + \frac{1}{2} f_i$ (Service II)	(ksi)	22.93	32.35	35.21
0.95R <sub>n</sub> F <sub>yf</sub>	(ksi)	47.50	47.50	47.50
$f_s + \frac{1}{3} f_i$ (Total)(Strength I)	(ksi)	30.40	42.50	44.60
$\phi_r F_n$	(ksi)	50.00	48.80	50.00
V <sub>r</sub>	(k)	60.70	61.80	76.50

EXTERIOR GIRDER 6 REACTION TABLE				
		Pier 8W-E	Pier 12W	Pier 13W-W
R <sub>DC1</sub>	(k)	45.1	179.6	58.1
R <sub>DC2</sub>	(k)	11.8	42.1	14.0
R <sub>DW</sub>	(k)	12.6	45.7	16.7
$R_{\frac{1}{2}} + 1M$	(k)	77.6	165.8	103.3
R <sub>Total</sub>	(k)	147.0	433.2	192.1

$I_s, S_s$ : 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) in uncracked sections 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) in uncracked sections due to long-term composite (superimposed) dead loads (in.<sup>4</sup> and in.<sup>3</sup>).

$I_c(cr), S_c(cr)$ : Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing  $f_s$  (Total-Strength I and Service II) in cracked sections, due to both short-term composite live loads and long-term composite (superimposed) dead loads (in.<sup>4</sup> and in.<sup>3</sup>).

$S_{xc}$ : 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.).

$M_{\frac{1}{2}} + 1M$ : Un-factored live load moment plus dynamic load allowance (impact)(kip-ft.).

$M_u$  (Strength I): Factored design moment (kip-ft.).  
 $1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{\frac{1}{2}} + 1M$

$f_i$ : Factored calculated normal stress at edge of flange for controlling flange plate due to lateral bending, Strength I or Service II as applicable (kip-ft.).

$\phi_r M_n$ : Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

$f_s$  DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).  
 $M_{DC1} / S_s$

$f_s$  DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).  
 $M_{DC2} / S_c(3n)$  or  $M_{DC2} / S_c(cr)$  as applicable.

$f_s$  DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).  
 $M_{DW} / S_c(3n)$  or  $M_{DW} / S_c(cr)$  as applicable.

$f_s$  ( $\frac{1}{2} + 1M$ ): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).  
 $M_{\frac{1}{2}} + 1M / S_c(n)$  or  $M_{\frac{1}{2}} + 1M / S_c(cr)$  as applicable.

$f_s + \frac{1}{2} f_i$  (Service II): Sum of stresses as computed below (ksi).  
 $f_s DC1 + f_s DC2 + f_s DW + 1.3 f_s (\frac{1}{2} + 1M) + \frac{1}{2} f_i$

0.95R<sub>n</sub>F<sub>yf</sub>: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

$f_s + \frac{1}{3} f_i$  (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).  
 $1.25 (f_s DC1 + f_s DC2) + 1.5 f_s DW + 1.75 f_s (\frac{1}{2} + 1M) + \frac{1}{3} f_i$

$\phi_r F_n$ : Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

V<sub>r</sub>: Maximum factored shear range in span computed according to Article 6.10.10.

Note:  
 $M_{\frac{1}{2}}$  and  $R_{\frac{1}{2}}$  include the effects of centrifugal force and superelevation.

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STATE OF ILLINOIS  
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GIRDER MOMENT & REACTION TABLES V – S.N. 016–1505 (UNIT 1)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-146 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	638
				CONTRACT NO. 60L70
ILLINOIS FED. AID PROJECT				

INTERIOR GIRDER 5 MOMENT TABLE				
	0.4 Sp. 15W or 0.6 Sp. 18W	Pier 14W or Pier 16W	0.5 Sp. 16W or 0.5 Sp. 17W	Pier 15W
$I_s$	(in <sup>4</sup> )	62,075	128,987	150,896
$I_c(n)$	(in <sup>4</sup> )	127,720	-	-
$I_c(3n)$	(in <sup>4</sup> )	94,957	-	-
$I_c(cr)$	(in <sup>4</sup> )	-	141,025	163,007
$S_s$	(in <sup>3</sup> )	1,678	3,394	1,966
$S_c(n)$	(in <sup>3</sup> )	2,215	-	2,500
$S_c(3n)$	(in <sup>3</sup> )	2,005	-	2,282
$S_c(cr)$	(in <sup>3</sup> )	-	3,502	4,073
$S_{xc}$	(in <sup>3</sup> )	43	133	67
DC1	(k/')	1.04	1.20	1.07
M <sub>DC1</sub>	(k)	904	3,587	1,123
DC2	(k/')	0.29	0.29	0.29
M <sub>DC2</sub>	(k)	160	605	214
DW	(k/')	0.37	0.37	0.37
M <sub>DW</sub>	(k)	316	996	436
$M_{\xi} \cdot IM$	(k)	2,017	2,979	2,430
$f_i$ (Strength I)	(ksi)	8.95	6.91	7.31
$M_u + \frac{1}{3} f_i S_{xc}$	(k)	5,344	11,973	6,591
$\phi_f M_n$	(k)	-	-	-
$f_s$ DC1	(ksi)	6.47	12.68	6.86
$f_s$ DC2	(ksi)	0.96	2.07	1.13
$f_s$ DW	(ksi)	1.89	3.41	2.29
$f_s$ ( $\xi + IM$ )	(ksi)	10.93	10.21	11.66
$f_i$ (Service II)	(ksi)	6.79	5.36	5.58
$f_s + \frac{1}{2} f_i$ (Service II)	(ksi)	26.92	34.11	28.23
0.95R <sub>n</sub> F <sub>yf</sub>	(ksi)	47.50	47.50	47.50
$f_s + \frac{1}{3} f_i$ (Total)(Strength I)	(ksi)	34.22	43.73	36.26
$\phi_f F_n$	(ksi)	50.00	50.00	50.00
V <sub>f</sub>	(k)	52.00	55.80	50.00

EXTERIOR GIRDER 6 MOMENT TABLE				
	0.4 Sp. 15W or 0.6 Sp. 18W	Pier 14W or Pier 16W	0.5 Sp. 16W or 0.5 Sp. 17W	Pier 15W
$I_s$	(in <sup>4</sup> )	62,075	128,987	150,896
$I_c(n)$	(in <sup>4</sup> )	125,804	-	-
$I_c(3n)$	(in <sup>4</sup> )	93,539	-	-
$I_c(cr)$	(in <sup>4</sup> )	-	140,375	162,350
$S_s$	(in <sup>3</sup> )	1,678	3,394	1,966
$S_c(n)$	(in <sup>3</sup> )	2,205	-	2,489
$S_c(3n)$	(in <sup>3</sup> )	1,993	-	2,271
$S_c(cr)$	(in <sup>3</sup> )	-	3,497	4,068
$S_{xc}$	(in <sup>3</sup> )	43	133	67
DC1	(k/')	1.09	1.26	1.13
M <sub>DC1</sub>	(k)	938	3,483	1,264
DC2	(k/')	0.29	0.29	0.29
M <sub>DC2</sub>	(k)	241	720	283
DW	(k/')	0.27	0.27	0.27
M <sub>DW</sub>	(k)	314	877	457
$M_{\xi} \cdot IM$	(k)	2,763	3,521	3,163
$f_i$ (Strength I)	(ksi)	11.68	7.46	9.19
$M_u + \frac{1}{3} f_i S_{xc}$	(k)	6,641	12,759	8,172
$\phi_f M_n$	(k)	-	-	-
$f_s$ DC1	(ksi)	6.71	12.31	7.72
$f_s$ DC2	(ksi)	1.45	2.47	1.50
$f_s$ DW	(ksi)	1.89	3.01	2.41
$f_s$ ( $\xi + IM$ )	(ksi)	15.04	12.08	15.25
$f_i$ (Service II)	(ksi)	8.83	5.76	7.00
$f_s + \frac{1}{2} f_i$ (Service II)	(ksi)	34.02	36.38	34.95
0.95R <sub>n</sub> F <sub>yf</sub>	(ksi)	47.50	47.50	47.50
$f_s + \frac{1}{3} f_i$ (Total)(Strength I)	(ksi)	43.25	46.63	44.88
$\phi_f F_n$	(ksi)	50.00	50.00	50.00
V <sub>f</sub>	(k)	83.00	85.50	72.60

INTERIOR GIRDER 3 MOMENT TABLE				
	0.4 Sp. 15W or 0.6 Sp. 18W	Pier 14W or Pier 16W	0.5 Sp. 16W or 0.5 Sp. 17W	Pier 15W
$I_s$	(in <sup>4</sup> )	62,075	107,077	128,987
$I_c(n)$	(in <sup>4</sup> )	127,720	-	-
$I_c(3n)$	(in <sup>4</sup> )	94,957	-	-
$I_c(cr)$	(in <sup>4</sup> )	-	119,022	-
$S_s$	(in <sup>3</sup> )	1,678	2,818	1,678
$S_c(n)$	(in <sup>3</sup> )	2,215	-	2,215
$S_c(3n)$	(in <sup>3</sup> )	2,005	-	2,005
$S_c(cr)$	(in <sup>3</sup> )	-	2,933	3,502
$S_{xc}$	(in <sup>3</sup> )	43	85	43
DC1	(k/')	1.04	1.14	1.04
M <sub>DC1</sub>	(k)	781	2,862	923
DC2	(k/')	0.15	0.15	0.15
M <sub>DC2</sub>	(k)	123	313	176
DW	(k/')	0.37	0.37	0.37
M <sub>DW</sub>	(k)	306	831	351
$M_{\xi} \cdot IM$	(k)	1,499	2,026	1,541
$f_i$ (Strength I)	(ksi)	6.73	7.70	7.77
$M_u + \frac{1}{3} f_i S_{xc}$	(k)	4,220	8,779	4,606
$\phi_f M_n$	(k)	-	-	-
$f_s$ DC1	(ksi)	5.59	12.19	6.60
$f_s$ DC2	(ksi)	0.74	1.28	1.05
$f_s$ DW	(ksi)	1.83	3.40	2.10
$f_s$ ( $\xi + IM$ )	(ksi)	8.12	8.29	8.35
$f_i$ (Service II)	(ksi)	5.13	5.99	5.96
$f_s + \frac{1}{2} f_i$ (Service II)	(ksi)	21.28	30.64	23.59
0.95R <sub>n</sub> F <sub>yf</sub>	(ksi)	47.50	47.50	47.50
$f_s + \frac{1}{3} f_i$ (Total)(Strength I)	(ksi)	27.11	39.01	29.92
$\phi_f F_n$	(ksi)	50.00	50.00	50.00
V <sub>f</sub>	(k)	45.30	49.00	45.80

INTERIOR GIRDER 3 REACTION TABLE			
	Pier 13W-E or Pier 17W-N	Pier 14W or Pier 16W	Pier 15W
R <sub>DC1</sub>	(k)	41.7	191.1
R <sub>DC2</sub>	(k)	4.5	17.8
R <sub>DW</sub>	(k)	15.0	58.3
R $\xi + IM$	(k)	86.2	154.4
R <sub>Total</sub>	(k)	147.4	421.7

INTERIOR GIRDER 5 REACTION TABLE			
	Pier 13W-E or Pier 17W-N	Pier 14W or Pier 16W	Pier 15W
R <sub>DC1</sub>	(k)	47.3	234.9
R <sub>DC2</sub>	(k)	8.6	43.6
R <sub>DW</sub>	(k)	15.0	67.3
R $\xi + IM$	(k)	86.1	196.2
R <sub>Total</sub>	(k)	156.9	541.9

EXTERIOR GIRDER 6 REACTION TABLE			
	Pier 13W-E or Pier 17W-N	Pier 14W or Pier 16W	Pier 15W
R <sub>DC1</sub>	(k)	51.5	166.1
R <sub>DC2</sub>	(k)	12.7	37.6
R <sub>DW</sub>	(k)	15.0	42.2
R $\xi + IM$	(k)	110.0	162.1
R <sub>Total</sub>	(k)	189.1	408.0

$I_s, S_s$ : 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) in uncracked sections 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) in uncracked sections due to long-term composite (superimposed) dead loads (in.<sup>4</sup> and in.<sup>3</sup>).

$I_c(cr), S_c(cr)$ : Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing  $f_s$  (Total-Strength I and Service II) in cracked sections, due to both short-term composite live loads and long-term composite (superimposed) dead loads (in.<sup>4</sup> and in.<sup>3</sup>).

$S_{xc}$ : 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.).

$M_{\xi} \cdot IM$ : Un-factored live load moment plus dynamic load allowance (impact)(kip-ft.).

$M_u$  (Strength I): Factored design moment (kip-ft.).

$1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{\xi} \cdot IM$

$f_i$ : Factored calculated normal stress at edge of flange for controlling flange plate due to lateral bending, Strength I or Service II as applicable (kip-ft.).

$\phi_f M_n$ : Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

$f_s$  DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).

$M_{DC1} / S_s$

$f_s$  DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).

$M_{DC2} / S_c(3n)$  or  $M_{DC2} / S_c(cr)$  as applicable.

$f_s$  DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).

$M_{DW} / S_c(3n)$  or  $M_{DW} / S_c(cr)$  as applicable.

$f_s$  ( $\xi + IM$ ): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).

$M_{\xi} \cdot IM / S_c(n)$  or  $M_{\xi} \cdot IM / S_c(cr)$  as applicable.

$f_s + \frac{1}{2} f_i$  (Service II): Sum of stresses as computed below (ksi).

$f_s DC1 + f_s DC2 + f_s DW + 1.3 f_s (\xi + IM) + \frac{1}{2} 0.95R_n F_{yf}$ : Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

$f_s + \frac{1}{3} f_i$  (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).

$1.25 (f_s DC1 + f_s DC2) + 1.5 f_s DW + 1.75 f_s (\xi + IM) + \frac{1}{3} \phi_f F_n$ : Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

V<sub>f</sub>: Maximum factored shear range in span computed according to Article 6.10.10.

Note:  
 $M_{\xi}$  and  $R_{\xi}$  include the effects of centrifugal force and superelevation.

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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

GIRDER MOMENT & REACTION TABLES VI - S.N. 016-1505 (UNIT 2)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-147 OF S-248 SHEETS

F.A.I. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	639
ILLINOIS FED. AID PROJECT			CONTRACT NO. 60L70	

INTERIOR GIRDER 5 MOMENT TABLE				
	0.4 Sp. 19W	Pier 18W	0.6 Sp. 20W	
$I_s$	(in <sup>4</sup> )	62,075	107,077	62,075
$I_c(n)$	(in <sup>4</sup> )	127,720	-	127,720
$I_c(3n)$	(in <sup>4</sup> )	94,957	-	94,957
$I_c(cr)$	(in <sup>4</sup> )	-	119,022	-
$S_s$	(in <sup>3</sup> )	1,678	2,818	1,678
$S_c(n)$	(in <sup>3</sup> )	2,215	-	2,215
$S_c(3n)$	(in <sup>3</sup> )	2,005	-	2,005
$S_c(cr)$	(in <sup>3</sup> )	-	2,933	-
$S_{xc}$	(in <sup>3</sup> )	43	85	43
DC1	(k/')	1.03	1.14	1.03
M <sub>DC1</sub>	(k)	1,079	2,778	886
DC2	(k/')	0.29	0.29	0.29
M <sub>DC2</sub>	(k)	205	465	161
DW	(k/')	0.37	0.37	0.37
M <sub>DW</sub>	(k)	383	796	318
$M_{\frac{1}{2}} + 1M$	(k)	1,792	2,147	1,658
$f_i$ (Strength I)	(ksi)	4.26	0.15	0.00
$M_u + \frac{1}{3} f_i S_{xc}$	(k)	5,377	9,009	4,687
$\phi_f M_n$	(k)	-	-	-
$f_s$ DC1	(ksi)	7.72	11.83	6.34
$f_s$ DC2	(ksi)	1.23	1.90	0.96
$f_s$ DW	(ksi)	2.29	3.26	1.90
$f_s$ ( $\frac{1}{2} + 1M$ )	(ksi)	9.71	8.78	8.98
$f_i$ (Service II)	(ksi)	3.27	0.12	0.00
$f_s + \frac{1}{2} f_i$ (Service II)	(ksi)	25.49	28.47	20.88
0.95R <sub>h</sub> F <sub>yf</sub>	(ksi)	47.50	47.50	47.50
$f_s + \frac{1}{3}$ (Total)(Strength I)	(ksi)	33.03	37.47	27.70
$\phi_f F_n$	(ksi)	50.00	50.00	50.00
V <sub>r</sub>	(k)	49.40	53.10	51.60

INTERIOR GIRDER 5 REACTION TABLE				
	Pier 17W-S	Pier 18W	Pier 19W-N	
R <sub>DC1</sub>	(k)	50.7	191.6	45.2
R <sub>DC2</sub>	(k)	9.8	36.8	9.0
R <sub>DW</sub>	(k)	17.2	58.9	15.3
$R_{\frac{1}{2}} + 1M$	(k)	85.7	168.7	79.0
R <sub>Total</sub>	(k)	163.4	455.9	148.5

EXTERIOR GIRDER 6 MOMENT TABLE				
	0.4 Sp. 19W	Pier 18W	0.6 Sp. 20W	
$I_s$	(in <sup>4</sup> )	62,075	107,077	62,075
$I_c(n)$	(in <sup>4</sup> )	125,804	-	125,804
$I_c(3n)$	(in <sup>4</sup> )	93,539	-	93,539
$I_c(cr)$	(in <sup>4</sup> )	-	118,382	-
$S_s$	(in <sup>3</sup> )	1,678	2,818	1,678
$S_c(n)$	(in <sup>3</sup> )	2,205	-	2,205
$S_c(3n)$	(in <sup>3</sup> )	1,993	-	1,993
$S_c(cr)$	(in <sup>3</sup> )	-	2,927	-
$S_{xc}$	(in <sup>3</sup> )	43	85	43
DC1	(k/')	1.09	1.20	1.09
M <sub>DC1</sub>	(k)	1,260	3,011	852
DC2	(k/')	0.29	0.29	0.29
M <sub>DC2</sub>	(k)	308	637	236
DW	(k/')	0.27	0.27	0.27
M <sub>DW</sub>	(k)	411	734	277
$M_{\frac{1}{2}} + 1M$	(k)	2,451	2,598	1,943
$f_i$ (Strength I)	(ksi)	11.87	0.16	0.00
$M_u + \frac{1}{3} f_i S_{xc}$	(k)	6,880	10,212	5,176
$\phi_f M_n$	(k)	-	-	-
$f_s$ DC1	(ksi)	9.01	12.82	6.09
$f_s$ DC2	(ksi)	1.85	2.61	1.42
$f_s$ DW	(ksi)	2.47	3.01	1.67
$f_s$ ( $\frac{1}{2} + 1M$ )	(ksi)	13.34	10.65	10.58
$f_i$ (Service II)	(ksi)	9.05	0.12	0.00
$f_s + \frac{1}{2} f_i$ (Service II)	(ksi)	35.21	32.35	22.93
0.95R <sub>h</sub> F <sub>yf</sub>	(ksi)	47.50	47.50	47.50
$f_s + \frac{1}{3}$ (Total)(Strength I)	(ksi)	44.60	42.50	30.40
$\phi_f F_n$	(ksi)	50.00	48.80	50.00
V <sub>r</sub>	(k)	76.50	61.80	60.70

EXTERIOR GIRDER 6 REACTION TABLE				
	Pier 17W-S	Pier 18W	Pier 19W-N	
R <sub>DC1</sub>	(k)	58.1	179.6	45.1
R <sub>DC2</sub>	(k)	14.0	42.1	11.8
R <sub>DW</sub>	(k)	16.7	45.7	12.6
$R_{\frac{1}{2}} + 1M$	(k)	103.3	165.8	77.6
R <sub>Total</sub>	(k)	192.1	433.2	147.0

$I_s, S_s$ : 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) in uncracked sections 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) in uncracked sections due to long-term composite (superimposed) dead loads (in.<sup>4</sup> and in.<sup>3</sup>).

$I_c(cr), S_c(cr)$ : Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing  $f_s$  (Total-Strength I and Service II) in cracked sections, due to both short-term composite live loads and long-term composite (superimposed) dead loads (in.<sup>4</sup> and in.<sup>3</sup>).

$S_{xc}$ : 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.).

$M_{\frac{1}{2}} + 1M$ : Un-factored live load moment plus dynamic load allowance (impact)(kip-ft.).

$M_u$  (Strength I): Factored design moment (kip-ft.).  
 $1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{\frac{1}{2}} + 1M$

$f_i$ : Factored calculated normal stress at edge of flange for controlling flange plate due to lateral bending, Strength I or Service II as applicable (kip-ft.).

$\phi_f M_n$ : Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).

$f_s$  DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).  
 $M_{DC1} / S_s$

$f_s$  DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).  
 $M_{DC2} / S_c(3n)$  or  $M_{DC2} / S_c(cr)$  as applicable.

$f_s$  DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).  
 $M_{DW} / S_c(3n)$  or  $M_{DW} / S_c(cr)$  as applicable.

$f_s$  ( $\frac{1}{2} + 1M$ ): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).  
 $M_{\frac{1}{2}} + 1M / S_c(n)$  or  $M_{\frac{1}{2}} + 1M / S_c(cr)$  as applicable.

$f_s + \frac{1}{2} f_i$  (Service II): Sum of stresses as computed below (ksi).  
 $f_s DC1 + f_s DC2 + f_s DW + 1.3 f_s (\frac{1}{2} + 1M) + \frac{1}{2} f_i$

0.95R<sub>h</sub>F<sub>yf</sub>: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

$f_s + \frac{1}{3}$  (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).  
 $1.25 (f_s DC1 + f_s DC2) + 1.5 f_s DW + 1.75 f_s (\frac{1}{2} + 1M) + \frac{1}{3} f_i$

$\phi_f F_n$ : Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

V<sub>r</sub>: Maximum factored shear range in span computed according to Article 6.10.10.

Note:  
 $M_{\frac{1}{2}}$  and  $R_{\frac{1}{2}}$  include the effects of centrifugal force and superelevation.



USER NAME =	krizm	DESIGNED -	DD	REVISED -	
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

GIRDER MOMENT & REACTION TABLES VII - S.N.016-1505 (UNIT 3)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	640
				CONTRACT NO. 60L70
				ILLINOIS FED. AID PROJECT



INTERIOR GIRDER MOMENT TABLE			
		0.4 Sp. 21W or 0.6 Sp. 22W	Pier 20W
$I_s$	(in <sup>4</sup> )	62,075	128,987
$I_c(n)$	(in <sup>4</sup> )	127,720	-
$I_c(3n)$	(in <sup>4</sup> )	94,957	-
$I_c(cr)$	(in <sup>4</sup> )	-	141,025
$S_s$	(in <sup>3</sup> )	1,678	3,394
$S_c(n)$	(in <sup>3</sup> )	2,215	-
$S_c(3n)$	(in <sup>3</sup> )	2,005	-
$S_c(cr)$	(in <sup>3</sup> )	-	3,502
DC1	(k/')	1.03	1.20
M <sub>DC1</sub>	('k)	1,605	4,330
DC2	(k/')	0.29	0.29
M <sub>DC2</sub>	('k)	292	715
DW	(k/')	0.37	0.37
M <sub>DW</sub>	('k)	526	1,269
M <sub>ℓ + IM</sub>	('k)	2,221	2,794
M <sub>u</sub> (Strength I)	('k)	7,047	13,099
Φ <sub>r</sub> M <sub>n</sub>	('k)	11,005	15,027
f <sub>s</sub> DC1	(ksi)	11.48	15.31
f <sub>s</sub> DC2	(ksi)	1.75	2.45
f <sub>s</sub> DW	(ksi)	3.15	4.35
f <sub>s</sub> (ℓ+IM)	(ksi)	12.03	9.57
f <sub>s</sub> (Service II)	(ksi)	32.02	34.55
0.95R <sub>n</sub> F <sub>yr</sub>	(ksi)	47.50	47.50
f <sub>s</sub> (Total)(Strength I)	(ksi)	-	-
Φ <sub>r</sub> F <sub>n</sub>	(ksi)	-	-
V <sub>r</sub>	(k)	50.20	53.20

INTERIOR GIRDER REACTION TABLE			
		Pier 19W-S or S. Abut.	Pier 20W
R <sub>DC1</sub>	(k)	60.2	236.4
R <sub>DC2</sub>	(k)	11.5	42.1
R <sub>DW</sub>	(k)	19.4	71.0
R <sub>ℓ + IM</sub>	(k)	85.0	174.0
R <sub>Total</sub>	(k)	176.0	523.5

EXTERIOR GIRDER MOMENT TABLE			
		0.4 Sp. 21W or 0.6 Sp. 22W	Pier 20W
$I_s$	(in <sup>4</sup> )	62,075	128,987
$I_c(n)$	(in <sup>4</sup> )	125,804	-
$I_c(3n)$	(in <sup>4</sup> )	93,539	-
$I_c(cr)$	(in <sup>4</sup> )	-	140,375
$S_s$	(in <sup>3</sup> )	1,678	3,394
$S_c(n)$	(in <sup>3</sup> )	2,205	-
$S_c(3n)$	(in <sup>3</sup> )	1,993	-
$S_c(cr)$	(in <sup>3</sup> )	-	3,497
DC1	(k/')	1.09	1.26
M <sub>DC1</sub>	('k)	1,609	4,361
DC2	(k/')	0.29	0.29
M <sub>DC2</sub>	('k)	356	898
DW	(k/')	0.27	0.27
M <sub>DW</sub>	('k)	499	1,171
M <sub>ℓ + IM</sub>	('k)	2,660	3,415
M <sub>u</sub> (Strength I)	('k)	7,860	14,307
Φ <sub>r</sub> M <sub>n</sub>	('k)	10,956	15,023
f <sub>s</sub> DC1	(ksi)	11.51	15.42
f <sub>s</sub> DC2	(ksi)	2.14	3.08
f <sub>s</sub> DW	(ksi)	3.00	4.02
f <sub>s</sub> (ℓ+IM)	(ksi)	14.48	11.72
f <sub>s</sub> (Service II)	(ksi)	35.48	37.75
0.95R <sub>n</sub> F <sub>yr</sub>	(ksi)	47.50	47.50
f <sub>s</sub> (Total)(Strength I)	(ksi)	-	-
Φ <sub>r</sub> F <sub>n</sub>	(ksi)	-	-
V <sub>r</sub>	(k)	60.00	63.90

EXTERIOR GIRDER REACTION TABLE			
		Pier 19W-S or S. Abut.	Pier 20W
R <sub>DC1</sub>	(k)	60.7	239.5
R <sub>DC2</sub>	(k)	14.1	52.4
R <sub>DW</sub>	(k)	17.2	62.6
R <sub>ℓ + IM</sub>	(k)	86.5	180.0
R <sub>Total</sub>	(k)	178.5	534.4

- $I_s$ ,  $S_s$ : 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) in uncracked sections 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) in uncracked sections, due to long-term composite (superimposed) dead loads (in.<sup>4</sup> and in.<sup>3</sup>).
- $I_c(cr)$ ,  $S_c(cr)$ : Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing  $f_s$  (Total-Strength I and Service II) in cracked sections, due to both short-term composite live loads and long-term composite (superimposed) dead loads (in.<sup>4</sup> and 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>
- Φ<sub>r</sub>M<sub>n</sub>: Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft.).
- f<sub>s</sub> DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).  
M<sub>DC1</sub> / S<sub>s</sub>
- f<sub>s</sub> DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).  
M<sub>DC2</sub> / S<sub>c(3n)</sub> or M<sub>DC2</sub> / S<sub>c(cr)</sub> as applicable.
- f<sub>s</sub> DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).  
M<sub>DW</sub> / S<sub>c(3n)</sub> or M<sub>DW</sub> / S<sub>c(cr)</sub> as applicable.
- f<sub>s</sub> (ℓ+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).  
M<sub>ℓ + IM</sub> / S<sub>c(n)</sub> or M<sub>ℓ + IM</sub> / S<sub>c(cr)</sub> as applicable.
- f<sub>s</sub> (Service II): Sum of stresses as computed below (ksi).  
f<sub>sDC1</sub> + f<sub>sDC2</sub> + f<sub>sDW</sub> + 1.3 f<sub>s</sub> (ℓ + IM)
- 0.95R<sub>n</sub>F<sub>yr</sub>: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).
- f<sub>s</sub> (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).  
1.25 (f<sub>sDC1</sub> + f<sub>sDC2</sub>) + 1.5 f<sub>sDW</sub> + 1.75 f<sub>s</sub> (ℓ + IM)
- Φ<sub>r</sub>F<sub>n</sub>: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).
- V<sub>r</sub>: Maximum factored shear range in span computed according to Article 6.10.10.

268\_0161505\_60L70\_Girder M&R Tables\_VIII.dgn



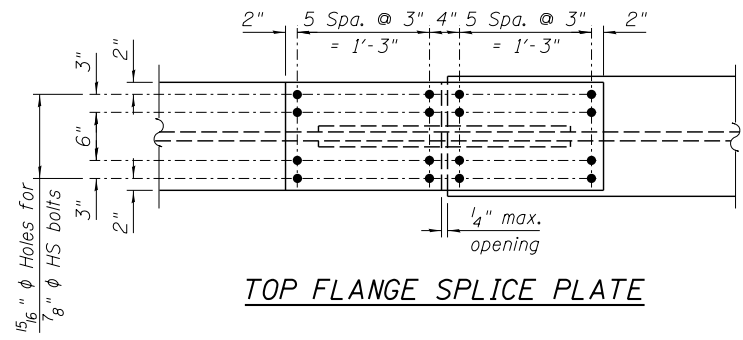
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DEPARTMENT OF TRANSPORTATION**

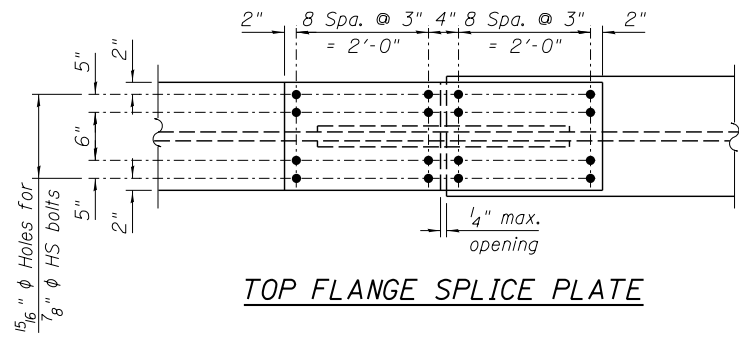
**GIRDER MOMENT & REACTION TABLES VIII – S.N.016-1505 (UNIT 4)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-149 OF S-248 SHEETS

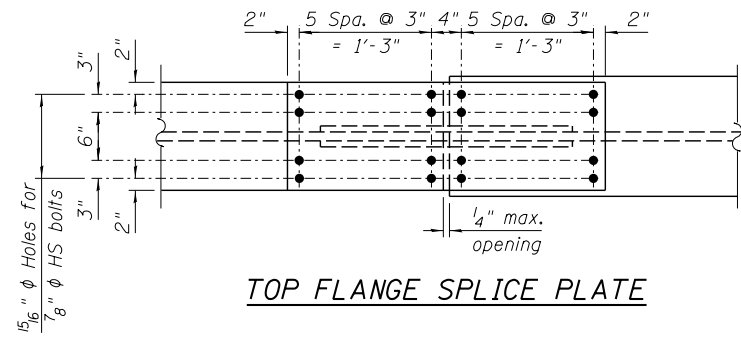
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55	2010-080-B	COOK	886	641
CONTRACT NO. 60L70				
ILLINOIS FED. AID PROJECT				



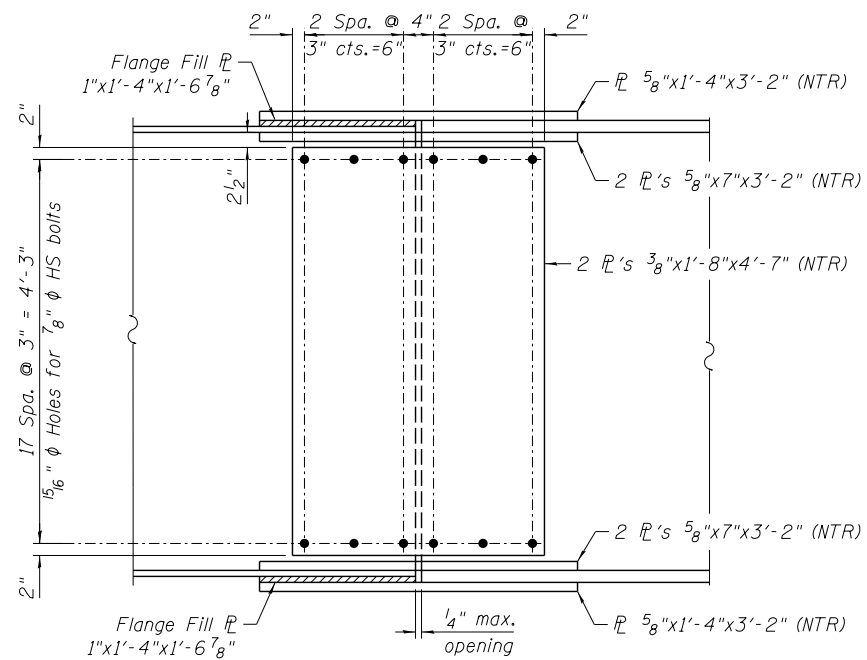
TOP FLANGE SPLICE PLATE



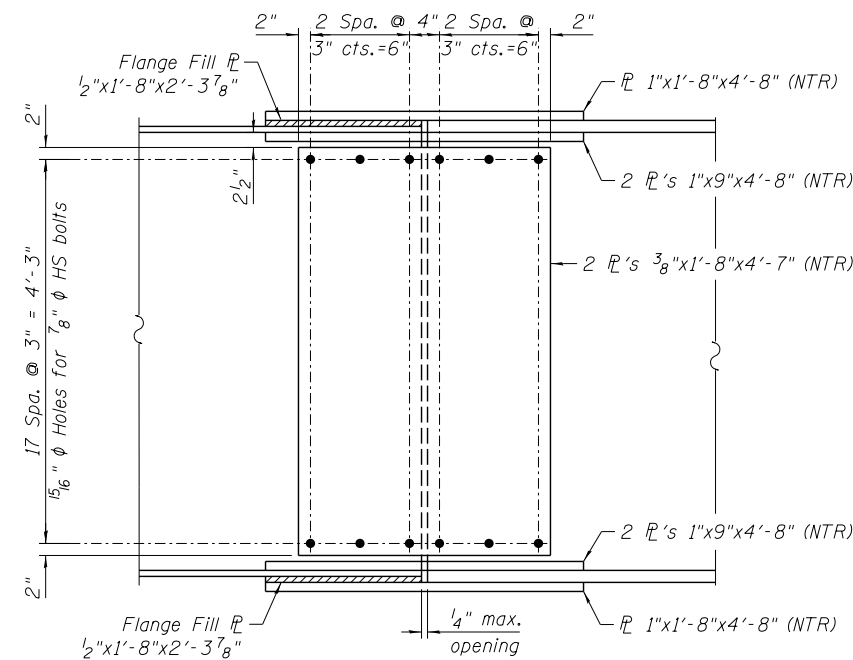
TOP FLANGE SPLICE PLATE



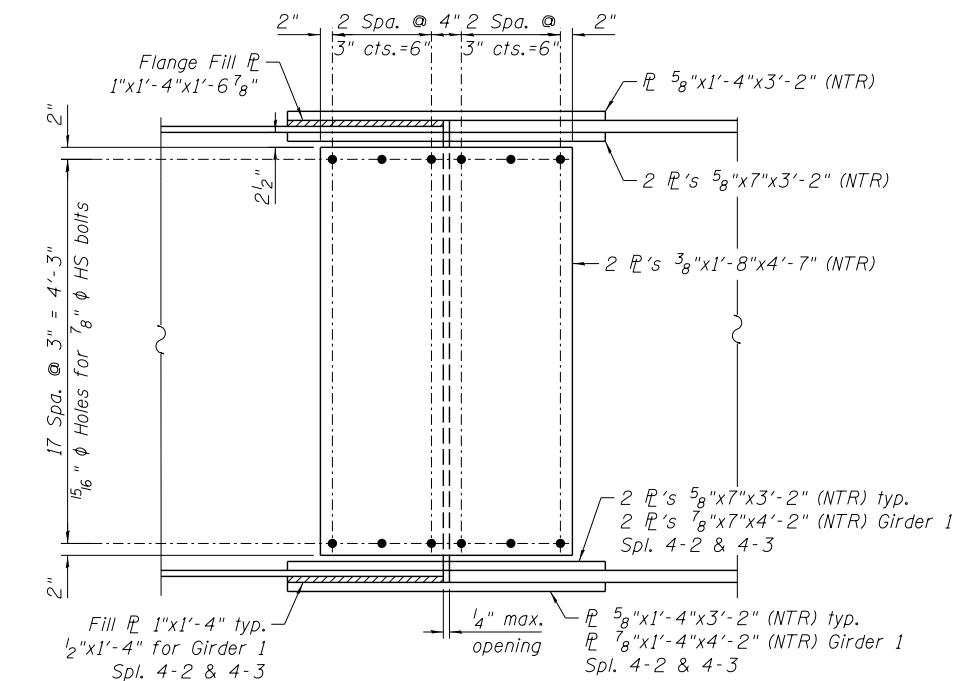
TOP FLANGE SPLICE PLATE



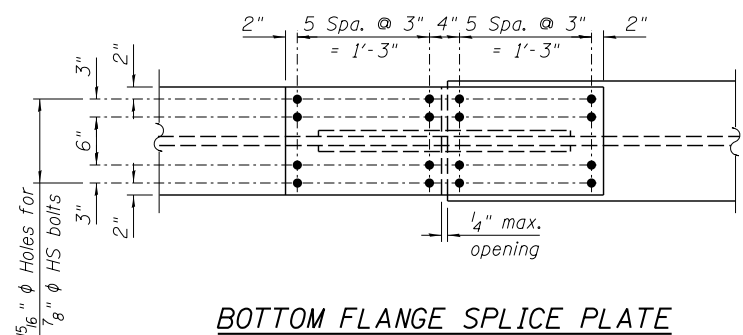
WEB SPLICE PLATE



WEB SPLICE PLATE

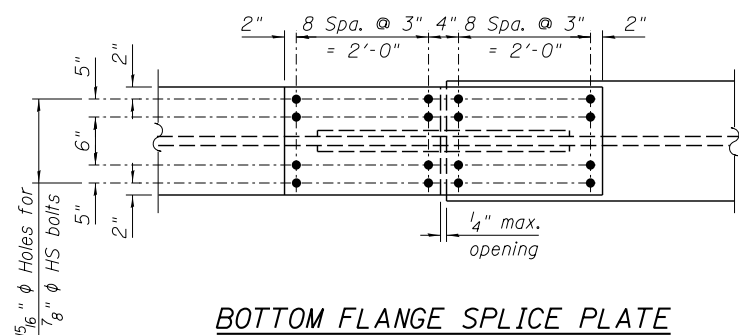


WEB SPLICE PLATE



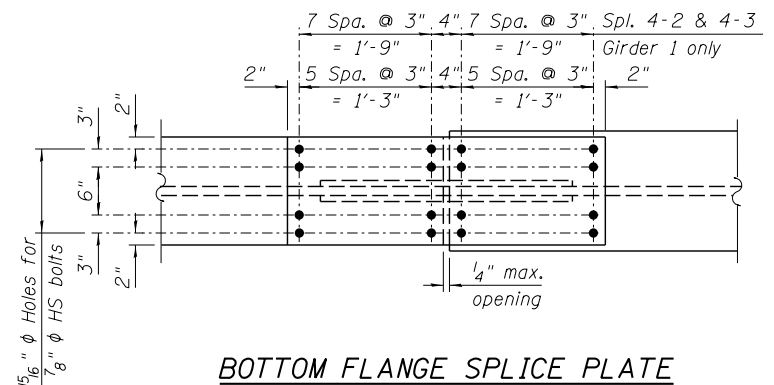
BOTTOM FLANGE SPLICE PLATE

SPLICES 1-1 & 1-4 THRU 1-8  
(54 Required)



BOTTOM FLANGE SPLICE PLATE

SPLICES 1-2 & 1-3  
(18 Required)



BOTTOM FLANGE SPLICE PLATE

SPLICES 4-1 THRU 4-4  
(36 Required)

NOTES:

1. See Sheets S-112 thru S-116 for girder framing plan.
2. All structural steel shall be AASHTO M270 Grade 50.
3. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.

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DEPARTMENT OF TRANSPORTATION

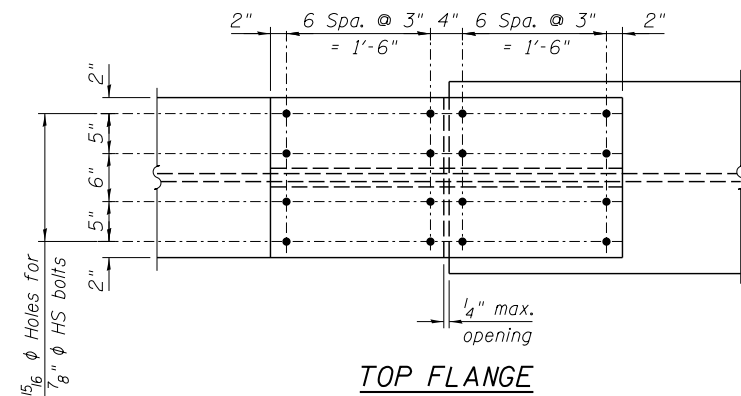
GIRDER SPLICE DETAILS I- S.N.016-1501 & S.N.016-1504 (UNIT 1)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-150 OF S-248 SHEETS

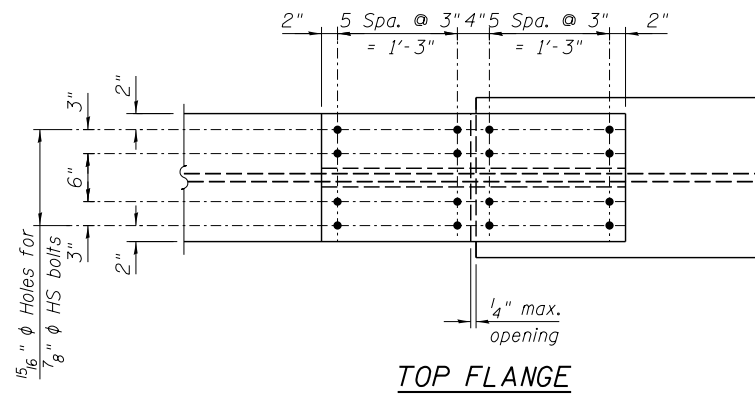
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CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	

**NOTES:**

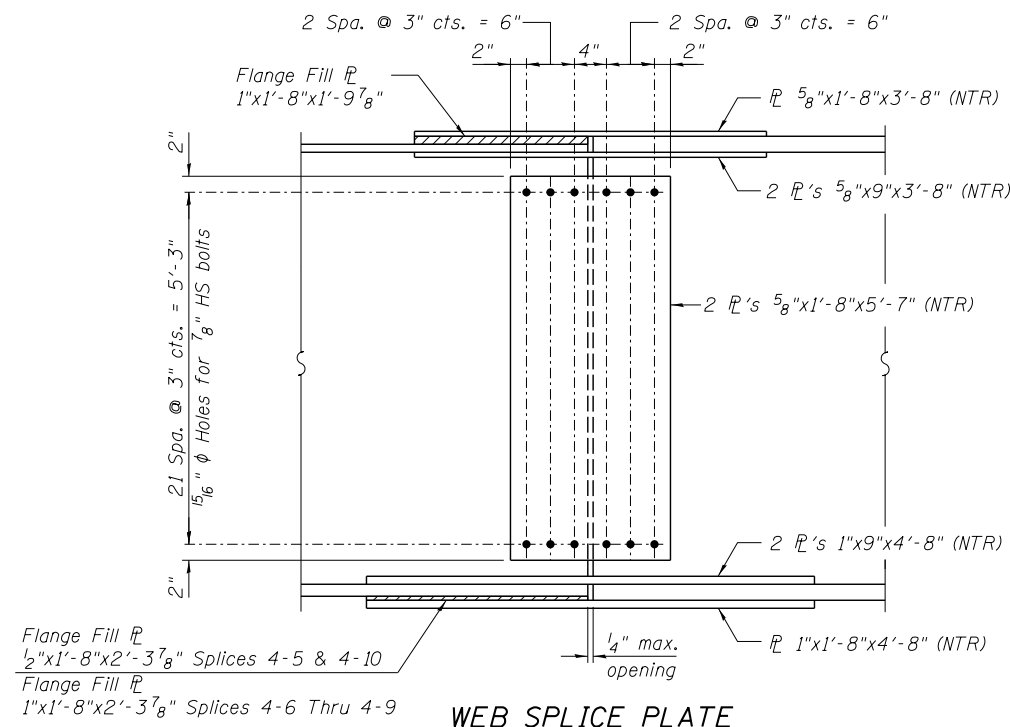
1. See Sheets S-117 thru S-119 for girder framing plan.
2. All structural steel shall be AASHTO M270 Grade 50.
3. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.



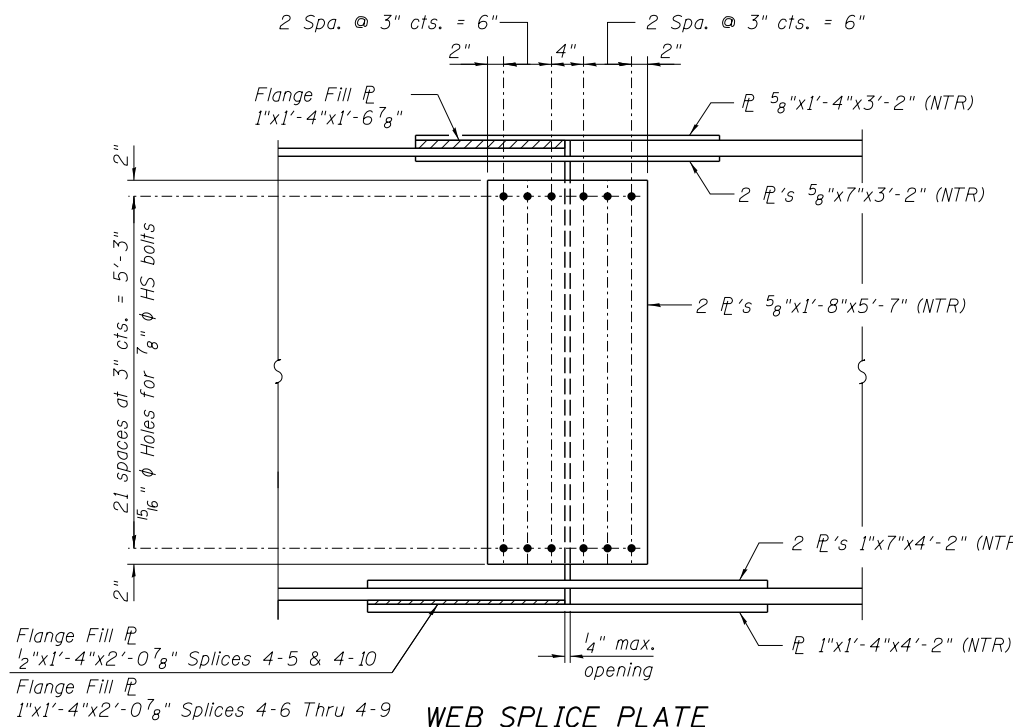
**TOP FLANGE**



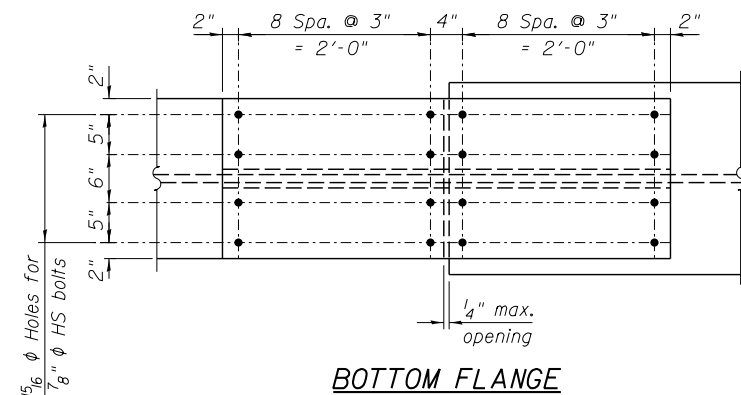
**TOP FLANGE**



**WEB SPLICE PLATE**

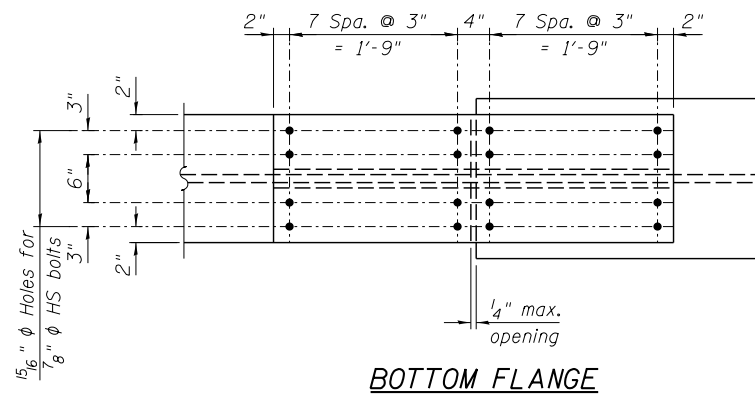


**WEB SPLICE PLATE**



**BOTTOM FLANGE**

**SPLICES 4-5 THRU 4-10 (GIRDERS 1 THRU 3)**  
(18 required)



**BOTTOM FLANGE**

**SPLICES 4-5 THRU 4-10 (GIRDERS 4 THRU 6)**  
(18 required)

282\_0161504\_60L70\_SPLC2.dgn



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	CHECKED - MR	REVISED -
PLOT SCALE =	DRAWN - AMV	REVISED -
PLOT DATE = 11/20/2014	CHECKED - TH	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

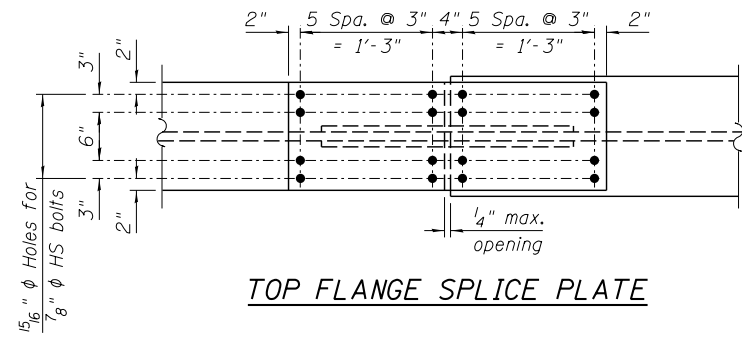
**GIRDER SPLICE DETAILS II - S.N.016-1504 (UNIT 2)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-151 OF S-248 SHEETS

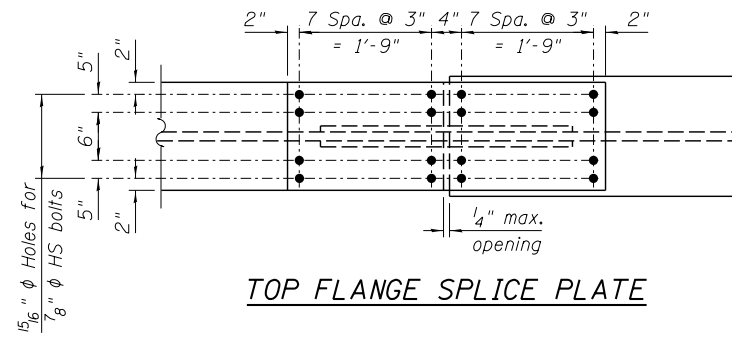
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ILLINOIS FED. AID PROJECT				

**NOTES:**

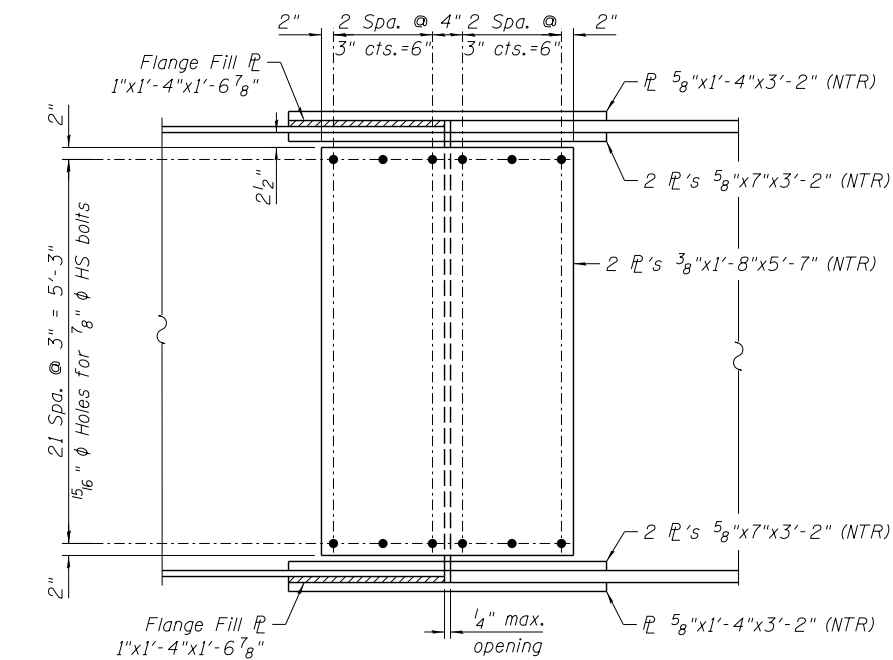
1. See Sheets S-120 thru S-124 for girder framing plan.
2. All structural steel shall be AASHTO M270 Grade 50.
3. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.



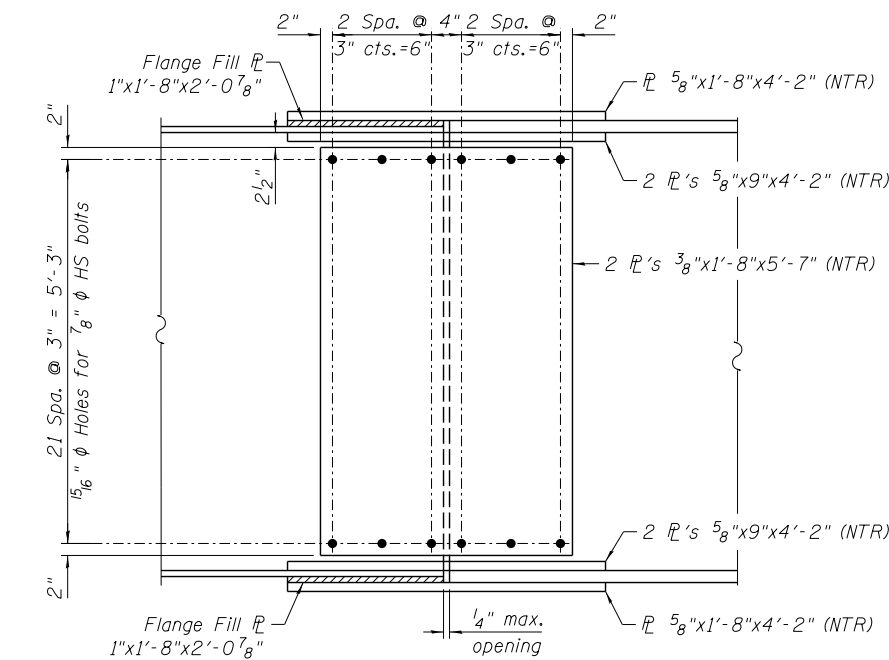
**TOP FLANGE SPLICE PLATE**



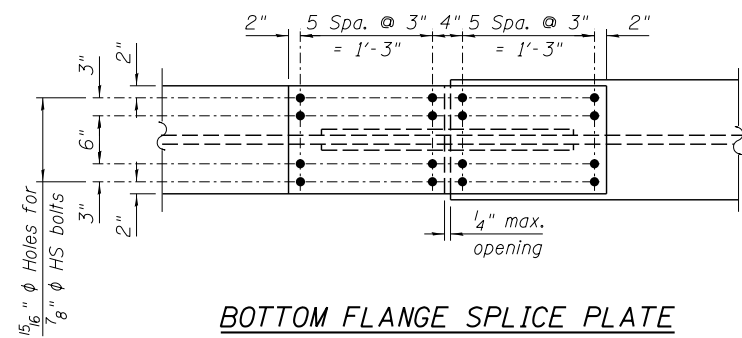
**TOP FLANGE SPLICE PLATE**



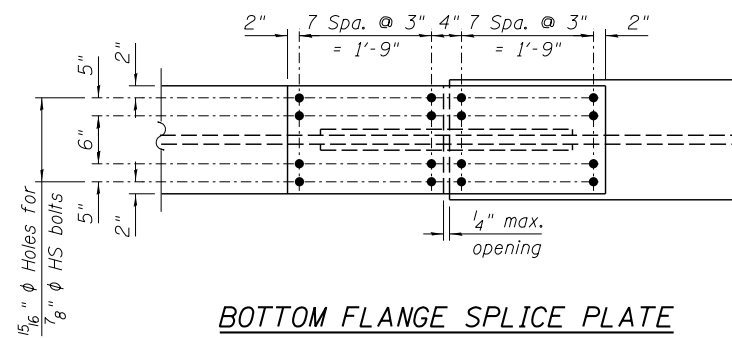
**WEB SPLICE PLATE**



**WEB SPLICE PLATE**



**BOTTOM FLANGE SPLICE PLATE**



**BOTTOM FLANGE SPLICE PLATE**

**SPLICES 5-1 THRU 5-3,  
5-4 THRU 5-7 (GIRDERS 1 THRU 3)  
& 5-8 THRU 5-12**  
(60 Required)

**SPLICES 5-4 THRU 5-7 (GIRDERS 4 THRU 6)**  
(12 Required)

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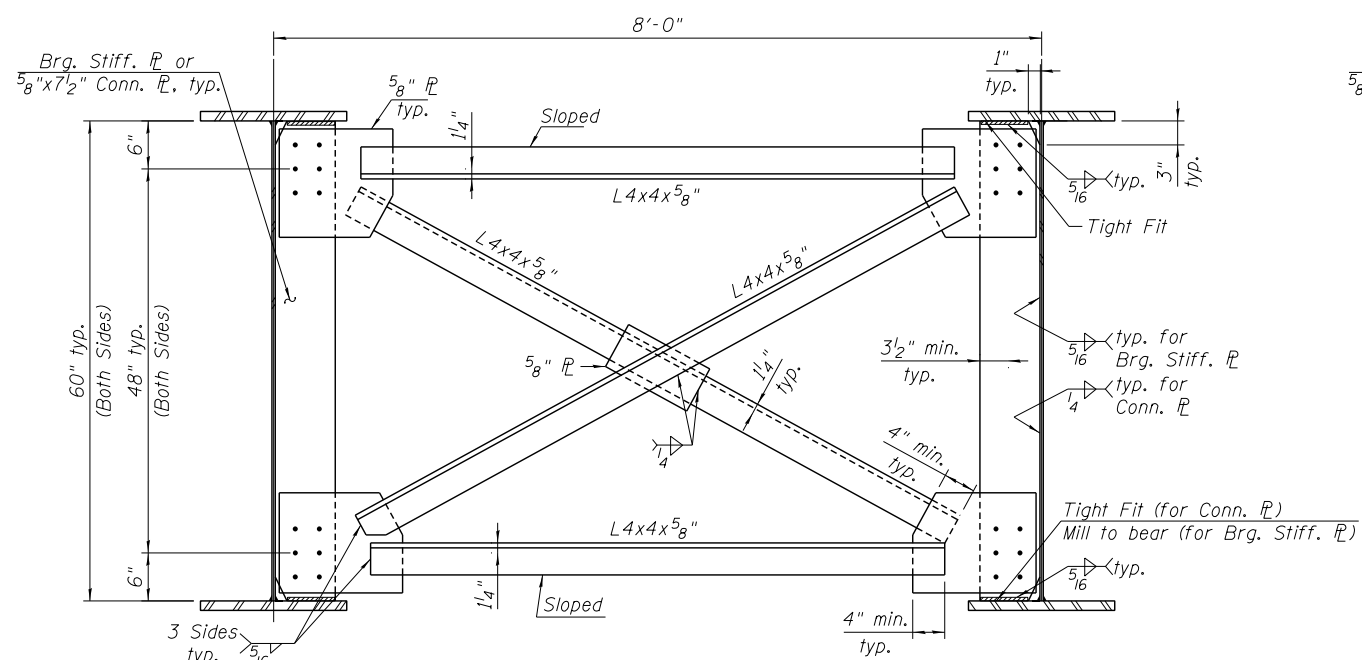
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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

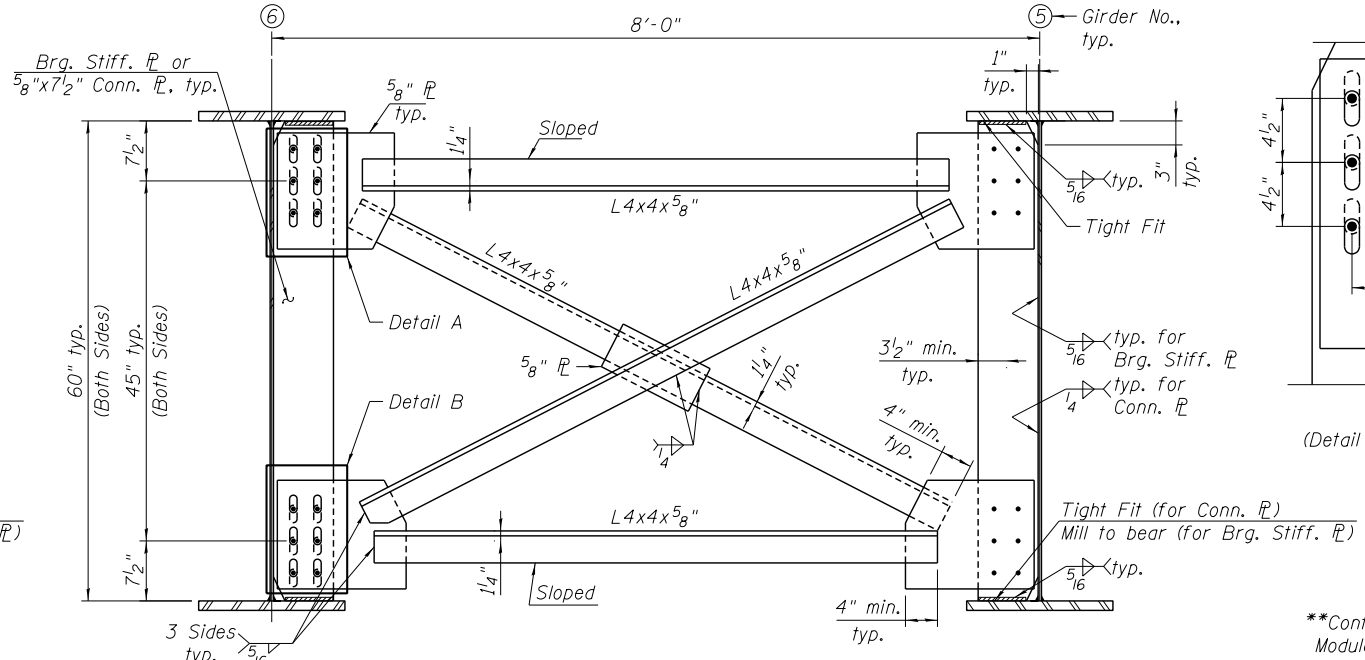
**GIRDER SPLICE DETAILS III - S.N. 016-1505  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-152 OF S-248 SHEETS

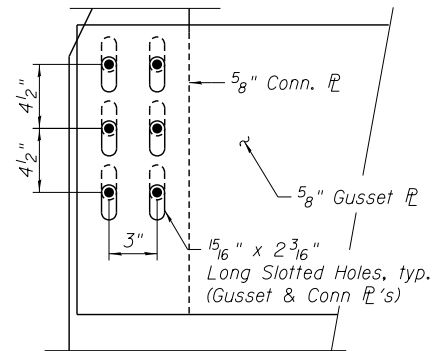
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				CONTRACT NO. 60L70
ILLINOIS FED. AID PROJECT				



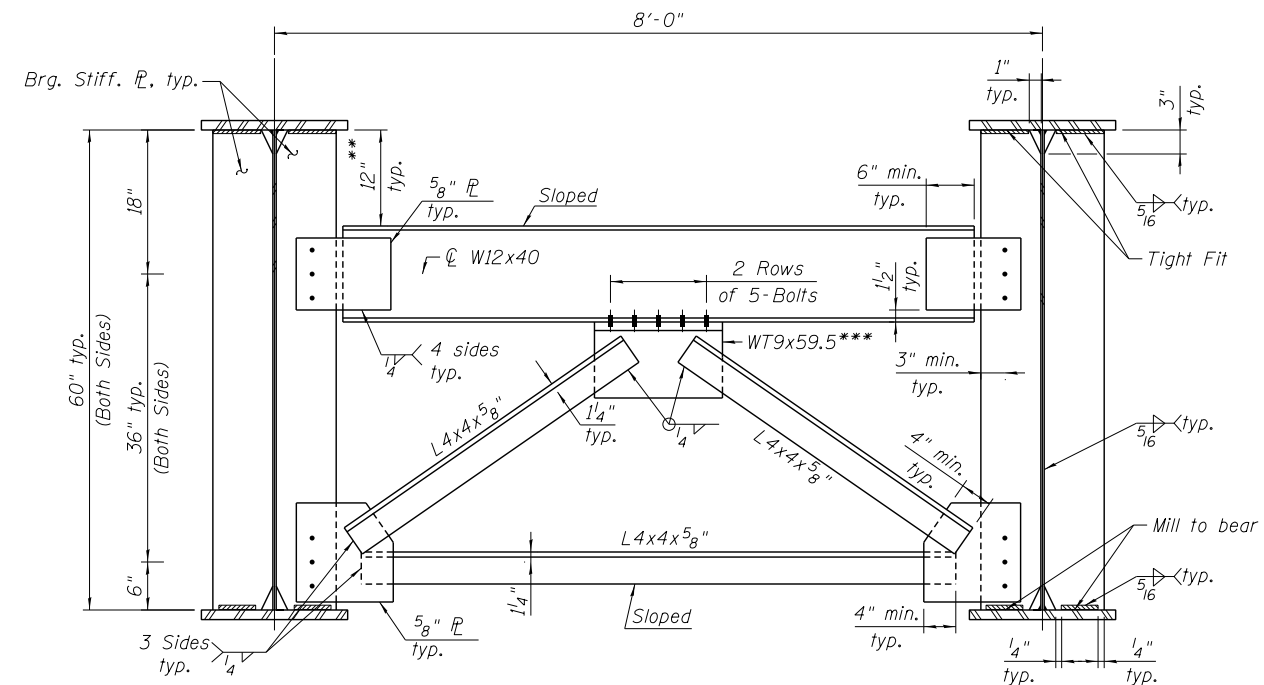
**INTERIOR CROSS FRAME - CF101**  
(252 Required)



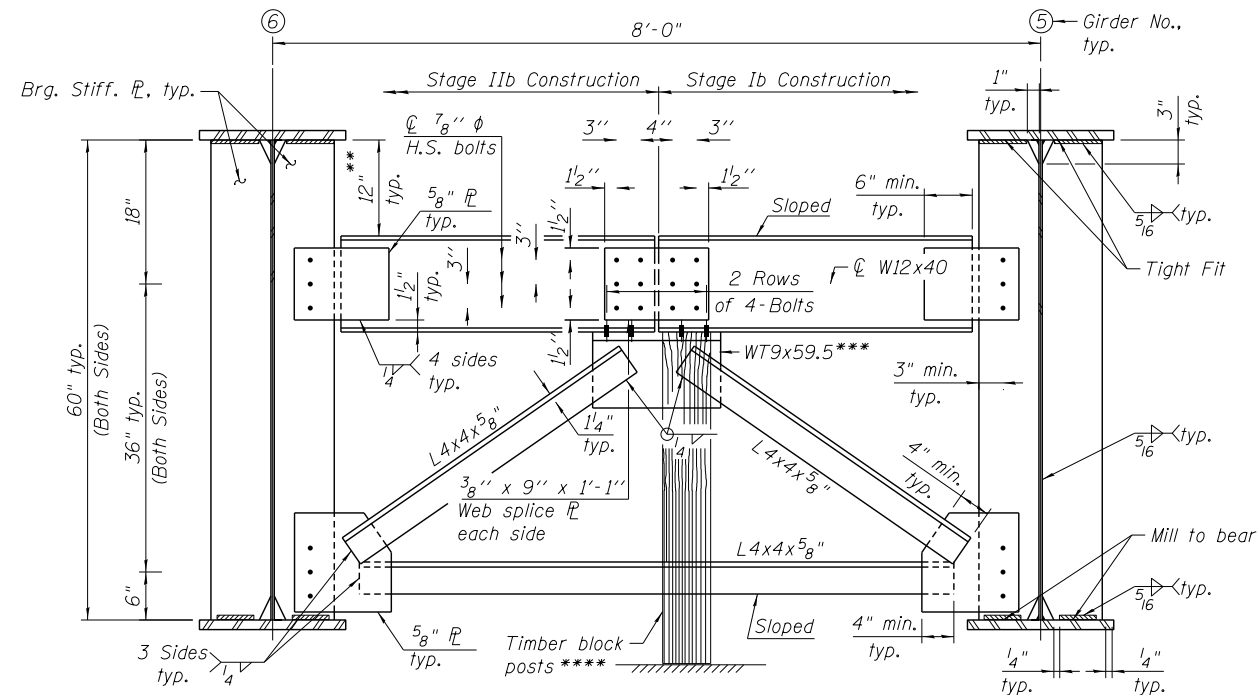
**INTERIOR CROSS FRAME - CF102**  
(36 Required)



**DETAIL A**  
(Detail B mirror of Detail A)



**END CROSS FRAME - CF103**  
(14 Required)



**END CROSS FRAME - CF104**  
(2 Required)

\*\*Contractor to coordinate with Modular Joint Manufacturer.

\*\*\*Alternate WT shapes utilizing 5/8" nominal thickness are permitted to facilitate material acquisition.

\*\*\*\*Cost of Timber Block Posts is included with Structural Steel.

**NOTES:**

- See Sheets S-112 thru S-114 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.
- Intermediate transverse stiffeners shall use the same size clips & fillet welds as connection plates. Likewise, jacking stiffeners shall use the same size clips & fillet welds as the bearing stiffeners.
- Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts. Bolts 7/8 in.  $\phi$ , holes 1 1/16 in.  $\phi$ , unless otherwise noted.
- Two hardened washers required for each set of oversized holes.
- Bolt spacing shall be 3" min. & edge distances shall be 2" min., unless otherwise noted.
- All cross frames or diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.
- Cross frame members (top & bottom chord, diagonals and gusset plates) shall be hot dipped galvanized. See special provision for "Metallizing Structural Steel" & "Hot-dipped Galvanizing for Structural Steel".
- Bolts in slots shall be finger tight until the second stage pour is complete.
- Position slots so bolts start at one end with no concrete load and finish near the opposite end under deck load, allowing maximum displacement without laterally stressing main members.

**END CROSS FRAME STAGE CONSTRUCTION SEQUENCE**

- Order top chord in two sections.
- Attach Stage Ib section of top chord to Girder 5.
- Place timber block posts between Stage Ib section of top chord and abutment bearing section.
- Attach Stage IIb section of top chord to both Girder 6 and Stage Ib section of top chord during Stage IIb construction with splice plates.
- Remove timber block posts.
- Install WT, diagonal and bottom chord members.

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		CHECKED -	ATB	REVISED -	
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

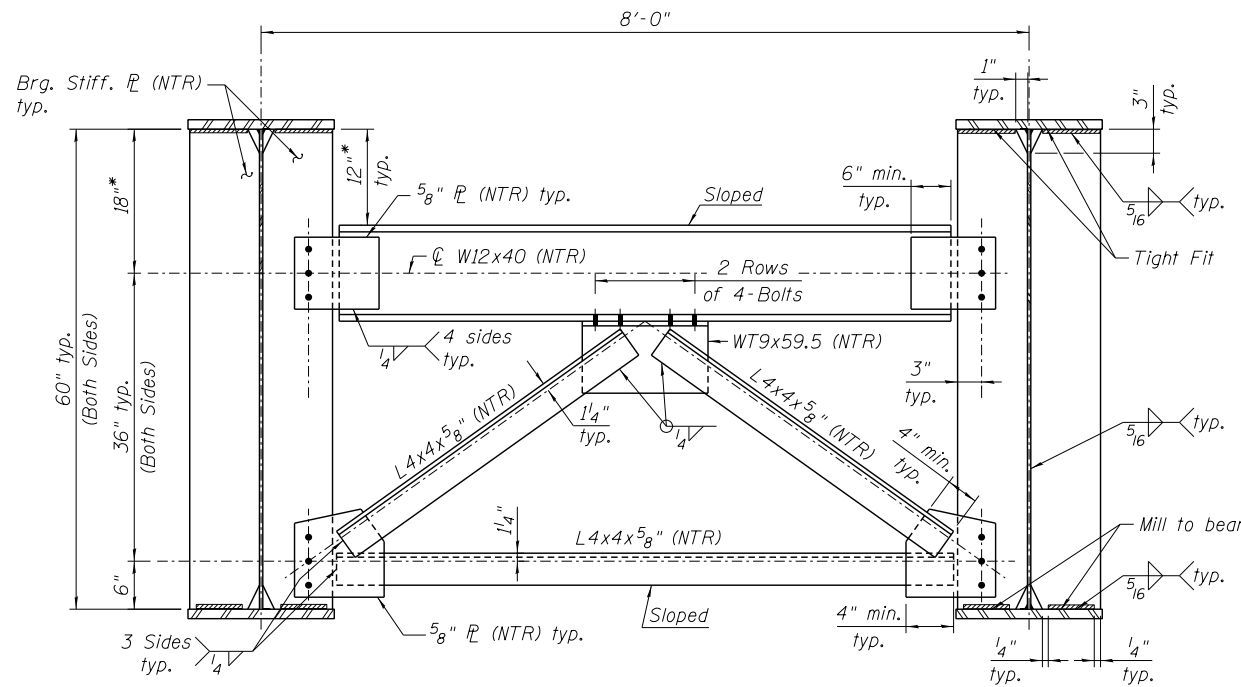
GIRDER CROSS FRAME DETAILS I - S.N.016-1501  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-153 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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			CONTRACT NO. 60L70	
ILLINOIS FED. AID PROJECT				

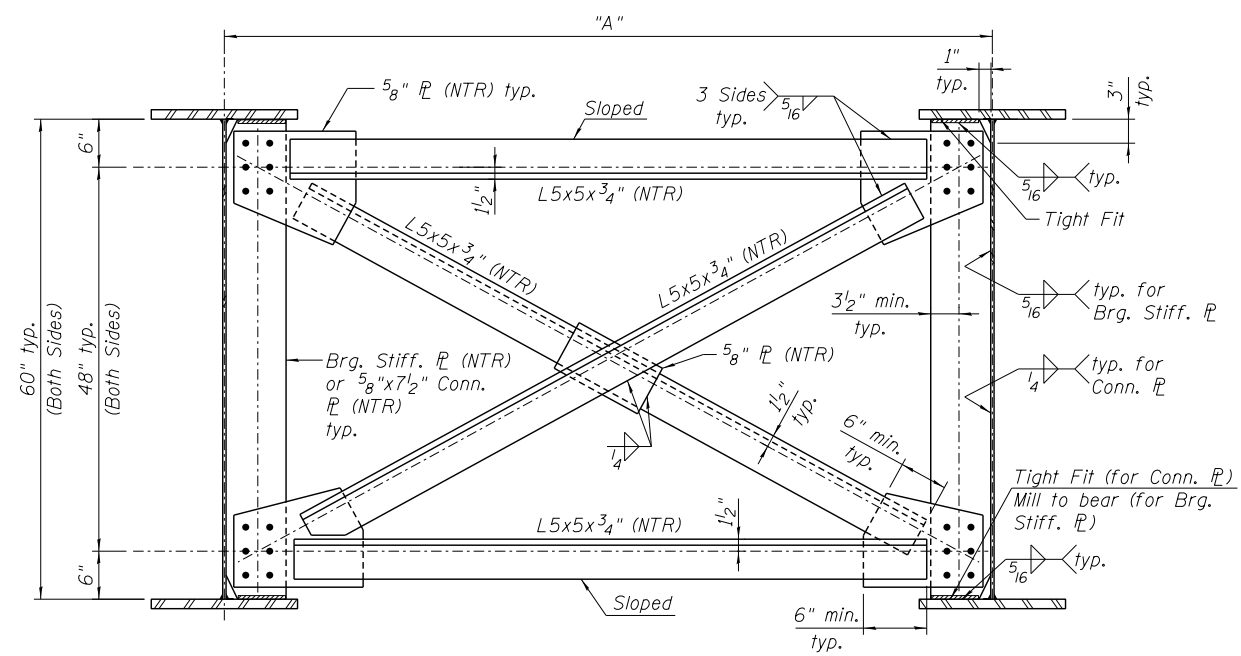
**CROSS FRAME TABLE**

Name	Quantity	"A"
CF404	164	8'-0"
CF405	1	8'-0 1/16"
CF406	1	8'-0 3/16"
CF407	1	8'-0 5/16"
CF408	1	8'-2 1/8"
CF409	1	8'-6 1/16"
CF410	1	9'-0 1/16"
CF411	1	9'-9 1/4"
CF412	1	8'-0 1/16"
CF413	1	8'-1 5/16"
CF414	1	8'-6 3/16"
CF415	1	9'-0 7/16"
CF416	1	9'-8 7/8"
CF417	1	6'-0"
CF418	1	6'-8 1/16"
CF419	1	7'-4"
CF420	1	5'-8 3/4"
CF421	1	6'-3 1/16"
CF422	1	7'-0 3/16"
CF423	1	6'-3 3/8"
CF424	1	7'-0 1/4"
CF425	1	7'-7 3/16"
CF426	1	5'-5 3/16"
CF427	1	5'-11 1/16"
CF428	1	6'-9 5/16"

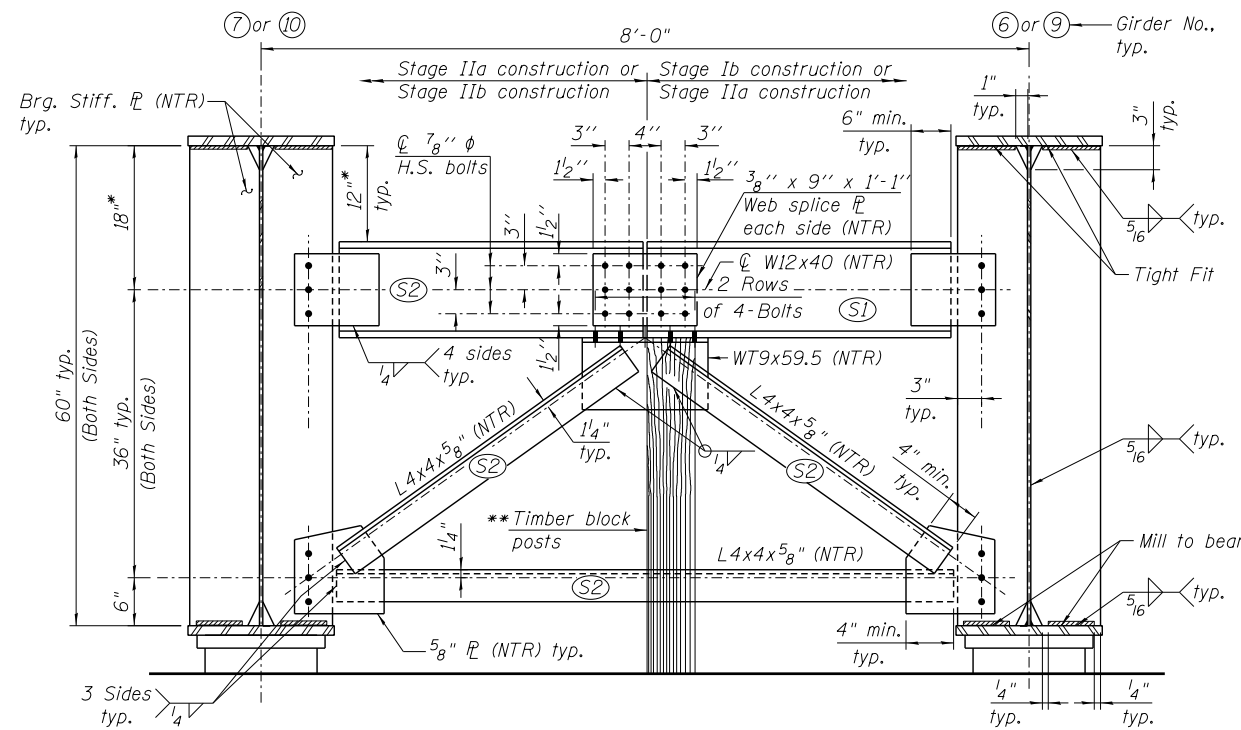


**END CROSS FRAME - CF401**  
(14 Required)

\*Contractor to coordinate with Modular Joint Manufacturer.



