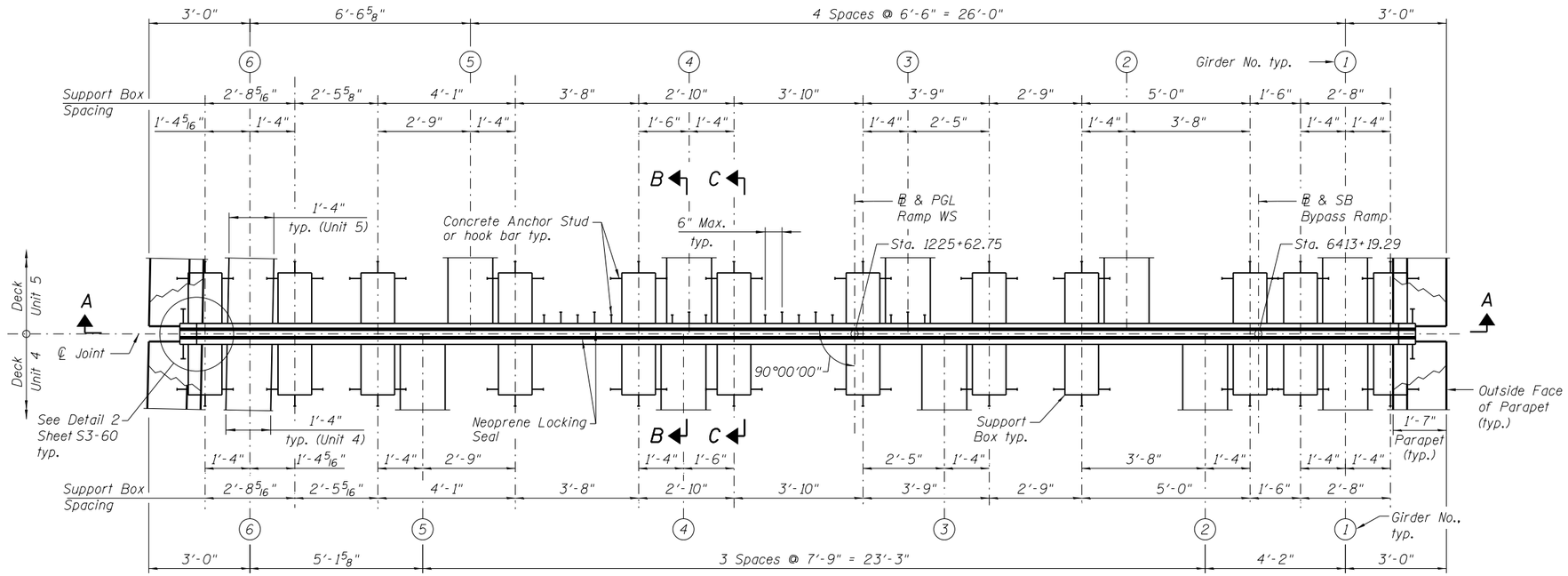
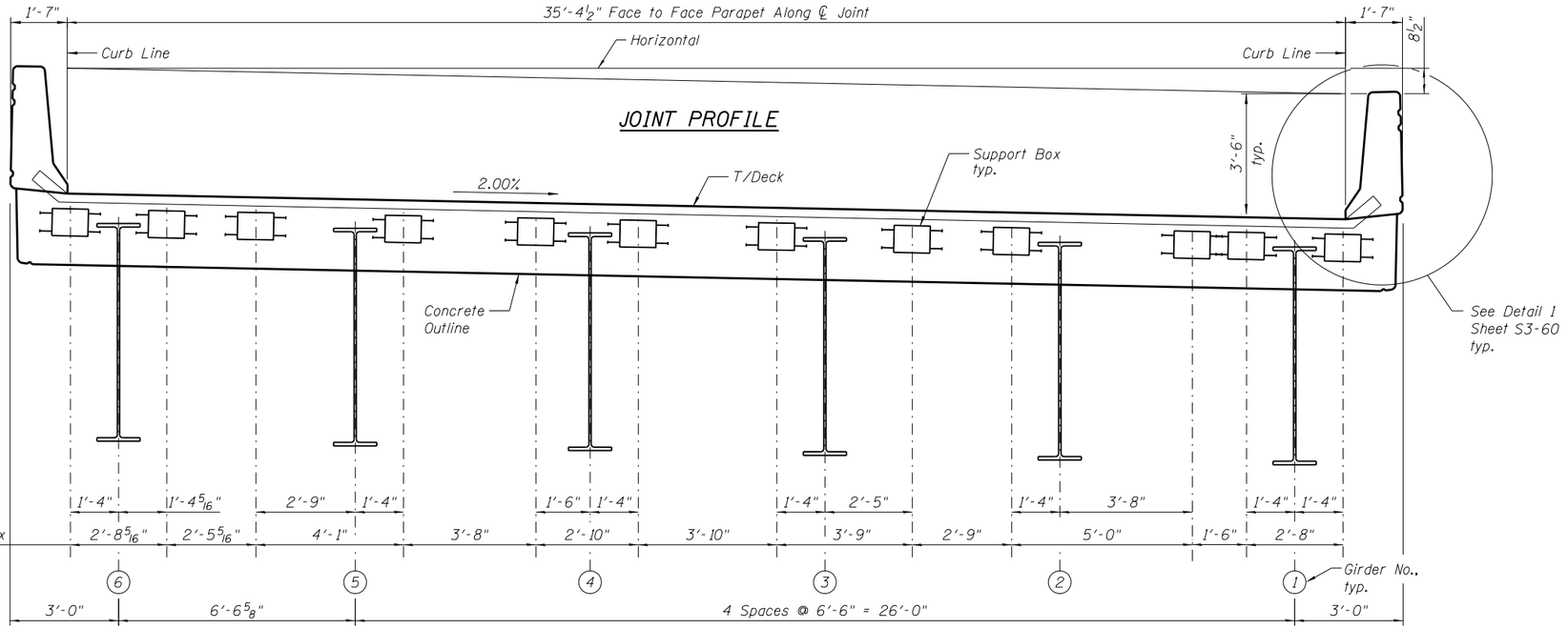


PLAN

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



JOINT PROFILE

SECTION A-A
(Looking Upstation)

NOTES:

1. For General Notes, see Sheet S3-56.
2. For Sections B-B and C-C, see Sheet S3-60.
3. The swivel modular expansion joint system shall be limited to pre-approved systems as indicated in special provision for Modular Expansion Joint. The joint shall provide the movement as shown in Table A.
4. Dimensions are measured along ℄ of Joint.
5. Support box dimensions and spacing shown are conceptual only and subject to refinement by joint manufacturer.

TABLE A

Location	Longitudinal Movement (Inch)	Size (Inch)
Pier 14	5 1/8"	6

BILL OF MATERIAL

Item	Unit	Total
Modular Exp. Jt.-Swivel, 6"	Foot	37

AECOM

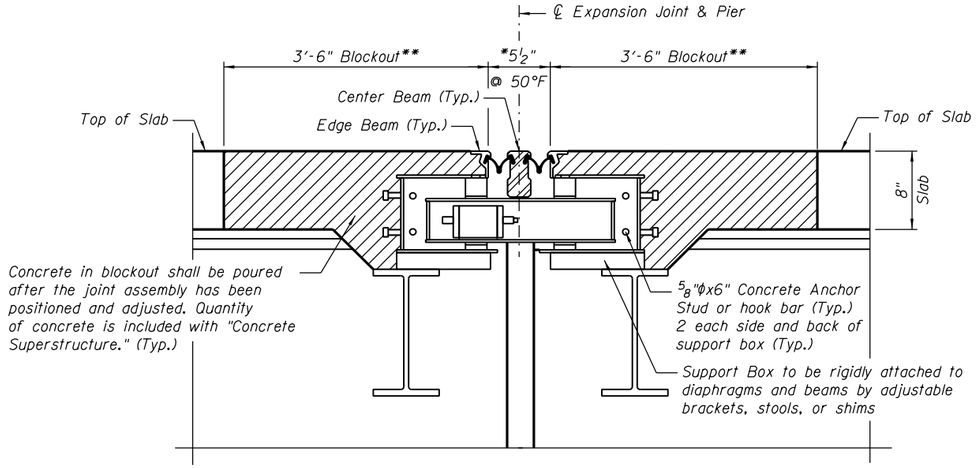
USER NAME = vasudevana	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - ATM	REVISED	
PLOT DATE = 7/30/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

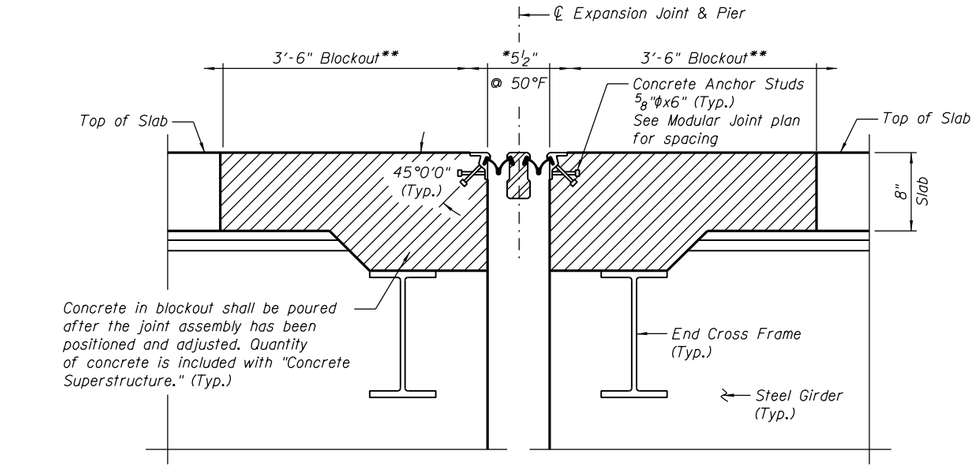
MODULAR EXPANSION JOINT – PIER 14
STRUCTURE NO. 016-1715
SHEET NO. S3-59 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	801
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

0161715-60X93-S058-ExpJoint



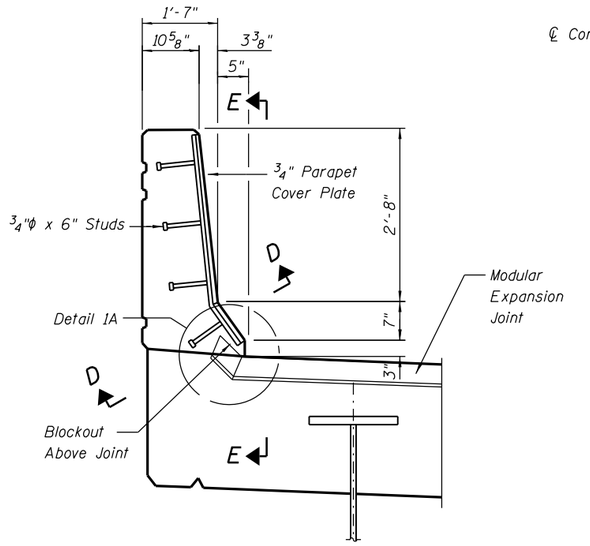
SECTION B-B



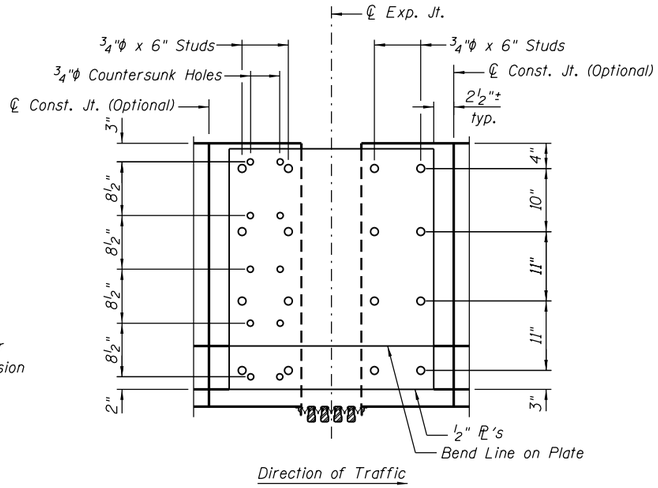
SECTION C-C

*Number of beams and seals determined by manufacturer

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

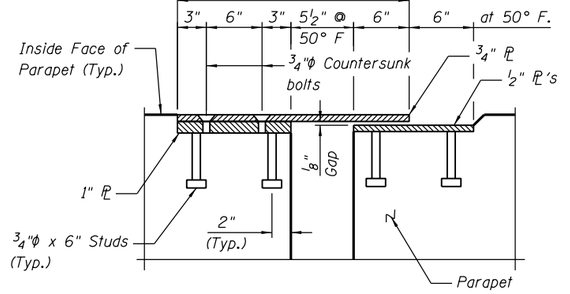


DETAIL 1

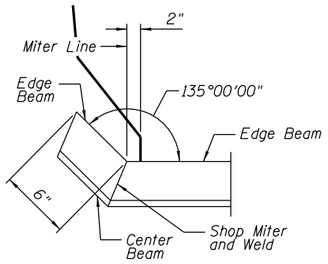


SECTION E-E

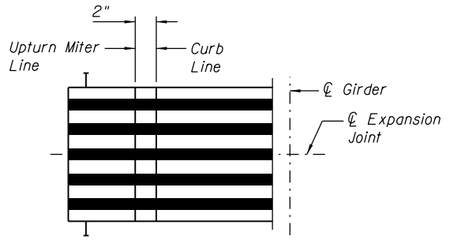
(Sliding Plate not shown for clarity)



SECTION D-D



DETAIL 1A



DETAIL 2

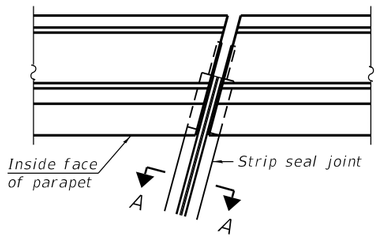
0161715-60X93-S059-ExpJoint.dgn

AECOM	USER NAME = floresg	DESIGNED - AV	REVISED
		CHECKED - ATB	REVISED
	PLOT SCALE = N.T.S.	DRAWN - ATM	REVISED
	PLOT DATE = 7/26/2018	CHECKED - AV	REVISED

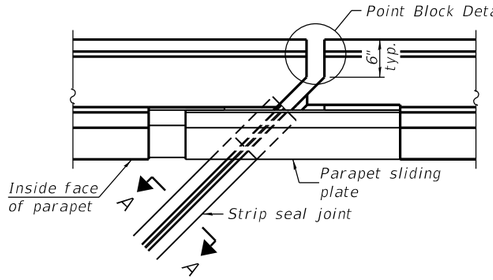
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MODULAR EXPANSION JOINT DETAILS
STRUCTURE NO. 016-1715
SHEET NO. S3-60 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	802
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

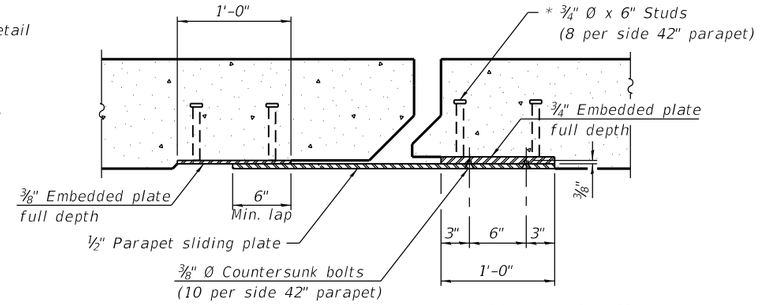


FOR SKEWS ≤ 30°

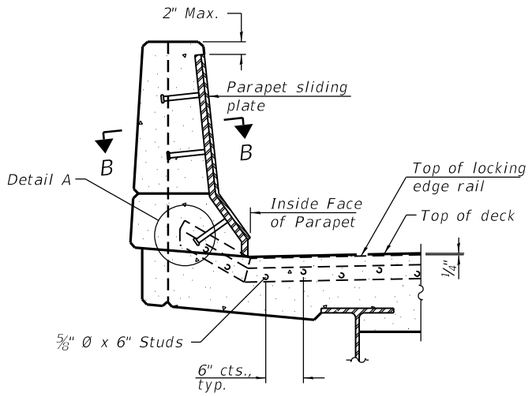


FOR SKEWS > 30°

PLAN AT PARAPET

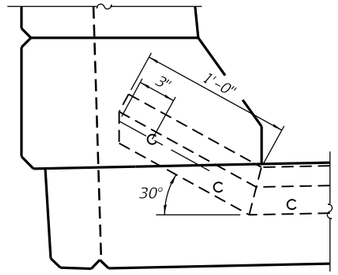


SECTION B-B

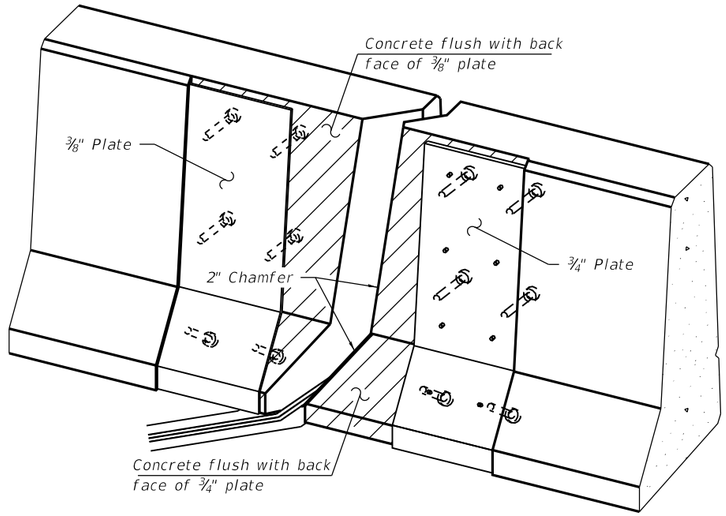


ELEVATION AT PARAPET

(Skews > 30° shown. Skews ≤ 30° similar except as shown in plan view.)



DETAIL A



TRIMETRIC VIEW

(Showing embedded plates only)

Notes:

The strip seal shall be made continuous and shall have a minimum thickness of ¼". 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 configured for typical applications and are conceptual only. The actual configuration of the locking edge rails and matching strip seal may vary from manufacturer to manufacturer provided they fit the application and meet the minimum anchorage shown. Flanged edge rails, however, will not be allowed. Locking edge rails may exceed the 4½" maximum depth provided the anchorage system is revised according to the manufacturer's recommendation.

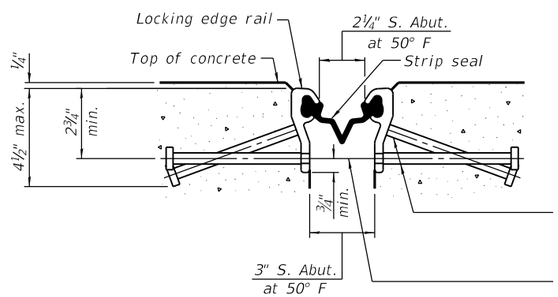
The manufacturer's recommended installation methods shall be followed.

All steel components shall be galvanized after fabrication according to Article 520.03 of the Standard Specifications.

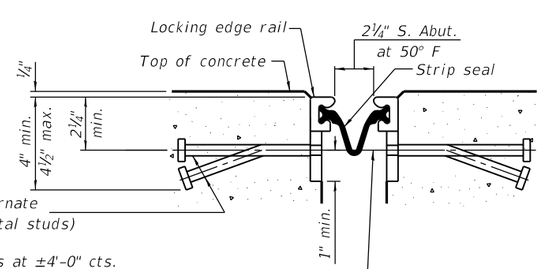
The Maximum space between locking edge rail segments shall be 3/16" and sealed with a suitable sealant; however, any rail joint within 10' measured perpendicular to the face of the curb or parapet shall be welded as shown in the locking edge rail splice detail.

Cost of parapet sliding plates, embedded plates, and anchorage studs included with Preformed Joint Strip Seal.

The concrete opening below the strip seal will vary based on the locking edge rail chosen by the Contractor. Deck and parapet lengths shown elsewhere in the plans are dimensioned to the concrete opening, not the joint opening, and are based on the rolled locking edge rail. If the Contractor elects to use a different locking edge rail, dimensional adjustments may be required. One exception to this would be the strip seal joint at the end of the precast bridge approach slab. For these cases the pavement connector length shall be adjusted, not the length of the bridge approach slab.



SHOWING ROLLED RAIL JOINT



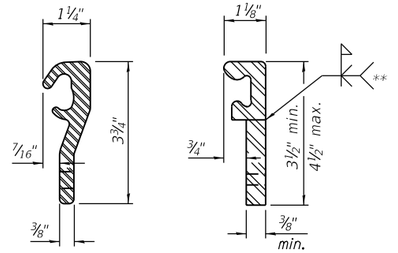
SHOWING WELDED RAIL JOINT

* ⅝" Ø x 6" studs @ 6" cts. (alternate angled/bent studs with horizontal studs)

⅜" ϕ threaded rods in 7/16" ϕ holes at ±4'-0" cts. for holding the proper joint opening based on the temperature during the deck pour. Place to miss studs. All rods shall be burned, or sawed off flush with the plates after concrete is set.

SECTION A-A

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

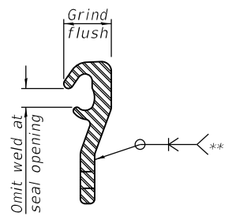


ROLLED (EXTRUDED) RAIL

WELDED RAIL

LOCKING EDGE RAILS

** Back gouge not required if complete joint penetration is verified by mock-up.



LOCKING EDGE RAIL SPLICE

The inside of the locking edge rail groove shall be free of weld residue. Rolled rail shown, welded rail similar.

BILL OF MATERIAL

Item	Unit	Total
Preformed Joint Strip Seal	Foot	38

EJ-SS 8-11-17

AECOM

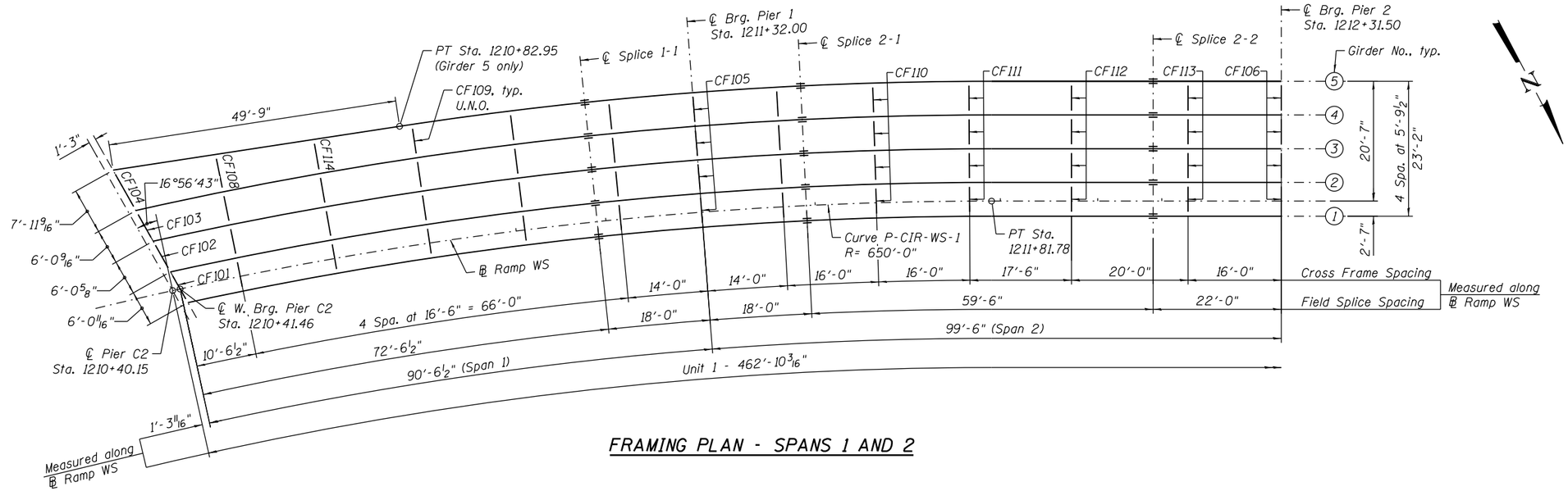
USER NAME = floresg	DESIGNED - AV	REVISED
	CHECKED - ATB	REVISED
PLOT SCALE = N.T.S.	DRAWN - ATM	REVISED
PLOT DATE = 7/26/2018	CHECKED - AV	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

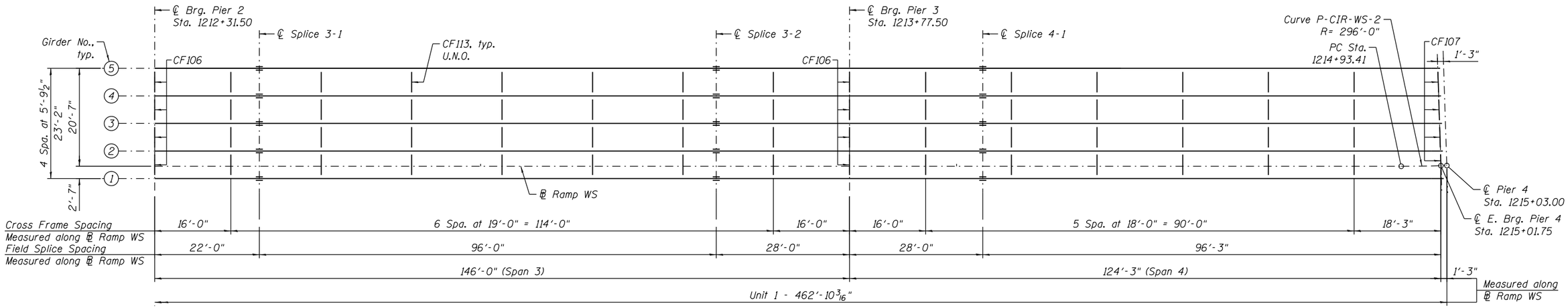
EXPANSION JOINT – SOUTH ABUTMENT
STRUCTURE NO. 016-1715
SHEET NO. S3-61 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	803
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

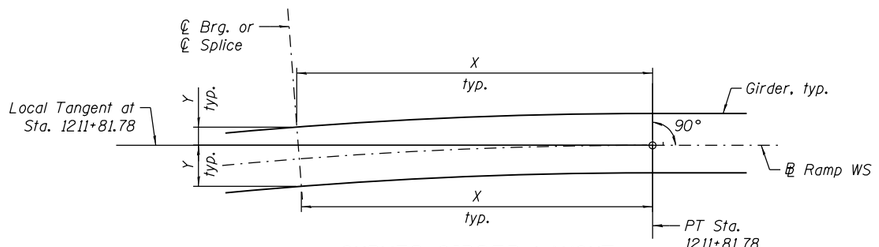
0161715-60X93-S060-ExpJoint.dgn



FRAMING PLAN - SPANS 1 AND 2



FRAMING PLAN - SPANS 3 AND 4



CURVED GIRDER LAYOUT

(X Measured along Local Tangent)

GIRDER COORDINATES - UNIT I

(All Dimensions in Feet)

Girder	℄ W. Brg. Pier C2		℄ Splice 1-1		℄ Brg. Pier 1		℄ Splice 2-1	
	X	Y	X	Y	X	Y	X	Y
1	-137.912	-17.443	-67.392	-6.100	-49.537	-4.481	-31.645	-3.357
2	-140.889	-12.167	-67.995	-0.340	-49.981	1.293	-31.928	2.428
3	-143.863	-6.895	-68.598	5.420	-50.424	7.068	-32.211	8.212
4	-146.835	-1.627	-69.201	11.180	-50.867	12.843	-32.494	13.997
5	-150.749	5.310	-69.804	16.940	-51.310	18.617	-32.777	19.782

NOTES:

1. See Sheet S3-63 for girder elevation.
2. See Sheet S3-64 for camber & top of web elevations.
3. See Sheet S3-65 for moment tables & reaction tables.
4. See Sheet S3-85 for girder bolted field splice details.
5. See Sheet S3-87 for girder cross frame details.
6. Girder spacings and cross frame orientations are radial to the ℄ Ramp WS, except at ℄ W. Brg. Pier C2 & ℄ E. Brg. Pier 4 supports where ℄ Brg. and cross frame orientations are parallel to the respective centerline of supports.