**INTERIOR CROSS FRAMES - CF404 THRU CF428**  
(188 Required)

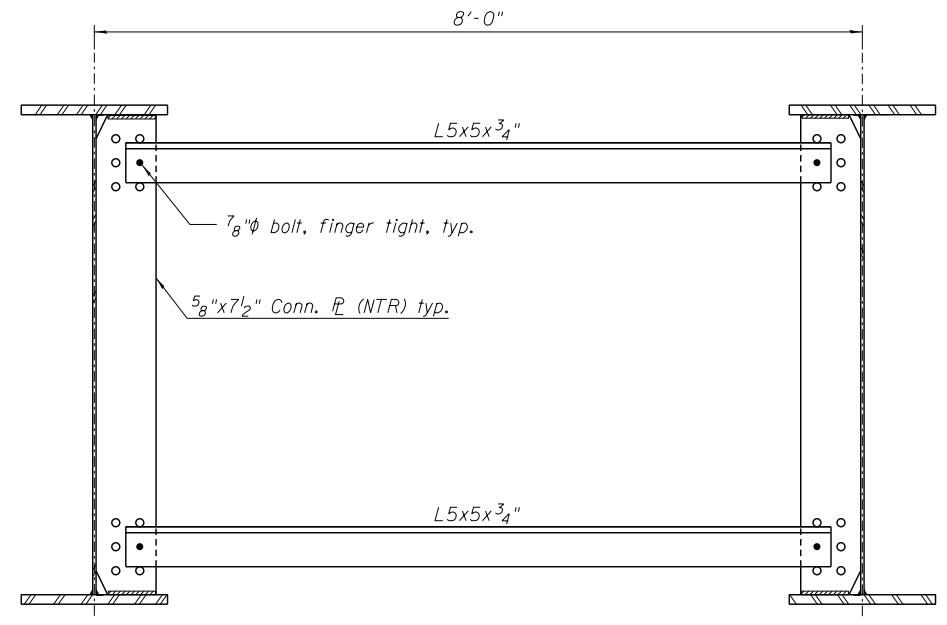


**END CROSS FRAME - CF402**  
(4 Required)

\*\* Cost of Timber posts is included with Structural Steel.

**END CROSS FRAME STAGE CONSTRUCTION SEQUENCE**

1. Order top chord in two sections.
2. Attach section (S1) of top chord to girder.
3. Place timber block posts between section (S1) of top chord and abutment bearing section.
4. Attach section (S2) of top chord to both girder and section (S1) of top chord during stage IIa or IIb construction with splice plates.
5. Remove timber block posts.



**TEMPORARY BRACING CROSS FRAME - CF403**  
(34 Required)

**CROSS FRAME CF403 STAGE CONSTRUCTION SEQUENCE NOTES**

1. Install Cross Frame CF403 prior to Stage IIa or Stage IIb deck pour.
2. Pour Stage IIa or Stage IIb concrete deck.
3. After deck has cured remove CF403 and install CF404.

**NOTES:**

1. See Sheets S-115 and S-116 for locations of girder cross frames.
2. AASHTO M270 Grade 50 steel shall be used for all cross frames, connection plates, and bearing stiffeners, unless otherwise noted.
3. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.
4. Intermediate transverse stiffeners shall use the same size clips & fillet welds as connection plates. Likewise, jacking stiffeners shall use the same size clips & fillet welds as the bearing stiffeners.
5. Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts. Bolts 7/8" in.  $\phi$ , holes 15/16 in.  $\phi$ , unless otherwise noted.
6. Field reaming shall not exceed limit permitted by Article 505.08(1) of the Standard Specifications.
7. Cross frame members (top & bottom chord, diagonals and gusset plates) shall be hot dipped galvanized. See special provision for "Metallizing Structural Steel" & "Hot-dipped Galvanizing for Structural Steel".

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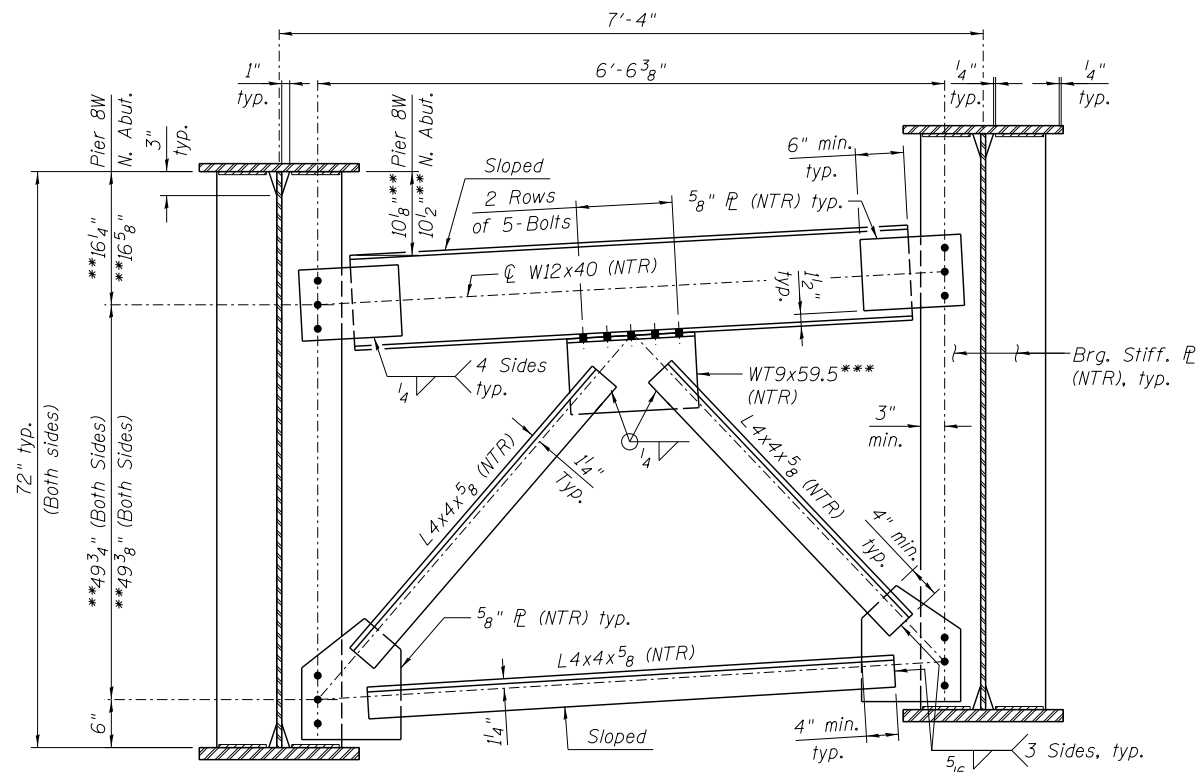


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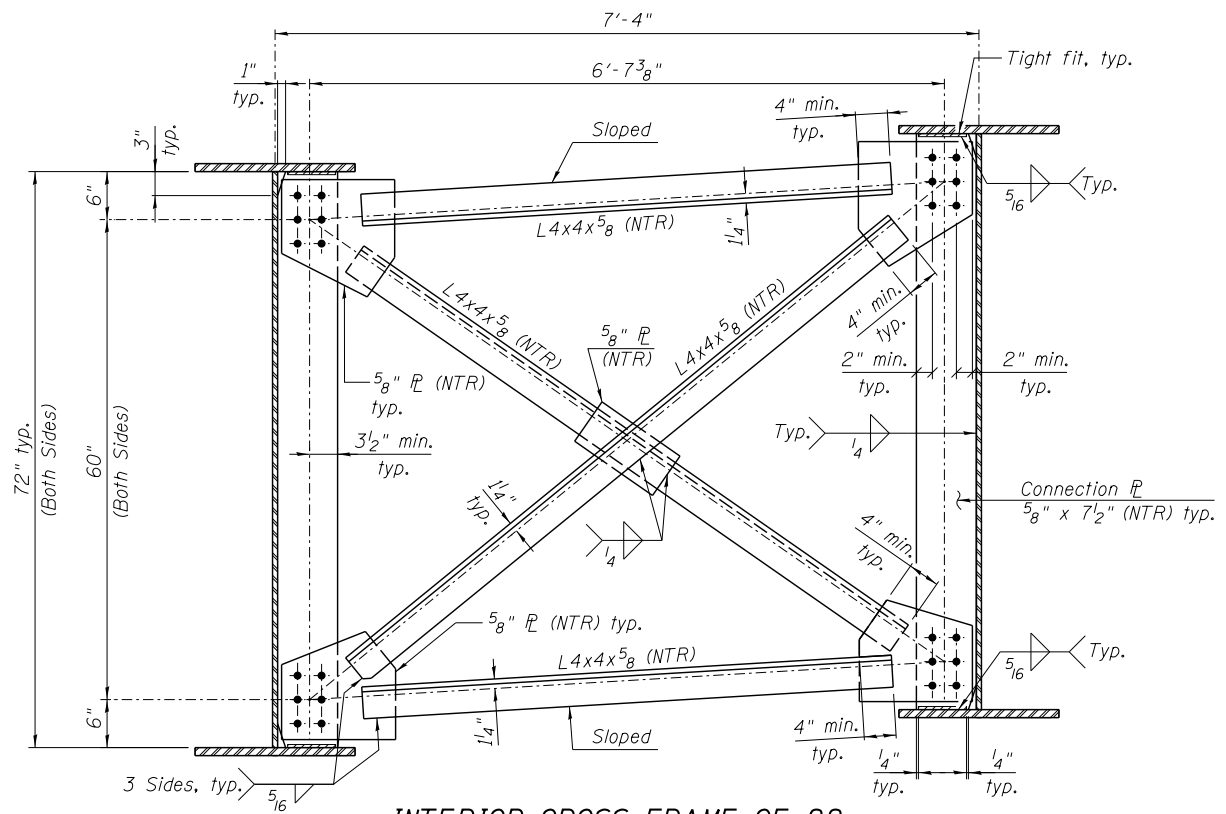
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**GIRDER CROSS FRAME DETAILS II - S.N. 016-1504 (UNIT 1)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

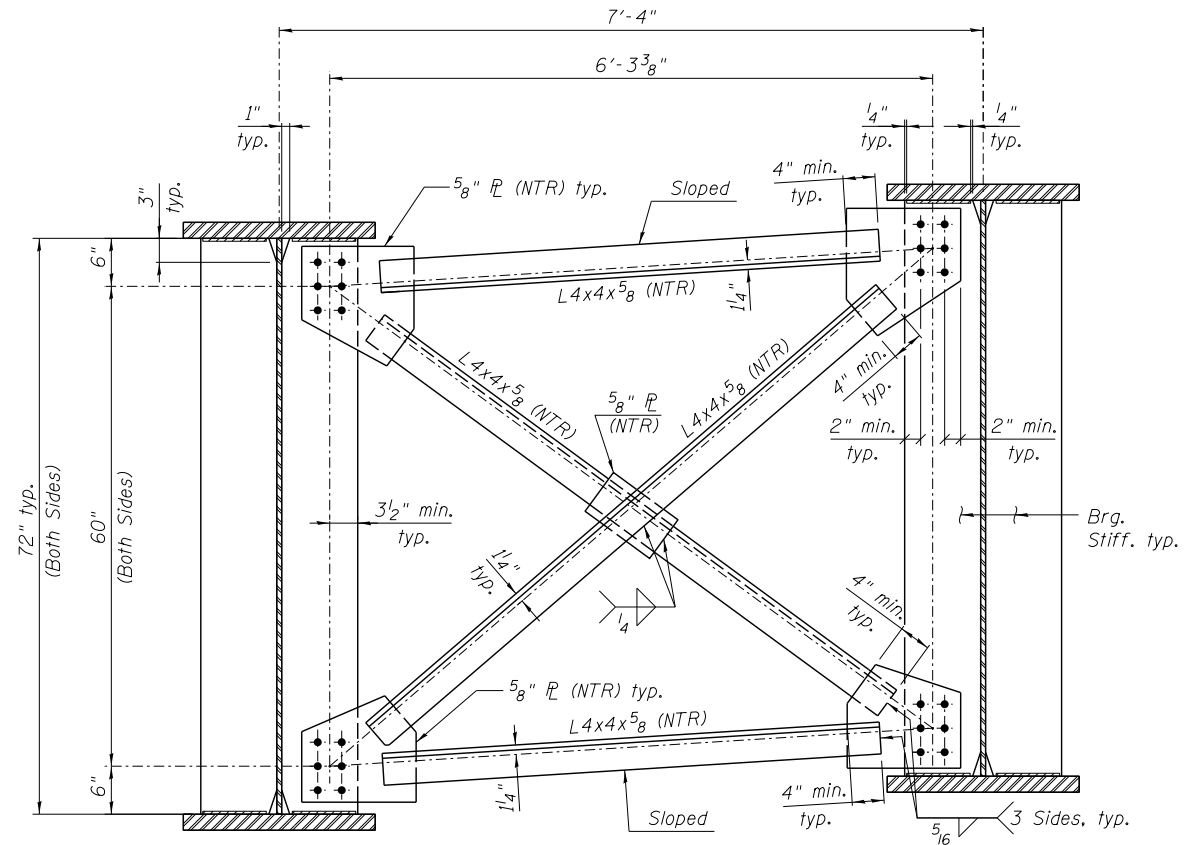
F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 646
SHEET NO. S-154 OF S-248 SHEETS			CONTRACT NO. 60L70	
ILLINOIS FED. AID PROJECT				



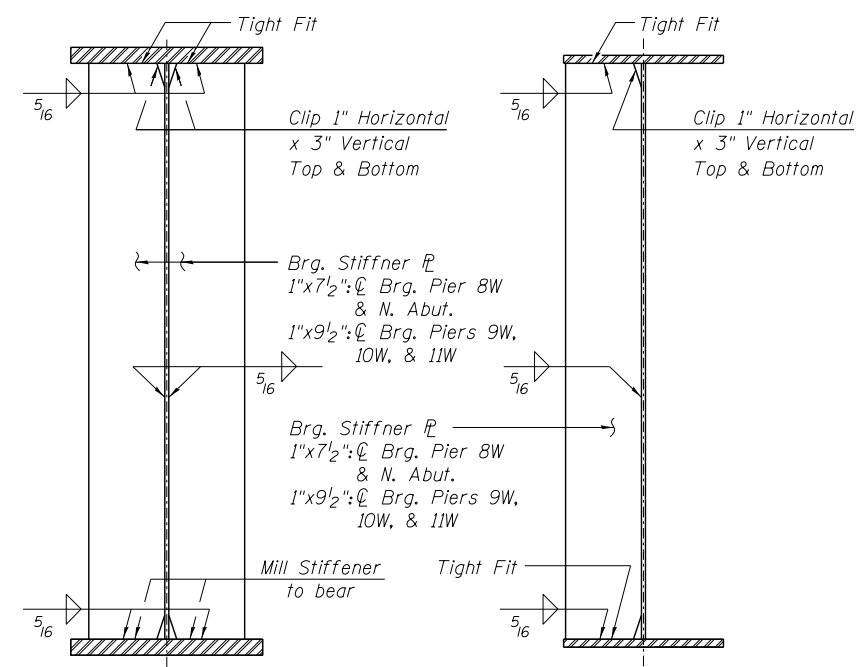
**END CROSS FRAME CF-21 @ PIER 8W & N. ABUT**  
(10 required)



**INTERIOR CROSS FRAME CF-22**  
(200 required)



**INTERIOR CROSS FRAME CF-23 - @ PIERS 9W, 10W & 11W**  
(15 required)



**SECTION @ PIERS & ABUTMENT**

**SECTION @ INTERMEDIATE STIFFENERS**

(Section at Jacking Stiffeners similar with a plate attached to each side of girder web)

\*\* Contractor to coordinate dimension with Modular Joint Manufacturer.  
\*\*\* Alternate WT shapes utilizing 5/8" nominal thickness are permitted to facilitate material acquisition.

**NOTES:**

- See Sheets S-117 thru S-119 for location of girder cross frames.
- AASHTO M270 Grade 50 steel shall be used for all cross frames, connection plates, & bearing stiffeners, unless otherwise noted.
- Intermediate transverse stiffeners shall use the same size clips & fillet welds as the bearing stiffeners.
- Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts. Bolts 7/8 in.  $\phi$ , holes 15/16 in.  $\phi$ , unless otherwise noted.
- Bolt spacing shall be 3" min. and edge distances shall be 2" min., unless otherwise noted.
- The Contractor shall either:  
a. Ream cross frame connection holes during shop assembly, or  
b. 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(l) of the Standard Specifications.
- All cross frames between girders shall be installed with erection pins and bolts in accordance with the erection plan approved by the Engineer. Individual cross frames at supports may be temporarily disconnected to install bearing anchor rods.
- Load carrying components designated "NTR" shall conform to the Impact Testing Requirements, Zone 2.
- Cross frame members (top & bottom chord, diagonals & gusset plates) shall be hot dipped galvanized. See special provision for "Metallizing Structural Steel" & "Hot-Dipped Galvanizing for Structural Steel".

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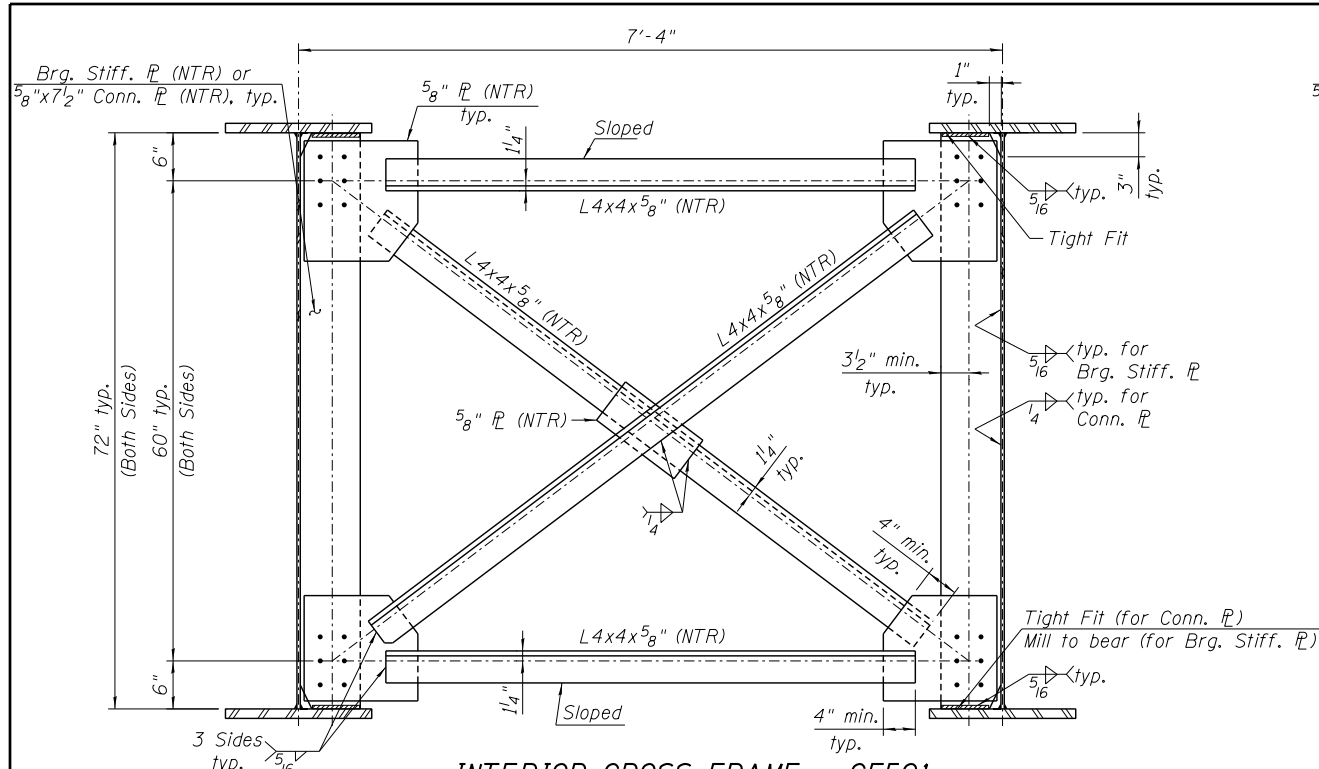
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**GIRDER CROSS FRAME DETAILS III - S.N. 016-1504 (UNIT 2)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

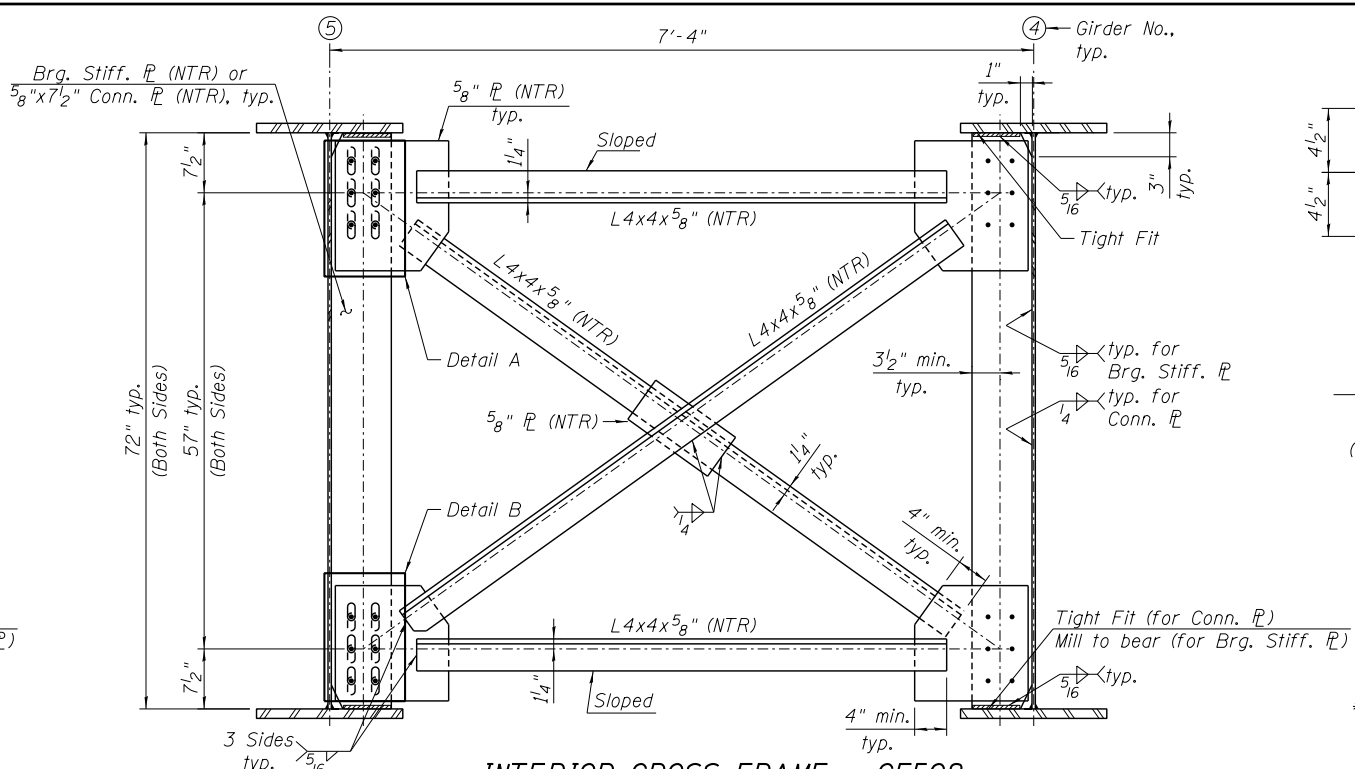
F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 647
				CONTRACT NO. 60L70

SHEET NO. S-155 OF S-248 SHEETS

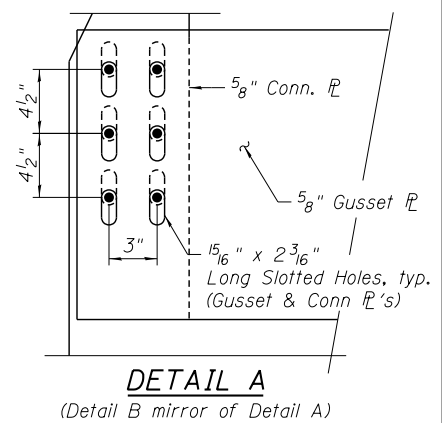
ILLINOIS FED. AID PROJECT



**INTERIOR CROSS FRAME - CF501**  
(375 Required)

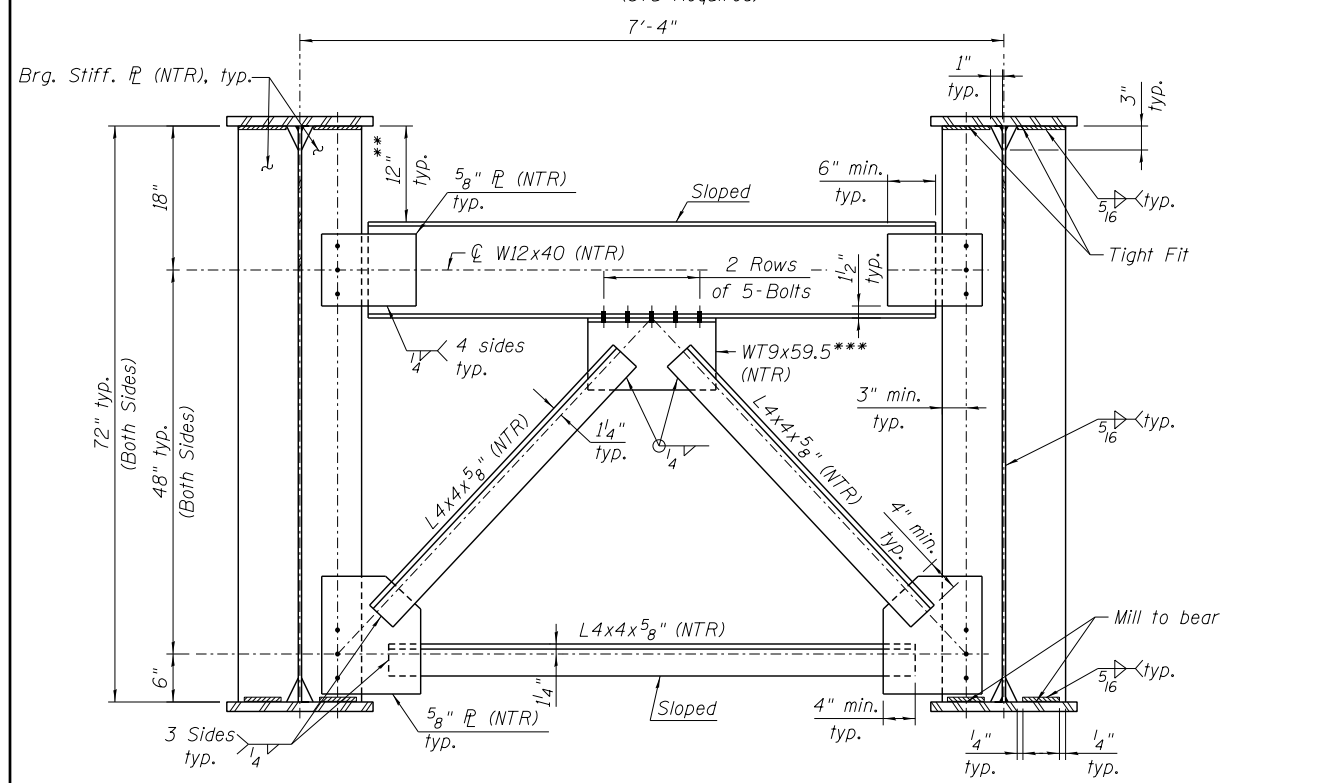


**INTERIOR CROSS FRAME - CF502**  
(15 Required)

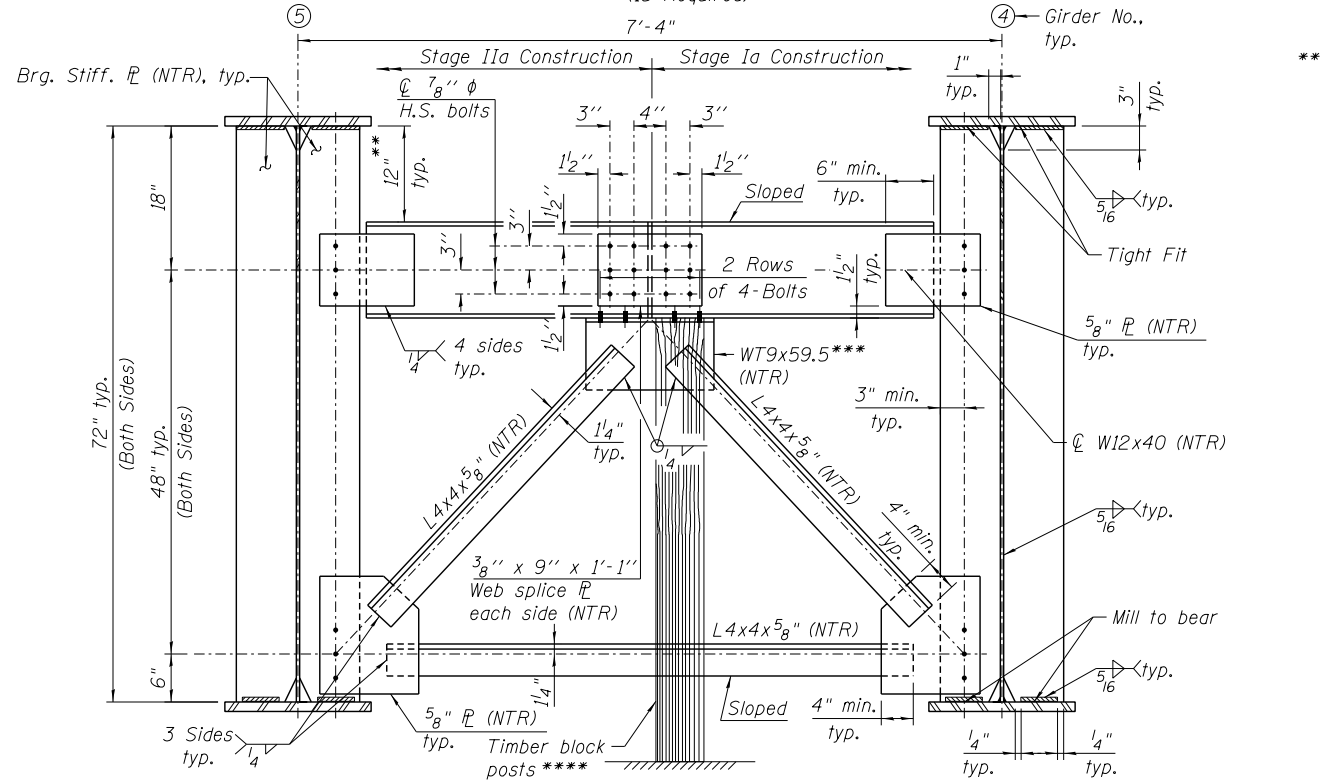


**DETAIL A**  
(Detail B mirror of Detail A)

\*\*\*Contractor to coordinate with Modular Joint Manufacturer.  
 \*\*\*\*Alternate WT shapes utilizing 5/8" nominal thickness are permitted to facilitate material acquisition.  
 \*\*\*\*\*Cost of Timber Block Posts is included with Structural Steel.



**END CROSS FRAME - CF503**  
(38 Required)



**END CROSS FRAME - CF504**  
(2 Required)

**END CROSS FRAME STAGE CONSTRUCTION SEQUENCE**

1. Order top chord in two sections.
2. Attach Stage Ia section of top chord to Girder 4.
3. Place timber block posts between Stage Ia section of top chord and abutment bearing section.
4. Attach Stage IIa section of top chord to both Girder 5 and Stage Ia section of top chord during Stage IIa construction with splice plates.
5. Remove timber block posts.
6. Install WT, diagonal and bottom chord members.

**NOTES:**

1. See Sheets S-120 thru S-124 for location of girder cross frames.
2. AASHTO M270 Grade 50 steel shall be used for all cross frames, connection plates, and bearing stiffeners, unless otherwise noted.
3. Intermediate transverse stiffeners shall use the same size clips & fillet welds as connection plates. Likewise, jacking stiffeners shall use the same size clips & fillet welds as the bearing stiffeners.
4. Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts. Bolts 7/8 in.  $\phi$ , holes 15/16 in.  $\phi$  in Units 1, 2 & 3. Bolts 7/8 in.  $\phi$ , holes 1 1/16 in.  $\phi$  in Units 4, unless otherwise noted.
5. Two hardened washers required for each set of oversized holes.
6. Bolt spacing shall be 3" min. & edge distances shall be 2" min., unless otherwise noted.

7. All cross frames between girders shall be installed with erection pins and bolts in accordance with the erection plan submitted to and approved by the Engineer. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.
8. Load carrying components designated "NTR" shall conform to the Impact Testing Requirements, Zone 2.
9. Cross frame members (top & bottom chord, diagonals and gusset plates) shall be hot dipped galvanized. See special provision for "Metallizing Structural Steel" & "Hot-dipped Galvanizing for Structural Steel".
10. Bolts in slots shall be finger tight until the second stage pour is complete.
11. Position slots so bolts start at one end with no concrete load and finish near the opposite end under deck load, allowing maximum displacement without laterally stressing main members.
12. The Contractor shall either:
  1. Ream diaphragm and/or cross frame connection holes during shop assembly, or
  2. 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.

287\_0161505\_60L70\_XFRAM\_IV.dgn



USER NAME = kritzm	DESIGNED - CLS	REVISED -
	CHECKED - ATB	REVISED -
PLOT SCALE =	DRAWN - DD	REVISED -
PLOT DATE = 11/20/2014	CHECKED - CLS	REVISED -

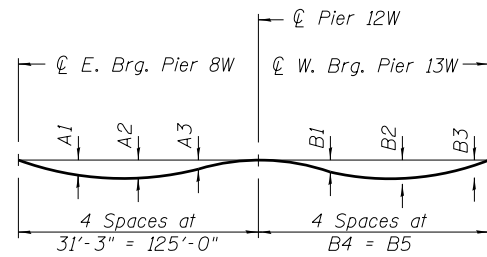
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**GIRDER CROSS FRAME DETAILS IV - S.N. 016-1505**  
**I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-156 OF S-248 SHEETS

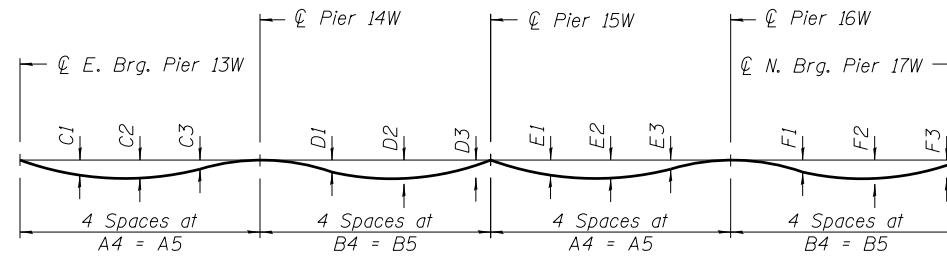
F.A.I. RE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	648
			CONTRACT NO. 60L70	
ILLINOIS FED. AID PROJECT				





**DEAD LOAD DEFLECTION DIAGRAM - S.N. 016-1505 (UNIT 1)**

(Includes weight of structural steel only.)



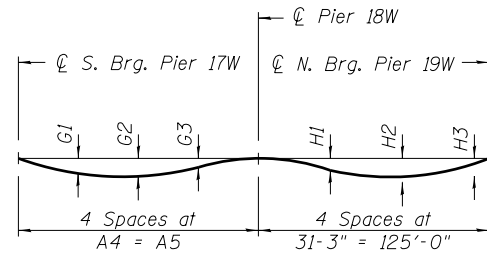
**DEAD LOAD DEFLECTION DIAGRAM - S.N. 016-1505 (UNIT 2)**

(Includes weight of structural steel only.)

**NOTES:**

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  $\pm \frac{1}{8}$  in. per vertical foot throughout the length of the girder system when supporting their own weight.

See sheet S-137 for dead load deflection diagram S.N. 016-1504 (Unit 2).



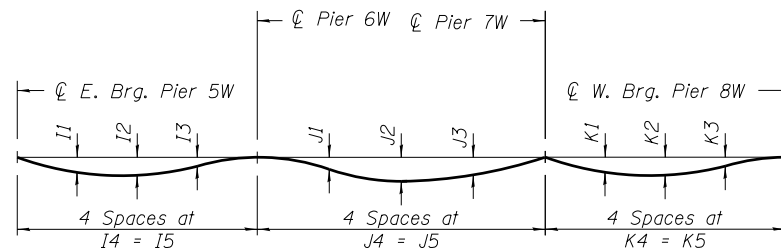
**DEAD LOAD DEFLECTION DIAGRAM - S.N. 016-1505 (UNIT 3)**

(Includes weight of structural steel only.)

Girder No.	DEAD LOAD DEFLECTIONS - STEEL SELF WEIGHT ONLY - 016-1505 (UNIT 1)									
	Span 13W					Span 14W				
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5
1	0 1/4"	0 1/4"	0 1/8"	31'-3"	125'-0"	0 1/8"	0 3/8"	0 1/4"	29'-11 1/4"	119'-9"
2	0 1/4"	0 1/4"	0 1/8"	31'-3"	125'-0"	0 1/8"	0 3/8"	0 3/8"	30'-4 7/8"	121'-7 3/4"
3	0 1/4"	0 1/4"	0 1/8"	31'-3"	125'-0"	0 1/4"	0 1/2"	0 3/8"	30'-10 5/8"	123'-6 1/2"
4	0 1/4"	0 1/4"	0 1/8"	31'-3"	125'-0"	0 1/4"	0 5/8"	0 1/2"	31'-4 1/4"	125'-5 1/8"
5	0 1/4"	0 1/4"	0"	31'-3"	125'-0"	0 1/4"	0 5/8"	0 5/8"	31'-10"	127'-3 7/8"
6	0 1/8"	0 1/8"	0"	31'-3"	125'-0"	0 3/8"	0 3/4"	0 5/8"	32'-3 5/8"	129'-2 5/8"

Girder No.	DEAD LOAD DEFLECTIONS - STEEL SELF WEIGHT ONLY - 016-1505 (UNIT 2)									
	Span 15W					Span 16W				
	C1	C2	C3	C4	C5	D1	D2	D3	D4	D5
1	0 1/4"	0 1/4"	0 1/8"	29'-11 1/4"	119'-9"	0 3/8"	0 3/4"	0 3/8"	43'-1 5/8"	172'-6 3/8"
2	0 1/4"	0 1/4"	0 1/8"	30'-4 7/8"	121'-7 3/4"	0 1/2"	0 3/4"	0 3/8"	43'-9 5/8"	175'-2 3/4"
3	0 3/8"	0 3/8"	0 1/8"	30'-10 5/8"	123'-6 1/2"	0 1/2"	0 1/8"	0 3/8"	44'-5 3/4"	177'-11"
4	0 3/8"	0 3/8"	0 1/8"	31'-4 1/4"	125'-5 1/8"	0 1/2"	0 1/8"	0 3/8"	45'-1 7/8"	180'-7 3/8"
5	0 3/8"	0 3/8"	0 1/8"	31'-10"	127'-3 7/8"	0 5/8"	1"	0 1/2"	45'-9 1/8"	183'-3 5/8"
6	0 3/8"	0 3/8"	0 1/8"	32'-3 5/8"	129'-2 5/8"	0 5/8"	1"	0 1/2"	46'-6"	186'-0"

Girder No.	DEAD LOAD DEFLECTIONS - STEEL SELF WEIGHT ONLY - 016-1505 (UNIT 2 CONTINUED)									
	Span 17W					Span 18W				
	E1	E2	E3	E4	E5	F1	F2	F3	F4	F5
1	0 3/8"	0 3/4"	0 3/8"	43'-1 5/8"	172'-6 3/8"	0 1/8"	0 1/4"	0 1/4"	29'-11 1/4"	119'-9"
2	0 3/8"	0 3/4"	0 1/2"	43'-9 5/8"	175'-2 3/4"	0 1/8"	0 1/4"	0 1/4"	30'-4 7/8"	121'-7 3/4"
3	0 3/8"	0 1/8"	0 1/2"	44'-5 3/4"	177'-11"	0 1/8"	0 3/8"	0 3/8"	30'-10 5/8"	123'-6 1/2"
4	0 3/8"	0 7/8"	0 1/2"	45'-1 7/8"	180'-7 3/8"	0 1/8"	0 3/8"	0 3/8"	31'-4 1/4"	125'-5 1/8"
5	0 1/2"	1"	0 5/8"	45'-9 1/8"	183'-3 5/8"	0 1/8"	0 3/8"	0 3/8"	31'-10"	127'-3 7/8"
6	0 1/2"	1"	0 5/8"	46'-6"	186'-0"	0 1/8"	0 3/8"	0 3/8"	32'-3 5/8"	129'-2 5/8"



**DEAD LOAD DEFLECTION DIAGRAM - S.N. 016-1504 (UNIT 1)**

(Includes weight of structural steel only.)

Girder No.	DEAD LOAD DEFLECTIONS - STEEL SELF WEIGHT ONLY - 016-1505 (UNIT 3)									
	Span 19W					Span 20W				
	G1	G2	G3	G4	G5	H1	H2	H3	H4	H5
1	0 1/4"	0 3/8"	0 1/8"	29'-11 1/4"	119'-9"	0 1/8"	0 1/4"	0 1/4"	31'-3"	125'-0"
2	0 3/8"	0 3/8"	0 1/8"	30'-4 7/8"	121'-7 3/4"	0 1/8"	0 1/4"	0 1/4"	31'-3"	125'-0"
3	0 3/8"	0 1/2"	0 1/4"	30'-10 5/8"	123'-6 1/2"	0 1/8"	0 1/4"	0 1/4"	31'-3"	125'-0"
4	0 1/2"	0 5/8"	0 1/4"	31'-4 1/4"	125'-5 1/8"	0 1/8"	0 1/4"	0 1/4"	31'-3"	125'-0"
5	0 5/8"	0 5/8"	0 1/4"	31'-10"	127'-3 7/8"	0"	0 1/4"	0 1/4"	31'-3"	125'-0"
6	0 5/8"	0 3/4"	0 3/8"	32'-3 5/8"	129'-2 5/8"	0"	0 1/8"	0 1/8"	31'-3"	125'-0"

Girder No.	DEAD LOAD DEFLECTIONS - STEEL SELF WEIGHT ONLY - 016-1504 (UNIT 1)														
	Span 6W					Span 7W					Span 8W				
	I1	I2	I3	I4	I5	J1	J2	J3	J4	J5	K1	K2	K3	K4	K5
1	0 1/8"	0 1/8"	0"	26'-11 1/8"	107'-8 3/8"	0 1/2"	0 7/8"	0 1/2"	40'-4 1/4"	161'-5 1/8"	0"	0 1/8"	0 1/8"	25'-2 3/8"	100'-9 5/8"
2	0 1/8"	0 1/8"	0"	26'-6 7/8"	106'-3 5/8"	0 1/2"	0 3/4"	0 1/2"	39'-10"	159'-4 1/4"	0"	0 1/8"	0 1/8"	25'-3 7/8"	101'-3 3/8"
3	-	-	-	-	-	-	-	-	-	-	0 1/8"	0 1/8"	0 1/8"	14'-6 5/8"	58'-2 3/4"
4	0 1/8"	0 1/8"	0"	26'-2 3/4"	104'-10 3/4"	0 1/2"	0 3/4"	0 1/2"	39'-3 3/4"	157'-3 1/8"	0"	0 1/8"	0 1/8"	25'-6 1/4"	102'-1"
5	-	-	-	-	-	-	-	-	-	-	0 1/8"	0 1/8"	0 1/8"	14'-8 1/8"	58'-8 5/8"
6	0 1/8"	0 1/8"	0"	25'-10 1/2"	103'-6"	0 3/8"	0 3/4"	0 3/8"	38'-9 1/2"	155'-2 1/8"	0"	0 1/8"	0 1/8"	25'-10 1/2"	103'-6"
7	0 1/8"	0 1/8"	0"	25'-6 1/4"	102'-1 1/4"	0 3/8"	0 5/8"	0 3/8"	38'-3 1/4"	153'-1 1/4"	0"	0 1/8"	0 1/8"	25'-6 1/4"	102'-1 1/4"
8	0 1/8"	0 1/8"	0"	25'-2 1/8"	100'-8 3/8"	0 3/8"	0 3/8"	0 3/8"	37'-9 1/8"	151'-0 3/8"	0"	0 1/8"	0 1/8"	25'-2 1/8"	100'-8 3/8"
9	0 1/8"	0 1/8"	0"	24'-9 7/8"	99'-3 5/8"	0 3/8"	0 5/8"	0 3/8"	37'-2 7/8"	148'-11 5/8"	0"	0 1/8"	0 1/8"	24'-9 7/8"	99'-3 5/8"
10	0 1/8"	0 1/8"	0"	24'-5 3/4"	97'-10 3/4"	0 3/8"	0 1/2"	0 3/8"	36'-8 3/4"	146'-10 3/4"	0"	0 1/8"	0 1/8"	24'-5 3/4"	97'-10 3/4"
11	0 1/8"	0 1/8"	0"	24'-1 1/2"	96'-6"	0 1/4"	0 1/2"	0 1/4"	36'-2 1/2"	144'-9 7/8"	0"	0"	0 1/8"	24'-1 1/2"	96'-6"

288\_0161505\_60L70\_XFRAM\_V.dgn



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 CHECKED - DD  
 PLOT SCALE =  
 DRAWN - VP  
 PLOT DATE = 11/20/2014  
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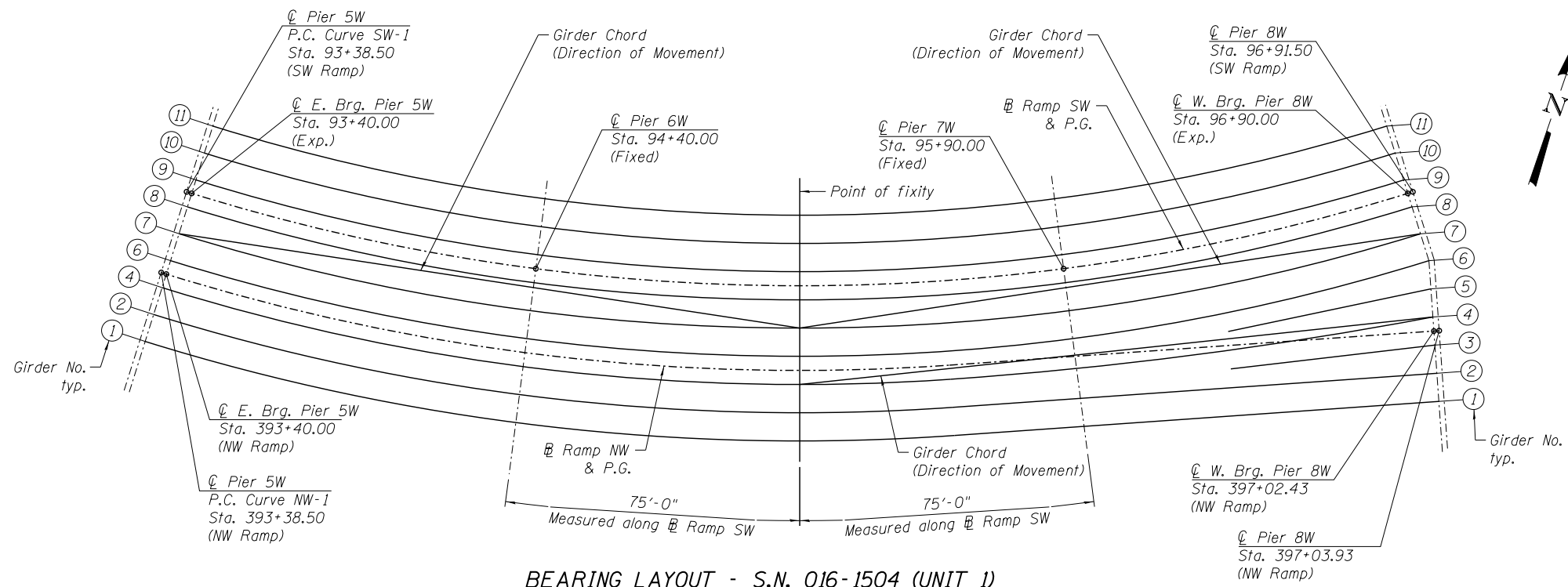
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STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

GIRDER CROSS FRAME DETAILS V  
 I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-157 OF S-248 SHEETS

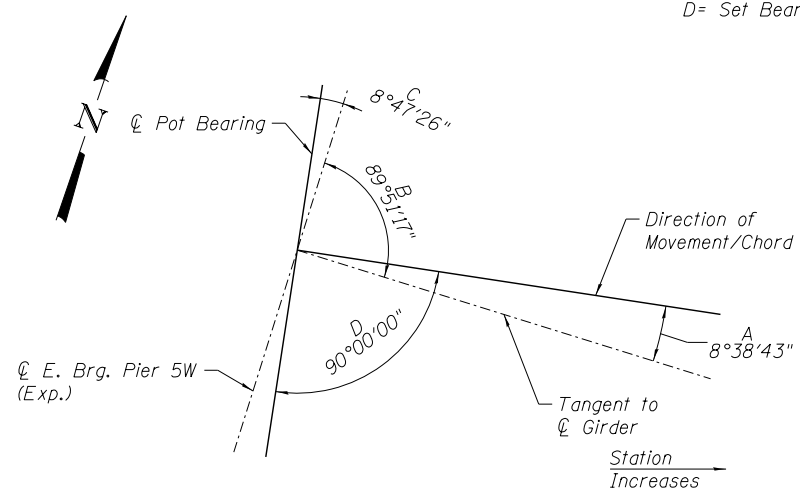
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55	2010-080-B	COOK	886	649
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	



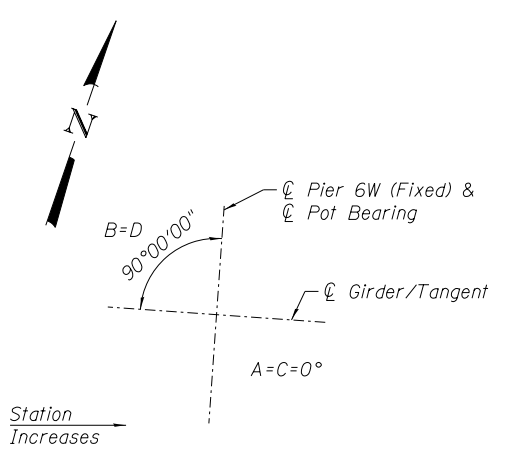
**BEARING LAYOUT - S.N. 016-1504 (UNIT 1)**

**NOTES:**

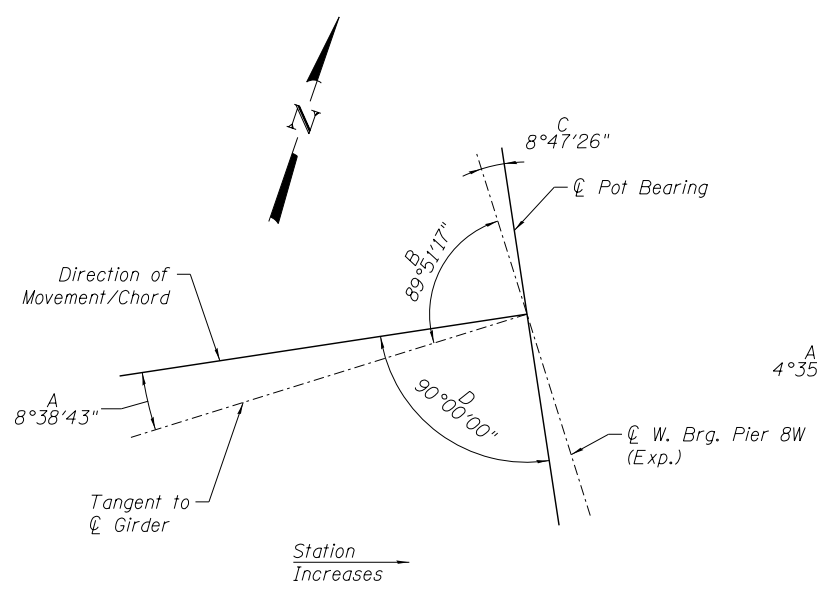
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- B= Angle between Tangent to Girder and  $\phi$  of Pier or Abutment.
- C= Setting angle between  $\phi$  of Bearing Base Plate and  $\phi$  of Pier or Abutment.
- D= Set Bearing Base Plates at right angles to the Direction of Movement/Chord.



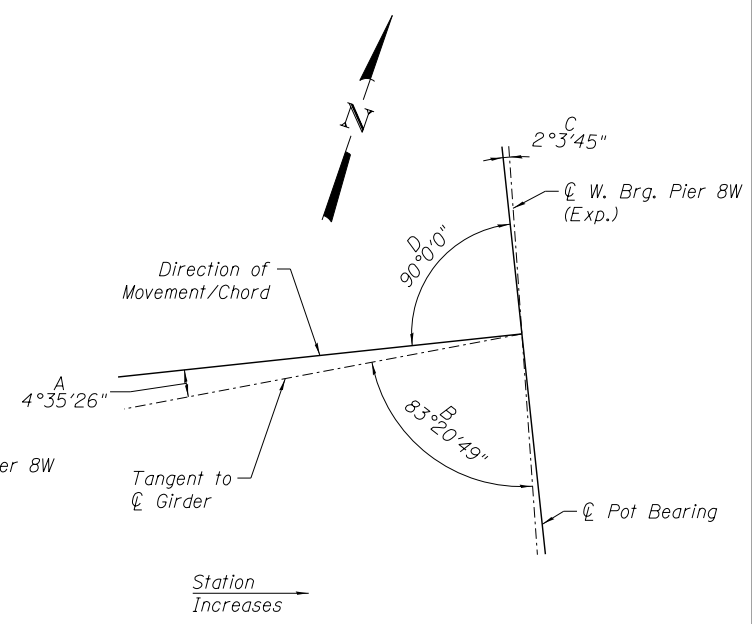
**PIER 5W**



**PIER 6W**  
(Pier 7W Similar)



**PIER 8W**  
(Girders 6 thru 11)



**PIER 8W**  
(Girders 1 thru 5)

**BEARING ORIENTATION - S.N. 016-1504 (UNIT 1)**

301\_0161504\_60L70\_BRG1.dgn



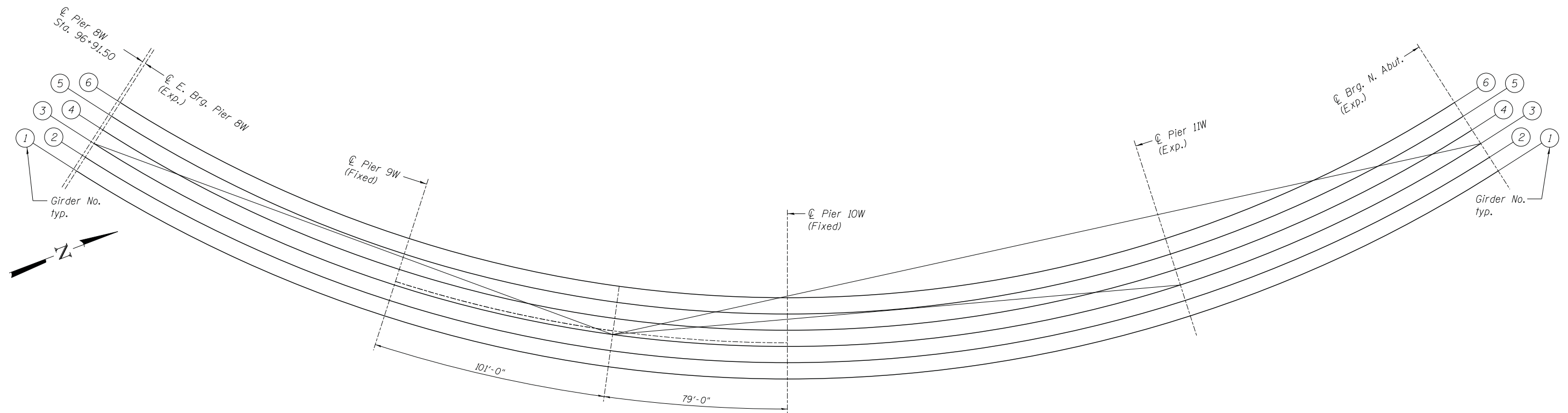
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PLOT DATE = 11/20/2014	DRAWN - DD	REVISED -
	CHECKED - CLS	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**BEARING LAYOUT & ORIENTATION I - S.N.016-1504 (UNIT 1)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

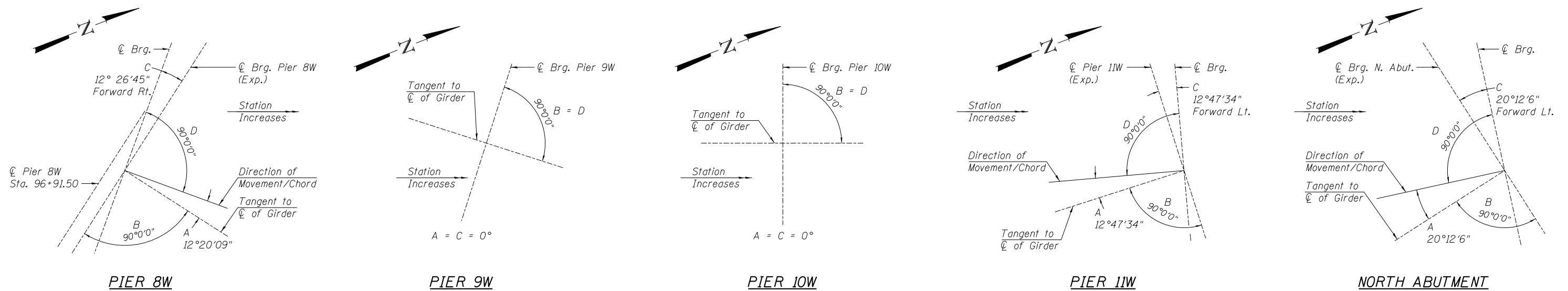
SHEET NO. S-158 OF S-248 SHEETS

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 650
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	



**BEARING LAYOUT - UNIT 2**

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



**BEARING ORIENTATION - UNIT 2**

302.0161504\_601.70\_BRG2.dgn



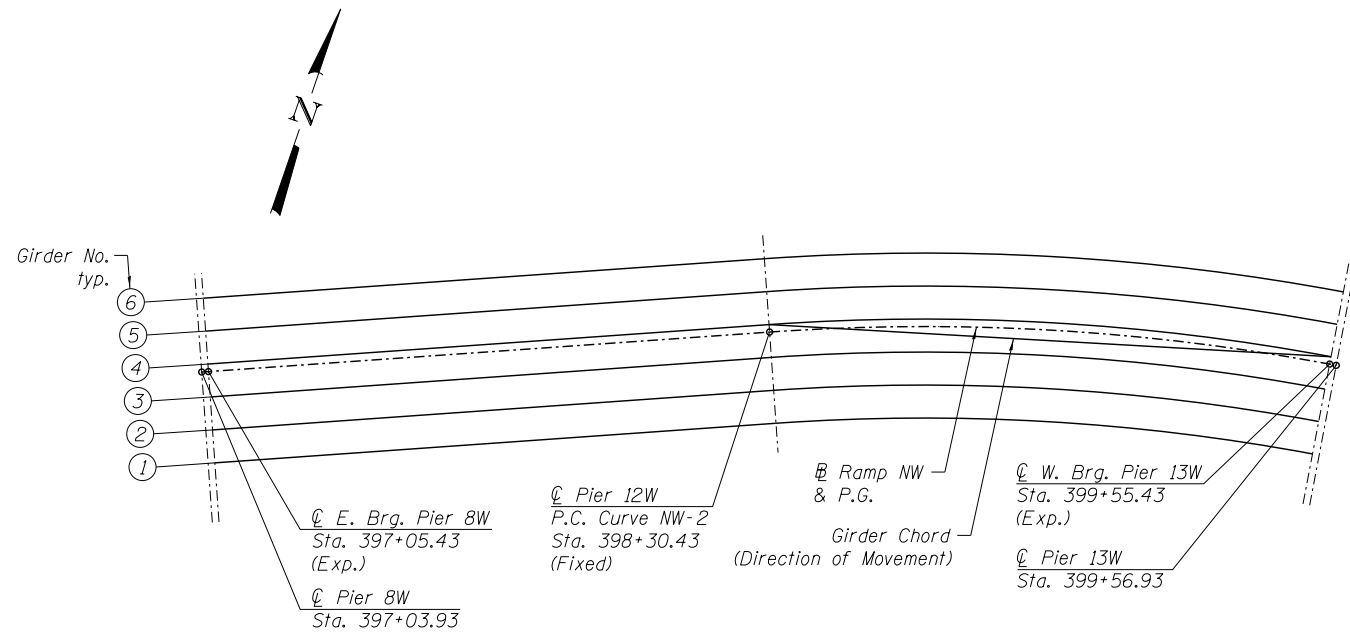
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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

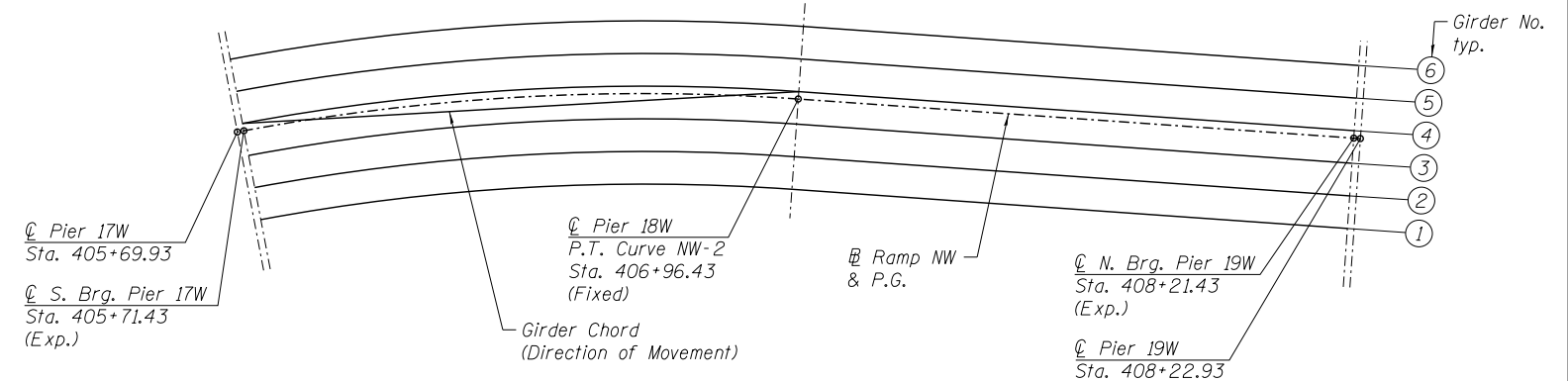
**BEARING LAYOUT & ORIENTATION II - S.N.016-1504 (UNIT 2)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-159 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	651
				CONTRACT NO. 60L70
ILLINOIS FED. AID PROJECT				



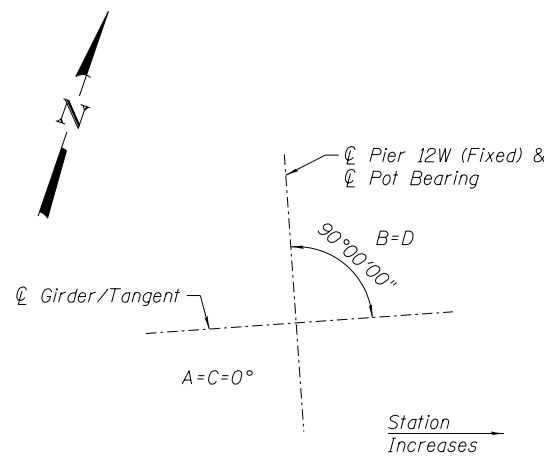
BEARING LAYOUT - S.N. 016-1505 (UNIT 1)



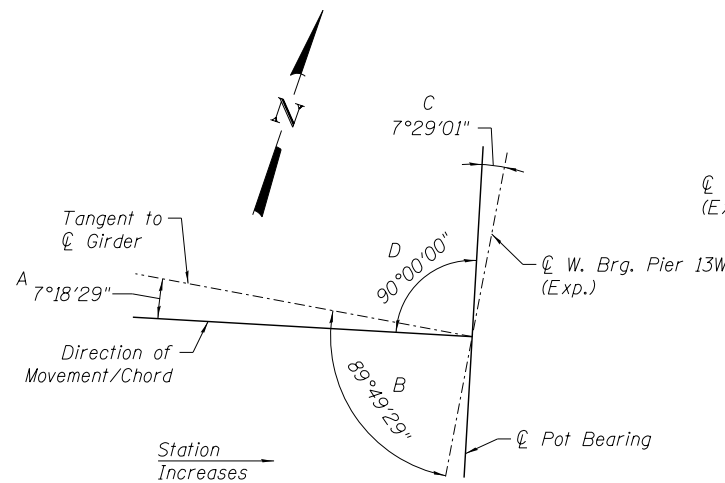
BEARING LAYOUT - S.N. 016-1505 (UNIT 3)

**NOTES:**

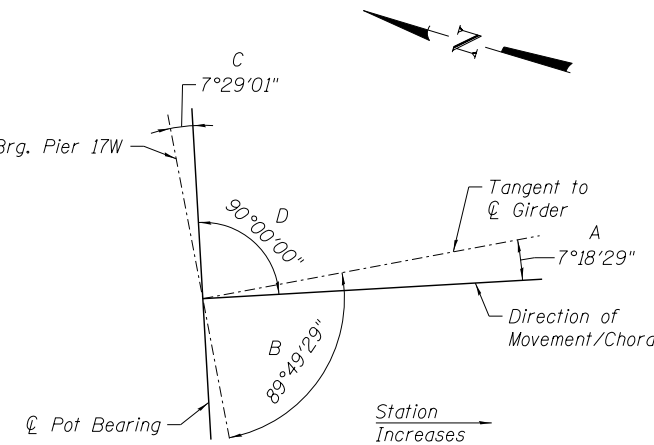
- A= Angle between Tangent to Girder and Direction of Movement.
- B= Angle between Tangent to Girder and  $\phi$  of Pier or Abutment.
- C= Setting angle between  $\phi$  of Bearing Base Plate and  $\phi$  of Pier or Abutment.
- D= Set Bearing Base Plates at right angles to the Direction of Movement/Chord.



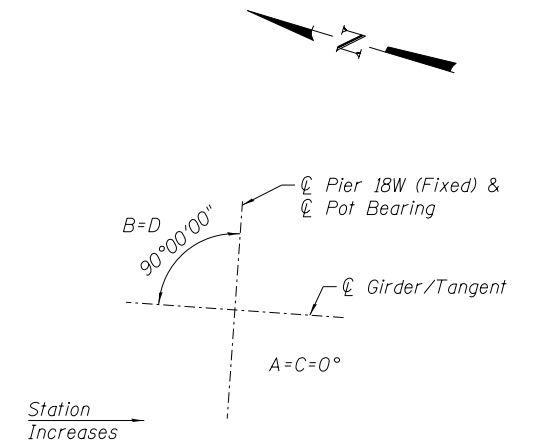
PIER 12W



PIER 13W



PIER 17W



PIER 18W

BEARING ORIENTATION - S.N. 016-1505 (UNITS 1 & 3)

303\_0161505\_60L70\_BRG3.dgn



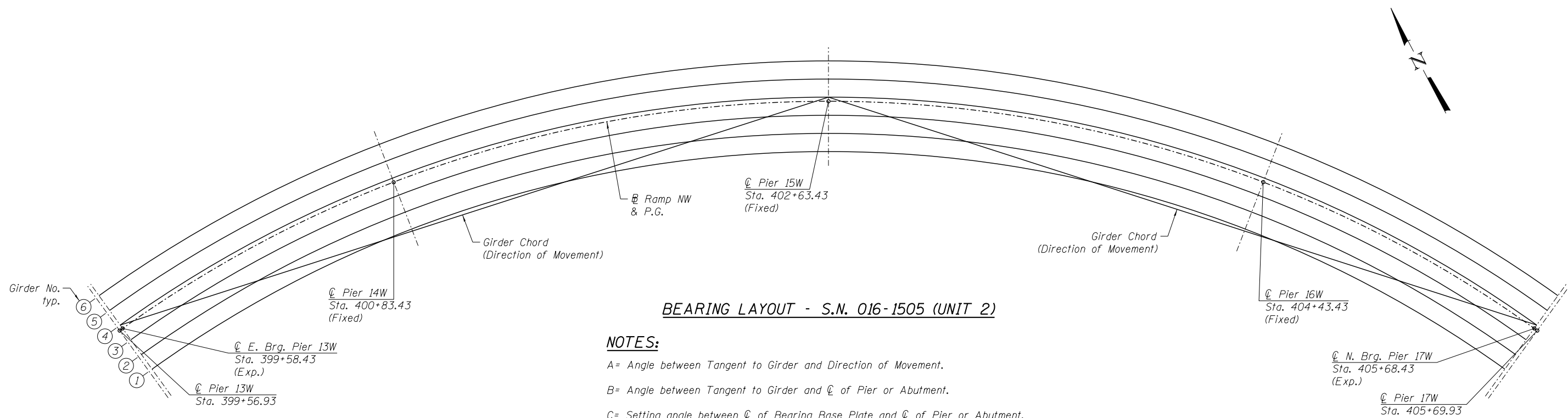
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PLOT SCALE =	DRAWN - DD	REVISED -
PLOT DATE = 11/20/2014	CHECKED - CLS	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

BEARING LAYOUT & ORIENTATION III - S.N. 016-1505 (UNITS 1 & 3)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-160 OF S-248 SHEETS

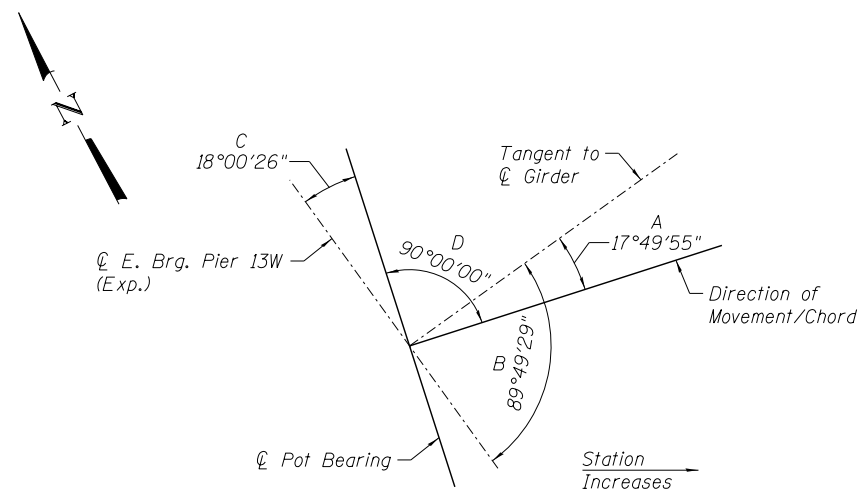
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				CONTRACT NO. 60L70
ILLINOIS FED. AID PROJECT				



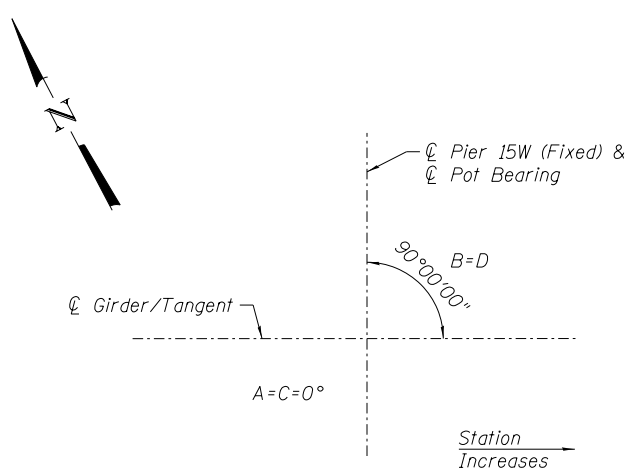
**BEARING LAYOUT - S.N. 016-1505 (UNIT 2)**

**NOTES:**

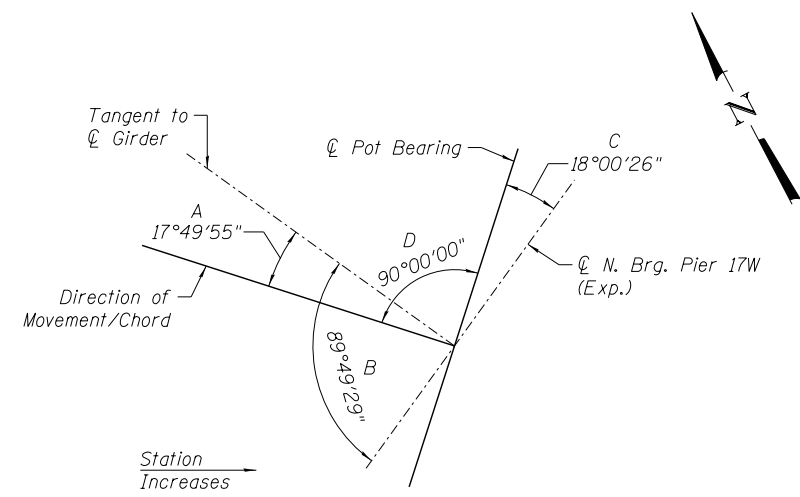
- A= Angle between Tangent to Girder and Direction of Movement.
- B= Angle between Tangent to Girder and  $\phi$  of Pier or Abutment.
- C= Setting angle between  $\phi$  of Bearing Base Plate and  $\phi$  of Pier or Abutment.
- D= Set Bearing Base Plates at right angles to the Direction of Movement/Chord.



**PIER 13W**



**PIER 15W**  
(Pier 14W & Pier 16W Similar)



**PIER 17W**

**BEARING ORIENTATION - S.N. 016-1505 (UNIT 2)**

304\_0161505\_60L70\_BRG4.dgn



USER NAME = kritzm	DESIGNED - DD	REVISED -
	CHECKED - ATB	REVISED -
PLOT SCALE =	DRAWN - DD	REVISED -
PLOT DATE = 11/20/2014	CHECKED - CLS	REVISED -

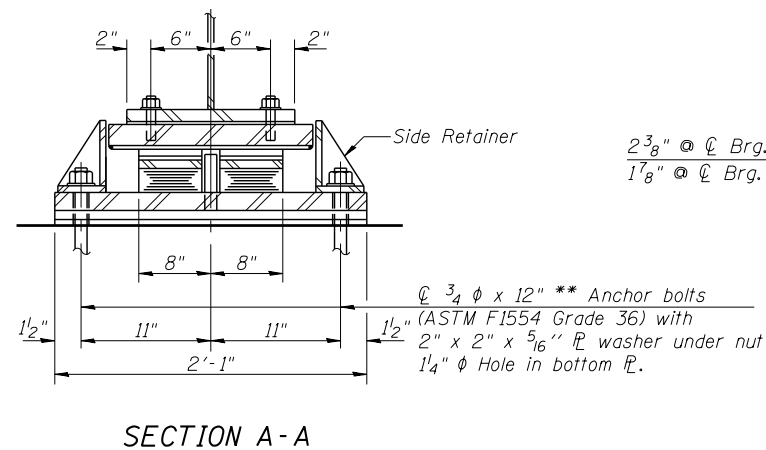
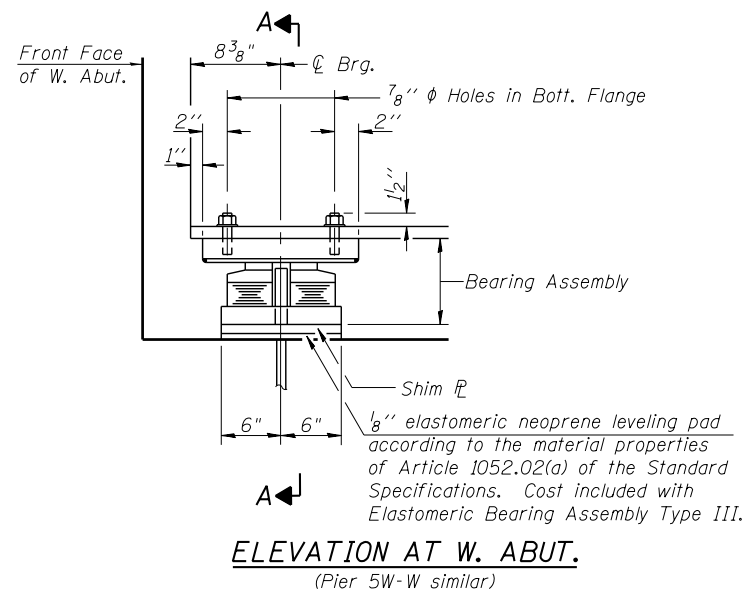
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**BEARING LAYOUT & ORIENTATION IV - S.N. 016-1505 (UNIT 2)  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

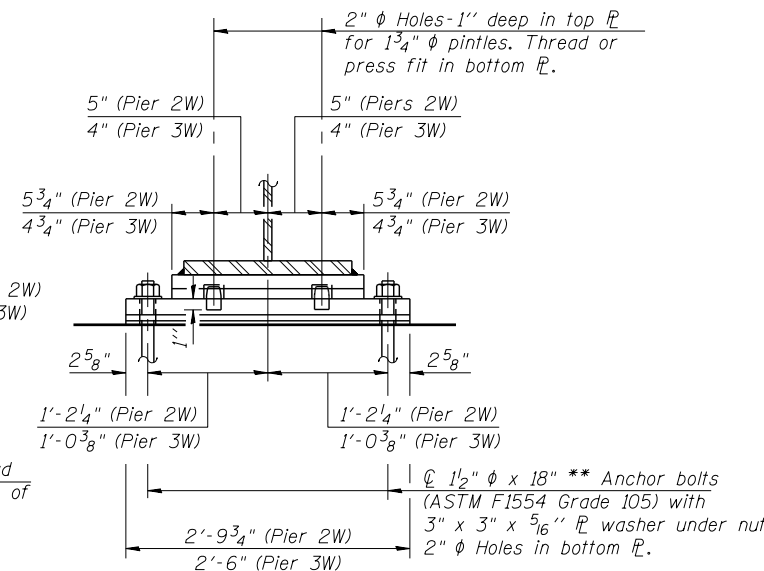
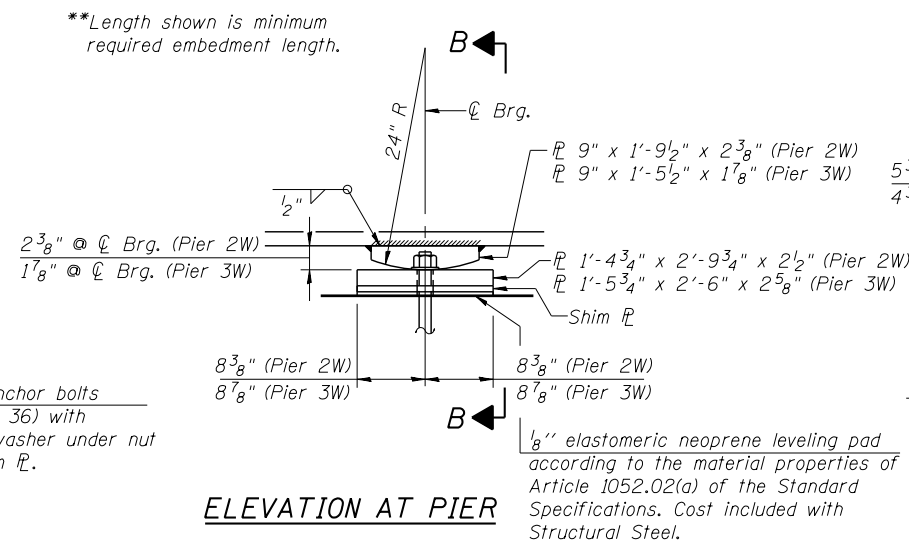
SHEET NO. S-161 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	653
CONTRACT NO. 60L70				

ILLINOIS FED. AID PROJECT



\*\*Length shown is minimum required embedment length.



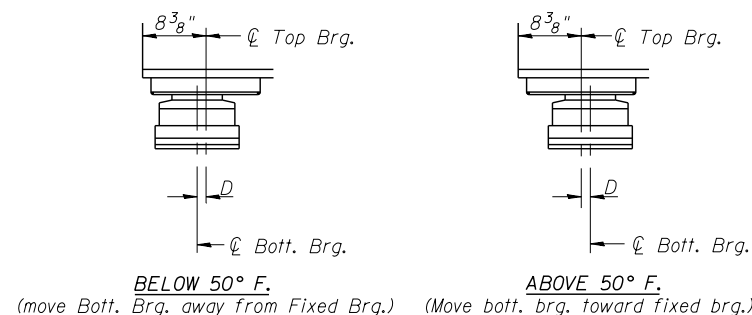
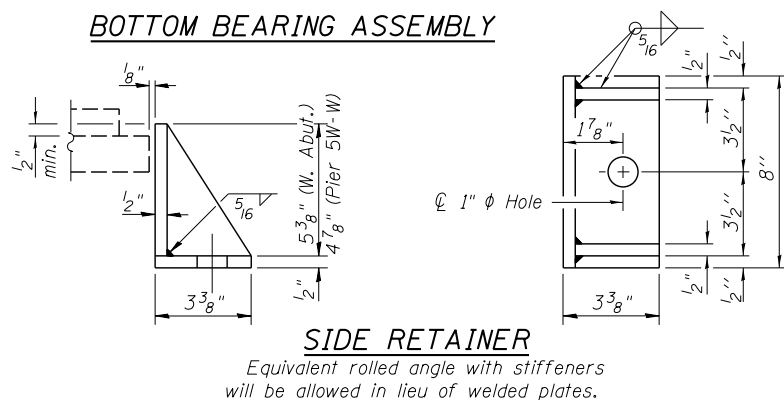
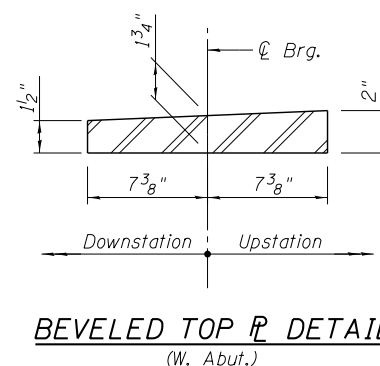
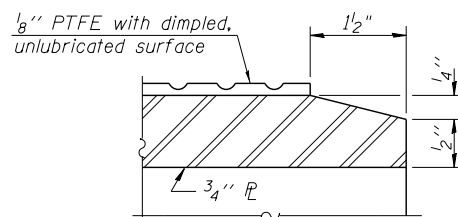
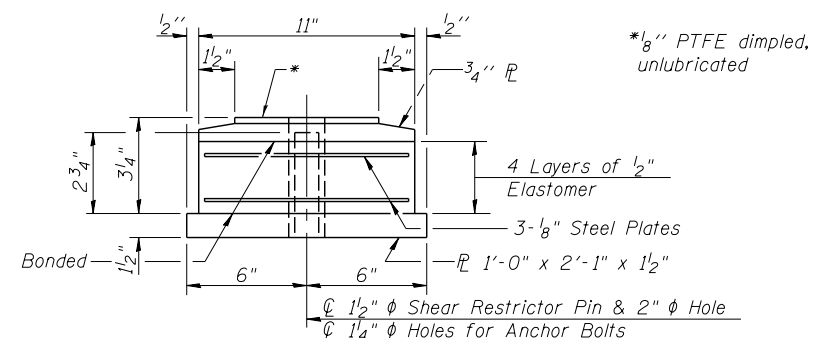
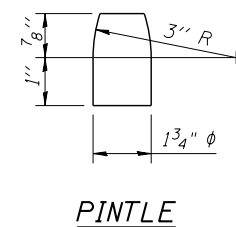
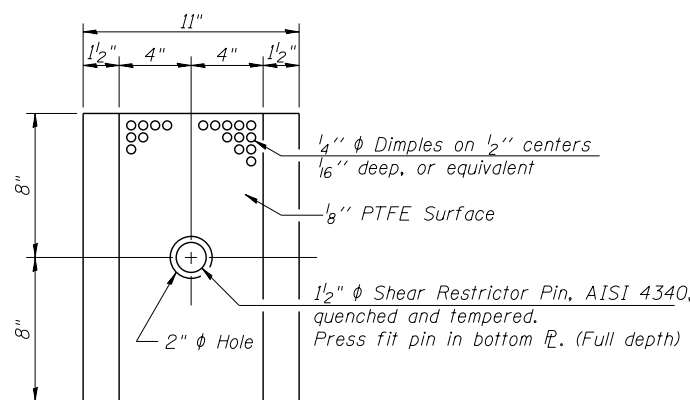
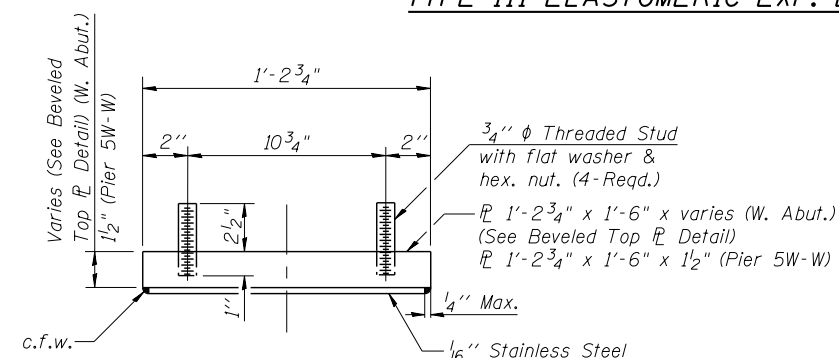
**TYPE III ELASTOMERIC EXP. BRG.**

**FIXED BEARING**  
(Pier 2W and Pier 3W)

**SECTION B-B**

**NOTES:**

- Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
- Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.
- Anchor bolts for Type III bearings shall be placed in holes drilled in the concrete through holes in the bottom bearing plate after members are in place. Side retainers shall be placed after bolts are installed.
- Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
- Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type III.
- The 1/8" PTFE sheet shall be bonded directly to the top steel plate 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.
- Bonding of 1/8" PTFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.
- Fixed Bearing included in "Furnishing and Erecting Structural Steel."
- 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.
- All bearing plates, side retainers, anchor bolts, nuts, washers and pintles shall be galvanized according to AASHTO M111 or M232 as applicable.
- The structural steel for fixed and elastomeric Bearing Assembly shall conform to the requirements of AASHTO M 270 Grade 50.



**BILL OF MATERIAL**

Item	Unit	Total
Elastomeric Bearing Assembly, Type III	Each	18
Anchor Bolts, 3/4"	Each	36
Anchor Bolts, 1 1/2"	Each	36

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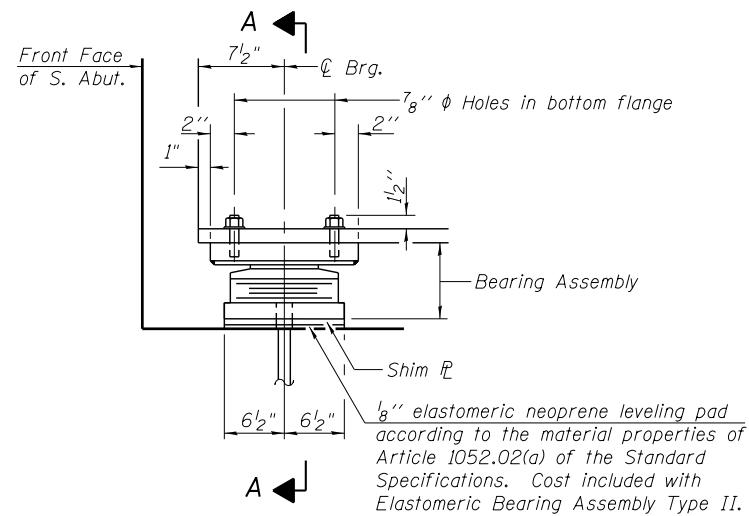
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PLOT SCALE =	CHECKED - EJO	REVISED -
PLOT DATE = 11/20/2014	DRAWN - DD	REVISED -
	CHECKED - EJO	REVISED -

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

**ELASTOMERIC BEARING DETAILS I**  
**I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

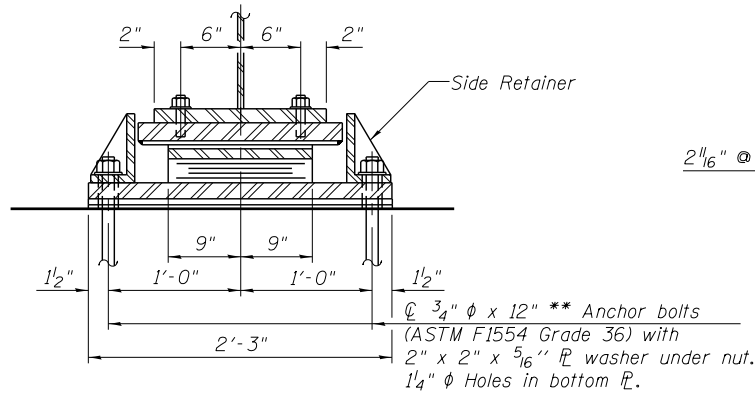
SHEET NO. S-162 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	654
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	



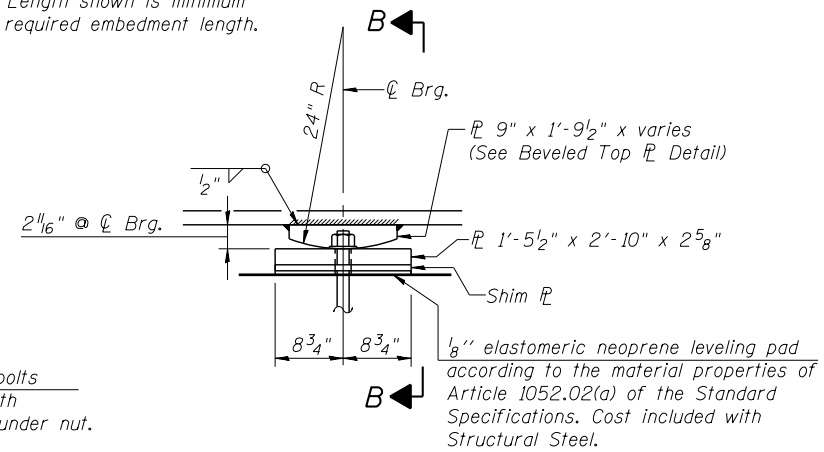
**ELEVATION AT S. ABUT.**

(Pier 19W-S similar)

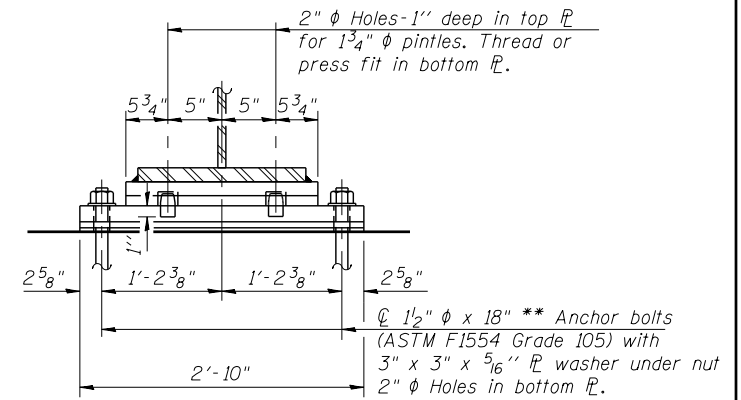


**SECTION A-A**

\*\*Length shown is minimum required embedment length.



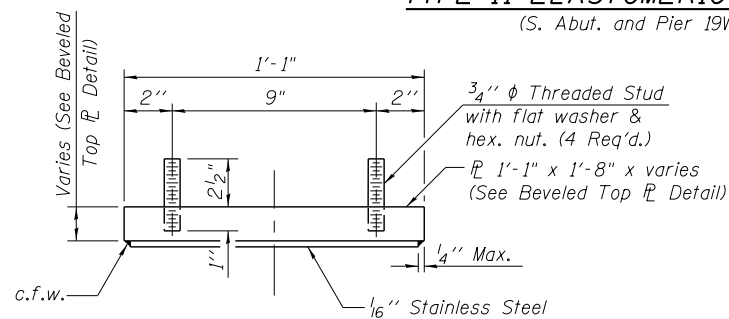
**ELEVATION AT PIER**



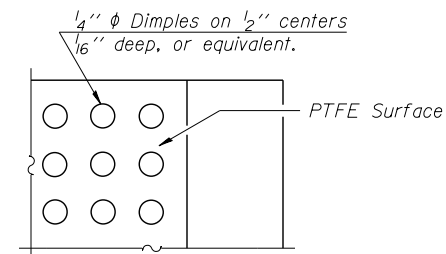
**SECTION B-B**

**TYPE II ELASTOMERIC EXP. BRG.**

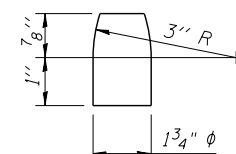
(S. Abut. and Pier 19W-S)



**TOP BEARING ASSEMBLY**



**PLAN-PTFE SURFACE**



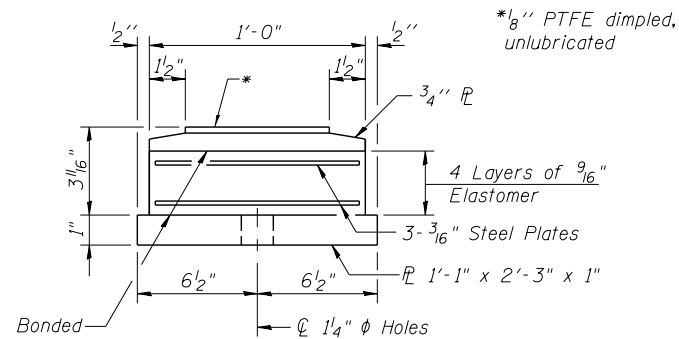
**PINTLE**

**FIXED BEARING**

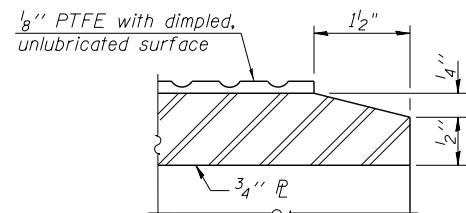
(Pier 20W)

**NOTES:**

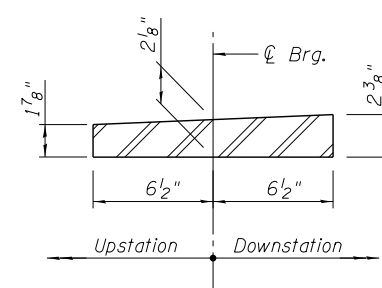
- Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
- Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.
- Anchor bolts for Type II bearings shall be placed in holes drilled in the concrete through holes in the bottom bearing plate after members are in place. Side retainers shall be placed after bolts are installed.
- Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
- Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type II.
- The 1/8" PTFE sheet shall be bonded directly to the top steel plate 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.
- Bonding of 1/8" PTFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.
- Fixed Bearing included in "Furnishing and Erecting Structural Steel."
- 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.
- All bearing plates, side retainers, anchor bolts, nuts, washers and pintles shall be galvanized according to AASHTO M111 or M232 as applicable.
- The structural steel for fixed and elastomeric Bearing Assembly shall conform to the requirements of AASHTO M 270 Grade 50.



**BOTTOM BEARING ASSEMBLY**

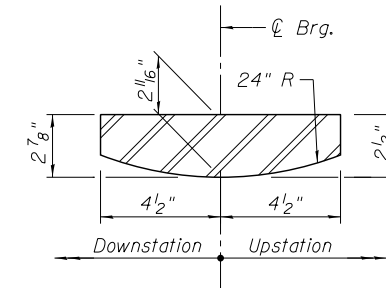


**SECTION THRU PTFE**



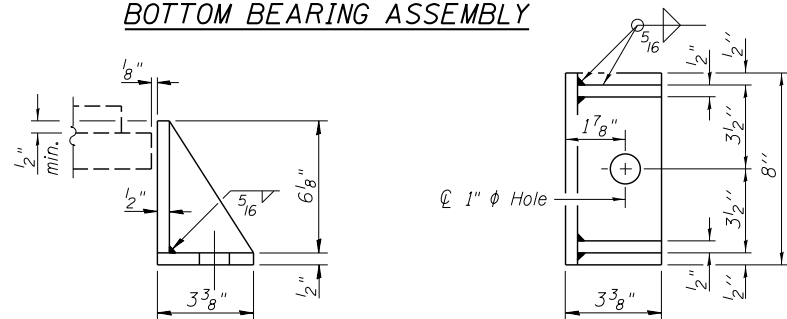
**BEVELED TOP FLANGE DETAIL**

(S. Abut. and Pier 19W-S)



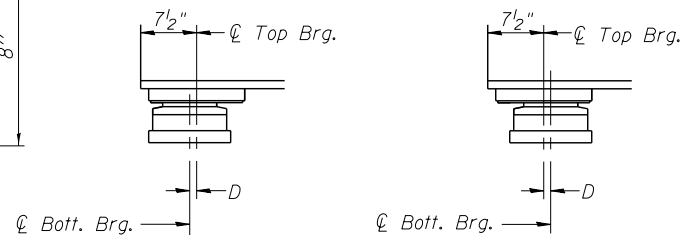
**BEVELED TOP FLANGE DETAIL**

(Pier 20W)



**SIDE RETAINER**

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.



BELOW 50°F. ABOVE 50°F.  
(move Bott. Brg. away from Fixed Brg.) (move Bott. Brg. toward Fixed Brg.)

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

D=1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

**BILL OF MATERIAL**

Item	Unit	Total
Elastomeric Bearing Assembly, Type II	Each	12
Anchor Bolts, 3/4" diameter	Each	24
Anchor Bolts, 1 1/2" diameter	Each	12

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USER NAME = kritz	DESIGNED - DD	REVISED -
PLOT SCALE =	CHECKED - EJO	REVISED -
PLOT DATE = 11/20/2014	DRAWN - DD	REVISED -
	CHECKED - EJO	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

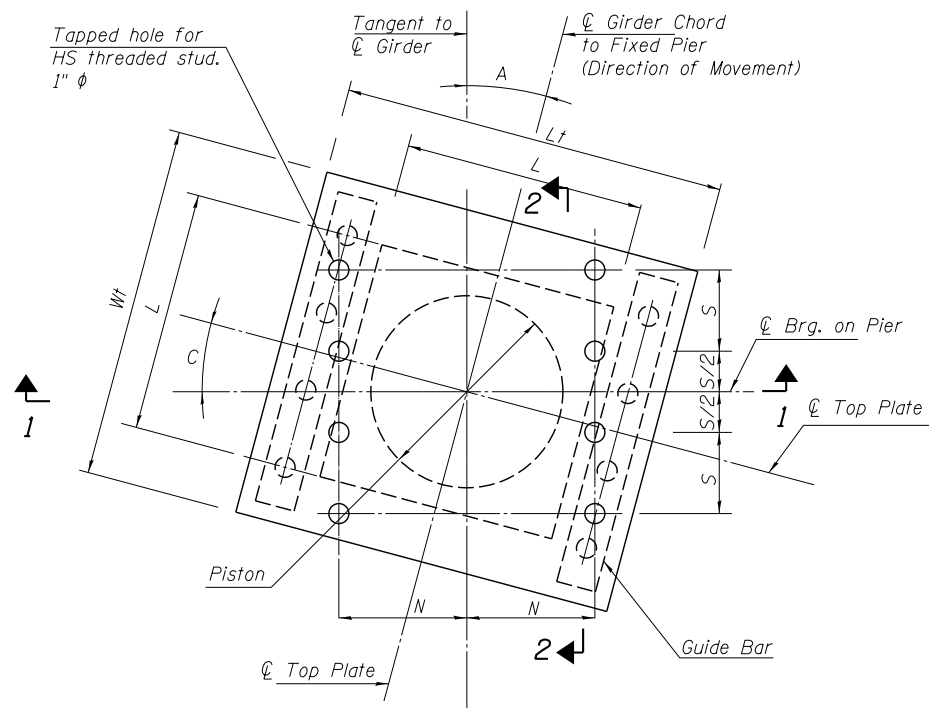
**ELASTOMERIC BEARING DETAILS II  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-163 OF S-248 SHEETS

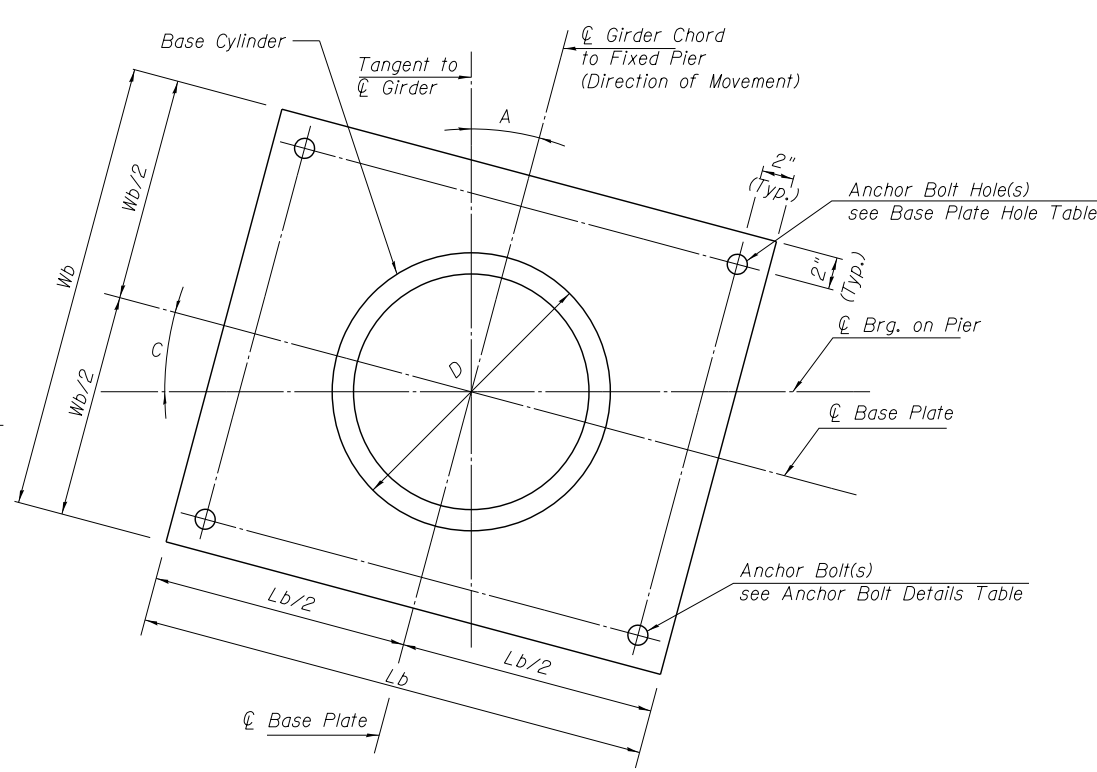
F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 655
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	

**NOTES:**

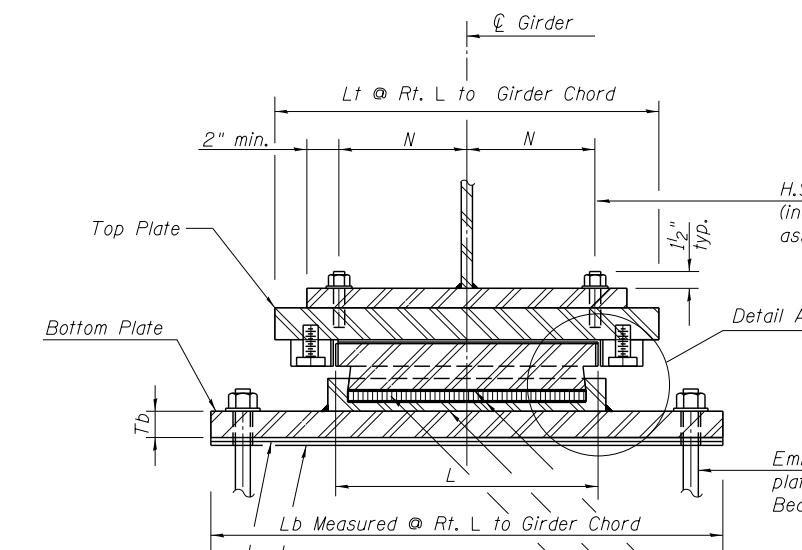
- The Structural Steel for the top & bottom bearing plates shall be AASHTO M270 Grade 50.
- For anchor bolt type and size, see Guided Expansion Bearing Dimensions Table on sheet S-165.
- Top & bottom plates, threaded studs, washers & shim plates are included in the cost of the High Load Multi-Rotational Bearings, Guided Expansion.
- 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.
- Work this sheet with sheet S-165.
- All bearing plates, anchor bolts, nuts, washers and pintles shall be galvanized according to AASHTO M111 or M232 as applicable.
- If base cylinder is recessed into the bottom bearing plate, the thickness of the bottom plate shall be  $T_b$  plus the depth of the recess.



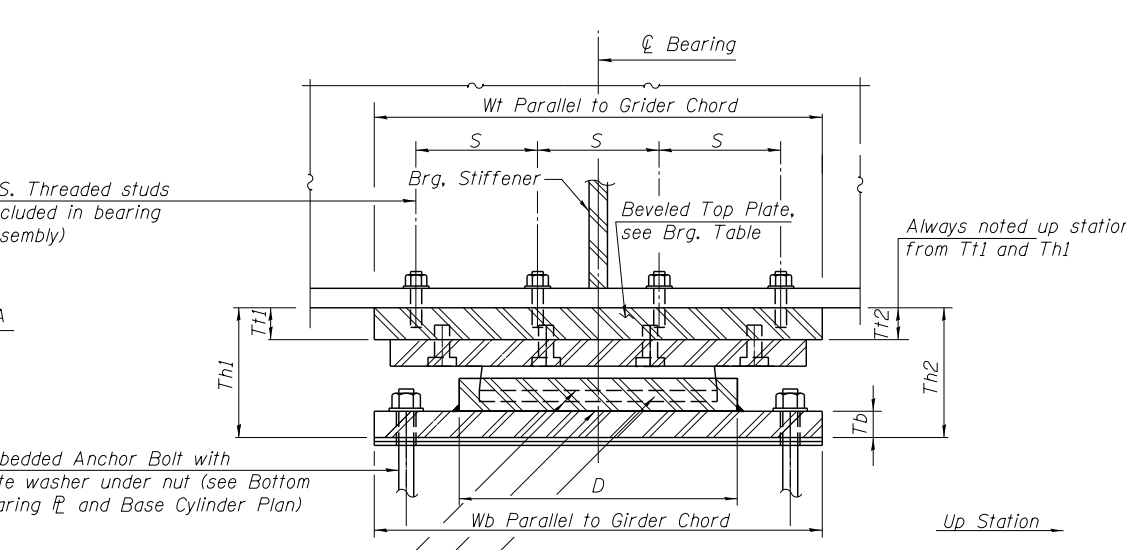
**TOP BEARING PLATE AND PISTON PLAN**



**BOTTOM BEARING PLATE AND BASE CYLINDER PLAN**



**SECTION 1-1**



**SECTION 2-2**

Shim Plate (see Shim Table)  
 1/8" Elastomeric neoprene mat according to Article 1052.02 of the Standard Specifications (Cost included with bearing)

**SHIM TABLE**

Bearing Line 4W, Girders 2 and 4	5/8"
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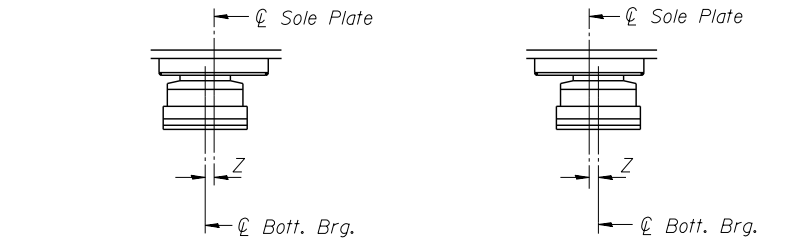
**ANCHOR BOLT DETAILS TABLE**

Bolt Dia. x Length**	Plate Washer
3/4" x 12"	2" x 2" x 5/16"
1 1/4" x 15"	2 3/4" x 2 3/4" x 5/16"

\*\*Length shown is minimum required embedment length.

**BASE PLATE HOLE TABLE**

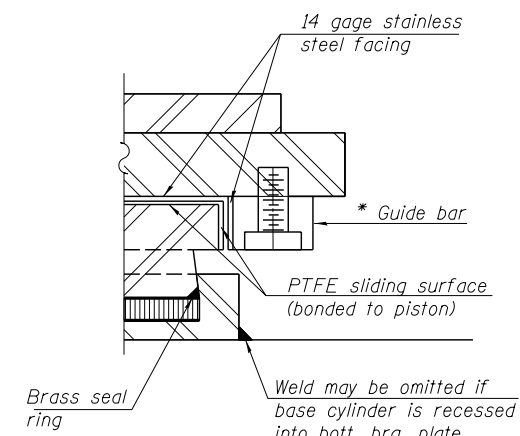
Anchor Bolt $\phi$	Max. Hole $\phi$
3/4"	1 1/4"
1 1/4"	1 3/4"



BELOW 50° F. (move Bott. Brg. away from Fixed Brg.)  
 ABOVE 50° F. (move Bott. Brg. toward Fixed Brg.)

**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.



**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.

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USER NAME = kritzm	DESIGNED - DD	REVISIONS -
PLOT SCALE =	CHECKED - EJO	REVISIONS -
PLOT DATE = 11/20/2014	DRAWN - DD	REVISIONS -
	CHECKED - EJO	REVISIONS -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

EXPANSION POT BEARING DETAILS I  
 I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

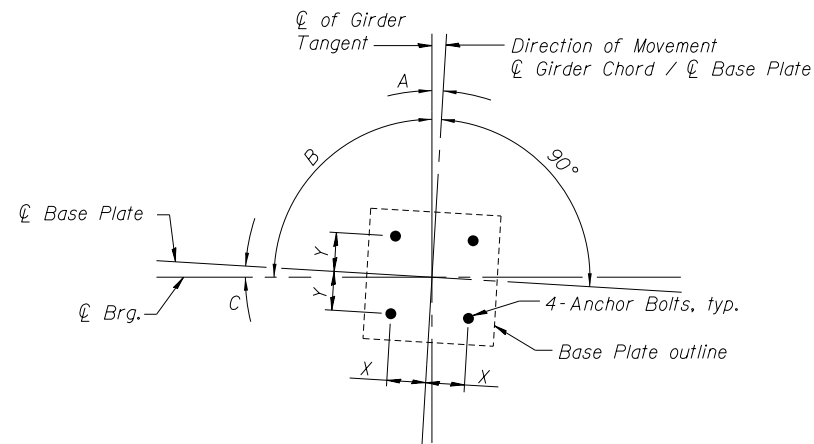
SHEET NO. S-164 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	656
				CONTRACT NO. 60L70
ILLINOIS FED. AID PROJECT				



**GUIDED EXPANSION BEARING DIMENSIONS TABLE**

Brg. Location	Vertical Design Load (kips)	Lateral Design Load (kips)	Max. Factored Ultimate (Strength) Design Rotation, (radians)	Total Required Movement (inches)	Quantity	Bottom Bearing Plate			Top Bearing Plate						Th1	Th2	L	D	Anchor Bolt Dia.	Anchor Bolt Specification Grade
						Tb	Lb	Wb	Tt1	Tt2	Lt	Wt	N	S						
Pier 1W	500	91	0.005	3 1/8"	9	1 1/2"	2'-10"	2'-6"	2 3/8"	3 1/8"	2'-0"	2'-0"	8"	6"	10 3/8"	11 1/8"	1'-3 1/2"	1'-7 3/8"	1 1/4"	F1554, Grade 36
Pier 4W	500	83	0.004	3 1/4"	9	1 1/2"	2'-10"	2'-6"	2 1/4"	2 3/8"	2'-0"	2'-0"	6"	6"	10 1/4"	10 3/8"	1'-3 1/2"	1'-7 3/8"	1 1/4"	F1554, Grade 36
Pier 5W-E	200	29	0.006	2 1/4"	9	1 1/2"	2'-6"	2'-1"	1 1/2"	1 5/8"	1'-8"	1'-7"	6"	5"	8"	8 1/8"	10 1/4"	11 3/4"	3/4"	F1554, Grade 36
Pier 8W-W	200	31	0.006	2 1/4"	11	1 1/2"	2'-6"	2'-1"	1 1/2"	1 5/8"	1'-8"	1'-7"	6"	5"	8"	8 1/8"	10 1/4"	11 3/4"	3/4"	F1554, Grade 36
Pier 8W-E	200	27	0.006	1 5/8"	6	1 1/2"	2'-6"	2'-1"	1 1/2"	1 5/8"	1'-8"	1'-7"	6"	5"	8"	8 1/8"	10 1/4"	11 3/4"	3/4"	F1554, Grade 36
Pier 13W-W	200	34	0.012	1 5/8"	6	1 1/2"	2'-6"	2'-1"	1 1/2"	2 1/4"	1'-8"	1'-7"	6"	5"	8"	8 3/4"	10 1/4"	11 3/4"	3/4"	F1554, Grade 36
Pier 13W-E	200	33	0.008	3 7/8"	6	1 1/2"	2'-6"	2'-1"	1 1/2"	2 1/4"	1'-8"	1'-7"	6"	5"	8"	8 3/4"	10 1/4"	11 3/4"	3/4"	F1554, Grade 36
Pier 17W-N	200	33	0.008	3 7/8"	6	1 1/2"	2'-6"	2'-1"	2 1/4"	1 1/2"	1'-8"	1'-7"	6"	5"	8 3/4"	8"	10 1/4"	11 3/4"	3/4"	F1554, Grade 36
Pier 17W-S	200	34	0.012	1 5/8"	6	1 1/2"	2'-6"	2'-1"	2 1/4"	1 1/2"	1'-8"	1'-7"	6"	5"	8 3/4"	8"	10 1/4"	11 3/4"	3/4"	F1554, Grade 36
Pier 19W-N	200	27	0.006	1 5/8"	6	1 1/2"	2'-6"	2'-1"	2 1/4"	1 1/2"	1'-8"	1'-7"	6"	5"	8 3/4"	8"	10 1/4"	11 3/4"	3/4"	F1554, Grade 36



**ANCHOR BOLT LOCATION DETAIL**

Location	X	Y	A	B	C
Pier 1W	1'-3"	1'-1"	0°00'00"	90°00'00"	0°00'00"
Pier 4W	1'-3"	1'-1"	0°00'00"	90°00'00"	0°00'00"
Pier 5W-E	1'-1"	10 1/2"	8°38'43"	89°51'17"	8°47'26"
Pier 8W-W	1'-1"	10 1/2"	8°38'43"	89°51'17"	8°47'26"
Pier 8W-E	1'-1"	10 1/2"	0°00'00"	90°00'00"	0°00'00"
Pier 13W-W	1'-1"	10 1/2"	7°18'29"	89°49'29"	7°29'01"
Pier 13W-E	1'-1"	10 1/2"	17°49'55"	89°49'29"	18°00'26"
Pier 17W-N	1'-1"	10 1/2"	17°49'55"	89°49'29"	18°00'26"
Pier 17W-S	1'-1"	10 1/2"	7°18'29"	89°49'29"	7°29'01"
Pier 19W-N	1'-1"	10 1/2"	0°00'00"	90°00'00"	0°00'00"

**BILL OF MATERIAL**

Item	Unit	Total
High Load Multi-Rotation Bearings, Guided Expansion 200K.	Each	56
High Load Multi-Rotation Bearings, Guided Expansion 500K.	Each	18
Anchor Bolts, 3/4"	Each	224
Anchor Bolts, 1/4"	Each	72

**NOTES:**

- All HLMR bearings shall be designed to carry minimum Factored Ultimate (Strength) Design Rotation of 0.02 radians. See Special Provision.
- Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
- Work this sheet with sheet S-164.
- See Sheets S-158, S-160 and S-161 for bearing layout & orientation.

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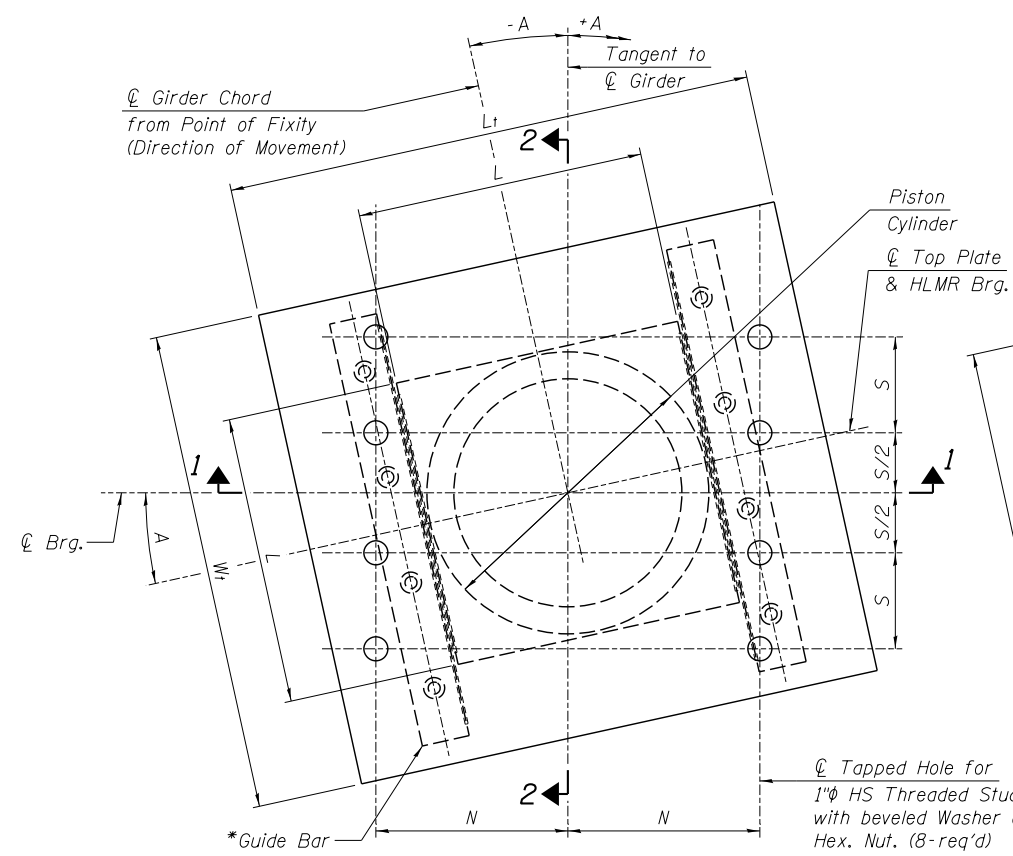
USER NAME = kritzm	DESIGNED - DD	REVISED -
	CHECKED - EJO	REVISED -
PLOT SCALE =	DRAWN - DD	REVISED -
PLOT DATE = 11/20/2014	CHECKED - EJO	REVISED -

**STATE OF ILLINOIS  
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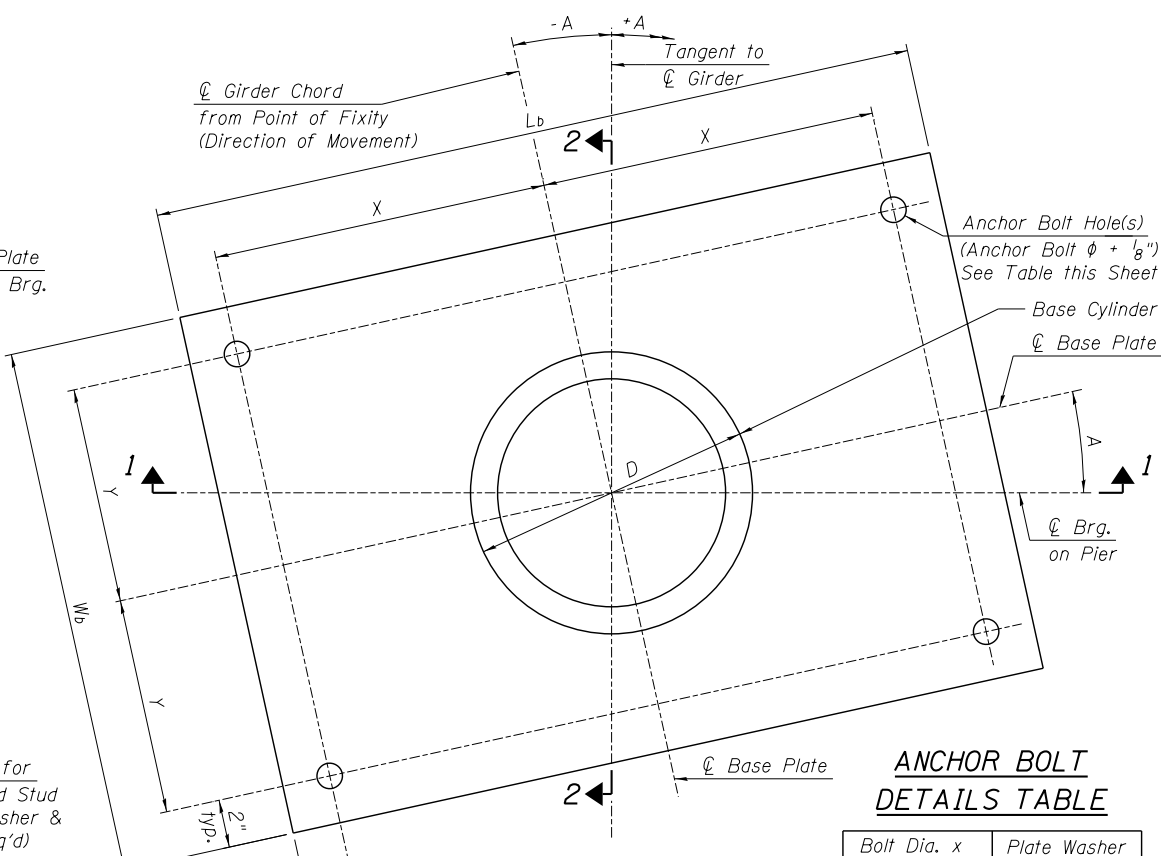
**EXPANSION POT BEARING DETAILS II  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-165 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	657
			CONTRACT NO. 60L70	
ILLINOIS FED. AID PROJECT				



**TOP BEARING  $\varnothing$  AND PISTON CYLINDER PLAN**



**BOTTOM BEARING  $\varnothing$  AND CYLINDER PLAN**

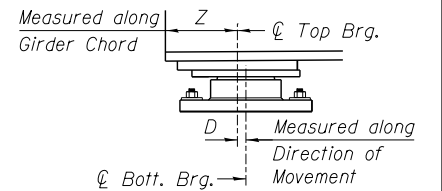
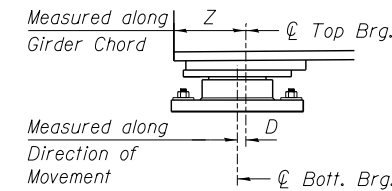
**ANCHOR BOLT DETAILS TABLE**

Bolt Dia. x Length**	Plate Washer
1" x 12"	2 1/4" x 2 1/4" x 5/16"
1 1/2" x 18"	3" x 3" x 5/16"

\*\*Length shown is minimum required embedment length.

**NOTES:**

- The Structural Steel for the beveled top plate, guide plate, guide bars, piston, piston cylinder, & bottom plate shall be AASHTO M270 Grade 50.
- Top & bottom plates, steel piston, piston cylinder, 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 & set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
- The 1/8 in. PTFE sliding surface shall be epoxy-bonded with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type 1. 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 & placed as shown on bearing details.
- All bearing plates, anchor bolts, nuts, washers & pintles shall be galvanized according to AA5HTO M111 M232 as applicable.
- If base cylinder is recessed into the bottom bearing plate, the thickness of the bottom plate shall be Tb plus the depth of the recess.
- All HLMR bearings shall be designed to carry minimum Factored Ultimate (Strength) Design Rotation of 0.02 radians. See Special Provision.
- Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grades and diameters specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.



**BELOW 50° F**

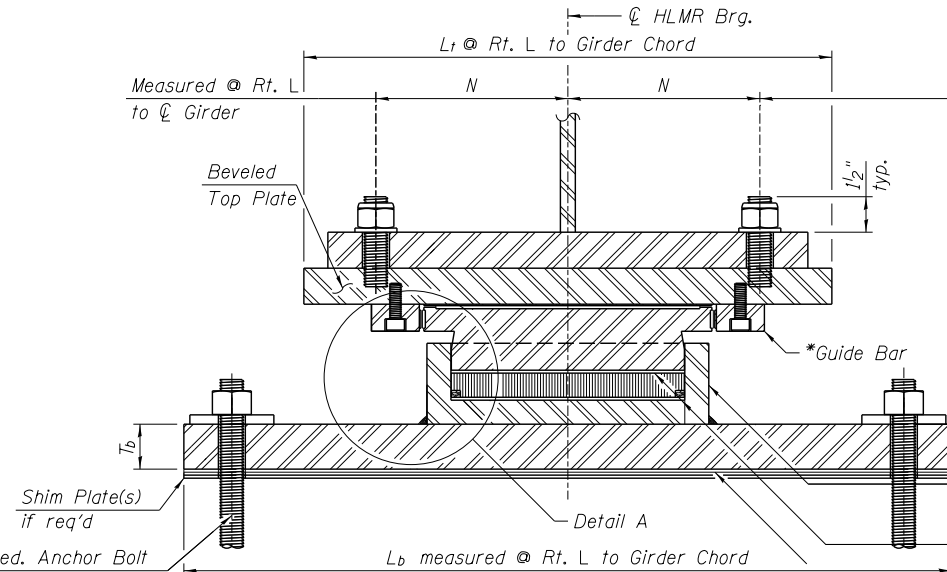
(Move bott. brg. away from P.Z.T.M.)

**ABOVE 50° F**

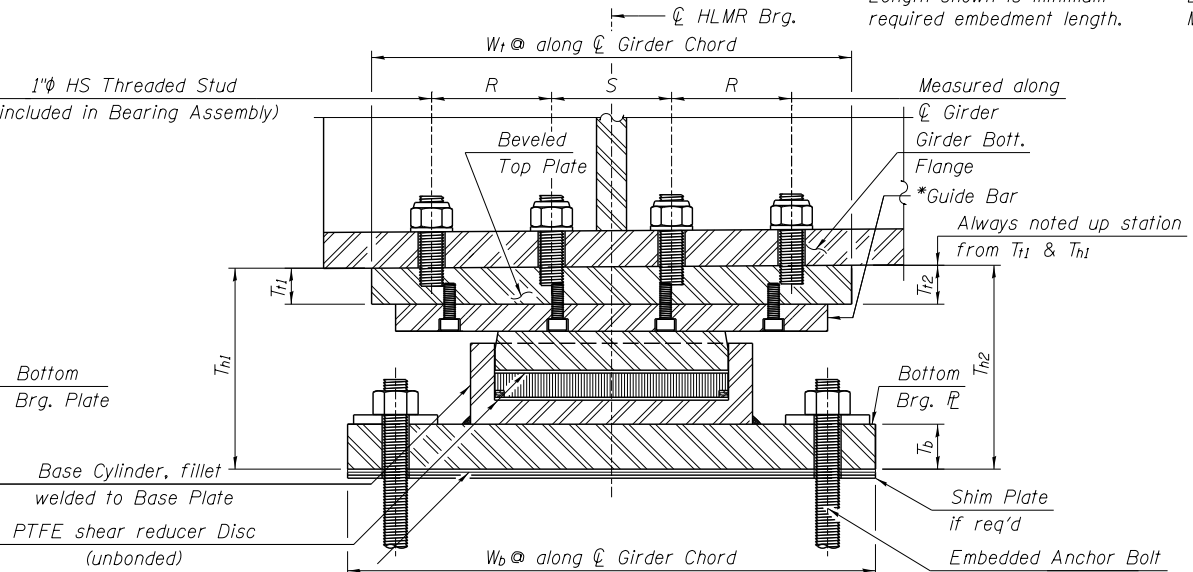
(Move bott. brg. toward P.Z.T.M.)

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

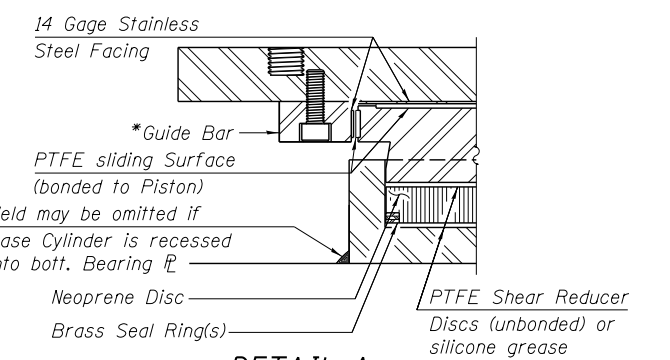
Z = 1/8 in. per each 100 ft. of expansion for every 15° temperature change from the normal temperature of 50° F. Point of Zero Thermal Movement (P.Z.T.M.) for S.N. 016-1504, Unit 2, located 101'-0" upstation from Pier 9W fixed brg.



**SECTION 1-1**



**SECTION 2-2**



**DETAIL A**

\*As alternates to the bolted connecting shown, the guide bars may be connected to the beveled top plate by groove welds or the guide bars & beveled top plate may be fabricated as a single piece.

**GUIDED EXPANSION BEARING DIMENSIONS TABLE**

HLMR Bearing Location	Vertical Design Load (kips)	Lateral Design Load (kips)	Max. Factored Ultimate (Strength) Design Rotation, (radians)	Total Required Movement (in.)	A (Degrees)	D (in.)	L (in.)	Bottom Bearing Plate			Top Bearing Plate						Anchor Bolt $\varnothing$ (in.)	X (in.)	Y (in.)	Anchor Bolt Specification Grade			
								Tb (in.)	Lb (in.)	Wb (in.)	T1 (in.)	T2 (in.)	W1 (in.)	L1 (in.)	N (in.)	S (in.)					R (in.)	Tn1 (in.)	Tn2 (in.)
Unit 2, Pier 8W	250	43	0.005	3 1/4	-12.3	11 3/4	12	1 3/4	32	22	1 1/2	1 5/8	20	22	8	5	5	8 1/2	8 1/4	1	14	9	F1554, Gr. 36
Unit 2, Pier 11W	600	113	0.003	3 3/8	12.8	17	18	2 1/4	38	26	3 3/16	2 5/16	26	28	10	6	6	10 9/16	11 1/16	1 1/2	17	11	F1554, Gr. 105
Unit 2, N. Abut.	250	43	0.005	5 1/4	20.2	11 3/4	12	1 3/4	37	23	2 1/4	1 5/8	20	22	7 1/2	5	3 3/4	9 1/8	8 3/8	1	16 1/2	9 1/2	F1554, Gr. 36

**BILL OF MATERIAL**

Item	Unit	Total
High Load Multi-Rotation Bearing, Guided Expansion 250K	Each	12
High Load Multi-Rotation Bearing, Guided Expansion 600K	Each	6
Anchor Bolts, 1"	Each	48
Anchor Bolts, 1 1/2"	Each	24

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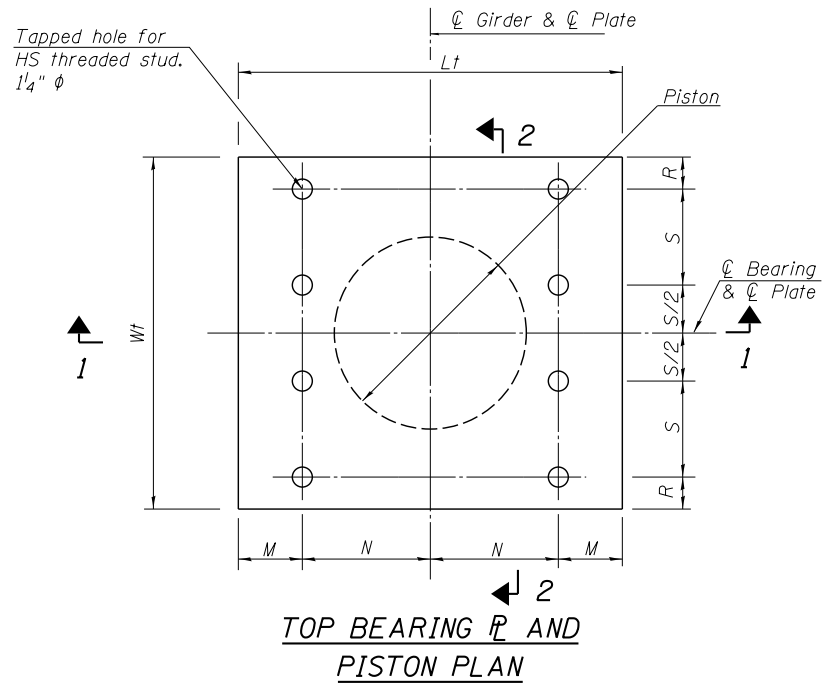


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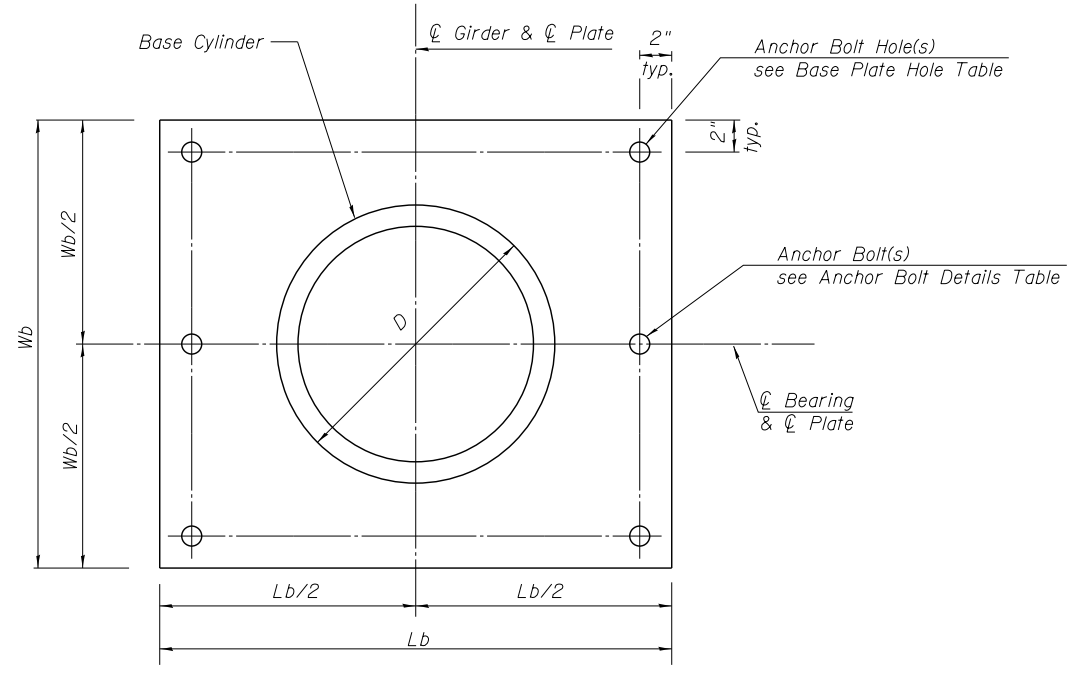
**STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION**

**EXPANSION POT BEARING DETAILS III I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

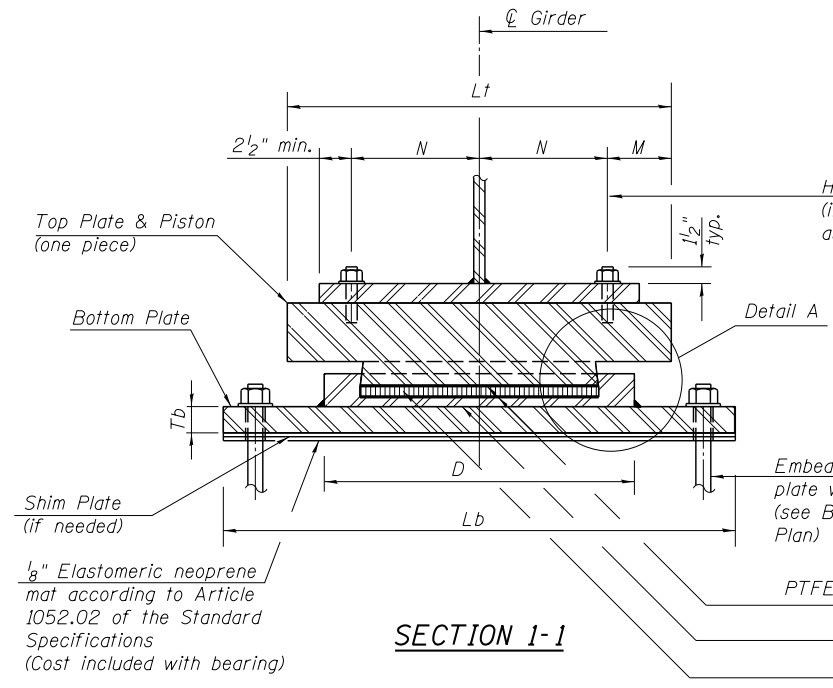
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SHEET NO. S-166 OF S-248 SHEETS			CONTRACT NO. 60L70	
ILLINOIS FED. AID PROJECT				



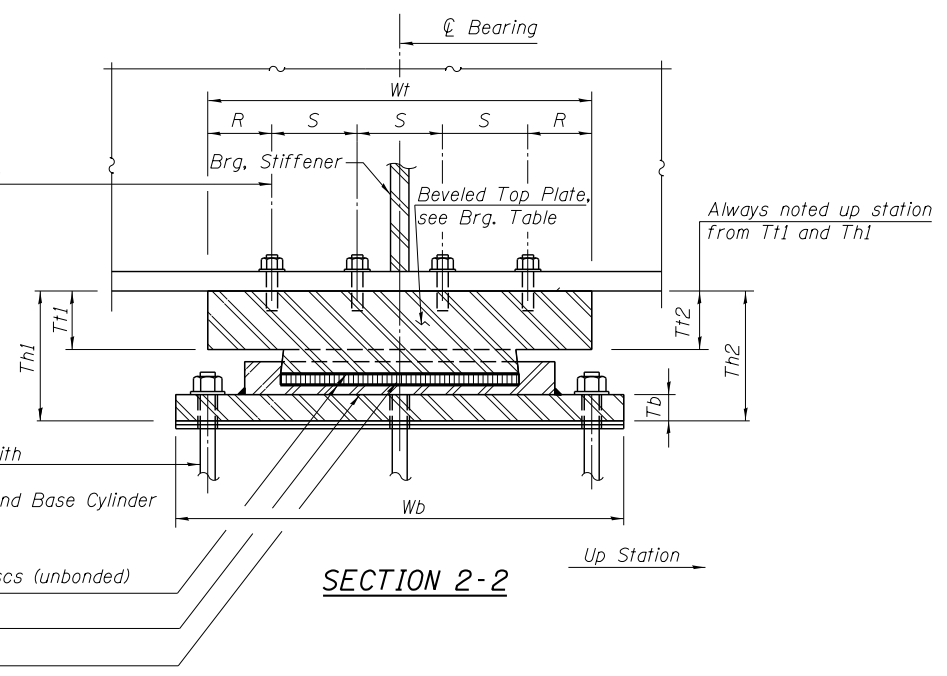
**TOP BEARING PLATE AND PISTON PLAN**



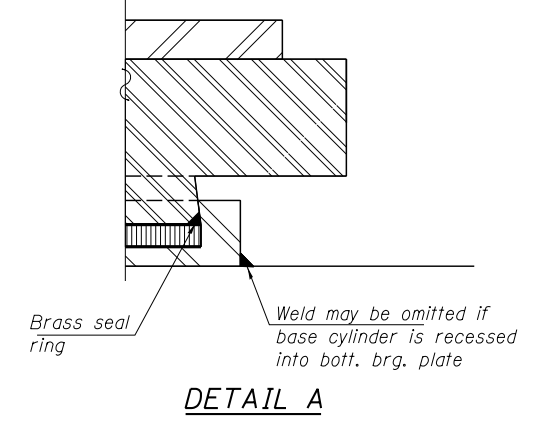
**BOTTOM BEARING PLATE AND BASE CYLINDER PLAN**



**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 size, see Fixed Bearing Dimensions Table on sheet S-168.
- Top & bottom plates, threaded studs, washers & shim plates are included in the cost of the High Load Multi-Rotation Bearings, Fixed.
- 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.
- Work this sheet with sheet S-168.
- All bearing plates, anchor bolts, nuts, washers and pintles shall be galvanized according to AASHTO M111 or M232 as applicable.
- If base cylinder is recessed into the bottom bearing plate, the thickness of the bottom plate shall be Tb plus the depth of the recess.

**ANCHOR BOLT DETAILS TABLE**

Bolt Dia. x Length**	Plate Washer
1" x 12"	2 1/4" x 2 1/4" x 5/16"
1 1/4" x 15"	2 3/4" x 2 3/4" x 5/16"

\*\*Length shown is minimum required embedment length.

**BASE PLATE HOLE TABLE**

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

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USER NAME = kritzm	DESIGNED - DD	REVISED -
	CHECKED - EJO	REVISED -
PLOT SCALE =	DRAWN - DD	REVISED -
PLOT DATE = 11/20/2014	CHECKED - EJO	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

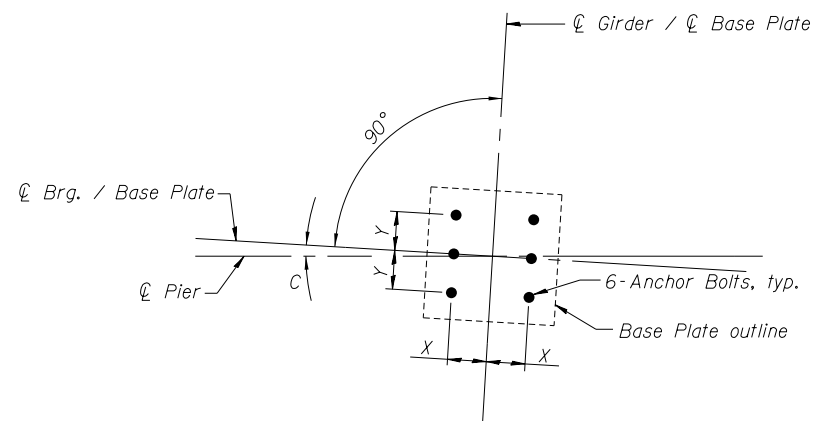
**FIXED POT BEARING DETAILS I  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-167 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	659
				CONTRACT NO. 60L70
ILLINOIS FED. AID PROJECT				

**FIXED BEARING DIMENSIONS TABLE**

Brg. Location	Vertical Design Load (kips)	Lateral Design Load (kips)	Max. Factored Ultimate (Strength) Design Rotation, (radians)	Quantity	Bottom Bearing Plate			Top Bearing Plate								Th1	Th2	D	Anchor Bolt Dia.	Anchor Bolt Specification Grade
					Tb	Lb	Wb	Tt1	Tt2	Lt	Wt	M	N	R	S					
Pier 6W	550	95	0.005	9	1 5/8"	3'-1"	3'-1"	2 1/4"	2 1/2"	2'-3"	2'-3"	6"	7 1/2"	3"	7"	10 3/4"	11"	1'-6 1/4"	1 1/4"	F1554, Grade 36
Pier 7W	550	91	0.005	9	1 5/8"	3'-1"	3'-1"	2 1/4"	2 1/2"	2'-3"	2'-3"	6"	7 1/2"	3"	7"	10 3/4"	11"	1'-6 1/4"	1 1/4"	F1554, Grade 36
Pier 12W	500	83	0.003	6	1 1/2"	3'-0"	3'-0"	2"	2 3/4"	2'-2"	2'-2"	7 1/2"	5 1/2"	2 1/2"	7"	10 1/8"	10 7/8"	1'-5 1/2"	1"	F1554, Grade 36
Pier 14W	550	99	0.004	6	1 5/8"	3'-1"	3'-1"	2 1/4"	3 1/4"	2'-3"	2'-3"	6"	7 1/2"	3"	7"	10 3/4"	11 3/4"	1'-6 1/4"	1 1/4"	F1554, Grade 36
Pier 15W	600	109	0.003	6	1 5/8"	3'-2"	3'-2"	2 3/4"	2 3/8"	2'-4"	2'-4"	4 1/2"	9 1/2"	3 1/2"	7"	11 7/8"	11 1/2"	1'-8"	1 1/4"	F1554, Grade 36
Pier 16W	550	99	0.004	6	1 5/8"	3'-1"	3'-1"	3 3/8"	2 1/4"	2'-3"	2'-3"	6"	7 1/2"	3"	7"	11 7/8"	10 3/4"	1'-6 1/4"	1 1/4"	F1554, Grade 36
Pier 18W	500	83	0.003	6	1 1/2"	3'-0"	3'-0"	3 1/8"	2"	2'-2"	2'-2"	7 1/2"	5 1/2"	2 1/2"	7"	11 1/4"	10 1/8"	1'-5 1/2"	1"	F1554, Grade 36



**ANCHOR BOLT LOCATION DETAIL.**

Location	X	Y	C
Pier 6W	1'-4 1/2"	1'-4 1/2"	0°00'00"
Pier 7W	1'-4 1/2"	1'-4 1/2"	0°00'00"
Pier 12W	1'-4"	1'-4"	0°00'00"
Pier 14W	1'-4 1/2"	1'-4 1/2"	0°00'00"
Pier 15W	1'-5"	1'-5"	0°00'00"
Pier 16W	1'-4 1/2"	1'-4 1/2"	0°00'00"
Pier 18W	1'-4"	1'-4"	0°00'00"

**BILL OF MATERIAL**

Item	Unit	Total
High Load Multi-Rotation Bearings, Fixed 500K	Each	12
High Load Multi-Rotation Bearings, Fixed 550K	Each	30
High Load Multi-Rotation Bearings, Fixed 600K	Each	6
Anchor Bolts, 1"	Each	72
Anchor Bolts, 1 1/4"	Each	216

**NOTES:**

- All HLMR bearings shall be designed to carry minimum Factored Ultimate (Strength) Design Rotation of 0.02 radians. See Special Provision.
- Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
- Work this sheet with sheet S-167.
- See Sheets S-158, S-160 and S-161 for bearing layout & orientation.

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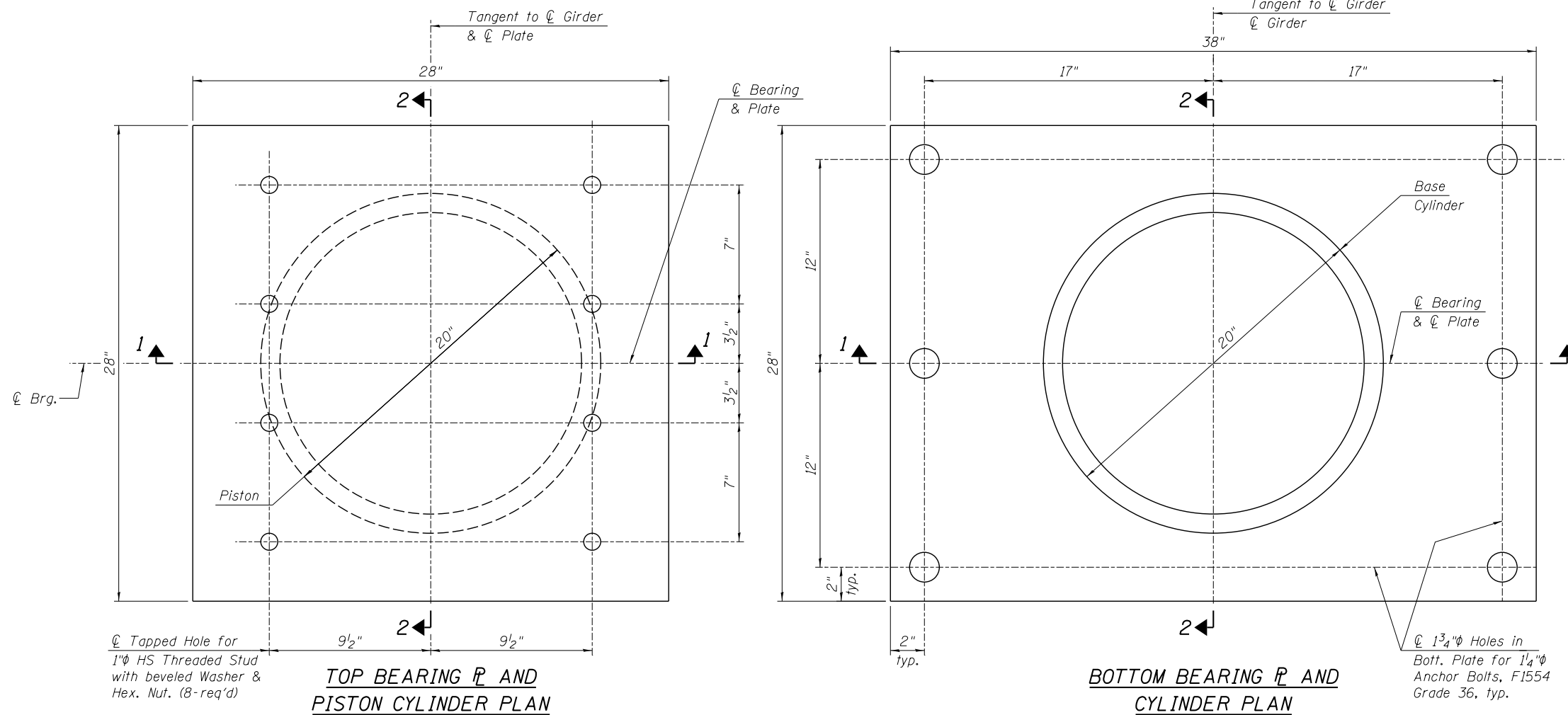
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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**FIXED POT BEARING DETAILS II  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-168 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	660
CONTRACT NO. 60L70				
ILLINOIS FED. AID PROJECT				



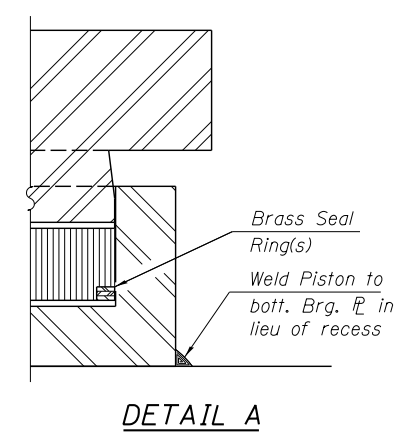
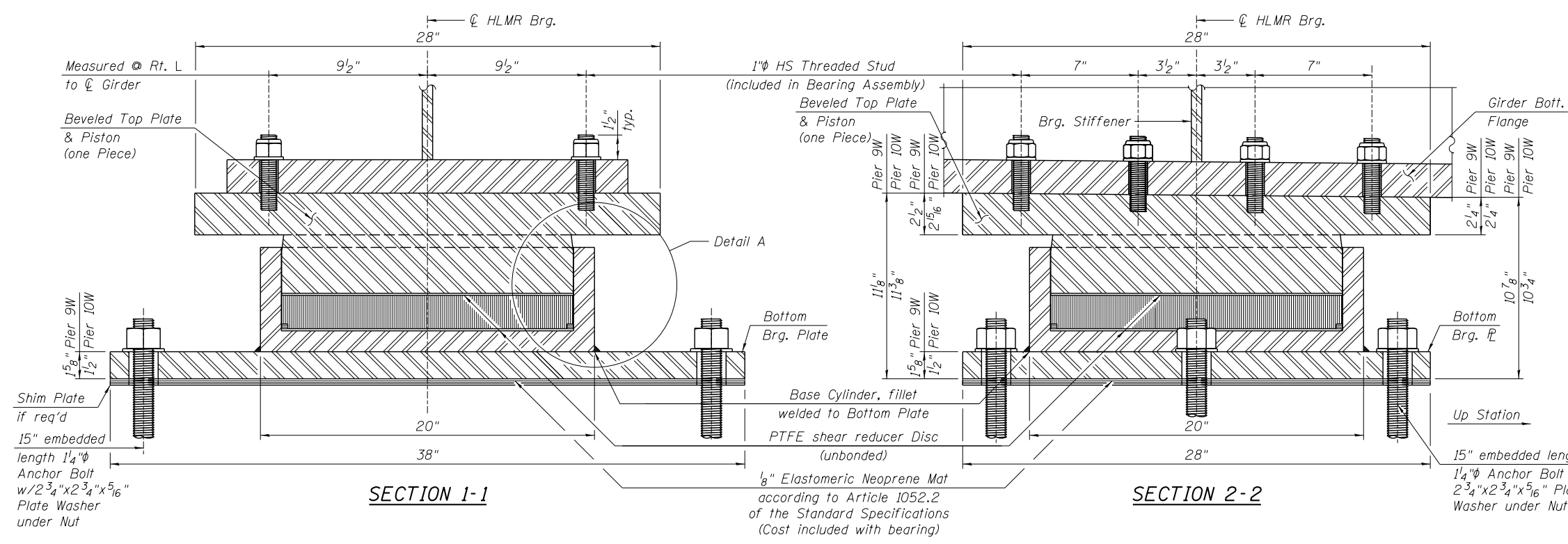
- NOTES:**
- The Structural Steel for the beveled top plate, piston, piston cylinder, & bottom plate shall be AASHTO M270 Grade 50.
  - Top & bottom plates, steel piston, piston cylinder, threaded studs, washers, & shim plates are included in the cost of the Bearings.
  - Anchor bolts for bearings shall be placed in holes drilled in the concrete through holes in the bottom bearing plate after members are in place.
  - Drilled & set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
  - The  $\frac{1}{8}$  in. PTFE sliding surface shall be epoxy-bonded with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type 1. The bond agent shall be applied on the full area of the contact surfaces.
  - Two  $\frac{1}{8}$  in. adjusting shims shall be provided for each bearing in addition to all other plates or shims & placed as shown on bearing details.
  - All bearing plates, anchor bolts, nuts, washers & pintles shall be galvanized according to AASHTO M111 M232 as applicable.
  - If base cylinder is recessed into the bottom bearing plate, the thickness of the bottom plate shall be  $T_b$  plus the depth of the recess.
  - All HLMR bearings shall be designed to carry minimum Factored Ultimate (Strength) Design Rotation of 0.02 radians. See Special Provision.
  - Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grades and diameters specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

**FIXED BEARING DESIGN LOADING TABLE**

HLMR Bearing Location	Vertical Design Load (kips)	Lateral Design Load (kips)	Max. Factored Ultimate (Strength) Design Rotation, (radians)
Unit 2, Pier 9W	600	113	0.003
Unit 2, Pier 10W	600	102	0.004

**BILL OF MATERIAL**

Item	Unit	Total
High Load Multi-Rotation Bearing, Fixed 600K	Each	12
Anchor Bolts, $1\frac{1}{4}$ "	Each	72



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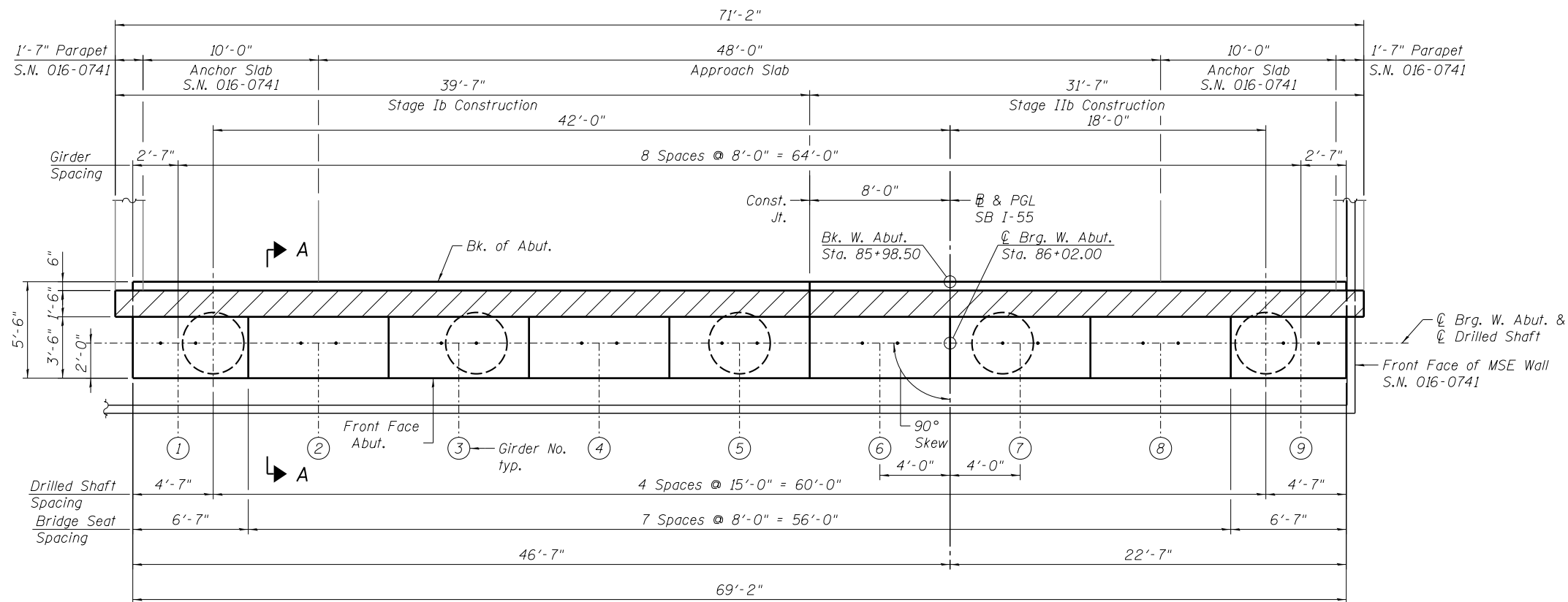
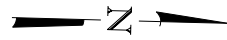
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PLOT DATE = 11/20/2014	DRAWN - PH	REVISED -
	CHECKED - PK	REVISED -

**STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION**

**FIXED POT BEARING DETAILS III  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 661
CONTRACT NO. 60L70				ILLINOIS FED. AID PROJECT

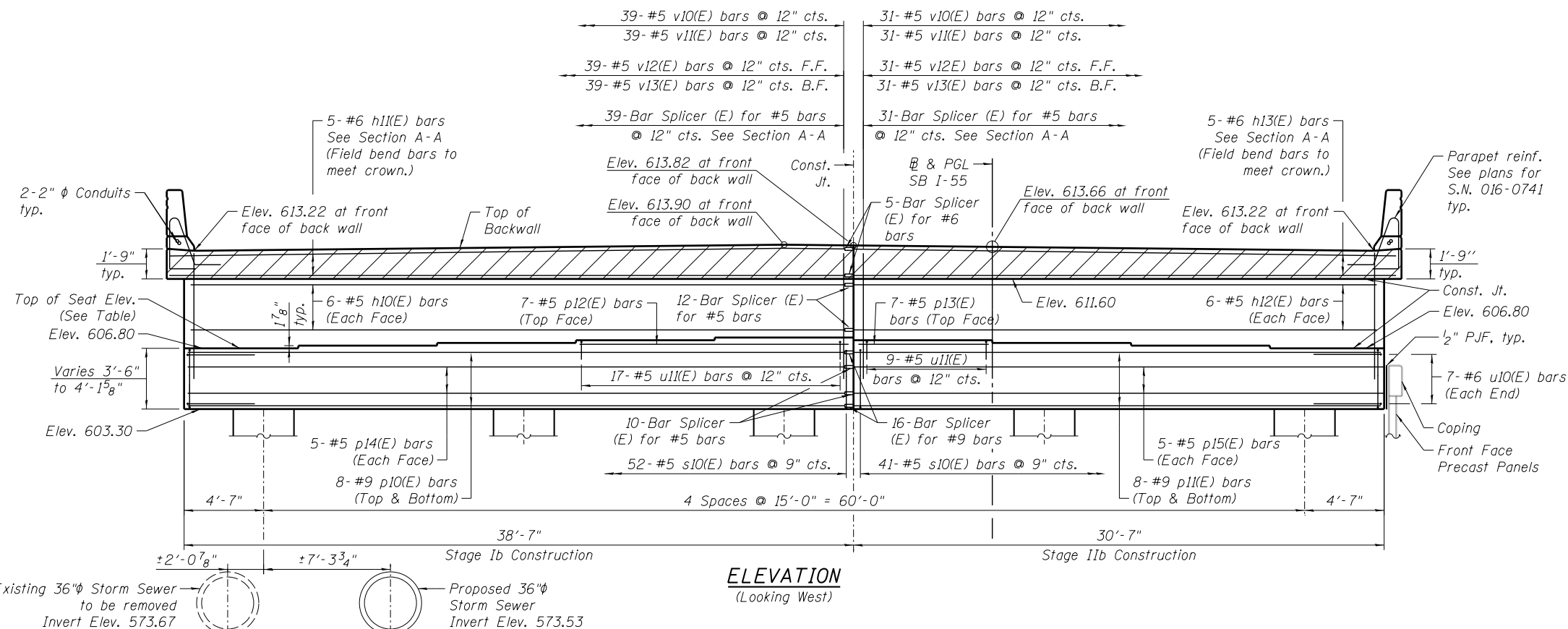
SHEET NO. S-169 OF S-248 SHEETS



PLAN

**NOTES:**

1. Pour steps monolithically with cap.
2. For Anchor Bolt Details, see Sheet S-162.
3. Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure.
4. Concrete Sealer shall be applied to abutment backwall, bearing seats and exposed faces of abutment cap.
5. Space bars in cap to miss anchor bolts.
6. For Section A-A, see Sheet S-171.
7. A Drilled Shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.