0161715-60X93-S061-FramePlan-1.dgn

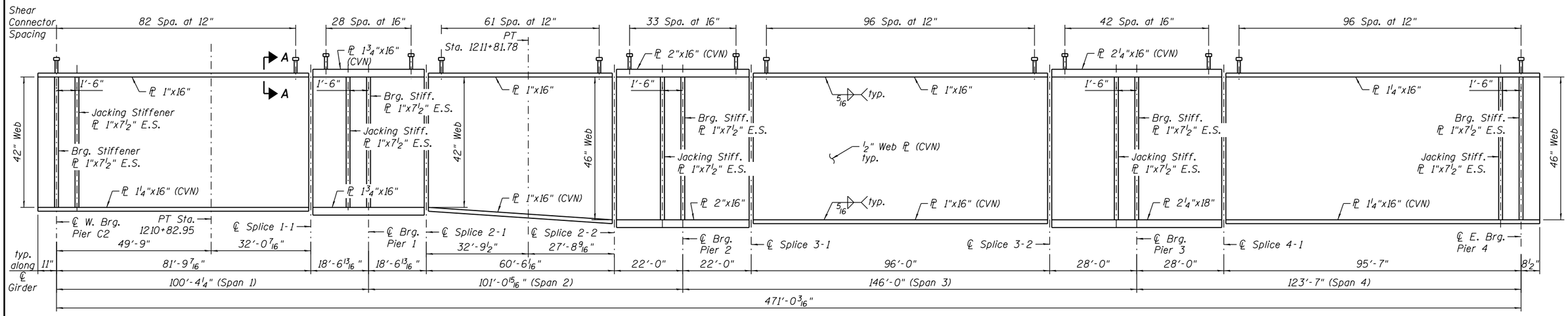
AECOM

USER NAME = floresg	DESIGNED - DD	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

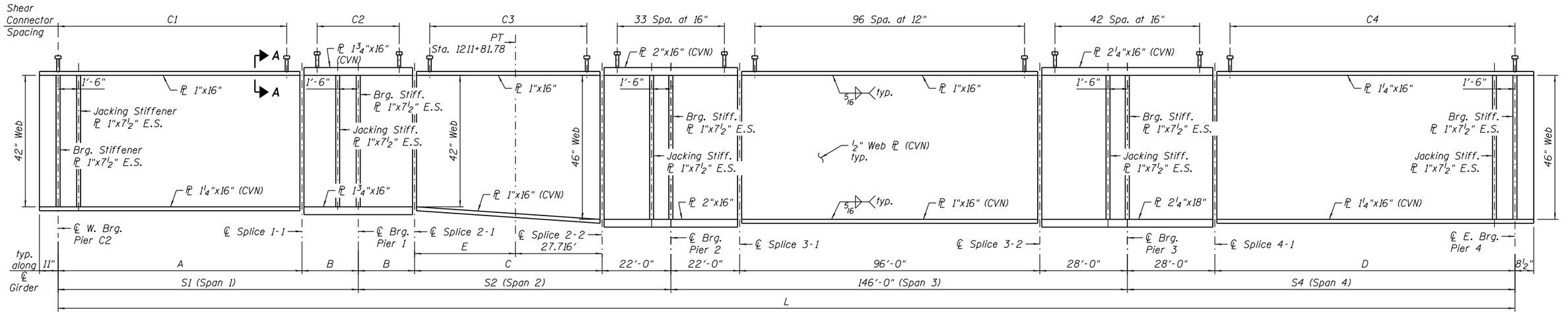
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN – UNIT 1
STRUCTURE NO. 016–1715
SHEET NO. S3-62 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	804
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			



GIRDER 5 ELEVATION - UNIT 1



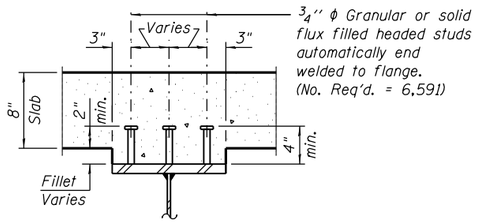
GIRDERS 1 THRU 4 ELEVATION - UNIT 1

GIRDER DIMENSIONS - UNIT 1

(All dimensions in Feet)

Girder	Radius	L*	S1	S2	S4	A	B	C	D	C1	C2	C3	C4
1	647.417	459.030	89.391	99.302	124.336	71.463	17.928	59.373	96.336	72 Spa. at 12"	27 Spa. at 16"	60 Spa. at 12"	97 Spa. at 12"
2	653.208	461.869	91.975	99.745	124.149	73.887	18.089	59.657	96.149	74 Spa. at 12"	27 Spa. at 16"	60 Spa. at 12"	97 Spa. at 12"
3	659.000	464.708	94.558	100.189	123.961	76.309	18.249	59.940	95.961	77 Spa. at 12"	27 Spa. at 16"	60 Spa. at 12"	96 Spa. at 12"
4	664.792	467.545	97.139	100.633	123.773	78.730	18.410	60.223	95.773	79 Spa. at 12"	28 Spa. at 16"	61 Spa. at 12"	96 Spa. at 12"
5	670.583												

* Girder Length "L" excludes girder end beyond bearings.



SECTION A-A

NOTES:

1. See Sheet S3-62 for girder framing plan.
2. See Sheet S3-64 for camber & top of web elevations.
3. See Sheet S3-65 for moment tables & reaction tables.
4. See Sheet S3-85 for girder bolted field splice details.
5. See Sheet S3-87 for girder cross frame details.
6. All structural steel shall be AASHTO M270 Grade 50.
7. "CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.

0161715-60X93-S062-GirderElev-1.dgn

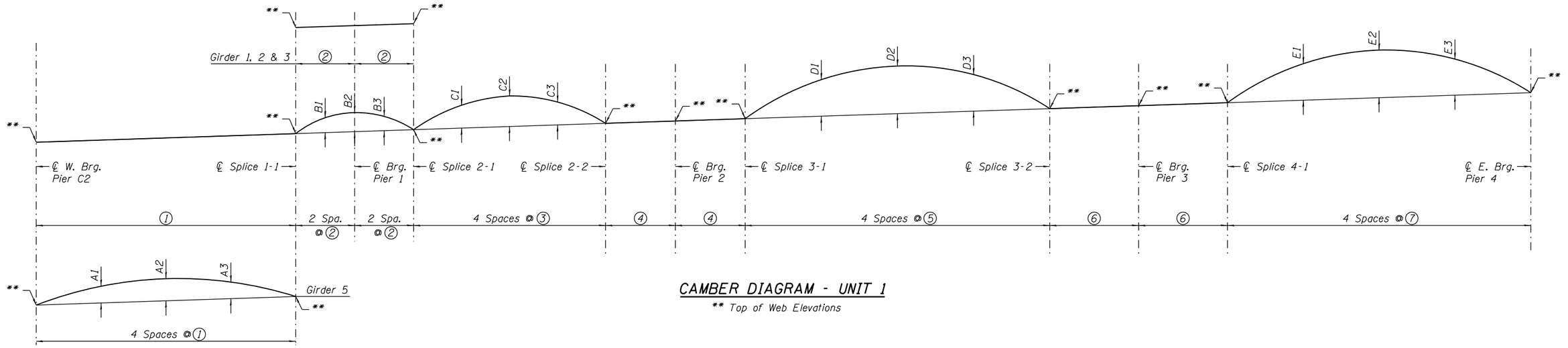
AECOM

USER NAME = floresg	DESIGNED - DD	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER ELEVATION – UNIT 1
STRUCTURE NO. 016-1715
SHEET NO. S3-63 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	805
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			



CAMBER DIAGRAM - UNIT 1

** Top of Web Elevations

TOP OF WEB ELEVATIONS* - UNIT 1											
Girder	℄ W. Brg. Pier C2	℄ Splice 1-1	℄ Brg. Pier 1	℄ Splice 2-1	℄ Splice 2-2	℄ Brg. Pier 2	℄ Splice 3-1	℄ Splice 3-2	℄ Brg. Pier 3	℄ Splice 4-1	℄ E. Brg. Pier 4
1	606.50	606.64	606.77	606.90	607.43	607.69	607.96	608.79	609.03	609.27	610.20
2	606.81	606.95	607.06	607.17	607.57	607.78	608.00	608.68	608.91	609.15	609.98
3	607.12	607.27	607.35	607.43	607.70	607.87	608.04	608.56	608.80	609.03	609.77
4	607.44	607.58	607.71	607.70	607.84	607.96	608.08	608.45	608.68	608.92	609.55
5	607.59	607.89	608.01	607.96	607.97	608.05	608.13	608.34	608.57	608.80	609.34

*For fabrication use only.

CAMBER ORDINATES - UNIT 1														
Girder	A1	A2	A3	B1	B2	B3	C1	C2	C3	D1	D2	D3	E1	E2	E3
1	-	-	-	-	-	-	1 1/8"	1 1/2"	1 1/8"	2 7/8"	3 3/4"	2 7/8"	2"	2 5/8"	1 3/4"
2	-	-	-	-	-	-	1 1/8"	1 1/2"	1 1/8"	2 5/8"	3 1/2"	2 5/8"	2 3/8"	3 1/8"	2 1/8"
3	-	-	-	-	-	-	1 1/8"	1 1/2"	1 1/8"	2 3/8"	3 1/8"	2 3/8"	2 3/4"	3 3/4"	2 1/2"
4	-	-	-	1/2"	3/4"	1/2"	1"	1 3/8"	1"	2 1/8"	2 3/4"	1 7/8"	3 1/4"	4 1/4"	2 7/8"
5	1/8"	3/4"	5/8"	5/8"	7/8"	5/8"	1"	1 3/8"	1"	1 7/8"	2 1/2"	1 1/2"	3 5/8"	4 7/8"	3 3/8"

CAMBER ORDINATES - UNIT 1							
Girder	①	②	③	④	⑤	⑥	⑦
1	71.463′	17.928′	14.843′	22.000′	24.000′	28.000′	24.084′
2	73.887′	18.089′	14.914′	22.000′	24.000′	28.000′	24.037′
3	76.309′	18.249′	14.985′	22.000′	24.000′	28.000′	23.990′
4	78.730′	9.205′	15.056′	22.000′	24.000′	28.000′	23.943′
5	20.447′	9.285′	15.127′	22.000′	24.000′	28.000′	23.896′

NOTES:

1. See Sheet S3-62 for girder framing plan.
2. See Sheet S3-63 for girder elevation.
3. See Sheet S3-65 for moment tables & reaction tables.
4. See Sheet S3-85 for girder bolted field splice details.
5. See Sheet S3-87 for girder cross frame details.

0161715-60X93-S063-GirderCamber-1.dgn

AECOM

USER NAME = floresg	DESIGNED - DD	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER CAMBER DIAGRAMS – UNIT 1
STRUCTURE NO. 016-1715
SHEET NO. S3-64 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	806
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

EXTERIOR GIRDER 5 MOMENT TABLE - UNIT 1								
		0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.5 Sp. 3	Pier 3	0.6 Sp. 4
I_s	(in^4)	19,702	29,898	19,861	40,941	21,730	48,494	26,386
$I_c(n)$	(in^4)	44,664	-	43,236	-	46,983	-	54,083
$I_c(3n)$	(in^4)	33,008	-	32,489	-	35,318	-	40,780
$I_c(cr)$	(in^4)	-	33,813	-	45,566	-	53,588	-
S_s	(in^3)	952	1,314	861	1,638	905	2,007	1,088
$S_c(n)$	(in^3)	1,229	-	1,115	-	1,170	-	1,366
$S_c(3n)$	(in^3)	1,135	-	1,028	-	1,079	-	1,264
$S_c(cr)$	(in^3)	-	1,373	-	1,700	-	2,075	-
S_{xc}	(in^3)	1,127	1,319	1,114	1,696	1,094	2,062	1,289
DC1	(k/')	0.84	0.90	0.83	0.94	0.83	0.98	0.86
M_{DC1}	('k)	750	932	30	1,169	695	1,980	816
DC2	(k/')	0.29	0.29	0.29	0.29	0.29	0.29	0.29
M_{DC2}	('k)	221	294	21	360	215	567	235
DW	(k/')	0.22	0.22	0.22	0.22	0.22	0.22	0.22
M_{DW}	('k)	224	263	10	335	228	554	241
M_{L+IM}	('k)	1,215	1,384	981	1,731	1,379	2,029	1,551
f_l (Strength I)	(ksi)	2.5	4.7	0.0	0.0	0.0	0.0	0.0
$M_u + 1/3 f_l S_{xc}$	('k)	3,755	4,522	1,796	5,443	3,893	7,566	4,390
$\phi_f M_n$	('k)	-	-	-	-	-	-	-
f_s DC1	(ksi)	9.5	8.5	0.4	8.6	9.2	11.8	9.0
f_s DC2	(ksi)	2.3	2.6	0.2	2.5	2.4	3.3	2.2
f_s DW	(ksi)	2.4	2.3	0.1	2.4	2.5	3.2	2.3
f_s (L+IM)	(ksi)	11.9	12.1	10.6	12.2	14.1	11.7	13.6
f_l (Service II)	(ksi)	1.9	3.6	0.0	0.0	0.0	0.0	0.0
$f_s + f_l/2$ (Service II)	(ksi)	30.5	30.9	14.5	29.4	32.5	33.6	31.2
$0.95R_hF_{yf}$	(ksi)	47.5	47.5	47.5	47.5	47.5	47.5	47.5
$f_s + f_l/3$ (Total)(Strength I)	(ksi)	39.9	40.0	19.5	38.8	43.0	44.2	41.3
$\phi_f F_n$	(ksi)	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Vr	(k)	21.7	26.3	22.1	27.4	24.3	26.8	25.0

EXTERIOR GIRDER 5 REACTION TABLE - UNIT 1						
		Pier C2-W	Pier 1	Pier 2	Pier 3	Pier 4-E
R_{DC1}	(k)	37.2	88.5	105.1	142.5	38.7
R_{DC2}	(k)	11.5	28.8	33.2	42.3	11.6
R_{DW}	(k)	10.7	24.5	28.8	38.5	10.7
R_{L+IM}	(k)	65.4	113.8	134.0	144.1	70.1
R_{Total}	(k)	124.8	255.5	301.2	367.3	131.2

INTERIOR GIRDER 4 MOMENT TABLE - UNIT 1								
		0.4 Sp. 1	Pier 1	0.5 Sp. 2	Pier 2	0.5 Sp. 3	Pier 3	0.6 Sp. 4
I_s	(in^4)	19,702	29,898	19,867	40,941	21,730	48,494	26,386
$I_c(n)$	(in^4)	44,467	-	43,069	-	46,788	-	53,853
$I_c(3n)$	(in^4)	32,843	-	32,344	-	35,151	-	40,597
$I_c(cr)$	(in^4)	-	33,749	-	45,489	-	53,502	-
S_s	(in^3)	952	1,314	862	1,638	905	2,007	1,088
$S_c(n)$	(in^3)	1,228	-	1,114	-	1,169	-	1,365
$S_c(3n)$	(in^3)	1,133	-	1,027	-	1,077	-	1,262
$S_c(cr)$	(in^3)	-	1,372	-	1,699	-	2,075	-
S_{xc}	(in^3)	1,117	1,292	1,105	1,667	1,088	2,025	1,279
DC1	(k/')	0.83	0.89	0.82	0.93	0.82	0.97	0.85
M_{DC1}	('k)	670	882	46	1,185	689	1,974	822
DC2	(k/')	0.29	0.29	0.29	0.29	0.29	0.29	0.29
M_{DC2}	('k)	181	234	11	315	202	508	219
DW	(k/')	0.29	0.29	0.29	0.29	0.29	0.29	0.29
M_{DW}	('k)	207	273	21	370	229	586	250
M_{L+IM}	('k)	1,005	1,112	839	1,395	1,168	1,623	1,321
f_l (Strength I)	(ksi)	2.8	4.1	0.0	0.0	0.0	0.0	0.0
$M_u + 1/3 f_l S_{xc}$	('k)	3,218	3,896	1,571	4,871	3,501	6,822	3,988
$\phi_f M_n$	('k)	-	-	-	-	-	-	-
f_s DC1	(ksi)	8.4	8.1	0.6	8.7	9.1	11.8	9.1
f_s DC2	(ksi)	1.9	2.0	0.1	2.2	2.3	2.9	2.1
f_s DW	(ksi)	2.2	2.4	0.2	2.6	2.6	3.4	2.4
f_s (L+IM)	(ksi)	9.8	9.7	9.0	9.9	12.0	9.4	11.6
f_l (Service II)	(ksi)	2.1	3.1	0.0	0.0	0.0	0.0	0.0
$f_s + f_l/2$ (Service II)	(ksi)	26.4	26.7	12.8	26.3	29.5	30.3	28.6
$0.95R_hF_{yf}$	(ksi)	47.5	47.5	47.5	47.5	47.5	47.5	47.5
$f_s + f_l/3$ (Total)(Strength I)	(ksi)	34.3	34.6	17.1	34.8	39.0	39.9	37.8
$\phi_f F_n$	(ksi)	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Vr	(k)	20.3	21.2	17.9	23.0	24.1	22.6	21.3

INTERIOR GIRDER 4 REACTION TABLE - UNIT 1						
		Pier C2-W	Pier 1	Pier 2	Pier 3	Pier 4-E
R_{DC1}	(k)	36.8	96.8	105.5	142.7	39.8
R_{DC2}	(k)	10.1	26.6	28.4	37.2	10.6
R_{DW}	(k)	11.2	30.3	33.1	42.8	12.1
R_{L+IM}	(k)	59.4	105.5	114.0	119.3	61.6
R_{Total}	(k)	117.6	259.1	280.9	342.0	124.0

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 ($in.^4$ 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_{L+IM}: Un-factored live load moment plus dynamic load allowance (impact)(kip-ft.).

M_u (Strength I): Factored design moment (kip-ft.).
$1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{L+IM}$

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

$f_s + f_l/2$ (Service II): Sum of stresses as computed below (ksi).
$f_{s\,DC1} + f_{sDC2} + f_{sDW} + 1.3 f_s(L+IM) + f_l/2$

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

$f_s + f_l/3$ (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25 (f_{sDC1} + f_{sDC2}) + 1.5 f_{sDW} + 1.75 f_s(L+IM) + f_l/3$

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

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

Note:
M_{L+IM} and R_{L+IM} include the effects of centrifugal force and superelevation.

0161715-60X93-S064-MomentTable-1.dgn

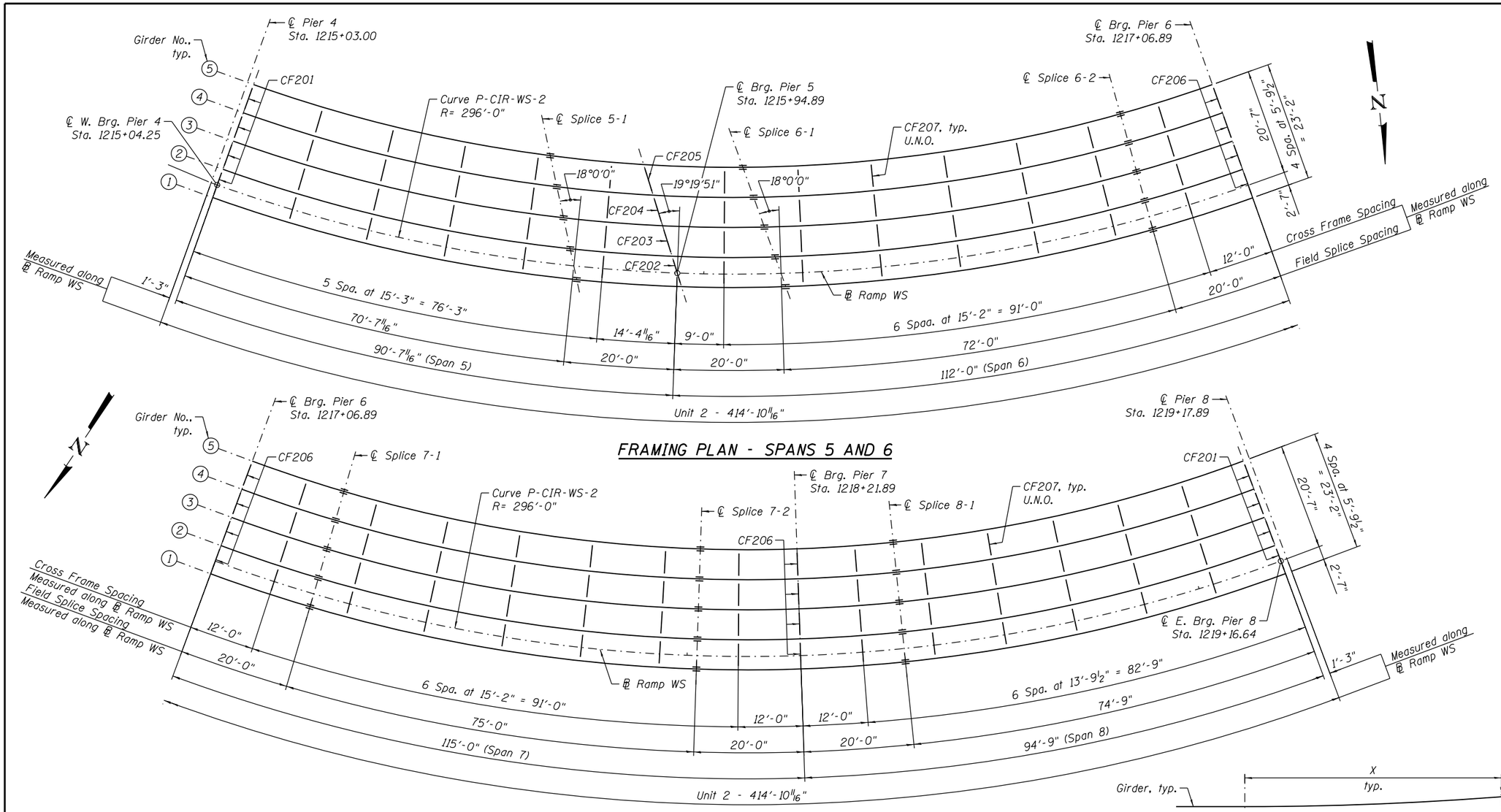
AECOM

USER NAME = floresg	DESIGNED - DD	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

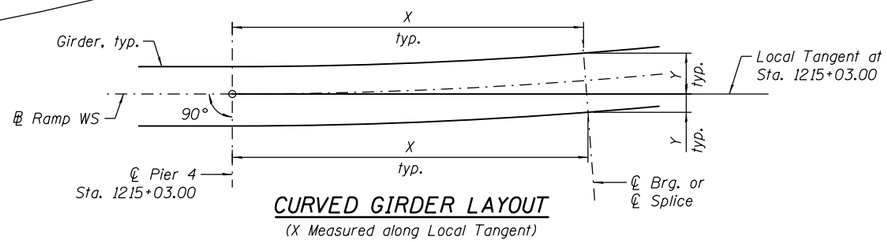
GIRDER MOMENT AND REACTION TABLE – UNIT 1
STRUCTURE NO. 016–1715
SHEET NO. S3-65 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	807
		CONTRACT NO. 60X93		
	ILLINOIS	FED. AID PROJECT		



FRAMING PLAN - SPANS 5 AND 6

FRAMING PLAN - SPANS 7 AND 8



CURVED GIRDER LAYOUT

(X Measured along Local Tangent)

GIRDER COORDINATES - UNIT 2

(All Dimensions in Feet)

Girder	℄ W. Brg. Pier 4		℄ Splice 5-1		℄ Brg. Pier 5		℄ Splice 6-1		℄ Splice 6-2		℄ Brg. Pier 6		℄ Splice 7-1		℄ Splice 7-2		℄ Brg. Pier 7		℄ Splice 8-1		℄ E. Brg. Pier 8	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
1	1.250	-2.581	72.623	6.383	92.074	11.968	110.979	18.807	173.795	53.209	189.790	65.497	204.920	78.837	252.812	137.135	262.961	154.567	271.910	172.643	294.109	244.506
2	1.250	3.211	69.403	11.553	88.370	16.863	107.092	23.496	170.424	57.919	186.109	69.968	200.945	83.049	247.908	140.217	257.861	157.310	266.636	175.036	288.400	245.481
3	1.250	9.003	66.176	16.734	84.656	21.770	103.197	28.195	167.052	62.628	182.428	74.439	196.970	87.262	243.004	143.298	252.760	160.053	261.362	177.429	282.691	246.456
4	1.250	14.794	62.942	21.926	80.933	26.690	99.292	32.905	163.681	67.337	178.746	78.910	192.995	91.474	238.101	146.380	247.659	162.797	256.087	179.822	276.982	247.431
5	1.250	20.586	59.700	27.131	77.199	31.624	95.379	37.626	160.310	72.047	175.065	83.381	189.021	95.686	233.197	149.461	242.558	165.540	250.813	182.215	271.273	248.406

NOTES:

1. See Sheet S3-67 for girder elevation.
2. See Sheet S3-68 for camber & top of web elevations.
3. See Sheet S3-69 for moment tables & reaction tables.
4. See Sheet S3-85 for girder bolted field splice details.
5. See Sheet S3-87 for girder cross frame details.
6. Girder spacings and cross frame orientations are radial to the ℄ Ramp WS, except at ℄ W. Brg. Pier 4, ℄ Brg. Pier 5 & ℄ E. Brg. Pier 8 supports where ℄ Brg. and cross frame orientations are parallel to the respective centerline of supports.