ELEVATION  
(Looking West)

**TOP OF SEAT ELEVATION**

Girder No.	Seat Elevation
1	606.80
2	606.96
3	607.12
4	607.28
5	607.44
6	607.28
7	607.12
8	606.96
9	606.80

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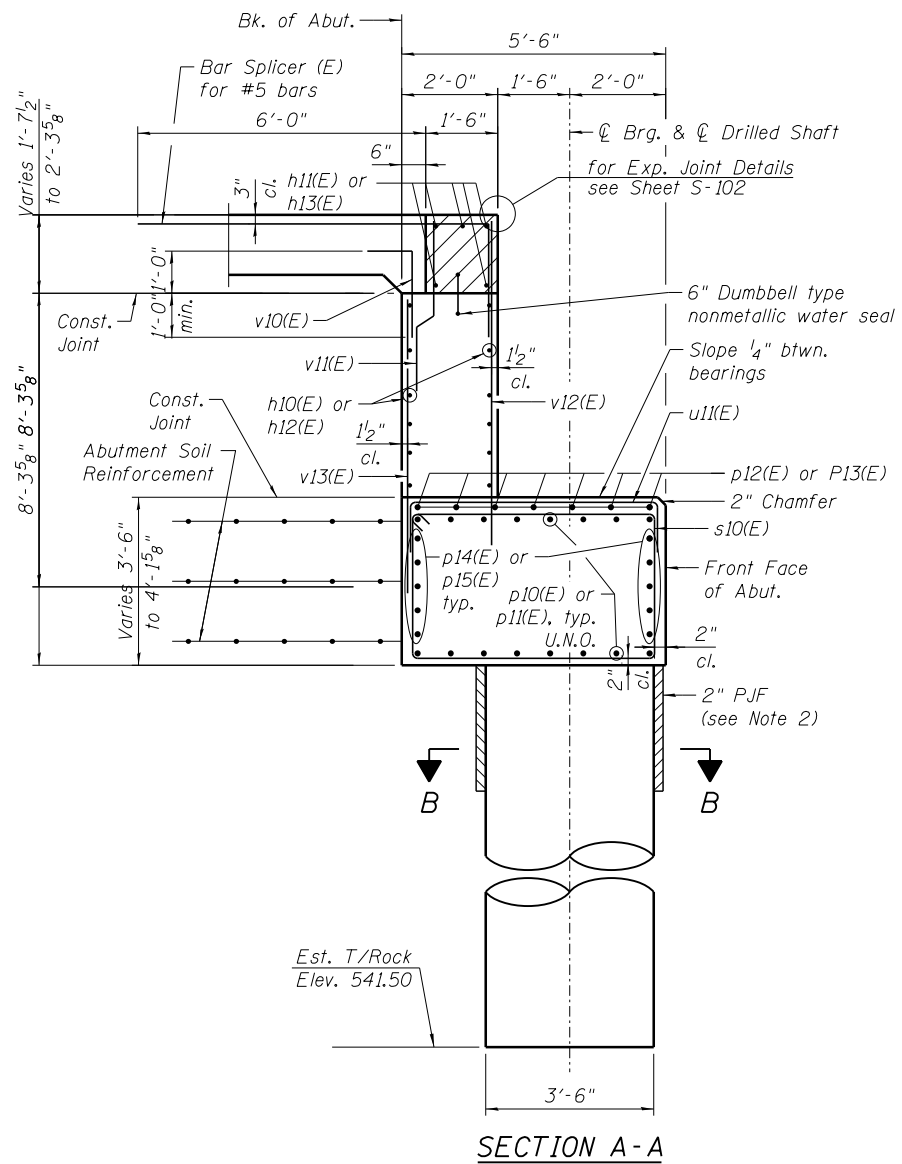
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PLOT DATE =	11/20/2014	CHECKED -	CLS	REVISED -	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

WEST ABUTMENT PLAN & ELEVATION - S.N. 016-1501  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

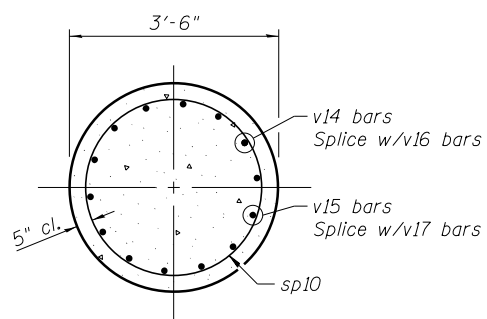
SHEET NO. S-170 OF S-248 SHEETS

F.A.I. RE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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			CONTRACT NO. 60L70	
ILLINOIS FED. AID PROJECT				

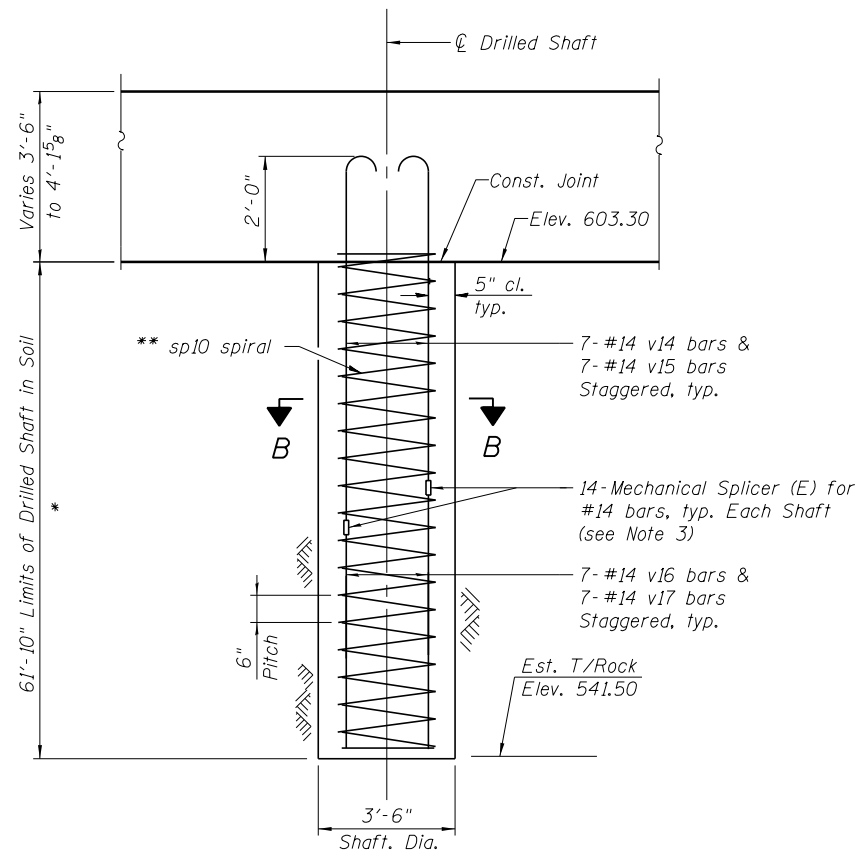


SECTION A-A

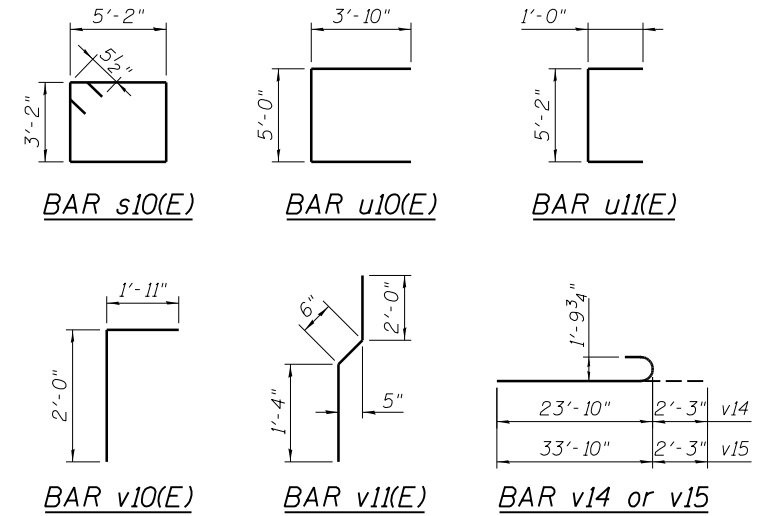
Est. T/Rock  
Elev. 541.50



SECTION B-B



ABUTMENT SHAFT ELEVATION



\* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

\*\* Provide 1/2 extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 3" into the abutment cap. Provide 4-#4 spacers or equivalent.

WEST ABUTMENT  
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h10(E)	12	#5	38'-5"	—
h11(E)	5	#6	39'-5"	—
h12(E)	12	#5	30'-5"	—
h13(E)	5	#6	31'-5"	—
p10(E)	16	#9	38'-5"	—
p11(E)	16	#9	30'-5"	—
p12(E)	7	#5	15'-10"	—
p13(E)	7	#5	7'-10"	—
p14(E)	10	#5	38'-5"	—
p15(E)	10	#5	30'-5"	—
s10(E)	93	#5	17'-7"	□
*** sp10	5	#5	62'-1"	⋈
u10(E)	14	#6	12'-8"	┌
u11(E)	26	#5	7'-2"	┌
v10(E)	70	#5	3'-11"	└
v11(E)	70	#5	3'-10"	└
v12(E)	70	#5	8'-5"	—
v13(E)	70	#5	7'-2"	—
v14	35	#14	26'-1"	└
v15	35	#14	36'-1"	└
v16	35	#14	40'-0"	—
v17	35	#14	30'-0"	—
Concrete Structures		Cu. Yd.	76.6	
Reinforcement Bars, Epoxy Coated		Pound	9,900	
Reinforcement Bars		Pound	41,640	
Drilled Shaft in Soil		Cu. Yd.	110.2	
Concrete Sealer		Sq. Ft.	637	
Crosshole Sonic Logging		Each	1	

\*\*\* Length is height of spiral

NOTES:

- When splicing spiral reinforcement is necessary, the spiral 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.
- Install 2" P.J.F. from bottom of abutment to Elev. 595.82. Cost is included in Drilled Shaft In Soil.
- For details and quantity of Bar Splicers, & Mechanical Splicer see Sheet S-222.
- Drilled Shaft quantity from top of existing ground elev. to bottom of abutment cap elev. shall be included with Drilled Shaft In Soil.
- Contractor shall use Mechanical splicers in drilled shafts that will fit between spirals. Contractor shall field adjust spiral pitch to 12" max. at Mechanical Splicer location.

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USER NAME = floresg	DESIGNED - VP	REVISED -
PLOT SCALE =	CHECKED - ATB	REVISED -
PLOT DATE = 12/05/2014	DRAWN - MRK	REVISED -
	CHECKED - CLS	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

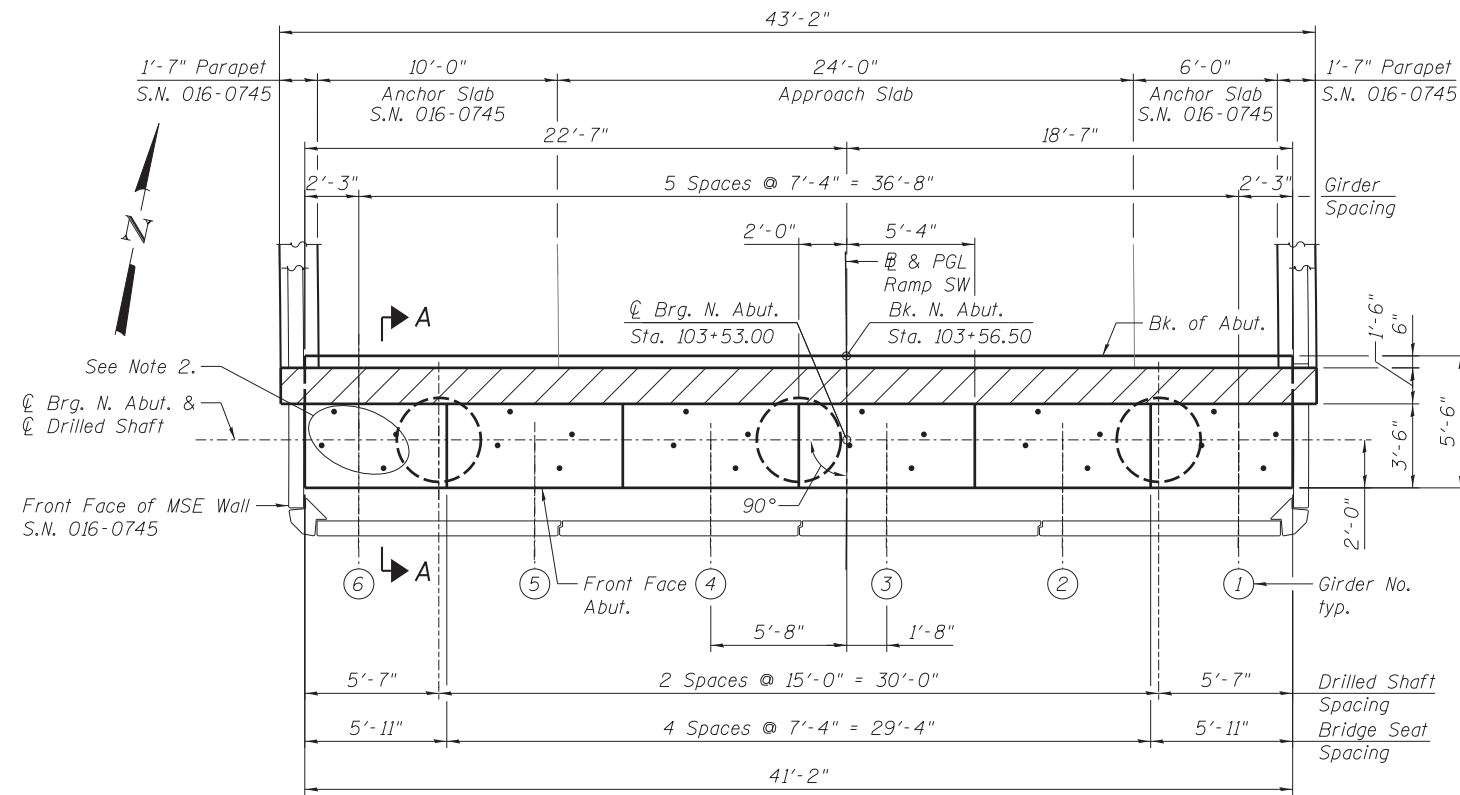
WEST ABUTMENT SECTIONS & DETAILS - S.N. 016-1501  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-171 OF S-248 SHEETS

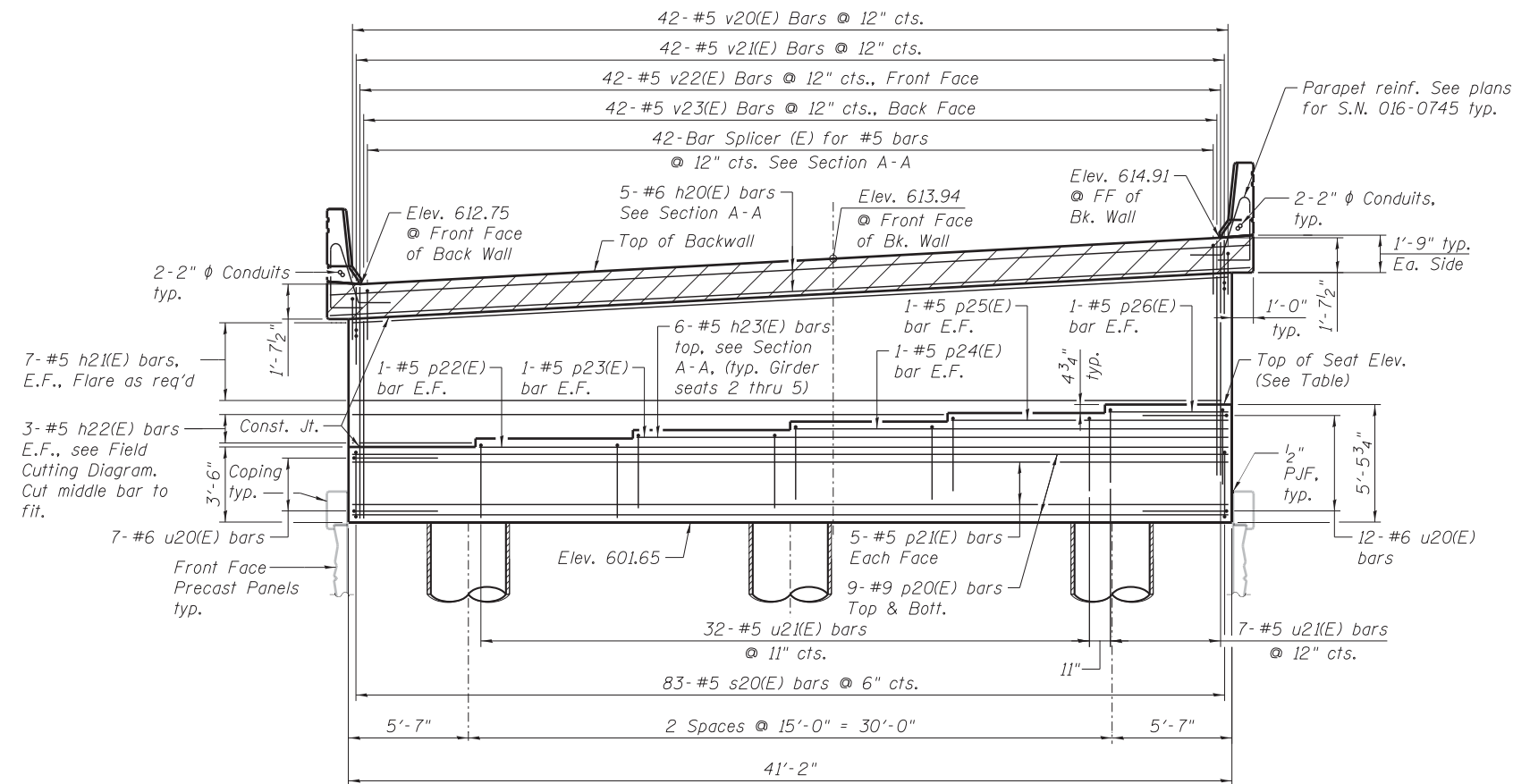
F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 663
			CONTRACT NO. 60L70	
ILLINOIS FED. AID PROJECT				

**NOTES:**

1. Pour steps monolithically with cap.
2. For Anchor Bolt Details see Sheets S-166.
3. Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure.
4. Concrete Sealer shall be applied to abutment backwall, bearing seats and exposed faces of abutment cap.
5. Space bars in cap to miss anchor bolts.
6. For Section A-A, see Sheet S-173.
7. A Drilled Shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.



**PLAN**



**ELEVATION**  
(Looking North)

**TOP OF SEAT ELEVATION**

Girder No.	Seat Elevation
1	607.13
2	606.74
3	606.34
4	605.94
5	605.55
6	605.15

403\_0161504\_60L70\_ABUTN1.dgn



USER NAME = PHodina	DESIGNED - PH	REVISED -
	CHECKED - BG	REVISED -
PLOT SCALE =	DRAWN - PH	REVISED -
PLOT DATE = 12/05/2014	CHECKED - BG	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

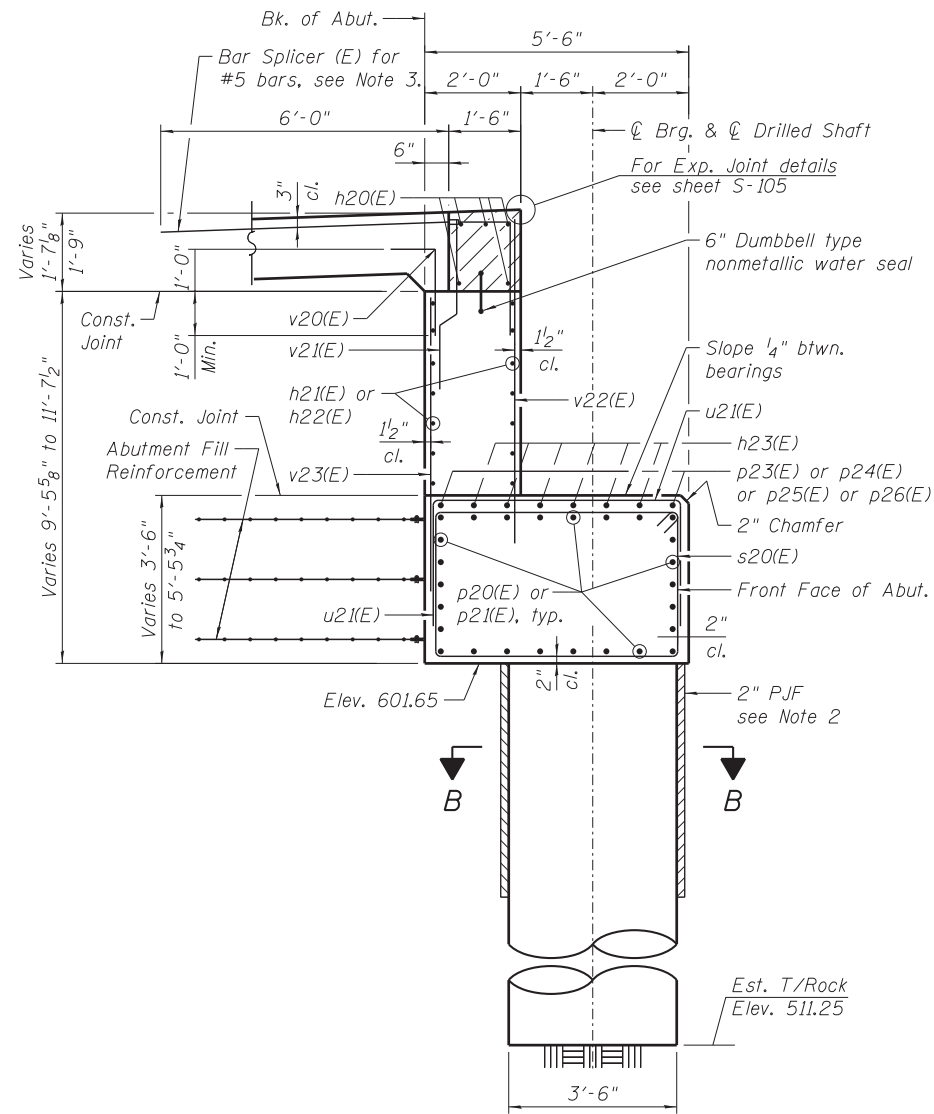
**NORTH ABUTMENT PLAN & ELEVATION - S.N. 016-1504  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 664
				CONTRACT NO. 60L70

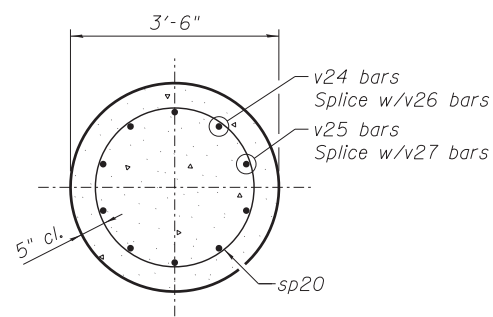
SHEET NO. S-172 OF S-248 SHEETS

ILLINOIS FED. AID PROJECT

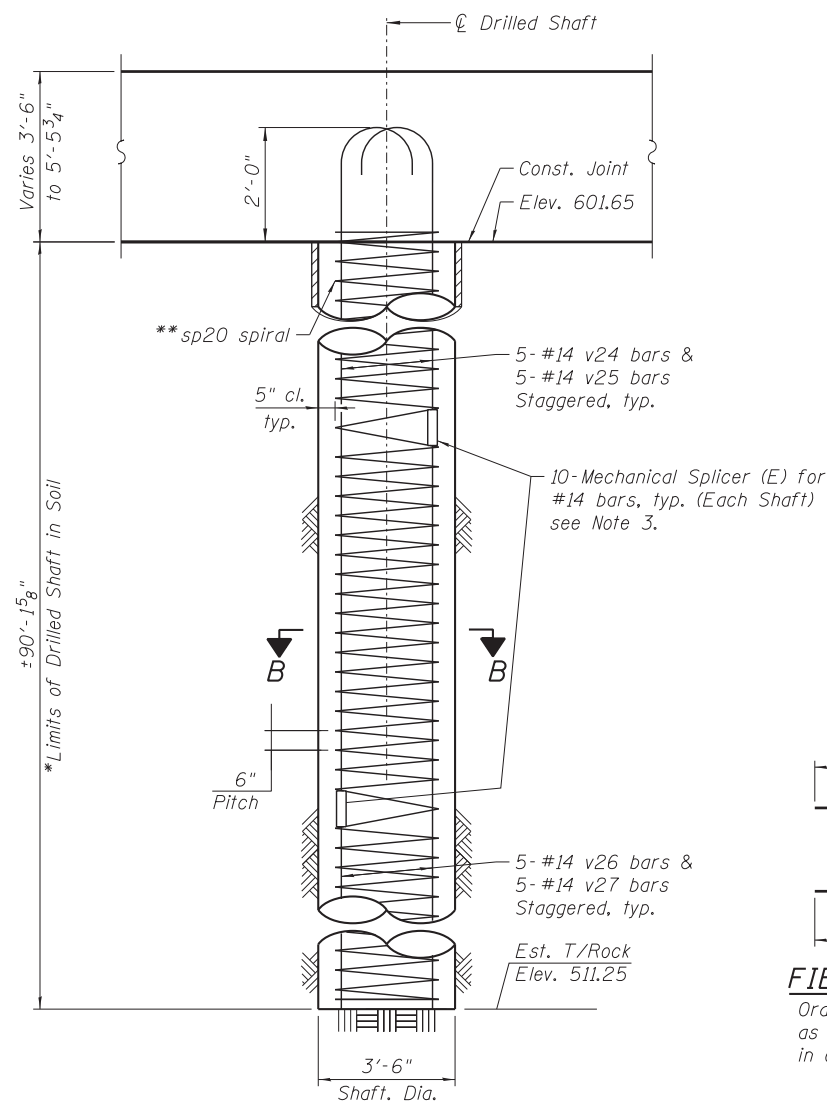




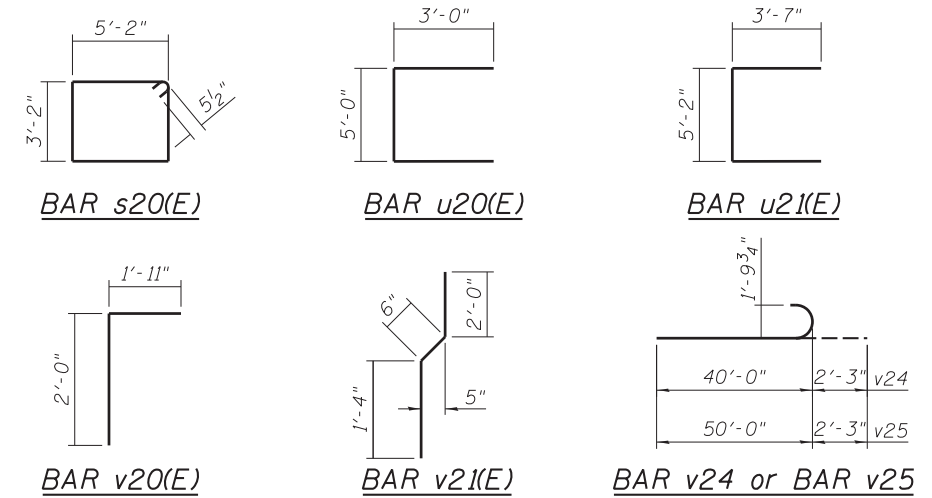
SECTION A-A



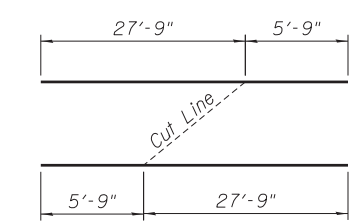
SECTION B-B



ABUTMENT SHAFT ELEVATION



\*The quantities & detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft & corresponding adjustments shall be made to the drilled shaft & reinforcement quantities & payment limits.  
 \*\*Provide 1/2 extra turns top & bottom of each drilled shaft. Extend spiral 2" into the abutment cap. Provide 4-#4 spacers or equivalent.



FIELD CUTTING DIAGRAMS

Order h22(E) bars Full Length. Cut as shown & use remainder of bars in opposite face.

NORTH ABUTMENT BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h20(E)	5	#6	42'-10"	—
h21(E)	14	#5	40'-10"	—
h22(E)	3	#5	33'-6"	—
h23(E)	24	#5	7'-0"	—
p20(E)	18	#9	40'-10"	—
p21(E)	10	#5	40'-10"	—
p22(E)	2	#5	35'-1"	—
p23(E)	2	#5	27'-9"	—
p24(E)	2	#5	20'-5"	—
p25(E)	2	#5	13'-1"	—
p26(E)	2	#5	5'-7"	—
s20(E)	83	#5	17'-7"	□
sp20	3	#5	90'-2"	⋈
u20(E)	19	#6	11'-0"	┌
u21(E)	39	#5	12'-4"	┌
v20(E)	42	#5	3'-11"	└
v21(E)	42	#5	3'-10"	└
v22(E)	42	#5	10'-10"	—
v23(E)	42	#5	10'-6"	—
v24	15	#14	42'-3"	—
v25	15	#14	52'-3"	—
v26	15	#14	52'-5"	—
v27	15	#14	42'-5"	—
Concrete Structures		Cu. Yd.	56.2	
Reinforcement Bars, Epoxy Coated		Pound	7,950	
Reinforcement Bars		Pound	27,290	
Drilled Shaft in Soil		Cu. Yd.	96.6	
Concrete Sealer		Sq. Ft.	569	
Crosshole Sonic Logging		Each	1	

\*\*\*Length is height of spiral

NOTES:

- When splicing spiral reinforcement is necessary, the spiral 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.
- Install 2" P.J.F. from bottom of abutment to Elev. 597.86. Cost is included in Drilled Shaft in Soil.
- For details & quantity of Bar Splicers & Mechanical Splicers, see Sheet S-222.
- Drilled Shaft quantity from top of existing ground elev. to bottom of abutment cap elev. shall be included with Drilled Shaft in Soil.
- Contractor shall use Mechanical Splicers in drilled shafts that will fit between spirals. Contractor shall field adjust spiral pitch to 12" max. at Mechanical Splicer location.

404\_0161504\_G01.70\_ABUTINZ.dgn



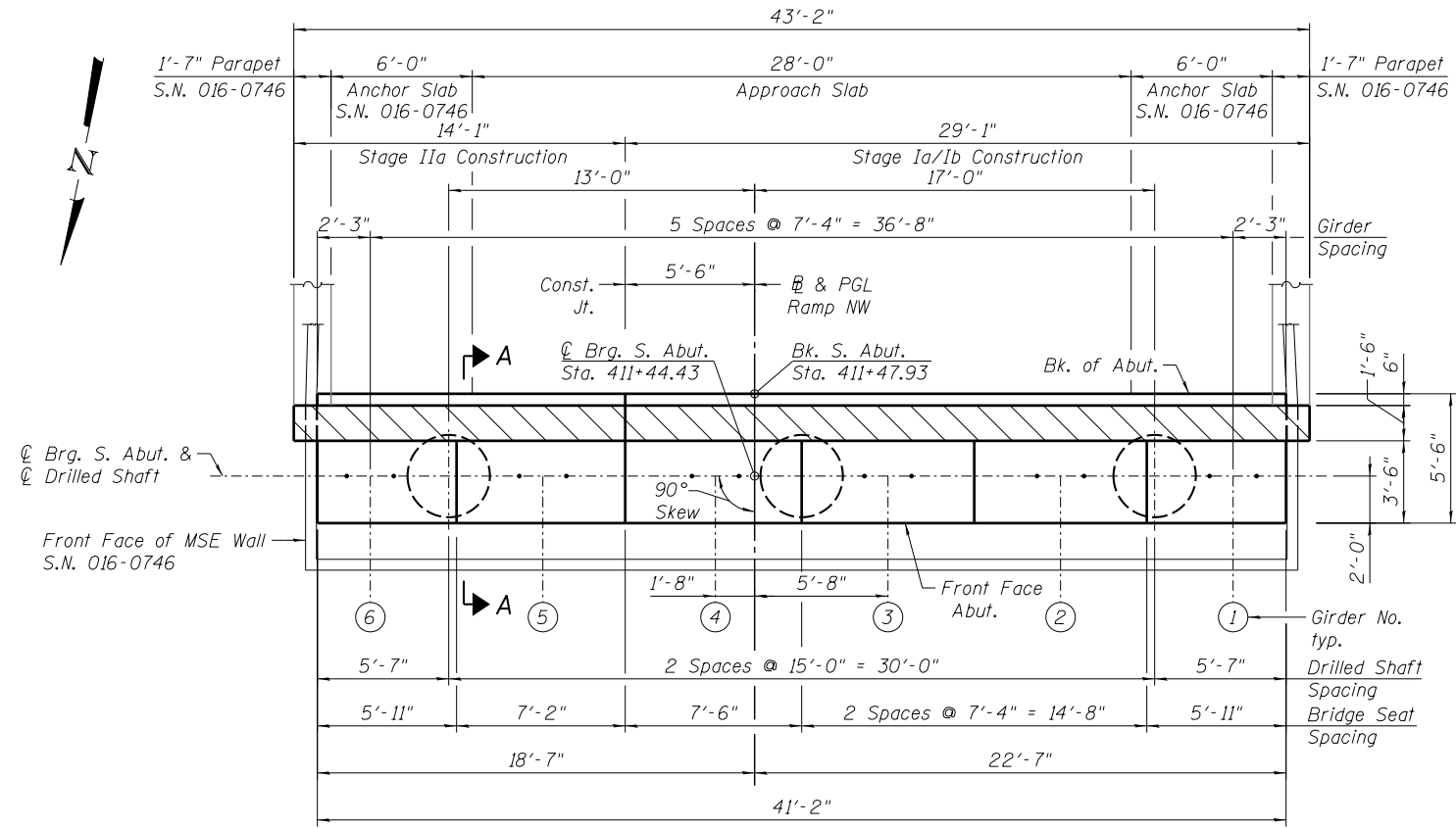
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PLOT SCALE =	CHECKED - BG	REVISED -
PLOT DATE = 12/05/2014	DRAWN - PH	REVISED -
	CHECKED - BG	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

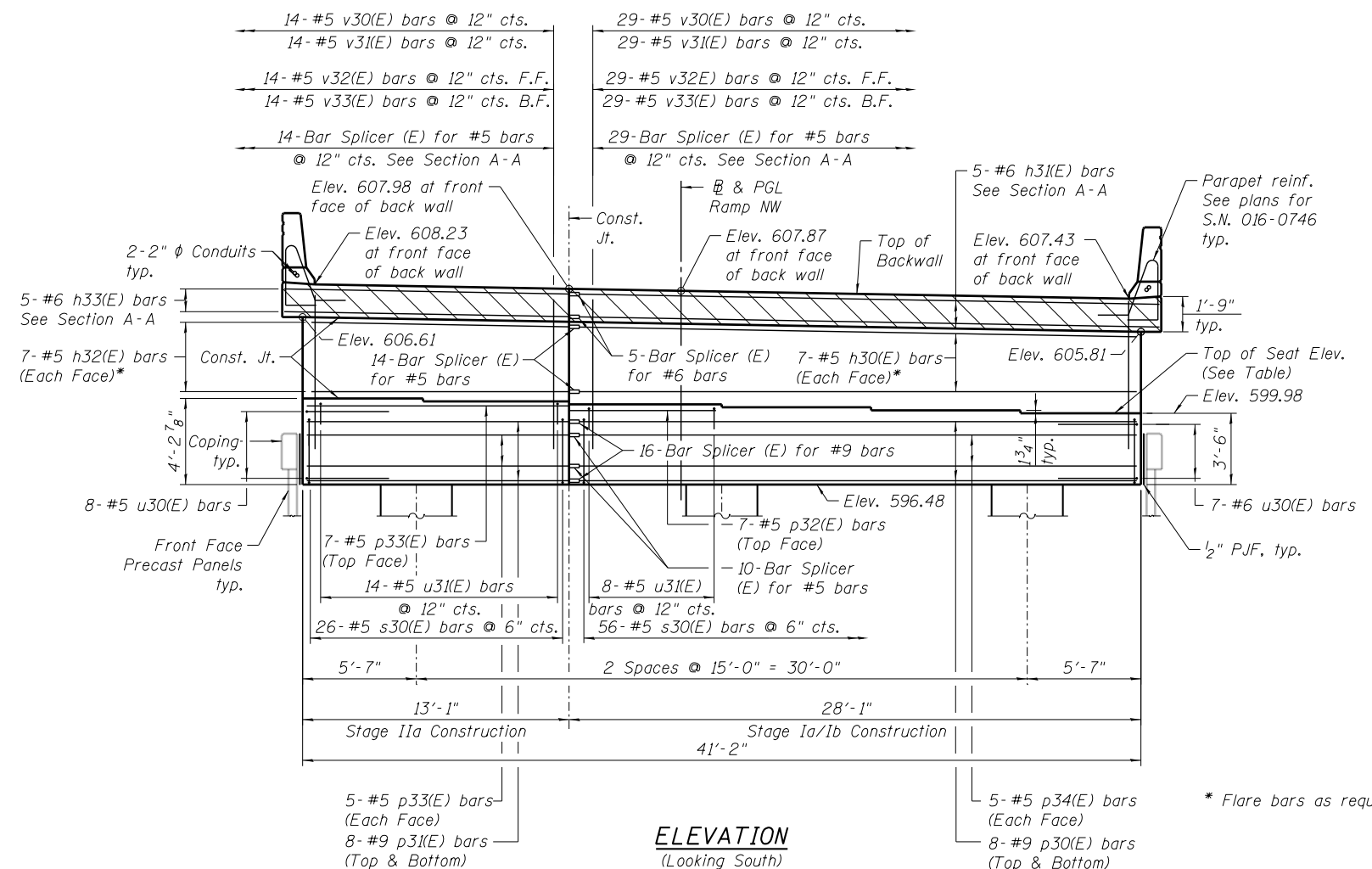
NORTH ABUTMENT SECTIONS & DETAILS - S.N. 016-1504  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-173 OF S-248 SHEETS

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 665
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	



**PLAN**



**ELEVATION**  
(Looking South)

**NOTES:**

1. Pour steps monolithically with cap.
2. For Anchor Bolt Details, see Sheet S-163.
3. Hatched area to be poured after superstructure false work has been removed. Quantity of concrete included with Concrete Superstructure.
4. Concrete Sealer shall be applied to abutment backwall, bearing seats and exposed faces of abutment cap.
5. Space bars in cap to miss anchor bolts.
6. For Section A-A, see Sheet S-175.
7. A Drilled Shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.

**TOP OF SEAT ELEVATION**

Girder No.	Seat Elevation
1	599.98
2	600.13
3	600.28
4	600.42
5	600.57
6	600.72

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USER NAME = krizm  
 PLOT SCALE =  
 PLOT DATE = 11/20/2014

DESIGNED - VP  
 CHECKED - ATB  
 DRAWN - MRK  
 CHECKED - CLS

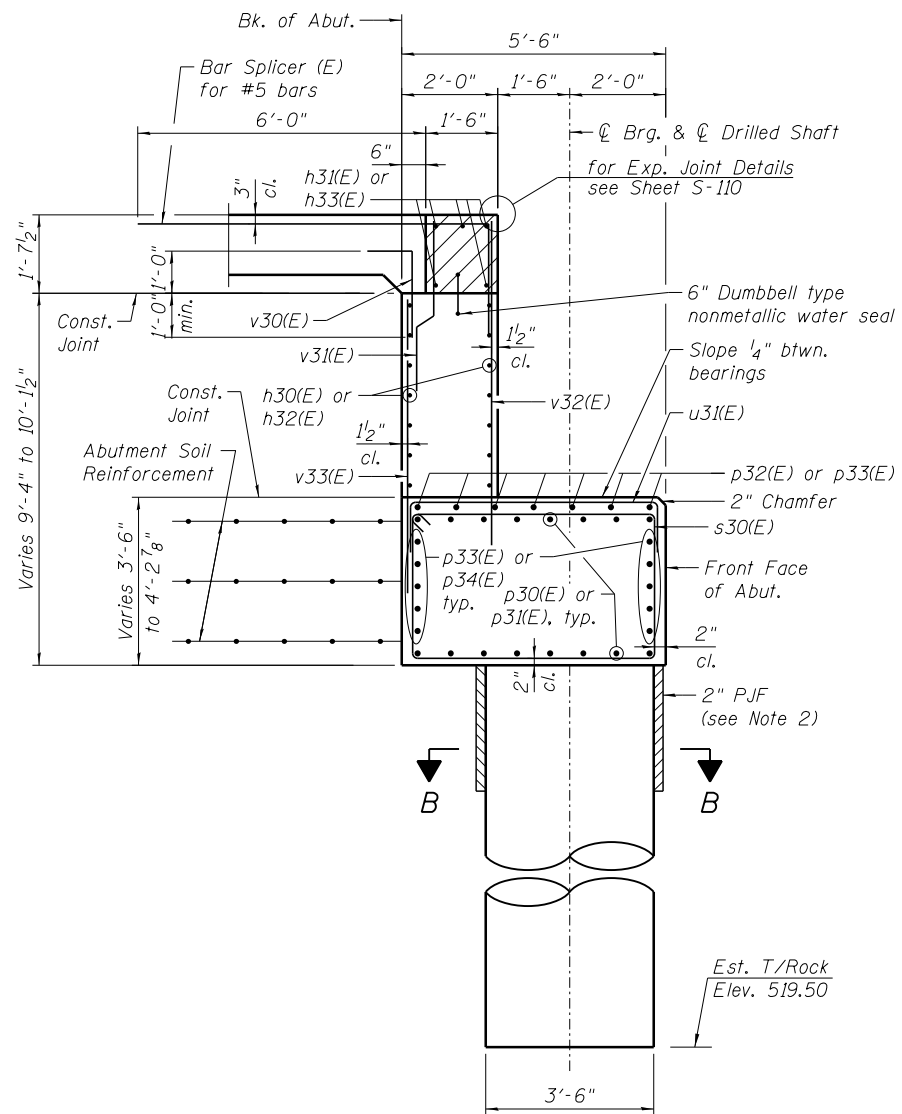
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**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

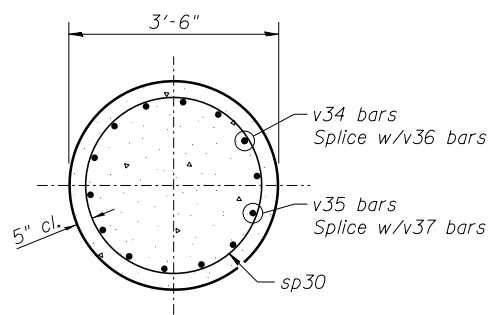
**SOUTH ABUTMENT PLAN & ELEVATION - S.N. 016-1505**  
**I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-174 OF S-248 SHEETS

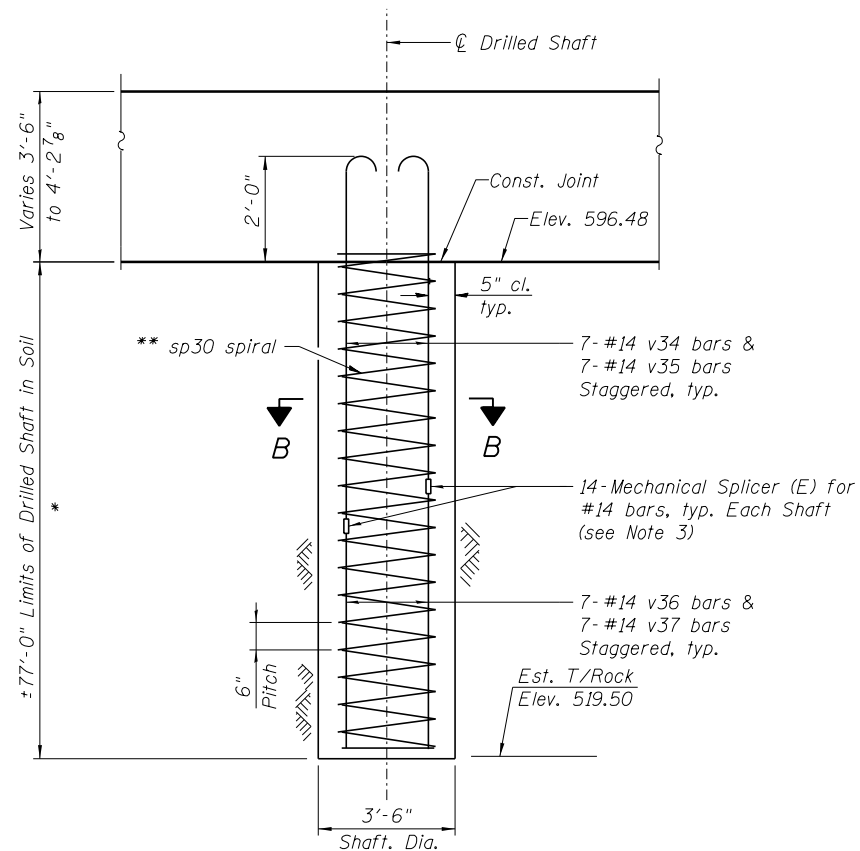
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	666
				CONTRACT NO. 60L70
ILLINOIS FED. AID PROJECT				



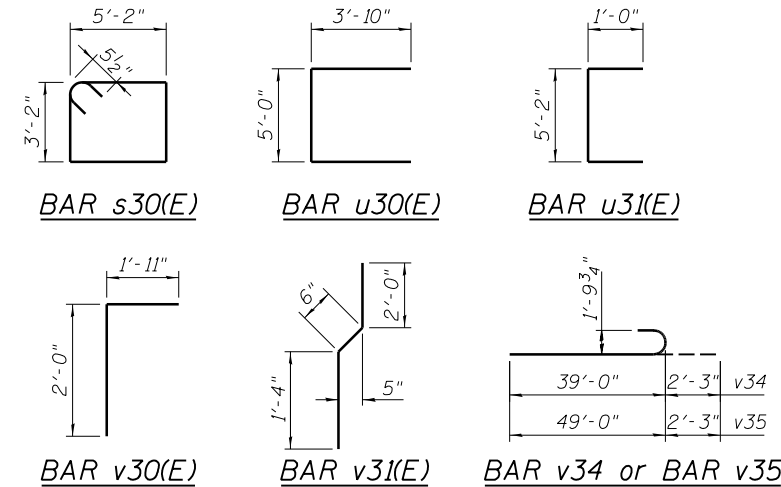
SECTION A-A



SECTION B-B



ABUTMENT SHAFT ELEVATION



\* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.  
 \*\* Provide 1/2 extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 3" into the abutment cap. Provide 4-#4 spacers or equivalent.

SOUTH ABUTMENT  
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h30(E)	14	#5	27'-11"	—
h31(E)	5	#6	28'-11"	—
h32(E)	14	#5	12'-11"	—
h33(E)	5	#6	13'-11"	—
p30(E)	16	#9	27'-11"	—
p31(E)	16	#9	12'-11"	—
p32(E)	7	#5	7'-4"	—
p33(E)	17	#5	12'-11"	—
p34(E)	10	#5	27'-11"	—
s30(E)	82	#5	17'-7"	□
sp30	3	#5	77'-3"	⋈
u30(E)	15	#6	12'-8"	┌
u31(E)	22	#5	7'-2"	┌
v30(E)	43	#5	3'-11"	└
v31(E)	43	#5	3'-10"	└
v32(E)	43	#5	10'-0"	—
v33(E)	43	#5	7'-11"	—
v34	21	#14	41'-3"	└
v35	21	#14	51'-3"	└
v36	21	#14	40'-0"	—
v37	21	#14	30'-0"	—
Concrete Structures		Cu. Yd.	50.3	
Reinforcement Bars, Epoxy Coated		Pound	6,820	
Reinforcement Bars		Pound	30,760	
Drilled Shaft in Soil		Cu. Yd.	82.4	
Concrete Sealer		Sq. Ft.	437	
Crosshole Sonic Logging		Each	1	

\*\*\* Length is height of spiral

NOTES:

- When splicing spiral reinforcement is necessary, the spiral 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.
- Install 2" PJF from bottom of abutment to Elev. 590.14. Cost is included in Drilled Shaft In Soil.
- For details and quantity of Bar Splicers, see Sheet S-222.
- Drilled Shaft quantity from top of existing ground elev. to bottom of abutment cap elev. shall be included with Drilled Shaft In Soil.
- Contractor shall use Mechanical splicers in drilled shafts that will fit between spirals. Contractor shall field adjust spiral pitch to 12" max. at Mechanical Splicer location.

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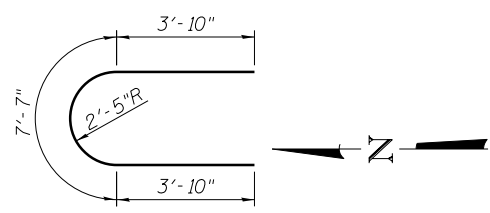
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	CHECKED - CLS	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

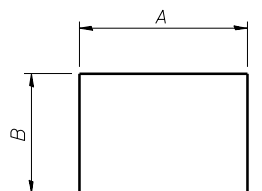
SOUTH ABUTMENT SECTIONS & DETAILS - S.N. 016-1505  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-175 OF S-248 SHEETS

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 667
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	



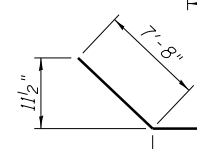
BAR s103(E)



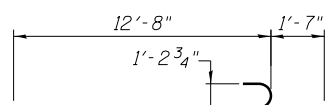
BARS

A & B DIMENSIONS

Bar	A	B
s101(E)	5'-0"	7'-5"
s102(E)	5'-0"	3'-10"
s105(E)	3'-4"	3'-8 1/2"
s106(E)	3'-4"	3'-5 1/2"
s107(E)	3'-4"	3'-4"
u101(E)	5'-0"	3'-10"
u102(E)	5'-2"	10"

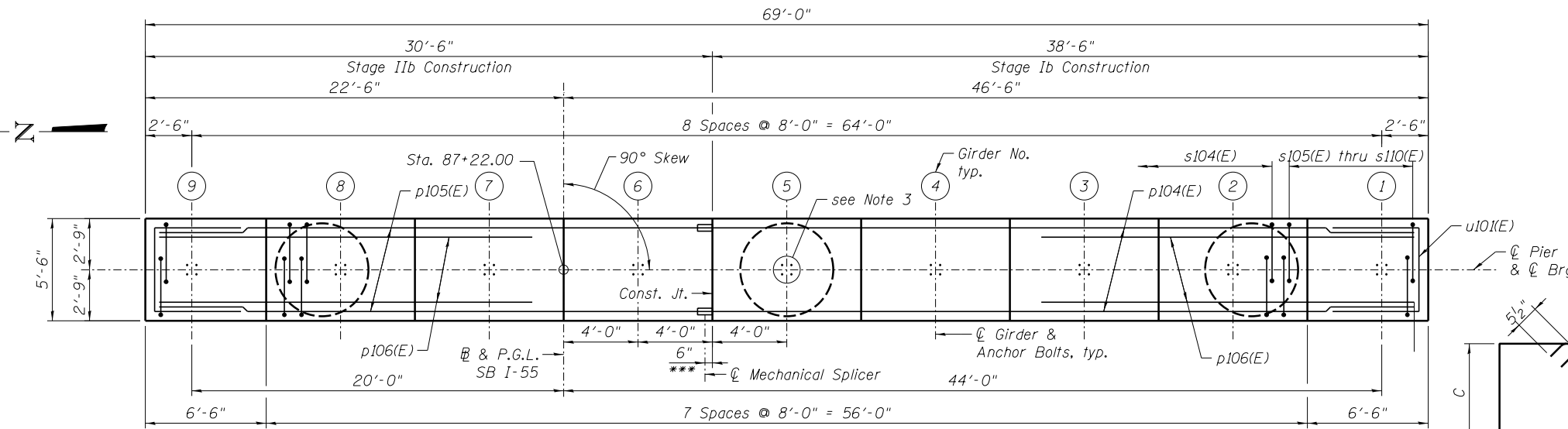


BAR p103(E)

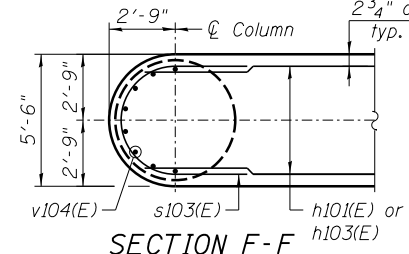


BAR v103(E)

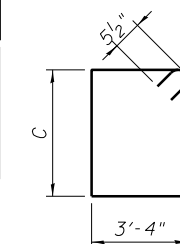
\*\*\*Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.



TOP PLAN



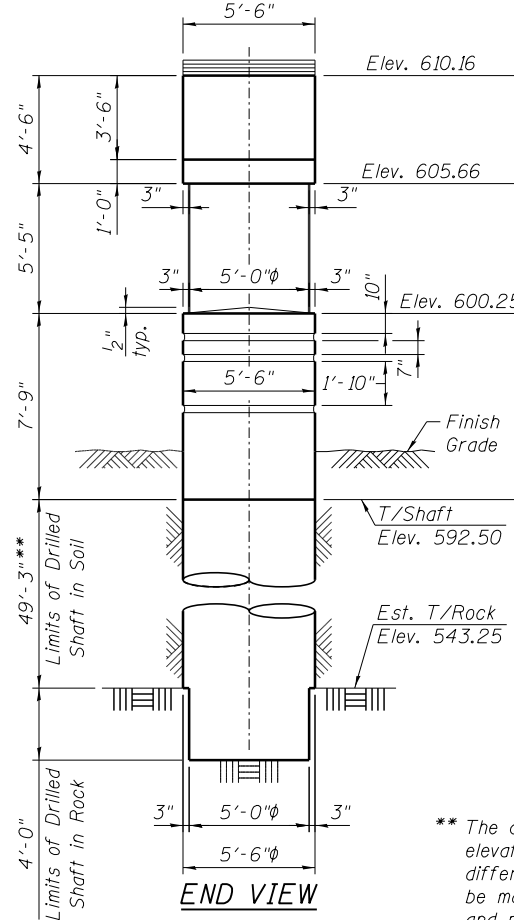
SECTION F-F



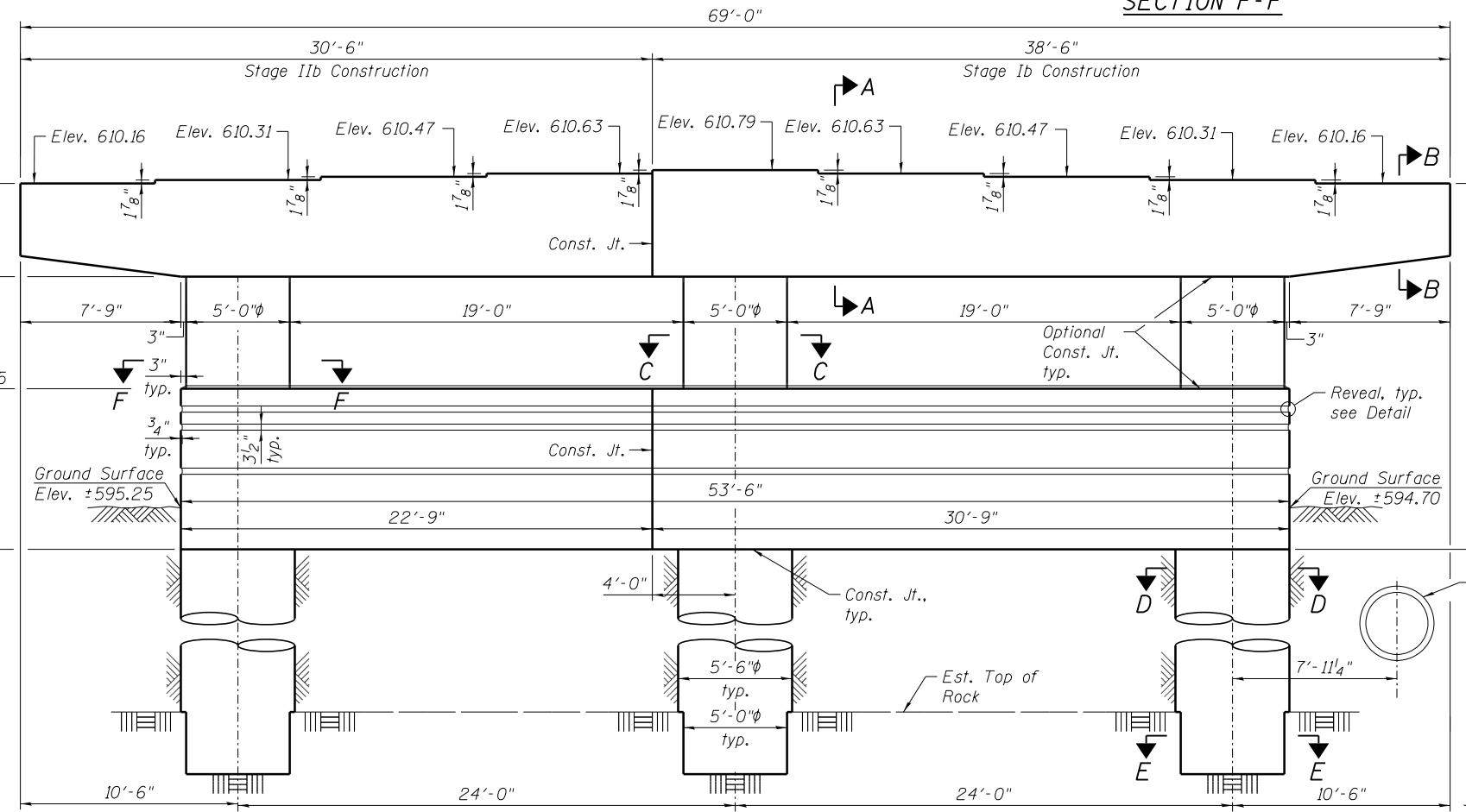
BARS

C DIMENSIONS

Bar	C
s104(E)	4'-2"
s108(E)	3'-3 1/2"
s109(E)	3'-3"
s110(E)	3'-2 1/2"



END VIEW

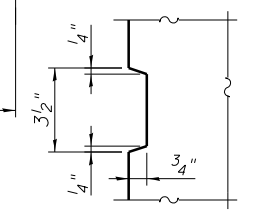


ELEVATION

(Looking East)

Limits of Concrete Sealer  
Each face, Top of Cap & Top of Crashwall

Existing 36" Storm Sewer to remain Invert Elev. 573.90



REVEAL DETAIL

\*\* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. Four steps monolithically with cap.
3. For Anchor Bolts Details, see Sheet S-165.
4. For Sections and Details, see Sheet S-177.
5. A drilled shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.
6. Reveals for the Crashwall shall be made of rubber material capable of reproducing the same quality texture on flat and curved surfaces.
7. Reveals will not be paid for separately and are included with Concrete Structures Pay Item.

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h101(E)	14	#5	28'-6"	—
h102(E)	14	#6	31'-1"	—
h103(E)	14	#5	19'-6"	—
h104(E)	14	#6	22'-1"	—
h105(E)	8	#5	38'-10"	—
h106(E)	8	#5	29'-10"	—
h107(E)	8	#5	16'-4"	—
h108(E)	8	#5	7'-4"	—
h109(E)	2	#5	35'-1"	—
h110(E)	2	#5	26'-0"	—
p101(E)	12	#11	31'-3"	—
p102(E)	12	#11	22'-3"	—
p103(E)	24	#11	21'-8"	—
p104(E)	12	#11	38'-10"	—
p105(E)	12	#11	29'-10"	—
p106(E)	12	#11	23'-8"	—
s101(E)	73	#6	19'-10"	U
s102(E)	73	#6	12'-8"	□
s103(E)	18	#6	15'-3"	U
s104(E)	254	#5	15'-11"	□
s105(E)	72	#5	10'-9"	□
s106(E)	40	#5	10'-3"	□
s107(E)	16	#5	10'-0"	□
s108(E)	4	#5	14'-2"	□
s109(E)	4	#5	14'-1"	□
s110(E)	4	#5	14'-0"	□
* sp101	3	#5	53'-6"	~
* sp102(E)	3	#5	5'-11"	~
u101(E)	10	#6	12'-8"	—
u102(E)	26	#5	6'-10"	□
v101	48	#14	53'-3"	—
v102(E)	57	#11	17'-4"	—
v103(E)	57	#11	14'-3"	—
v104(E)	16	#6	7'-5"	—
Structure Excavation		Cu. Yd.	39	
Concrete Structures		Cu. Yd.	162.1	
Reinforcement Bars, Epoxy Coated		Pound	35,350	
Reinforcement Bars		Pound	24,600	
Drilled Shaft in Soil		Cu. Yd.	130.1	
Drilled Shaft in Rock		Cu. Yd.	8.8	
Concrete Sealer		Sq. Ft.	2,797	
Crosshole Sonic Logging		Each	1	

\* Length is height of spiral.

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USER NAME = krltzm	DESIGNED - EJO	REVISED -
PLOT SCALE =	CHECKED - ATB	REVISED -
PLOT DATE = 12/05/2014	DRAWN - MRK	REVISED -
	CHECKED - CLS	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

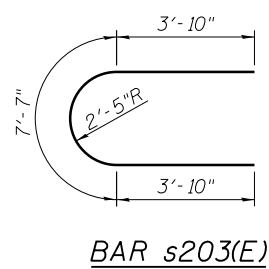
PIER 1W PLAN & ELEVATION - S.N.016-1501  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-176 OF S-248 SHEETS

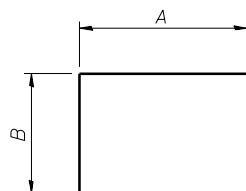
F.A.I. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	668

CONTRACT NO. 60L70  
ILLINOIS FED. AID PROJECT



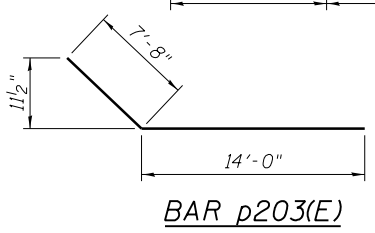


BAR s203(E)

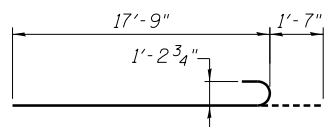


BARS  
A & B DIMENSIONS

Bar	A	B
s201(E)	5'-0"	8'-1"
s202(E)	5'-0"	3'-10"
s205(E)	3'-4"	3'-8 1/2"
s206(E)	3'-4"	3'-5 1/2"
s207(E)	3'-4"	3'-4"
u201(E)	5'-0"	3'-10"
u202(E)	5'-2"	10"

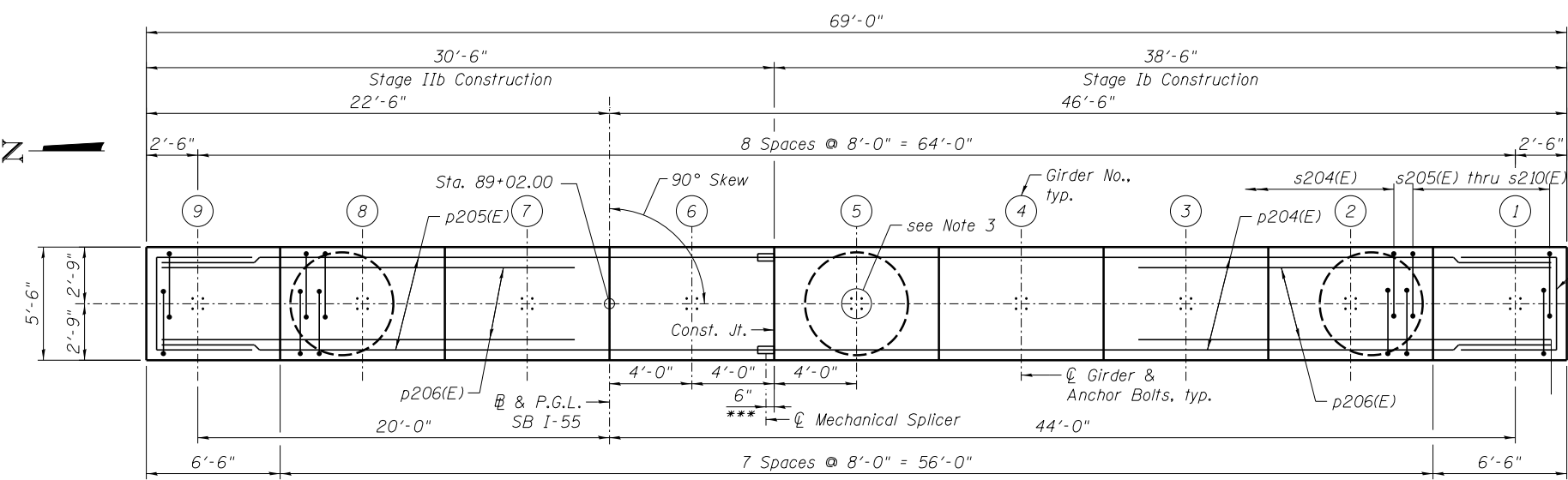


BAR p203(E)

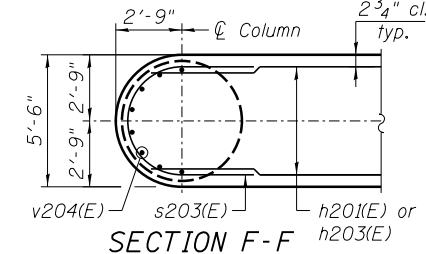


BAR v203(E)

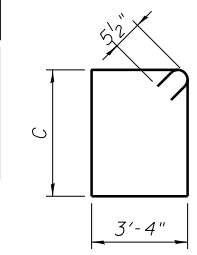
\*\*\*Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.



TOP PLAN

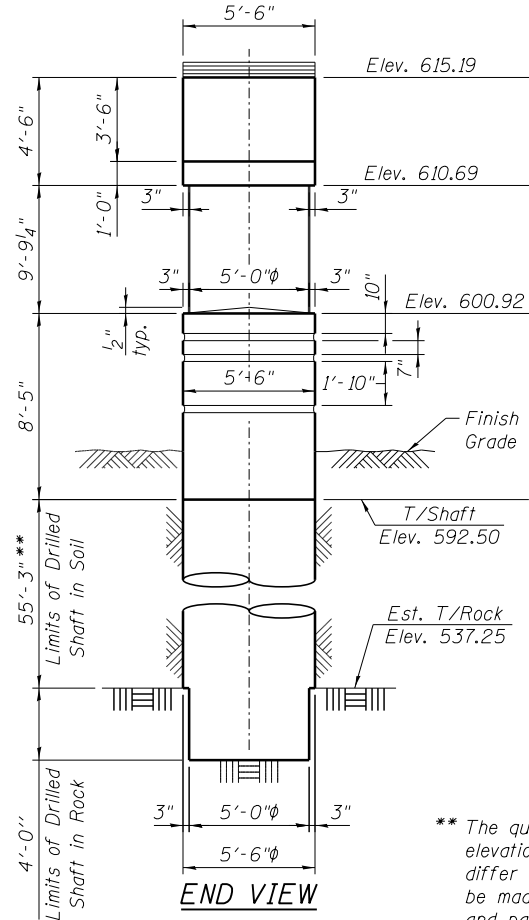


SECTION F-F

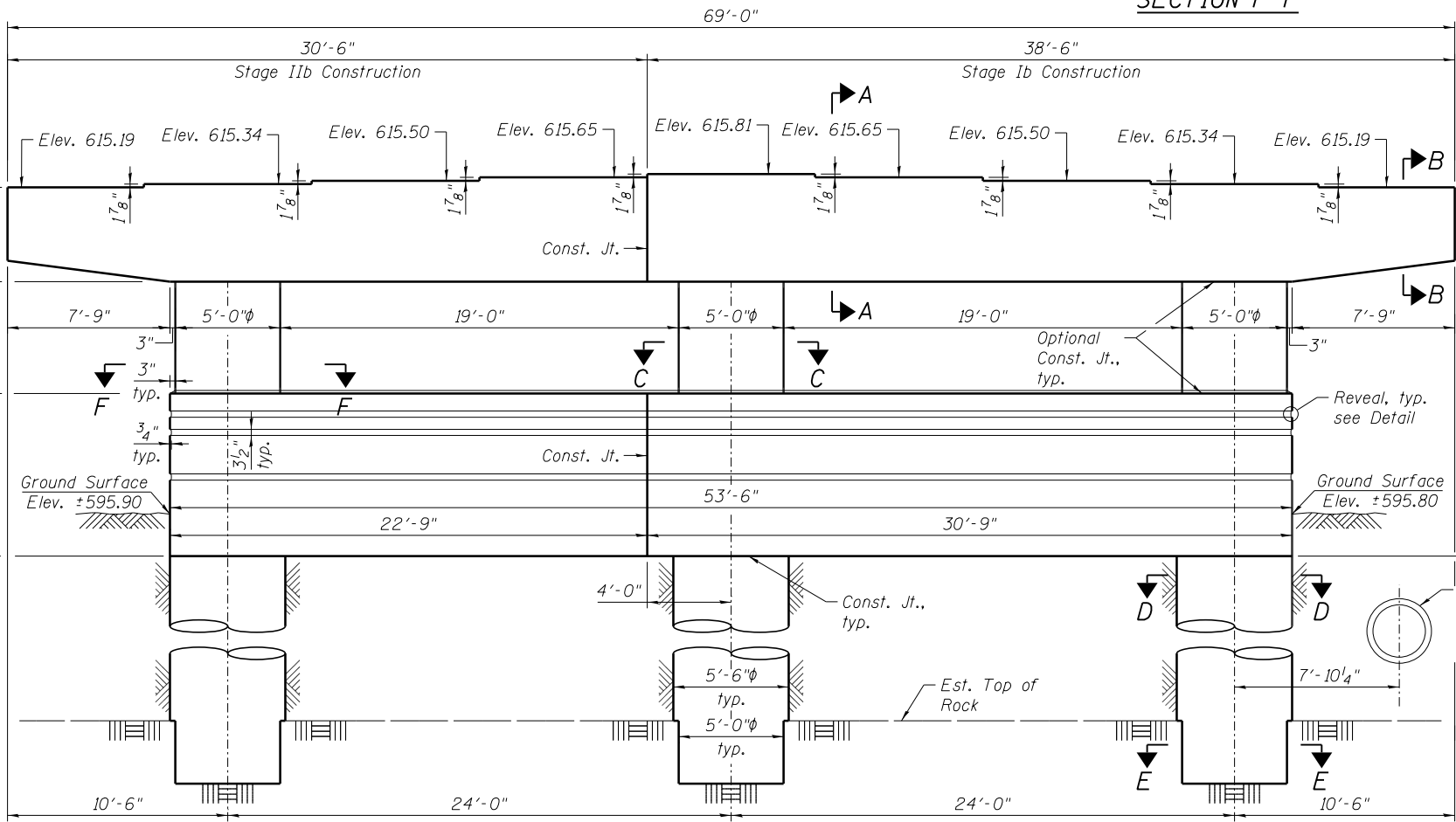


BARS  
C DIMENSIONS

Bar	C
s204(E)	4'-2"
s208(E)	3'-3 1/4"
s209(E)	3'-3"
s210(E)	3'-2 1/2"



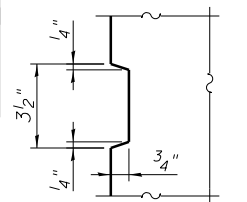
END VIEW



ELEVATION  
(Looking East)

Limits of Concrete Sealer  
Each face, Top of Cap & Top of Crashwall

Existing 30"φ Storm Sewer to remain Invert Elev. 574.70



REVEAL DETAIL

- NOTES:**
- Space reinforcement in cap to miss anchor bolts.
  - Pour steps monolithically with cap.
  - For Anchor Bolts Details, see Sheet S-162.
  - For Sections and Details, see Sheet S-179.
  - A drilled shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.
  - Reveals for the Crashwall shall be made of rubber material capable of reproducing the same quality texture on flat and curved surfaces.
  - Reveals will not be paid for separately and are included with Concrete Structures Pay Item.

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h201(E)	16	#5	28'-6"	—
h202(E)	14	#6	31'-1"	—
h203(E)	16	#5	19'-6"	—
h204(E)	14	#6	22'-1"	—
h205(E)	8	#5	38'-10"	—
h206(E)	8	#5	29'-10"	—
h207(E)	8	#5	16'-4"	—
h208(E)	8	#5	7'-4"	—
h209(E)	2	#5	35'-1"	—
h210(E)	2	#5	26'-0"	—
p201(E)	12	#11	31'-3"	—
p202(E)	12	#11	22'-3"	—
p203(E)	24	#11	21'-8"	—
p204(E)	12	#11	38'-10"	—
p205(E)	12	#11	29'-10"	—
p206(E)	12	#11	23'-8"	—
s201(E)	73	#6	21'-2"	□
s202(E)	73	#6	12'-8"	□
s203(E)	20	#6	15'-3"	□
s204(E)	288	#5	15'-11"	□
s205(E)	80	#5	10'-9"	□
s206(E)	40	#5	10'-3"	□
s207(E)	24	#5	10'-0"	□
s208(E)	4	#5	14'-1 1/2"	□
s209(E)	4	#5	14'-1"	□
s210(E)	4	#5	14'-0"	□
* sp201	3	#5	59'-6"	~
* sp202(E)	3	#5	10'-4"	~
u201(E)	10	#6	12'-8"	□
u202(E)	26	#5	6'-10"	□
v201	48	#14	59'-3"	—
v202(E)	57	#11	17'-4"	—
v203(E)	57	#11	19'-4"	—
v204(E)	16	#6	8'-1"	—
Structure Excavation		Cu. Yd.	52	
Concrete Structures		Cu. Yd.	178.8	
Reinforcement Bars, Epoxy Coated		Pound	38,350	
Reinforcement Bars		Pound	27,360	
Drilled Shaft in Soil		Cu. Yd.	145.9	
Drilled Shaft in Rock		Cu. Yd.	8.8	
Concrete Sealer		Sq. Ft.	3,081	
Crosshole Sonic Logging		Each	1	

\* Length is height of spiral.

453\_0161501\_60L TO Pier 2-1.dgn



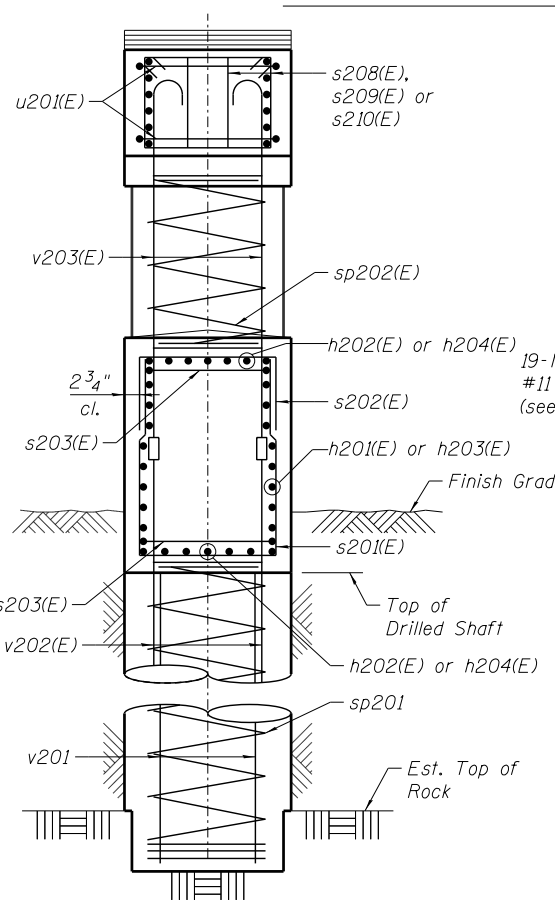
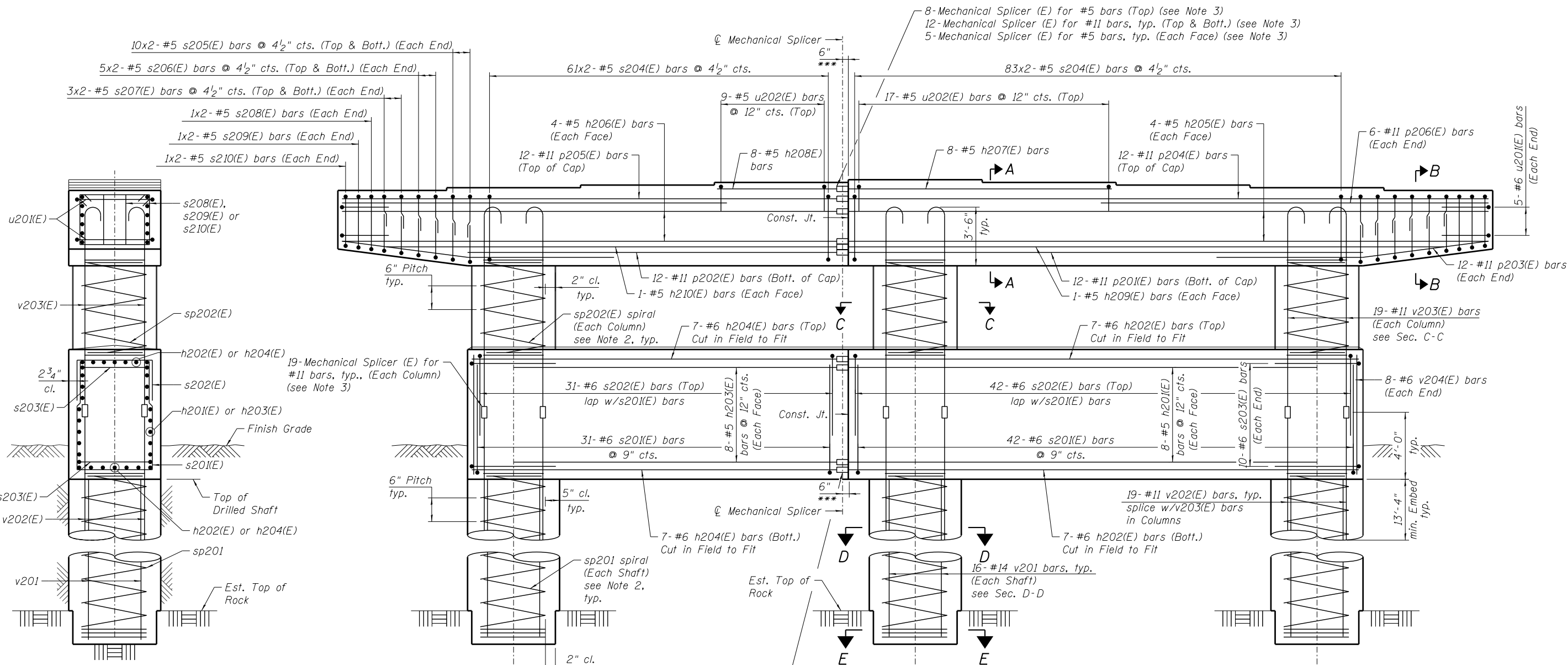
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PLOT SCALE =	CHECKED - ATB	REVISED -
PLOT DATE = 12/05/2014	DRAWN - MRK	REVISED -
	CHECKED - CLS	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PIER 2W PLAN & ELEVATION - S.N.016-1501  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-178 OF S-248 SHEETS

F.A.I. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	670
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	

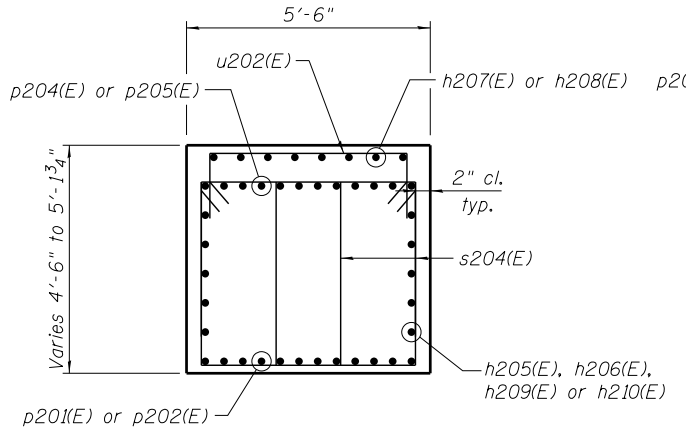


**END VIEW**

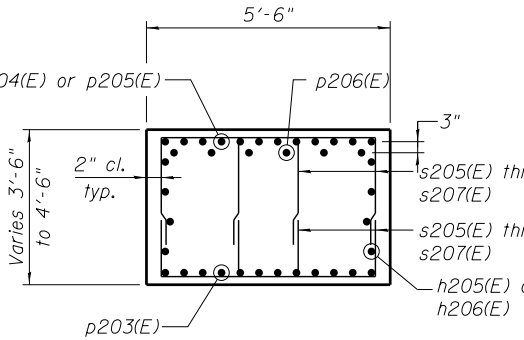
**ELEVATION**  
(Looking East)

\*\*\*Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.

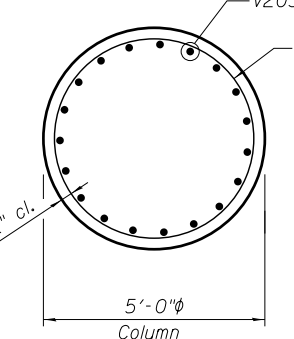
**TYP. MIN. BAR LAP**  
(Unless Noted Otherwise)  
#5 bar = 3'-3"  
#6 bar = 3'-10"



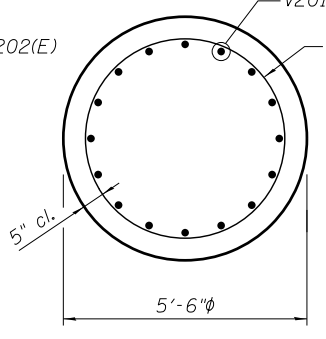
**SECTION A-A**



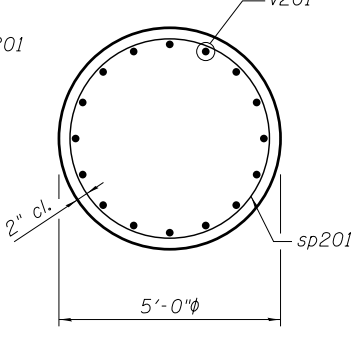
**SECTION B-B**



**SECTION C-C**



**SECTION D-D**



**SECTION E-E**

**NOTES:**

1. Bars noted thus, 3x2-#5 indicates 3 lines of bars with 2 lengths of bars per line.
2. #5 sp201 or #5 sp202(E) spiral
  - 1) Provide 1/2 extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 3" into crashwall or pier cap. Provide 4-#4 spacers or equivalent.
  - 2) When splicing spiral reinforcement is necessary, the spiral 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.
3. For Mechanical Splicer details and quantities See Sheet S-222.

454\_0161501\_60L70\_Pier2-2.dgn



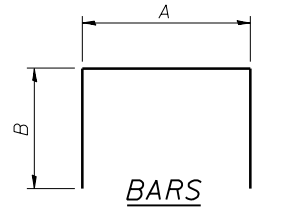
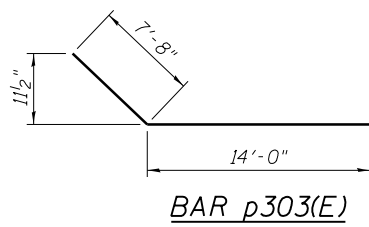
USER NAME = kritzm	DESIGNED - EJO	REVISED -
PLOT SCALE =	CHECKED - ATB	REVISED -
PLOT DATE = 11/20/2014	DRAWN - MRK	REVISED -
	CHECKED - CLS	REVISED -

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

**PIER 2W DETAILS - S.N. 016-1501**  
**I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

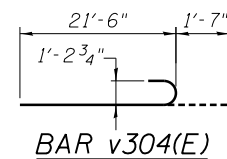
SHEET NO. S-179 OF S-248 SHEETS

F.A.I. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	671
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	

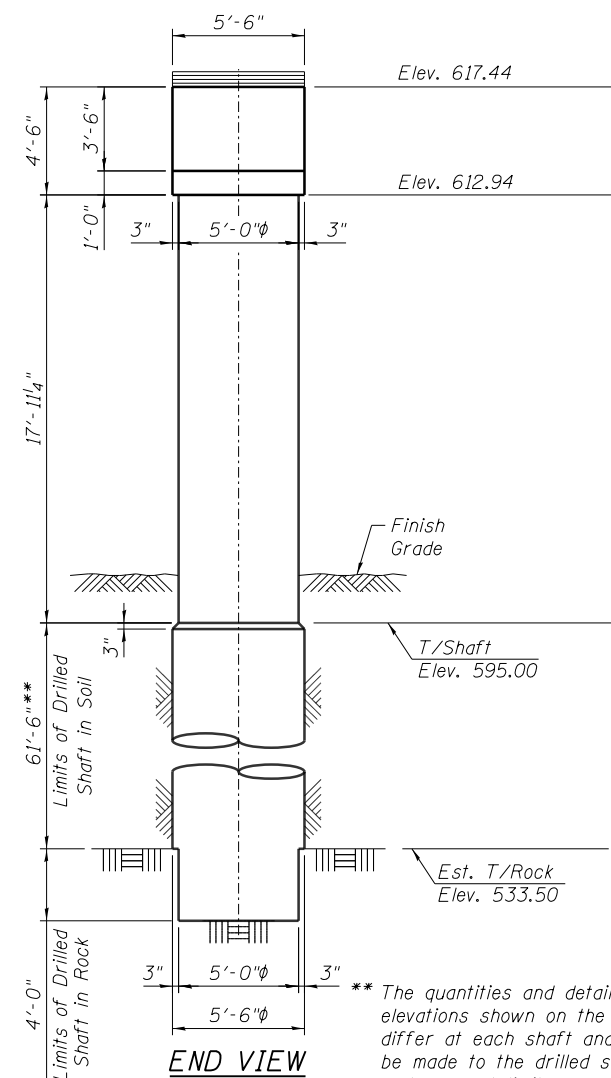


A & B DIMENSIONS

Bar	A	B
s302(E)	3'-4"	3'-8 1/2"
s303(E)	3'-4"	3'-5 1/2"
s304(E)	3'-4"	3'-4"
u301(E)	5'-0"	3'-10"
u302(E)	5'-2"	10"

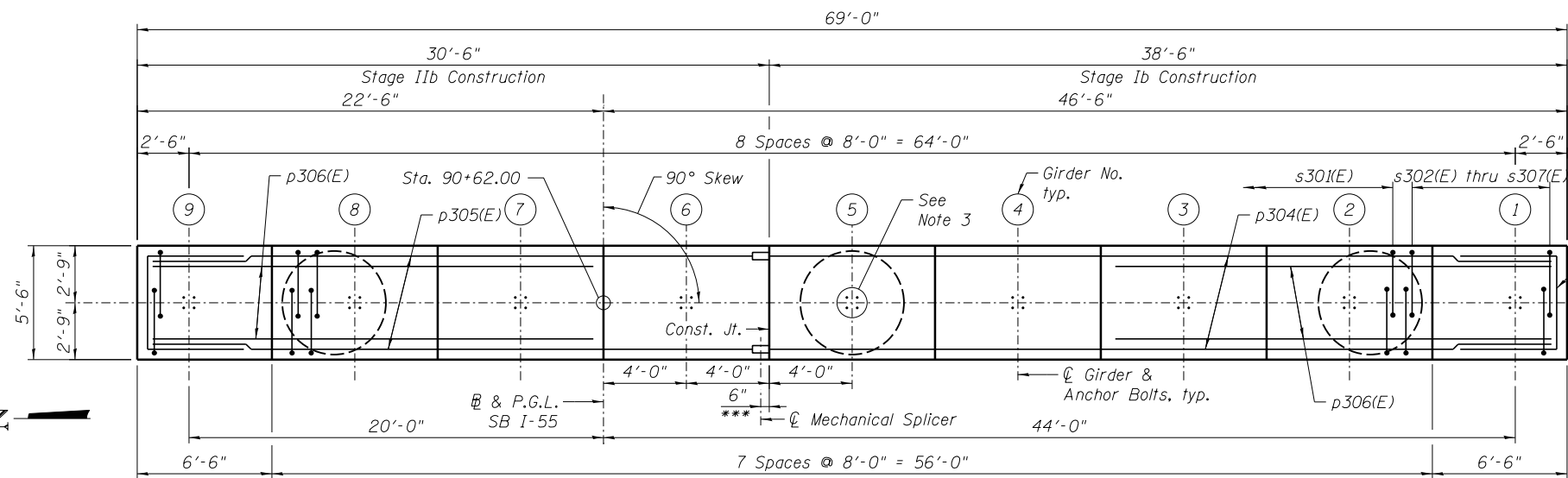


BAR v304(E)



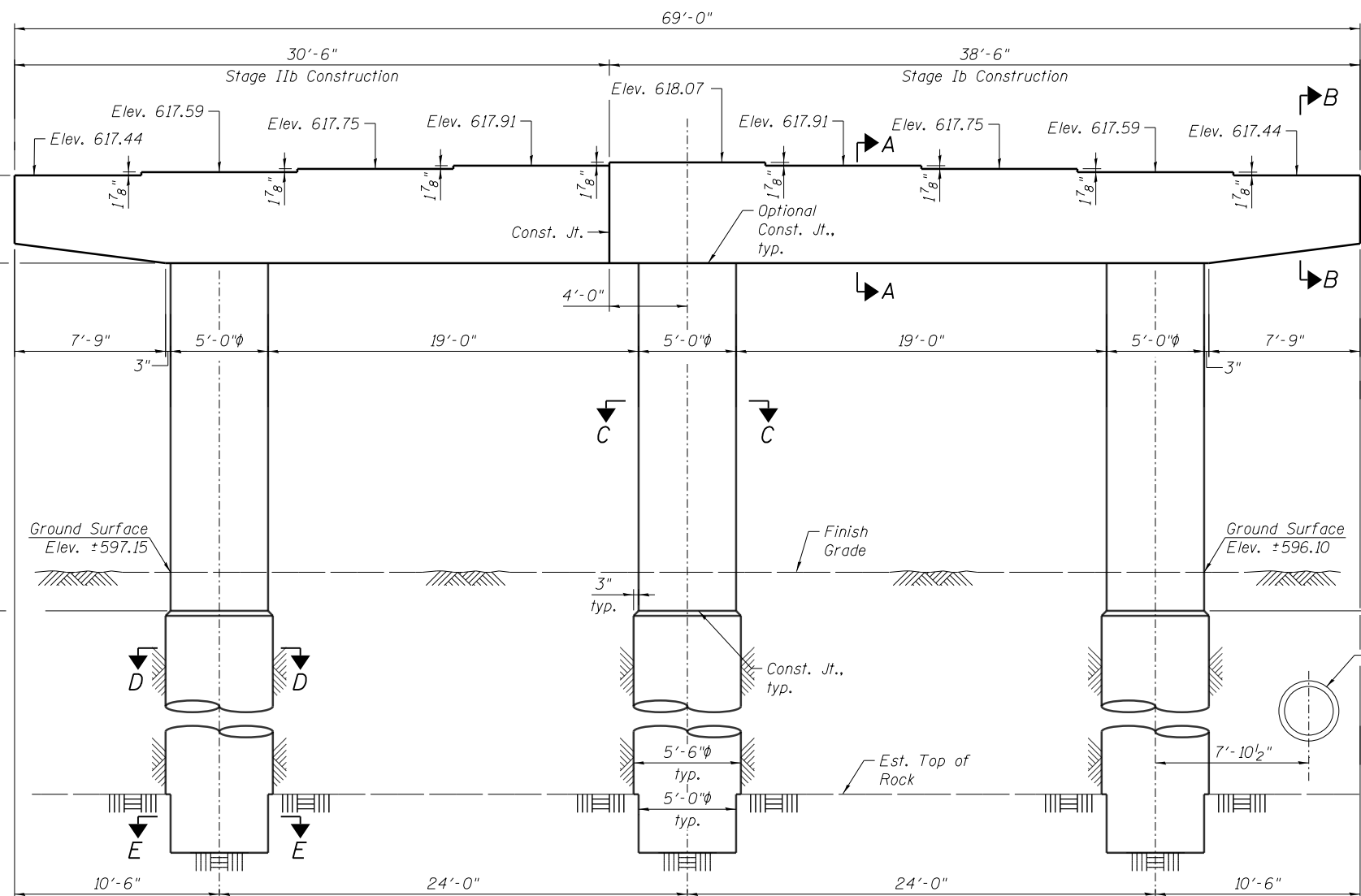
END VIEW

\*\* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.



TOP PLAN

\*\*\*Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.

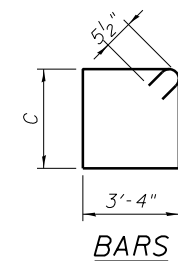


ELEVATION

(Looking East)

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. Pour steps monolithically with cap.
3. For Anchor Bolts Details, see Sheet S-162.
4. For Sections and Details, see Sheet S-181.
5. A drilled shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.



BARS

C DIMENSIONS

Bar	C
s301(E)	4'-2"
s305(E)	3'-3 1/4"
s306(E)	3'-3"
s307(E)	3'-2 1/2"

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h301(E)	8	#5	38'-10"	—
h302(E)	8	#5	29'-10"	—
h303(E)	8	#5	16'-4"	—
h304(E)	8	#5	7'-4"	—
h305(E)	2	#5	35'-1"	—
h306(E)	2	#5	26'-0"	—
p301(E)	12	#11	31'-3"	—
p302(E)	12	#11	22'-3"	—
p303(E)	24	#11	21'-8"	—
p304(E)	12	#11	38'-10"	—
p305(E)	12	#11	29'-10"	—
p306(E)	12	#11	23'-8"	—
s301(E)	288	#5	15'-11"	□
s302(E)	80	#5	10'-9"	□
s303(E)	40	#5	10'-3"	□
s304(E)	24	#5	10'-0"	□
s305(E)	4	#5	14'-1 1/2"	□
s306(E)	4	#5	14'-1"	□
s307(E)	4	#5	14'-0"	□
sp301	3	#5	65'-3"	~
sp302(E)	3	#5	18'-3"	~
u301(E)	10	#6	12'-8"	—
u302(E)	26	#5	6'-10"	—
v301	48	#14	45'-0"	—
v302	48	#14	20'-3"	—
v303(E)	57	#11	26'-8"	—
v304(E)	57	#11	23'-1"	—
Concrete Structures		Cu. Yd.	104.9	
Reinforcement Bars, Epoxy Coated		Pound	36,750	
Reinforcement Bars		Pound	30,090	
Drilled Shaft in Soil		Cu. Yd.	162.4	
Drilled Shaft in Rock		Cu. Yd.	8.8	
Concrete Sealer		Sq. Ft.	2,237	
Crosshole Sonic Logging		Each	1	

\* Length is height of spiral.

455\_0161501\_60L70\_Pier 3-1.dgn



USER NAME =	krizm	DESIGNED -	EJO	REVISED -	
CHECKED -	ATB	REVISIONS -		REVISIONS -	
PLOT SCALE =		DRAWN -	MRK	REVISIONS -	
PLOT DATE =	12/05/2014	CHECKED -	CLS	REVISIONS -	

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

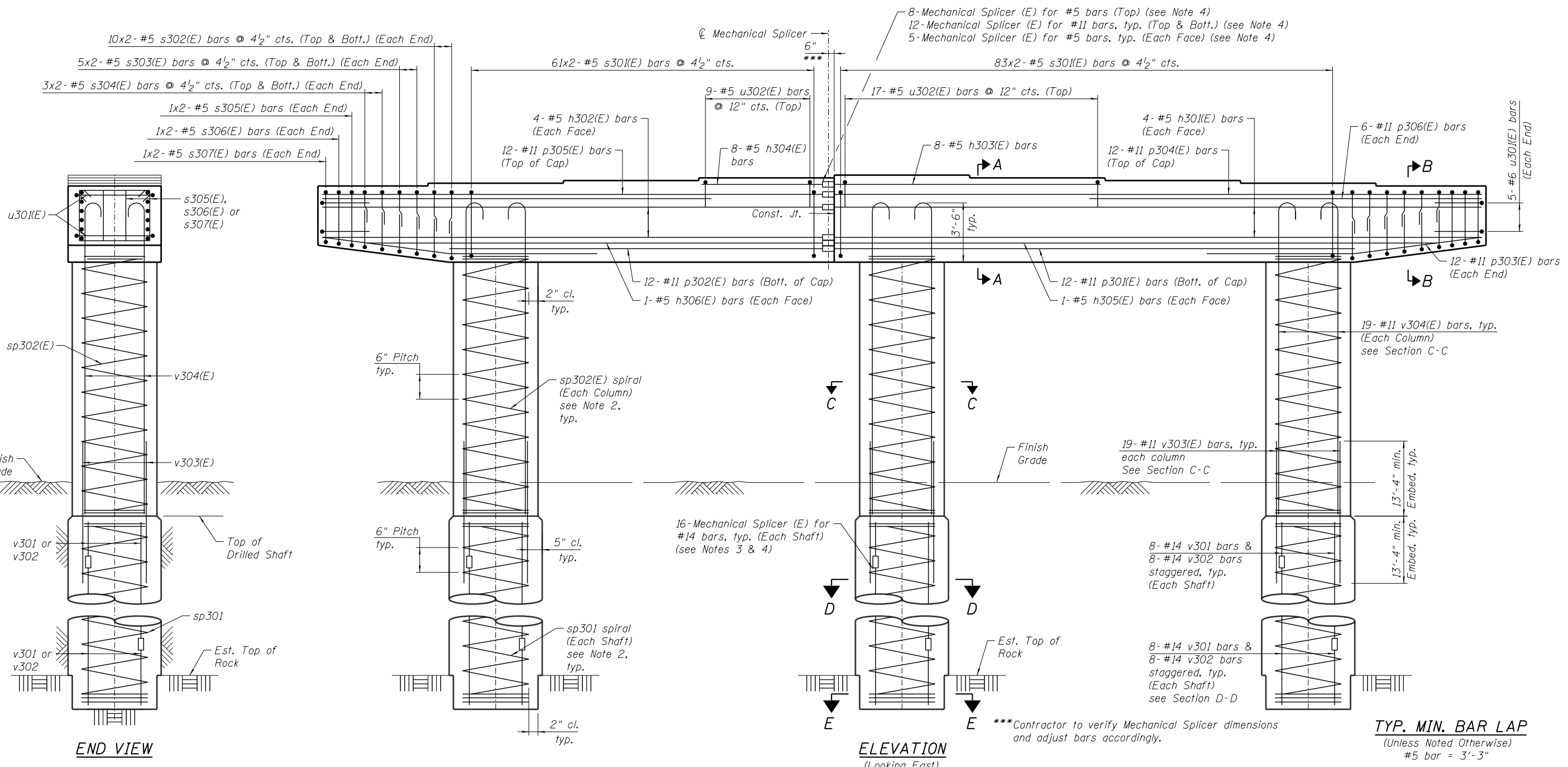
PIER 3W PLAN & ELEVATION - S.N.016-1501  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-180 OF S-248 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	672
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	

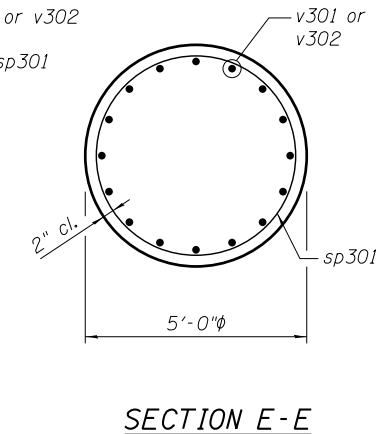
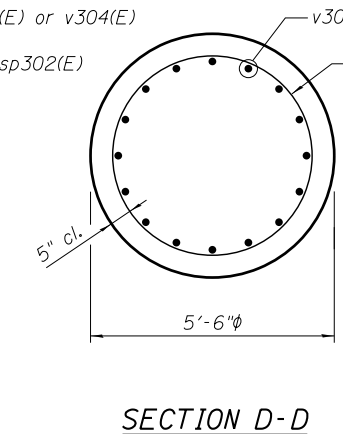
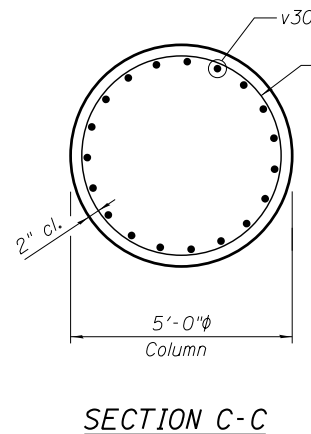
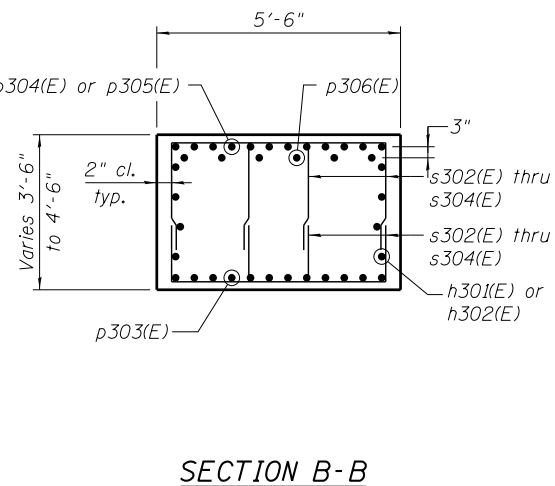
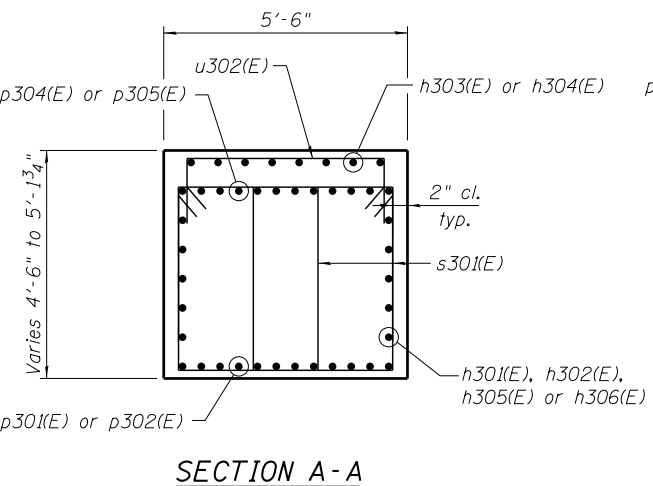


456\_0161501\_60L70\_Pier 3-2.dgn



**TYP. MIN. BAR LAP**  
(Unless Noted Otherwise)  
#5 bar = 3'-3"

- NOTES:**
1. Bars noted thus, 3x2- #5 indicates 3 lines of bars with 2 lengths of bars per line.
  2. #5 sp301 or #5 sp302(E) spiral
    - 1) Provide 1/2 extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 3" into pier cap. Provide 4- #4 spacers or equivalent.
    - 2) When splicing spiral reinforcement is necessary, the spiral 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.
  3. Contractor shall use Mechanical Splicers in drilled shaft that will fit between spirals. Contractor shall field adjust spiral pitch to 12" maximum at Mechanical Splicer locations.
  4. For Mechanical Splicer details and quantities See Sheet S-222.



USER NAME = kritzm	DESIGNED - EJO	REVISED -
PLOT SCALE =	CHECKED - ATB	REVISED -
PLOT DATE = 11/20/2014	DRAWN - JAD	REVISED -
	CHECKED - CLS	REVISED -

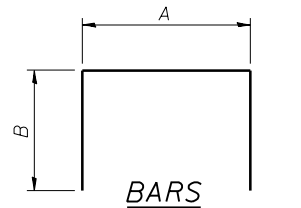
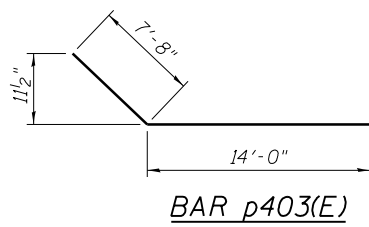
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**PIER 3W DETAILS - S.N. 016-1501**  
**I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 673
				CONTRACT NO. 60L70

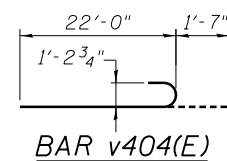
SHEET NO. S-181 OF S-248 SHEETS

ILLINOIS FED. AID PROJECT

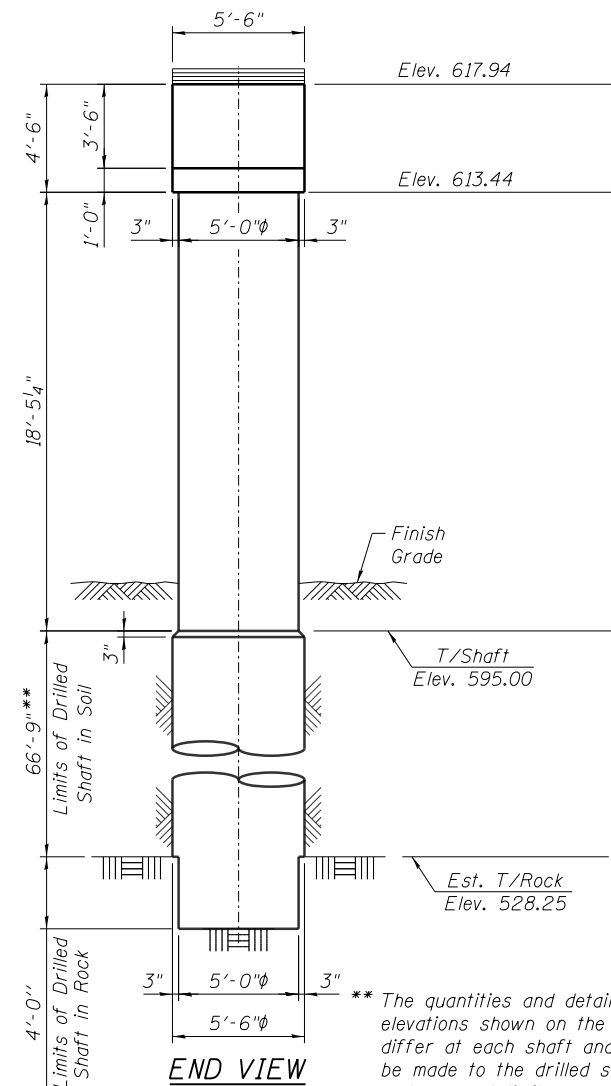


A & B DIMENSIONS

Bar	A	B
s402(E)	3'-4"	3'-8 1/2"
s403(E)	3'-4"	3'-5 1/2"
s404(E)	3'-4"	3'-4"
u401(E)	5'-0"	3'-10"
u402(E)	5'-2"	10"

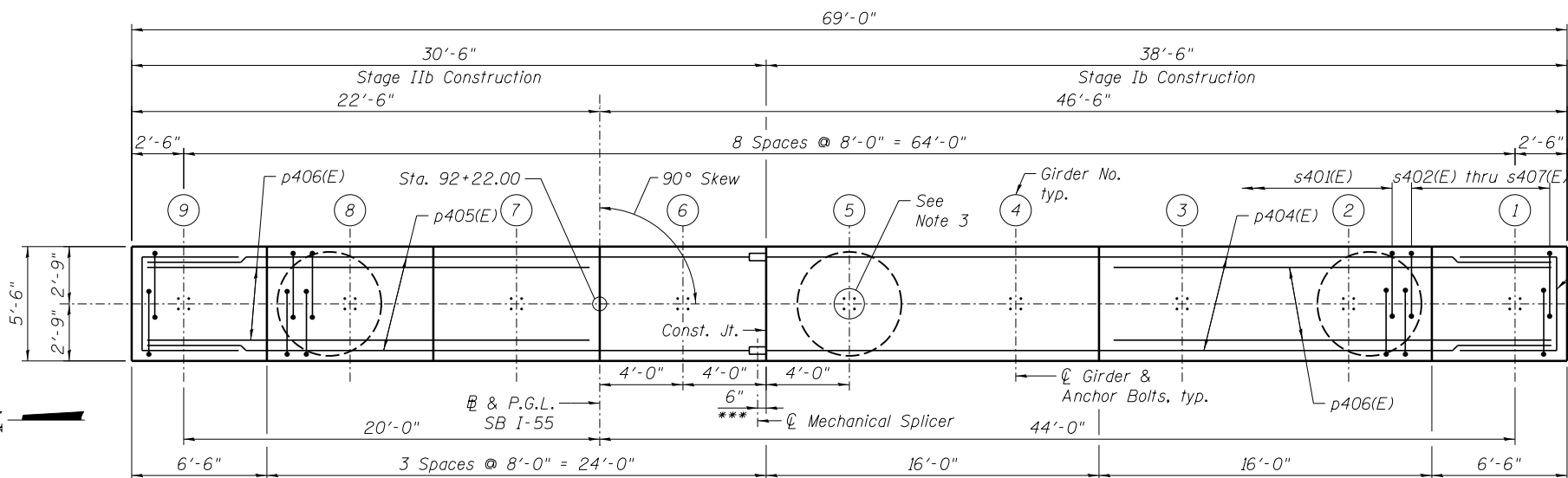


BAR v404(E)



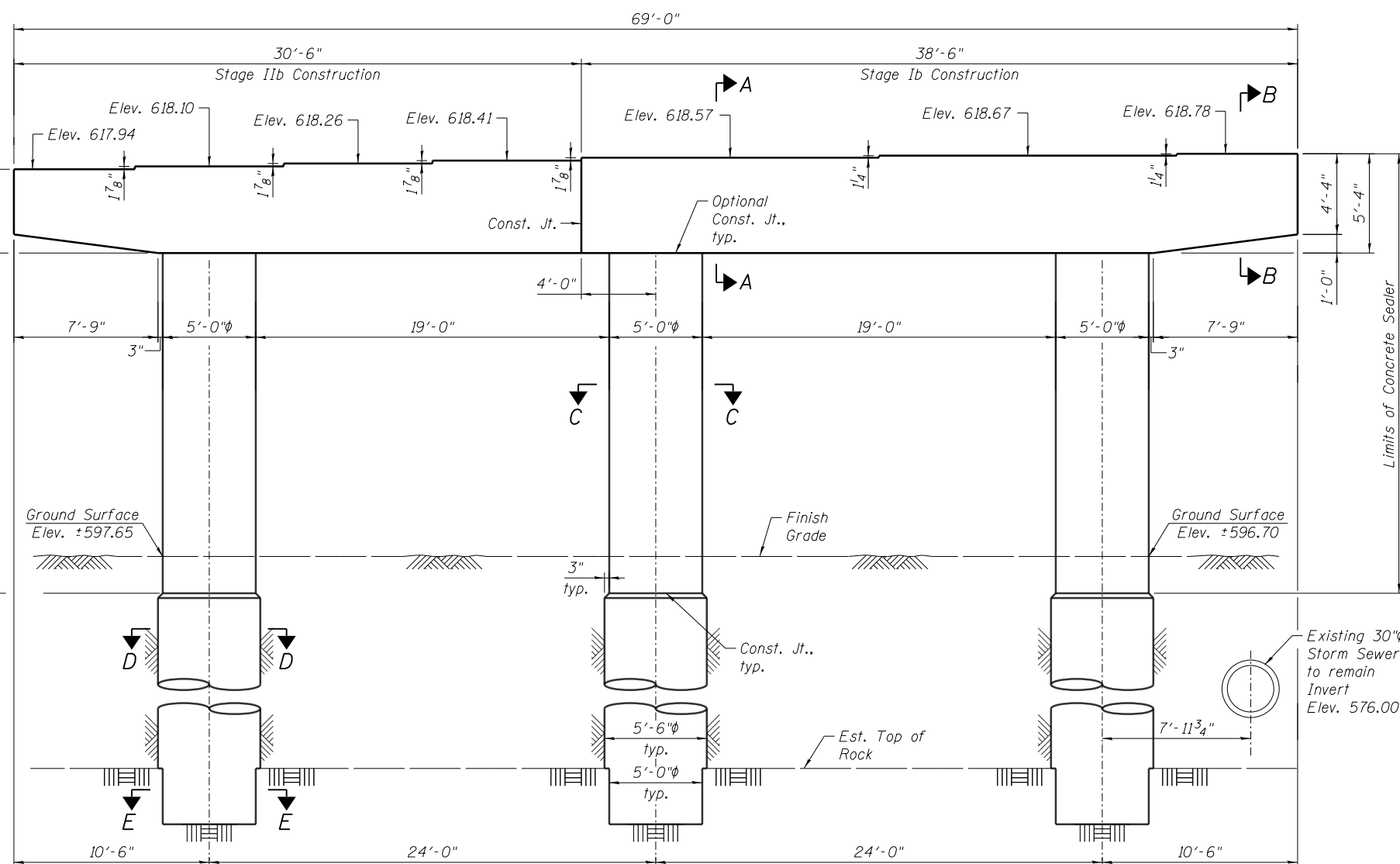
END VIEW

\*\* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.



TOP PLAN

\*\*\*Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.

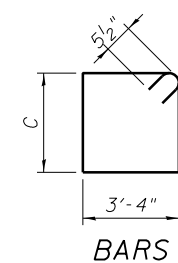


ELEVATION

(Looking East)

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. Pour steps monolithically with cap.
3. For Anchor Bolts Details, see Sheet S-165.
4. For Sections and Details, see Sheet S-183.
5. A drilled shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.



BARS

C DIMENSIONS

Bar	C
s401(E)	4'-2"
s405(E)	3'-3 1/2"
s406(E)	3'-3"
s407(E)	3'-2 1/2"

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h401(E)	8	#5	38'-10"	—
h402(E)	8	#5	29'-10"	—
h403(E)	8	#5	6'-2"	—
h404(E)	8	#5	38'-10"	—
h405(E)	8	#5	7'-4"	—
h406(E)	2	#5	35'-1"	—
h407(E)	2	#5	26'-0"	—
p401(E)	12	#11	31'-3"	—
p402(E)	12	#11	22'-3"	—
p403(E)	24	#11	21'-8"	—
p404(E)	12	#11	38'-10"	—
p405(E)	12	#11	29'-10"	—
p406(E)	12	#11	23'-8"	—
s401(E)	254	#5	15'-11"	□
s402(E)	72	#5	10'-9"	□
s403(E)	40	#5	10'-3"	□
s404(E)	16	#5	10'-0"	□
s405(E)	4	#5	14'-2"	□
s406(E)	4	#5	14'-1"	□
s407(E)	4	#5	14'-0"	□
sp401	3	#5	70'-6"	~
sp402(E)	3	#5	18'-9"	~
u401(E)	12	#6	12'-8"	—
u402(E)	49	#5	6'-10"	—
v401	48	#14	45'-0"	—
v402	48	#14	25'-7"	—
v403(E)	57	#11	26'-8"	—
v404(E)	57	#11	23'-7"	—
Concrete Structures		Cu. Yd.	109.0	
Reinforcement Bars, Epoxy Coated		Pound	36,650	
Reinforcement Bars		Pound	32,530	
Drilled Shaft in Soil		Cu. Yd.	176.3	
Drilled Shaft in Rock		Cu. Yd.	8.8	
Concrete Sealer		Sq. Ft.	2,292	
Crosshole Sonic Logging		Each	1	

\* Length is height of spiral.

457\_0161501\_60L70\_Pier4-1.dgn



USER NAME = floresg  
 CHECKED - ATB  
 DRAWN - MRK  
 PLOT DATE = 12/05/2014

DESIGNED - EJO  
 CHECKED - ATB  
 DRAWN - MRK  
 CHECKED - CLS

REVISED -  
 REVISED -  
 REVISED -  
 REVISED -

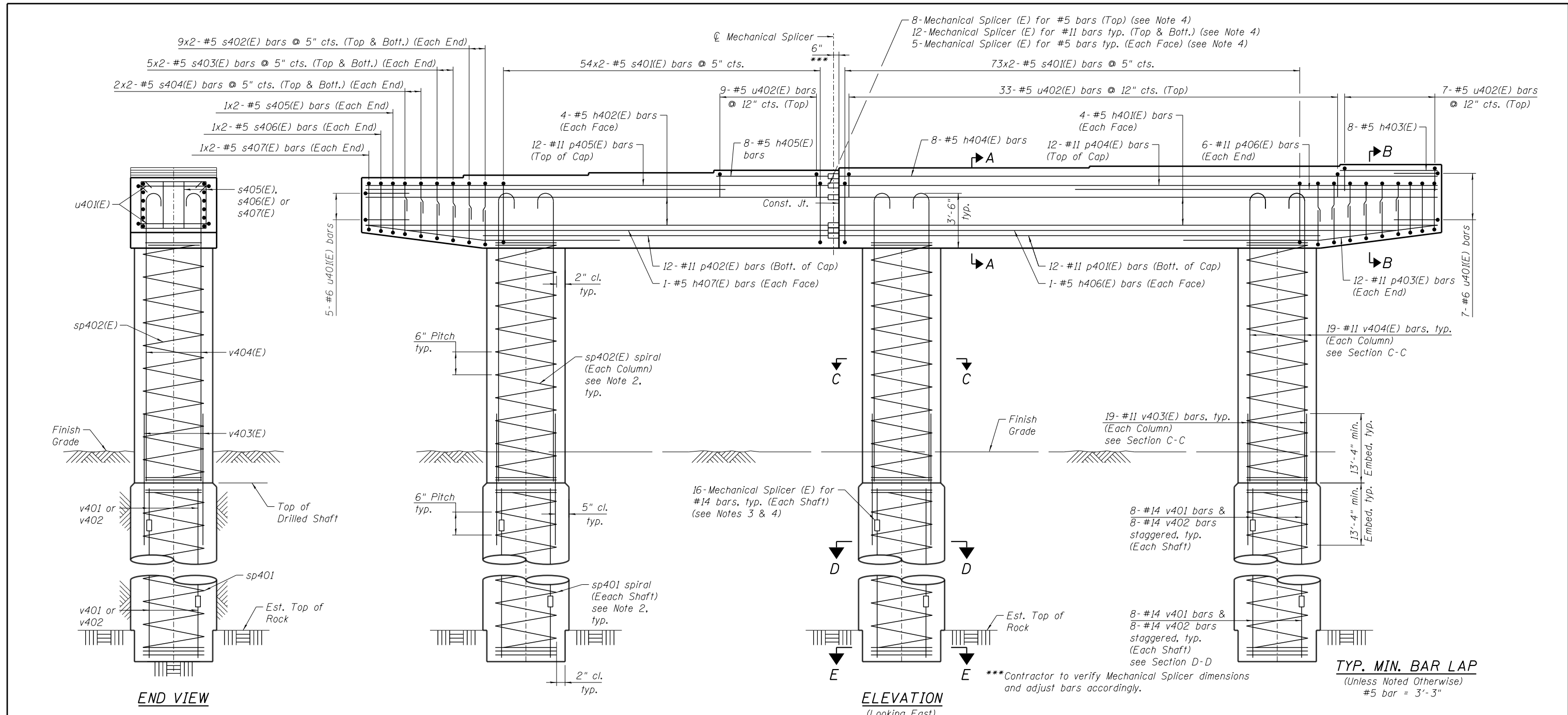
STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

PIER 4W PLAN & ELEVATION - S.N.016-1501  
 I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-182 OF S-248 SHEETS

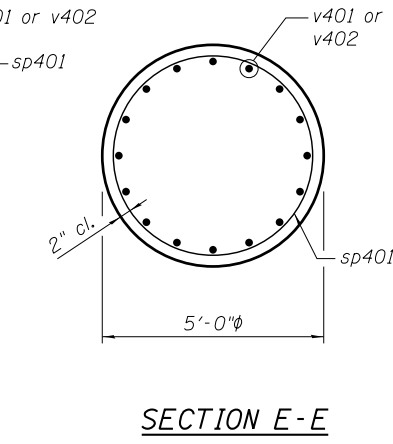
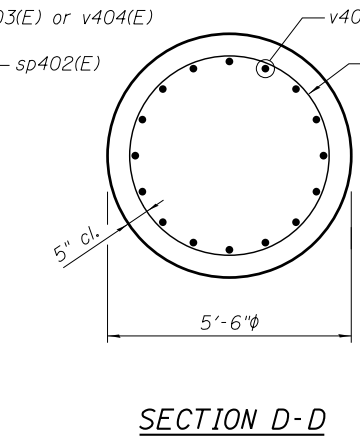
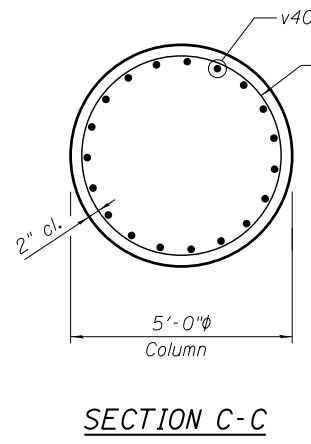
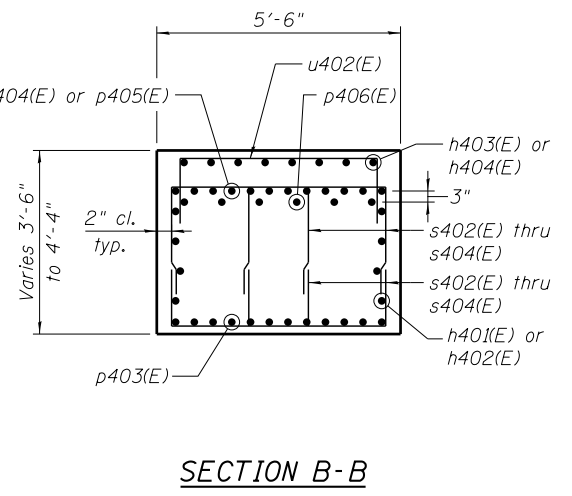
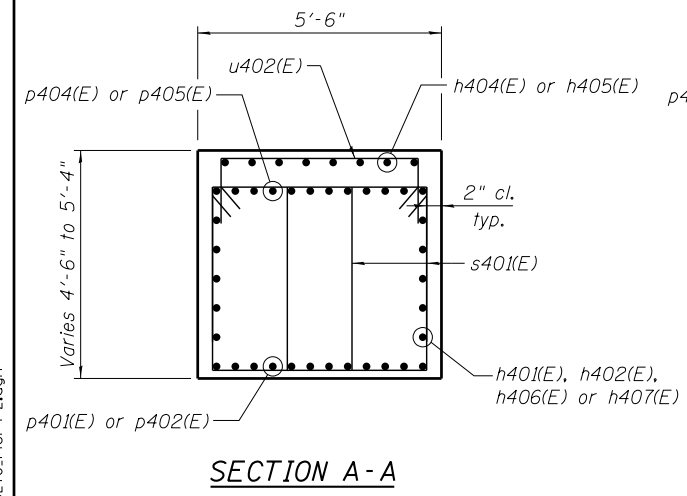
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	674

CONTRACT NO. 60L70  
 ILLINOIS FED. AID PROJECT



**TYP. MIN. BAR LAP**  
(Unless Noted Otherwise)  
#5 bar = 3'-3"

- NOTES:**
- Bars noted thus, 3x2-#5 indicates 3 lines of bars with 2 lengths of bars per line.
  - #5 sp401 or #5 sp402(E) spiral
    - Provide 1/2 extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 3" into pier cap. Provide 4-#4 spacers or equivalent.
    - When splicing spiral reinforcement is necessary, the spiral 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 drilled shaft that will fit between spirals. Contractor shall field adjust spiral pitch to 12" maximum at Mechanical Splicer locations.
  - For Mechanical Splicer details and quantities See Sheet S-222.



458.0161501\_60L70\_Pier4-2.dgn



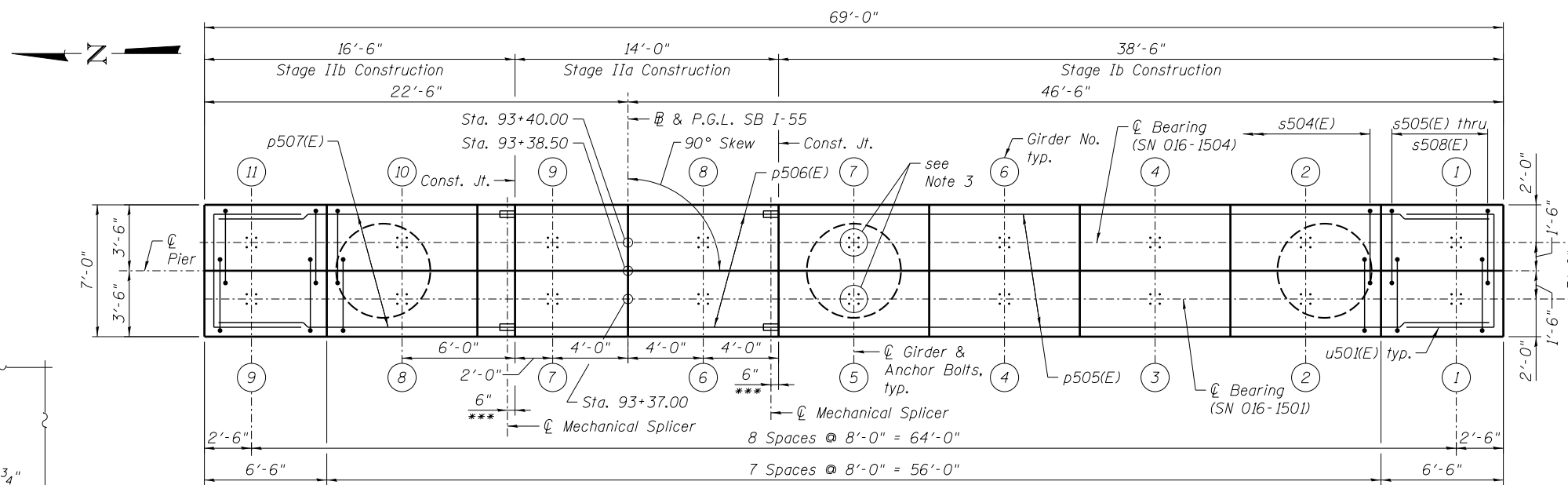
USER NAME = kritzm	DESIGNED - EJO	REVISED -
PLOT SCALE =	CHECKED - ATB	REVISED -
PLOT DATE = 11/20/2014	DRAWN - JAD	REVISED -
	CHECKED - CLS	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

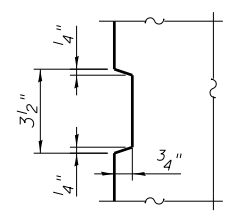
PIER 4W DETAILS - S.N. 016-1501  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 675
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	

SHEET NO. S-183 OF S-248 SHEETS



TOP PLAN



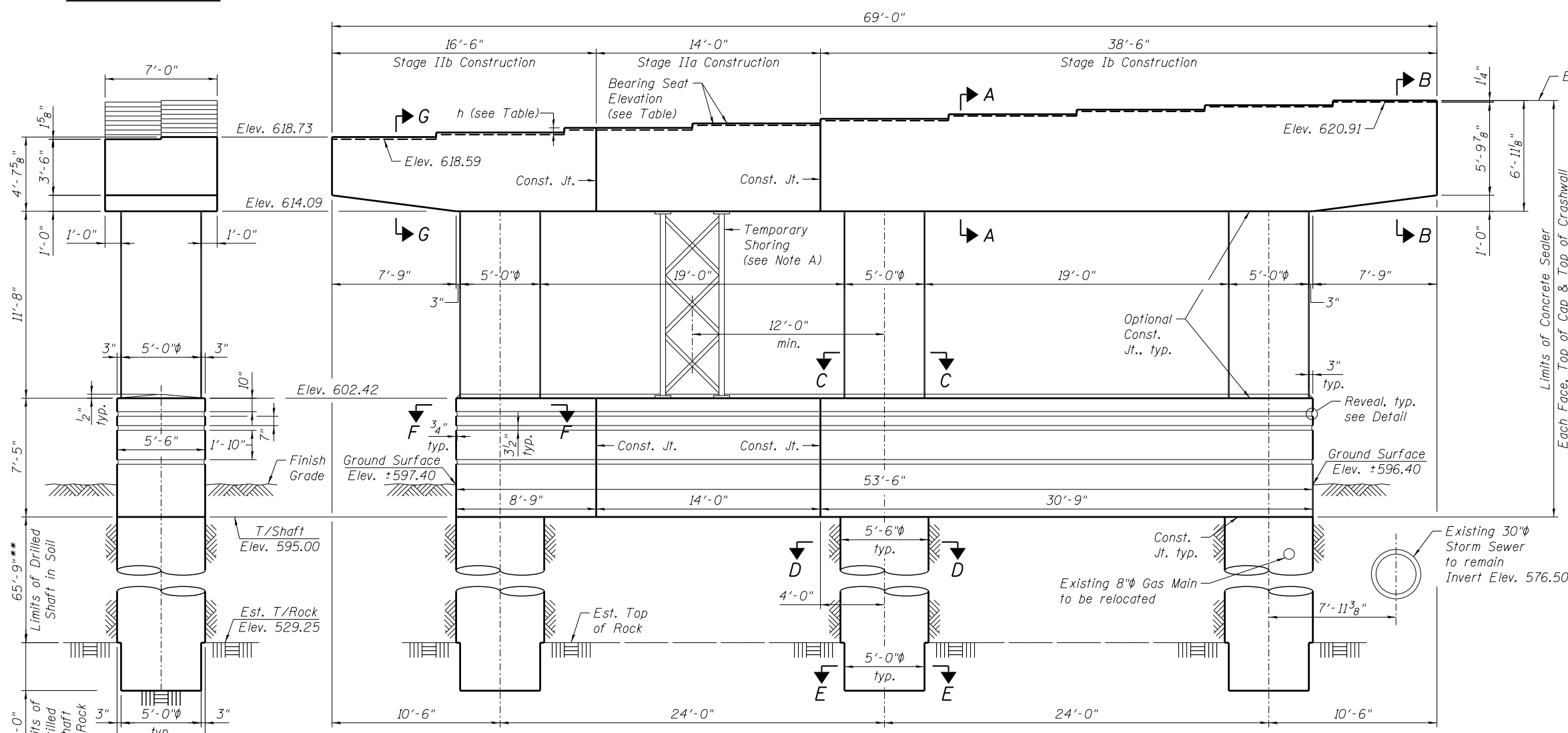
REVEAL DETAIL

**NOTES:**

1. Space reinforcement in cap to miss anchor bolts.
2. Pour steps monolithically with cap.
3. For Anchor Bolt Details, see Sheets S-162 & S-165.
4. For Sections, Details, and Reinforcement, see Sheets S-185 and S-186.
5. A drilled shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.
6. Reveals for the Crashwall shall be made of rubber material capable of reproducing the same quality texture on flat and curved surfaces.
7. Reveals will not be paid for separately and are included with Concrete Structures Pay Item.

**NOTE A:**

1. The Contractor shall install Temporary Shoring to support proposed Pier 5W. See Special provisions for Temporary Shoring.
2. Contractor shall consider all possible load cases for the design of Temporary Shoring and shall adequately support proposed Pier 5W. Temporary Shoring shall be designed to support minimum dead load and live load as specified herein:  
 Minimum Dead Load = 110k kips (unfactored)  
 Minimum Live Load + Impact = 0k kips (unfactored)



ELEVATION  
(Looking East)

BEARING SEAT ELEVATIONS				
Structure	Unit	Girder No.	Elev	h
S.N. 016-1501	1	1	621.01	3 1/2"
S.N. 016-1501	1	2	620.72	3 3/8"
S.N. 016-1501	1	3	620.44	3 1/2"
S.N. 016-1501	1	4	620.15	3 3/8"
S.N. 016-1501	1	5	619.87	3 1/2"
S.N. 016-1501	1	6	619.58	3 3/8"
S.N. 016-1501	1	7	619.30	3 1/2"
S.N. 016-1501	1	8	619.01	3 3/8"
S.N. 016-1501	1	9	618.73	---

BEARING SEAT ELEVATIONS				
Structure	Unit	Girder No.	Elev	h
S.N. 016-1504	1	1	620.91	3 1/2"
S.N. 016-1504	1	2	620.62	3 1/2"
S.N. 016-1504	1	4	620.33	3 1/2"
S.N. 016-1504	1	6	620.04	3 1/2"
S.N. 016-1504	1	7	619.75	3 1/2"
S.N. 016-1504	1	8	619.46	3 1/2"
S.N. 016-1504	1	9	619.17	3 1/2"
S.N. 016-1504	1	10	618.88	3 1/2"
S.N. 016-1504	1	11	618.59	---

\*\* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

\*\*\* Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.

459\_0161501\_60L70\_Pier5-1.dgn



USER NAME = kritzm	DESIGNED - EJO	REVISIONS -
PLOT SCALE =	CHECKED - ATB	REVISIONS -
PLOT DATE = 11/20/2014	DRAWN - MRK	REVISIONS -
	CHECKED - CLS	REVISIONS -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PIER 5W PLAN & ELEVATION - S.N.016-1501  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-184 OF S-248 SHEETS

F.A.I. RT.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	676
CONTRACT NO. 60L70				
ILLINOIS FED. AID PROJECT				

**NOTES:**

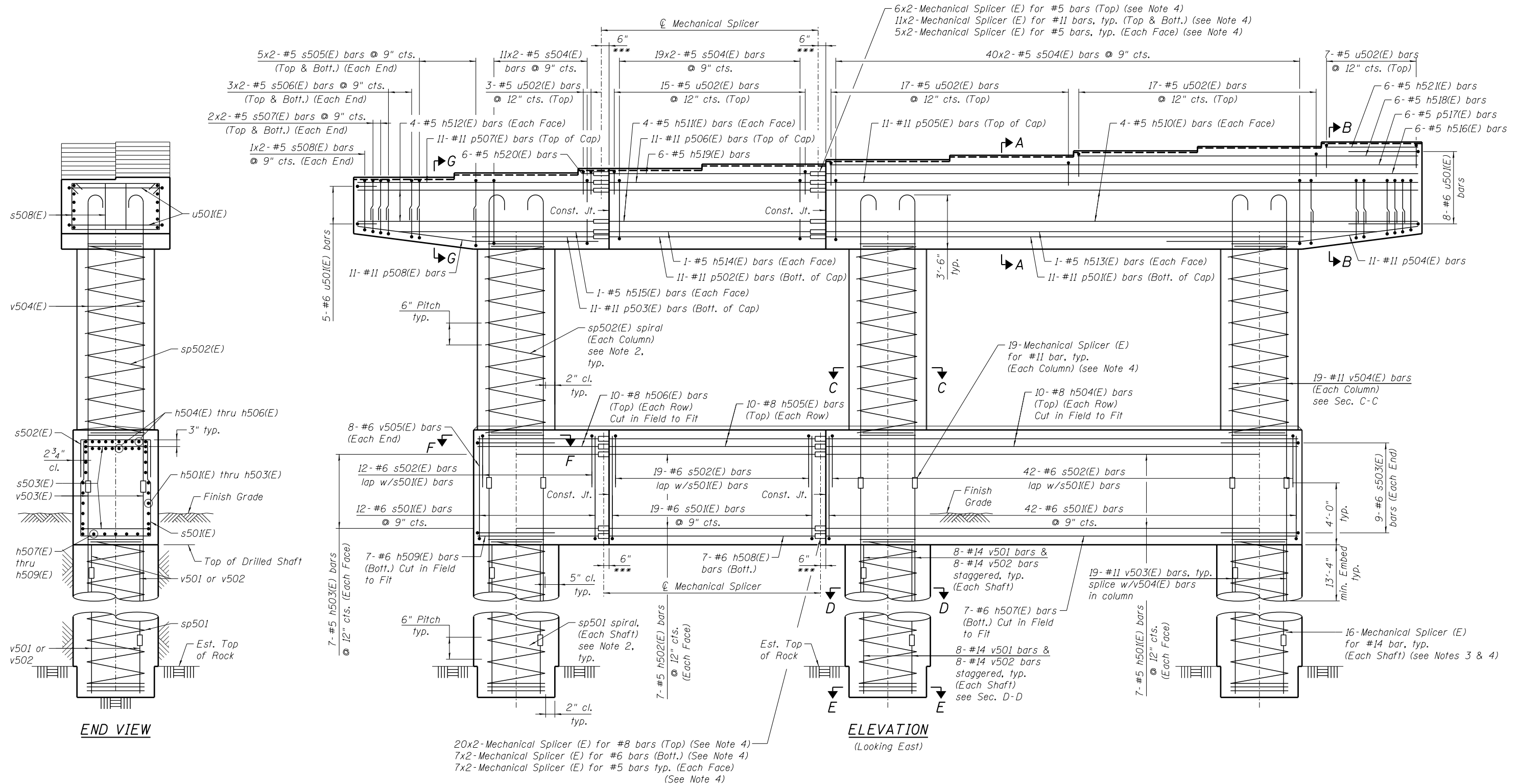
1. Bars noted thus, 3x2-#5 indicates 3 lines of bars with 2 lengths of bars per line.
2. #5 sp501 or #5 sp502(E) spiral
  - 1) Provide 1 1/2 extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 3" into crashwall or pier cap. Provide 4-#4 spacers or equivalent.
  - 2) When splicing spiral reinforcement is necessary, the spiral shall be provided with 1 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.

3. Contractor shall use Mechanical Splicers in drilled shaft that will fit between spirals. Contractor shall field adjust spiral pitch to 12" maximum at Mechanical Splicer locations.
4. For Mechanical Splicer details and quantities, see Sheet S-222.

\*\*\* Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.

**TYP. MIN. BAR LAP**

(Unless Noted Otherwise)  
 #5 bar = 3'-3"  
 #6 bar = 3'-10"



460\_0161501\_60L70\_Pier5-2.dgn



USER NAME = kritzm	DESIGNED - EJO	REVISED -
PLOT SCALE =	CHECKED - ATB	REVISED -
PLOT DATE = 11/20/2014	DRAWN - MRK	REVISED -
	CHECKED - CLS	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**PIER 5W DETAILS I- S.N.016-1501  
 I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-185 OF S-248 SHEETS

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 677
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	

**BILL OF MATERIAL**

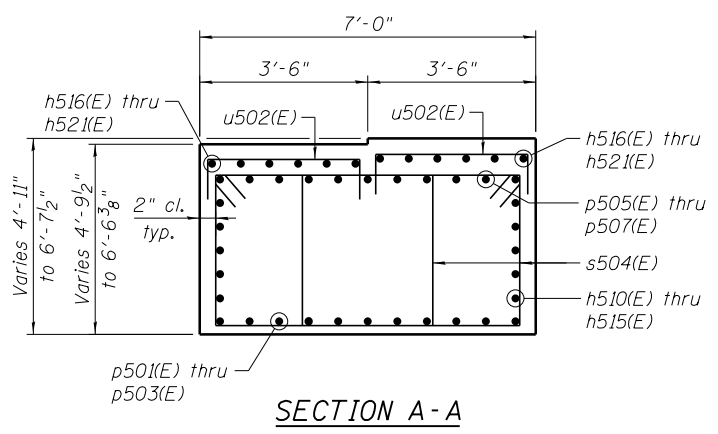
Bar	No.	Size	Length	Shape
h501(E)	14	#5	28'-6"	—
h502(E)	14	#5	14'-0"	—
h503(E)	14	#5	5'-6"	—
h504(E)	20	#8	31'-0"	—
h505(E)	20	#8	14'-0"	—
h506(E)	20	#8	8'-0"	—
h507(E)	7	#6	31'-0"	—
h508(E)	7	#6	14'-0"	—
h509(E)	7	#6	8'-0"	—
h510(E)	8	#5	38'-10"	—
h511(E)	8	#5	14'-0"	—
h512(E)	8	#5	15'-10"	—
h513(E)	2	#5	35'-1"	—
h514(E)	2	#5	14'-0"	—
h515(E)	2	#5	12'-1"	—
h516(E)	12	#5	38'-10"	—
h517(E)	12	#5	38'-2"	—
h518(E)	12	#5	22'-2"	—
h519(E)	12	#5	14'-0"	—
h520(E)	12	#5	1'-4"	—
h521(E)	12	#5	6'-2"	—
p501(E)	11	#11	31'-3"	—
p502(E)	11	#11	14'-0"	—
p503(E)	11	#11	8'-3"	—
p504(E)	11	#11	21'-8"	—
p505(E)	11	#11	38'-10"	—
p506(E)	11	#11	14'-0"	—
p507(E)	11	#11	15'-10"	—
p508(E)	11	#11	16'-2"	—
s501(E)	73	#6	19'-2"	□
s502(E)	73	#6	12'-8"	□
s503(E)	18	#6	15'-3"	U
s504(E)	140	#5	16'-1"	□
s505(E)	40	#5	10'-10"	□
s506(E)	24	#5	10'-4"	□
s507(E)	16	#5	10'-1"	□
s508(E)	4	#5	14'-2"	□
sp501	3	#5	70'-0"	~
sp502(E)	3	#5	12'-2"	~
u501(E)	13	#6	14'-2"	—
u502(E)	118	#5	4'-10"	□
v501	48	#14	45'-0"	—
v502	48	#14	24'-9"	—
v503(E)	57	#11	17'-4"	—
v504(E)	57	#11	20'-2"	—
v505(E)	16	#6	7'-1"	—
Structure Excavation		Cu. Yd.	30	
Concrete Structures		Cu. Yd.	206.7	
Reinforcement Bars, Epoxy Coated		Pound	36,500	
Reinforcement Bars		Pound	32,180	
Drilled Shaft in Soil		Cu. Yd.	173.6	
Drilled Shaft in Rock		Cu. Yd.	8.8	
Concrete Sealer		Sq. Ft.	3,372	
Crosshole Sonic Logging		Each	1	
Temporary Shoring		Each	1	

\*Length is height of spiral.

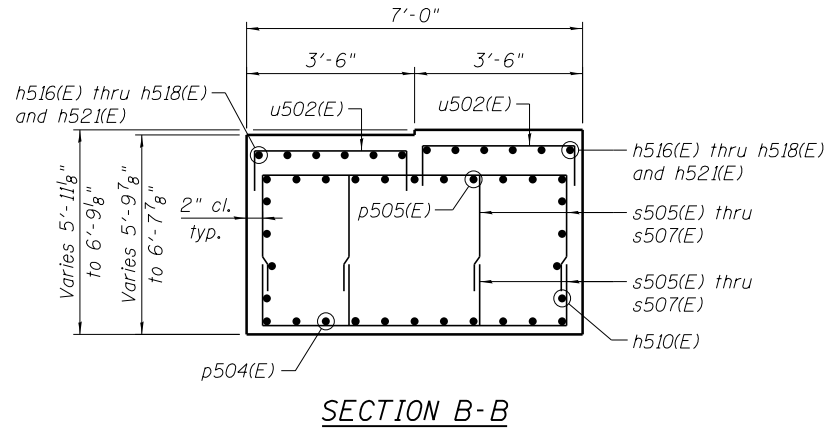
**NOTE:**

1. For Mechanical Splicer details and quantities, see Sheet S-222.

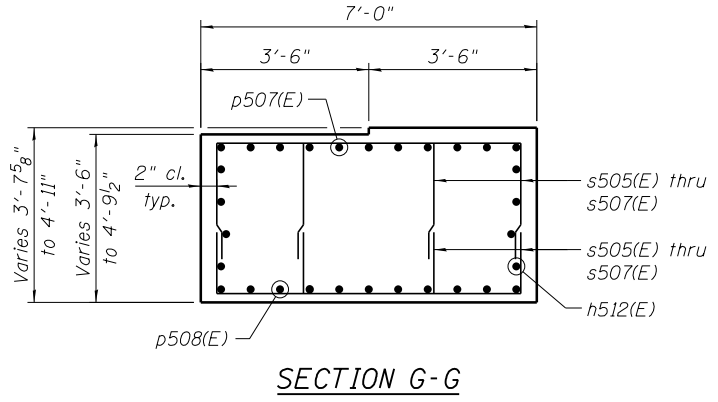
\*\*\* Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.



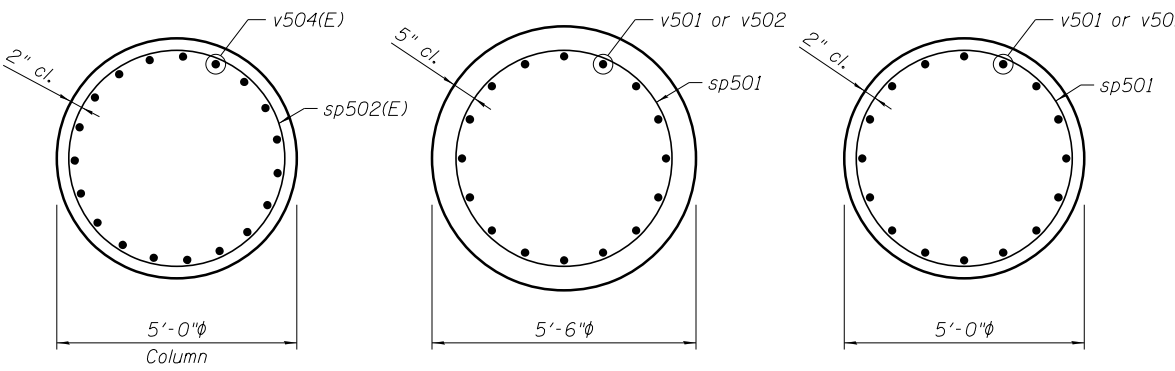
**SECTION A-A**



**SECTION B-B**

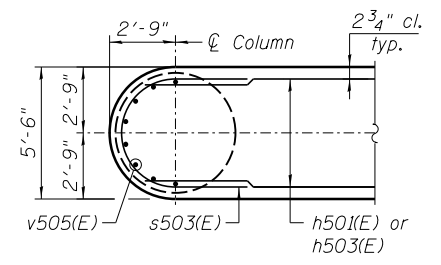
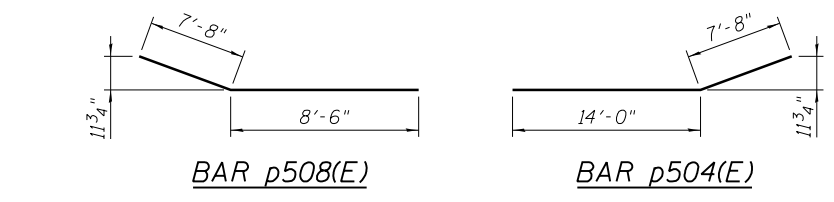
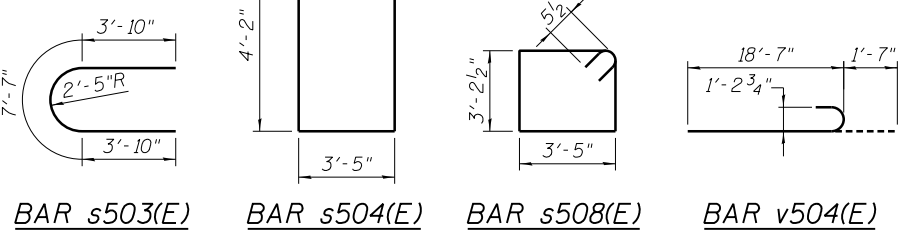


**SECTION G-G**

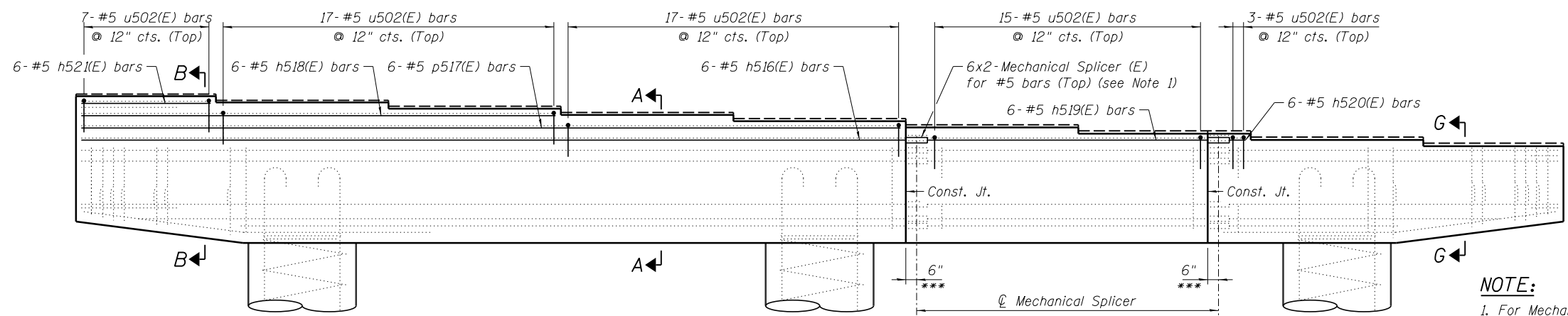


**BARS  
A & B DIMENSIONS**

Bar	A	B
s501(E)	5'-0"	7'-1"
s502(E)	5'-0"	3'-10"
s505(E)	3'-5"	3'-8 1/2"
s506(E)	3'-5"	3'-5 1/2"
s507(E)	3'-5"	3'-4"
u501(E)	6'-6"	3'-10"
u502(E)	3'-2"	10"



**SECTION F-F**



**ELEVATION  
(Looking West)**

461.0161501.60L TO\_Pier-5-3.dgn



USER NAME = kritzm	DESIGNED - EJO	REVISED -
PLOT SCALE =	CHECKED - ATB	REVISED -
PLOT DATE = 12/05/2014	DRAWN - MRK	REVISED -
	CHECKED - CLS	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

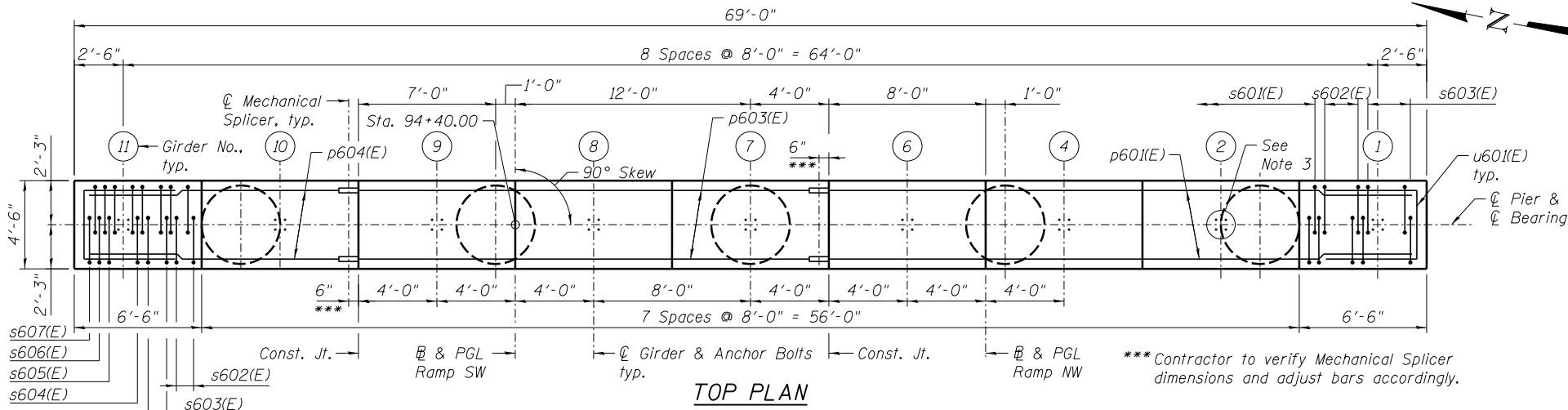
**PIER 5W DETAILS II - S.N. 016-1501  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-186 OF S-248 SHEETS

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 678
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	

**NOTES:**

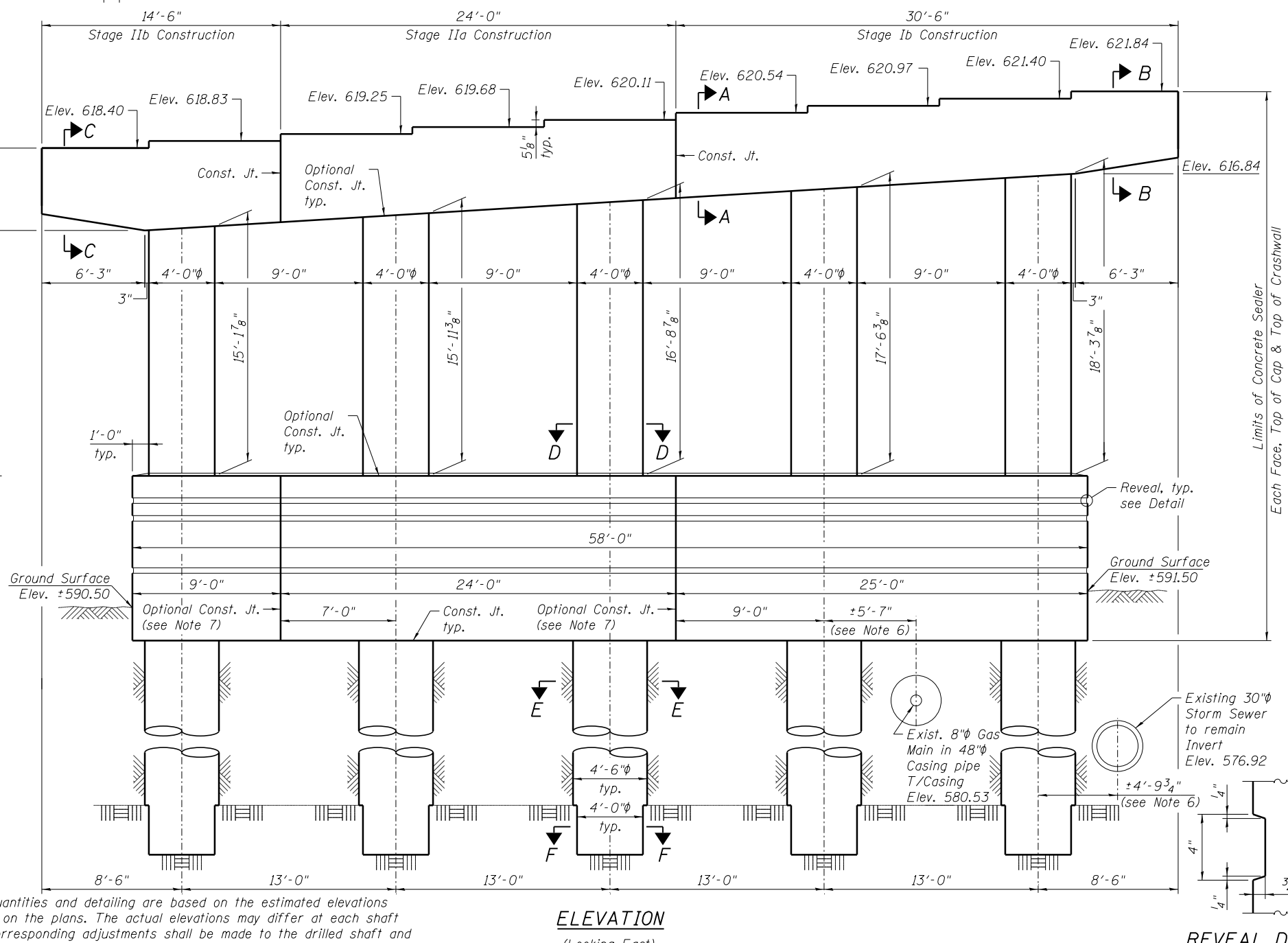
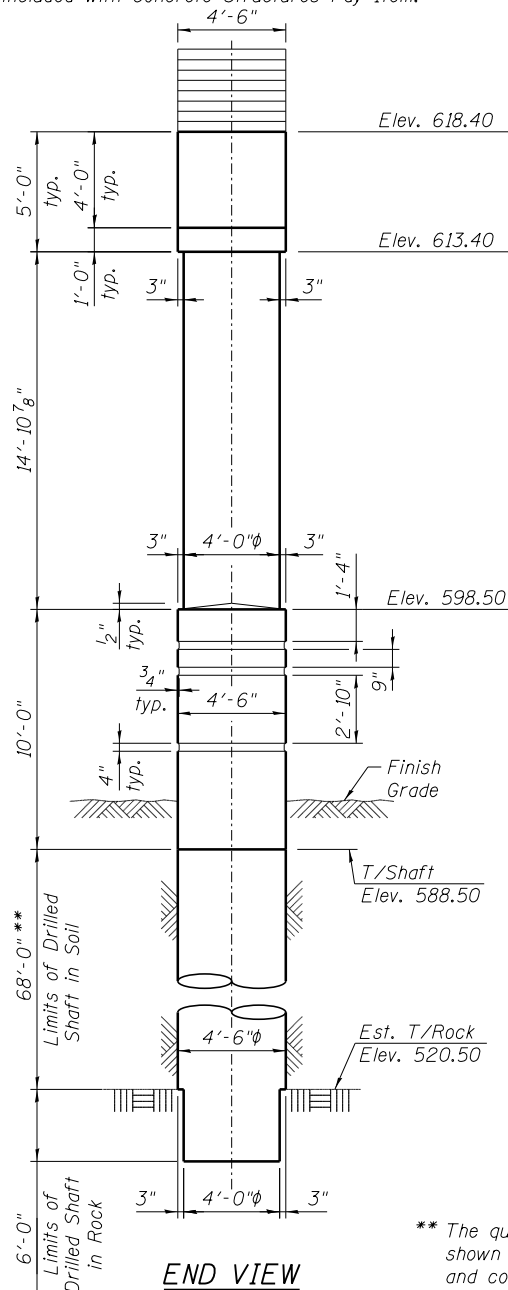
1. Space reinforcement in cap to miss anchor bolts.
2. Pour steps monolithically with cap.
3. For Anchor Bolts Details, see Sheet S-168.
4. For Sections and Details, see Sheet S-188.
5. A drilled shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.
6. Contractor shall field verify existing location prior to construction for proposed shaft. Any damage to existing storm sewer or gas main shall be responsibility of the contractor.
7. Construction joint can be avoided using low-clearance construction techniques.
8. Reveals for the Crashwall shall be made of rubber material capable of reproducing the same quality texture on flat and curved surfaces.
9. Reveals will not be paid for separately and are included with Concrete Structures Pay Item.



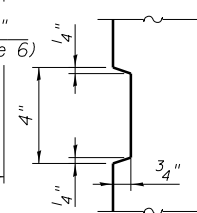
**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h601(E)	12	#5	30'-11"	
h602(E)	12	#5	24'-1"	
h603(E)	10	#5	13'-10"	
h604(E)	2	#5	10'-9"	
h605(E)	35	#5	11'-0"	
h606(E)	21	#5	7'-10"	
h607(E)	7	#5	6'-2"	
h608(E)	18	#5	25'-3"	
h609(E)	18	#5	24'-0"	
h610(E)	18	#5	8'-3"	
h611(E)	14	#6	25'-3"	
h612(E)	14	#6	24'-0"	
h613(E)	14	#6	8'-3"	
p601(E)	10	#11	30'-11"	
p602(E)	10	#11	24'-9"	
p603(E)	20	#11	24'-1"	
p604(E)	10	#11	13'-10"	
p605(E)	10	#11	13'-11"	
p606(E)	10	#11	20'-2"	
s601(E)	272	#5	15'-1"	
s602(E)	44	#5	10'-4"	
s603(E)	60	#5	10'-0"	
s604(E)	2	#5	12'-11"	
s605(E)	2	#5	12'-9"	
s606(E)	2	#5	12'-6 1/2"	
s607(E)	2	#5	12'-4 1/2"	
s608(E)	158	#6	17'-4"	
sp601(E)	1	#5	18'-10"	
sp602(E)	1	#5	18'-1"	
sp603(E)	1	#5	17'-3"	
sp604(E)	1	#5	16'-6"	
sp605(E)	1	#5	15'-8"	
sp606	5	#5	74'-3"	
u601(E)	14	#6	11'-8"	
u602(E)	71	#5	6'-2"	
u603(E)	22	#6	11'-6"	
v601(E)	23	#11	28'-5"	
v602(E)	23	#11	27'-8"	
v603(E)	23	#11	26'-10"	
v604(E)	23	#11	26'-1"	
v605(E)	23	#11	25'-3"	
v606(E)	115	#11	18'-4"	
v607(E)	14	#6	9'-6"	
v608	50	#14	40'-0"	
v609	50	#14	34'-0"	
v610	50	#14	34'-0"	
v611	50	#14	40'-0"	
Structure Excavation		Cu. Yd.	37	
Concrete Structures		Cu. Yd.	192.0	
Reinforcement Bars, Epoxy Coated		Pound	62,010	
Reinforcement Bars		Pound	64,060	
Drilled Shaft in Soil		Cu. Yd.	200.3	
Drilled Shaft in Rock		Cu. Yd.	14.0	
Concrete Sealer		Sq. Ft.	3,994	
Crosshole Sonic Logging		Each	1	

\* Length is height of spiral.