AECOM

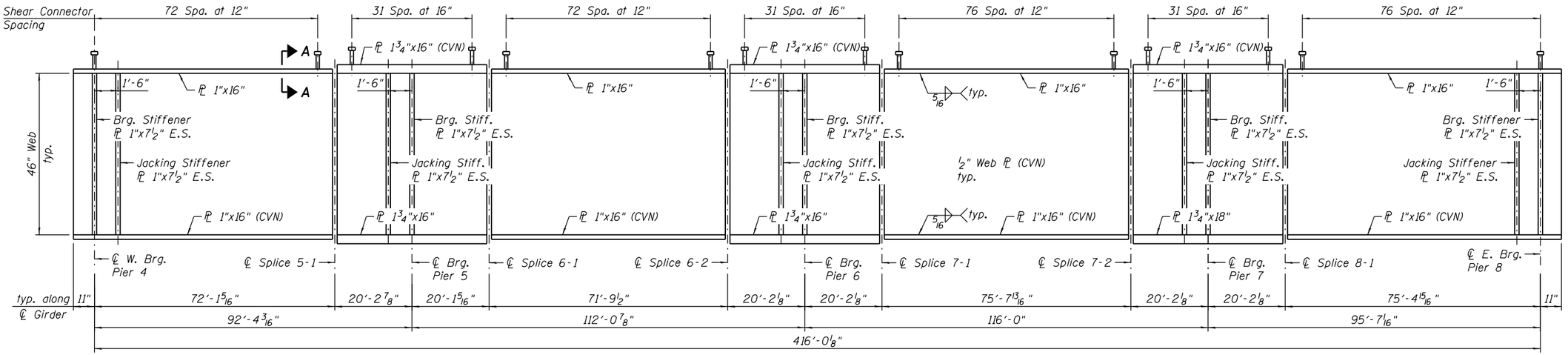
USER NAME = floresg	DESIGNED - DD	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

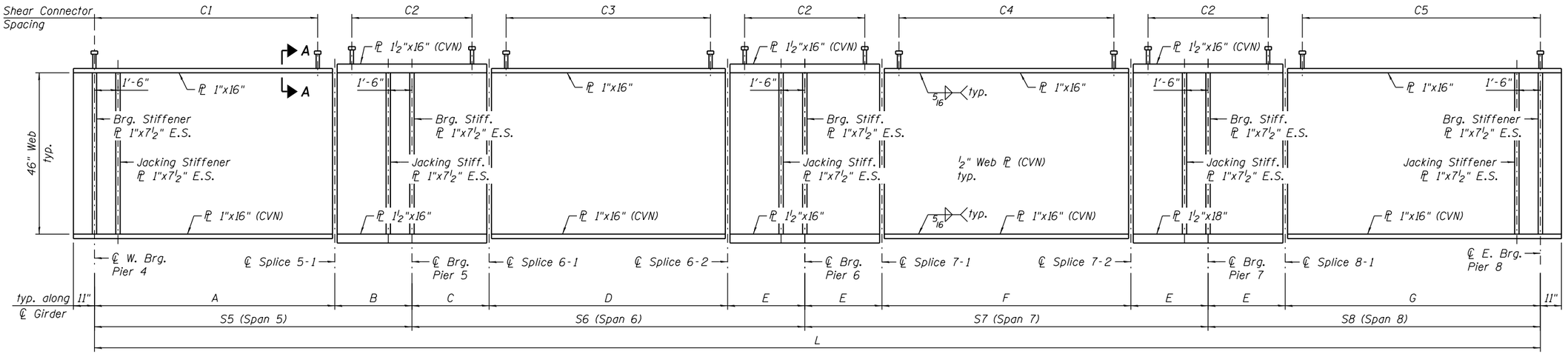
FRAMING PLAN – UNIT 2
STRUCTURE NO. 016–1715
SHEET NO. S3-66 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	808
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

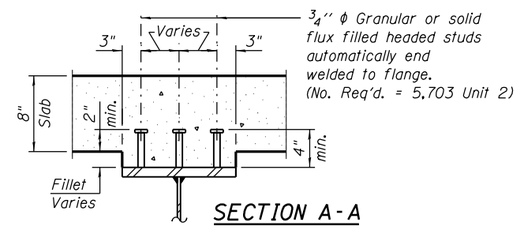
0161715-60X93-S065-FramePlan-2.dgn



GIRDER 1 ELEVATION - UNIT 2



GIRDERS 2 THRU 5 ELEVATION - UNIT 2



¾" ϕ Granular or solid flux filled headed studs automatically end welded to flange. (No. Req'd. = 5,703 Unit 2)

SECTION A-A

GIRDER DIMENSIONS - UNIT 2

(All dimensions in Feet)

Girder	Radius	L*	S5	S6	S7	S8	A	B	C	D	E	F	G	C1	C2	C3	C4	C5
1	298.583																	
2	292.792	407.893	88.520	111.915	113.749	93.709	68.820	19.700	19.866	72.265	19.783	74.182	73.926	69 Spa. at 12"	30 Spa. at 16"	73 Spa. at 12"	75 Spa. at 12"	74 Spa. at 12"
3	287.000	399.775	84.685	111.760	111.499	91.831	65.527	19.158	19.626	72.742	19.392	72.715	72.439	66 Spa. at 12"	29 Spa. at 16"	73 Spa. at 12"	73 Spa. at 12"	73 Spa. at 12"
4	281.208	391.657	80.844	111.612	109.249	89.953	62.230	18.614	19.387	73.224	19.001	71.248	70.952	63 Spa. at 12"	29 Spa. at 16"	74 Spa. at 12"	72 Spa. at 12"	71 Spa. at 12"
5	275.417	383.539	76.997	111.469	106.999	88.074	58.927	18.069	19.149	73.711	18.609	69.780	69.465	59 Spa. at 12"	28 Spa. at 16"	74 Spa. at 12"	70 Spa. at 12"	70 Spa. at 12"

* Girder Length "L" excludes girder end beyond bearings.

NOTES:

1. See Sheet S3-66 for girder framing plan.
2. See Sheet S3-68 for camber & top of web elevations.
3. See Sheet S3-69 for moment tables & reaction tables.
4. See Sheet S3-85 for girder bolted field splice details.
5. See Sheet S3-87 for girder cross frame details.
6. All structural steel shall be AASHTO M270 Grade 50.
7. "CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.

AECOM

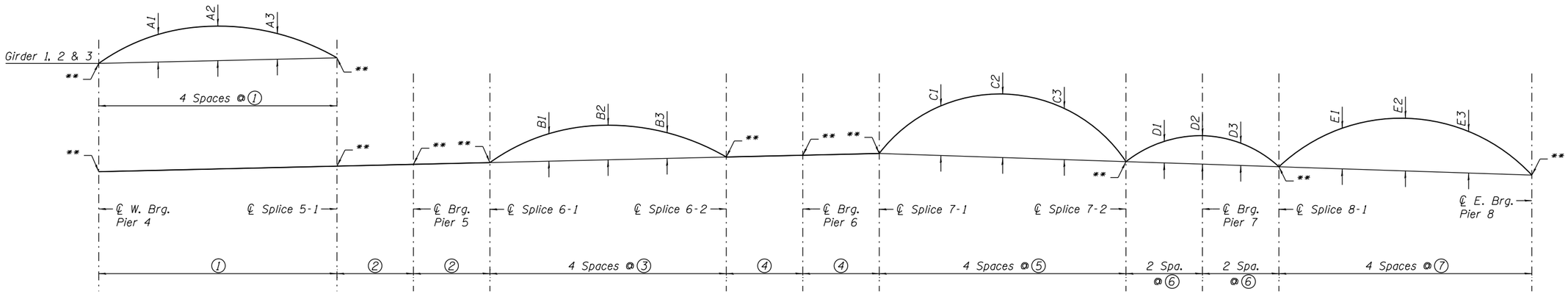
USER NAME = floresg	DESIGNED - DD	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER ELEVATION – UNIT 2
STRUCTURE NO. 016–1715
SHEET NO. S3-67 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	809
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

0161715-60X93-S066-GirderElev-2.dgn



CAMBER DIAGRAM - UNIT 2

** Top of Web Elevations

TOP OF WEB ELEVATIONS* - UNIT 1											
Girder	℄ W. Brg. Pier 4	℄ Splice 5-1	℄ Brg. Pier 5	℄ Splice 6-1	℄ Splice 6-2	℄ Brg. Pier 6	℄ Splice 7-1	℄ Splice 7-2	℄ Brg. Pier 7	℄ Splice 8-1	℄ E. Brg. Pier 8
1	610.24	610.80	610.96	611.12	611.72	611.89	612.06	611.67	611.19	610.49	606.55
2	610.02	610.51	610.67	610.84	611.46	611.62	611.79	611.40	610.92	610.22	606.27
3	609.80	610.19	610.36	610.53	611.17	611.33	611.50	611.12	610.63	609.92	605.98
4	609.57	609.88	610.05	610.23	610.88	611.04	611.20	610.83	610.34	609.62	605.69
5	609.35	609.56	609.74	609.93	610.59	610.75	610.91	610.54	610.05	609.32	605.40

*For fabrication use only.

CAMBER ORDINATES - UNIT 1														
Girder	A1	A2	A3	B1	B2	B3	C1	C2	C3	D1	D2	D3	E1	E2	E3
1	$1\frac{5}{8}$"	$2\frac{3}{8}$"	$1\frac{3}{4}$"	$1\frac{3}{4}$"	$2\frac{1}{4}$"	$1\frac{3}{4}$"	$4\frac{1}{2}$"	6"	$4\frac{1}{2}$"	$\frac{7}{8}$"	$1\frac{1}{4}$"	$\frac{7}{8}$"	$3\frac{5}{8}$"	$4\frac{7}{8}$"	$2\frac{7}{8}$"
2	$\frac{7}{8}$"	$1\frac{1}{2}$"	$1\frac{1}{8}$"	$1\frac{1}{2}$"	2"	$1\frac{1}{2}$"	$4\frac{1}{4}$"	$5\frac{5}{8}$"	$4\frac{1}{4}$"	$\frac{7}{8}$"	$1\frac{1}{4}$"	$\frac{7}{8}$"	$3\frac{3}{8}$"	$4\frac{1}{2}$"	$2\frac{5}{8}$"
3	$\frac{3}{8}$"	$\frac{3}{4}$"	$\frac{5}{8}$"	$1\frac{1}{2}$"	2"	$1\frac{1}{2}$"	$4\frac{1}{8}$"	$5\frac{5}{8}$"	$4\frac{1}{8}$"	$\frac{7}{8}$"	$1\frac{1}{4}$"	$\frac{7}{8}$"	$3\frac{1}{8}$"	$4\frac{1}{4}$"	$2\frac{3}{8}$"
4	-	-	-	$1\frac{1}{2}$"	2"	$1\frac{1}{2}$"	$4\frac{1}{8}$"	$5\frac{1}{2}$"	$4\frac{1}{8}$"	1"	$1\frac{3}{8}$"	1"	3"	4"	$2\frac{1}{4}$"
5	-	-	-	$1\frac{1}{2}$"	$2\frac{1}{8}$"	$1\frac{1}{2}$"	4"	$5\frac{3}{8}$"	4"	1"	$1\frac{3}{8}$"	1"	$2\frac{7}{8}$"	$3\frac{3}{4}$"	$2\frac{1}{8}$"

CAMBER ORDINATES - UNIT 1							
Girder	①	②	③	④	⑤	⑥	⑦
1	18.027′	20.241′	17.948′	20.175′	18.913′	10.088′	18.853′
2	17.205′	19.700′	18.066′	19.783′	18.546′	9.892′	18.482′
3	16.382′	19.158′	18.186′	19.392′	18.179′	9.696′	18.110′
4	62.230′	18.614′	18.306′	19.001′	17.812′	9.501′	17.738′
5	58.927′	18.069′	18.428′	18.609′	17.445′	9.305′	17.366′

NOTES:

1. See Sheet S3-66 for girder framing plan.
2. See Sheet S3-67 for girder elevation.
3. See Sheet S3-69 for moment tables & reaction tables.
4. See Sheet S3-85 for girder bolted field splice details.
5. See Sheet S3-87 for girder cross frame details.

INTERIOR GIRDER 2 MOMENT TABLE - UNIT 2								
		0.4 Sp. 5	Pier 5	0.5 Sp. 6	Pier 6	0.5 Sp. 7	Pier 7	0.6 Sp. 8
I_s	(in^4)	21,730	31,140	21,730	31,140	21,730	32,764	21,730
$I_c(n)$	(in^4)	46,788	-	46,788	-	46,788	-	46,788
$I_c(3n)$	(in^4)	35,151	-	35,151	-	35,151	-	35,151
$I_c(cr)$	(in^4)	-	35,476	-	35,476	-	37,407	-
S_s	(in^3)	905	1,271	905	1,271	905	1,392	905
$S_c(n)$	(in^3)	1,169	-	1,169	-	1,169	-	1,169
$S_c(3n)$	(in^3)	1,077	-	1,077	-	1,077	-	1,077
$S_c(cr)$	(in^3)	-	1,333	-	1,333	-	1,460	-
S_{xc}	(in^3)	1,067	1,227	1,024	1,222	983	1,352	1,089
DC1	(k/')	0.82	0.87	0.82	0.87	0.82	0.88	0.82
M_{DC1}	('k)	397	1,061	361	966	343	1,130	506
DC2	(k/')	0.29	0.29	0.29	0.29	0.29	0.29	0.29
M_{DC2}	('k)	114	275	110	266	102	298	142
DW	(k/')	0.29	0.29	0.29	0.29	0.29	0.29	0.29
M_{DW}	('k)	137	310	139	304	128	335	170
M_{L+IM}	('k)	975	1,171	1,121	1,259	1,026	1,258	1,087
f_l (Strength I)	(ksi)	3.8	7.2	7.9	7.6	11.0	6.4	1.2
$M_u + 1/3 f_l S_{xc}$	('k)	2,663	4,430	2,983	4,458	2,845	4,731	3,004
$\phi_f M_n$	('k)	-	-	-	-	-	-	-
f_s DC1	(ksi)	5.3	10.0	4.8	9.1	4.5	9.7	6.7
f_s DC2	(ksi)	1.3	2.5	1.2	2.4	1.1	2.5	1.6
f_s DW	(ksi)	1.5	2.8	1.5	2.7	1.4	2.8	1.9
f_s (L+IM)	(ksi)	10.0	10.5	11.5	11.3	10.5	10.3	11.2
f_l (Service II)	(ksi)	2.8	5.5	5.9	5.8	8.3	4.9	0.9
$f_s + f_l/2$ (Service II)	(ksi)	22.5	31.7	25.5	31.9	24.9	30.8	25.1
$0.95R_hF_{yf}$	(ksi)	47.5	47.5	47.5	47.5	47.5	47.5	47.5
$f_s + f_l/3$ (Total)(Strength I)	(ksi)	29.2	40.7	32.6	40.9	31.3	39.6	33.1
$\phi_f F_n$	(ksi)	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Vr	(k)	20.5	22.9	15.3	22.6	19.7	22.7	20.4

INTERIOR GIRDER 2 REACTION TABLE - UNIT 2						
		Pier 4-W	Pier 5	Pier 6	Pier 7	Pier 8-E
R_{DC1}	(k)	25.8	110.2	103.2	115.0	30.9
R_{DC2}	(k)	7.2	31.4	30.1	32.4	8.3
R_{DW}	(k)	8.5	34.5	33.4	35.6	9.8
R_{L+IM}	(k)	55.4	107.0	116.3	116.3	59.3
R_{Total}	(k)	96.9	283.1	283.0	299.3	108.4

EXTERIOR GIRDER 1 MOMENT TABLE - UNIT 2								
		0.4 Sp. 5	Pier 5	0.5 Sp. 6	Pier 6	0.5 Sp. 7	Pier 7	0.6 Sp. 8
I_s	(in^4)	21,730	35,991	21,730	35,991	21,730	37,902	21,730
$I_c(n)$	(in^4)	46,983	-	46,983	-	46,983	-	46,983
$I_c(3n)$	(in^4)	35,318	-	35,318	-	35,318	-	35,318
$I_c(cr)$	(in^4)	-	40,510	-	40,510	-	42,753	-
S_s	(in^3)	905	1,454	905	1,454	905	1,597	905
$S_c(n)$	(in^3)	1,170	-	1,170	-	1,170	-	1,170
$S_c(3n)$	(in^3)	1,079	-	1,079	-	1,079	-	1,079
$S_c(cr)$	(in^3)	-	1,517	-	1,517	-	1,665	-
S_{xc}	(in^3)	1,060	1,425	1,064	1,418	977	1,569	1,096
DC1	(k/')	0.83	0.91	0.83	0.91	0.83	0.92	0.83
M_{DC1}	('k)	465	1,170	372	1,064	355	1,323	561
DC2	(k/')	0.29	0.29	0.29	0.29	0.29	0.29	0.29
M_{DC2}	('k)	162	343	129	329	133	377	185
DW	(k/')	0.22	0.22	0.22	0.22	0.22	0.22	0.22
M_{DW}	('k)	156	310	139	301	140	345	188
M_{L+IM}	('k)	1,289	1,631	1,383	1,673	1,342	1,704	1,411
f_l (Strength I)	(ksi)	6.1	7.8	4.9	8.1	14.0	7.0	1.6
$M_u + 1/3 f_l S_{xc}$	('k)	3,453	5,520	3,399	5,439	3,548	5,931	3,733
$\phi_f M_n$	('k)	-	-	-	-	-	-	-
f_s DC1	(ksi)	6.2	9.7	4.9	8.8	4.7	9.9	7.4
f_s DC2	(ksi)	1.8	2.7	1.4	2.6	1.5	2.7	2.1
f_s DW	(ksi)	1.7	2.5	1.5	2.4	1.6	2.5	2.1
f_s (L+IM)	(ksi)	13.2	12.9	14.2	13.2	13.8	12.3	14.5
f_l (Service II)	(ksi)	4.6	5.9	3.7	6.1	10.5	5.3	1.2
$f_s + f_l/2$ (Service II)	(ksi)	29.2	34.6	28.2	34.0	30.9	33.8	31.0
$0.95R_hF_{yf}$	(ksi)	47.5	47.5	47.5	47.5	47.5	47.5	47.5
$f_s + f_l/3$ (Total)(Strength I)	(ksi)	37.7	44.3	36.7	43.7	38.8	43.4	40.9
$\phi_f F_n$	(ksi)	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Vr	(k)	29.2	31.0	26.1	31.0	25.0	30.3	28.8

EXTERIOR GIRDER 1 REACTION TABLE - UNIT 2						
		Pier 4-W	Pier 5	Pier 6	Pier 7	Pier 8-E
R_{DC1}	(k)	32.3	82.9	83.6	91.2	34.8
R_{DC2}	(k)	10.8	27.8	27.5	29.1	11.5
R_{DW}	(k)	9.6	23.8	23.8	25.1	10.6
R_{L+IM}	(k)	77.4	113.2	108.7	110.0	80.6
R_{Total}	(k)	130.1	247.6	243.6	255.4	137.5

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_{L+IM}: Un-factored live load moment plus dynamic load allowance (impact)(kip-ft.).

M_u (Strength I): Factored design moment (kip-ft.).
$1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{L+IM}$

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

$f_s + f_l/2$ (Service II): Sum of stresses as computed below (ksi).
$f_{s\,DC1} + f_{sDC2} + f_{sDW} + 1.3 f_s(L+IM) + f_l/2$

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

$f_s + f_l/3$ (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25 (f_{sDC1} + f_{sDC2}) + 1.5 f_{sDW} + 1.75 f_s(L+IM) + f_l/3$

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

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

Note:
M_{L+IM} and R_{L+IM} include the effects of centrifugal force and superelevation.

0161715-60X93-S068-Moment+Table-2.dgn

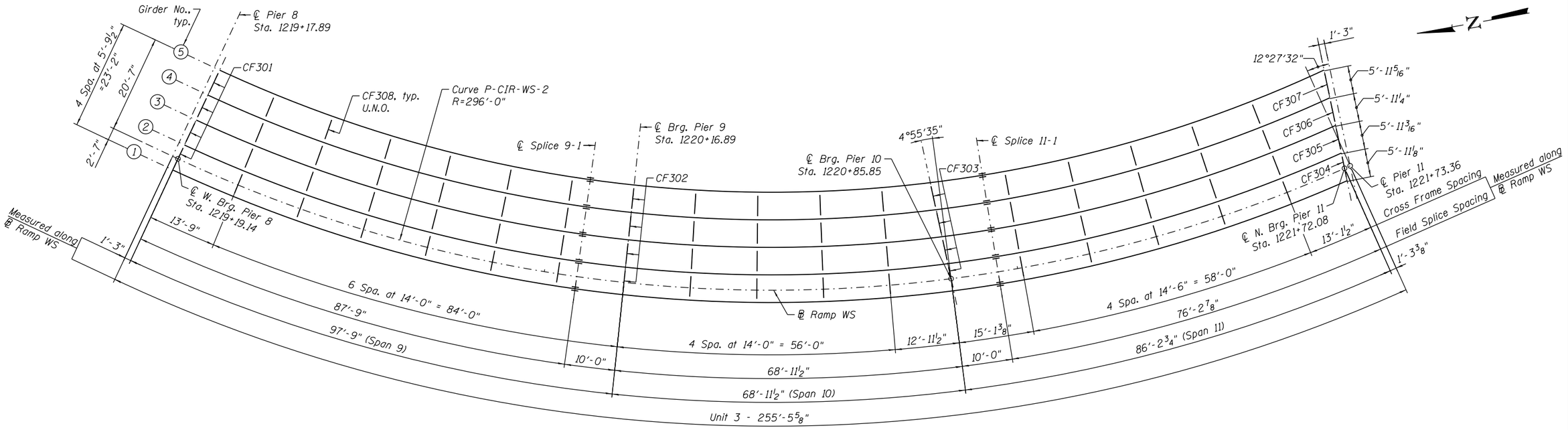
AECOM

USER NAME = floresg	DESIGNED - DD	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

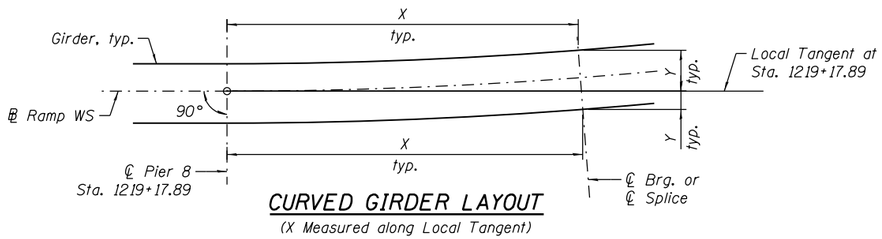
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER MOMENT AND REACTION TABLE – UNIT 2
STRUCTURE NO. 016–1715
SHEET NO. S3-69 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	811
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			



FRAMING PLAN - SPANS 9, 10 AND 11



CURVED GIRDER LAYOUT

(X Measured along Local Tangent)

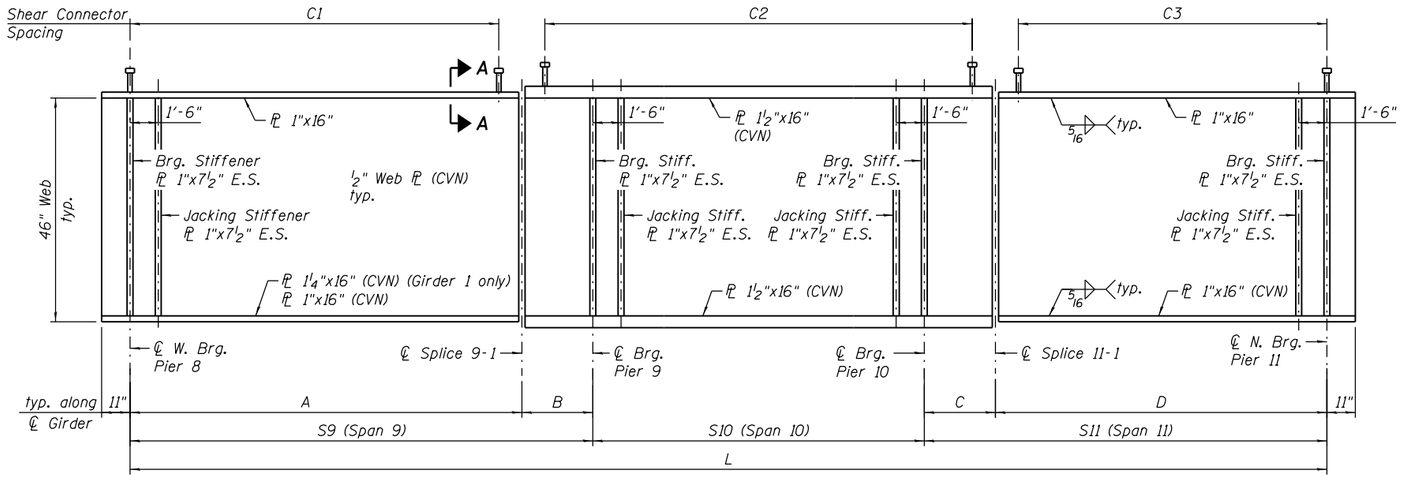
GIRDER COORDINATES - UNIT 3

(All Dimensions in Feet)

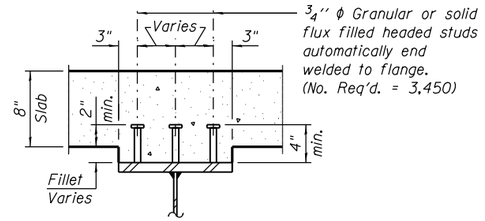
Girder	℄ W. Brg. Pier 8		℄ Splice 9-1		℄ Brg. Pier 9		℄ Brg. Pier 10		℄ Splice 11-1		℄ N. Brg. Pier 11	
	X	Y	X	Y	X	Y	X	Y	X	Y	X	Y
1	1.250	-2.581	88.431	10.812	98.013	13.962	160.664	44.328	168.890	49.772	225.673	100.491
2	1.250	3.211	86.716	16.344	96.112	19.433	157.131	48.943	165.614	54.548	222.107	105.224
3	1.250	9.003	85.000	21.876	94.211	24.904	153.596	53.560	162.338	59.324	218.538	109.962
4	1.250	14.794	83.285	27.408	92.310	30.374	150.061	58.177	159.062	64.100	214.965	114.705
5	1.250	20.586	81.570	32.940	90.409	35.845	146.526	62.795	155.786	68.877	211.389	119.452

NOTES:

1. See Sheet S3-71 for girder elevation.
2. See Sheet S3-72 for camber & top of web elevations.
3. See Sheet S3-73 for moment tables & reaction tables.
4. See Sheet S3-85 for girder bolted field splice details.
5. See Sheet S3-87 for girder cross frame details.
6. Girder spacings and cross frame orientations are radial to the ℄ Ramp WS, except at ℄ W. Brg. Pier 8, ℄ Brg. Pier 10 & ℄ N. Brg. Pier 11 supports where ℄ Brg. and cross frame orientations are parallel to the respective centerline of supports.



GIRDERS 1 THRU 5 ELEVATION - UNIT 3



SECTION A-A

GIRDER DIMENSIONS - UNIT 3

(All dimensions in Feet)

Girder	Radius	L*	S9	S10	S11	A	B	C	D	C1	C2	C3
1	298.583	254.604	98.615	69.781	86.209	88.527	10.087	9.865	76.344	89 Spa. at 12"	68 Spa. at 16"	77 Spa. at 12"
2	292.792	250.884	96.678	67.932	86.274	86.786	9.892	10.168	76.106	87 Spa. at 12"	66 Spa. at 16"	77 Spa. at 12"
3	287.000	247.165	94.741	66.084	86.341	85.045	9.696	10.472	75.869	86 Spa. at 12"	65 Spa. at 16"	76 Spa. at 12"
4	281.208	243.447	92.803	64.235	86.409	83.303	9.500	10.776	75.633	84 Spa. at 12"	64 Spa. at 16"	76 Spa. at 12"
5	275.417	239.731	90.866	62.387	86.478	81.562	9.305	11.079	75.399	82 Spa. at 12"	62 Spa. at 16"	76 Spa. at 12"

* Girder Length "L" excludes girder end beyond bearings.

NOTES:

1. See Sheet S3-70 for girder framing plan.
2. See Sheet S3-72 for camber & top of web elevations.
3. See Sheet S3-73 for moment tables & reaction tables.
4. See Sheet S3-85 for girder bolted field splice details.
5. See Sheet S3-87 for girder cross frame details.
6. All structural steel shall be AASHTO M270 Grade 50.
7. "CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.

0161715-60X93-SOTO-GirderElev-3.dgn

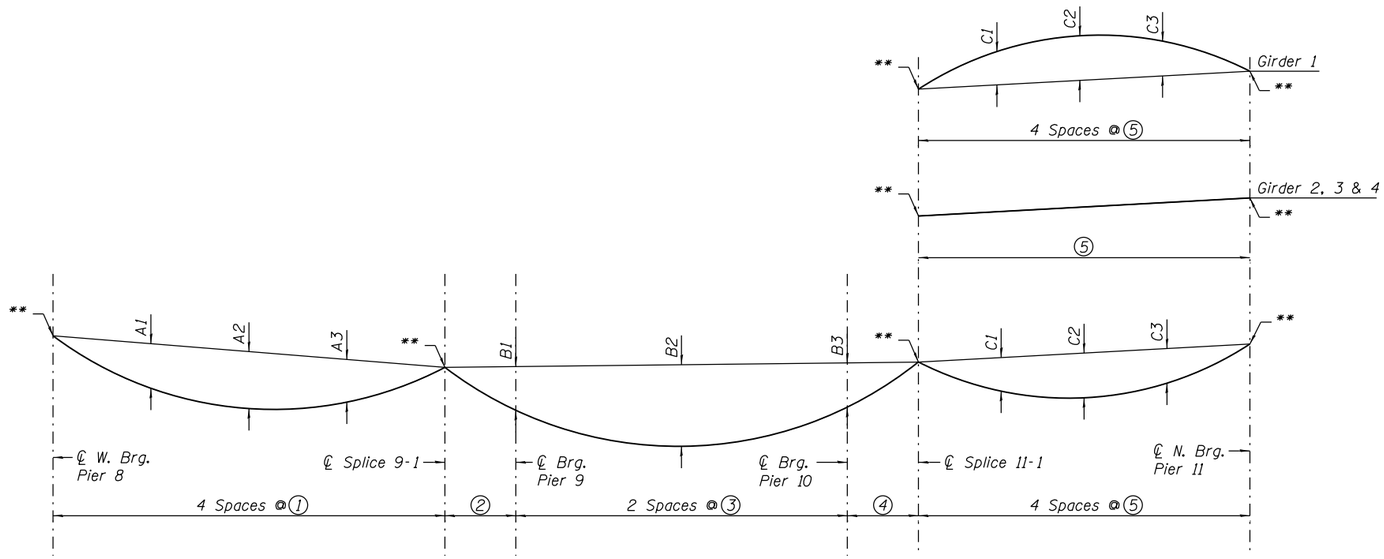
AECOM

USER NAME = floresg	DESIGNED - DD	REVISED
	CHECKED - ATB	REVISED
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER ELEVATION – UNIT 3
STRUCTURE NO. 016–1715
SHEET NO. S3-71 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	813
		CONTRACT NO. 60X93		
	ILLINOIS	FED. AID PROJECT		



CAMBER DIAGRAM - UNIT 3

** Top of Web Elevations

TOP OF WEB ELEVATIONS* - UNIT 3						
Girder	℄ W. Brg. Pier 8	℄ Splice 9-1	℄ Brg. Pier 9	℄ Brg. Pier 10	℄ Splice 11-1	℄ N. Brg. Pier 11
1	606.41	602.66	602.47	602.54	602.75	605.51
2	606.12	602.36	602.18	602.25	602.45	605.31
3	605.83	602.06	601.89	601.95	602.15	605.13
4	605.53	601.76	601.60	601.65	601.86	604.95
5	605.24	601.47	601.31	601.35	601.56	604.79

*For fabrication use only.

CAMBER ORDINATES - UNIT 3													
Girder	A1	A2	A3	B1	B2	B3	C1	C2	C3	①	②	③	④	⑤
1	1 5/8"	1 1/2"	1 5/8"	2 3/8"	6 7/8"	2 1/4"	3/8"	1 1/8"	3/4"	22.132'	10.087'	34.891'	9.865'	19.086'
2	1 1/2"	2 1/8"	1 1/2"	2 1/4"	6 1/2"	2 1/4"	-	-	-	21.697'	9.892'	33.966'	10.168'	76.106'
3	1 7/8"	2 5/8"	1 3/4"	2 1/8"	6 1/4"	2 1/4"	-	-	-	21.261'	9.696'	33.042'	10.472'	75.869'
4	2 1/4"	3"	2 1/8"	2 1/8"	6"	2 3/8"	-	-	-	20.826'	9.500'	32.118'	10.776'	75.632'
5	2 5/8"	3 1/2"	2 3/8"	2"	5 3/4"	2 3/8"	7/8"	1 1/8"	7/8"	20.391'	9.305'	31.194'	11.079'	18.850'

NOTES:

1. See Sheet S3-70 for girder framing plan.
2. See Sheet S3-71 for girder elevation.
3. See Sheet S3-73 for moment tables & reaction tables.
4. See Sheet S3-85 for girder bolted field splice details.
5. See Sheet S3-87 for girder cross frame details.

0161715-60X93-S071-GirderCamber-3.dgn

AECOM

USER NAME = floresg	DESIGNED - DD	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER CAMBER DIAGRAMS – UNIT 3
STRUCTURE NO. 016–1715
SHEET NO. S3-72 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	814
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

INTERIOR GIRDER 2 MOMENT TABLE - UNIT 3						
		0.4 Sp. 9	Pier 9	0.5 Sp. 10	Pier 10	0.6 Sp. 11
I_s	(in^4)	21,730	31,140	31,140	31,140	21,730
$I_c(n)$	(in^4)	46,788	-	-	-	46,788
$I_c(3n)$	(in^4)	35,151	-	-	-	35,151
$I_c(cr)$	(in^4)	-	35,476	35,476	35,476	-
S_s	(in^3)	905	1,271	1,271	1,271	905
$S_c(n)$	(in^3)	1,169	-	-	-	1,169
$S_c(3n)$	(in^3)	1,077	-	-	-	1,077
$S_c(cr)$	(in^3)	-	1,333	1,333	1,333	-
S_{xc}	(in^3)	1,080	1,196	1,529	1,206	1,037
DC1	(k/')	0.82	0.87	0.87	0.87	0.82
M_{DC1}	('k)	622	956	325	686	557
DC2	(k/')	0.29	0.29	0.29	0.29	0.29
M_{DC2}	('k)	180	228	75	171	157
DW	(k/')	0.29	0.29	0.29	0.29	0.29
M_{DW}	('k)	211	257	71	197	186
M_{L+IM}	('k)	925	999	582	881	873
f_1 (Strength I)	(ksi)	1.0	8.9	1.9	7.2	5.1
$M_u + \frac{1}{3} f_1 S_{xc}$	('k)	2,967	3,911	1,707	3,150	2,845
$\phi_f M_n$	('k)	-	-	-	-	-
f_s DC1	(ksi)	8.2	9.0	3.1	6.5	7.4
f_s DC2	(ksi)	2.0	2.1	0.7	1.5	1.7
f_s DW	(ksi)	2.4	2.3	0.6	1.8	2.1
f_s (L+IM)	(ksi)	9.5	9.0	5.2	7.9	9.0
f_1 (Service II)	(ksi)	0.7	6.8	1.5	5.5	3.8
$f_s + f_1/2$ (Service II)	(ksi)	25.3	28.5	11.9	22.8	24.8
$0.95R_hF_{yf}$	(ksi)	47.5	46.6	47.5	45.8	47.5
$f_s + f_1/3$ (Total)(Strength I)	(ksi)	33.3	36.0	15.4	29.0	31.9
$\phi_f F_n$	(ksi)	50.0	46.6	49.4	45.8	50.0
V_r	(k)	18.4	21.0	17.2	23.0	17.8

INTERIOR GIRDER 2 REACTION TABLE - UNIT 3					
		Pier 8-W	Pier 9	Pier 10	Pier 11-N
R_{DC1}	(k)	37.7	97.5	77.8	31.5
R_{DC2}	(k)	9.5	26.2	22.4	7.7
R_{DW}	(k)	11.1	28.9	25.1	9.4
R_{L+IM}	(k)	57.4	107.5	97.3	53.6
R_{Total}	(k)	115.7	260.0	222.6	102.2

EXTERIOR GIRDER 1 MOMENT TABLE - UNIT 3						
		0.4 Sp. 9	Pier 9	0.5 Sp. 10	Pier 10	0.6 Sp. 11
I_s	(in^4)	23,901	31,140	31,140	31,140	21,730
$I_c(n)$	(in^4)	53,274	-	-	-	46,983
$I_c(3n)$	(in^4)	39,432	-	-	-	35,318
$I_c(cr)$	(in^4)	-	35,548	35,548	35,548	-
S_s	(in^3)	1,057	1,271	1,271	1,271	905
$S_c(n)$	(in^3)	1,359	-	-	-	1,170
$S_c(3n)$	(in^3)	1,255	-	-	-	1,079
$S_c(cr)$	(in^3)	-	1,334	1,334	1,334	-
S_{xc}	(in^3)	1,245	1,217	1,425	1,221	1,036
DC1	(k/')	0.84	0.88	0.88	0.88	0.83
M_{DC1}	('k)	929	974	428	705	649
DC2	(k/')	0.29	0.29	0.29	0.29	0.29
M_{DC2}	('k)	284	278	94	211	204
DW	(k/')	0.22	0.22	0.22	0.22	0.22
M_{DW}	('k)	296	251	112	180	207
M_{L+IM}	('k)	1,446	1,305	819	1,144	1,091
f_1 (Strength I)	(ksi)	1.3	10.6	2.8	8.6	6.4
$M_u + \frac{1}{3} f_1 S_{xc}$	('k)	4,534	4,584	2,363	3,709	3,471
$\phi_f M_n$	('k)	-	-	-	-	-
f_s DC1	(ksi)	10.5	9.2	4.0	6.7	8.6
f_s DC2	(ksi)	2.7	2.5	0.8	1.9	2.3
f_s DW	(ksi)	2.8	2.3	1.0	1.6	2.3
f_s (L+IM)	(ksi)	12.8	11.7	7.4	10.3	11.2
f_1 (Service II)	(ksi)	1.0	8.1	2.1	6.5	4.8
$f_s + f_1/2$ (Service II)	(ksi)	33.2	33.2	16.5	26.8	30.1
$0.95R_hF_{yf}$	(ksi)	47.5	46.5	47.5	45.9	47.5
$f_s + f_1/3$ (Total)(Strength I)	(ksi)	43.6	42.1	21.4	34.0	38.8
$\phi_f F_n$	(ksi)	50.0	46.5	48.9	45.9	50.0
V_f	(k)	27.0	29.0	26.1	32.2	28.3

EXTERIOR GIRDER 1 REACTION TABLE - UNIT 3					
		Pier 8-W	Pier 9	Pier 10	Pier 11-N
R_{DC1}	(k)	44.4	71.9	61.7	38.5
R_{DC2}	(k)	14.4	24.4	21.2	12.6
R_{DW}	(k)	13.7	20.2	16.7	11.9
R_{L+IM}	(k)	80.9	106.8	97.8	79.1
R_{Total}	(k)	153.4	223.3	197.4	142.1

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 ($in.^4$ 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_{L+IM}: Un-factored live load moment plus dynamic load allowance (impact)(kip-ft.).

M_u (Strength I): Factored design moment (kip-ft.).
$1.25 (M_{DC1} + M_{DC2}) + 1.5 M_{DW} + 1.75 M_{L+IM}$

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

$f_s + f_1/2$ (Service II): Sum of stresses as computed below (ksi).
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3 f_s(L+IM) + f_1/2$

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

$f_s + f_1/3$ (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25 (f_{sDC1} + f_{sDC2}) + 1.5 f_{sDW} + 1.75 f_s(L+IM) + f_1/3$

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

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

Note:
M_{L+IM} and R_{L+IM} include the effects of centrifugal force and superelevation.

0161715-60X93-S072-MomentTable-3.dgn

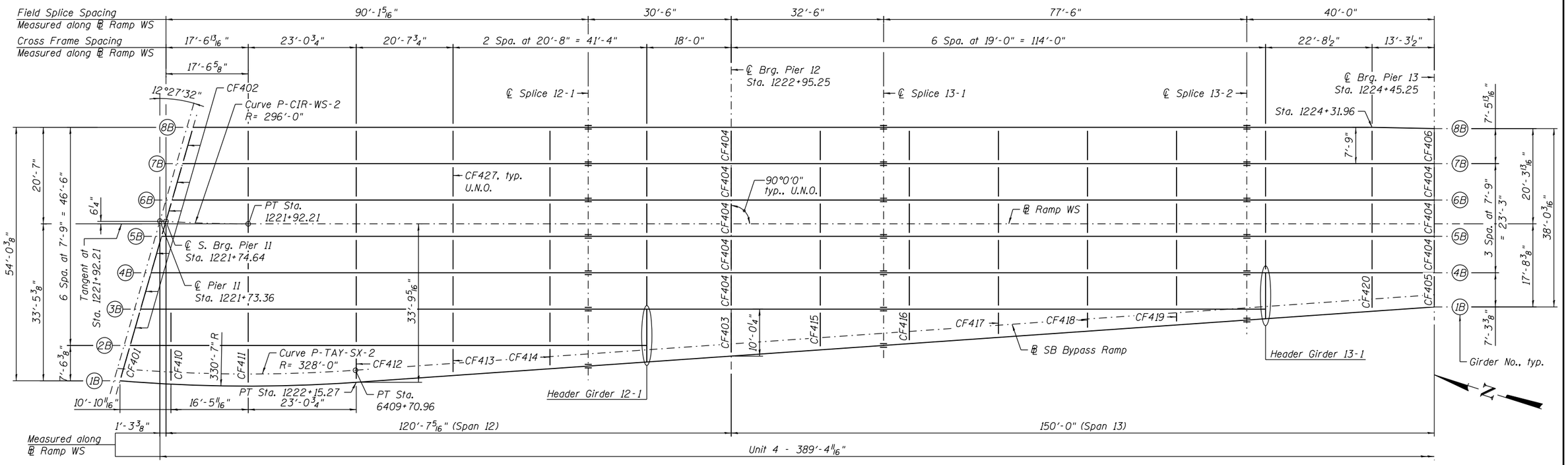
AECOM

USER NAME = floresg	DESIGNED - DD	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

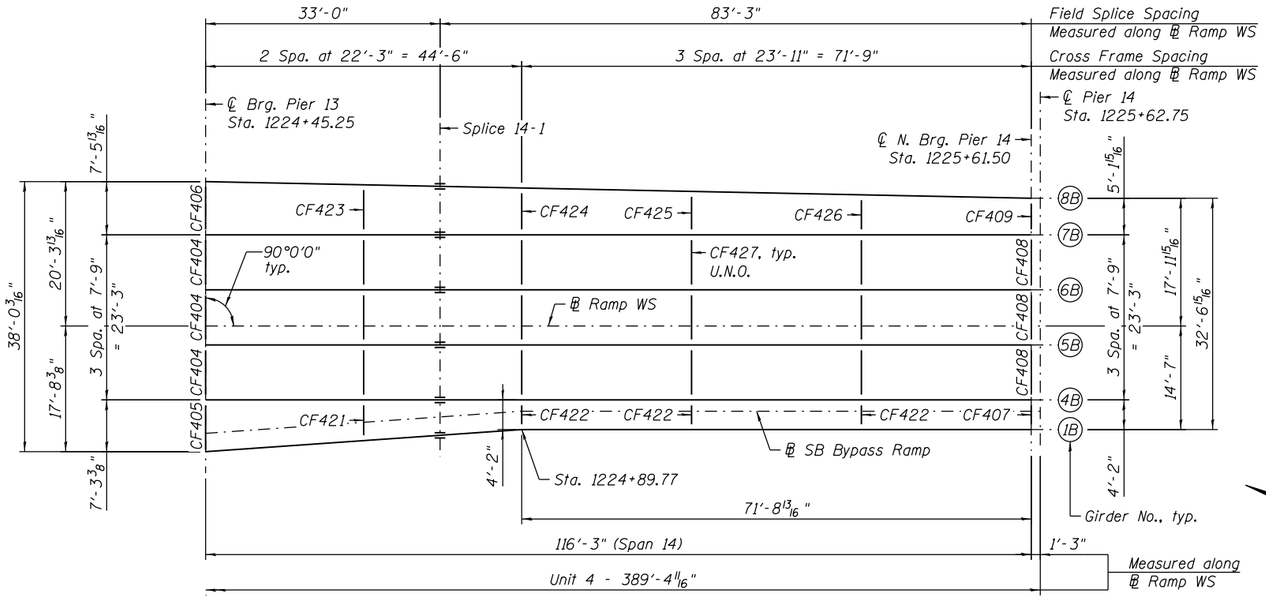
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER MOMENT AND REACTION TABLE – UNIT 3
STRUCTURE NO. 016-1715
SHEET NO. S3-73 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	815
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			



FRAMING PLAN - SPANS 12 AND 13



FRAMING PLAN - SPAN 14

NOTES:

1. See Sheets S3-75 thru S3-77 for girder elevation.
2. See Sheet S3-78 for camber & top of web elevations.
3. See Sheets S3-79 and S3-80 for moment tables & reaction tables.
4. See Sheet S3-86 for girder bolted field splice details.
5. See Sheet S3-88 for girder cross frame details.

0161715-60X93-S073-FramePlan-4.dgn

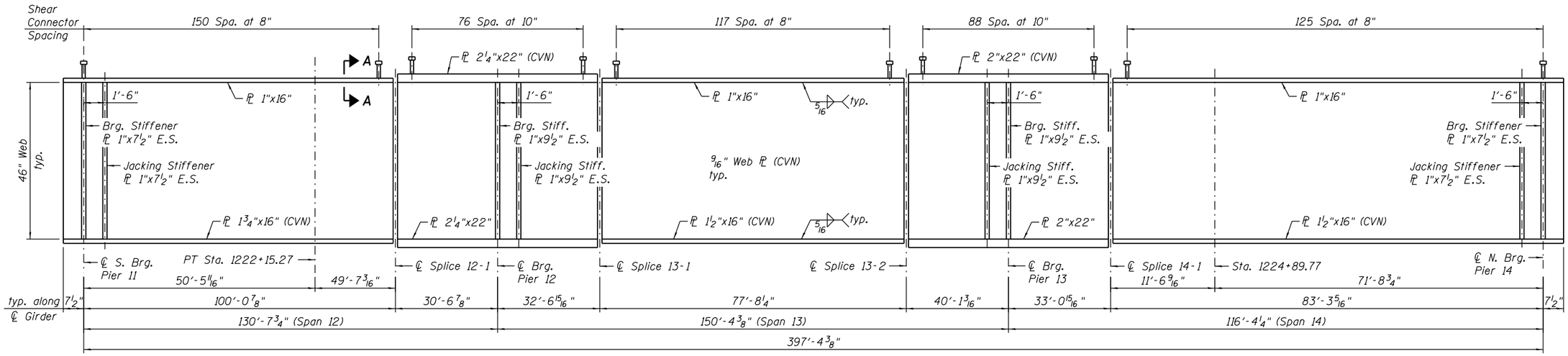
AECOM

USER NAME = floresg	DESIGNED - ATB	REVISED
	CHECKED - DD	REVISED
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED

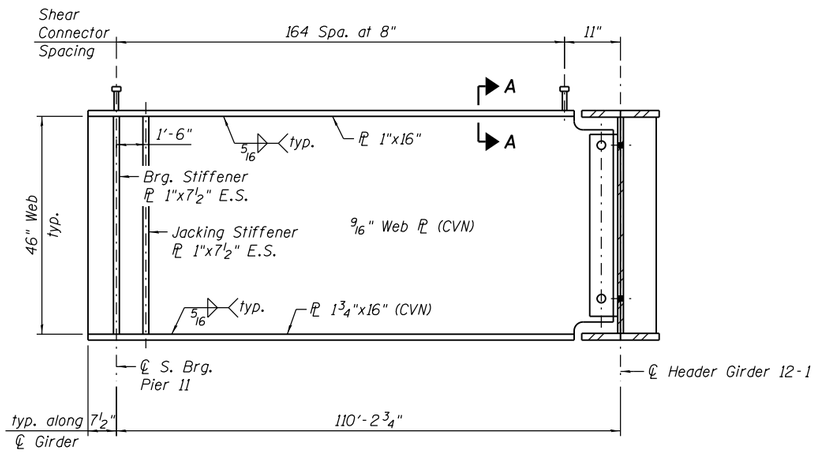
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN – UNIT 4
STRUCTURE NO. 016–1715
SHEET NO. S3-74 OF S3-172

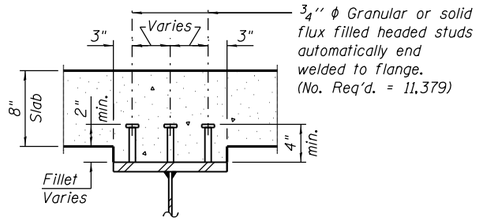
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	816
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			



GIRDER 1B ELEVATION - UNIT 4



GIRDER 2B ELEVATION - UNIT 4



SECTION A-A

NOTES:

1. See Sheet S3-74 for girder framing plan.
2. See Sheet S3-78 for camber & top of web elevations.
3. See Sheets S3-79 and S3-80 for moment tables & reaction tables.
4. See Sheet S3-86 for girder bolted field splice details.
5. See Sheet S3-88 for girder cross frame details.
6. All structural steel shall be AASHTO M270 Grade 50.
7. "CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.