**REVEAL DETAIL**



\*\* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

462.0161504\_60L70\_Pier6-1.dgn



USER NAME = kr1tzm	DESIGNED - VP	REVISIONS
PLOT SCALE =	CHECKED - EJO	REVISIONS
PLOT DATE = 12/05/2014	DRAWN - MRK	REVISIONS
	CHECKED - CLS	REVISIONS

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**PIER 6W PLAN & ELEVATION - S.N. 016-1504  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-187 OF S-248 SHEETS

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 679
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	

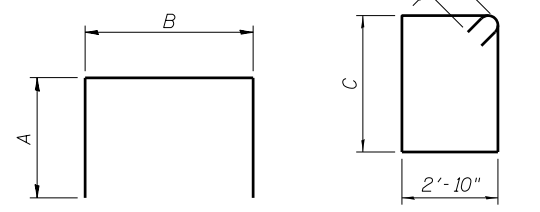
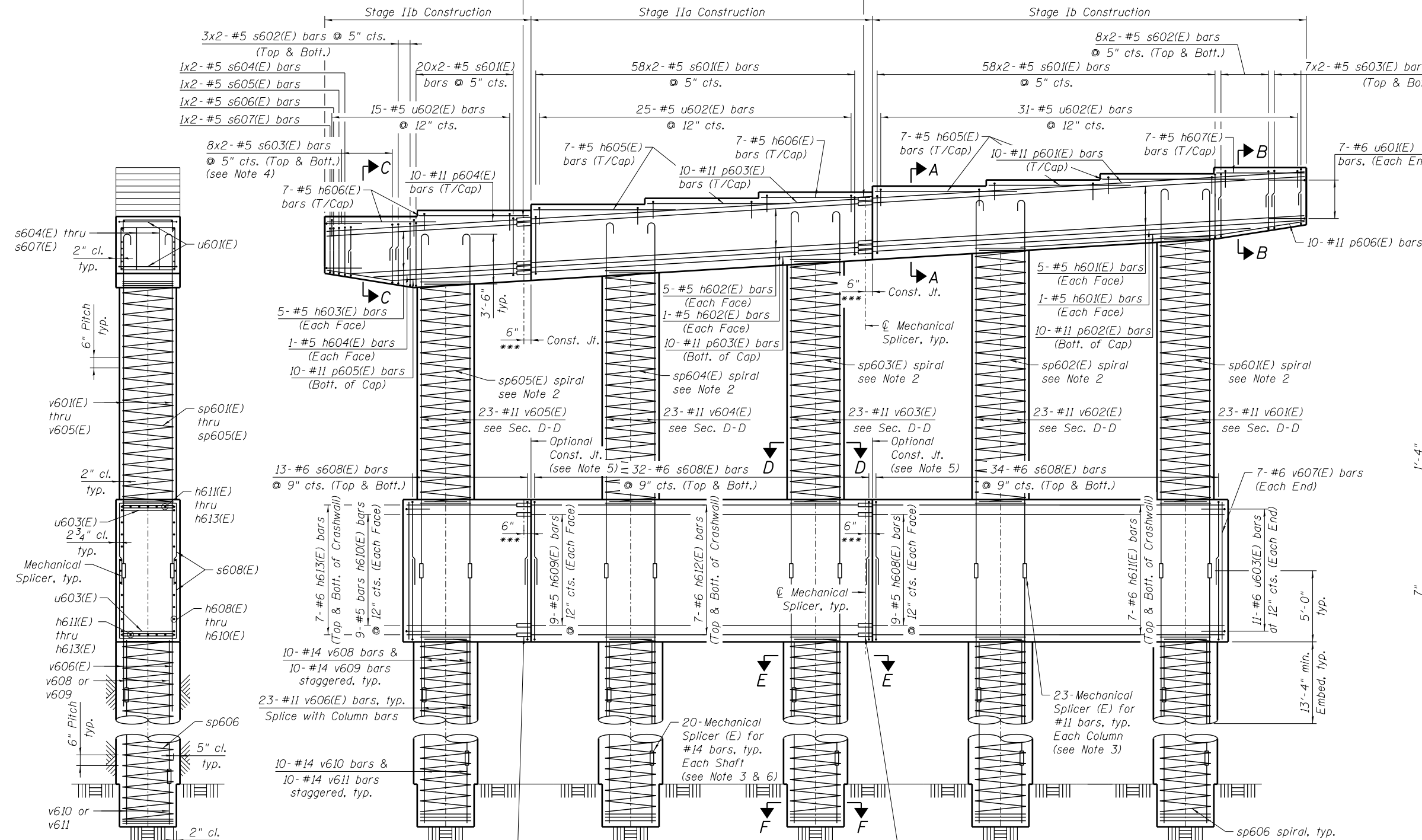
10-Mechanical Splicer (E) for #11 bars, typ. (Top & Bott.) (see Note 3)  
6-Mechanical Splicer (E) for #5 bars, typ. (Each Face) (see Note 3)

10-Mechanical Splicer (E) for #11 bars, typ. (Top & Bott.) (see Note 3)  
6-Mechanical Splicer (E) for #5 bars, typ. (Each Face) (see Note 3)

\*\*\* Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.

**TYP. MIN. BAR LAP**

(Unless Noted Otherwise)  
#5 bar = 3'-3"  
#6 bar = 3'-10"

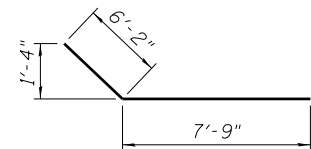


**BARS A & B DIMENSIONS**

Bar	A	B
s602(E)	3'-9"	2'-10"
s603(E)	3'-7"	2'-10"
s608(E)	6'-8"	4'-0"
u601(E)	3'-10"	4'-0"
u602(E)	1'-0"	4'-2"
u603(E)	3'-10"	3'-10"

**BARS C DIMENSIONS**

Bar	C
s601(E)	4'-3"
s604(E)	3'-2"
s605(E)	3'-1"
s606(E)	2'-11 <sup>3</sup> / <sub>4</sub> "
s607(E)	2'-10 <sup>3</sup> / <sub>4</sub> "



**BAR p605(E)**

**BARS D DIMENSIONS**

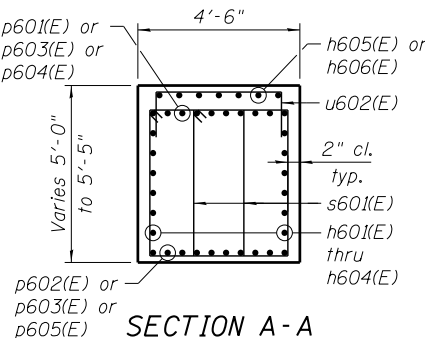
Bar	D
v601(E)	26'-10"
v602(E)	26'-1"
v603(E)	25'-3"
v604(E)	24'-6"
v605(E)	23'-8"

**BAR p606(E)**

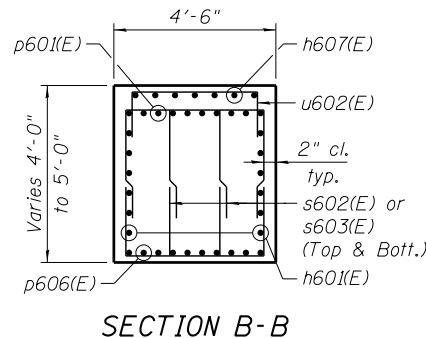
**NOTES:**

- Bars noted thus, 3x2-#5 indicates 3 lines of bars with 2 lengths of bars per line.
- #5 sp606 or #5 sp601(E) thru sp605(E) spiral
  - Provide 1/2 extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 3" into crashwall or pier cap. Provide 4-#4 spacers or equivalent.
  - When splicing spiral reinforcement is necessary, the spiral 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.
- For Details and Quantities of Mechanical Splicers, see Sheet S-222.
- Cut s603(E) bars in the field to fit. Minimum bar lap at field cut location shall not be less than 3'-3".
- Construction joint can be avoided using low-clearance construction techniques.
- Contractor shall use Mechanical Splicers in drilled shaft that will fit between spirals. Contractor shall field adjust spiral pitch to 12" maximum at Mechanical Splicer locations.

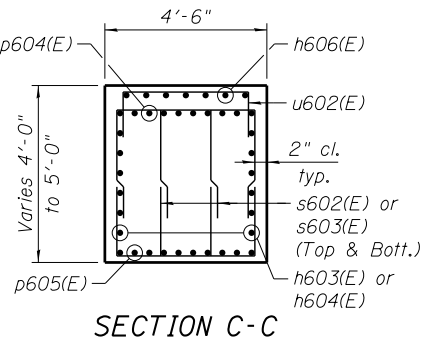
**END VIEW**



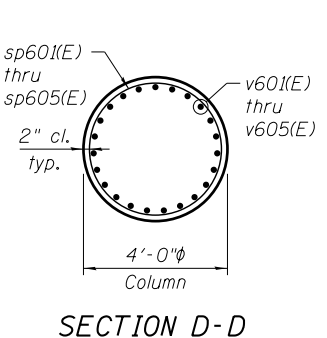
**SECTION A-A**



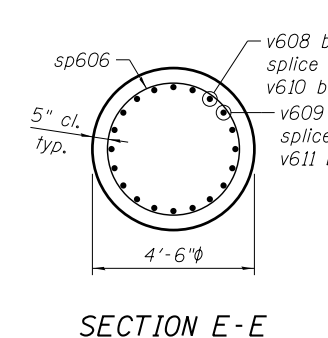
**SECTION B-B**



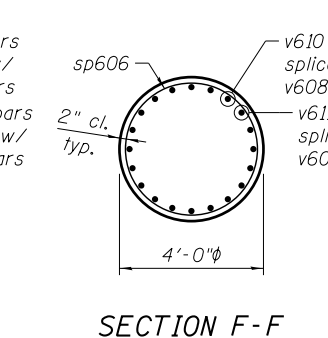
**SECTION C-C**



**SECTION D-D**



**SECTION E-E**



**SECTION F-F**

**ELEVATION**  
(Looking East)

463\_0161504\_s01\_70\_Pier6-2.dgn



USER NAME = krtzm	DESIGNED - VP	REVISED -
PLOT SCALE =	CHECKED - EJO	REVISED -
PLOT DATE = 11/20/2014	DRAWN - MRK	REVISED -
	CHECKED - CLS	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PIER 6W DETAILS - S.N 016-1504  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

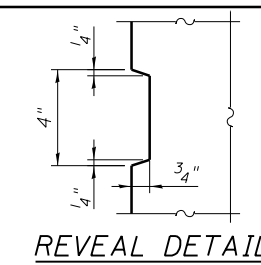
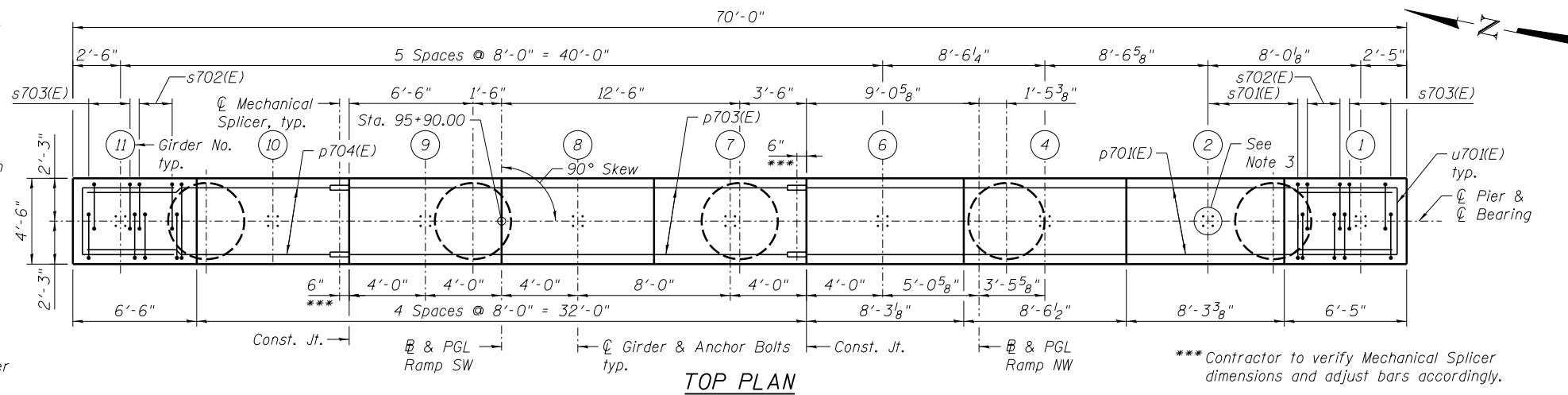
SHEET NO. S-188 OF S-248 SHEETS

F.A.I. R.T.E. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 680
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	



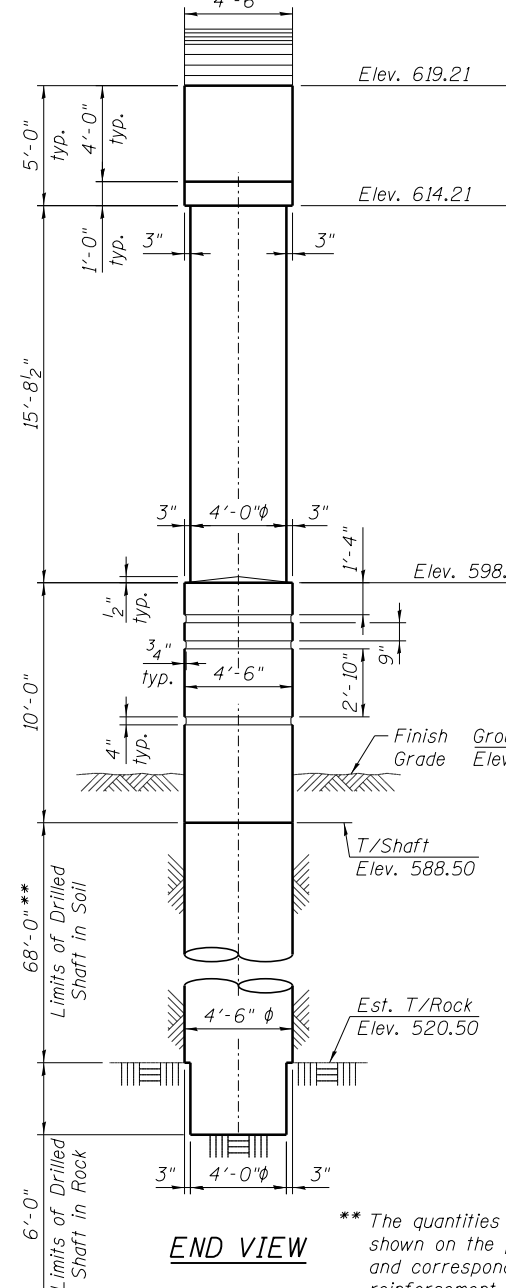
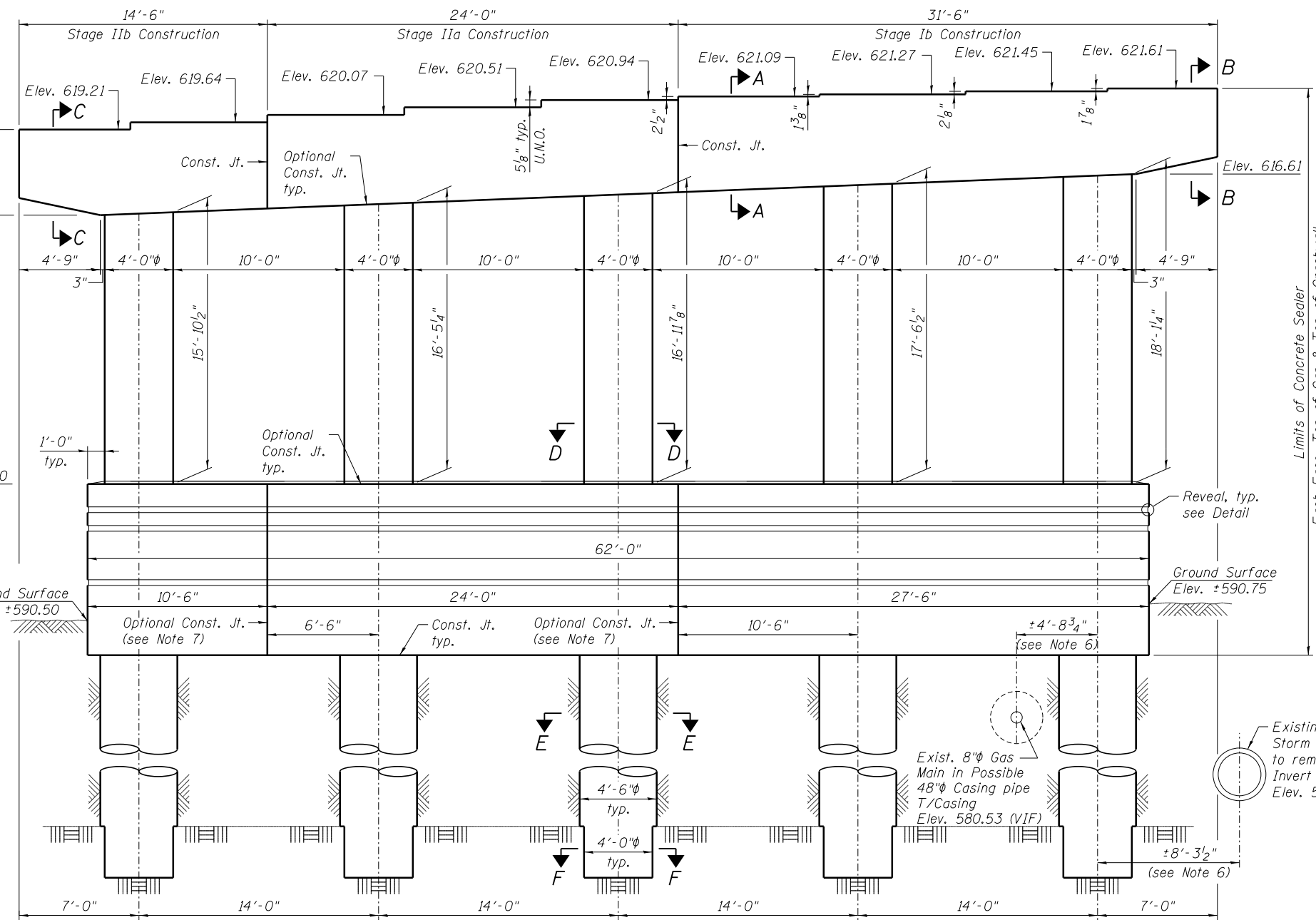
**NOTES:**

1. Space reinforcement in cap to miss anchor bolts.
2. Four steps monolithically with cap.
3. For Anchor Bolts Details, see Sheet S-168.
4. For Sections and Details, see Sheet S-190.
5. A drilled shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.
6. Contractor shall field verify existing location prior to construction for proposed shaft. Any damage to existing storm sewer or gas main shall be responsibility of the contractor.
7. Construction joint can be avoided using low-clearance construction techniques.
8. Reveals for the Crashwall shall be made of rubber material capable of reproducing the same quality texture on flat and curved surfaces.
9. Reveals will not be paid for separately and are included with Concrete Structures Pay Item.



**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h701(E)	10	#5	31'-10"	—
h702(E)	2	#5	31'-1"	—
h703(E)	12	#5	24'-0"	—
h704(E)	10	#5	13'-10"	—
h705(E)	2	#5	11'-11"	—
h706(E)	28	#5	11'-2"	—
h707(E)	21	#5	7'-10"	—
h708(E)	7	#5	8'-6"	—
h709(E)	18	#5	27'-9"	—
h710(E)	18	#5	24'-0"	—
h711(E)	18	#5	9'-9"	—
h712(E)	14	#6	27'-9"	—
h713(E)	14	#6	24'-0"	—
h714(E)	14	#6	9'-9"	—
p701(E)	10	#11	31'-10"	—
p702(E)	10	#11	27'-3"	—
p703(E)	20	#11	24'-0"	—
p704(E)	10	#11	13'-10"	—
p705(E)	10	#11	13'-11 1/2"	—
p706(E)	10	#11	18'-8 1/2"	—
s701(E)	290	#5	15'-6 1/2"	□
s702(E)	40	#5	10'-8"	□
s703(E)	56	#5	10'-2"	□
s704(E)	168	#6	17'-4"	□
sp701(E)	1	#5	18'-7"	~
sp702(E)	1	#5	18'-0"	~
sp703(E)	1	#5	17'-6"	~
sp704(E)	1	#5	16'-11"	~
sp705(E)	1	#5	16'-5"	~
sp706	5	#5	74'-3"	~
u701(E)	14	#6	11'-8"	□
u702(E)	66	#5	6'-2"	□
u703(E)	22	#6	11'-6"	□
v701(E)	23	#11	28'-2"	U
v702(E)	23	#11	27'-8"	U
v703(E)	23	#11	27'-1"	U
v704(E)	23	#11	26'-7"	U
v705(E)	23	#11	26'-0"	U
v706(E)	115	#11	18'-4"	—
v707(E)	14	#6	9'-6"	—
v708	50	#14	40'-0"	—
v709	50	#14	34'-0"	—
v710	50	#14	34'-0"	—
v711	50	#14	40'-0"	—
Structure Excavation		Cu. Yd.	33	
Concrete Structures		Cu. Yd.	204.0	
Reinforcement Bars, Epoxy Coated		Pound	53,030	
Reinforcement Bars		Pound	64,060	
Drilled Shaft in Soil		Cu. Yd.	200.3	
Drilled Shaft in Rock		Cu. Yd.	14.0	
Concrete Sealer		Sq. Ft.	4,279	
Crosshole Sonic Logging		Each	1	



\*\* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

9. Reveals will not be paid for separately and are included with Concrete Structures Pay Item.

464\_0161504\_60L70\_Pier7-1.dgn



USER NAME = kriztm	DESIGNED - VP	REVISIONS -
PLOT SCALE =	CHECKED - EJO	REVISIONS -
PLOT DATE = 12/05/2014	DRAWN - MRK	REVISIONS -
	CHECKED - CLS	REVISIONS -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**PIER 7W PLAN & ELEVATION - S.N. 016-1504  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

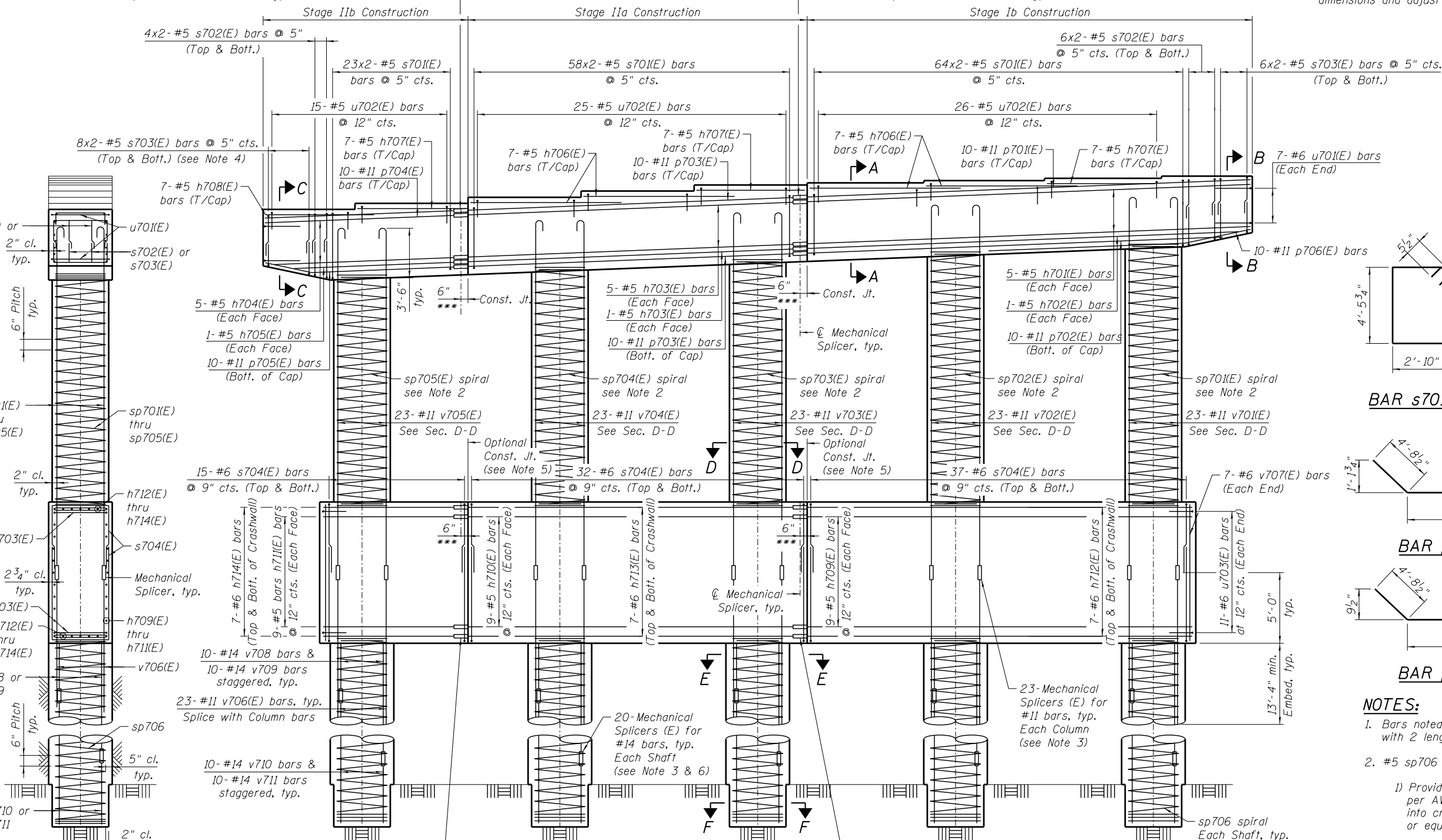
SHEET NO. S-189 OF S-248 SHEETS

F.A.I. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	681
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	

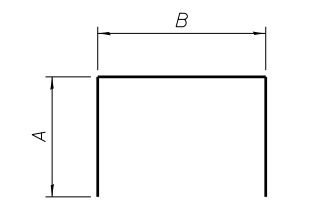
10-Mechanical Splicer (E) for #11 bars, typ. (Top & Bott.) (see Note 3)  
 6-Mechanical Splicer (E) for #5 bars, typ. (Each Face) (see Note 3)

10-Mechanical Splicer (E) for #11 bars, typ. (Top & Bott.) (see Note 3)  
 6-Mechanical Splicer (E) for #5 bars, typ. (Each Face) (see Note 3)

\*\*\* Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.

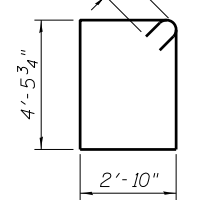


**TYP. MIN. BAR LAP**  
 (Unless Noted Otherwise)  
 #5 bar = 3'-3"  
 #6 bar = 3'-10"

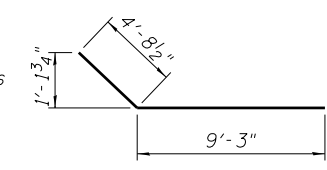


**BARS A & B DIMENSIONS**

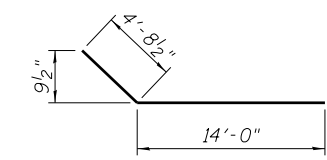
Bar	A	B
s702(E)	3'-11"	2'-10"
s703(E)	3'-8"	2'-10"
s704(E)	6'-8"	4'-0"
u701(E)	3'-10"	4'-0"
u702(E)	1'-0"	4'-2"
u703(E)	3'-10"	3'-10"



BAR s701(E)



BAR p705(E)



BAR p706(E)

**BARS D DIMENSIONS**

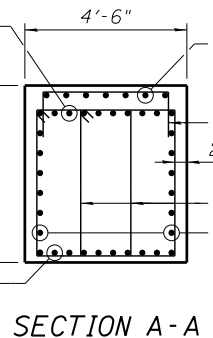
Bar	D
v701(E)	26'-7"
v702(E)	26'-1"
v703(E)	25'-6"
v704(E)	25'-0"
v705(E)	24'-5"

**NOTES:**

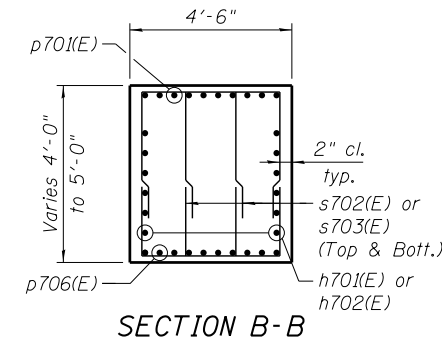
- Bars noted thus, 3x2-#5 indicates 3 lines of bars with 2 lengths of bars per line.
- #5 sp706 or #5 sp701(E) thru sp705(E) spiral
  - Provide 1/2 extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 3" into crashwall or pier cap. Provide 4-#4 spacers or equivalent.
  - When splicing spiral reinforcement is necessary, the spiral 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.
- For details and quantities of Mechanical Splicers, see Sheet S-222.
- Cut s703(E) bars in the field to fit. Minimum bar lap at field cut location shall not be less than 3'-3".
- Construction joint can be avoided using low-clearance construction techniques.
- Contractor shall use Mechanical Splicers in drilled shaft that will fit between spirals. Contractor shall field adjust spiral pitch to 12" maximum at Mechanical Splicer locations.

**END VIEW**

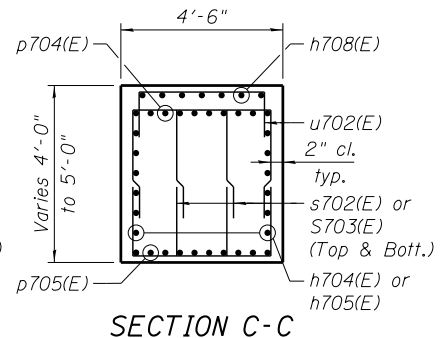
**ELEVATION**  
(Looking East)



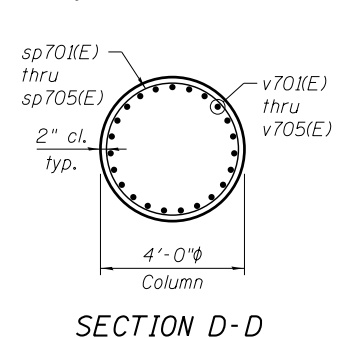
SECTION A-A



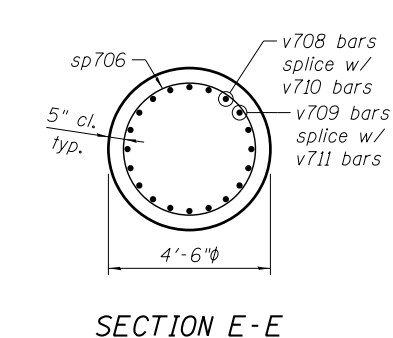
SECTION B-B



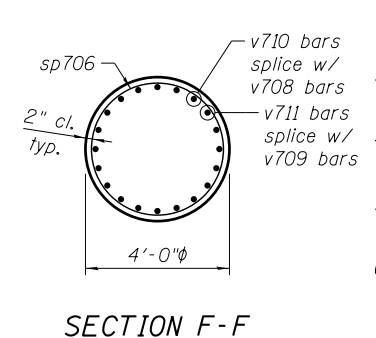
SECTION C-C



SECTION D-D



SECTION E-E



SECTION F-F

465\_0161504\_s01\_70\_Pier7-2.dgn



USER NAME = krltzm	DESIGNED - VP	REVISIONS -
PLOT SCALE =	CHECKED - EJO	REVISIONS -
PLOT DATE = 11/20/2014	DRAWN - MRK	REVISIONS -
	CHECKED - CLS	REVISIONS -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

PIER 7W DETAILS - S.N. 016-1504  
 I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

F.A.I. R.T.E. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 682
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	

SHEET NO. S-190 OF S-248 SHEETS

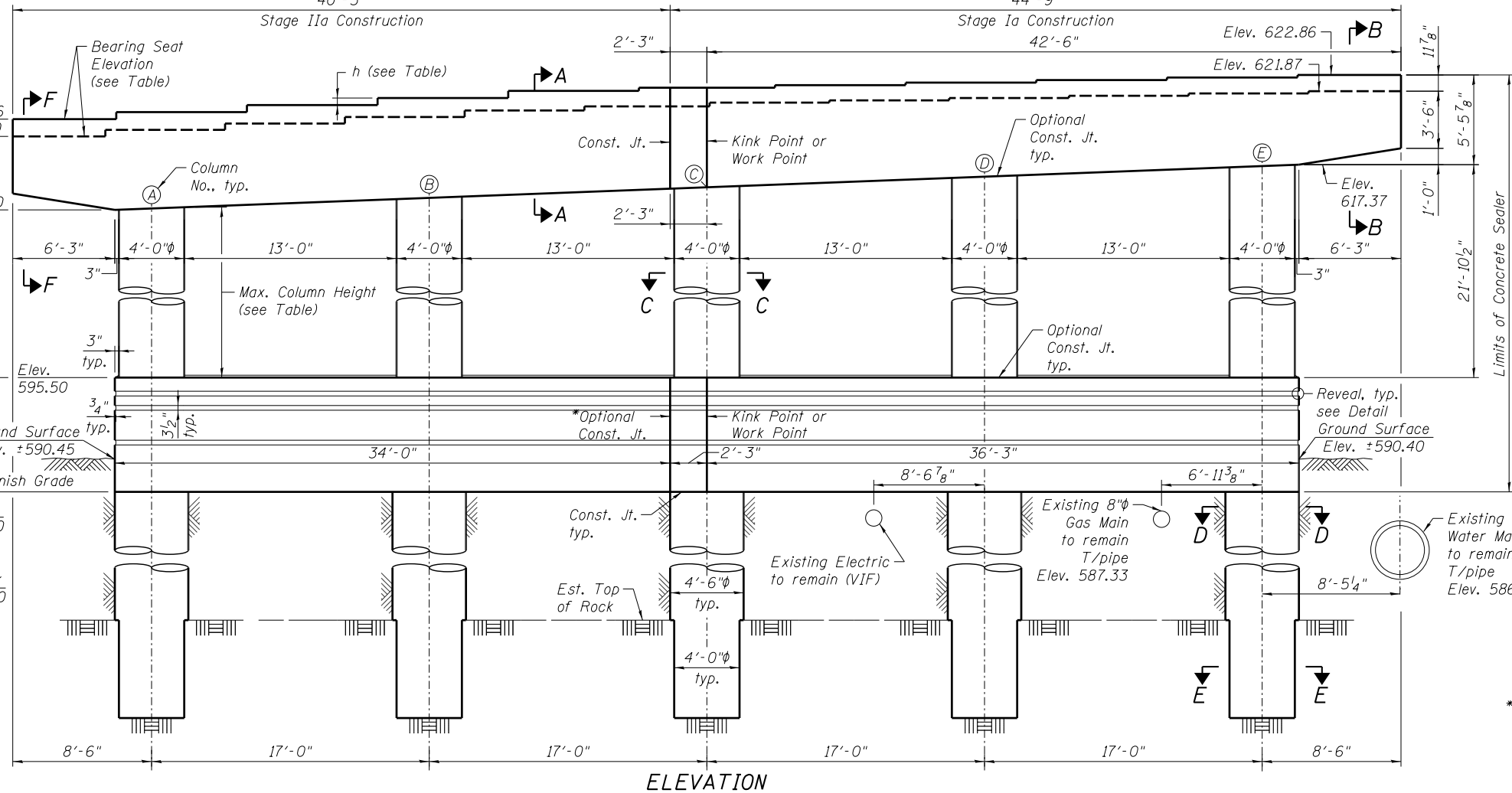
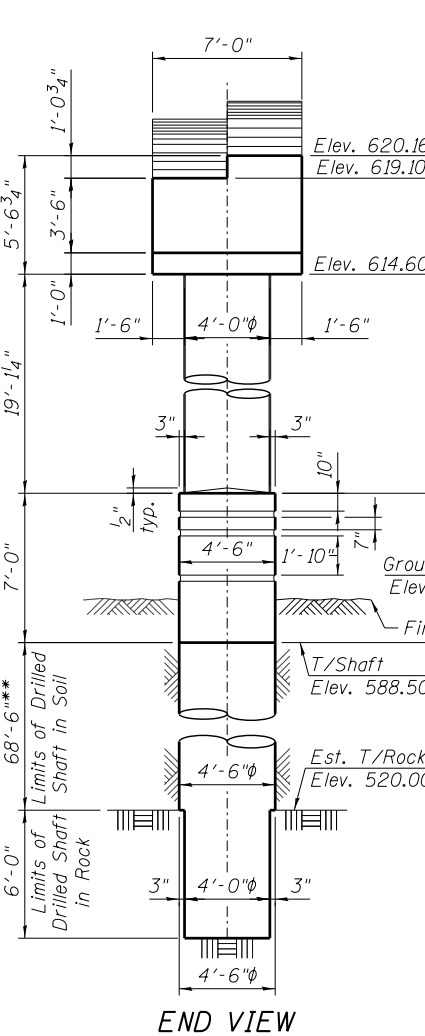
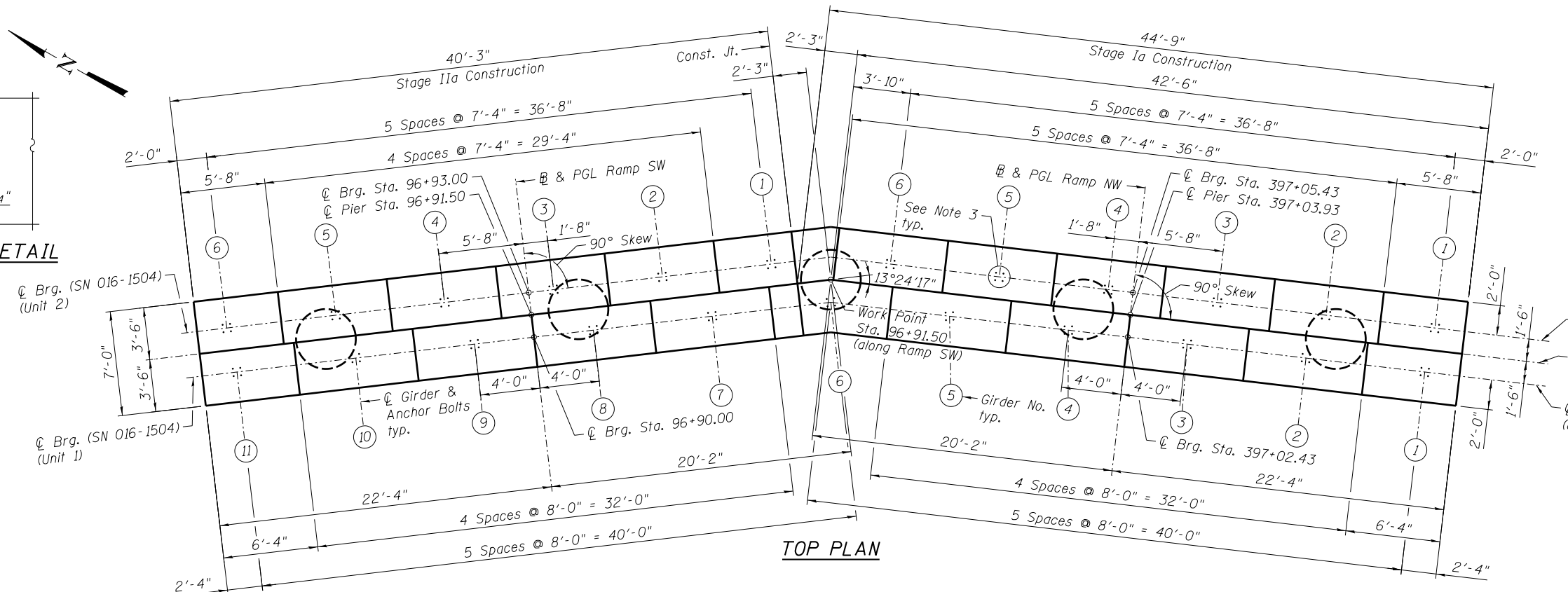
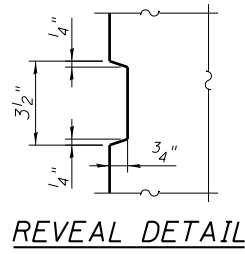
**NOTES:**

1. Space reinforcement in cap to miss anchor bolts.
2. Pour steps monolithically with cap.
3. For Anchor Bolts Details see sheet S-165.
4. For Sections, Details and Reinforcement, see Sheets S-192, S-193 & S-194.
5. A drilled shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.
6. Reveals for the Crashwall shall be made of rubber material capable of reproducing the same quality texture on flat and curved surfaces.
7. Reveals will not be paid for separately and are included with Concrete Structures Pay Item.

MAX. COLUMN HEIGHT	
Column	Height
A	19'-3 1/4"
B	19'-11"
C	20'-6 3/4"
D	21'-2 5/8"
E	21'-10 3/8"

BEARING SEAT ELEVATIONS				
Structure	Unit	Girder No.	Elev	h
SN 016-1504	1	11	620.16	---
SN 016-1504	1	10	620.59	5 1/8"
SN 016-1504	1	9	621.02	5 1/8"
SN 016-1504	1	8	621.45	5 1/8"
SN 016-1504	1	7	621.89	5 1/4"
SN 016-1504	1	6	622.06	2"
SN 016-1504	1	5	622.22	1 7/8"
SN 016-1504	1	4	622.38	1 7/8"
SN 016-1504	1	3	622.54	1 7/8"
SN 016-1504	1	2	622.70	1 7/8"
SN 016-1504	1	1	622.86	1 7/8"

BEARING SEAT ELEVATIONS				
Structure	Unit	Girder No.	Elev	h
SN 016-1504	2	6	619.10	---
SN 016-1504	2	5	619.50	4 3/4"
SN 016-1504	2	4	619.89	4 3/4"
SN 016-1504	2	3	620.29	4 3/4"
SN 016-1504	2	2	620.69	4 3/4"
SN 016-1504	2	1	620.94	3"
SN 016-1505	1	6	621.17	2 3/4"
SN 016-1505	1	5	621.31	1 5/8"
SN 016-1505	1	4	621.45	1 5/8"
SN 016-1505	1	3	621.59	1 5/8"
SN 016-1505	1	2	621.73	1 5/8"
SN 016-1505	1	1	621.87	1 5/8"



\* Construction Joints can be avoided using low-clearance construction techniques.

\*\* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

466\_0161504\_601.70\_Pier8-1.dgn



USER NAME = kritzm	DESIGNED - EJO	REVISED -
PLOT SCALE =	CHECKED - ATB	REVISED -
PLOT DATE = 11/20/2014	DRAWN - MRK	REVISED -
	CHECKED - CLS	REVISED -

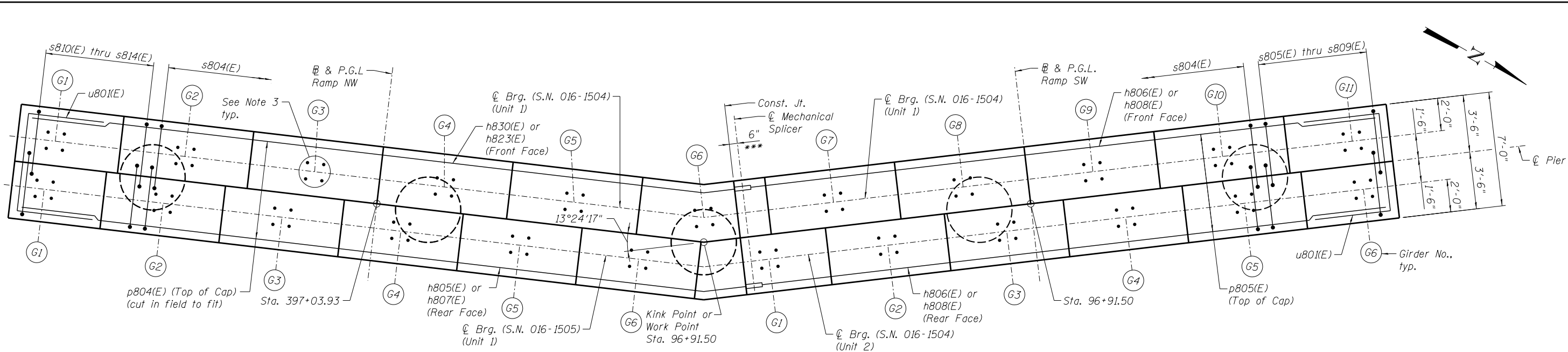
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PIER 8W PLAN & ELEVATION - S.N.016-1504  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

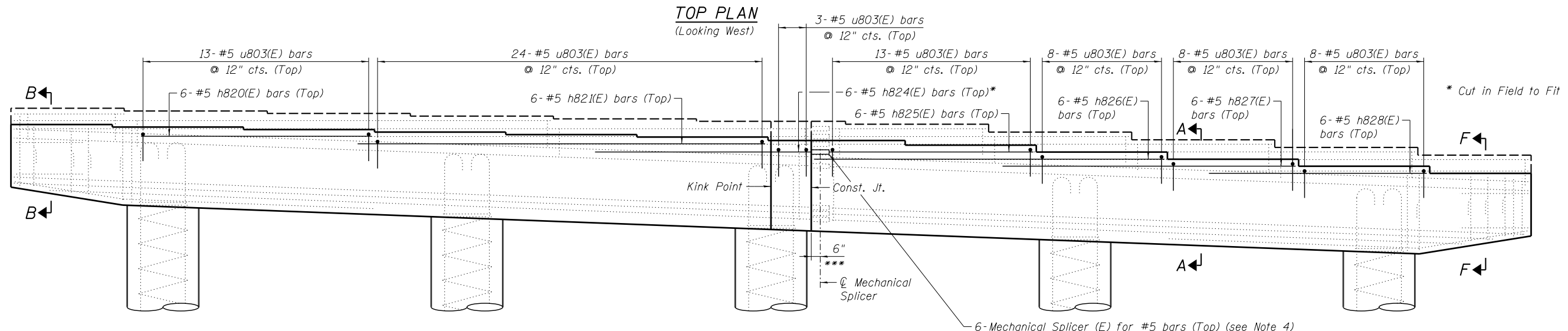
F.A.I. R.E. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 683
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	

SHEET NO. S-191 OF S-248 SHEETS

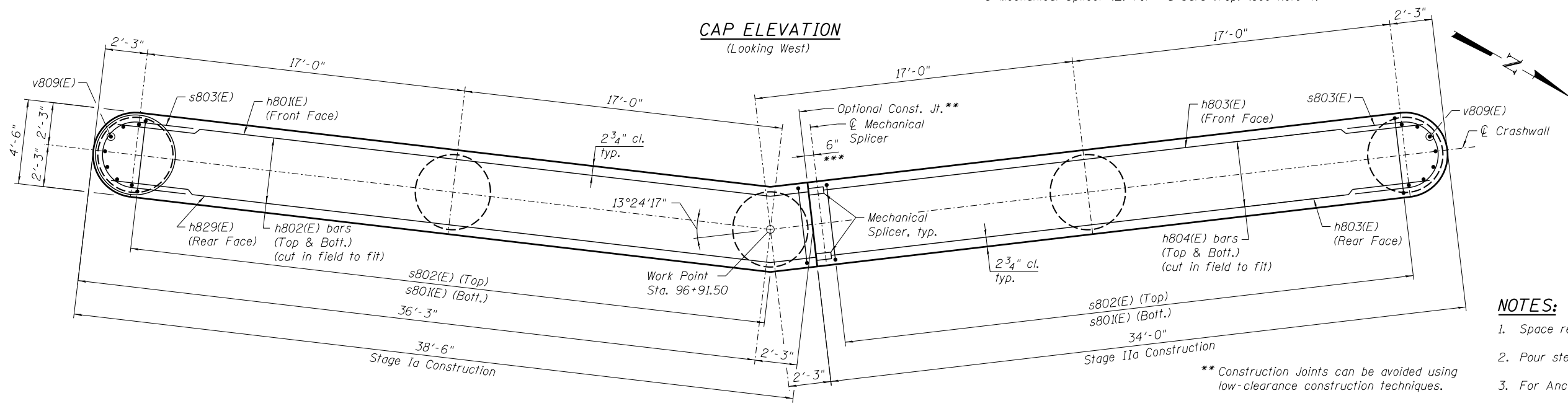




**TOP PLAN**  
(Looking West)



**CAP ELEVATION**  
(Looking West)



**CRASHWALL PLAN**  
(Looking West)

- NOTES:**
1. Space reinforcement in cap to miss anchor bolts.
  2. Pour steps monolithically with cap.
  3. For Anchor Bolts Details see sheet S-165.
  4. For Mechanical Splicer Details and quantities see sheet S-222.
- \*\*\* Construction Joints can be avoided using low-clearance construction techniques.  
\*\*\* Contractor to verify Mechanical Splicer dimensions and adjust bars accordingly.

468\_0161504\_60170\_Pier8-3.dgn



USER NAME = kritzm	DESIGNED - EJO	REVISED -
PLOT SCALE =	CHECKED - ATB	REVISED -
PLOT DATE = 11/20/2014	DRAWN - MRK	REVISED -
	CHECKED - CLS	REVISED -

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

**PIER 8W DETAILS II - S.N. 016-1504**  
**I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

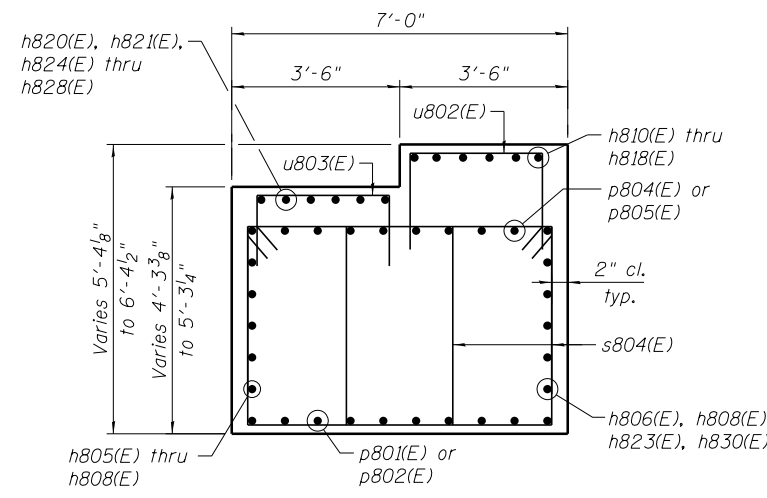
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	685
CONTRACT NO. 60L70				

SHEET NO. S-193 OF S-248 SHEETS

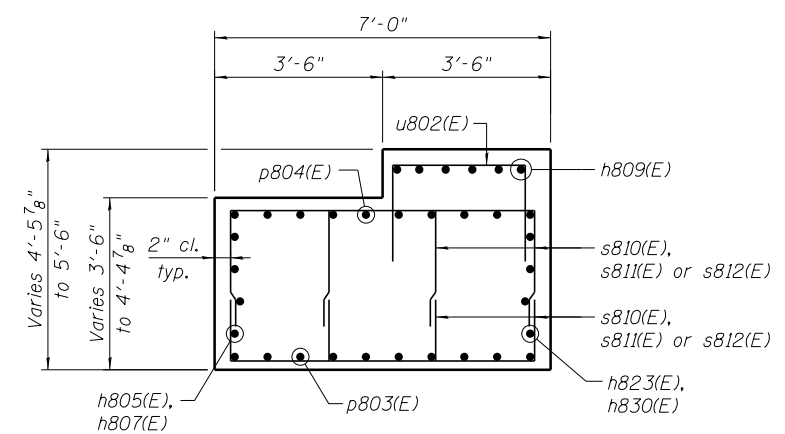
ILLINOIS FED. AID PROJECT

**BILL OF MATERIAL**

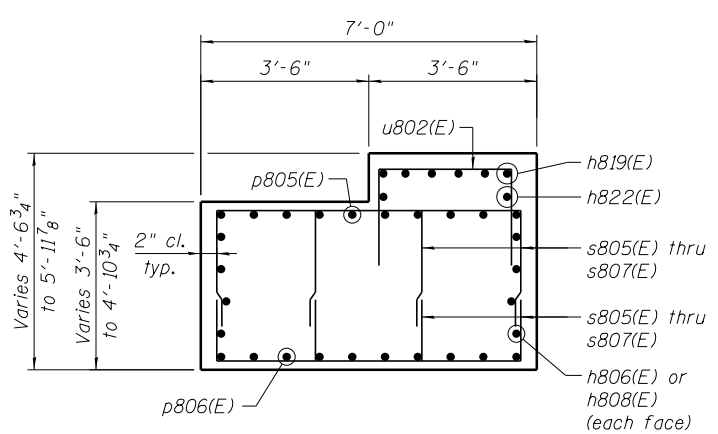
Bar	No.	Size	Length	Shape
h801(E)	6	#5	36'-3"	
h802(E)	14	#6	39'-4"	
h803(E)	12	#5	31'-3"	
h804(E)	14	#6	33'-4"	
h805(E)	4	#5	45'-10"	
h806(E)	8	#5	39'-7"	
h807(E)	1	#5	42'-8"	
h808(E)	2	#5	36'-6"	
h809(E)	6	#5	6'-2"	
h810(E)	6	#5	30'-0"	
h811(E)	6	#5	45'-1"	
h812(E)	6	#5	33'-1"	
h813(E)	6	#5	20'-9"	
h814(E)	6	#5	8'-4"	
h815(E)	6	#5	9'-3"	
h816(E)	6	#5	17'-3"	
h817(E)	6	#5	25'-3"	
h818(E)	6	#5	33'-3"	
h819(E)	6	#5	35'-6"	
h820(E)	6	#5	12'-11"	
h821(E)	6	#5	22'-9"	
h822(E)	2	#5	17'-0"	
h823(E)	1	#5	41'-2"	
h824(E)	6	#5	13'-0"	
h825(E)	6	#5	11'-11"	
h826(E)	6	#5	19'-7"	
h827(E)	6	#5	16'-5"	
h828(E)	6	#5	12'-2"	
h829(E)	6	#5	37'-3"	
h830(E)	4	#5	44'-3"	
p801(E)	10	#11	39'-4"	
p802(E)	10	#11	33'-4"	
p803(E)	10	#11	20'-2"	
p804(E)	10	#11	45'-10"	
p805(E)	10	#11	39'-7"	
p806(E)	10	#11	20'-2"	
s801(E)	98	#6	17'-4"	
s802(E)	98	#6	11'-8"	
s803(E)	16	#6	13'-8 1/4"	
s804(E)	198	#5	17'-11"	
s805(E)	16	#5	12'-3 1/2"	
s806(E)	8	#5	11'-7 1/2"	
s807(E)	4	#5	11'-3 1/2"	
s808(E)	2	#5	16'-8"	
s809(E)	2	#5	16'-4 1/2"	
s810(E)	16	#5	11'-9 1/2"	
s811(E)	8	#5	11'-4 1/2"	
s812(E)	4	#5	11'-2"	
s813(E)	2	#5	16'-6"	
s814(E)	2	#5	16'-4"	
* sp801	5	#5	74'-9"	
* sp802(E)	1	#5	19'-10"	
* sp803(E)	1	#5	20'-6"	
* sp804(E)	1	#5	21'-1"	
* sp805(E)	1	#5	21'-9"	
* sp806(E)	1	#5	22'-5"	
u801(E)	12	#6	14'-2"	
u802(E)	92	#5	6'-2"	
u803(E)	77	#5	6'-2"	
v801	90	#14	45'-0"	
v802	90	#14	29'-6"	
v803(E)	60	#11	16'-4"	
v804(E)	12	#11	28'-5"	
v805(E)	12	#11	29'-0"	
v806(E)	12	#11	29'-8"	
v807(E)	12	#11	30'-4"	
v808(E)	12	#11	31'-0"	
v809(E)	14	#6	6'-8"	
Structure Excavation		Cu. Yd.	35	
Concrete Structures		Cu. Yd.	248.9	
Reinforcement Bars, Epoxy Coated		Pound	43,670	
Reinforcement Bars		Pound	60,460	
Drilled Shaft in Soil		Cu. Yd.	201.8	
Drilled Shaft in Rock		Cu. Yd.	14.0	
Concrete Sealer		Sq. Ft.	4,738	
Crosshole Sonic Logging		Each	1	



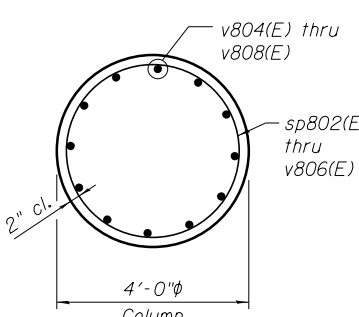
**SECTION A-A**



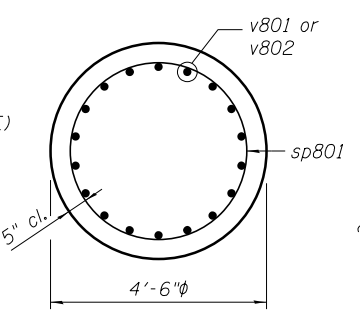
**SECTION B-B**



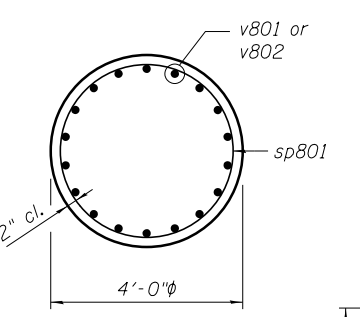
**SECTION F-F**



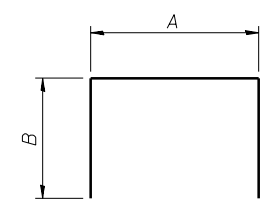
**SECTION C-C**



**SECTION D-D**

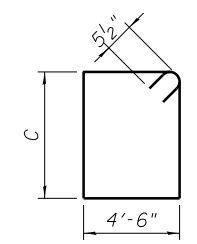


**SECTION E-E**



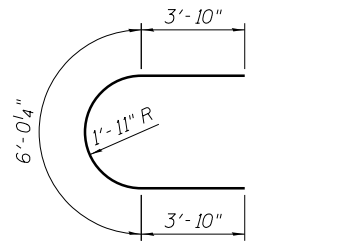
**BARS A & B DIMENSIONS**

Bar	A	B
s801(E)	4'-0"	6'-8"
s802(E)	4'-0"	3'-10"
s805(E)	4'-6"	3'-10 3/4"
s806(E)	4'-6"	3'-6 3/4"
s807(E)	4'-6"	3'-4 3/4"
s810(E)	4'-6"	3'-7 3/4"
s811(E)	4'-6"	3'-5 1/4"
s812(E)	4'-6"	3'-4"
u801(E)	6'-6"	3'-10"
u802(E)	3'-2"	1'-6"
u803(E)	3'-2"	1'-6"



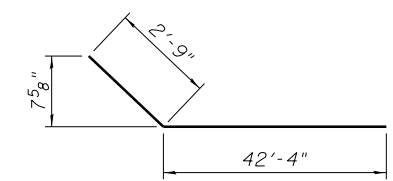
**BARS C DIMENSIONS**

Bar	C
s804(E)	4'-0"
s808(E)	3'-4 1/2"
s809(E)	3'-2 3/4"
s813(E)	3'-3 1/2"
s814(E)	3'-2 1/2"

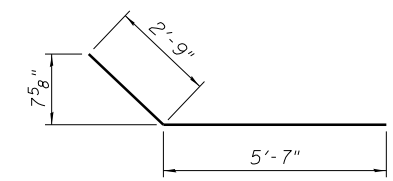


**BARS D DIMENSIONS**

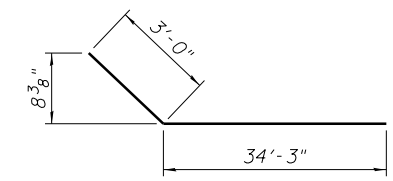
Bar	D
v804(E)	26'-10"
v805(E)	27'-5"
v806(E)	28'-1"
v807(E)	28'-9"
v808(E)	29'-5"



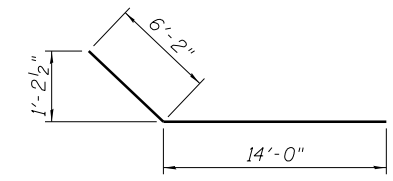
**BAR h811(E)**



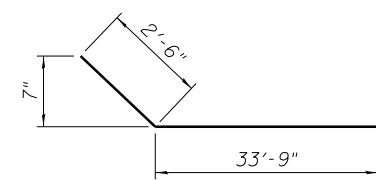
**BAR h814(E)**



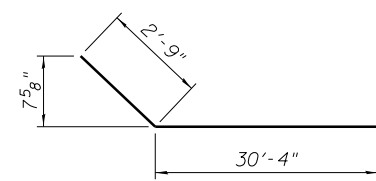
**BAR h829(E)**



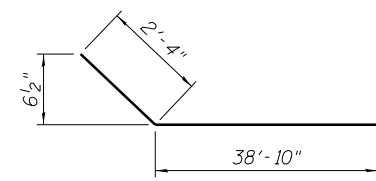
**BAR p806(E)**



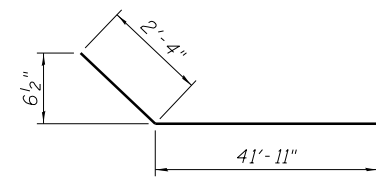
**BAR h801(E)**



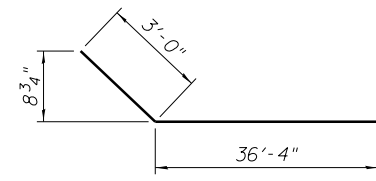
**BAR h812(E)**



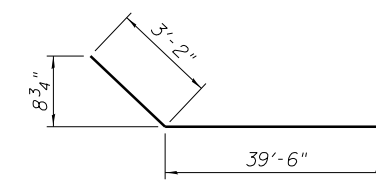
**BAR h823(E)**



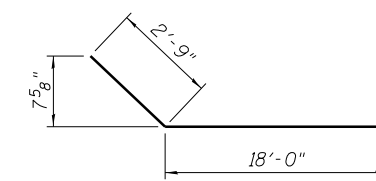
**BAR h830(E)**



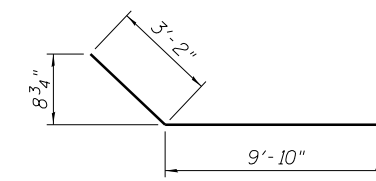
**BAR h802(E) & p801(E)**



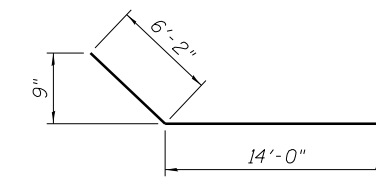
**BAR h807(E)**



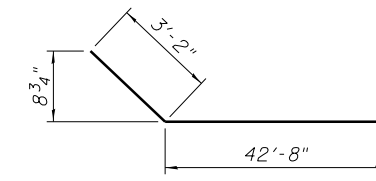
**BAR h813(E)**



**BAR h824(E)**



**BAR p803(E)**



**BAR h805(E) & p804(E)**

\* Length is height of spiral.

469\_0161504\_s01\_70\_Pier-B-4.dgn



USER NAME = kr1tzm	DESIGNED - EJO	REVISIONS -
PLOT SCALE =	CHECKED - ATB	REVISIONS -
PLOT DATE = 12/05/2014	DRAWN - MRK	REVISIONS -
	CHECKED - CLS	REVISIONS -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**PIER 8W DETAILS III - S.N. 016-1504  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

F.A.I. RT.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	686

CONTRACT NO. 60L70

SHEET NO. S-194 OF S-248 SHEETS

ILLINOIS FED. AID PROJECT

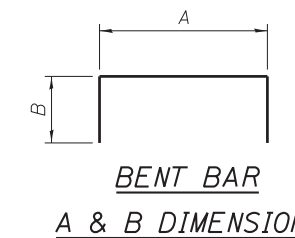
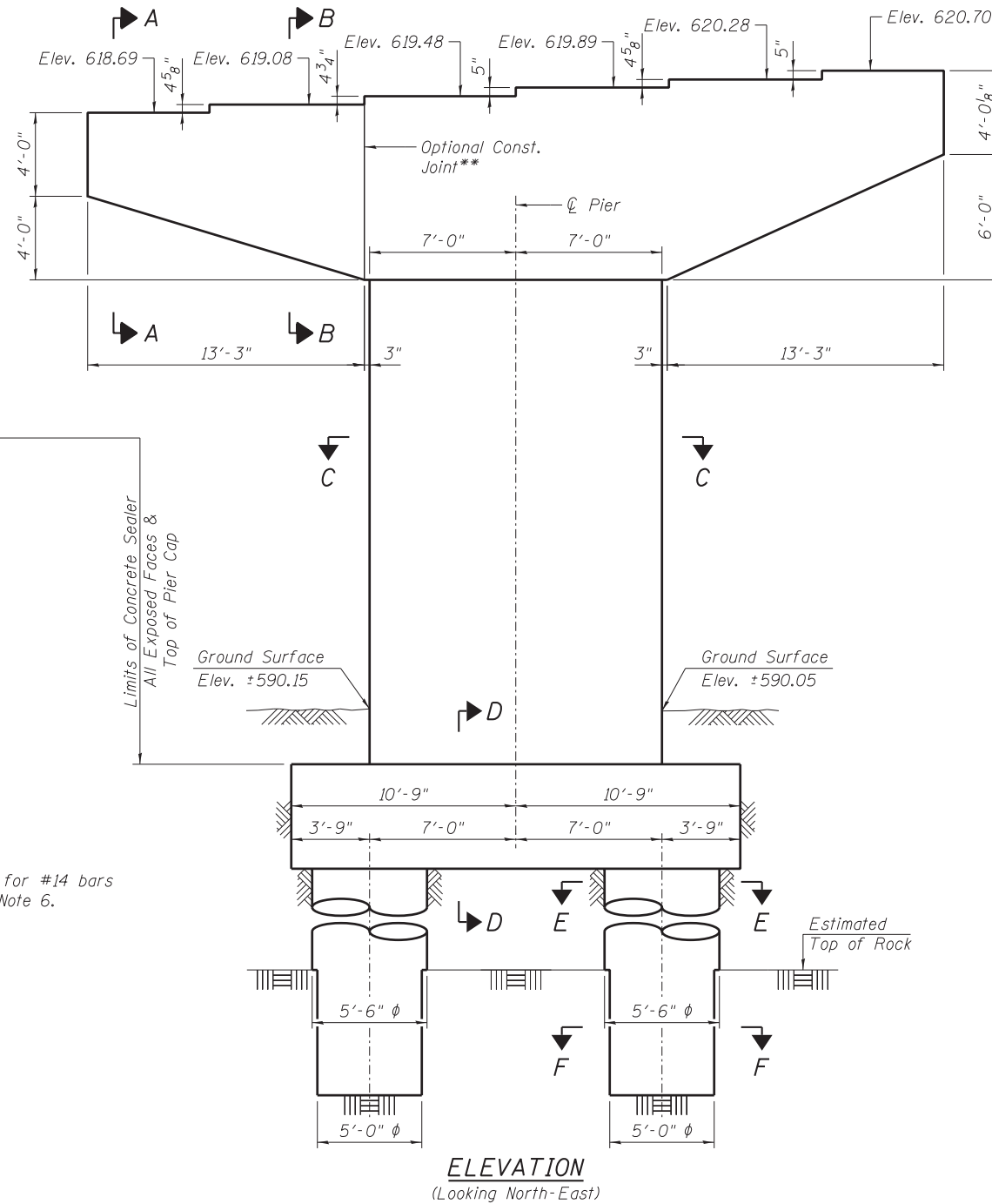
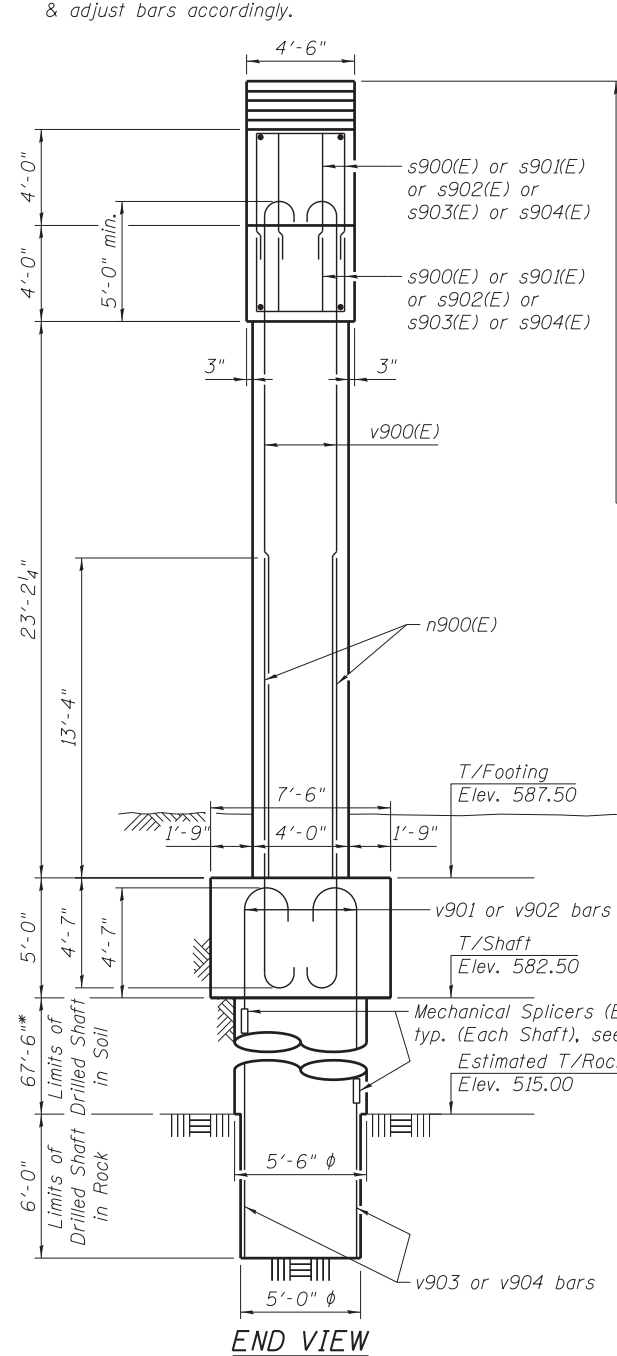
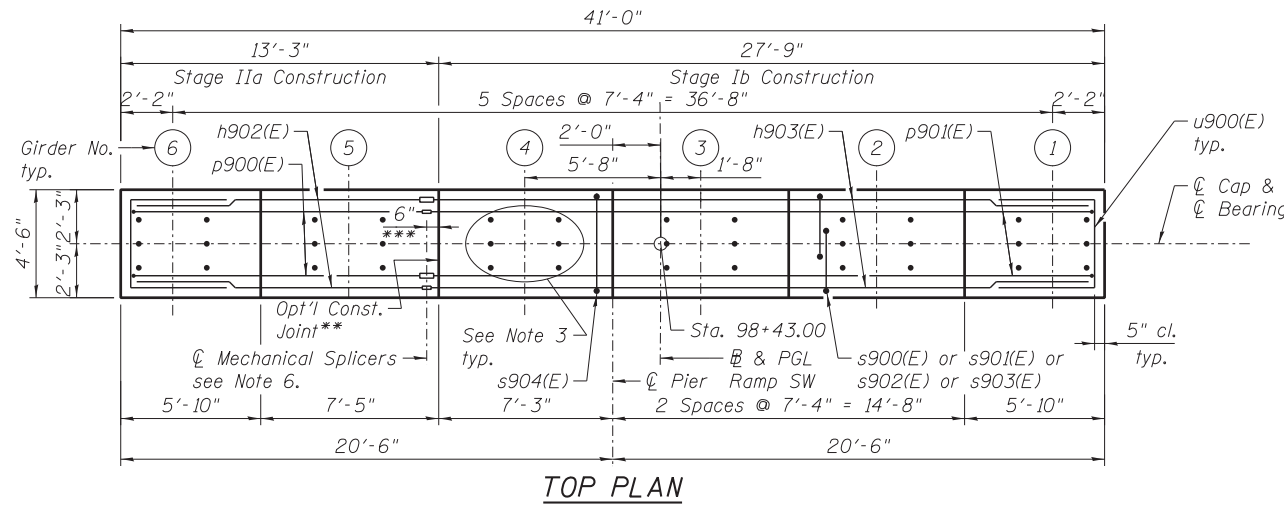
**NOTES:**

1. Pour steps monolithically with cap.
2. C of Pier is radial to Ramp SW at Sta. 98+43.00.
3. For Anchor Bolt Details, see Sheet S-169.
4. For Architectural Details, see Sheets S-219 thru S-221.
5. For Sections & Details, see Sheet S-196.
6. For Mechanical Splicer Details & Quantities, see Sheet S-222.

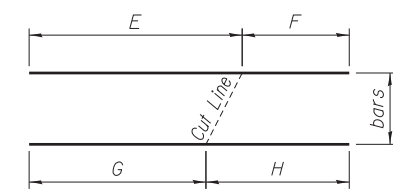
\*The quantities & detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft & corresponding adjustments shall be made to the drilled shaft & reinforcement quantities & payment limits.

\*\*Construction joint not required if Contractor elects to construct entire pier cap in Stage IIa. Omit Mechanical Splicers & adjust bars accordingly.

\*\*\* Contractor to verify Mechanical Splicer dimensions & adjust bars accordingly.



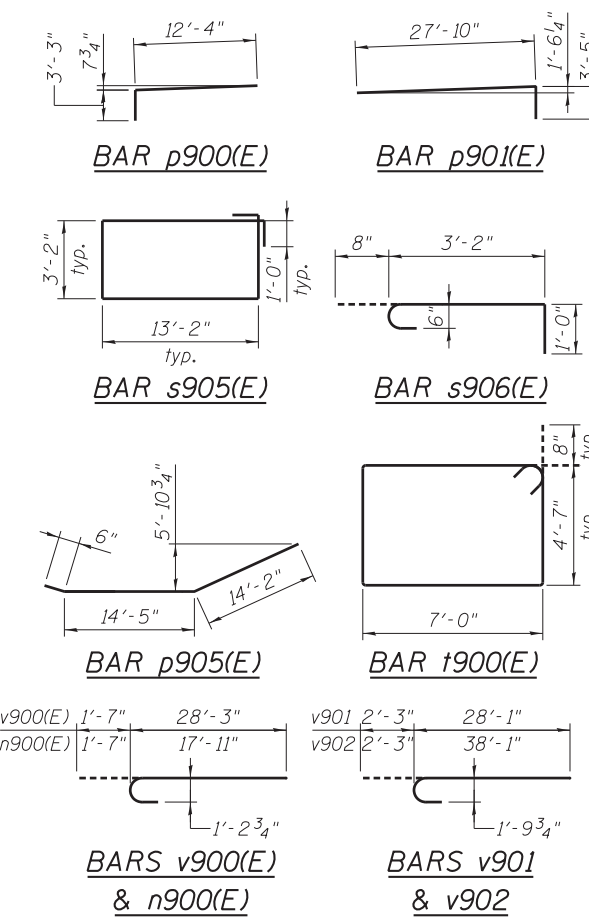
Bar	A	B
s900(E)	2'-6"	3'-7"
s901(E)	2'-6"	4'-3"
s902(E)	2'-6"	4'-10 1/2"
s903(E)	2'-6"	6'-2 1/2"
s904(E)	3'-8"	6'-2 1/2"
t901(E)	21'-0"	2'-9"
u900(E)	3'-6"	4'-0"
u901(E)	7'-0"	4'-0"
U902(E)	3'-8"	1'-0"



Order h906(E), h908(E), & h909(E) bars Full Length. Cut as shown & use remainder of bars.

**E, F, G, & H DIMENSIONS**

Bar	E	F	G	H
h906(E)	21'-3"	3'-2"	15'-3"	9'-2"
h908(E)	11'-2"	1'-7"	7'-4"	5'-5"
h909(E)	22'-9"	16'-4"	20'-2"	18'-11"



**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h900(E)	10	#5	4'-10"	—
h901(E)	20	#5	6'-6"	—
h902(E)	10	#7	12'-4"	—
h903(E)	10	#7	27'-10"	—
h904(E)	2	#7	3'-1"	—
h905(E)	2	#7	9'-10"	—
h906(E)	4	#7	24'-5"	—
h907(E)	4	#7	24'-2"	—
h908(E)	6	#7	12'-7"	—
h909(E)	6	#7	39'-1"	—
h910(E)	14	#11	21'-0"	—
n900(E)	52	#11	19'-6"	—
p900(E)	10	#11	15'-7"	—
p901(E)	10	#11	31'-3"	—
p902(E)	20	#11	12'-0"	—
p903(E)	20	#11	27'-11"	—
p904(E)	6	#8	12'-10"	—
p905(E)	6	#8	29'-1"	—
s900(E)	20	#6	9'-8"	—
s901(E)	24	#6	11'-0"	—
s902(E)	48	#6	12'-3"	—
s903(E)	80	#6	14'-11"	—
s904(E)	30	#6	16'-1"	—
s905(E)	22	#6	34'-8"	—
s906(E)	132	#6	4'-10"	—
sp900	2	#6	73'-6"	—
t900(E)	43	#6	24'-6"	—
t901(E)	20	#11	26'-6"	—
u900(E)	10	#6	11'-6"	—
u901(E)	14	#6	15'-0"	—
u902(E)	42	#6	5'-8"	—
v900(E)	52	#11	29'-10"	—
v901	24	#14	30'-4"	—
v902	24	#14	40'-4"	—
v903	24	#14	40'-0"	—
v904	24	#14	50'-0"	—
Concrete Structures		Cu. Yd.	128.4	
Reinforcement Bars, Epoxy Coated		Pound	36,170	
Reinforcement Bars		Pound	36,150	
Drilled Shaft in Soil		Cu. Yd.	118.8	
Drilled Shaft in Rock		Cu. Yd.	8.7	
Concrete Sealer		Sq. Ft.	1,852	
Structure Excavation		Cu. Yd.	83	
Crosshole Sonic Logging		Each	1	

\*\*\*\* Length is height of spiral.