0161715-60X93-S074-GirderElev-4A.dgn

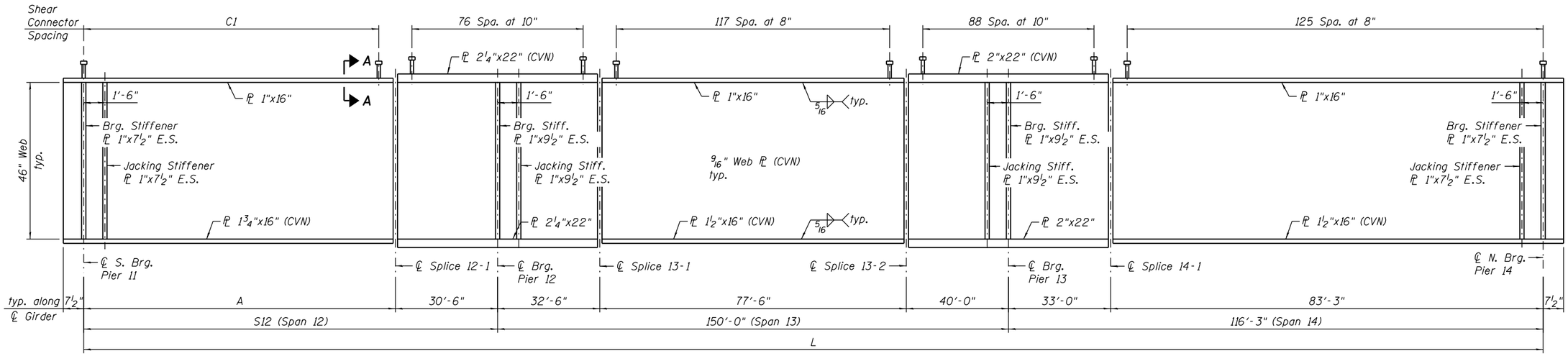
AECOM

USER NAME = floresg	DESIGNED - ATB	REVISED
	CHECKED - DD	REVISED
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED

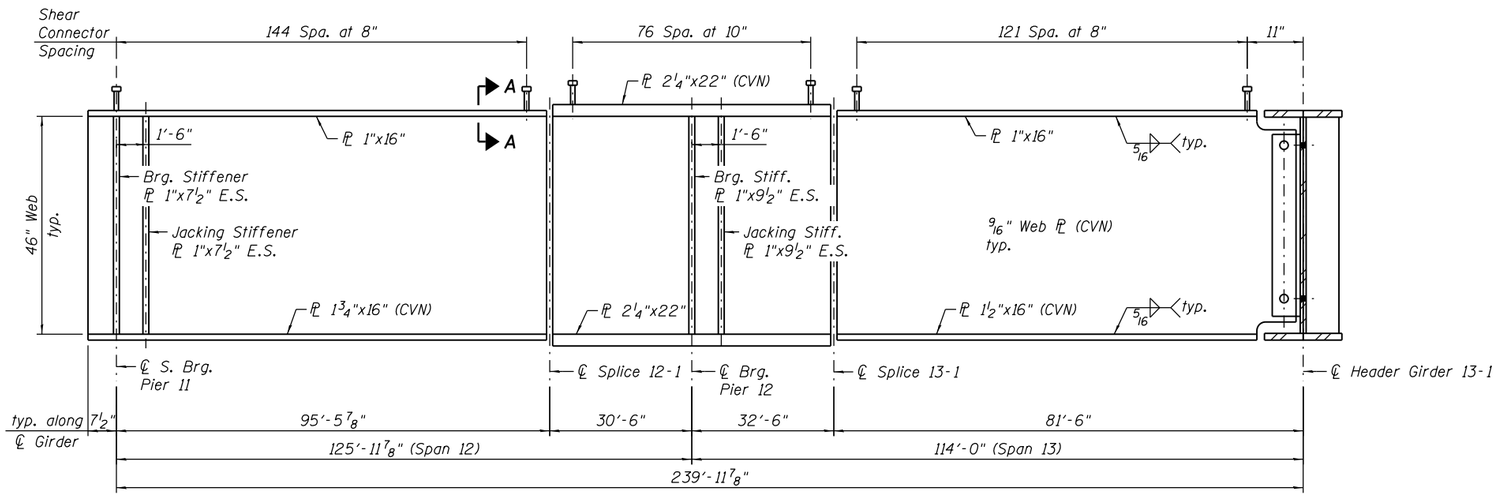
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER ELEVATION 1 – UNIT 4
STRUCTURE NO. 016–1715
SHEET NO. S3-75 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	817
		CONTRACT NO. 60X93		
	ILLINOIS	FED. AID PROJECT		



GIRDERS 4B THRU 7B ELEVATION - UNIT 4



GIRDER 3B ELEVATION - UNIT 4

GIRDERS 4B THRU 7B DIMENSIONS - UNIT 4

(All dimensions in Feet)

Girder	L*	S12	A	C1
4B	390.003	123.753	93.253	140 Spa. at 8"
5B	387.766	121.516	91.016	137 Spa. at 8"
6B	385.528	119.278	88.778	134 Spa. at 8"
7B	383.290	117.040	86.540	130 Spa. at 8"

* Girder Length "L" excludes girder end beyond bearings.

NOTES:

1. See Sheet S3-74 for girder framing plan.
2. See Sheet S3-78 for camber & top of web elevations.
3. See Sheets S3-79 and S3-80 for moment tables & reaction tables.
4. See Sheet S3-86 for girder bolted field splice details.
5. See Sheet S3-88 for girder cross frame details.
6. All structural steel shall be AASHTO M270 Grade 50.
7. "CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.
8. See Sheet S3-75 for Section A-A.

0161715-60X93-S075-GirderElev-4B.dgn

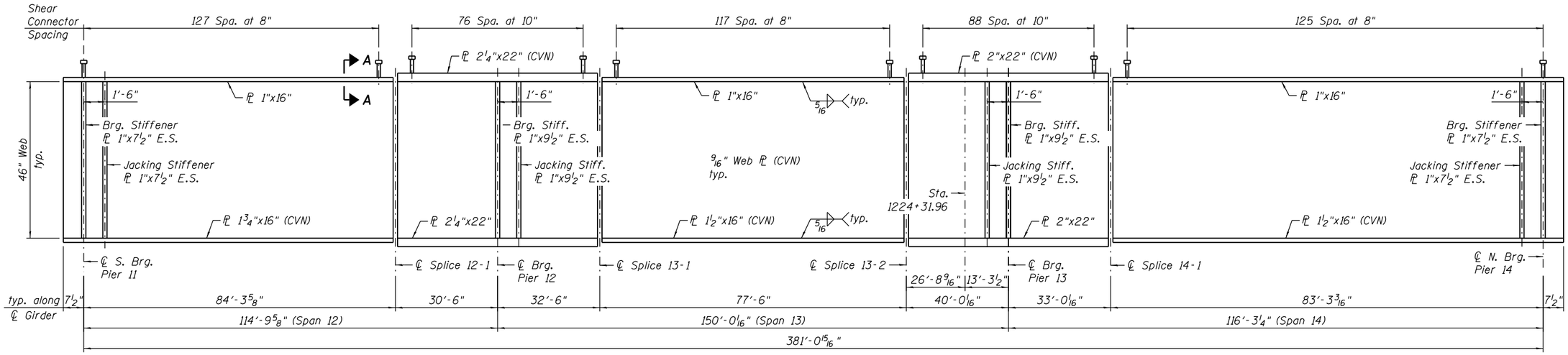
AECOM

USER NAME = floresg	DESIGNED - ATB	REVISED
	CHECKED - DD	REVISED
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED

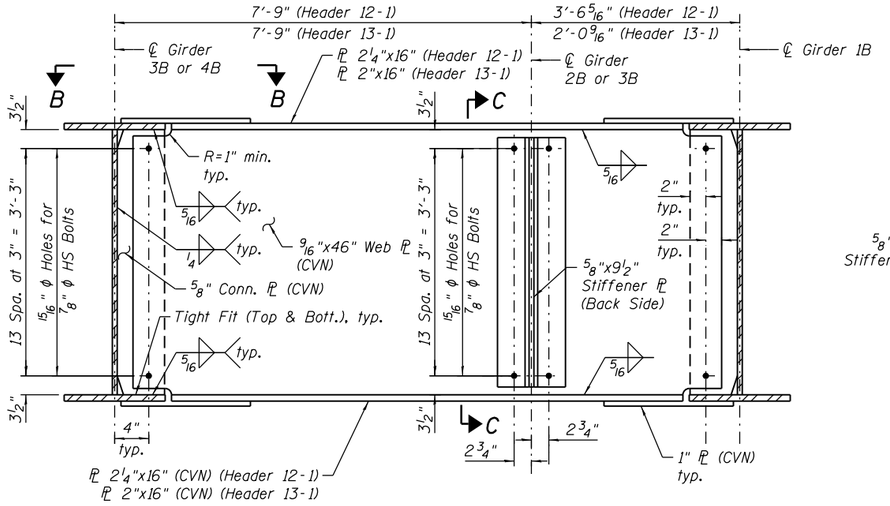
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER ELEVATION 2 – UNIT 4
STRUCTURE NO. 016-1715
SHEET NO. S3-76 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	818
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

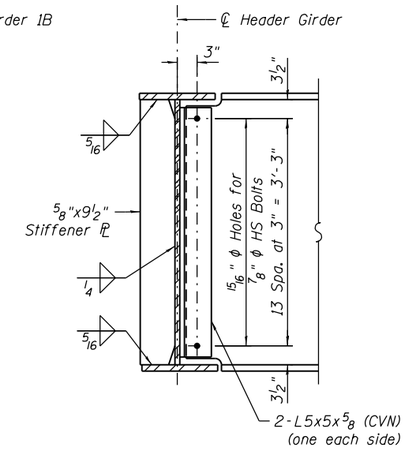


GIRDER 8B ELEVATION - UNIT 4

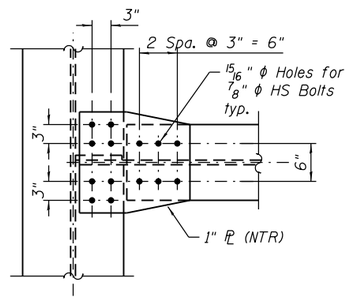


HEADER GIRDER ELEVATION

(Looking upstation)



SECTION C-C



SECTION B-B

NOTES:

1. See Sheet S3-74 for girder framing plan.
2. See Sheet S3-78 for camber & top of web elevations.
3. See Sheets S3-79 and S3-80 for moment tables & reaction tables.
4. See Sheet S3-86 for girder bolted field splice details.
5. See Sheet S3-88 for girder cross frame details.
6. All structural steel shall be AASHTO M270 Grade 50.
7. "CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.
8. See Sheet S3-75 for Section A-A.

0161715-60X93-S076-GirderElev-4C.dgn

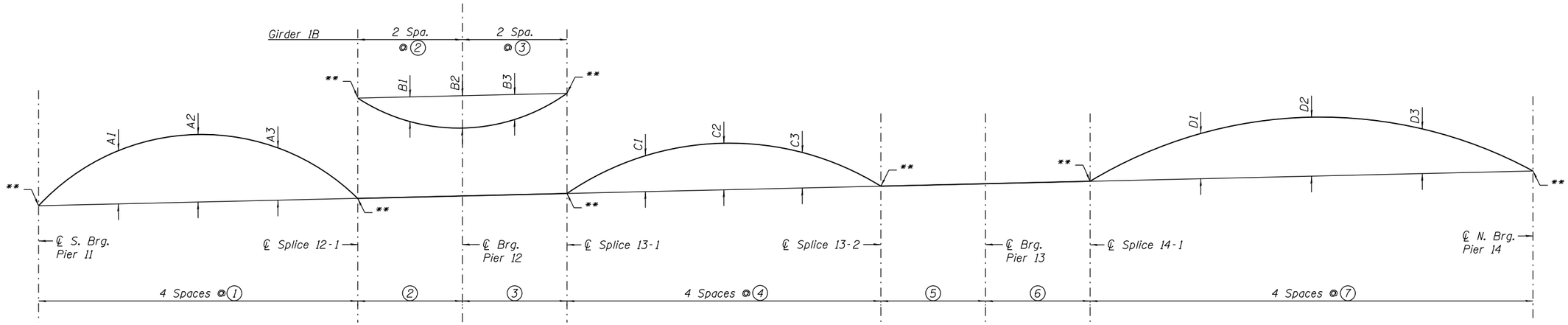
AECOM

USER NAME = floresg	DESIGNED - ATB	REVISED	
	CHECKED - DD	REVISED	
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

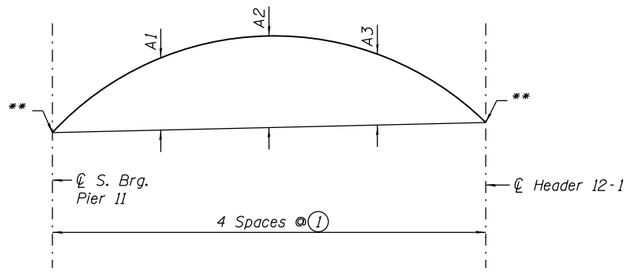
GIRDER ELEVATION 3 – UNIT 4
STRUCTURE NO. 016-1715
SHEET NO. S3-77 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	819
		CONTRACT NO. 60X93		
ILLINOIS FED. AID PROJECT				



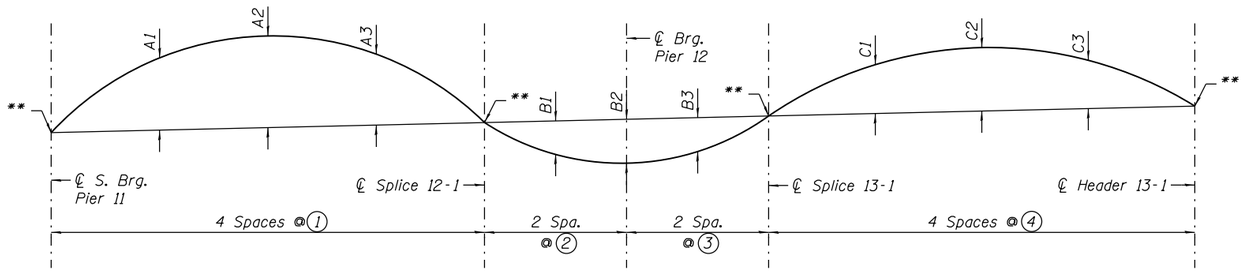
CAMBER DIAGRAM - GIRDERS 1B, 48 THRU 8B UNIT 4

** Top of Web Elevations



CAMBER DIAGRAM - GIRDER 2B UNIT 4

** Top of Web Elevations



CAMBER DIAGRAM - GIRDER 3B UNIT 4

** Top of Web Elevations

CAMBER ORDINATES - UNIT 4

Girder	A1	A2	A3	B1	B2	B3	C1	C2	C3	D1	D2	D3	①	②	③	④	⑤	⑥	⑦
1B	2 3/8"	3 5/8"	2 3/4"	3/4"	1 3/4"	1 1/4"	1 7/8"	2 1/2"	1 7/8"	4 3/4"	6 3/8"	4 1/2"	25.021′	15.287′	16.290′	19.422′	40.098′	33.080′	20.820′
2B	1 7/8"	3 3/8"	2 1/2"										27.559′						
3B	1 1/2"	2 7/8"	2 1/8"	1/4"	1"	3/4"	2"	2 5/8"	2"				23.874′	15.250′	16.250′	20.375′			
4B	1 1/2"	2 3/4"	2"	-	-	-	2"	2 3/4"	2"	4 3/4"	6 1/4"	4 1/2"	23.315′	30.500′	32.500′	19.375′	40.000′	33.000′	20.813′
5B	1 1/2"	2 5/8"	2"	-	-	-	2 1/8"	2 3/4"	2 1/8"	4 3/4"	6 3/8"	4 1/2"	22.755′	30.500′	32.500′	19.375′	40.000′	33.000′	20.813′
6B	1 1/2"	2 1/2"	1 7/8"	-	-	-	2 1/8"	2 7/8"	2 1/8"	4 3/4"	6 3/8"	4 1/2"	22.196′	30.500′	32.500′	19.375′	40.000′	33.000′	20.813′
7B	1 1/2"	2 3/8"	1 3/4"	-	-	-	2 1/8"	2 7/8"	2 1/8"	4 3/4"	6 3/8"	4 1/2"	21.636′	30.500′	32.500′	19.375′	40.000′	33.000′	20.813′
8B	1 1/2"	2 1/4"	1 5/8"	-	-	-	2 1/8"	2 7/8"	2 1/8"	4 3/4"	6 3/8"	4 1/2"	21.077′	30.500′	32.500′	19.375′	40.002′	33.006′	20.817′

TOP OF WEB ELEVATIONS* - UNIT 4

Girder	℄ S. Brg. Pier 11	℄ Splice 12-1	℄ Brg. Pier 12	℄ Splice 13-1	℄ Splice 13-2	℄ Brg. Pier 13	℄ Splice 14-1	℄ N. Brg. Pier 14
1B	606.75	609.17	609.89	610.96	614.29	615.88	617.19	618.58
2B	606.45	609.47***						
3B	606.15	609.11	610.01	611.14	614.49***			
4B	605.87	609.07	610.16	611.32	614.50	616.03	617.29	618.67
5B	605.61	609.04	610.22	611.49	614.66	616.19	617.45	618.82
6B	605.36	609.01	610.29	611.65	614.82	616.35	617.61	618.98
7B	605.12	608.98	610.35	611.82	614.98	616.50	617.76	619.13
8B	604.91	608.96	610.42	611.98	615.13	616.64	617.89	619.23

*For fabrication use only.
***Elevations at centerline of headers.

NOTES:

1. See Sheet S3-74 for girder framing plan.
2. See Sheets S3-75 thru S3-77 for girder elevation.
3. See Sheets S3-79 and S3-80 for moment tables & reaction tables.
4. See Sheet S3-86 for girder bolted field splice details.
5. See Sheet S3-88 for girder cross frame details.

0161715-60X93-S077-GirderCamber-4.dgn

AECOM

USER NAME = floresg	DESIGNED - ATB	REVISED
	CHECKED - DD	REVISED
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER CAMBER DIAGRAMS – UNIT 4
STRUCTURE NO. 016–1715
SHEET NO. S3-78 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	820
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

EXTERIOR GIRDER 1B MOMENT TABLE - UNIT 4						
		0.4 Sp. 12	Pier 12	0.5 Sp. 13	Pier 13	0.6 Sp. 14
I_s	(in^4)	28,143	62,224	26,371	55,280	26,371
$I_c(n)$	(in^4)	68,789	-	58,863	-	57,927
$I_c(3n)$	(in^4)	49,560	-	42,707	-	42,011
$I_c(cr)$	(in^4)	-	68,237	-	60,228	-
S_s	(in^3)	1,369	2,464	1,223	2,211	1,223
$S_c(n)$	(in^3)	1,790	-	1,577	-	1,571
$S_c(3n)$	(in^3)	1,651	-	1,447	-	1,440
$S_c(cr)$	(in^3)	-	2,540	-	2,275	-
S_{xc}	(in^3)	1,416	2,407	1,493	2,184	1,479
DC1	(k/')	0.97	1.23	0.81	1.07	0.78
M_{DC1}	('k)	1,330	3,084	561	1,961	654
DC2	(k/')	0.19	0.19	0.19	0.19	0.19
M_{DC2}	('k)	258	556	138	410	147
DW	(k/')	0.26	0.26	0.26	0.26	0.26
M_{DW}	('k)	382	818	203	604	218
M_{L+IM}	('k)	1,361	1,921	1,059	1,880	1,356
f_1 (Strength I)	(ksi)	12.9	0.0	0.0	0.0	0.0
$M_u + 1/3\ f_1\ S_{xc}$	('k)	5,448	9,139	3,032	7,160	3,701
$\phi_f M_n$	('k)	-	-	-	-	-
f_s DC1	(ksi)	11.7	15.0	5.5	10.6	6.4
f_s DC2	(ksi)	1.9	2.6	1.1	2.2	1.2
f_s DW	(ksi)	2.8	3.9	1.7	3.2	1.8
f_s (L+IM)	(ksi)	9.1	9.1	8.1	9.9	10.4
f_1 (Service II)	(ksi)	9.8	0.0	0.0	0.0	0.0
$f_s + f_1/2$ (Service II)	(ksi)	33.1	33.3	18.8	28.9	22.9
$0.95R_hF_{yf}$	(ksi)	47.5	47.5	47.5	47.5	47.5
$f_s + f_1/3$ (Total)(Strength I)	(ksi)	41.4	43.7	24.9	38.1	30.4
$\phi_f F_n$	(ksi)	50.0	50.0	50.0	50.0	50.0
Vr	(k)	41.7	55.6	57.5	72.6	51.4

EXTERIOR GIRDER 1B REACTION TABLE - UNIT 4					
		Pier 11-S	Pier 12	Pier 13	Pier 14-N
R_{DC1}	(k)	54.9	211.6	155.9	33.9
R_{DC2}	(k)	10.5	39.1	31.9	7.6
R_{DW}	(k)	15.2	56.9	46.3	10.9
R_{L+IM}	(k)	73.9	146.8	150.6	71.1
R_{Total}	(k)	154.4	454.4	384.6	123.5

INTERIOR GIRDER 2B MOMENT TABLE - UNIT 4		
		0.4 Sp. 12
I_s	(in^4)	28,143
$I_c(n)$	(in^4)	70,555
$I_c(3n)$	(in^4)	51,056
$I_c(cr)$	(in^4)	-
S_s	(in^3)	1,369
$S_c(n)$	(in^3)	1,800
$S_c(3n)$	(in^3)	1,664
$S_c(cr)$	(in^3)	-
DC1	(k/')	1.04
M_{DC1}	('k)	1,194
DC2	(k/')	0.19
M_{DC2}	('k)	231
DW	(k/')	0.31
M_{DW}	('k)	354
M_{L+IM}	('k)	1,986
M_u (Strength I)	('k)	5,788
$\phi_f M_n$	('k)	-
f_s DC1	(ksi)	10.5
f_s DC2	(ksi)	1.7
f_s DW	(ksi)	2.6
f_s (L+IM)	(ksi)	13.2
f_s (Service II)	(ksi)	31.9
$0.95R_hF_{yf}$	(ksi)	47.5
f_s (Total)(Strength I)	(ksi)	42.2
$\phi_f F_n$	(ksi)	50.0
Vr	(k)	85.9

INTERIOR GIRDER 2B REACTION TABLE - UNIT 4		
		Pier 11-S
R_{DC1}	(k)	56.3
R_{DC2}	(k)	9.7
R_{DW}	(k)	14.8
R_{L+IM}	(k)	113.5
R_{Total}	(k)	194.3

INTERIOR GIRDER 3B MOMENT TABLE - UNIT 4				
		0.4 Sp. 12	Pier 12	0.5 Sp. 13
I_s	(in^4)	28,143	62,224	26,371
$I_c(n)$	(in^4)	70,991	-	61,868
$I_c(3n)$	(in^4)	51,438	-	45,081
$I_c(cr)$	(in^4)	-	68,992	-
S_s	(in^3)	1,369	2,464	1,223
$S_c(n)$	(in^3)	1,803	-	1,597
$S_c(3n)$	(in^3)	1,668	-	1,470
$S_c(cr)$	(in^3)	-	2,549	-
DC1	(k/')	1.06	1.33	0.92
M_{DC1}	('k)	1,138	2,762	614
DC2	(k/')	0.19	0.19	0.19
M_{DC2}	('k)	216	477	144
DW	(k/')	0.31	0.31	0.31
M_{DW}	('k)	340	742	219
M_{L+IM}	('k)	1,487	2,274	1,486
M_u (Strength I)	('k)	4,805	9,141	3,877
$\phi_f M_n$	('k)	-	-	-
f_s DC1	(ksi)	10.0	13.4	6.0
f_s DC2	(ksi)	1.6	2.2	1.2
f_s DW	(ksi)	2.4	3.5	1.8
f_s (L+IM)	(ksi)	9.9	10.7	11.2
f_s (Service II)	(ksi)	26.8	33.1	23.5
$0.95R_hF_{yf}$	(ksi)	47.5	47.5	47.5
f_s (Total)(Strength I)	(ksi)	35.4	43.6	31.2
$\phi_f F_n$	(ksi)	50.0	50.0	50.0
Vr	(k)	64.0	81.2	83.5

INTERIOR GIRDER 3B REACTION TABLE - UNIT 4			
		Pier 11-S	Pier 12
R_{DC1}	(k)	47.1	202.2
R_{DC2}	(k)	8.4	34.7
R_{DW}	(k)	13.5	54.2
R_{L+IM}	(k)	98.6	199.8
R_{Total}	(k)	167.5	490.8

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_{L+IM}: Un-factored live load moment plus dynamic load allowance (impact)(kip-ft.).

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

f_1: 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 (L+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_{L+IM} / $S_c(n)$ or M_{L+IM} / $S_c(cr)$ as applicable.

$f_s + f_1/2$ (Service II): Sum of stresses as computed below (ksi).
$f_{s\,DC1} + f_{sDC2} + f_{sDW} + 1.3\ f_s(L+IM) + f_1/2$

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

$f_s + f_1/3$ (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25\ (f_{sDC1} + f_{sDC2}) + 1.5\ f_{sDW} + 1.75\ f_s(L+IM) + f_1/3$

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

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

Note:
M_L and R_L include the effects of centrifugal force and superelevation.

0161715-60X93-S078-MomentTable-4A.dgn

AECOM

USER NAME = floresg	DESIGNED - ATB	REVISED	
	CHECKED - DD	REVISED	
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER MOMENT AND REACTION TABLE 1 – UNIT 4
STRUCTURE NO. 016-1715
SHEET NO. S3-79 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	821
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

INTERIOR GIRDER 4B MOMENT TABLE - UNIT 4						
		0.4 Sp. 12	Pier 12	0.5 Sp. 13	Pier 13	0.6 Sp. 14
I_s	(in^4)	28,143	62,224	26,371	55,280	26,371
$I_c(n)$	(in^4)	70,991	-	64,676	-	60,488
$I_c(3n)$	(in^4)	51,437	-	47,510	-	43,964
$I_c(cr)$	(in^4)	-	68,439	-	60,883	-
S_s	(in^3)	1,369	2,464	1,223	2,211	1,223
$S_c(n)$	(in^3)	1,803	-	1,613	-	1,588
$S_c(3n)$	(in^3)	1,668	-	1,492	-	1,460
$S_c(cr)$	(in^3)	-	2,542	-	2,283	-
DC1	(k/')	1.06	1.26	1.05	1.16	0.87
M_{DC1}	('k)	1,075	2,641	673	2,082	683
DC2	(k/')	0.19	0.19	0.19	0.19	0.19
M_{DC2}	('k)	199	427	149	391	150
DW	(k/')	0.31	0.31	0.31	0.31	0.31
M_{DW}	('k)	321	685	236	606	227
M_{LL+IM}	('k)	1,256	1,818	1,302	1,930	1,366
M_u (Strength I)	('k)	4,272	8,044	3,660	7,378	3,772
$\phi_f M_n$	('k)	-	-	-	-	-
f_s DC1	(ksi)	9.4	12.9	6.6	11.3	6.7
f_s DC2	(ksi)	1.4	2.0	1.2	2.1	1.2
f_s DW	(ksi)	2.3	3.2	1.9	3.2	1.9
f_s (LL+IM)	(ksi)	8.4	8.6	9.7	10.1	10.3
f_s (Service II)	(ksi)	24.0	29.3	22.3	29.7	23.2
$0.95R_hF_{yf}$	(ksi)	47.5	47.5	47.5	47.5	47.5
f_s (Total)(Strength I)	(ksi)	31.7	38.5	29.5	39.2	30.8
$\phi_f F_n$	(ksi)	50.0	50.0	50.0	50.0	50.0
Vr	(k)	61.0	67.0	64.0	74.7	61.6

INTERIOR GIRDER 4B REACTION TABLE - UNIT 4					
		Pier 11-S	Pier 12	Pier 13	Pier 14-N
R_{DC1}	(k)	50.7	185.5	161.7	36.4
R_{DC2}	(k)	8.8	30.4	29.9	7.7
R_{DW}	(k)	14.2	48.9	46.7	11.9
R_{LL+IM}	(k)	98.3	170.6	180.9	94.3
R_{Total}	(k)	172.0	435.4	419.2	150.3

EXTERIOR GIRDER 8B MOMENT TABLE - UNIT 4						
		0.4 Sp. 12	Pier 12	0.5 Sp. 13	Pier 13	0.6 Sp. 14
I_s	(in^4)	28,143	62,224	26,371	55,280	26,371
$I_c(n)$	(in^4)	68,807	-	62,781	-	60,719
$I_c(3n)$	(in^4)	49,574	-	45,847	-	44,148
$I_c(cr)$	(in^4)	-	67,772	-	60,523	-
S_s	(in^3)	1,369	2,464	1,223	2,211	1,223
$S_c(n)$	(in^3)	1,790	-	1,602	-	1,590
$S_c(3n)$	(in^3)	1,651	-	1,478	-	1,461
$S_c(cr)$	(in^3)	-	2,534	-	2,279	-
DC1	(k/')	0.98	1.17	0.96	1.11	0.88
M_{DC1}	('k)	682	2,268	780	2,173	723
DC2	(k/')	0.19	0.19	0.19	0.19	0.19
M_{DC2}	('k)	145	381	152	381	156
DW	(k/')	0.26	0.26	0.26	0.26	0.26
M_{DW}	('k)	208	549	223	553	230
M_{LL+IM}	('k)	1,805	2,393	1,839	2,257	1,658
M_u (Strength I)	('k)	4,505	8,323	4,718	7,972	4,345
$\phi_f M_n$	('k)	-	-	-	-	-
f_s DC1	(ksi)	6.0	11.0	7.7	11.8	7.1
f_s DC2	(ksi)	1.1	1.8	1.2	2.0	1.3
f_s DW	(ksi)	1.5	2.6	1.8	2.9	1.9
f_s (LL+IM)	(ksi)	12.1	11.3	13.8	11.9	12.5
f_s (Service II)	(ksi)	24.3	30.2	28.6	32.2	26.5
$0.95R_hF_{yf}$	(ksi)	47.5	47.5	47.5	47.5	47.5
f_s (Total)(Strength I)	(ksi)	32.2	39.8	37.9	42.4	35.2
$\phi_f F_n$	(ksi)	50.0	50.0	50.0	50.0	50.0
Vr	(k)	60.3	65.4	60.0	67.4	55.4

EXTERIOR GIRDER 8B REACTION TABLE - UNIT 4					
		Pier 11-S	Pier 12	Pier 13	Pier 14-N
R_{DC1}	(k)	37.4	164.8	156.6	36.6
R_{DC2}	(k)	7.3	28.4	28.1	7.8
R_{DW}	(k)	10.2	40.5	40.2	11.1
R_{LL+IM}	(k)	94.6	168.5	158.7	81.9
R_{Total}	(k)	149.5	402.1	383.6	137.4

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.^{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}).

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_{LL+IM}: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

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

$\phi_f M_n$: 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 (LL+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).
$M_{LL+IM} / S_c(n)$ or $M_{LL+IM} / S_c(cr)$ as applicable.

f_s (Service II): Sum of stresses as computed below (ksi).
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3\ f_s(LL+IM)$

$0.95R_hF_{yf}$: 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).
$1.25\ (f_{sDC1} + f_{sDC2}) + 1.5\ f_{sDW} + 1.75\ f_s(LL+IM)$

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

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

0161715-60X93-S079-MomentTable-4B.dgn

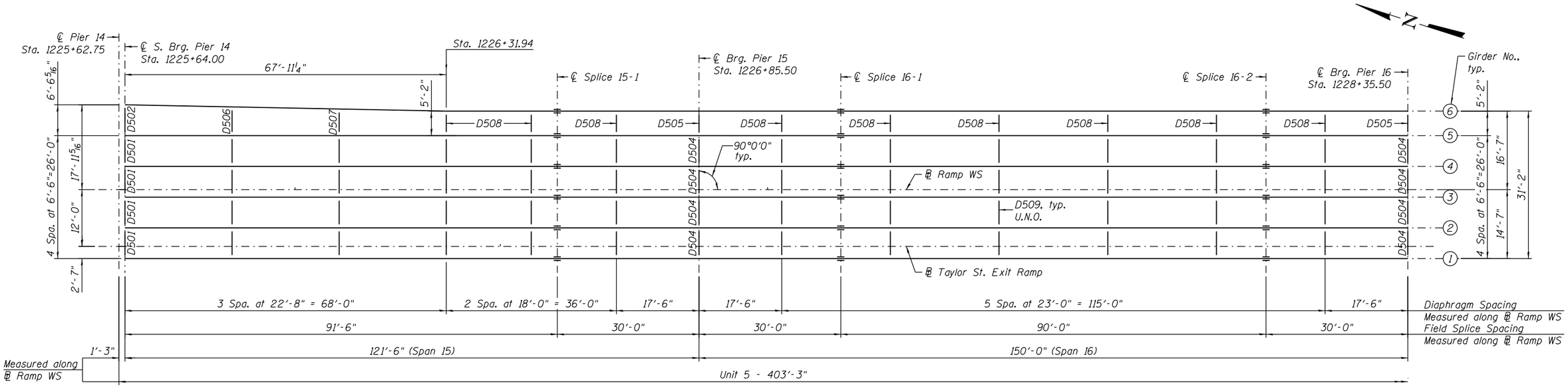
AECOM

USER NAME = floresg	DESIGNED - ATB	REVISED	
	CHECKED - DD	REVISED	
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

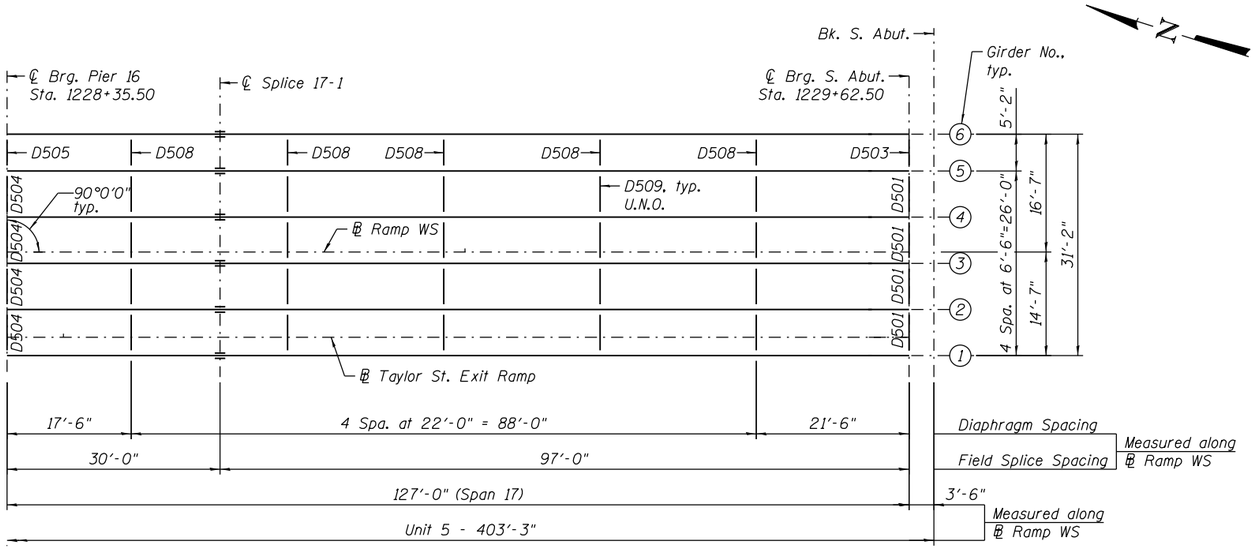
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER MOMENT AND REACTION TABLE 2 – UNIT 4
STRUCTURE NO. 016–1715
SHEET NO. S3-80 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	822
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			



FRAMING PLAN - SPANS 15 AND 16



FRAMING PLAN - SPAN 17

NOTES:

1. See Sheet S3-82 for girder elevation.
2. See Sheet S3-83 for camber & top of web elevations.
3. See Sheet S3-84 for moment tables & reaction tables.
4. See Sheet S3-86 for girder bolted field splice details.
5. See Sheet S3-82 for girder diaphragm details.

0161715-60X93-S080-FramePlan-5.dgn

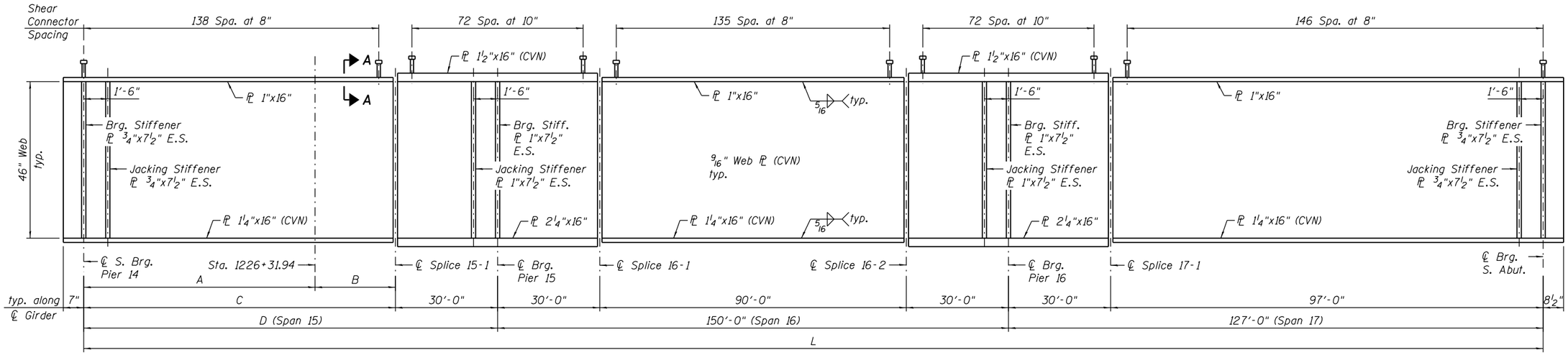
AECOM

USER NAME = floresg	DESIGNED - DD	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN – UNIT 5
STRUCTURE NO. 016–1715
SHEET NO. S3-81 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	823
		CONTRACT NO. 60X93		
ILLINOIS	FED. AID PROJECT			



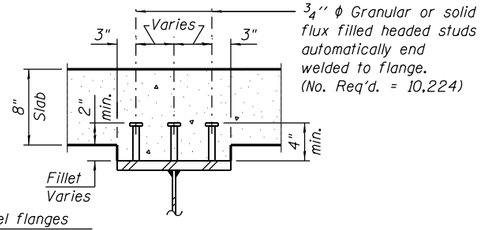
GIRDER ELEVATION - UNIT 5

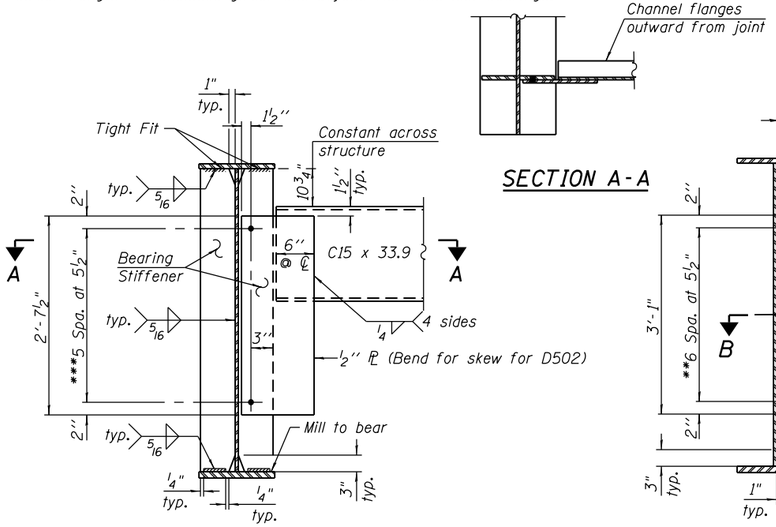
GIRDER DIMENSIONS - UNIT 5

(All dimensions in Feet)

Girder	A	B	C	D	L*
1	67.937	23.563	91.500	121.500	398.500
2	67.937	23.563	91.500	121.500	398.500
3	67.937	23.563	91.500	121.500	398.500
4	67.937	23.563	91.500	121.500	398.500
5	67.937	23.563	91.500	121.500	398.500
6	67.951	23.563	91.514	121.514	398.514

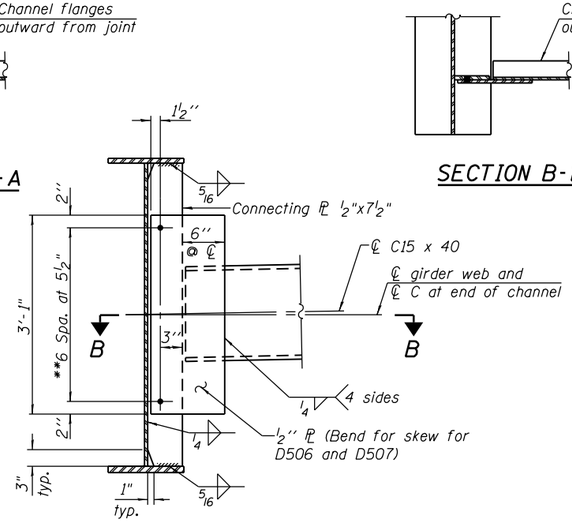
* Girder Length "L" excludes girder end beyond fisrt and last bearings.





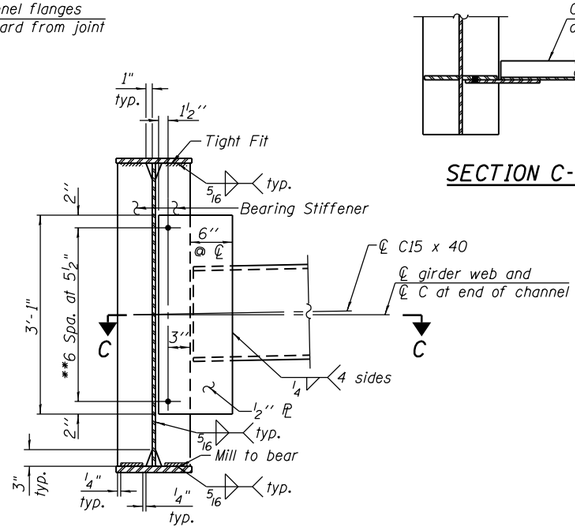
END DIAPHRAGM

D501 (8 Required)
D502 (1 Required)
D503 (1 Required)
***¾"ϕ HS Bolts, 15/16"ϕ holes



INTERIOR DIAPHRAGM

D506 (1 Required)
D507 (1 Required)
D508 (14 Required)
D509 (64 Required)
**¾"ϕ HS bolts, 15/16"ϕ holes



INTERIOR DIAPHRAGM

D504 (8 Required)
D505 (2 Required)
**¾"ϕ HS bolts, 15/16"ϕ holes

NOTES:

1. See Sheet S3-81 for girder framing plan.
2. See Sheet S3-83 for camber & top of web elevations.
3. See Sheet S3-84 for moment tables & reaction tables.
4. See Sheet S3-86 for girder bolted field splice details.
5. All structural steel shall be AASHTO M270 Grade 50.
6. "CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.
7. Two hardened washers required for each set of oversized holes.
8. Jacking stiffeners shall use the same size clips & fillet welds as the bearing stiffeners.

AECOM

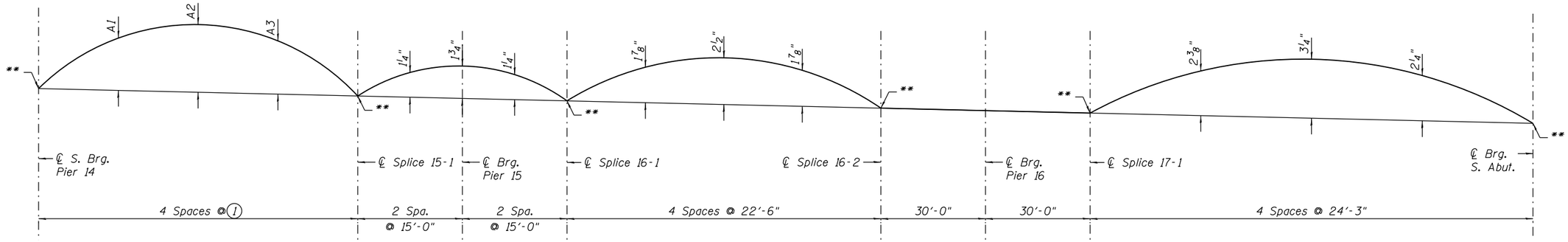
USER NAME = floresg	DESIGNED - DD	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER ELEVATION – UNIT 5
STRUCTURE NO. 016–1715
SHEET NO. S3-82 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	824
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

0161715-60X93-S081-GirderElev-5.dgn



CAMBER DIAGRAM - UNIT 5

** Top of Web Elevations

TOP OF WEB ELEVATIONS* - UNIT 5								
Girder	℄ S. Brg. Pier 14	℄ Splice 15-1	℄ Brg. Pier 15	℄ Splice 16-1	℄ Splice 16-2	℄ Brg. Pier 16	℄ Splice 17-1	℄ Brg. S. Abut.
1	618.60	616.68	615.25	613.53	607.94	606.11	604.28	598.24
2	618.73	616.81	615.38	613.66	608.07	606.24	604.41	598.37
3	618.86	616.94	615.51	613.79	608.20	606.37	604.54	598.50
4	618.99	617.07	615.64	613.92	608.33	606.50	604.67	598.63
5	619.12	617.20	615.77	614.05	608.46	606.63	604.80	598.76
6	619.25	617.30	615.87	614.15	608.56	606.73	604.91	598.86

*For fabrication use only.

CAMBER ORDINATES - UNIT 5				
Girder	A1	A2	A3	①
1	$5\frac{5}{8}$"	$7\frac{3}{4}$"	$5\frac{7}{8}$"	22.875'
2	$5\frac{5}{8}$"	$7\frac{3}{4}$"	$5\frac{7}{8}$"	22.875'
3	$5\frac{5}{8}$"	$7\frac{3}{4}$"	$5\frac{7}{8}$"	22.875'
4	$5\frac{5}{8}$"	$7\frac{3}{4}$"	$5\frac{7}{8}$"	22.875'
5	$5\frac{5}{8}$"	$7\frac{3}{4}$"	$5\frac{7}{8}$"	22.875'
6	$5\frac{5}{8}$"	$7\frac{3}{4}$"	$5\frac{3}{4}$"	22.878'

NOTES:

1. See Sheet S3-81 for girder framing plan.
2. See Sheet S3-82 for girder elevation.
3. See Sheet S3-84 for moment tables & reaction tables.
4. See Sheet S3-86 for girder bolted field splice details.
5. See Sheet S3-81 for girder diaphragm details.

0161715-60X93-S082-GirderCamber-5.dgn

AECOM

USER NAME = floresg	DESIGNED - DD	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER CAMBER DIAGRAMS – UNIT 5
STRUCTURE NO. 016–1715
SHEET NO. S3-83 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	825
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

INTERIOR GIRDER 3 MOMENT TABLE - UNIT 5						
		0.4 Sp. 15	Pier 15	0.5 Sp. 16	Pier 16	0.6 Sp. 17
I_s	(in^4)	24,415	38,035	24,415	38,035	24,415
$I_c(n)$	(in^4)	55,749	-	55,749	-	55,749
$I_c(3n)$	(in^4)	41,197	-	41,197	-	41,197
$I_c(cr)$	(in^4)	-	44,170	-	44,170	-
S_s	(in^3)	1,076	1,747	1,076	1,747	1,076
$S_c(n)$	(in^3)	1,409	-	1,409	-	1,409
$S_c(3n)$	(in^3)	1,296	-	1,296	-	1,296
$S_c(cr)$	(in^3)	-	1,843	-	1,843	-
DC1	(k/')	0.94	1.03	0.94	1.03	0.94
M_{DC1}	('k)	924	1,909	708	2,027	1,033
DC2	(k/')	0.20	0.20	0.20	0.20	0.20
M_{DC2}	('k)	195	398	153	422	218
DW	(k/')	0.33	0.33	0.33	0.33	0.33
M_{DW}	('k)	317	646	248	686	355
LLDF		0.512	0.518	0.486	0.516	0.507
M_{LL+IM}	('k)	1,538	1,879	1,407	1,913	1,600
M_U (Strength I)	('k)	4,566	7,141	3,911	7,438	4,896
$\phi_f M_n$	('k)	7,029	-	7,029	-	7,020
f_s DC1	(ksi)	10.3	13.1	7.9	13.9	11.5
f_s DC2	(ksi)	1.8	2.6	1.4	2.7	2.0
f_s DW	(ksi)	2.9	4.2	2.3	4.5	3.3
f_s (L+IM)	(ksi)	13.1	12.2	12.0	12.5	13.6
f_s (Service II)	(ksi)	32.1	35.8	27.2	37.3	34.5
$0.95R_hF_{yf}$	(ksi)	47.5	47.5	47.5	47.5	47.5
f_s (Total)(Strength I)	(ksi)	-	47.4	-	49.3	-
$\phi_f F_n$	(ksi)	-	50.0	-	50.0	-
V_f	(k)	59.2	59.5	52.3	64.0	58.2

GIRDER REACTION TABLE - UNIT 5									
		Pier 14-S		Pier 15		Pier 16		S. Abut.	
		Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior
LLDF		0.707	0.626	0.707	0.626	0.707	0.626	0.707	0.626
OCF		-	1.000	-	-	-	-	-	1.000
R_{DC1}	(k)	42.8	39.8	147.1	137.0	151.6	141.2	45.2	42.0
R_{DC2}	(k)	8.9	8.9	30.3	30.3	31.2	31.2	9.4	9.4
R_{DW}	(k)	14.4	10.4	49.2	35.6	50.7	36.6	15.2	11.0
R_{LL}	(k)	71.1	63.0	146.5	129.8	147.8	130.9	72.1	63.8
R_{IM}	(k)	15.2	13.4	26.4	23.4	26.4	23.4	15.2	13.5
R_{Total}	(k)	152.4	135.5	399.4	355.9	407.6	363.2	157.1	139.7

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 ($in.^4$ 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 $in.^3$).

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_{LL+IM}: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

M_U (Strength I): Factored design moment (kip-ft.).
$1.25\ (M_{DC1} + M_{DC2}) + 1.5\ M_{DW} + 1.75\ M_{LL+IM}$

$\phi_f M_n$: 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 (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).
$M_{LL+IM} / S_c(n)$ or $M_{LL+IM} / S_c(cr)$ as applicable.

f_s (Service II): Sum of stresses as computed below (ksi).
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3\ f_s(L+IM)$

$0.95R_hF_{yf}$: 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).
$1.25\ (f_{sDC1} + f_{sDC2}) + 1.5\ f_{sDW} + 1.75\ f_s(L+IM)$

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

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

LLDF: Live Load Distribution Factor

OCF: Obtuse Correction Factor

0161715-60X93-S083-MomentTable-5.dgn

AECOM

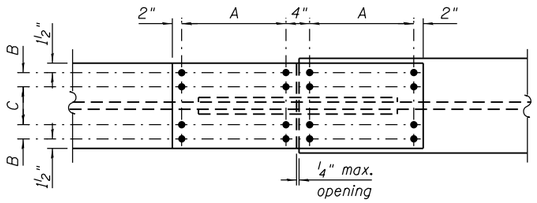
USER NAME = floresg	DESIGNED - DD	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

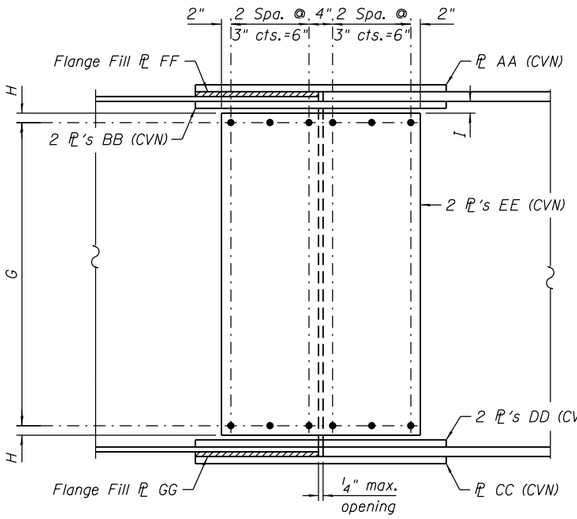
GIRDER MOMENT AND REACTION TABLE – UNIT 5
STRUCTURE NO. 016–1715

SHEET NO. S3-84 OF S3-172

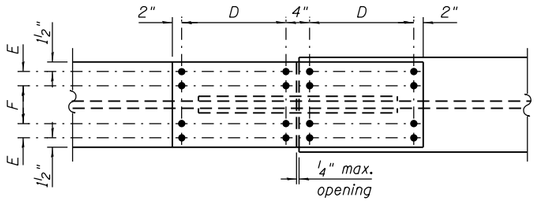
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	826
		CONTRACT NO. 60X93		
ILLINOIS FED. AID PROJECT				



TOP FLANGE



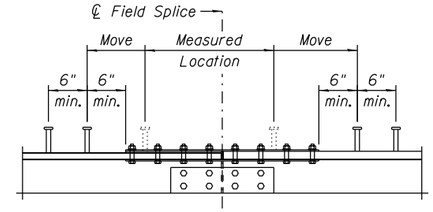
FLANGE SPLICE PLATE



BOTTOM FLANGE

SPLICE BOLT SPACING

STRUCTURE	UNIT	GIRDER	SPLICE TYPE	A	B	C	D	E	F	G	H	I
S.N. 016-1715	1	1, 2, 3, 4, 5	1-1	6 Spa. @ 3" = 1'-6"	4"	5"	6 Spa. @ 3" = 1'-6"	4"	5"	11 Spa. @ 3" = 2'-9"	1.5"	3"
			2-1	6 Spa. @ 3" = 1'-6"	4"	5"	6 Spa. @ 3" = 1'-6"	4"	5"	11 Spa. @ 3" = 2'-9"	1.5"	3"
			2-2	6 Spa. @ 3" = 1'-6"	4"	5"	6 Spa. @ 3" = 1'-6"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			3-1	6 Spa. @ 3" = 1'-6"	4"	5"	6 Spa. @ 3" = 1'-6"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			3-2	6 Spa. @ 3" = 1'-6"	4"	5"	6 Spa. @ 3" = 1'-6"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			4-1	6 Spa. @ 3" = 1'-6"	4"	5"	7 Spa. @ 3" = 1'-9"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
	2	1	5-1	6 Spa. @ 3" = 1'-6"	4"	5"	6 Spa. @ 3" = 1'-6"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			6-1	6 Spa. @ 3" = 1'-6"	4"	5"	6 Spa. @ 3" = 1'-6"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			6-2	6 Spa. @ 3" = 1'-6"	4"	5"	6 Spa. @ 3" = 1'-6"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			7-1	6 Spa. @ 3" = 1'-6"	4"	5"	6 Spa. @ 3" = 1'-6"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			7-2	6 Spa. @ 3" = 1'-6"	4"	5"	6 Spa. @ 3" = 1'-6"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			8-1	6 Spa. @ 3" = 1'-6"	4"	5"	6 Spa. @ 3" = 1'-6"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
		2, 3, 4, 5	5-1	6 Spa. @ 3" = 1'-6"	4"	5"	6 Spa. @ 3" = 1'-6"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			6-1	6 Spa. @ 3" = 1'-6"	4"	5"	6 Spa. @ 3" = 1'-6"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			6-2	6 Spa. @ 3" = 1'-6"	4"	5"	6 Spa. @ 3" = 1'-6"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			7-1	6 Spa. @ 3" = 1'-6"	4"	5"	6 Spa. @ 3" = 1'-6"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			7-2	6 Spa. @ 3" = 1'-6"	4"	5"	6 Spa. @ 3" = 1'-6"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			8-1	6 Spa. @ 3" = 1'-6"	4"	5"	6 Spa. @ 3" = 1'-6"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
	3	1	9-1	6 Spa. @ 3" = 1'-6"	4"	5"	6 Spa. @ 3" = 1'-6"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			11-1	6 Spa. @ 3" = 1'-6"	4"	5"	6 Spa. @ 3" = 1'-6"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
		2, 3, 4, 5	9-1	6 Spa. @ 3" = 1'-6"	4"	5"	6 Spa. @ 3" = 1'-6"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			11-1	6 Spa. @ 3" = 1'-6"	4"	5"	6 Spa. @ 3" = 1'-6"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"



SHEAR CONNECTOR DETAIL AT SPLICE AND FLANGE TRANSITIONS

DO NOT place shear connectors on splice plates.