**MIN. LAP LENGTH**

- #6 bars: 3'-10"
- 3'-3" (s900(E) bars)
- #11 bars: 13'-4"

470\_0161504\_60L70\_PIER9-1.dgn



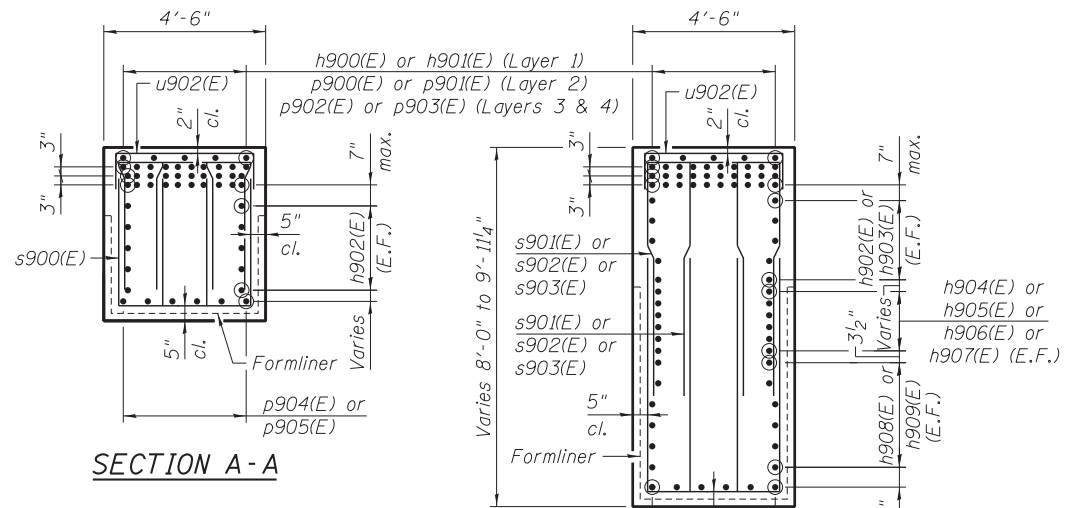
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PLOT SCALE =	CHECKED - BG	REVISED -
PLOT DATE = 12/05/2014	DRAWN - PH	REVISED -
	CHECKED - BG	REVISED -

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

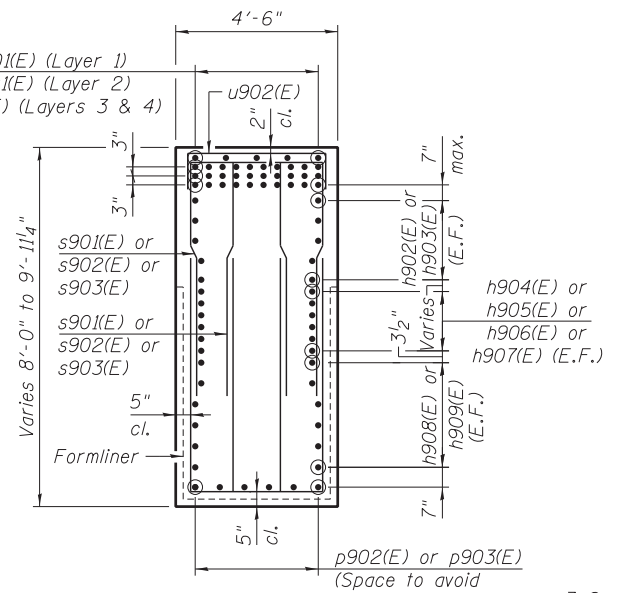
**PIER 9W PLAN & ELEVATION - S.N.016-1504**  
**I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

F.A.I. R.T.E. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 687
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	

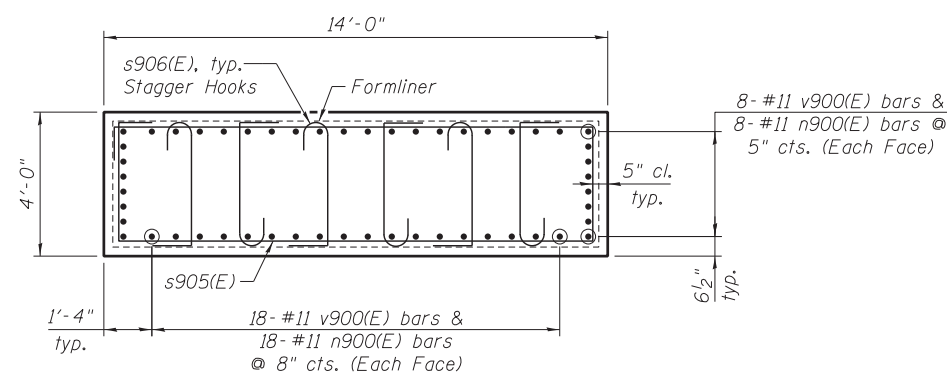
SHEET NO. S-195 OF S-248 SHEETS



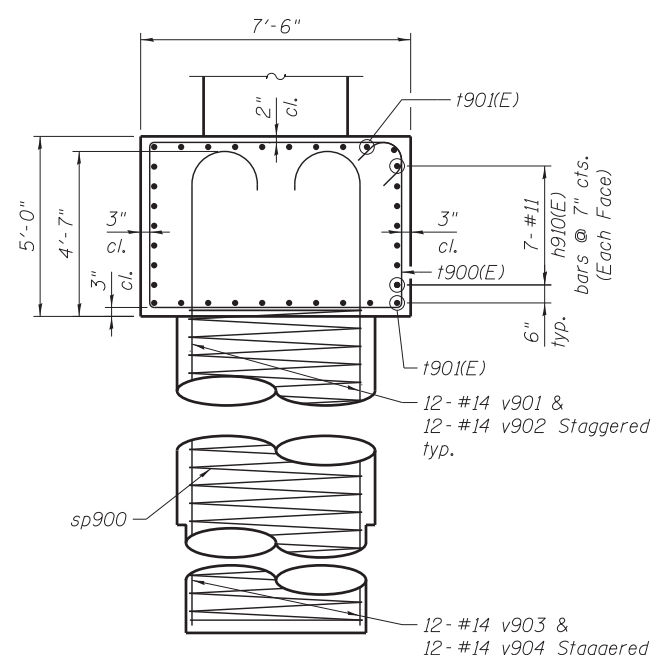
SECTION A-A



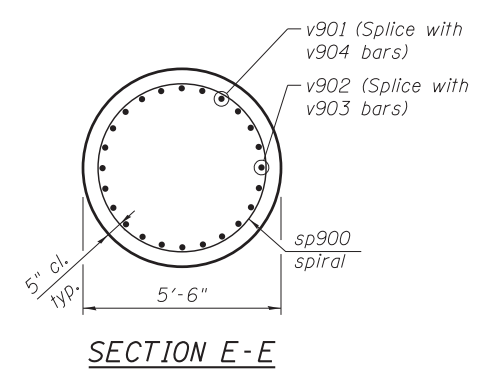
SECTION B-B



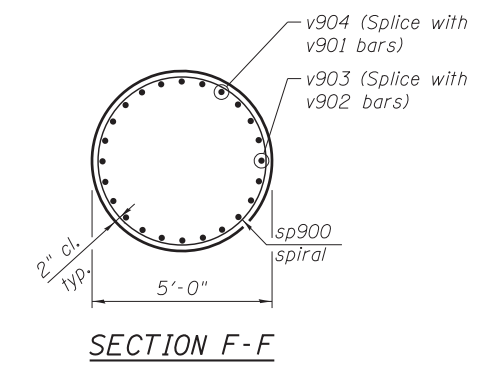
SECTION C-C



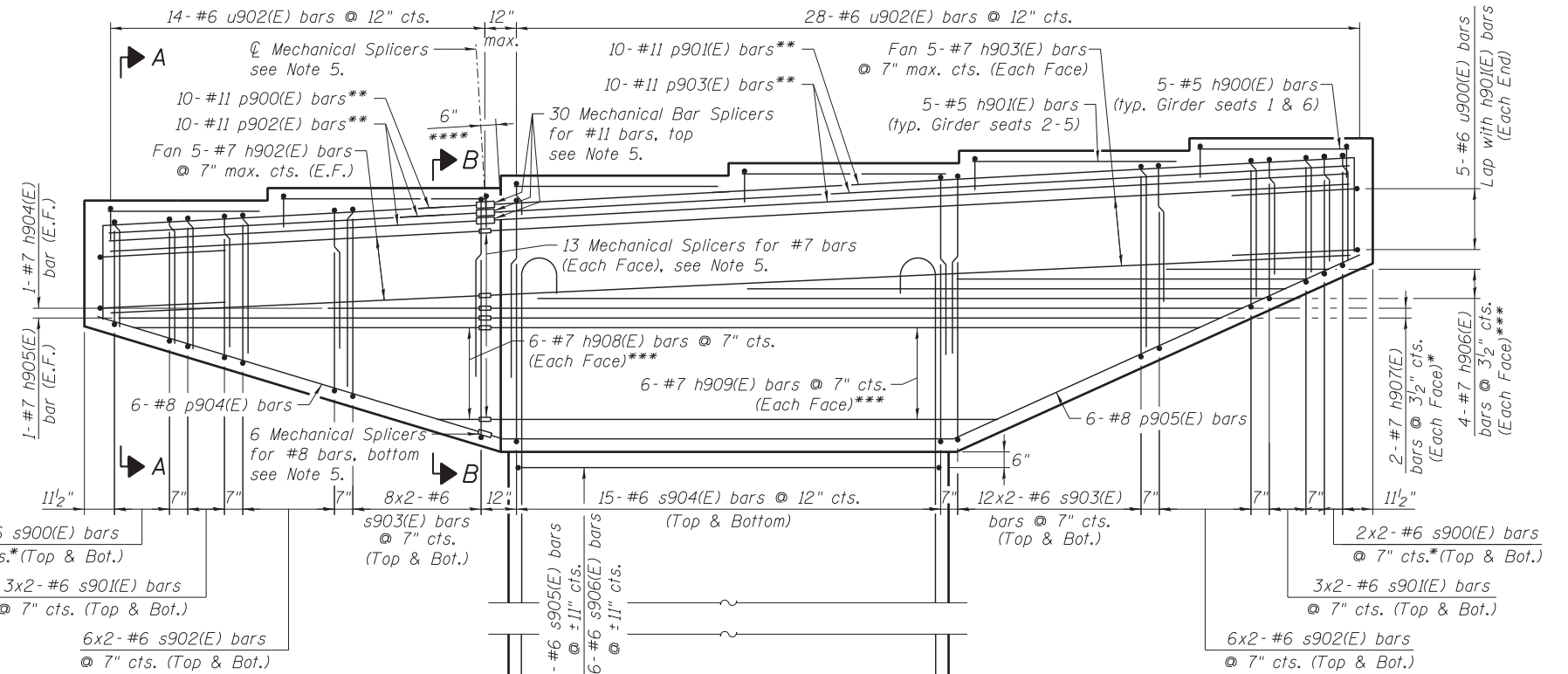
SECTION D-D



SECTION E-E

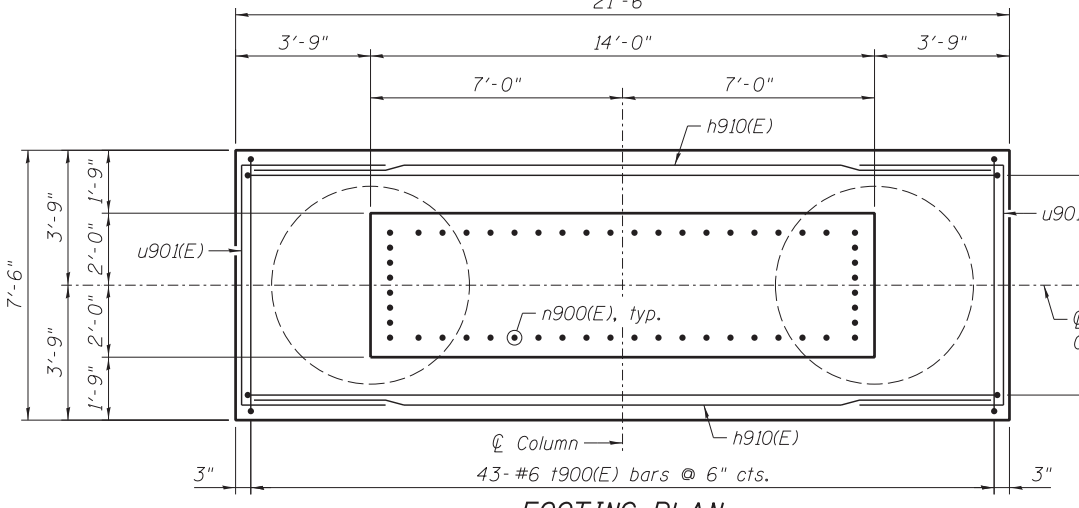


SECTION F-F



ELEVATION

(Looking North-East)



FOOTING PLAN

\*Field cut as required & maintain 3'-3" min. lap  
 \*\*Slope with bearing steps.  
 \*\*\*See Field Cutting Diagram on sheet S-195.  
 \*\*\*\*Contractor to verify Mechanical Splicer dimensions & adjust bars accordingly.

NOTES:

- Space reinforcement in cap to miss anchor bolts.
- sp900 spiral:
  - Provide 1/2 extra turns top & bottom. Extend spiral 3" into pile 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 drilled shafts that will fit between spirals. Contractor shall field adjust spiral pitch to 12" maximum at Mechanical Splicer locations.
- A Drilled Shaft shall be tested in accordance with Special Provisions for Crosshole Sonic Logging.
- For Mechanical Splicer details & quantities see Sheet S-222.

471L0161504-60L70\_P1ERS-2.dgn



USER NAME = PHodina	DESIGNED - PH	REVISED -
PLOT SCALE =	CHECKED - BG	REVISED -
PLOT DATE = 12/05/2014	DRAWN - PH	REVISED -
	CHECKED - BG	REVISED -

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

PIER 9W DETAILS - S.N. 016-1504  
 I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-196 OF S-248 SHEETS

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 688
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	



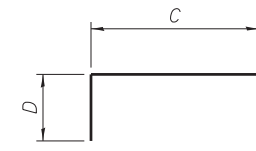
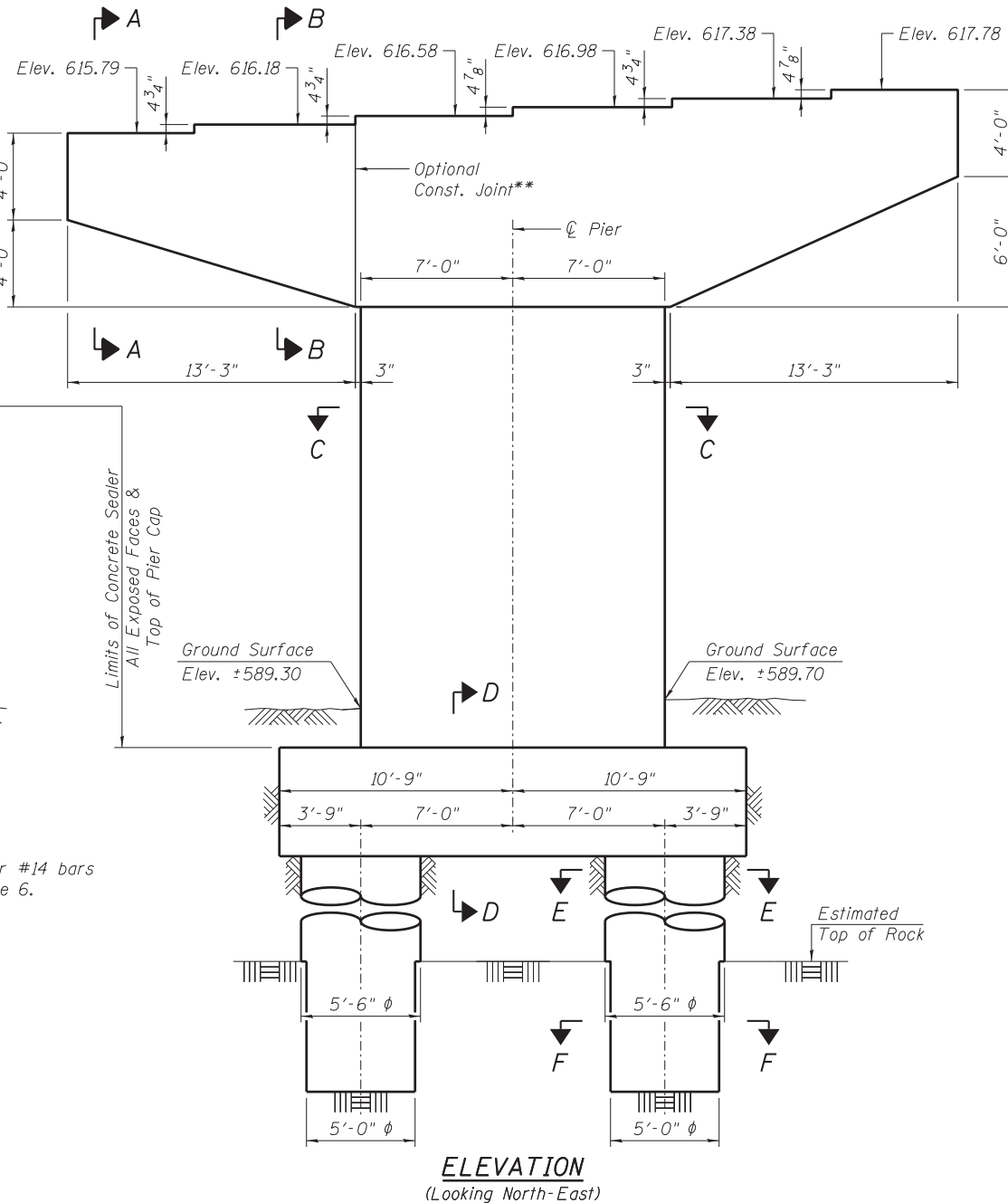
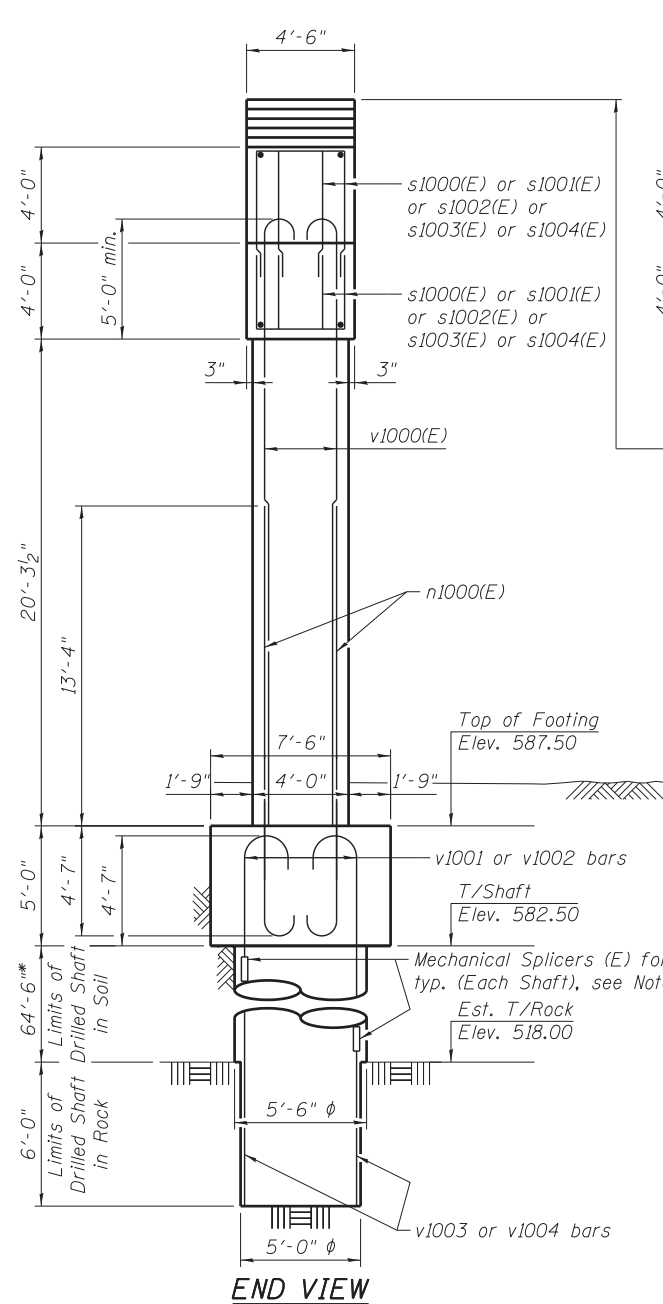
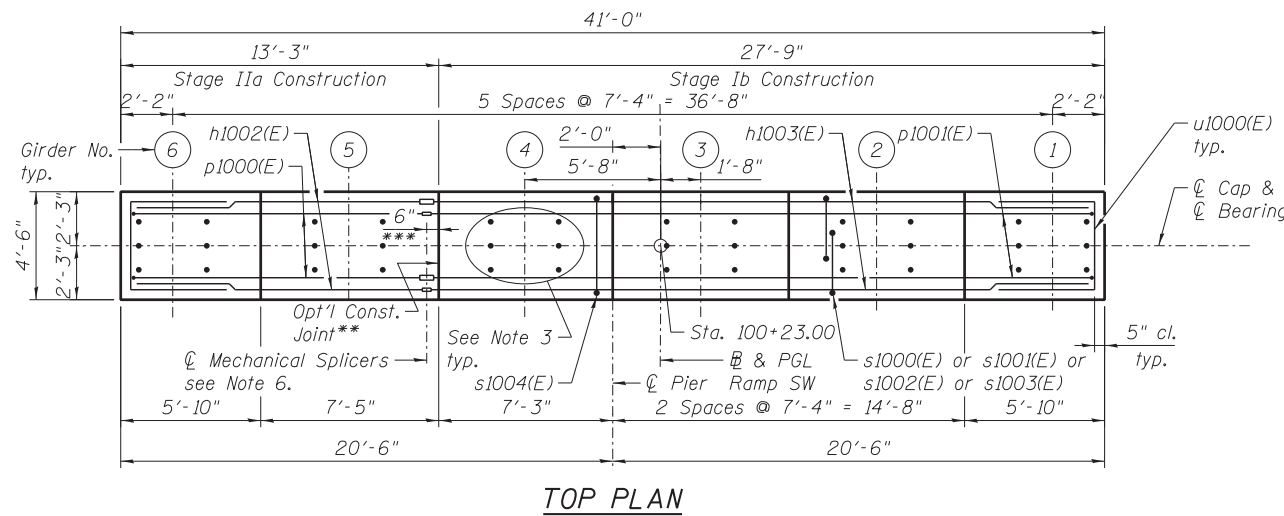
**NOTES:**

1. Pour steps monolithically with cap.
2. C of Pier is radial to Ramp SW at Sta. 98+43.00.
3. For Anchor Bolt Details, see Sheet S-169.
4. For Architectural Details, see Sheets S-219 thru S-221.
5. For Sections & Details, see Sheet S-196.
6. For Mechanical Splicer Details & Quantities, see Sheet S-222.

\*The quantities & detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft & corresponding adjustments shall be made to the drilled shaft & reinforcement quantities & payment limits.

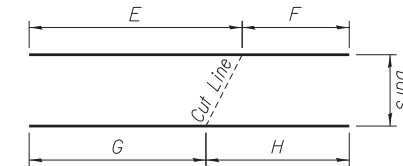
\*\*Construction joint not required if Contractor elects to construct entire pier cap in Stage IIa. Omit Mechanical Splicers & adjust bars accordingly.

\*\*\* Contractor to verify Mechanical Splicer dimensions & adjust bars accordingly.



**BENT BAR  
C & D DIMENSIONS**

Bar	C	D
s1000(E)	2'-6"	3'-7"
s1001(E)	2'-6"	4'-3"
s1002(E)	2'-6"	4'-10 1/2"
s1003(E)	2'-6"	6'-2 1/2"
s1004(E)	3'-8"	6'-2 1/2"
h1001(E)	2'-0"	2'-9"
u1000(E)	3'-6"	4'-0"
u1001(E)	7'-0"	4'-0"
u1002(E)	3'-8"	1'-0"

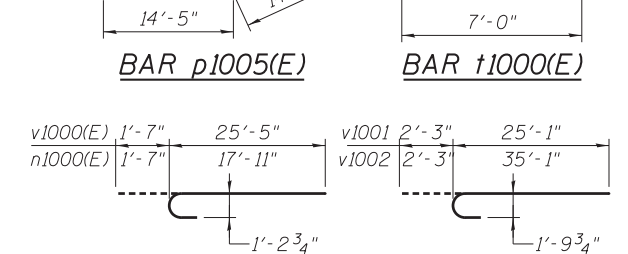
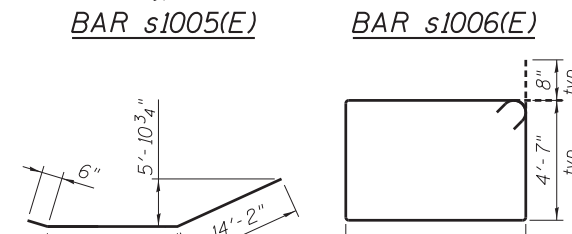
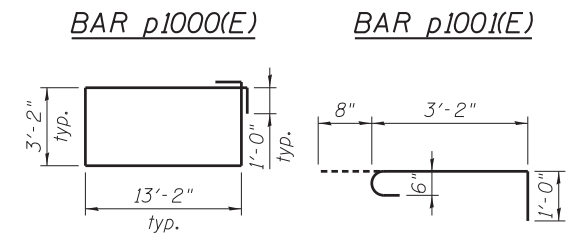
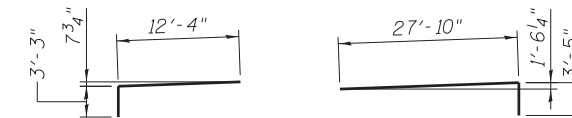


**FIELD CUTTING DIAGRAMS**

Order h1006(E), h1008(E), and h1009(E) bars Full Length. Cut as shown and use remainder of bars.

**E, F, G, & H DIMENSIONS**

Bar	E	F	G	H
h1006(E)	21'-3"	3'-2"	15'-3"	9'-2"
h1008(E)	11'-2"	1'-7"	7'-4"	5'-5"
h1009(E)	22'-9"	16'-4"	20'-2"	18'-11"



**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h1000(E)	10	#5	4'-10"	—
h1001(E)	20	#5	6'-6"	—
h1002(E)	10	#7	12'-4"	—
h1003(E)	10	#7	27'-10"	—
h1004(E)	2	#7	3'-1"	—
h1005(E)	2	#7	9'-10"	—
h1006(E)	4	#7	24'-5"	—
h1007(E)	4	#7	24'-2"	—
h1008(E)	6	#7	12'-7"	—
h1009(E)	6	#7	39'-1"	—
h1010(E)	14	#11	21'-0"	—
n1000(E)	52	#11	19'-6"	—
p1000(E)	10	#11	15'-7"	—
p1001(E)	10	#11	31'-3"	—
p1002(E)	20	#11	12'-0"	—
p1003(E)	20	#11	27'-11"	—
p1004(E)	6	#8	12'-10"	—
p1005(E)	6	#8	29'-1"	—
s1000(E)	20	#6	9'-8"	—
s1001(E)	24	#6	11'-0"	—
s1002(E)	48	#6	12'-3"	—
s1003(E)	80	#6	14'-11"	—
s1004(E)	30	#6	16'-1"	—
s1005(E)	22	#6	34'-8"	—
s1006(E)	132	#6	4'-10"	—
sp1000	2	#6	70'-6"	—
t1000(E)	43	#6	24'-6"	—
t1001(E)	20	#11	26'-6"	—
u1000(E)	10	#6	11'-6"	—
u1001(E)	14	#6	15'-0"	—
u1002(E)	42	#6	5'-8"	—
v1000(E)	52	#11	27'-0"	—
v1001	24	#14	27'-4"	—
v1002	24	#14	37'-4"	—
v1003	24	#14	40'-0"	—
v1004	24	#14	50'-0"	—
Concrete Structures		Cu. Yd.	122.4	
Reinforcement Bars, Epoxy Coated		Pound	35,340	
Reinforcement Bars		Pound	34,740	
Drilled Shaft in Soil		Cu. Yd.	113.5	
Drilled Shaft in Rock		Cu. Yd.	8.7	
Concrete Sealer		Sq. Ft.	1,745	
Structure Excavation		Cu. Yd.	77	
Crosshole Sonic Logging		Each	1	

\*\*\*\*Length is height of spiral.

**MIN. LAP LENGTH**

- #6 bars: 3'-10"
- 3'-1" (s1000(E) bars)
- #11 bars: 13'-4"

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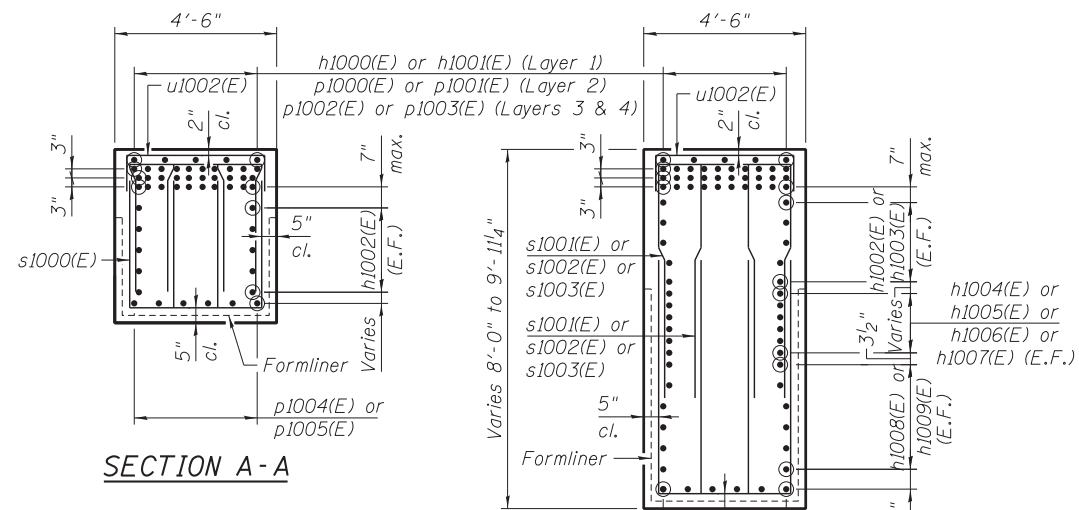
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PLOT SCALE =	CHECKED - BG	REVISIONS -
PLOT DATE = 12/05/2014	DRAWN - PH	REVISIONS -
	CHECKED - BG	REVISIONS -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PIER 10W PLAN & ELEVATION - S.N. 016-1504  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

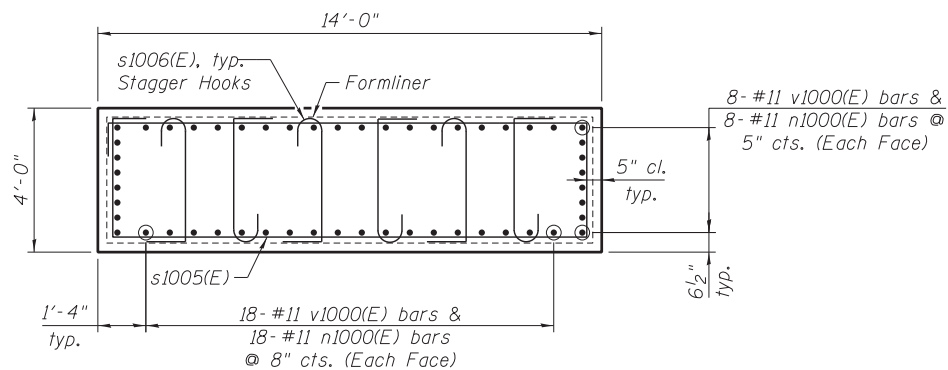
SHEET NO. S-197 OF S-248 SHEETS

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 689
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	

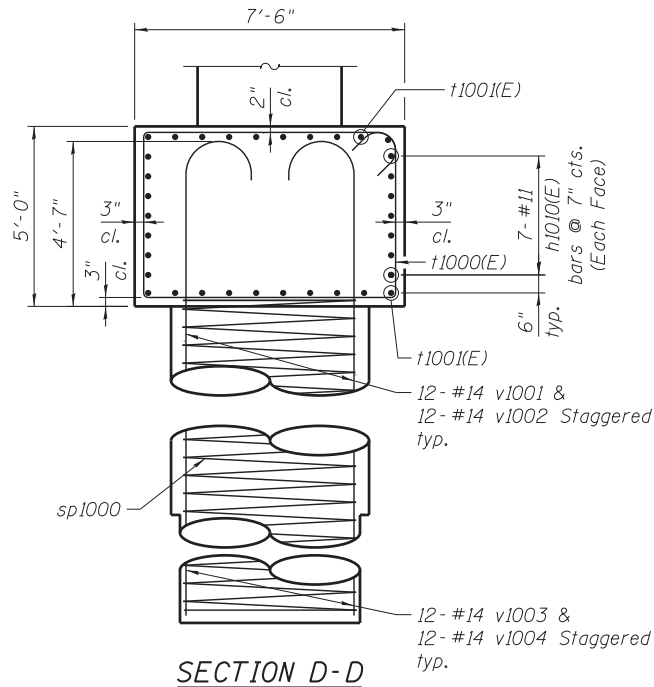


SECTION A-A

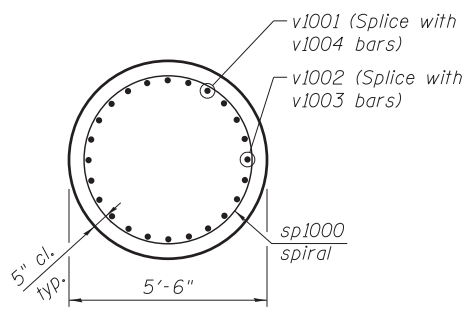
SECTION B-B



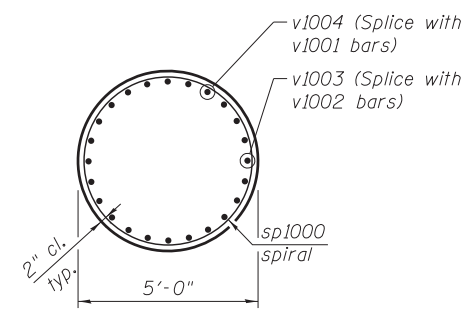
SECTION C-C



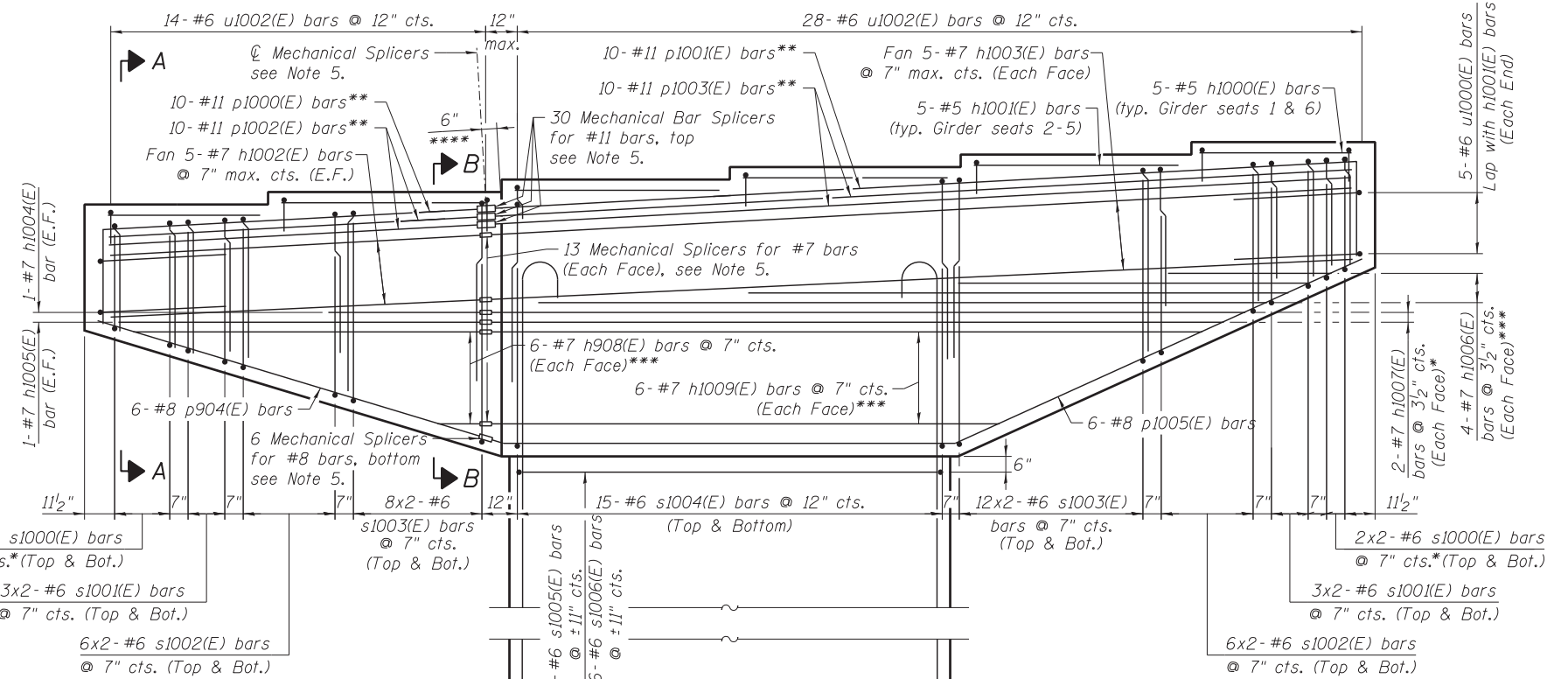
SECTION D-D



SECTION E-E

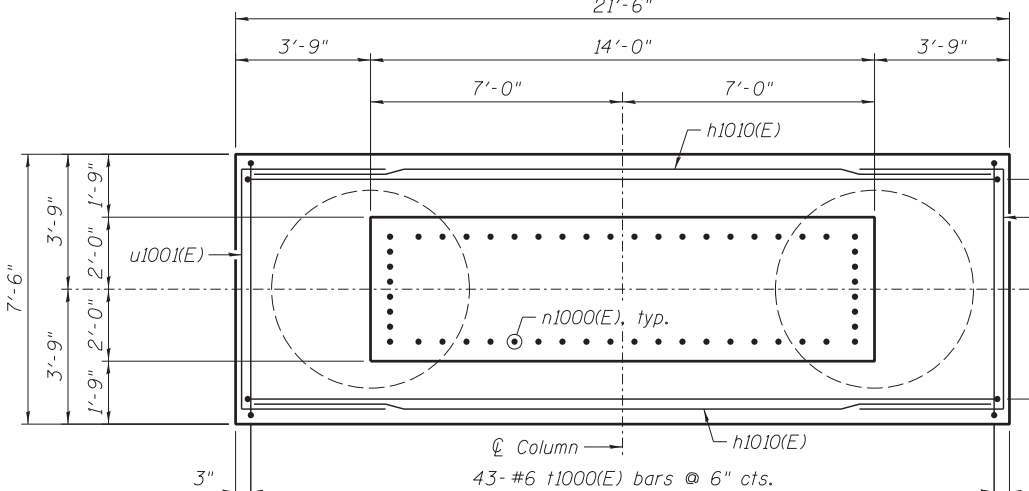


SECTION F-F



ELEVATION

(Looking North-East)



FOOTING PLAN

- \*Field cut as required & maintain 3'-3" min. lap
- \*\*Slope with bearing steps.
- \*\*\*See Field Cutting Diagram on sheet S-195.
- \*\*\*\*Contractor to verify Mechanical Splicer dimensions & adjust bars accordingly.

**NOTES:**

1. Space reinforcement in cap to miss anchor bolts.
2. sp900 spiral:
  - 1) Provide 1/2 extra turns top & bottom. Extend spiral 3" into pile cap. 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.
3. Contractor shall use Mechanical Splicers in drilled shafts that will fit between spirals. Contractor shall field adjust spiral pitch to 12" maximum at Mechanical Splicer locations.
4. A Drilled Shaft shall be tested in accordance with Special Provisions for Crosshole Sonic Logging.
5. For Mechanical Splicer details & quantities see Sheet S-222.

473\_0161504\_60L70\_PIER10-2.dgn



USER NAME = PHodina	DESIGNED - PH	REVISED -
PLOT SCALE =	CHECKED - BG	REVISED -
PLOT DATE = 12/05/2014	DRAWN - PH	REVISED -
	CHECKED - BG	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PIER 10W DETAILS - S.N.016-1504  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

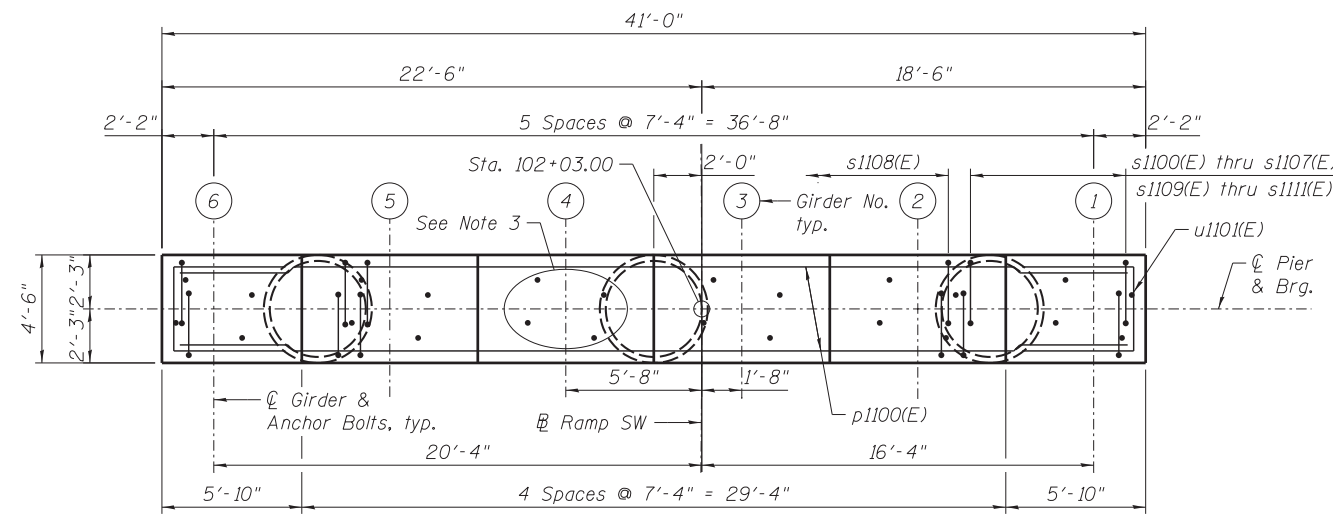
SHEET NO. S-198 OF S-248 SHEETS

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 690
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	

**NOTES:**

1. Space reinforcement in cap to miss anchor bolts.
2. Pour steps monolithically with cap.
3.  $\phi$  of Pier is radial to  $\phi$  Ramp SW at Sta. 102+03.00
4. For Anchor Bolts Details see Sheet S-166.
5. For Sections & Details see Sheet S-200.
6. A drilled shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging.

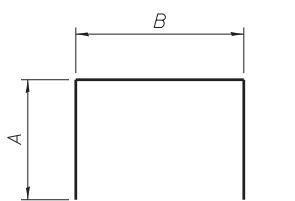
\*The quantities & detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft & corresponding adjustments shall be made to the drilled shaft & reinforcement quantities & payment limits.



**TOP PLAN**

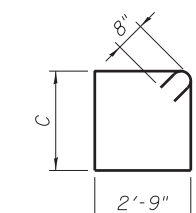
**MAX. COLUMN HEIGHT**

Column	Height
A	8'-1 <sup>7</sup> / <sub>8</sub> "
B	8'-9 <sup>3</sup> / <sub>8</sub> "
C	9'-4 <sup>3</sup> / <sub>4</sub> "



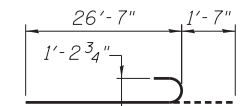
**BARS A & B DIMENSIONS**

Bar	A	B
u1100(E)	1'-0"	4'-0"
u1101(E)	3'-10"	4'-0"

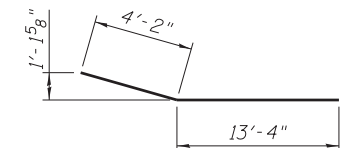


**BARS C DIMENSIONS**

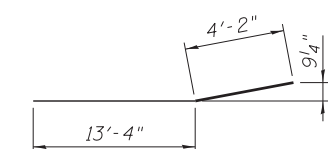
Bar	C
s1100(E)	3'-0"
s1101(E)	3'-1 <sup>1</sup> / <sub>2</sub> "
s1102(E)	3'-3"
s1103(E)	3'-5"
s1104(E)	3'-6 <sup>1</sup> / <sub>2</sub> "
s1105(E)	3'-8 <sup>1</sup> / <sub>2</sub> "
s1106(E)	3'-10"
s1107(E)	4'-0"
s1108(E)	4'-1"
s1109(E)	3'-11"
s1110(E)	3'-7 <sup>1</sup> / <sub>2</sub> "
s1111(E)	3'-4"



**BAR v1101(E)**



**BAR p1102(E)**

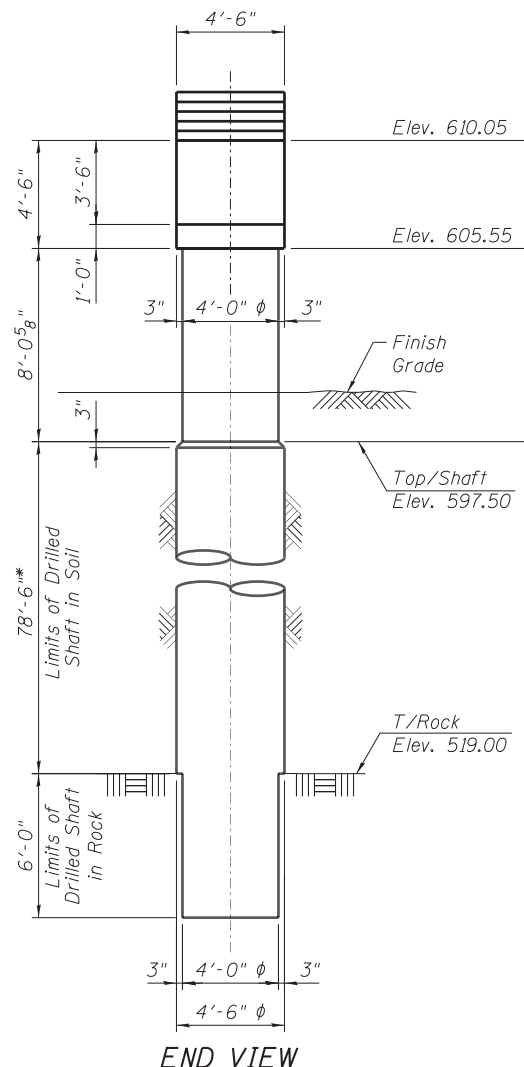


**BAR p1103(E)**

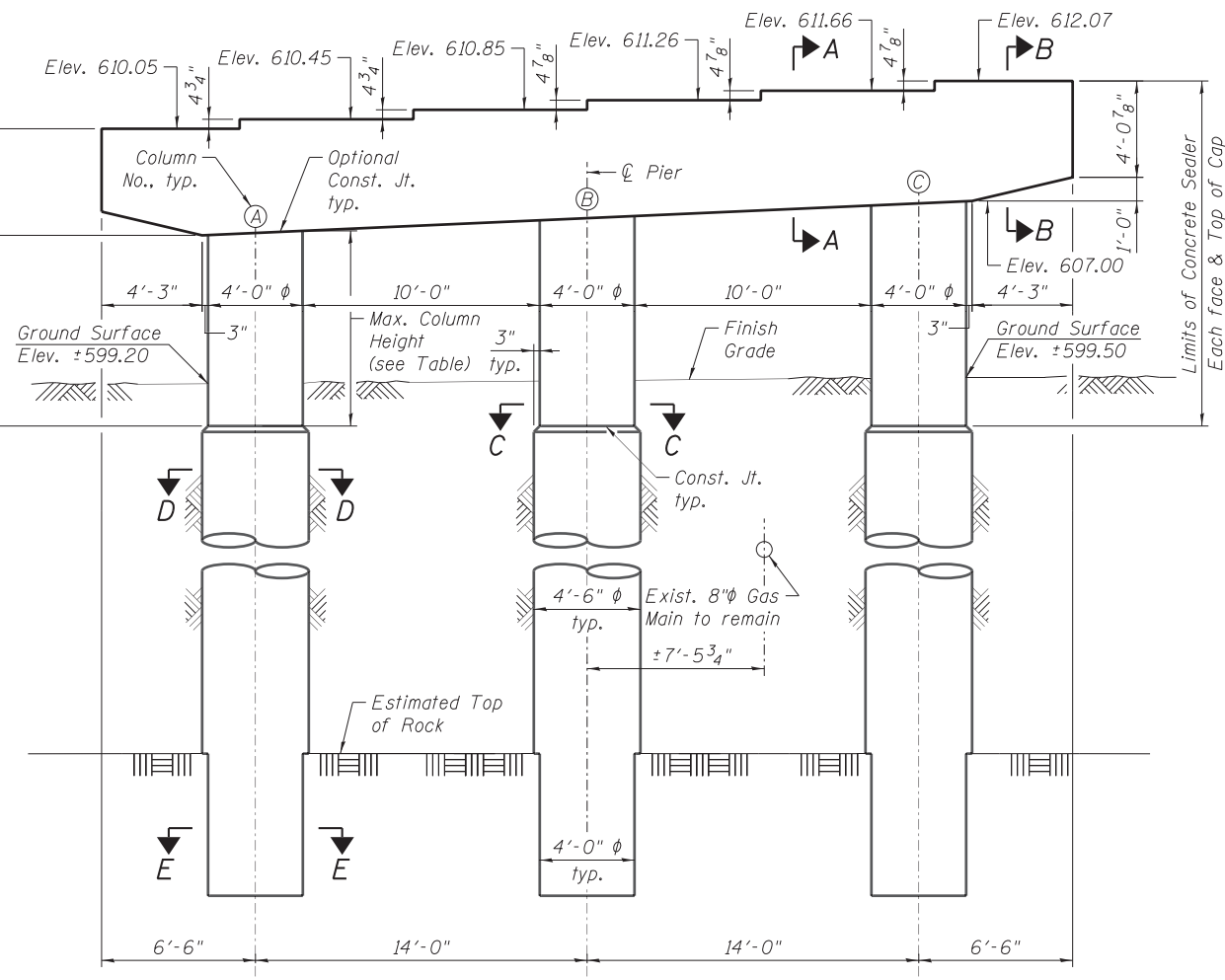
**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h1100(E)	10	#5	5'-3"	—
h1101(E)	20	#5	7'-0"	—
h1102(E)	10	#5	40'-8"	—
p1100(E)	10	#11	40'-8"	—
p1101(E)	6	#11	33'-1"	—
p1102(E)	6	#11	17'-6"	—
p1103(E)	6	#11	17'-6"	—
s1100(E)	2	#6	12'-10"	□
s1101(E)	2	#6	13'-1"	□
s1102(E)	2	#6	13'-4"	□
s1103(E)	4	#6	13'-8"	□
s1104(E)	4	#6	13'-11"	□
s1105(E)	4	#6	14'-3"	□
s1106(E)	4	#6	14'-6"	□
s1107(E)	4	#6	14'-10"	□
s1108(E)	132	#6	15'-0"	□
s1109(E)	2	#6	14'-8"	□
s1110(E)	2	#6	14'-1"	□
s1111(E)	2	#6	13'-6"	□
sp1100	3	#5	84'-6"	⋈
sp1101(E)	1	#5	8'-2"	⋈
sp1102(E)	1	#5	8'-9"	⋈
sp1103(E)	1	#5	9'-5"	⋈
u1100(E)	42	#5	6'-0"	□
u1101(E)	12	#6	11'-8"	□
v1100	36	#14	34'-4"	—
v1101	36	#14	50'-0"	—
v1101(E)	36	#11	28'-2"	—
Concrete Structures		Cu. Yd.		44.3
Reinforcement Bars, Epoxy Coated		Pound		15,210
Reinforcement Bars		Pound		29,460
Drilled Shaft in Soil		Cu. Yd.		138.7
Drilled Shaft in Rock		Cu. Yd.		8.4
Concrete Sealer		Sq. Ft.		1,089
Crosshole Sonic Logging		Each		1

\*\*Length is height of spiral.



**END VIEW**



**ELEVATION (Looking North)**

474\_0161504\_60L70\_PIER11-1.dgn

**RME** Rubinos & Mesa Engineers, Inc.  
200 S. Michigan Avenue, Suite 1500, Chicago, IL 60604-2482

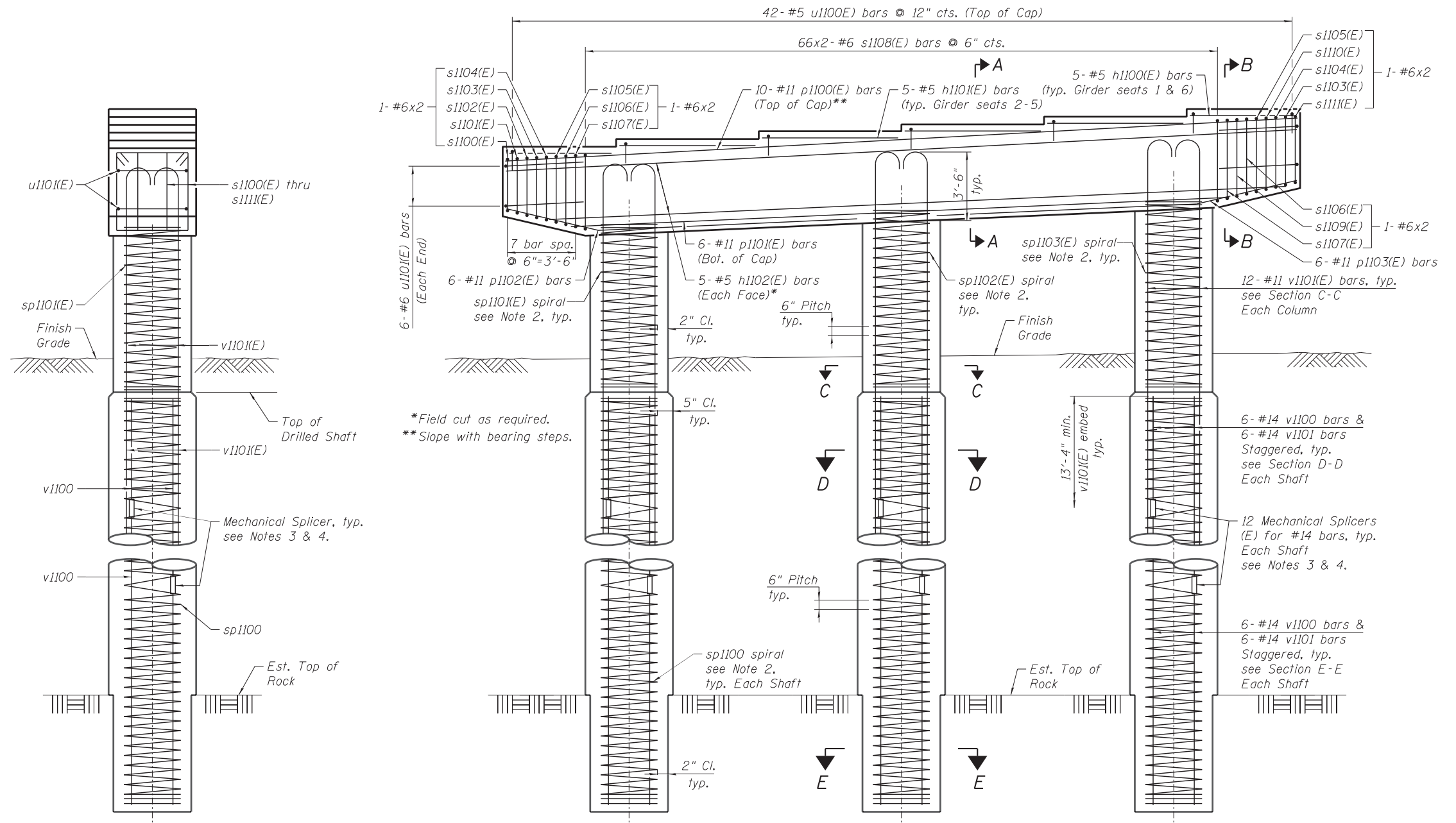
USER NAME = PHodina	DESIGNED - PH	REVISED -
PLOT SCALE =	CHECKED - BG	REVISED -
PLOT DATE = 12/05/2014	DRAWN - PH	REVISED -
	CHECKED - BG	REVISED -

**STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION**

**PIER 11W PLAN & ELEVATION - S.N.16-1504 I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-199 OF S-248 SHEETS

F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 691
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	



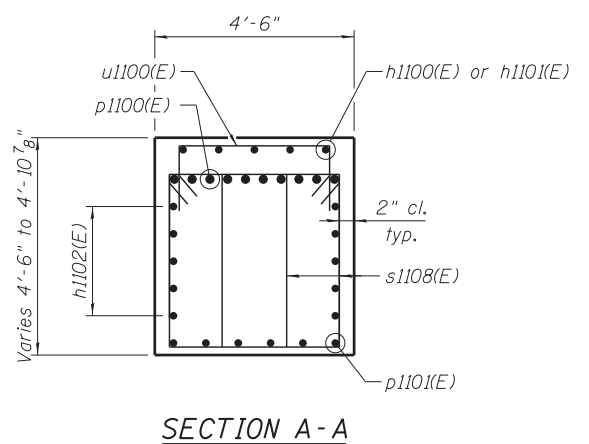
\*Field cut as required.  
 \*\*Slope with bearing steps.

**TYP. MIN. BAR LAP**  
 (Unless Noted Otherwise)  
 #6 bar = 3'-10"

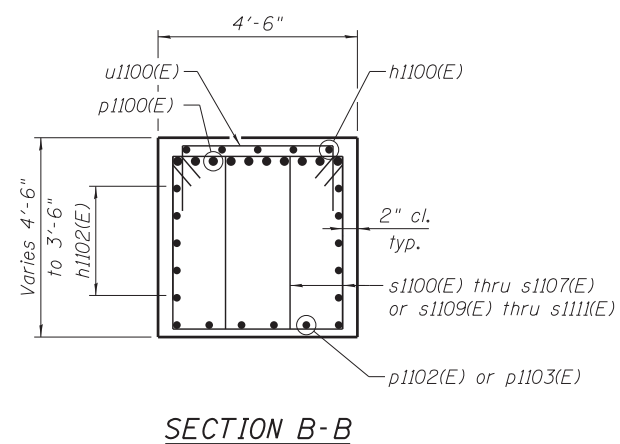
- NOTES:**
1. Bars noted thus, 3x2-#5 indicates 3 lines of bars with 2 lengths of bars per line.
  2. #5 sp1100 or #5 sp110(E), sp1102(E), or sp1103(E) spiral
    - 1) Provide 1/2 extra turns, shop welded together per AWS D1.4 top and bottom. Extend spiral 3" into pier cap. Provide 4-#4 spacers or equivalent.
    - 2) When splicing spiral reinforcement is necessary, the spiral 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.
  3. Contractor shall use Mechanical Splicers in drilled shaft that will fit between spirals. Contractor shall field adjust spiral pitch to 12" maximum at Mechanical Splicer locations.
  4. For Mechanical Splicer details and quantities see Sheet-222.

**END VIEW**

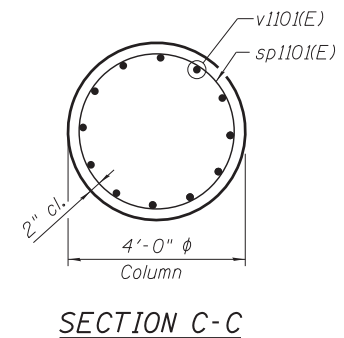
**ELEVATION**  
 (Looking North)



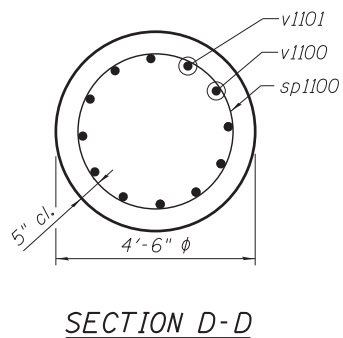
**SECTION A-A**



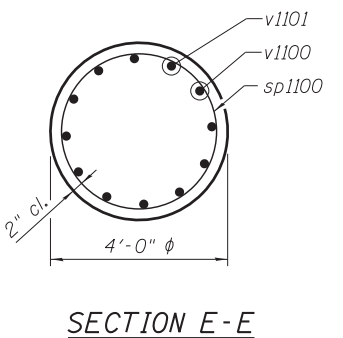
**SECTION B-B**



**SECTION C-C**



**SECTION D-D**



**SECTION E-E**

475\_0161504\_60L70\_PIER11-2.dgn



USER NAME = PHodina	DESIGNED - PH	REVISED -
PLOT SCALE =	CHECKED - BG	REVISED -
PLOT DATE = 12/05/2014	DRAWN - PH	REVISED -
	CHECKED - BG	REVISED -

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

**PIER 11W DETAILS - S.N.016-1504**  
**I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

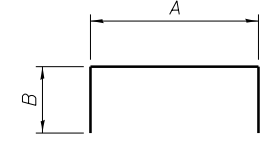
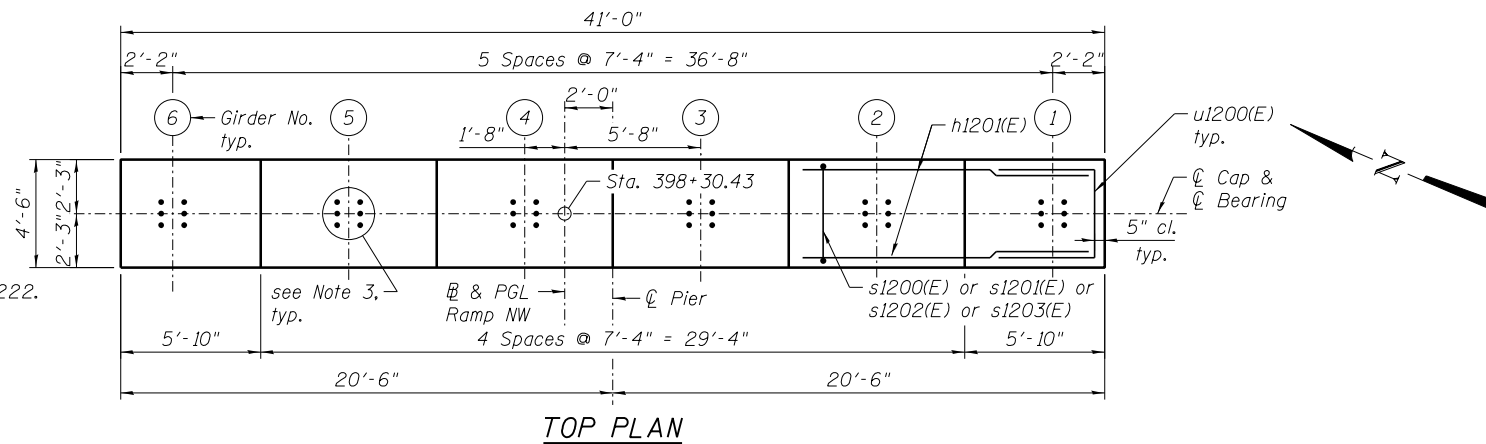
F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 692
				CONTRACT NO. 60L70
ILLINOIS FED. AID PROJECT				

SHEET NO. S-200 OF S-248 SHEETS

**NOTES:**

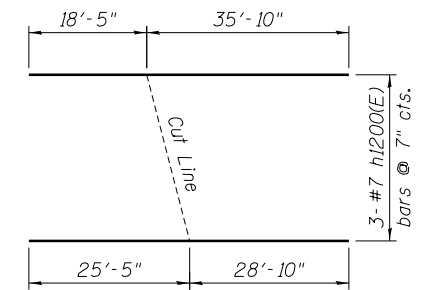
1. Pour steps monolithically with cap.
2.  $\phi$  of Pier is radial to  $\phi$  Ramp NW at Sta. 398+30.43.
3. For Anchor Bolts Details, see Sheet S-168.
4. For Architectural Details, see Sheets S-219 thru S-221.
5. For Sections and Details, see Sheet S-202.
6. For Mechanical Splicer Details and Quantities, see Sheet S-222.

\* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.



**BENT BAR**  
A & B DIMENSIONS

Bar	A	B
p1200(E)	40'-2"	3'-0"
s1200(E)	2'-6"	5'-1"
s1201(E)	2'-6"	6'-2"
s1202(E)	3'-8"	6'-2"
s1203(E)	2'-6"	4'-5"
t1201(E)	21'-0"	3'-0"
t1202(E)	21'-0"	2'-6"
u1200(E)	3'-6"	4'-0"
u1201(E)	7'-0"	4'-0"
u1202(E)	3'-8"	1'-0"

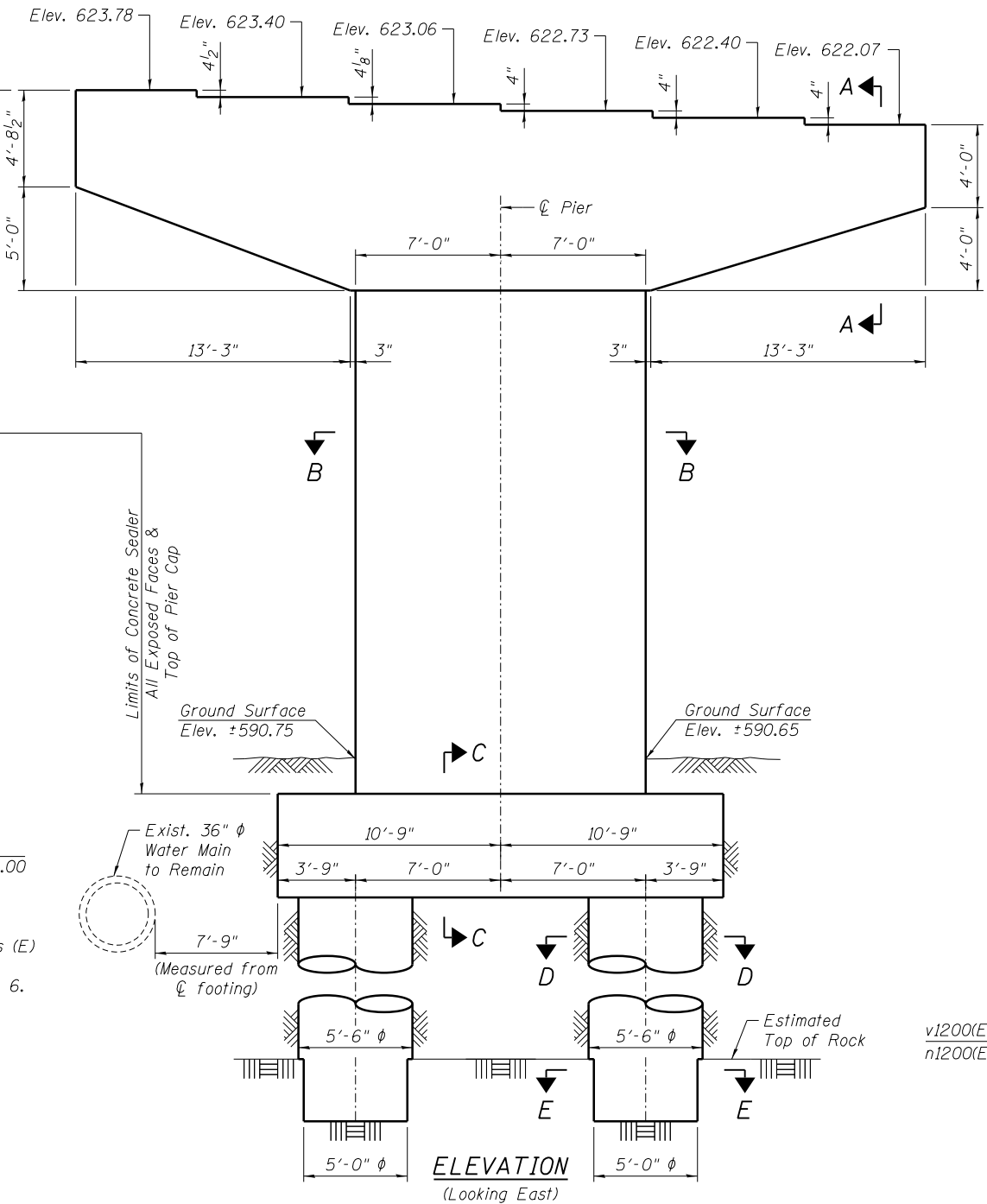
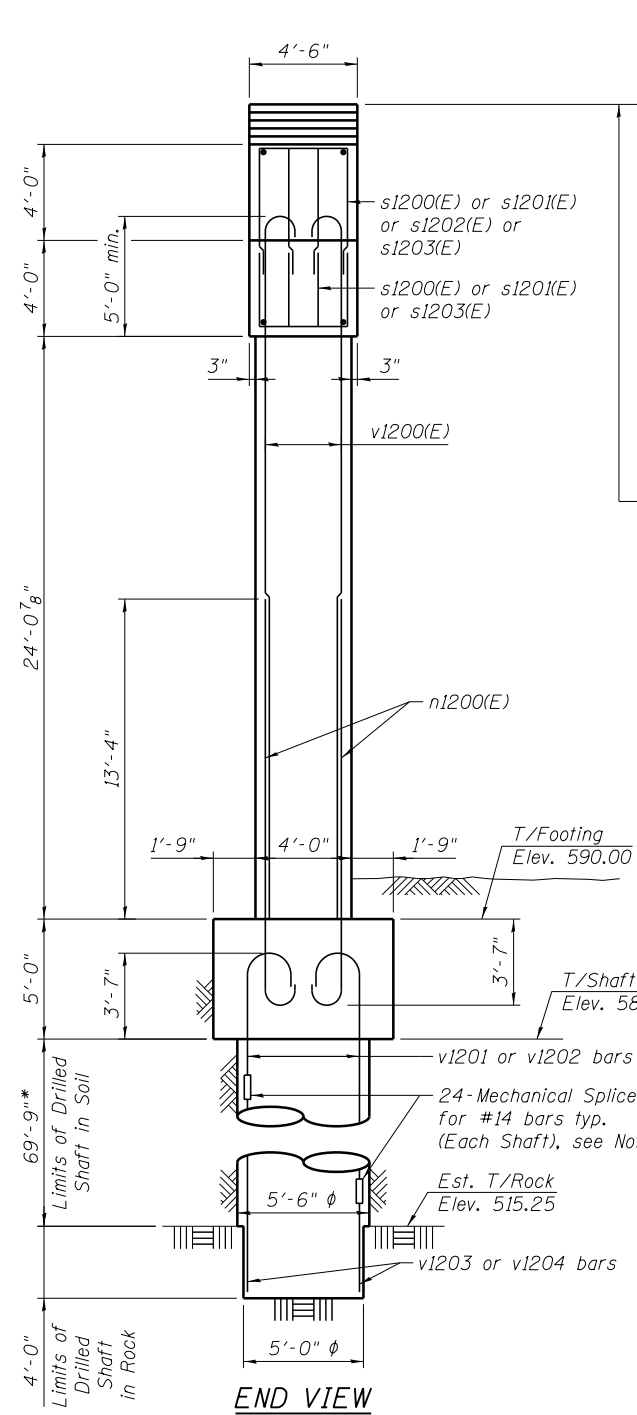


**FIELD CUTTING DIAGRAM**  
Order h1200(E) bars Full Length. Cut as shown and use remainder of bars.

**BILL OF MATERIAL**

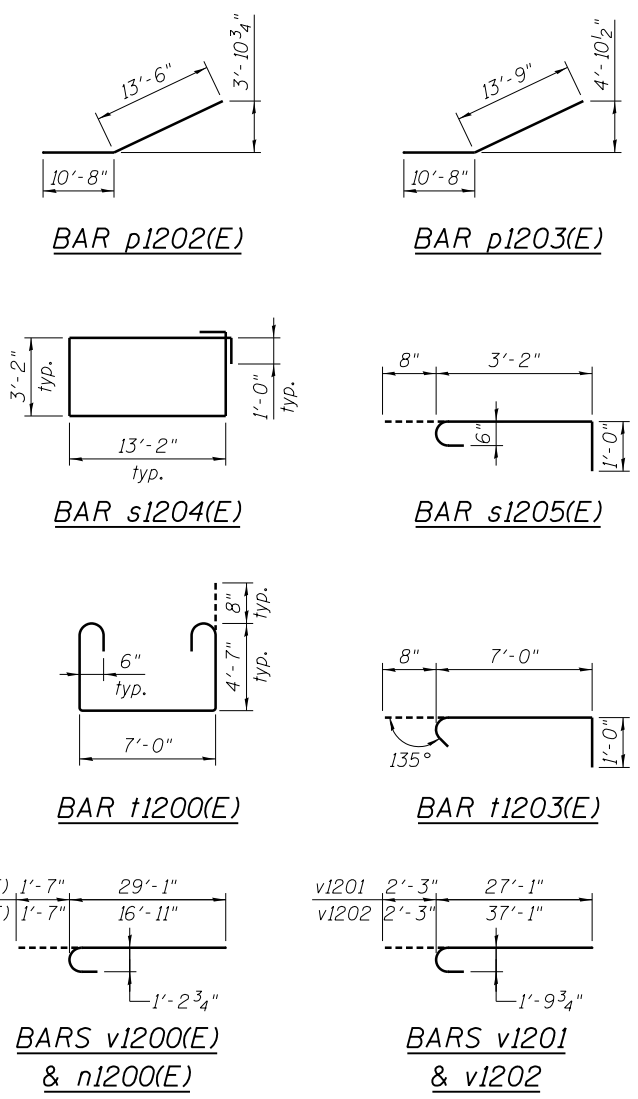
Bar	No.	Size	Length	Shape
h1200(E)	6	#7	54'-3"	—
h1201(E)	12	#7	40'-2"	—
h1202(E)	14	#6	21'-0"	—
h1203(E)	20	#5	6'-6"	—
h1204(E)	10	#5	4'-10"	—
h1205(E)	2	#7	25'-7"	—
h1206(E)	2	#7	14'-0"	—
h1207(E)	2	#7	3'-4"	—
n1200(E)	52	#11	18'-6"	—
p1200(E)	7	#11	46'-2"	—
p1201(E)	14	#11	39'-6"	—
p1202(E)	6	#8	24'-2"	—
p1203(E)	6	#8	24'-5"	—
s1200(E)	44	#6	12'-8"	—
s1201(E)	84	#6	14'-10"	—
s1202(E)	28	#6	16'-0"	—
s1203(E)	56	#6	11'-4"	—
s1204(E)	28	#6	34'-8"	—
s1205(E)	168	#6	4'-10"	—
sp1200	2	#6	75'-0"	—
t1200(E)	43	#6	17'-6"	—
t1201(E)	10	#11	27'-0"	—
t1202(E)	10	#11	26'-0"	—
t1203(E)	43	#6	8'-8"	—
u1200(E)	12	#6	11'-6"	—
u1201(E)	14	#6	15'-0"	—
u1202(E)	42	#6	5'-8"	—
v1200(E)	52	#11	30'-8"	—
v1201	24	#14	29'-4"	—
v1202	24	#14	39'-4"	—
v1203	24	#14	40'-0"	—
v1204	24	#14	50'-0"	—
Concrete Structures		Cu. Yd.	130.3	
Reinforcement Bars, Epoxy Coated		Pound	33,870	
Reinforcement Bars		Pound	35,870	
Drilled Shaft in Soil		Cu. Yd.	122.8	
Drilled Shaft in Rock		Cu. Yd.	5.9	
Concrete Sealer		Sq. Ft.	1,833	
Structure Excavation		Cu. Yd.	48	
Crosshole Sonic Logging		Each	1	

\*\* Length is height of spiral.



**TYP. MIN. LAP LENGTH**

- #5 bars: 3'-3"
- #6 bars: 3'-10"
- #8 bars: 6'-9"
- #11 bars: 13'-4"



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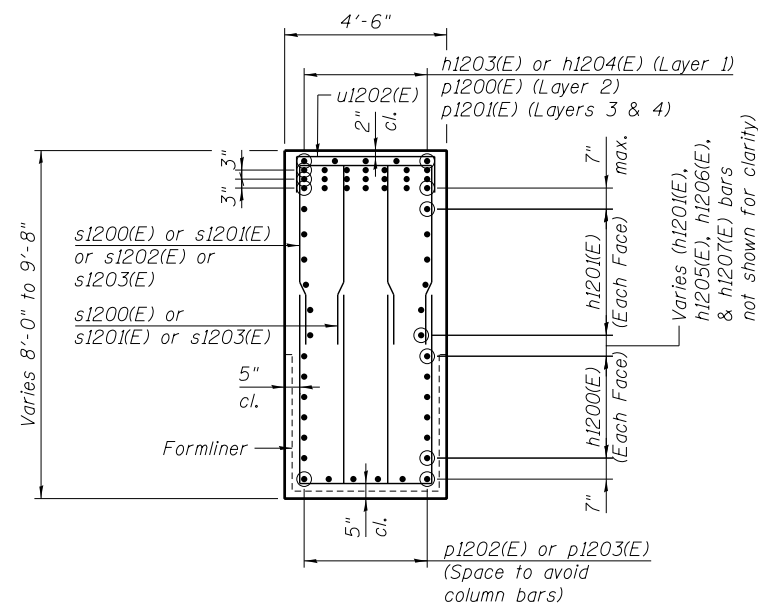
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PLOT SCALE =	CHECKED - ATB	REVISED -
PLOT DATE = 12/05/2014	DRAWN - GF	REVISED -
	CHECKED - AA	REVISED -

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

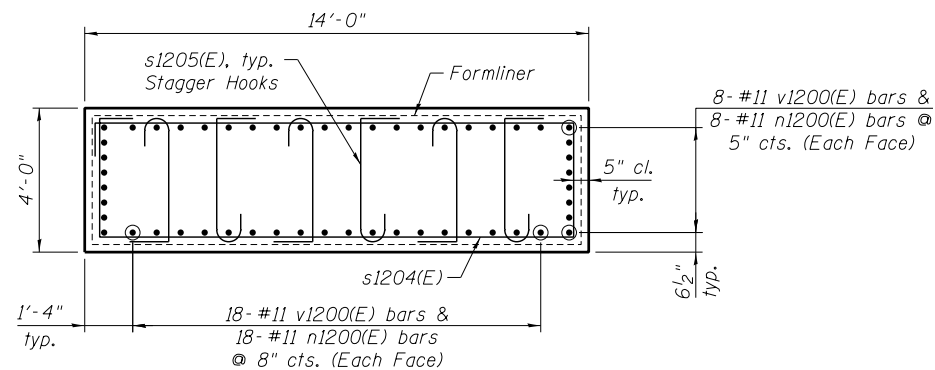
**PIER 12W PLAN & ELEVATION - S.N. 016-1505**  
**I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-201 OF S-248 SHEETS

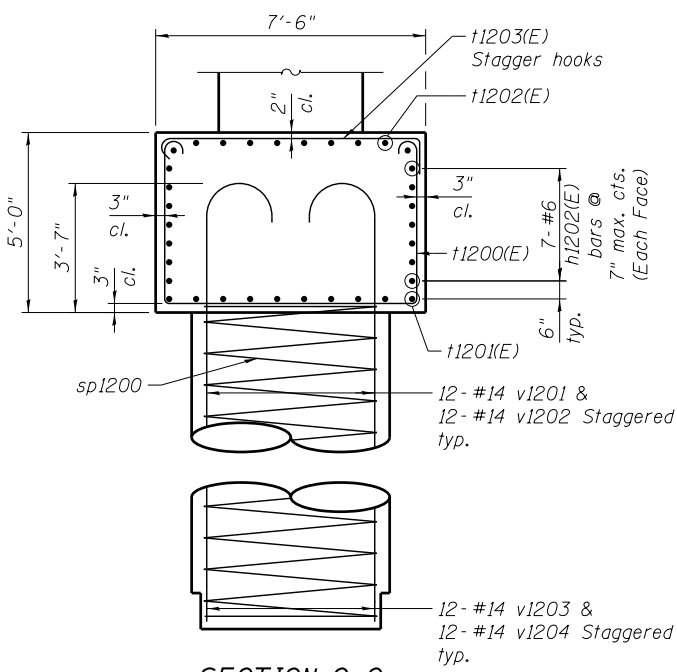
F.A.I. RTE. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 693
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	



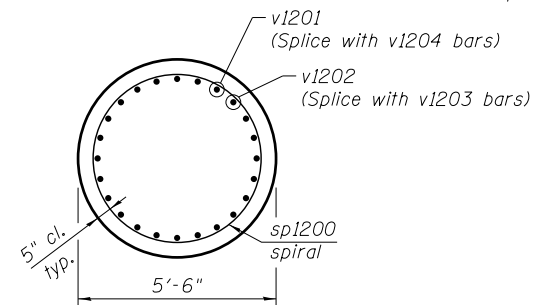
SECTION A-A



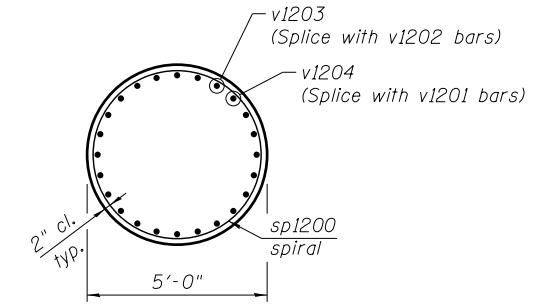
SECTION B-B



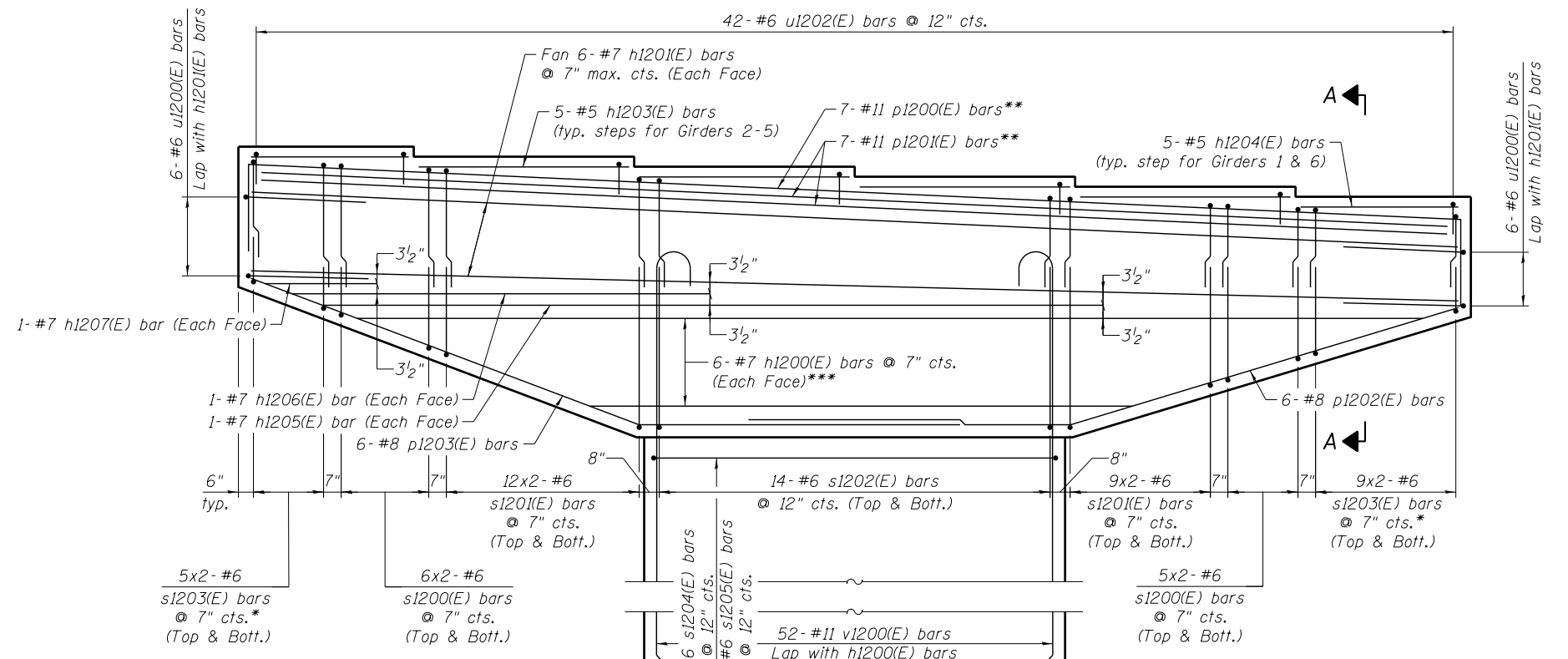
SECTION C-C



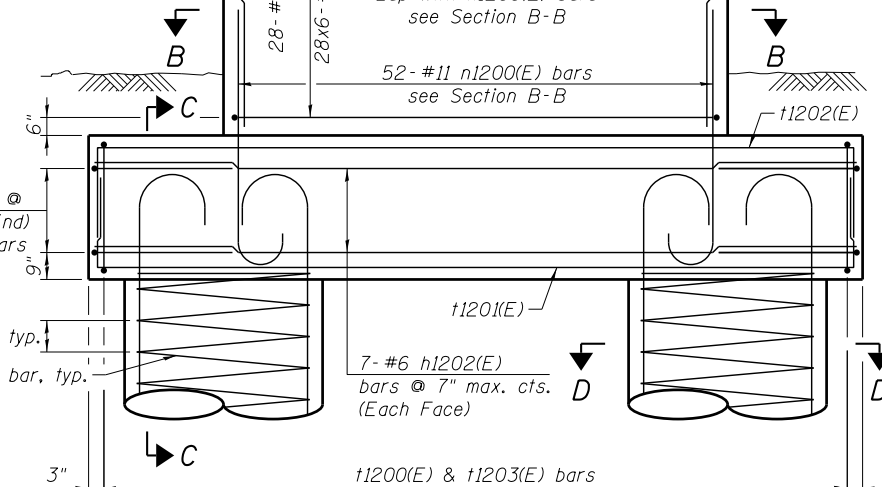
SECTION D-D



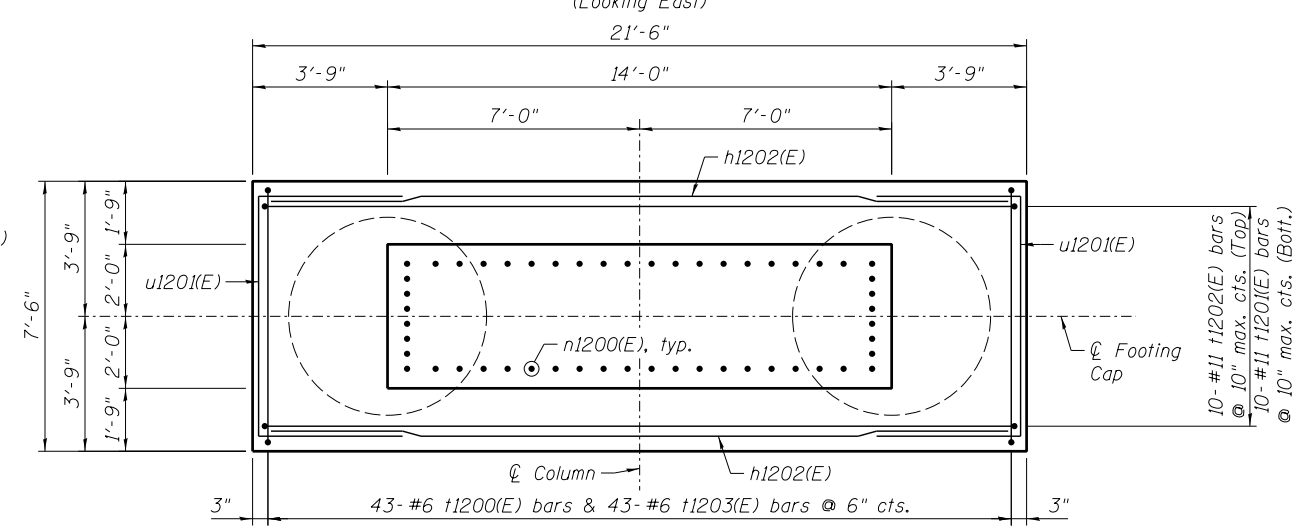
SECTION E-E



\* Field cut as required and maintain 3'-3" min. lap.  
 \*\* Slope with bearing steps.  
 \*\*\* see Field Cutting Diagram on sheet S-201.



ELEVATION (Looking East)



FOOTING PLAN

- NOTES:**
1. Space reinforcement in cap to miss anchor bolts.
  2. sp1200 spiral:
    - 1) Provide 1/2 extra turns top and bottom. Extend spiral 3" into pile cap. 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.
  3. Contractor shall use Mechanical Splicers in drilled shaft that will fit between spirals. Contractor shall field adjust spiral pitch to 12" maximum at Mechanical Splicer locations.
  4. A Drilled Shaft shall be tested in accordance with Special Provisions for Crosshole Sonic Logging.

477\_0161505\_60L70\_Pier12-2.dgn



USER NAME =	krizm	DESIGNED -	AA	REVISED -	
		CHECKED -	ATB	REVISED -	
PLOT SCALE =		DRAWN -	GF	REVISED -	
PLOT DATE =	11/20/2014	CHECKED -	AA	REVISED -	

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

PIER 12W DETAILS - S.N.016-1505  
 I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

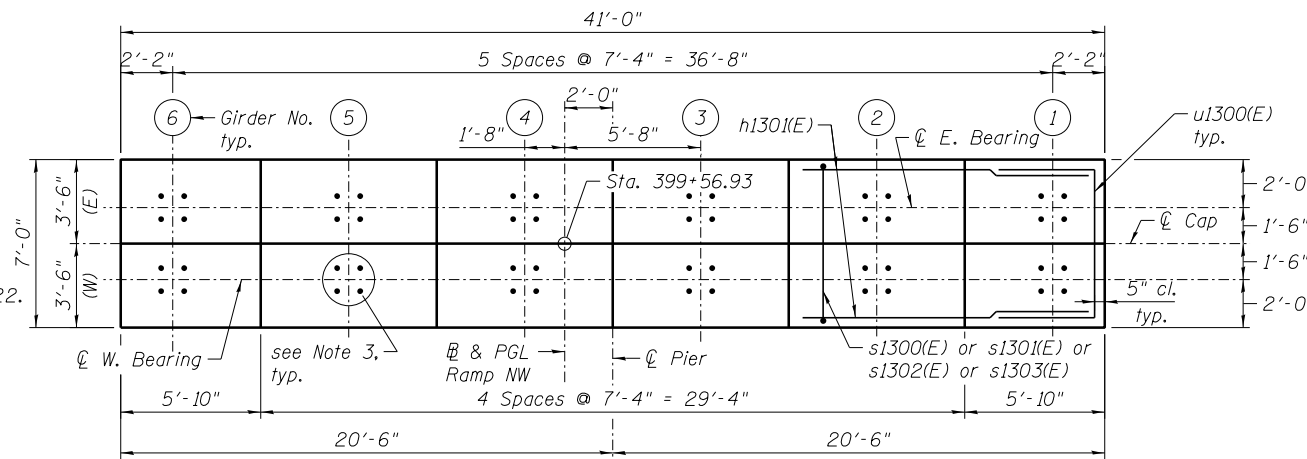
SHEET NO. S-202 OF S-248 SHEETS

F.A.I. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	694
CONTRACT NO. 60L70				
ILLINOIS FED. AID PROJECT				

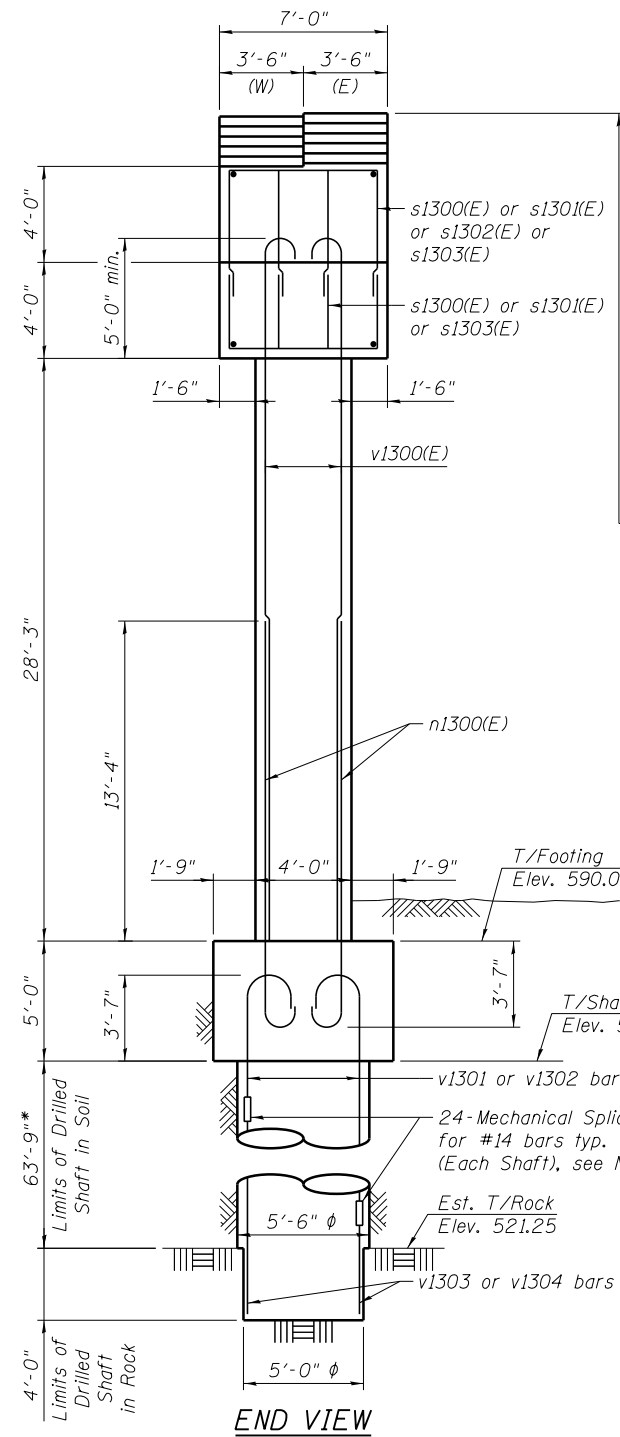
**NOTES:**

1. Pour steps monolithically with cap.
2.  $\phi$  of Pier is radial to Ramp NW at Sta. 399+56.93.
3. For Anchor Bolts Details, See sheet S-165.
4. For Architectural Details, see Sheets S-219 thru S-221.
5. For Sections and Details, see Sheet S-204.
6. For Mechanical Splicer Details and Quantities, see Sheet S-222.

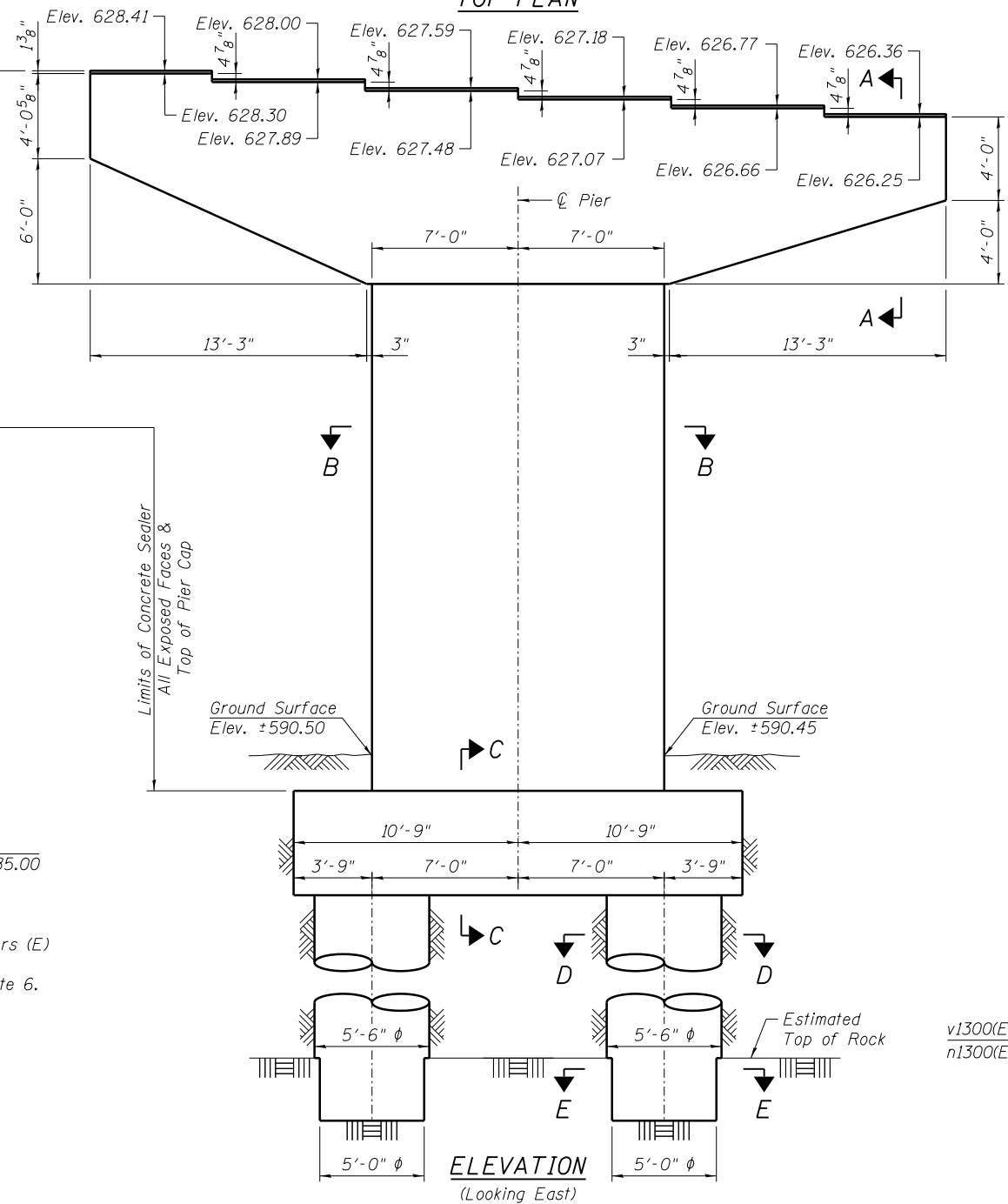
\* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.



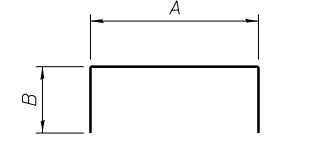
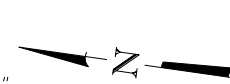
**TOP PLAN**



**END VIEW**



**ELEVATION (Looking East)**

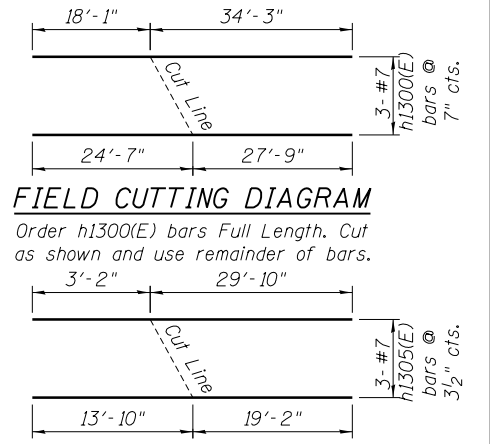
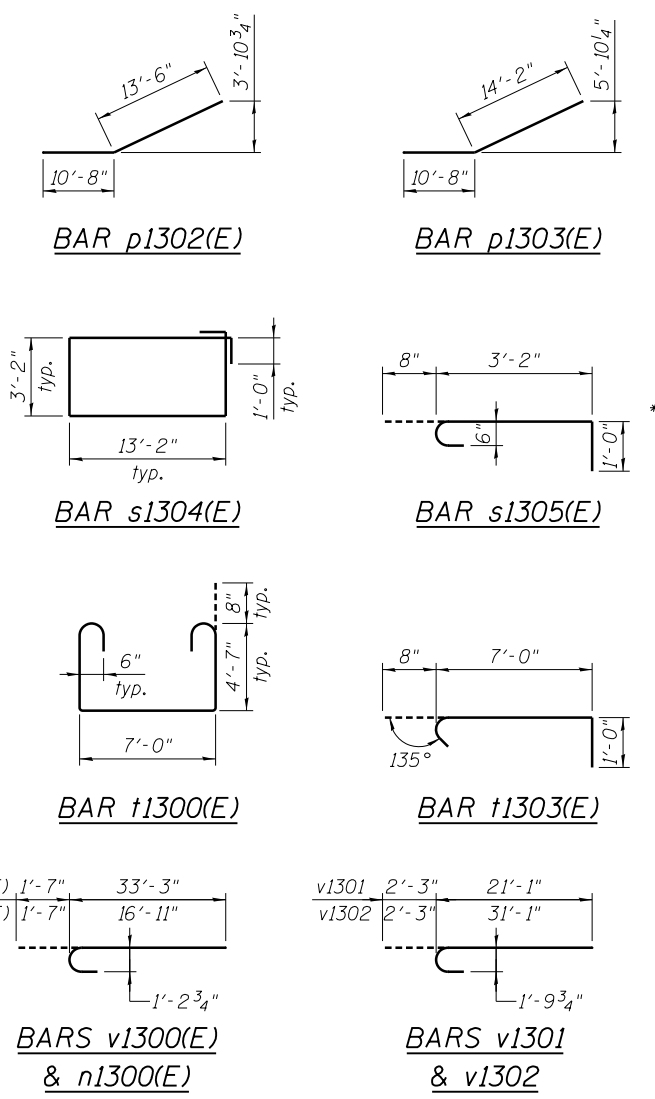


**BENT BAR A & B DIMENSIONS**

Bar	A	B
p1300(E)	40'-2"	3'-0"
s1300(E)	4'-6"	5'-1"
s1301(E)	4'-6"	6'-3"
s1302(E)	6'-2"	6'-3"
s1303(E)	4'-6"	4'-3"
t1301(E)	21'-0"	3'-0"
t1302(E)	21'-0"	2'-0"
u1300(E)	6'-0"	4'-0"
u1301(E)	7'-0"	4'-0"
u1302(E)	6'-2"	1'-0"

**TYP. MIN. LAP LENGTH**

- #5 bars: 3'-3"
- #6 bars: 3'-10"
- #8 bars: 6'-9"
- #11 bars: 13'-4"



**FIELD CUTTING DIAGRAM**

Order h1300(E) bars Full Length. Cut as shown and use remainder of bars.



**FIELD CUTTING DIAGRAM**

Order h1305(E) bars Full Length. Cut as shown and use remainder of bars.

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h1300(E)	6	#7	52'-4"	—
h1301(E)	12	#7	40'-2"	—
h1302(E)	14	#6	21'-0"	—
h1303(E)	32	#5	6'-6"	—
h1304(E)	16	#5	4'-10"	—
h1305(E)	6	#7	33'-0"	—
n1300(E)	52	#11	18'-6"	U
p1300(E)	9	#11	46'-2"	┌
p1301(E)	9	#11	39'-6"	┌
p1302(E)	9	#8	24'-2"	┌
p1303(E)	9	#8	24'-10"	┌
s1300(E)	32	#6	14'-8"	┌
s1301(E)	44	#6	17'-0"	┌
s1302(E)	26	#6	18'-8"	┌
s1303(E)	36	#6	13'-0"	┌
s1304(E)	29	#6	34'-8"	┌
s1305(E)	174	#6	4'-10"	┌
sp1300	2	#6	69'-0"	W
t1300(E)	43	#6	17'-6"	┌
t1301(E)	8	#11	27'-0"	┌
t1302(E)	8	#11	26'-0"	┌
t1303(E)	43	#6	8'-8"	┌
u1300(E)	12	#6	14'-0"	┌
u1301(E)	14	#6	15'-0"	┌
u1302(E)	42	#6	8'-2"	┌
v1300(E)	52	#11	34'-10"	┌
v1301	24	#14	23'-4"	┌
v1302	24	#14	33'-4"	┌
v1303	24	#14	40'-0"	┌
v1304	24	#14	50'-0"	┌
Concrete Structures		Cu. Yd.	167.8	
Reinforcement Bars, Epoxy Coated		Pound	33,840	
Reinforcement Bars		Pound	33,140	
Drilled Shaft in Soil		Cu. Yd.	112.2	
Drilled Shaft in Rock		Cu. Yd.	5.9	
Concrete Sealer		Sq. Ft.	2,194	
Structure Excavation		Cu. Yd.	46	
Crosshole Sonic Logging		Each	1	

\*\* Length is height of spiral.

478.0161505\_601.70\_Pier13-1.dgn



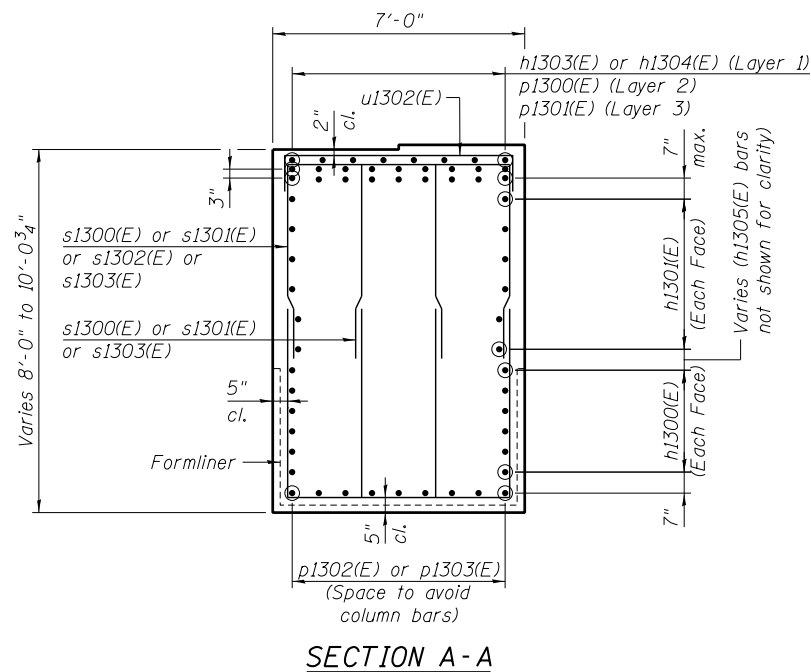
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PLOT SCALE =	CHECKED - ATB	REVISED -
PLOT DATE = 12/05/2014	DRAWN - GF	REVISED -
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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

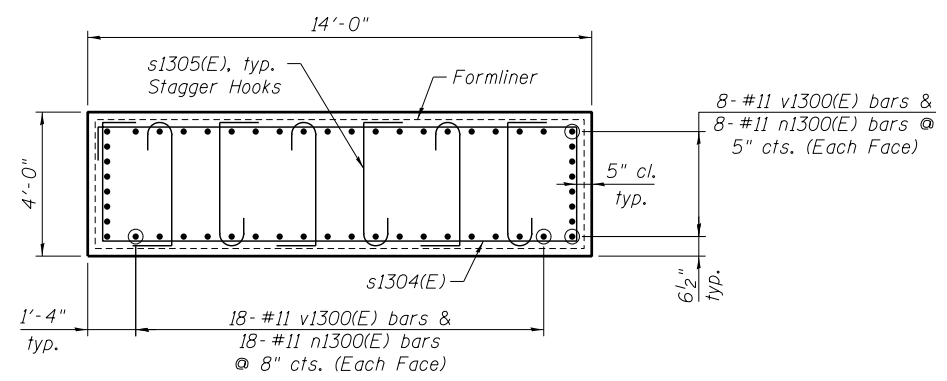
**PIER 13W PLAN & ELEVATION - S.N. 016-1505  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-203 OF S-248 SHEETS

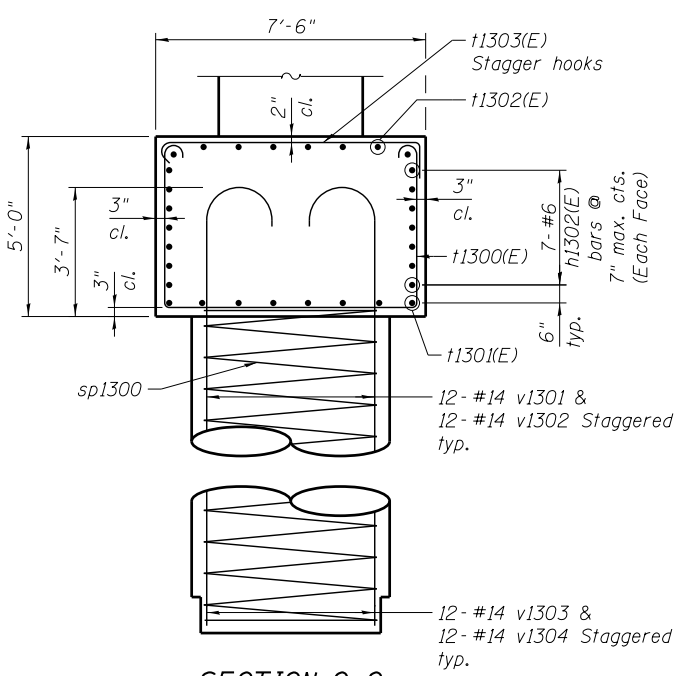
F.A.I. RT.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	695
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	



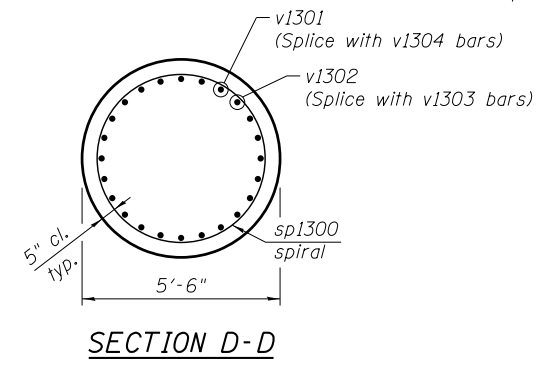
**SECTION A-A**



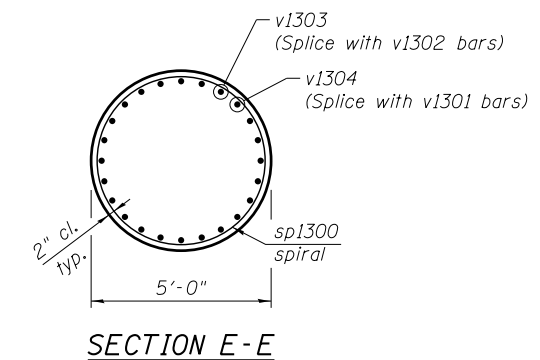
**SECTION B-B**



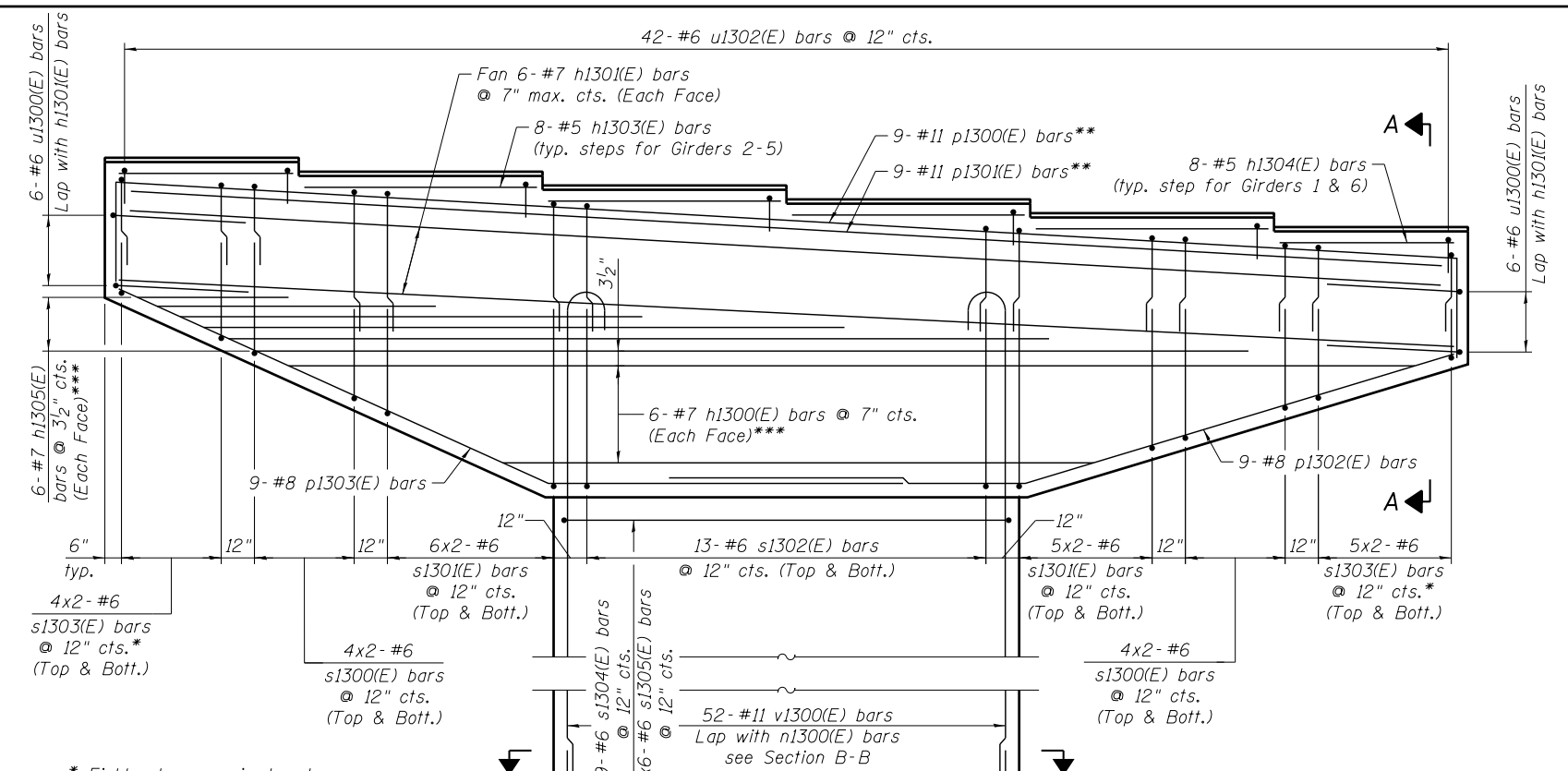
**SECTION C-C**



**SECTION D-D**

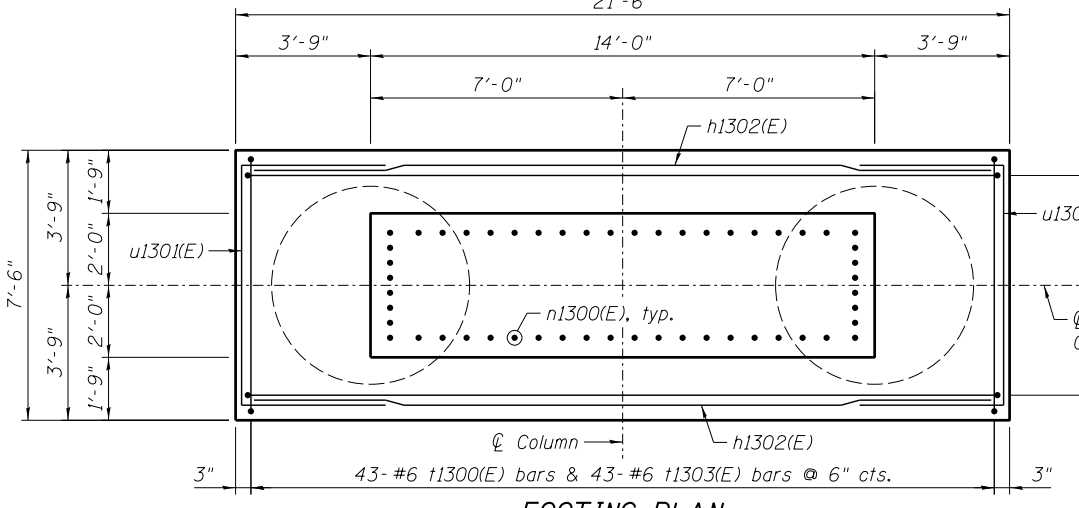


**SECTION E-E**



**ELEVATION**

(Looking East)



**FOOTING PLAN**

\* Field cut as required and maintain 3'-3" min. lap.  
 \*\* Slope with bearing steps.  
 \*\*\* see Field Cutting Diagram on sheet S-203.

**NOTES:**

1. Space reinforcement in cap to miss anchor bolts.
2. sp1300 spiral:  
 1) Provide 1/2 extra turns top and bottom. Extend spiral 3" into pile cap. 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.
3. Contractor shall use Mechanical Splicers in drilled shaft that will fit between spirals. Contractor shall field adjust spiral pitch to 12" maximum at Mechanical Splicer locations.
4. A Drilled Shaft shall be tested in accordance with Special Provisions for Crosshole Sonic Logging.

479\_0161505\_60L70\_Pier13-2.dgn



USER NAME = kr1tzm	DESIGNED - AA	REVISED -
PLOT SCALE =	CHECKED - ATB	REVISED -
PLOT DATE = 11/20/2014	DRAWN - GF	REVISED -
	CHECKED - AA	REVISED -

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**PIER 13W DETAILS - S.N.016-1505  
 I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**

SHEET NO. S-204 OF S-248 SHEETS

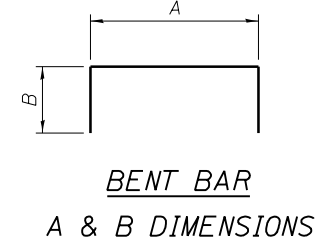
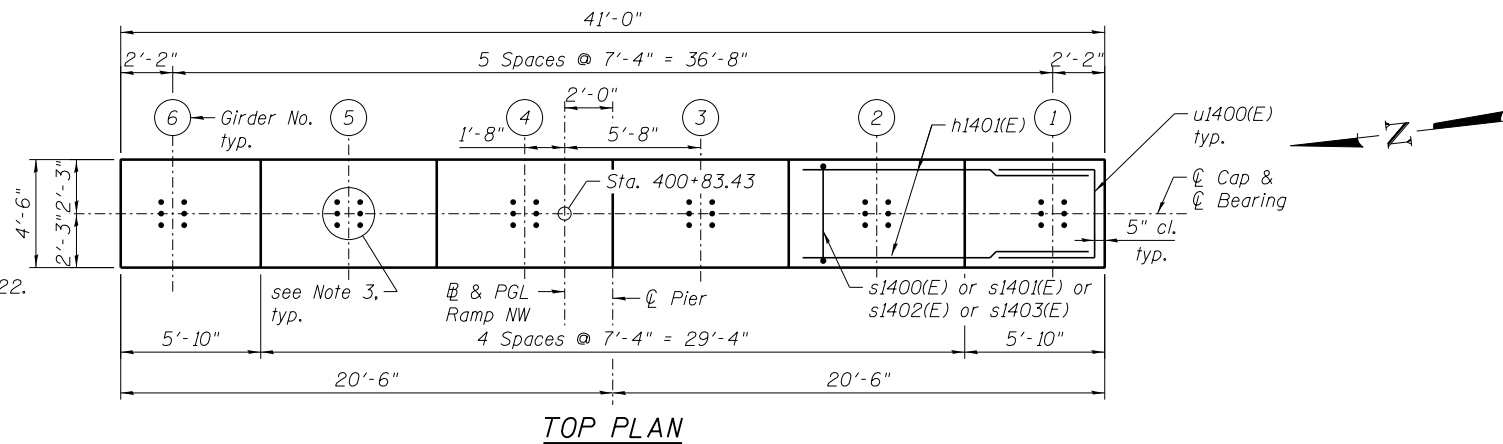
F.A.I. R.T.E. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 696
				CONTRACT NO. 60L70
ILLINOIS FED. AID PROJECT				



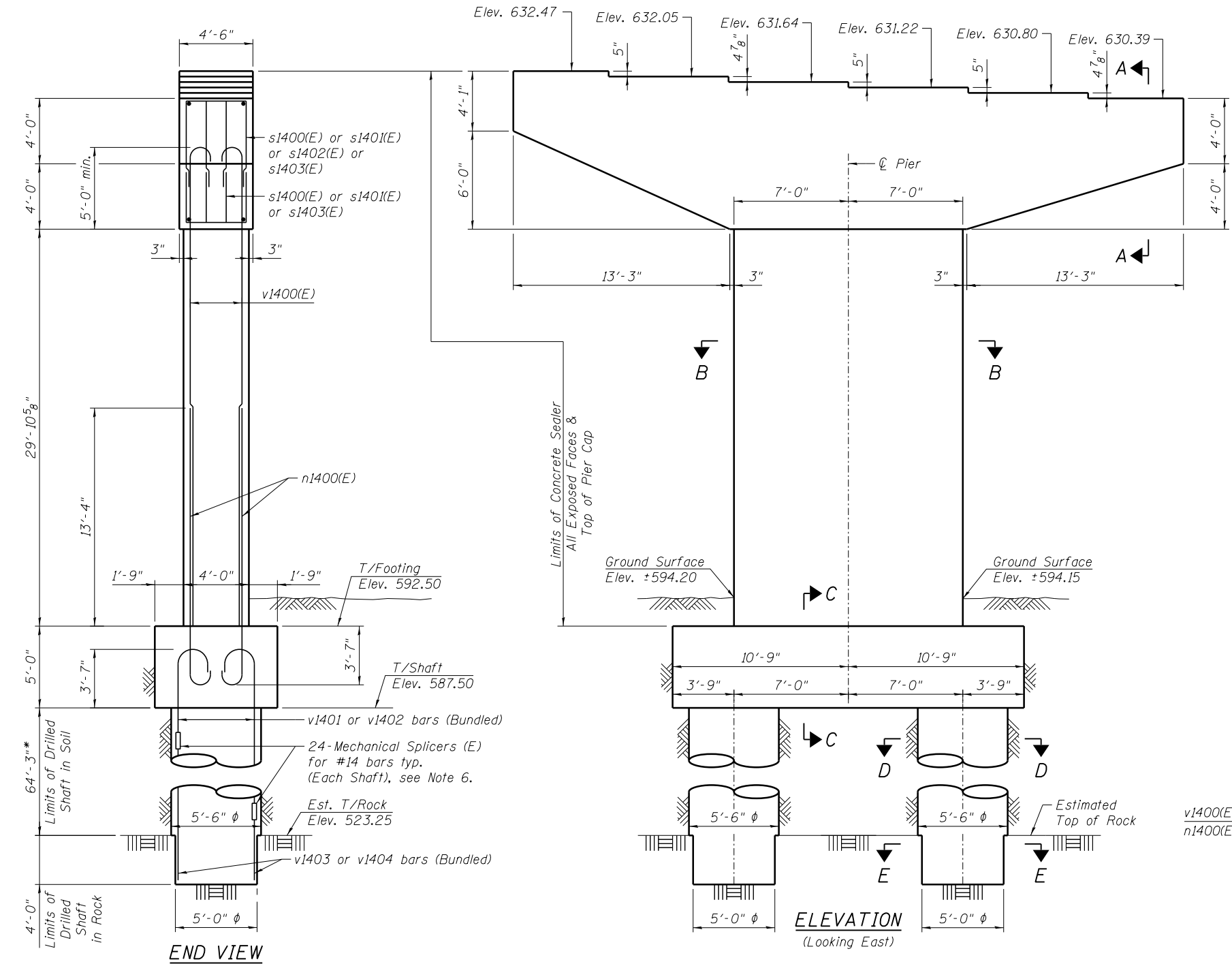
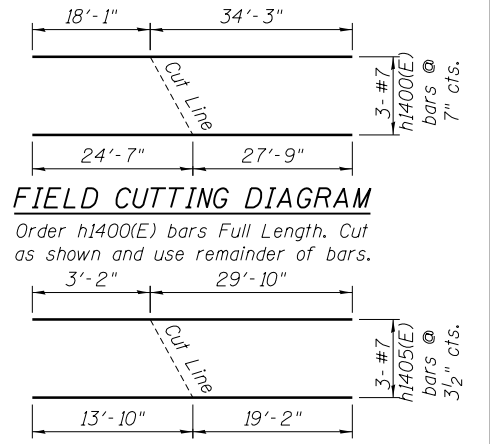
**NOTES:**

1. Pour steps monolithically with cap.
2.  $\phi$  of Pier is radial to  $\phi$  Ramp NW at Sta. 400+83.43.
3. For Anchor Bolts Details, see Sheet S-168.
4. For Architectural Details, see Sheets S-219 thru S-221.
5. For Sections and Details, see Sheet S-206.
6. For Mechanical Splicer Details and Quantities, see Sheet S-222.

\* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

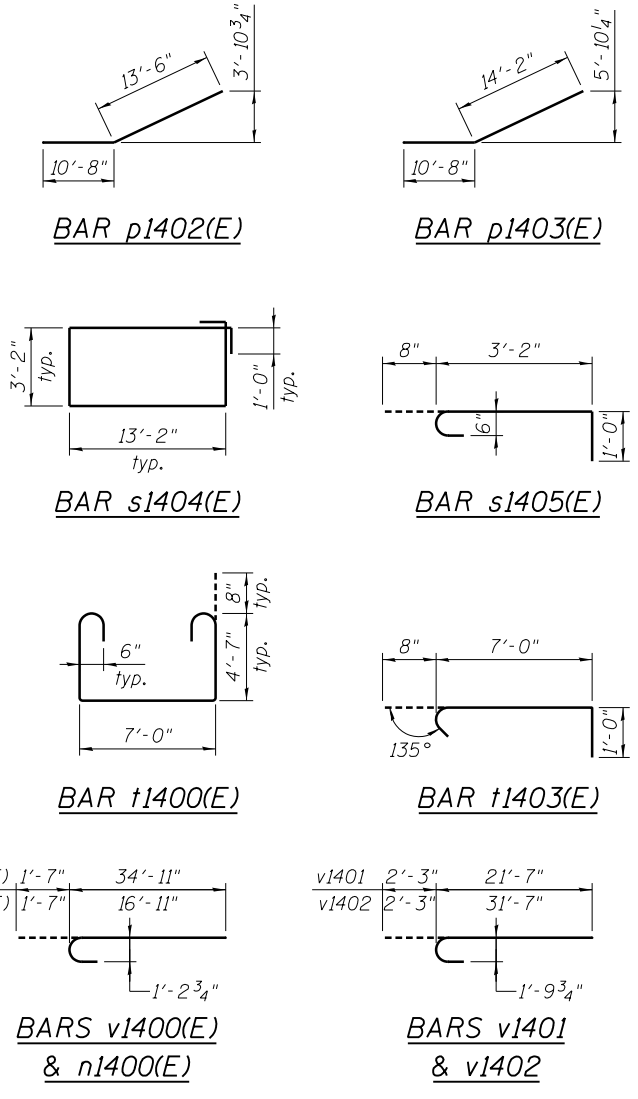


Bar	A	B
p1400(E)	40'-2"	3'-0"
s1400(E)	2'-6"	4'-11"
s1401(E)	2'-6"	6'-1"
s1402(E)	3'-8"	6'-3"
s1403(E)	2'-6"	4'-3"
t1401(E)	21'-0"	3'-0"
t1402(E)	21'-0"	2'-6"
u1400(E)	3'-6"	4'-0"
u1401(E)	7'-0"	4'-0"
u1402(E)	3'-8"	1'-0"



**TYP. MIN. LAP LENGTH**

- #5 bars: 3'-3"
- #6 bars: 3'-10"
- #8 bars: 6'-9"
- #11 bars: 13'-4"



**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h1400(E)	6	#7	52'-4"	—
h1401(E)	12	#7	40'-2"	—
h1402(E)	14	#11	21'-0"	—
h1403(E)	20	#5	6'-6"	—
h1404(E)	10	#5	4'-10"	—
h1405(E)	6	#7	33'-0"	—
n1400(E)	72	#11	18'-6"	U
p1400(E)	7	#11	46'-2"	L
p1401(E)	14	#11	39'-6"	—
p1402(E)	6	#8	24'-2"	—
p1403(E)	6	#8	24'-10"	—
s1400(E)	44	#6	12'-4"	□
s1401(E)	84	#6	14'-8"	□
s1402(E)	28	#6	16'-2"	□
s1403(E)	60	#6	11'-0"	□
s1404(E)	30	#6	34'-8"	□
s1405(E)	180	#6	4'-10"	□
sp1400	2	#6	73'-0"	W
t1400(E)	43	#6	17'-6"	L
t1401(E)	10	#11	27'-0"	—
t1402(E)	10	#11	26'-0"	—
t1403(E)	43	#6	8'-8"	—
u1400(E)	12	#6	11'-6"	—
u1401(E)	14	#6	15'-0"	—
u1402(E)	42	#6	5'-8"	—
v1400(E)	72	#11	36'-6"	U
v1401	24	#14	23'-10"	U
v1402	24	#14	33'-10"	U
v1403	24	#14	40'-0"	—
v1404	24	#14	50'-0"	—
Concrete Structures		Cu. Yd.	142.6	
Reinforcement Bars, Epoxy Coated		Pound	42,860	
Reinforcement Bars		Pound	33,680	
Drilled Shaft in Soil		Cu. Yd.	113.1	
Drilled Shaft in Rock		Cu. Yd.	5.9	
Concrete Sealer		Sq. Ft.	2,045	
Structure Excavation		Cu. Yd.	56	
Crosshole Sonic Logging		Each	1	

\*\* Length is height of spiral.

480\_0161505\_60170\_Pier14-1.dgn



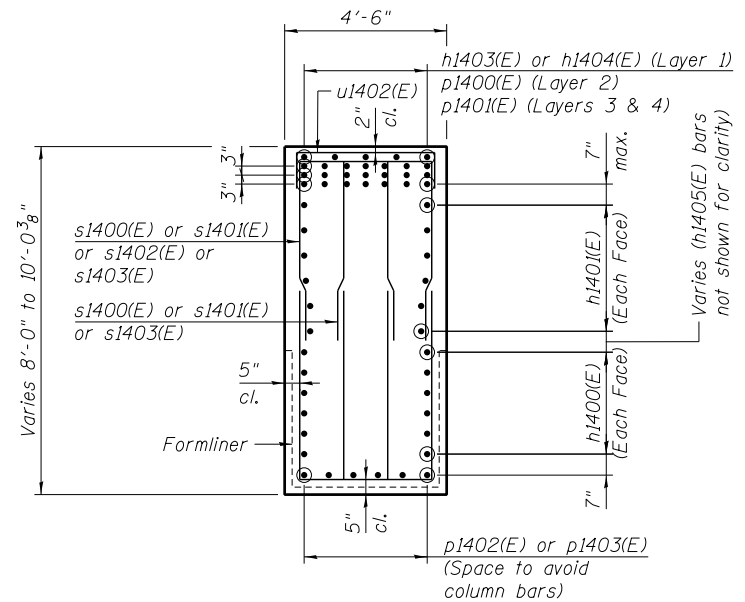
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	CHECKED - AA	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

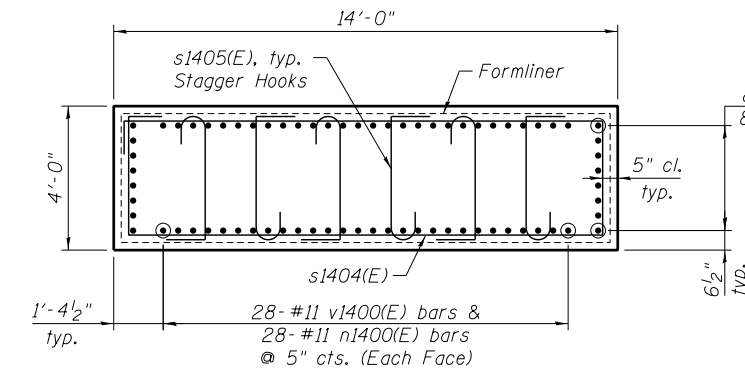
PIER 14W PLAN & ELEVATION - S.N. 016-1505  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-205 OF S-248 SHEETS

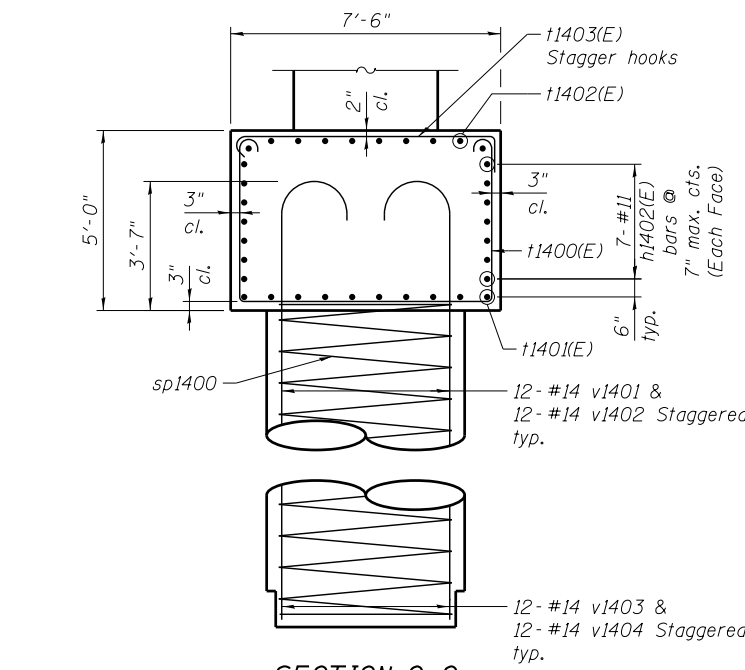
F.A.I. RT.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	2010-080-B	COOK	886	697
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	



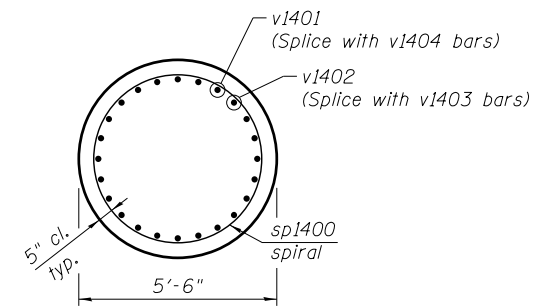
**SECTION A-A**



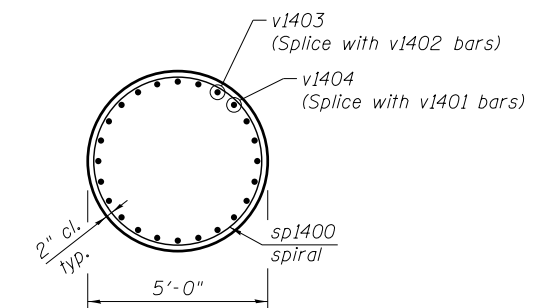
**SECTION B-B**



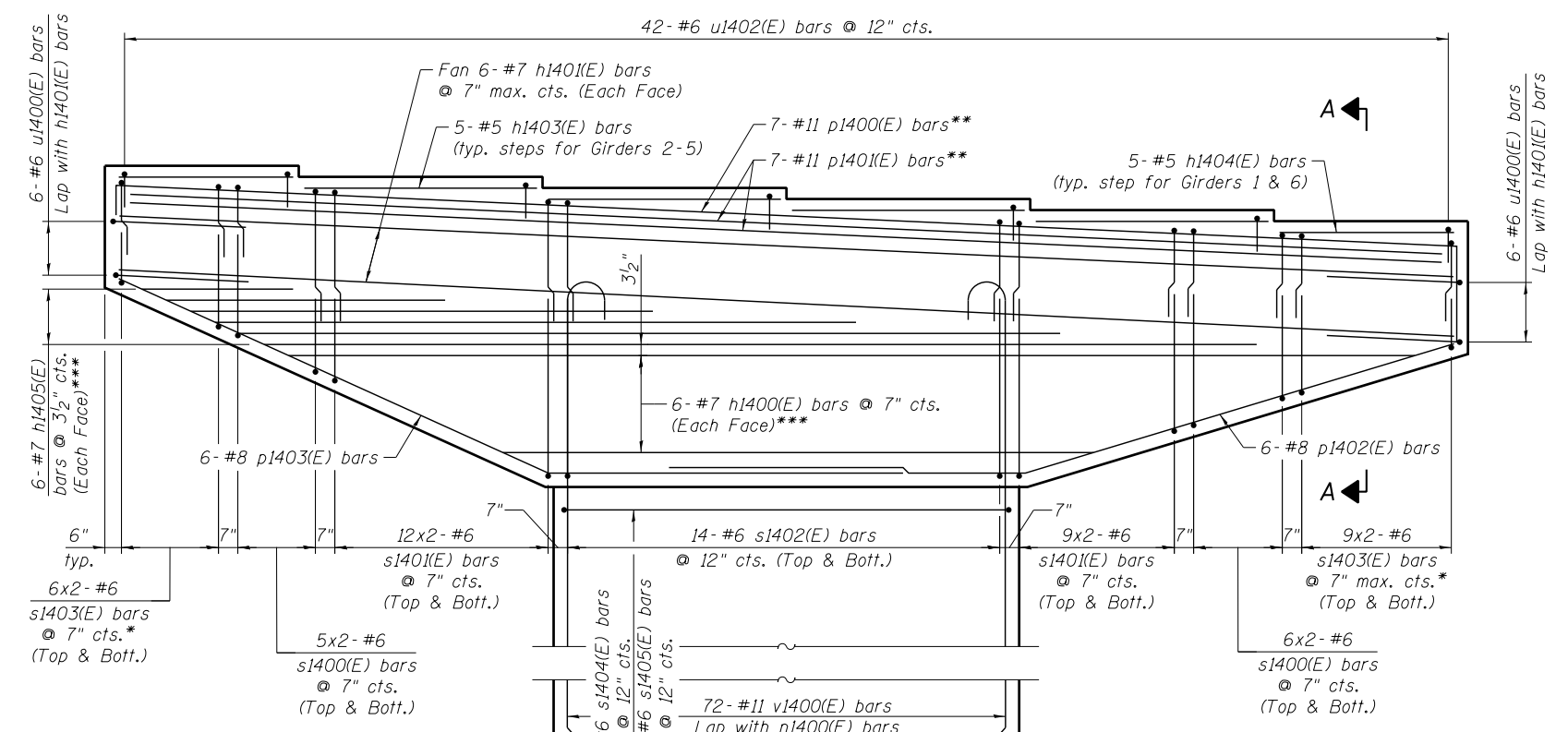
**SECTION C-C**



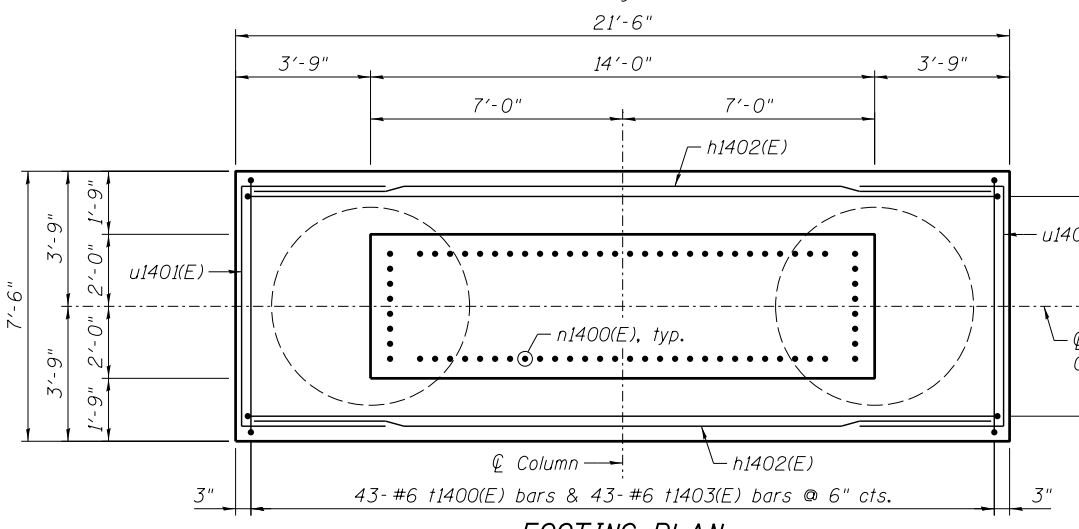
**SECTION D-D**



**SECTION E-E**



**ELEVATION**  
(Looking East)



**FOOTING PLAN**

\* Field cut as required and maintain 3'-3" min. lap.  
 \*\* Slope with bearing steps.  
 \*\*\* see Field Cutting Diagram on sheet S-205.

- NOTES:**
1. Space reinforcement in cap to miss anchor bolts.
  2. sp1400 spiral:
    - 1) Provide 1/2 extra turns top and bottom. Extend spiral 3" into pile cap. 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.
  3. Contractor shall use Mechanical Splicers in drilled shaft that will fit between spirals. Contractor shall field adjust spiral pitch to 12" maximum at Mechanical Splicer locations.
  4. A Drilled Shaft shall be tested in accordance with Special Provisions for Crosshole Sonic Logging.

481.0161505\_60L70\_Pier14-2.dgn



USER NAME = kritzm	DESIGNED - AA	REVISED -
PLOT SCALE =	CHECKED - ATB	REVISED -
PLOT DATE = 11/20/2014	DRAWN - GF	REVISED -
	CHECKED - AA	REVISED -

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

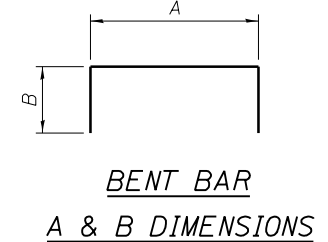
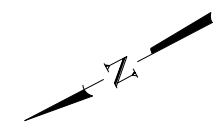
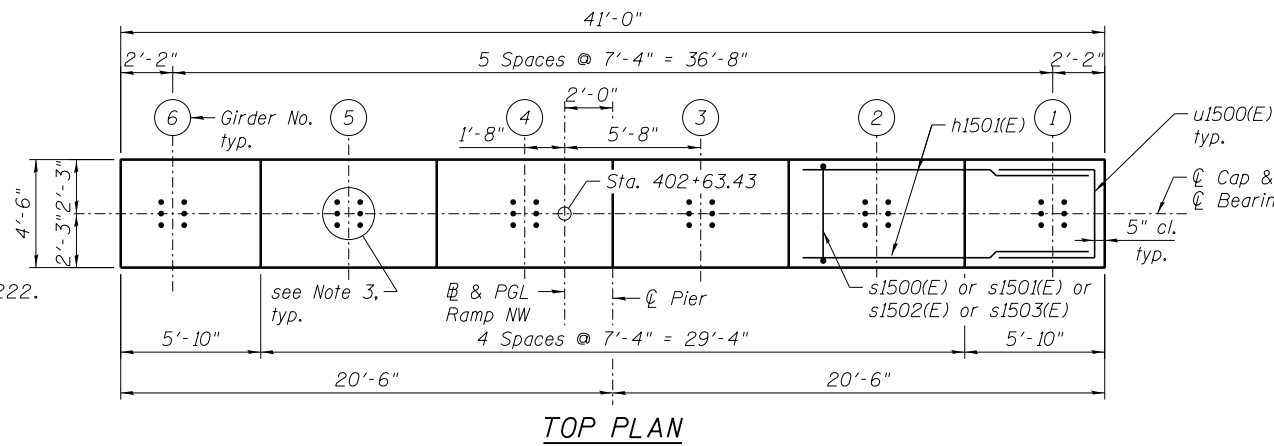
**PIER 14W DETAILS - S.N.016-1505**  
**I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)**  
 SHEET NO. S-206 OF S-248 SHEETS

F.A.I. R.T.E. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 698
CONTRACT NO. 60L70				
ILLINOIS FED. AID PROJECT				

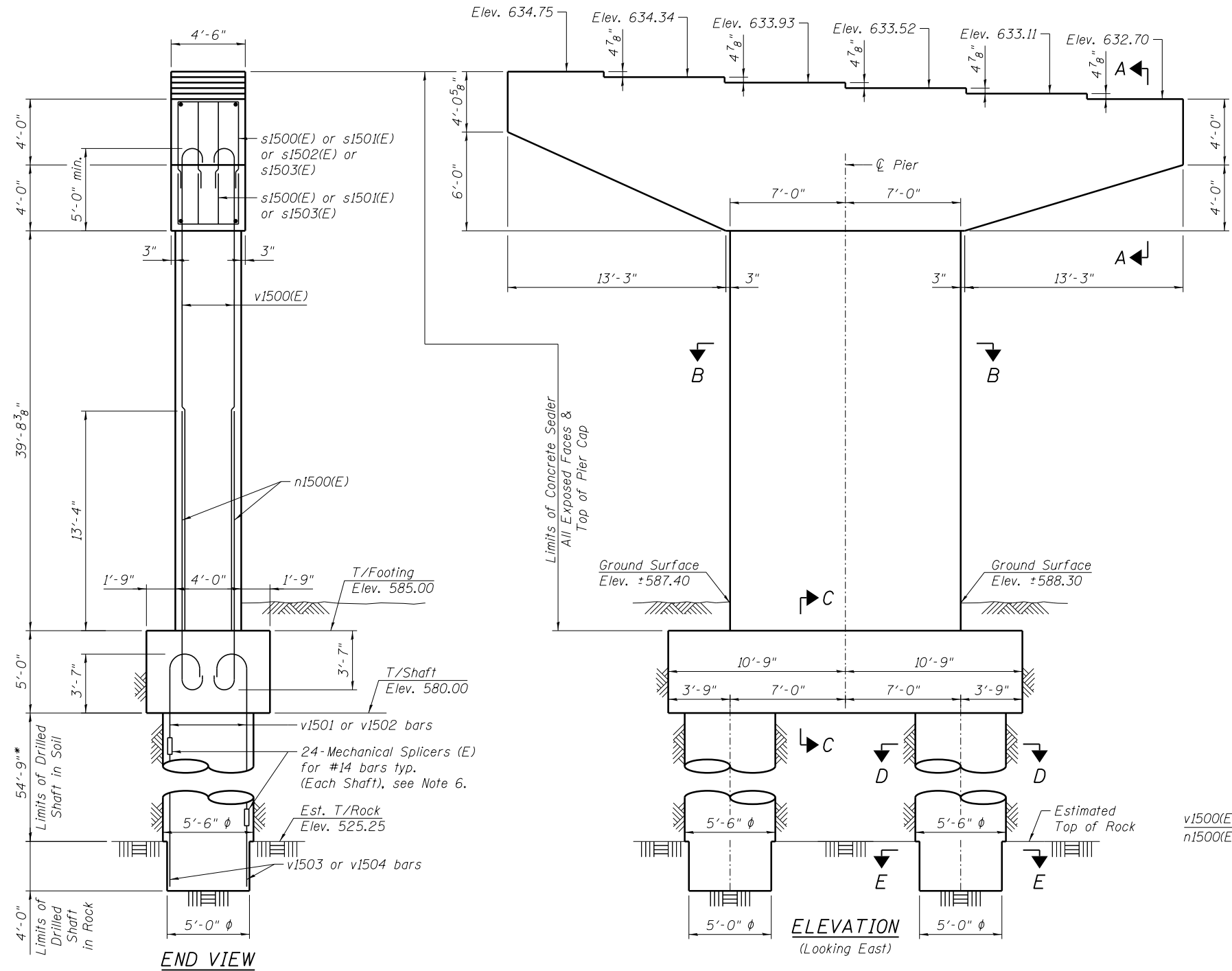
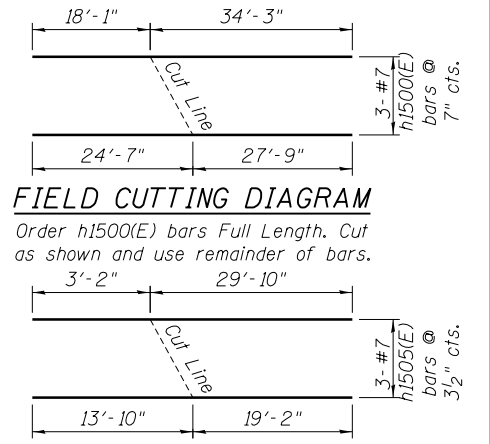
**NOTES:**

1. Pour steps monolithically with cap.
2.  $\phi$  of Pier is radial to  $\phi$  Ramp NW at Sta. 402+63.43.
3. For Anchor Bolts Details, see Sheet S-168.
4. For Architectural Details, see Sheets S-219 thru S-221.
5. For Sections and Details, see Sheet S-208.
6. For Mechanical Splicer Details and Quantities, see Sheet S-222.

\* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.

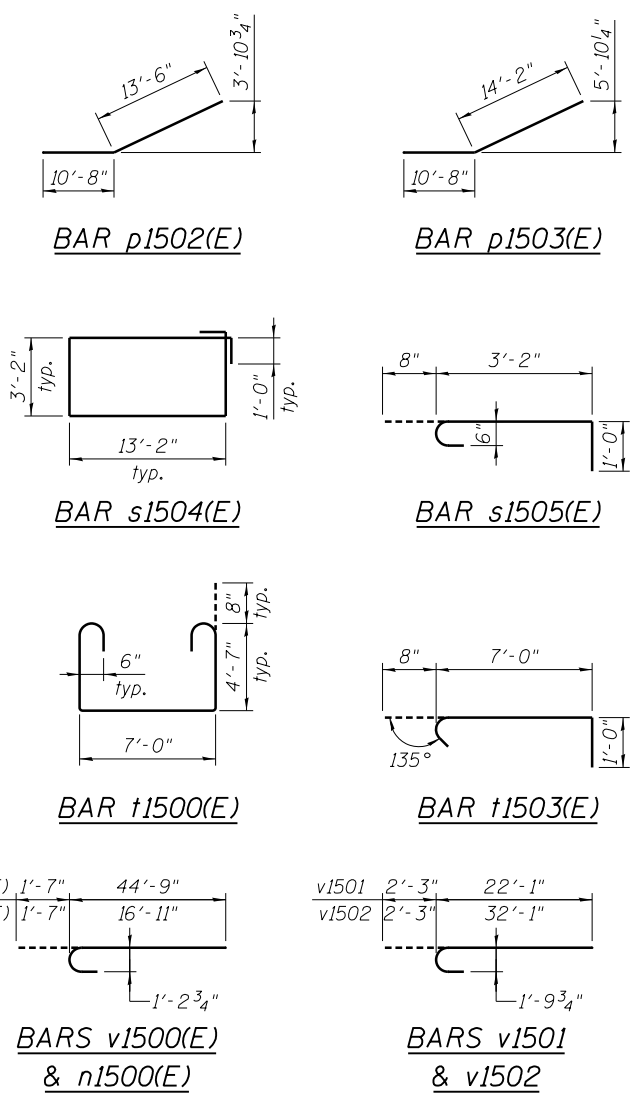


Bar	A	B
p1500(E)	40'-2"	3'-0"
s1500(E)	2'-6"	4'-11"
s1501(E)	2'-6"	6'-1"
s1502(E)	3'-8"	6'-3"
s1503(E)	2'-6"	4'-3"
t1501(E)	21'-0"	3'-0"
t1502(E)	21'-0"	2'-6"
u1500(E)	3'-6"	4'-0"
u1501(E)	7'-0"	4'-0"
u1502(E)	3'-8"	1'-0"



**TYP. MIN. LAP LENGTH**

- #5 bars: 3'-3"
- #6 bars: 3'-10"
- #8 bars: 6'-9"
- #11 bars: 13'-4"



**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
h1500(E)	6	#7	52'-4"	—
h1501(E)	12	#7	40'-2"	—
h1502(E)	14	#6	21'-0"	—
h1503(E)	20	#5	6'-6"	—
h1504(E)	10	#5	4'-10"	—
h1505(E)	6	#7	33'-0"	—
n1500(E)	52	#11	18'-6"	U
p1500(E)	7	#11	46'-2"	L
p1501(E)	14	#11	39'-6"	—
p1502(E)	6	#8	24'-2"	—
p1503(E)	6	#8	24'-10"	—
s1500(E)	44	#6	12'-4"	—
s1501(E)	84	#6	14'-8"	—
s1502(E)	28	#6	16'-2"	—
s1503(E)	60	#6	11'-0"	—
s1504(E)	39	#6	34'-8"	—
s1505(E)	234	#6	4'-10"	U
sp1500	2	#6	58'-6"	W
t1500(E)	43	#6	17'-6"	L
t1501(E)	10	#11	27'-0"	—
t1502(E)	10	#11	26'-0"	—
t1503(E)	43	#6	8'-8"	—
u1500(E)	12	#6	11'-6"	—
u1501(E)	14	#6	15'-0"	—
u1502(E)	42	#6	5'-8"	—
v1500(E)	52	#11	46'-4"	U
v1501	24	#14	24'-4"	U
v1502	24	#14	34'-4"	U
v1503	24	#14	30'-0"	—
v1504	24	#14	40'-0"	—
Concrete Structures		Cu. Yd.	162.8	
Reinforcement Bars, Epoxy Coated		Pound	39,470	
Reinforcement Bars		Pound	28,910	
Drilled Shaft in Soil		Cu. Yd.	96.4	
Drilled Shaft in Rock		Cu. Yd.	5.9	
Concrete Sealer		Sq. Ft.	2,396	
Structure Excavation		Cu. Yd.	65	
Crosshole Sonic Logging		Each	1	

\*\* Length is height of spiral.



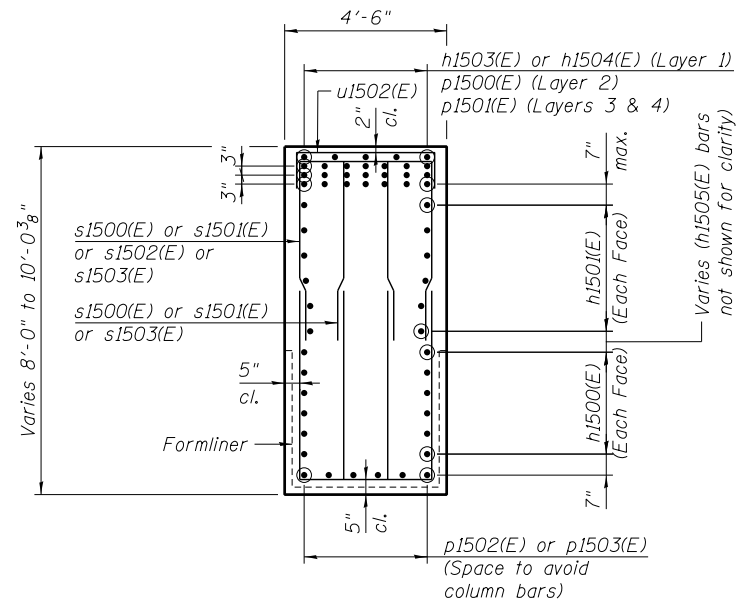
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	CHECKED - AA	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

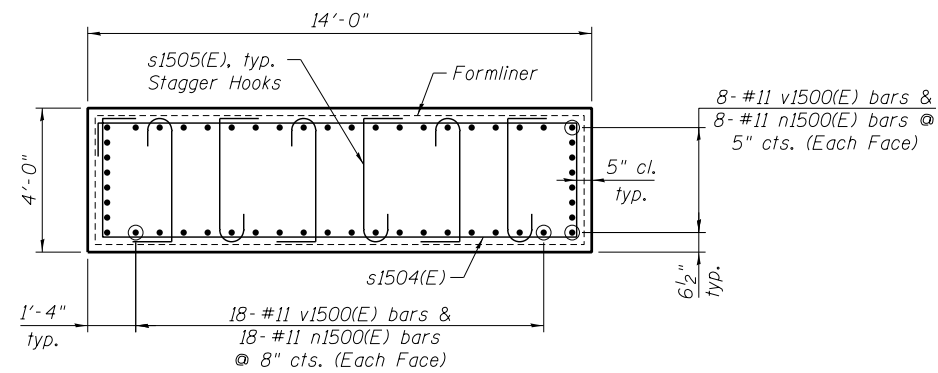
PIER 15W PLAN & ELEVATION - S.N. 016-1505  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

F.A.I. RT. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 699
CONTRACT NO. 60L70			ILLINOIS FED. AID PROJECT	

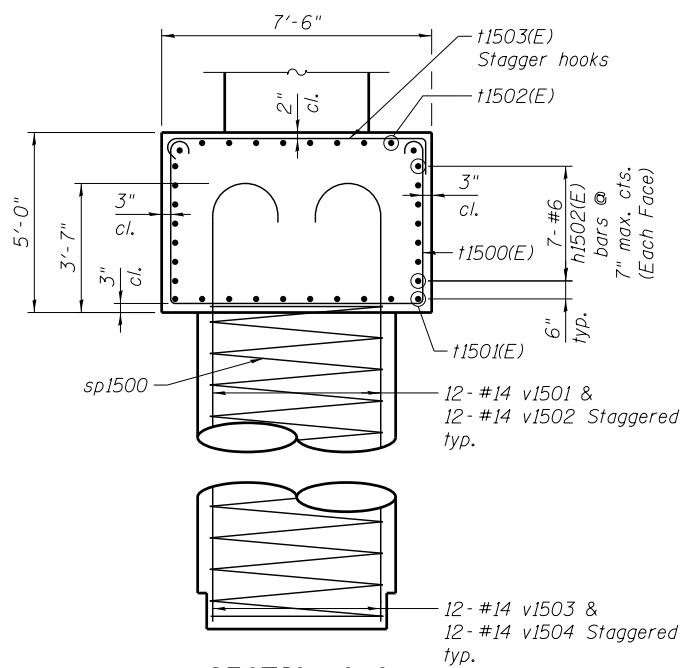
482.0161505\_60L70\_Pier15-1.dgn



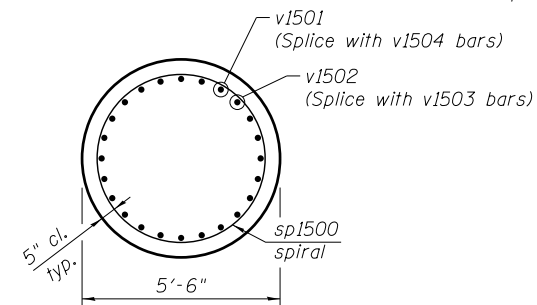
**SECTION A-A**



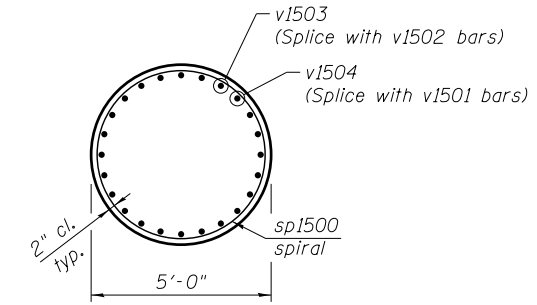
**SECTION B-B**



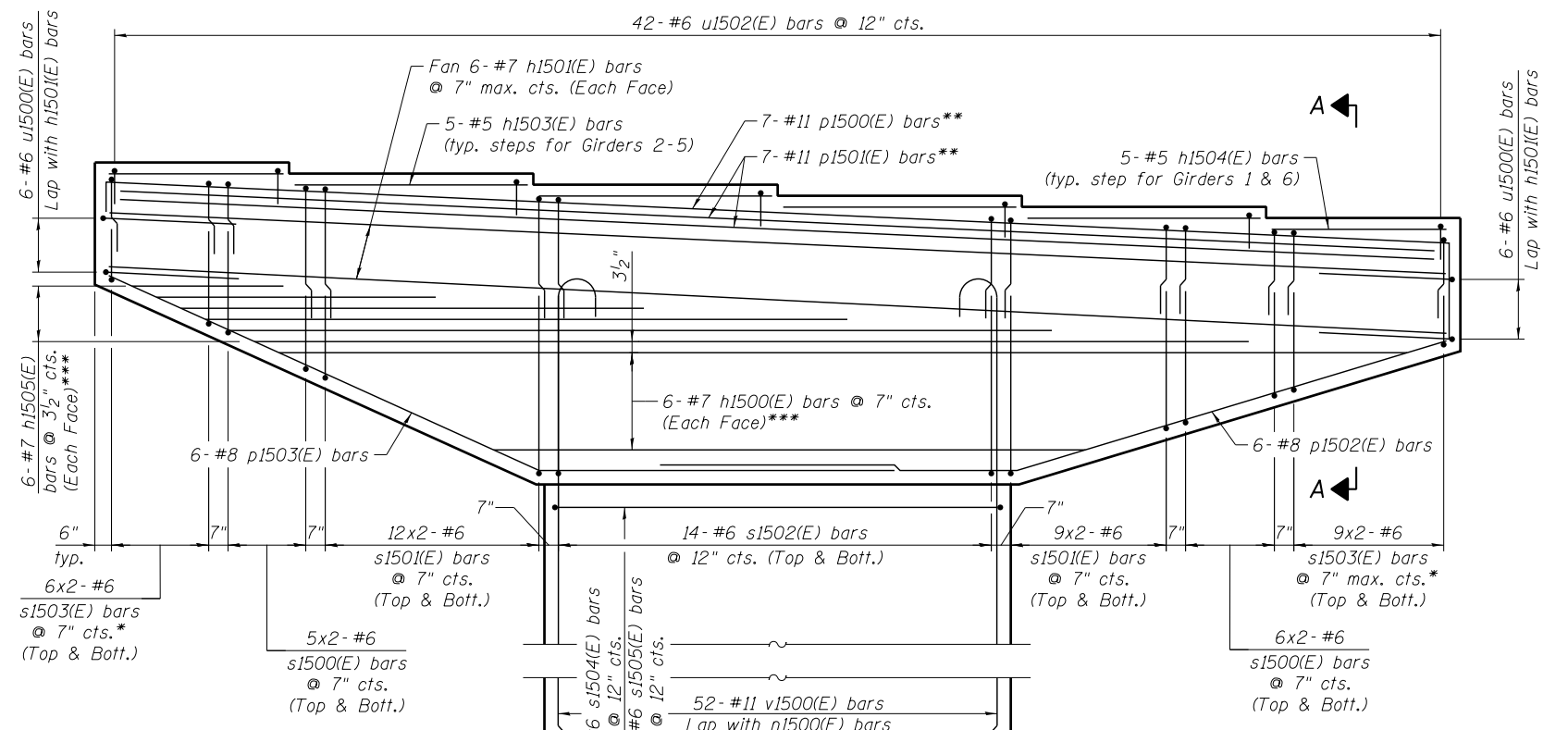
**SECTION C-C**



**SECTION D-D**



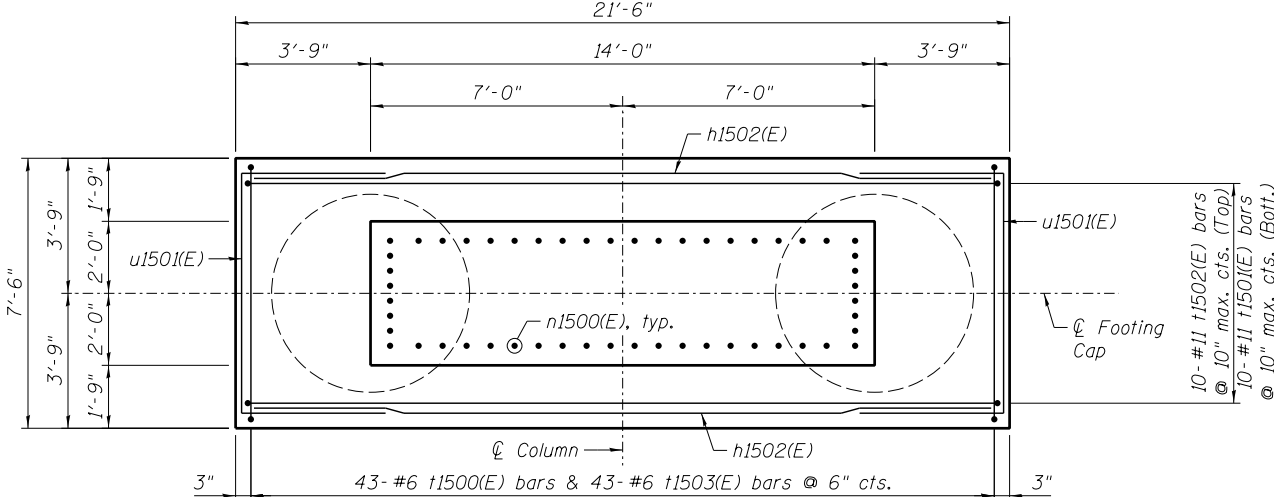
**SECTION E-E**



**ELEVATION**  
(Looking East)

\* Field cut as required and maintain 3'-3" min. lap.  
\*\* Slope with bearing steps.  
\*\*\* see Field Cutting Diagram on sheet S-207.

7-#6 u1501(E) bars @ 7" max. cts. (Each End)  
Lap with h1502(E) bars  
6" Pitch, typ.  
1-#6 sp1500 bar, typ. see Note 2



**FOOTING PLAN**

**NOTES:**

1. Space reinforcement in cap to miss anchor bolts.
2. sp1500 spiral:
  - 1) Provide 1/2 extra turns top and bottom. Extend spiral 3" into pile cap. 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.
3. Contractor shall use Mechanical Splicers in drilled shaft that will fit between spirals. Contractor shall field adjust spiral pitch to 12" maximum at Mechanical Splicer locations.
4. A Drilled Shaft shall be tested in accordance with Special Provisions for Crosshole Sonic Logging.

483\_0161505\_60L70\_Pier15-2.dgn



USER NAME = kritz	DESIGNED - AA	REVISED -
PLOT SCALE =	CHECKED - ATB	REVISED -
PLOT DATE = 11/20/2014	DRAWN - GF	REVISED -
	CHECKED - AA	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

PIER 15W DETAILS - S.N.016-1505  
I-55 & LAKE SHORE DRIVE INTERCHANGE (OUTBOUND STRUCTURES)

SHEET NO. S-208 OF S-248 SHEETS

F.A.I. R.T.E. = 55	SECTION = 2010-080-B	COUNTY = COOK	TOTAL SHEETS = 886	SHEET NO. = 700
				CONTRACT NO. 60L70
ILLINOIS FED. AID PROJECT				