Move row of studs to 6" beyond nearest edge of splice plate from measured location.

SPLICE PLATE SIZES

STRUCTURE	UNIT	GIRDER	SPLICE TYPE	AA	BB	CC	DD	EE	FF	GG
S.N. 016-1715	1	1, 2, 3, 4, 5	1-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/4" x 1'-4" x 3'-8"	3/4" x 7" x 3'-8"	3/8" x 1'-8" x 3'-0"	3/4" x 1'-4" x 1'-9 7/8"	1/2" x 1'-4" x 1'-9 7/8"
			2-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/8" x 1'-8" x 3'-0"	3/4" x 1'-4" x 1'-9 7/8"	3/4" x 1'-4" x 1'-9 7/8"
			2-2	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/8" x 1'-8" x 3'-6"	1" x 1'-4" x 1'-9 7/8"	1" x 1'-4" x 1'-9 7/8"
			3-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/8" x 1'-8" x 3'-6"	1" x 1'-4" x 1'-9 7/8"	1" x 1'-4" x 1'-9 7/8"
			3-2	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/8" x 1'-8" x 3'-6"	1 1/4" x 1'-4" x 1'-9 7/8"	1 1/4" x 1'-4" x 1'-9 7/8"
			4-1	3/4" x 1'-4" x 3'-8"	3/4" x 7" x 3'-8"	3/4" x 1'-4" x 4'-2"	3/4" x 7" x 4'-2"	3/8" x 1'-8" x 3'-6"	1" x 1'-4" x 1'-9 7/8"	1" x 1'-4" x 2'-7/8"
	2	1	5-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/8" x 1'-8" x 3'-6"	3/4" x 1'-4" x 1'-9 7/8"	3/4" x 1'-4" x 1'-9 7/8"
			6-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/8" x 1'-8" x 3'-6"	3/4" x 1'-4" x 1'-9 7/8"	3/4" x 1'-4" x 1'-9 7/8"
			6-2	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/8" x 1'-8" x 3'-6"	3/4" x 1'-4" x 1'-9 7/8"	3/4" x 1'-4" x 1'-9 7/8"
			7-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/8" x 1'-8" x 3'-6"	3/4" x 1'-4" x 1'-9 7/8"	3/4" x 1'-4" x 1'-9 7/8"
			7-2	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/8" x 1'-8" x 3'-6"	3/4" x 1'-4" x 1'-9 7/8"	3/4" x 1'-4" x 1'-9 7/8"
			8-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/8" x 1'-8" x 3'-6"	3/4" x 1'-4" x 1'-9 7/8"	3/4" x 1'-4" x 1'-9 7/8"
		2, 3, 4, 5	5-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/8" x 1'-8" x 3'-6"	1/2" x 1'-4" x 1'-9 7/8"	1/2" x 1'-4" x 1'-9 7/8"
			6-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/8" x 1'-8" x 3'-6"	1/2" x 1'-4" x 1'-9 7/8"	1/2" x 1'-4" x 1'-9 7/8"
			6-2	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/8" x 1'-8" x 3'-6"	1/2" x 1'-4" x 1'-9 7/8"	1/2" x 1'-4" x 1'-9 7/8"
			7-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/8" x 1'-8" x 3'-6"	1/2" x 1'-4" x 1'-9 7/8"	1/2" x 1'-4" x 1'-9 7/8"
			7-2	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/8" x 1'-8" x 3'-6"	1/2" x 1'-4" x 1'-9 7/8"	1/2" x 1'-4" x 1'-9 7/8"
			8-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/8" x 1'-8" x 3'-6"	1/2" x 1'-4" x 1'-9 7/8"	1/2" x 1'-4" x 1'-9 7/8"
	3	1	9-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/4" x 1'-4" x 3'-8"	3/4" x 7" x 3'-8"	3/8" x 1'-8" x 3'-6"	1/2" x 1'-4" x 1'-9 7/8"	1/4" x 1'-4" x 1'-9 7/8"
			11-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/8" x 1'-8" x 3'-6"	1/2" x 1'-4" x 1'-9 7/8"	1/2" x 1'-4" x 1'-9 7/8"
		2, 3, 4, 5	9-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/8" x 1'-8" x 3'-6"	1/2" x 1'-4" x 1'-9 7/8"	1/4" x 1'-4" x 1'-9 7/8"
			11-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/8" x 1'-8" x 3'-6"	1/2" x 1'-4" x 1'-9 7/8"	1/2" x 1'-4" x 1'-9 7/8"

NOTES:

1. See Sheets S3-62, S3-66 and S3-70 for girder framing plan.
2. All structural steel shall be AASHTO M270 Grade 50.
3. "CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.

0161715-60X93-S084-GirderSpliceDet-1.dgn

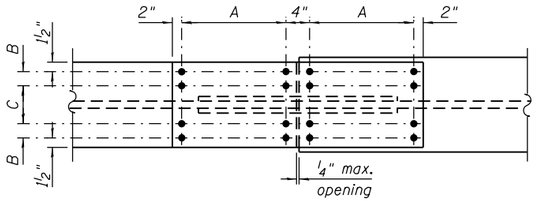
AECOM

USER NAME = floresg	DESIGNED - DD	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

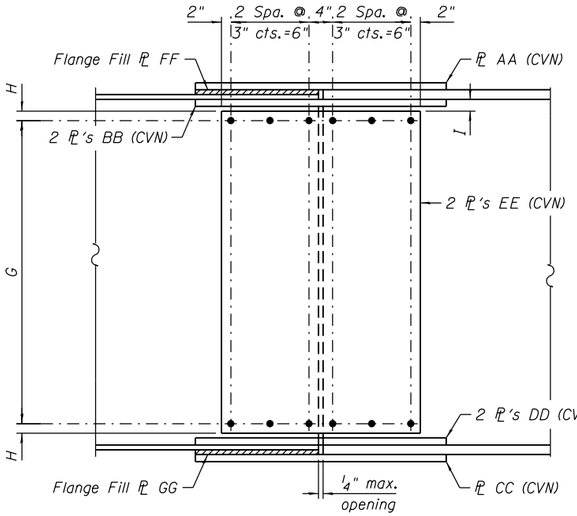
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER SPLICE DETAILS – 1
STRUCTURE NO. 016–1715
SHEET NO. S3-85 OF S3-172

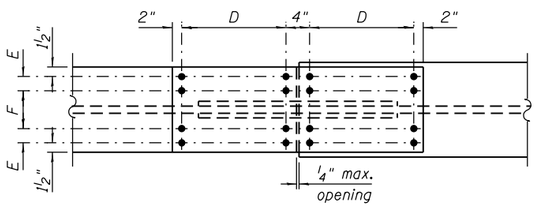
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	827
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			



TOP FLANGE



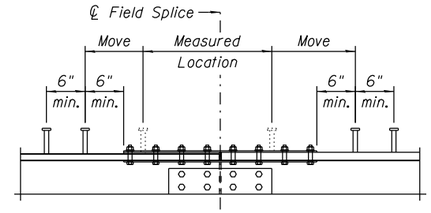
FLANGE SPLICE PLATE



BOTTOM FLANGE

SPLICE BOLT SPACING

STRUCTURE	UNIT	GIRDER	SPLICE TYPE	A	B	C	D	E	F	G	H	I
S.N. 016-1715	4	1B	12-1	6 Spa. @ 3" = 1'-6"	4"	5"	7 Spa. @ 3" = 1'-9"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			13-1	6 Spa. @ 3" = 1'-6"	4"	5"	8 Spa. @ 3" = 2'-0"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			13-2	6 Spa. @ 3" = 1'-6"	4"	5"	7 Spa. @ 3" = 1'-9"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			14-1	6 Spa. @ 3" = 1'-6"	4"	5"	7 Spa. @ 3" = 1'-9"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
		3B	12-1	6 Spa. @ 3" = 1'-6"	4"	5"	7 Spa. @ 3" = 1'-9"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			13-1	6 Spa. @ 3" = 1'-6"	4"	5"	7 Spa. @ 3" = 1'-9"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
		4B thru 8B	12-1	6 Spa. @ 3" = 1'-6"	4"	5"	7 Spa. @ 3" = 1'-9"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			13-1	6 Spa. @ 3" = 1'-6"	4"	5"	7 Spa. @ 3" = 1'-9"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			13-2	6 Spa. @ 3" = 1'-6"	4"	5"	7 Spa. @ 3" = 1'-9"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			14-1	6 Spa. @ 3" = 1'-6"	4"	5"	7 Spa. @ 3" = 1'-9"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
	5	1, 2, 3, 4, 5, 6	15-1	6 Spa. @ 3" = 1'-6"	4"	5"	7 Spa. @ 3" = 1'-9"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			16-1	6 Spa. @ 3" = 1'-6"	4"	5"	7 Spa. @ 3" = 1'-9"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			16-2	6 Spa. @ 3" = 1'-6"	4"	5"	7 Spa. @ 3" = 1'-9"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"
			17-1	6 Spa. @ 3" = 1'-6"	4"	5"	7 Spa. @ 3" = 1'-9"	4"	5"	13 Spa. @ 3" = 3'-3"	1.5"	2"



SHEAR CONNECTOR DETAIL AT SPLICE AND FLANGE TRANSITIONS

DO NOT place shear connectors on splice plates.

Move row of studs to 6" beyond nearest edge of splice plate from measured location.

SPLICE PLATE SIZES

STRUCTURE	UNIT	GIRDER	SPLICE TYPE	AA	BB	CC	DD	EE	FF	GG
S.N. 016-1715	4	1B	12-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	1" x 1'-4" x 4'-2"	1" x 7" x 4'-2"	1/2" x 1'-8" x 3'-6"	1 1/4" x 1'-4" x 1'-9 7/8"	1/2" x 1'-4" x 2'-7/8"
			13-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	7/8" x 1'-4" x 4'-8"	7/8" x 7" x 4'-8"	1/2" x 1'-8" x 3'-6"	1 1/4" x 1'-4" x 1'-9 7/8"	3/4" x 1'-4" x 2'-3 7/8"
			13-2	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	7/8" x 1'-4" x 4'-2"	7/8" x 7" x 4'-2"	1/2" x 1'-8" x 3'-6"	1" x 1'-4" x 1'-9 7/8"	1/2" x 1'-4" x 2'-7/8"
			14-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	7/8" x 1'-4" x 4'-2"	7/8" x 7" x 4'-2"	1/2" x 1'-8" x 3'-6"	1" x 1'-4" x 1'-9 7/8"	1/2" x 1'-4" x 2'-7/8"
		3B	12-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	1" x 1'-4" x 4'-2"	1" x 7" x 4'-2"	1/2" x 1'-8" x 3'-6"	1 1/4" x 1'-4" x 1'-9 7/8"	1/2" x 1'-4" x 2'-7/8"
			13-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	7/8" x 1'-4" x 4'-2"	7/8" x 7" x 4'-2"	1/2" x 1'-8" x 3'-6"	1 1/4" x 1'-4" x 1'-9 7/8"	3/4" x 1'-4" x 2'-7/8"
		4B thru 8B	12-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	1" x 1'-4" x 4'-2"	1" x 7" x 4'-2"	1/2" x 1'-8" x 3'-6"	1 1/4" x 1'-4" x 1'-9 7/8"	1/2" x 1'-4" x 2'-7/8"
			13-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	7/8" x 1'-4" x 4'-2"	7/8" x 7" x 4'-2"	1/2" x 1'-8" x 3'-6"	1 1/4" x 1'-4" x 1'-9 7/8"	3/4" x 1'-4" x 2'-7/8"
			13-2	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	7/8" x 1'-4" x 4'-2"	7/8" x 7" x 4'-2"	1/2" x 1'-8" x 3'-6"	1" x 1'-4" x 1'-9 7/8"	1/2" x 1'-4" x 2'-7/8"
			14-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	7/8" x 1'-4" x 4'-2"	7/8" x 7" x 4'-2"	1/2" x 1'-8" x 3'-6"	1" x 1'-4" x 1'-9 7/8"	1/2" x 1'-4" x 2'-7/8"
	5	1, 2, 3, 4, 5, 6	15-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/4" x 1'-4" x 4'-2"	3/4" x 7" x 4'-2"	3/8" x 1'-8" x 3'-6"	1/2" x 1'-4" x 1'-9 7/8"	1" x 1'-4" x 2'-7/8"
			16-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/4" x 1'-4" x 4'-2"	3/4" x 7" x 4'-2"	3/8" x 1'-8" x 3'-6"	1/2" x 1'-4" x 1'-9 7/8"	1" x 1'-4" x 2'-7/8"
			16-2	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/4" x 1'-4" x 4'-2"	3/4" x 7" x 4'-2"	3/8" x 1'-8" x 3'-6"	1/2" x 1'-4" x 1'-9 7/8"	1" x 1'-4" x 2'-7/8"
			17-1	5/8" x 1'-4" x 3'-8"	5/8" x 7" x 3'-8"	3/4" x 1'-4" x 4'-2"	3/4" x 7" x 4'-2"	3/8" x 1'-8" x 3'-6"	1/2" x 1'-4" x 1'-9 7/8"	1" x 1'-4" x 2'-7/8"

NOTES:

1. See Sheets S3-74 and S3-81 for girder framing plan.
2. All structural steel shall be AASHTO M270 Grade 50.
3. "CVN" denotes Charpy-V-Notch impact energy requirements, zone 2.

0161715-60X93-S085-GirderSpliceDet+2.dgn

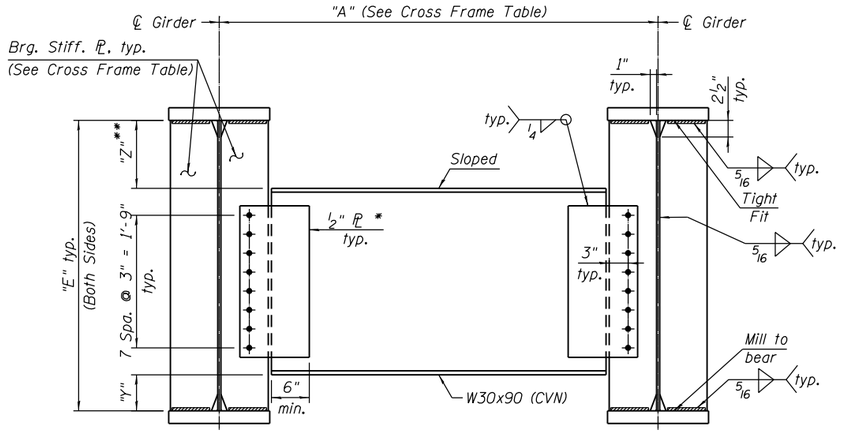
AECOM

USER NAME = floresg	DESIGNED - DD	REVISED
	CHECKED - ATB	REVISED
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GIRDER SPLICE DETAILS – 2
STRUCTURE NO. 016–1715
SHEET NO. S3-86 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	828
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

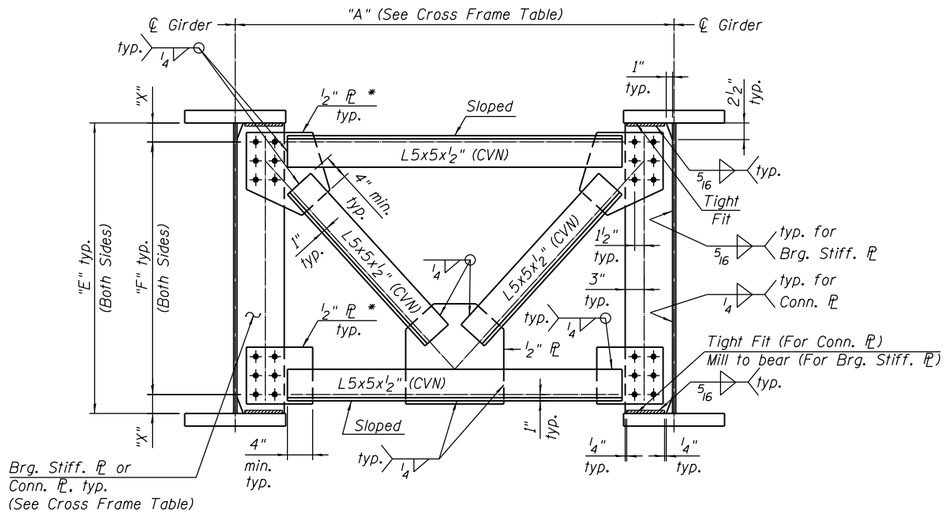


END CROSS FRAME - Type 1

(24 Required)

* Bend PL if required.

** Contractor to coordinate with Modular Joint Manufacturer.



INTERIOR CROSS FRAME - Type 2

(284 Required)

CROSS FRAME TABLE

Name	Type	Quantity	"A"	"E"	"F"	"X"	"Y"	"Z"	Connection PL or Brg. PL
CF101	1	1	6'-0 11/16"	3'-6"	---	---	1 3/4"	10 3/4"	1" x 7 1/2"
CF102	1	1	6'-0 5/8"	3'-6"	---	---	1 3/4"	10 3/4"	1" x 7 1/2"
CF103	1	1	6'-0 9/16"	3'-6"	---	---	1 3/4"	10 3/4"	1" x 7 1/2"
CF104	1	1	7'-11 9/16"	3'-6"	---	---	1 3/4"	10 3/4"	1" x 7 1/2"
CF105	2	4	5'-9 1/2"	3'-6"	3'-0"	3"	---	---	1" x 7 1/2"
CF106	2	8	5'-9 1/2"	3'-10"	3'-4"	3"	---	---	1" x 7 1/2"
CF107	1	4	5'-9 9/16"	3'-10"	---	---	6"	10 1/2"	1" x 7 1/2"
CF108	2	1	6'-6 5/8"	3'-6"	3'-0"	3"	---	---	5/8" x 7 1/2"
CF109	2	22	5'-9 1/2"	3'-6"	3'-0"	3"	---	---	5/8" x 7 1/2"
CF110	2	4	5'-9 1/2"	3'-6 13/16"	3'-0 13/16"	3"	---	---	5/8" x 7 1/2"
CF111	2	4	5'-9 1/2"	3'-7 7/8"	3'-1 7/8"	3"	---	---	5/8" x 7 1/2"
CF112	2	4	5'-9 1/2"	3'-9 1/16"	3'-3 1/16"	3"	---	---	5/8" x 7 1/2"
CF113	2	56	5'-9 1/2"	3'-10"	3'-4"	3"	---	---	5/8" x 7 1/2"
CF114	2	1	5'-11 1/2"	3'-6"	3'-0"	3"	---	---	5/8" x 7 1/2"
CF201	1	8	5'-9 1/2"	3'-10"	---	---	5 3/4"	10 3/4"	1" x 7 1/2"
CF202	2	1	6'-1 11/16"	3'-10"	3'-4"	3"	---	---	1" x 7 1/2"
CF203	2	1	6'-1 7/8"	3'-10"	3'-4"	3"	---	---	1" x 7 1/2"
CF204	2	1	6'-2 1/16"	3'-10"	3'-4"	3"	---	---	1" x 7 1/2"
CF205	2	1	6'-2 1/4"	3'-10"	3'-4"	3"	---	---	1" x 7 1/2"
CF206	2	8	5'-9 1/2"	3'-10"	3'-4"	3"	---	---	1" x 7 1/2"
CF207	2	100	5'-9 1/2"	3'-10"	3'-4"	3"	---	---	5/8" x 7 1/2"
CF301	1	4	5'-9 1/2"	3'-10"	---	---	5 3/4"	10 3/4"	1" x 7 1/2"
CF302	2	4	5'-9 1/2"	3'-10"	3'-4"	3"	---	---	1" x 7 1/2"
CF303	2	4	5'-9 3/4"	3'-10"	3'-4"	3"	---	---	1" x 7 1/2"
CF304	1	1	5'-11 1/8"	3'-10"	---	---	5 3/4"	10 3/4"	1" x 7 1/2"
CF305	1	1	5'-11 3/16"	3'-10"	---	---	5 3/4"	10 3/4"	1" x 7 1/2"
CF306	1	1	5'-11 1/4"	3'-10"	---	---	5 3/4"	10 3/4"	1" x 7 1/2"
CF307	1	1	5'-11 5/16"	3'-10"	---	---	5 3/4"	10 3/4"	1" x 7 1/2"
CF308	2	60	5'-9 1/2"	3'-10"	3'-4"	3"	---	---	5/8" x 7 1/2"

NOTES:

1. See Sheets S3-62, S3-66 & S3-70 for location of girder cross frames.
2. AASHTO M270 Grade 50 steel shall be used for all cross frames, connection plates, and bearing stiffeners.
3. Jacking stiffeners shall use the same size clips & fillet welds as connection plates.
4. "CVN" denotes Charpy-V-Notch impact energy requirements, Zone 2.
5. Fasteners shall be ASTM A325 Type 1, hot dip galvanized bolts. Bolts $\frac{7}{8}$ in. ϕ, holes $\frac{15}{16}$ in. ϕ, unless otherwise noted.
6. Bolt spacing shall be 3" min. & edge distances shall be $1\frac{1}{2}$" min.
7. Field reaming shall not exceed that permitted in Article 505.08(I) of the Standard Specifications. If any field reaming is required, two hardened washers are required for each oversized bolt hole.
8. Erection shall be accomplished by a steel erection contractor or sub-contractor certified as an Advanced Certified Steel Erector (ACSE) by the American Institute of Steel Construction (AISC). See special provision for "Erection of Complex Steel Structures".
9. All cross frames between girders shall be installed with erection pins and bolts in accordance with erection plan submitted to and approved by the Engineer. Individual cross frames at supports may be temporarily disconnected to install bearing anchor rods.
10. 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(I) of the Standard Specifications.

0161715-60X93-S086-CrossFrameDet-1.dgn

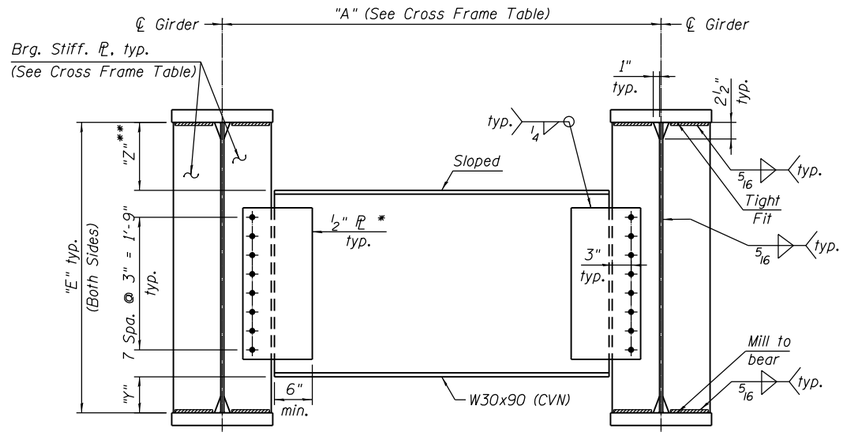
AECOM

USER NAME = floresg	DESIGNED - DD	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS FRAME DETAILS – 1
STRUCTURE NO. 016–1715
SHEET NO. S3-87 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	829
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

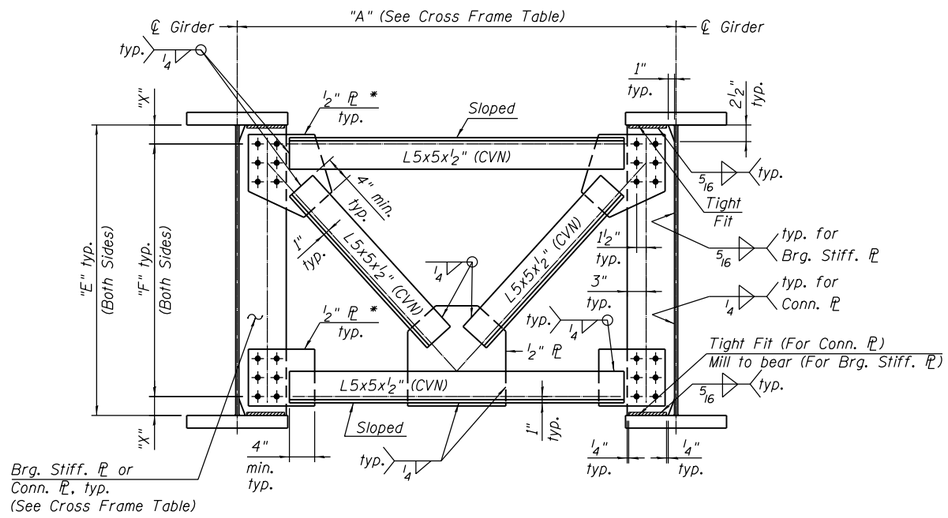


END CROSS FRAME - Type 1

(12 Required)

* Bend PL if required.

** Contractor to coordinate with Modular Joint Manufacturer.



INTERIOR CROSS FRAME - Type 2

(105 Required)

CROSS FRAME TABLE

Name	Type	Quantity	"A"	"E"	"F"	"X"	"Y"	"Z"	Connection PL or Brg. PL
CF401	1	1	7'-1 0 1/16"	3'-10"	---	---	5 3/4"	10 3/4"	1" x 7 1/2"
CF402	1	6	8'-0 13/16"	3'-10"	---	---	5 3/4"	10 3/4"	1" x 7 1/2"
CF403	2	1	10'-0 1/4"	3'-10"	3'-4"	3"	---	---	1" x 9 1/2"
CF404	2	8	7'-9"	3'-10"	3'-4"	3"	---	---	1" x 9 1/2"
CF405	2	1	7'-3 3/8"	3'-10"	3'-4"	3"	---	---	1" x 9 1/2"
CF406	2	1	7'-5 13/16"	3'-10"	3'-4"	3"	---	---	1" x 9 1/2"
CF407	1	1	4'-2"	3'-10"	---	---	5 3/4"	10 3/4"	1" x 7 1/2"
CF408	1	3	7'-9"	3'-10"	---	---	5 3/4"	10 3/4"	1" x 7 1/2"
CF409	1	1	5'-1 15/16"	3'-10"	---	---	5 3/4"	10 3/4"	1" x 7 1/2"
CF410	2	1	8'-3 1/16"	3'-10"	3'-4"	3"	---	---	5/8" x 7 1/2"
CF411	2	1	8'-8"	3'-10"	3'-4"	3"	---	---	5/8" x 7 1/2"
CF412	2	1	7'-10 5/16"	3'-10"	3'-4"	3"	---	---	5/8" x 7 1/2"
CF413	2	1	6'-5"	3'-10"	3'-4"	3"	---	---	5/8" x 7 1/2"
CF414	2	1	4'-11 11/16"	3'-10"	3'-4"	3"	---	---	5/8" x 7 1/2"
CF415	2	1	8'-8 1/4"	3'-10"	3'-4"	3"	---	---	5/8" x 7 1/2"
CF416	2	1	7'-4 3/8"	3'-10"	3'-4"	3"	---	---	5/8" x 7 1/2"
CF417	2	1	6'-0 3/8"	3'-10"	3'-4"	3"	---	---	5/8" x 7 1/2"
CF418	2	1	4'-8 7/16"	3'-10"	3'-4"	3"	---	---	5/8" x 7 1/2"
CF419	2	1	3'-4 1/2"	3'-10"	3'-4"	3"	---	---	5/8" x 7 1/2"
CF420	2	1	8'-2 1/2"	3'-10"	3'-4"	3"	---	---	5/8" x 7 1/2"
CF421	2	1	5'-8 11/16"	3'-10"	3'-4"	3"	---	---	5/8" x 7 1/2"
CF422	2	3	4'-2"	3'-10"	3'-4"	3"	---	---	5/8" x 7 1/2"
CF423	2	1	7'-0 7/16"	3'-10"	3'-4"	3"	---	---	5/8" x 7 1/2"
CF424	2	1	6'-7 2/16"	3'-10"	3'-4"	3"	---	---	5/8" x 7 1/2"
CF425	2	1	6'-1 3/8"	3'-10"	3'-4"	3"	---	---	5/8" x 7 1/2"
CF426	2	1	5'-7 5/8"	3'-10"	3'-4"	3"	---	---	5/8" x 7 1/2"
CF427	2	75	7'-9"	3'-10"	3'-4"	3"	---	---	5/8" x 7 1/2"

NOTES:

1. See Sheets S3-74 & S3-81 for location of girder cross frames.
2. AASHTO M270 Grade 50 steel shall be used for all cross frames, connection plates, and bearing stiffeners.
3. Jacking stiffeners shall use the same size clips & fillet welds as connection plates.
4. "CVN" denotes Charpy-V-Notch impact energy requirements, Zone 2.
5. Fasteners shall be ASTM A325 Type 1, hot dip galvanized bolts. Bolts $\frac{7}{8}$ in. ϕ, holes $\frac{15}{16}$ in. ϕ, unless otherwise noted.
6. Bolt spacing shall be 3" min. & edge distances shall be 1½" min.
7. Field reaming shall not exceed that permitted in Article 505.08(I) of the Standard Specifications. If any field reaming is required, two hardened washers are required for each oversized bolt hole.
8. Erection shall be accomplished by a steel erection contractor or sub-contractor certified as an Advanced Certified Steel Erector (ACSE) by the American Institute of Steel Construction (AISC). See special provision for "Erection of Complex Steel Structures".
9. All cross frames between girders shall be installed with erection pins and bolts in accordance with erection plan submitted to and approved by the Engineer. Individual cross frames at supports may be temporarily disconnected to install bearing anchor rods.
10. 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(I) of the Standard Specifications.

0161715-60X93-S087-CrossFrameDet-2.dgn

AECOM

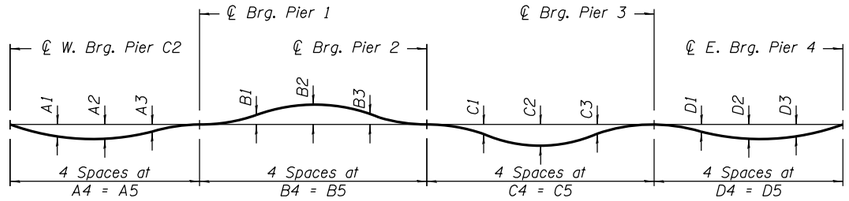
USER NAME = floresg	DESIGNED - DD	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - DD	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CROSS FRAME DETAILS – 2
STRUCTURE NO. 016-1715
SHEET NO. S3-88 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	830
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

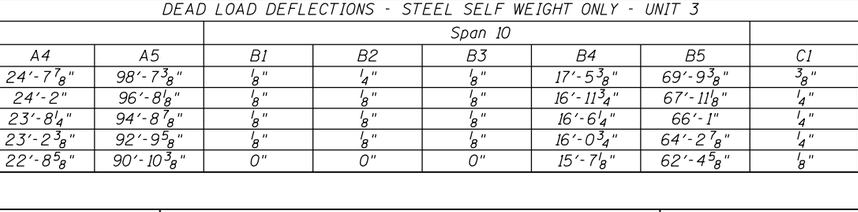
Notes:
The calculated delfections of the primary girders under steel self-weight shall be used to detail the cross frame connections, and to erect the structural steel such that girders will be plumb within a tolerance of $\frac{1}{8}$ in. per vertical foot throughout the length of ther grider system when supporting their own weight.



DEAD LOAD DEFLECTION DIAGRAM - UNIT 1

(Includes weight of structural steel only.)

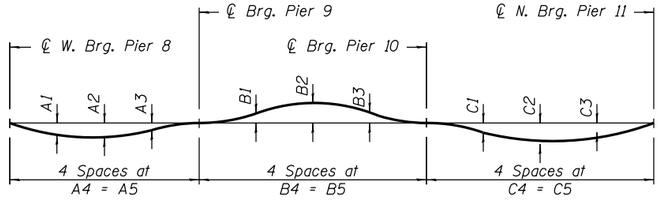
Girder No.	DEAD LOAD DEFLECTIONS - STEEL SELF WEIGHT ONLY - UNIT 1																			
	Span 1					Span 2					Span 3					Span 4				
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	D1	D2	D3	D4	D5
1	1/4"	1/4"	1/8"	22'-4 1/8"	89'-4 3/4"	0"	0"	0"	24'-9 7/8"	99'-3 5/8"	3/8"	5/8"	1/4"	36'-6"	146'-0"	3/8"	5/8"	5/8"	31'-1"	124'-4"
2	1/4"	3/8"	1/4"	22'-11 7/8"	91'-11 3/4"	0"	0"	1/8"	24'-11 1/4"	99'-9"	3/8"	5/8"	1/4"	36'-6"	146'-0"	3/8"	5/8"	1/2"	31'-0 1/2"	124'-1 3/4"
3	3/8"	3/8"	1/4"	23'-7 5/8"	94'-6 3/4"	1/8"	1/8"	1/8"	25'-0 5/8"	100'-2 1/4"	3/8"	5/8"	1/4"	36'-6"	146'-0"	3/8"	5/8"	1/2"	30'-11 7/8"	123'-11 1/2"
4	3/8"	1/2"	1/4"	24'-3 3/8"	97'-1 5/8"	1/8"	1/8"	1/8"	25'-1 7/8"	100'-7 5/8"	3/8"	5/8"	1/4"	36'-6"	146'-0"	1/4"	5/8"	1/2"	30'-11 3/8"	123'-9 1/4"
5	1/2"	5/8"	3/8"	25'-1 1/8"	100'-4 3/8"	1/8"	1/8"	1/8"	25'-3 1/4"	101'-0 7/8"	1/2"	5/8"	1/4"	36'-6"	146'-0"	1/4"	5/8"	1/2"	30'-10 3/4"	123'-7"



DEAD LOAD DEFLECTION DIAGRAM - UNIT 2

(Includes weight of structural steel only.)

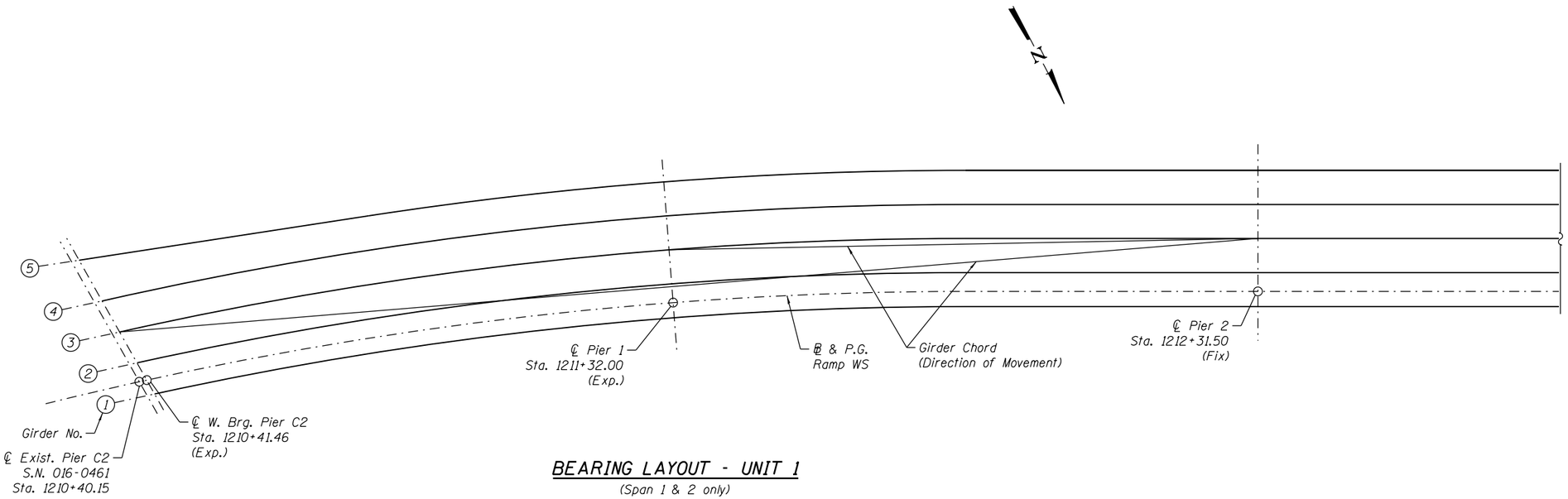
Girder No.	DEAD LOAD DEFLECTIONS - STEEL SELF WEIGHT ONLY - UNIT 2																			
	Span 5					Span 6					Span 7					Span 8				
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	D1	D2	D3	D4	D5
1	3/8"	3/8"	1/8"	23'-1"	92'-4 1/4"	1/8"	1/4"	1/8"	28'-0 1/4"	112'-0 7/8"	1/8"	1/4"	1/8"	29'-0"	116'-0"	1/4"	1/2"	1/2"	23'-10 3/4"	95'-7"
2	1/4"	3/8"	1/8"	22'-1 1/2"	88'-6 1/4"	1/8"	3/8"	1/8"	27'-11 3/4"	111'-11"	1/8"	1/4"	1/8"	28'-5 1/4"	113'-9"	1/4"	1/2"	3/8"	23'-5 1/8"	93'-8 1/2"
3	1/4"	1/4"	1/8"	21'-2"	84'-8 1/4"	1/8"	3/8"	1/8"	27'-11 1/4"	111'-9 1/8"	1/8"	1/4"	1/8"	27'-10 1/2"	111'-6"	1/8"	3/8"	3/8"	22'-11 1/2"	91'-10"
4	1/8"	1/8"	1/8"	20'-2 1/2"	80'-10 1/8"	1/8"	3/8"	1/4"	27'-10 7/8"	111'-7 3/8"	1/8"	1/4"	1/8"	27'-3 3/4"	109'-3"	1/8"	3/8"	1/4"	22'-5 7/8"	89'-11 3/8"
5	1/8"	1/8"	0"	19'-3"	77'-0"	1/4"	3/8"	1/4"	27'-10 3/8"	111'-5 5/8"	1/8"	1/4"	1/8"	26'-9"	107'-0"	1/8"	1/4"	1/4"	22'-0 1/4"	88'-0 7/8"



DEAD LOAD DEFLECTION DIAGRAM - UNIT 3

(Includes weight of structural steel only.)

Girder No.	DEAD LOAD DEFLECTIONS - STEEL SELF WEIGHT ONLY - UNIT 3														
	Span 9					Span 10					Span 11				
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5
1	3/4"	7/8"	1/2"	24'-7 7/8"	98'-7 3/8"	1/8"	1/4"	1/8"	17'-5 3/8"	69'-9 3/8"	3/8"	5/8"	1/2"	21'-6 5/8"	86'-2 1/2"
2	5/8"	3/4"	3/8"	24'-2"	96'-8 1/8"	1/8"	1/8"	1/8"	16'-11 3/4"	67'-11 1/8"	1/4"	1/2"	3/8"	21'-6 7/8"	86'-3 1/4"
3	1/2"	5/8"	3/8"	23'-8 1/4"	94'-8 7/8"	1/8"	1/8"	1/8"	16'-6 1/4"	66'-1"	1/4"	3/8"	3/8"	21'-7"	86'-4 1/8"
4	3/8"	1/2"	1/4"	23'-2 3/8"	92'-9 5/8"	1/8"	1/8"	1/8"	16'-0 3/4"	64'-2 7/8"	1/4"	3/8"	1/4"	21'-7 1/4"	86'-4 7/8"
5	1/4"	3/8"	1/4"	22'-8 5/8"	90'-10 3/8"	0"	0"	0"	15'-7 7/8"	62'-4 5/8"	1/8"	3/8"	1/4"	21'-7 3/8"	86'-5 3/4"



BEARING LAYOUT - UNIT 1

(Span 1 & 2 only)

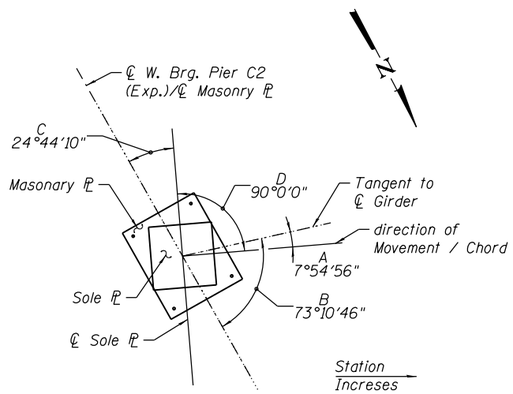
NOTES:

A = Angle between Tangent to Girder and Direction of Movement.

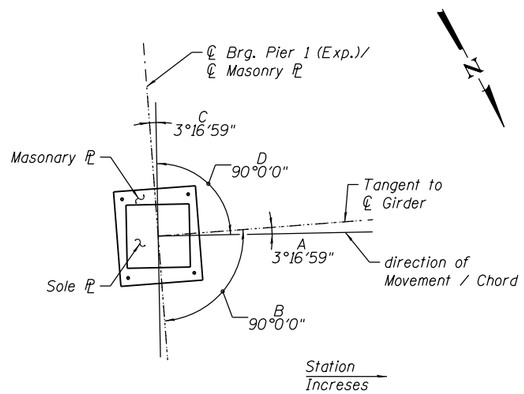
B = Angle between Tangent to Girder and ℄ Brg. Pier or Abutment/℄ Masonry .

C = Setting angle between ℄ Brg. Pier or Abutment/℄ Masonry ℙ and ℄ Sole ℙ

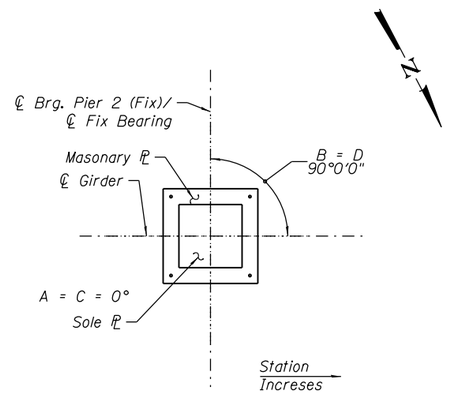
D = Set ℄ Sole ℙ at right angles to the Direction of Movement/Chord.



PIER C2



PIER 1

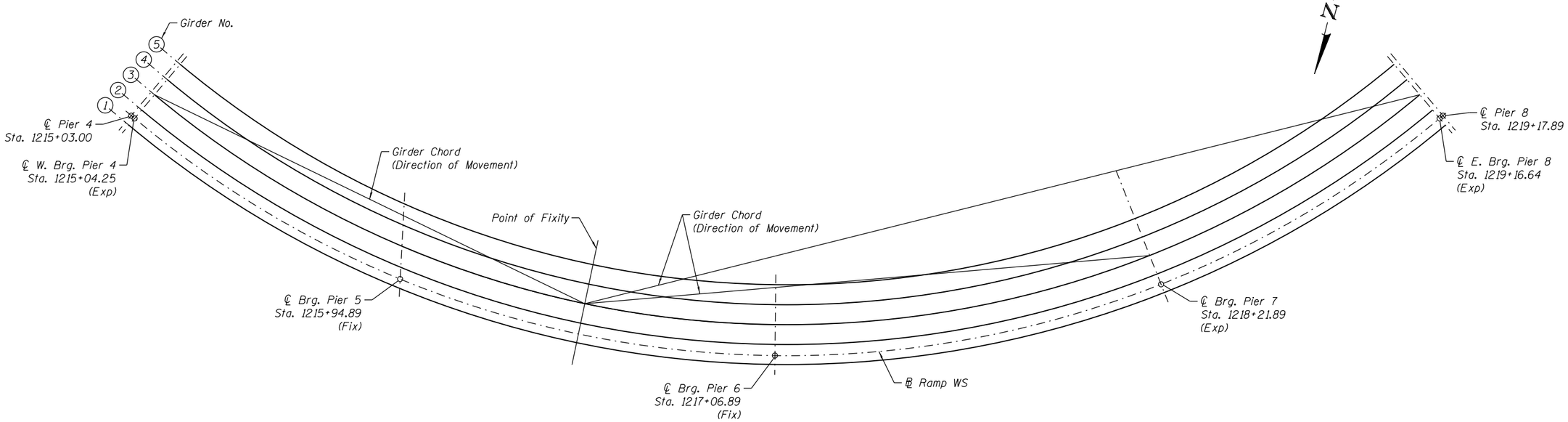


PIER 2

0161715-60X93-S089-Bearing-1.dgn

AECOM	USER NAME = floresg	DESIGNED - AV	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BEARING LAYOUT & ORIENTATION – UNIT 1 STRUCTURE NO. 016–1715
		CHECKED - ATB	REVISED		
	PLOT SCALE = N.T.S.	DRAWN - GF	REVISED		SHEET NO. S3-90 OF S3-172
	PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED		

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	832
		CONTRACT NO. 60X93		
	ILLINOIS	FED. AID PROJECT		



BEARING LAYOUT - UNIT 2

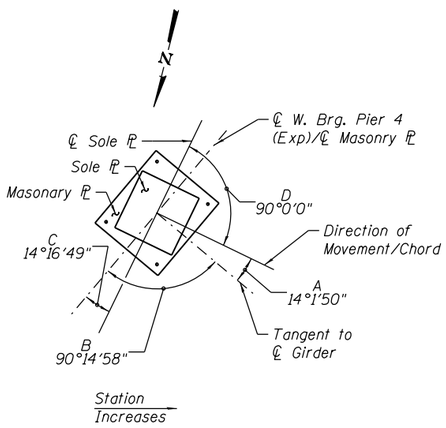
NOTES:

A = Angle between Tangent to Girder and Direction of Movement.

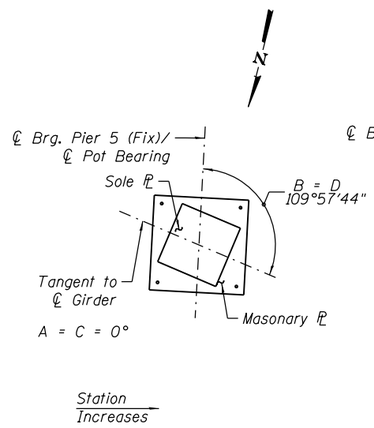
B = Angle between Tangent to Girder and ℄ Brg. Pier or Abutment/℄ Masonry P̲l̲.

C = Setting angle between ℄ Brg. Pier or Abutment/℄ Masonry P̲l̲ and ℄ Sole P̲l̲.

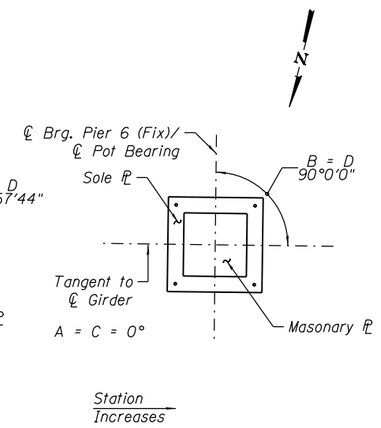
D = Set ℄ Sole P̲l̲ at right angles to the Direction of Movement/Chord.



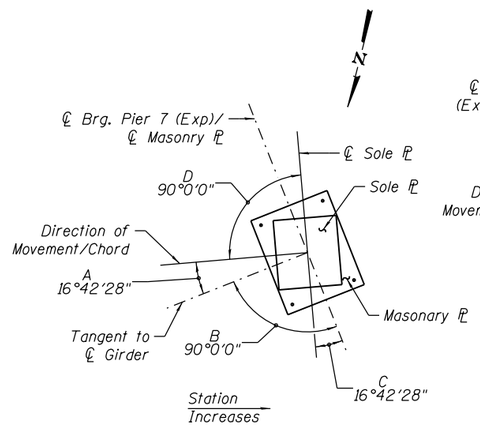
PIER 4



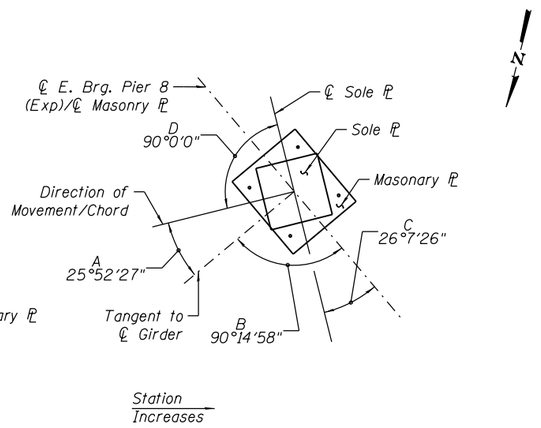
PIER 5



PIER 6



PIER 7



PIER 8

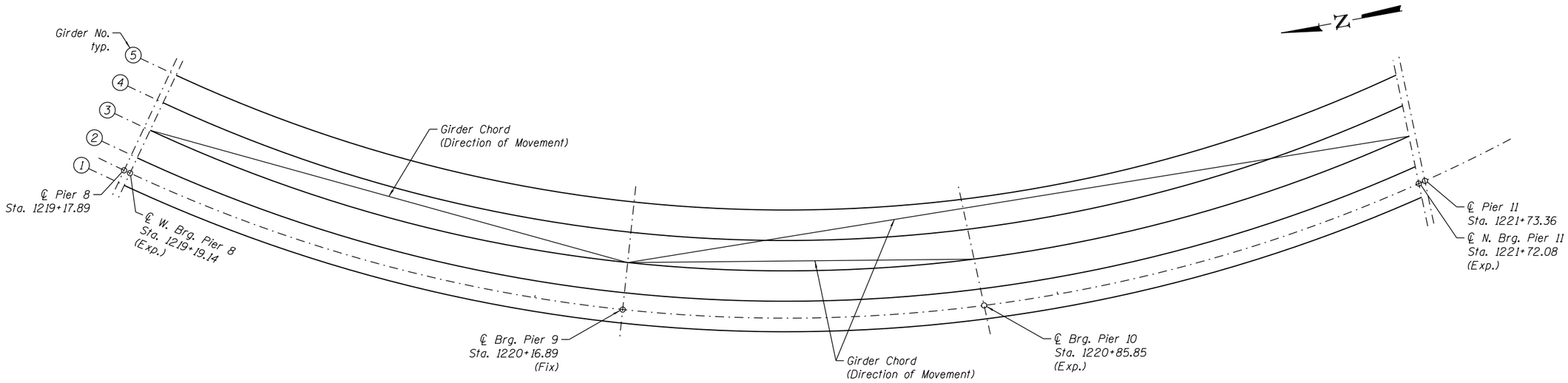
0161715-60X93-5090-Bearing-2.dgn

USER NAME = floresg	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - GF	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BEARING LAYOUT & ORIENTATION – UNIT 2
STRUCTURE NO. 016–1715
SHEET NO. S3-91 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	833
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			



NOTES:

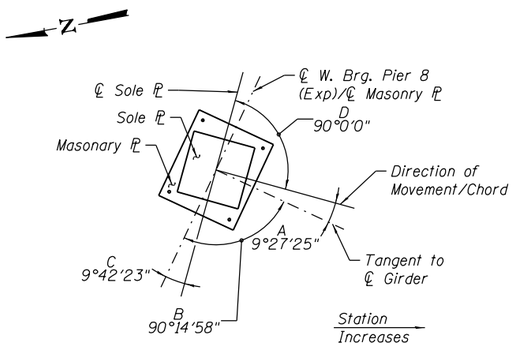
A = Angle between Tangent to Girder and Direction of Movement.

B = Angle between Tangent to Girder and ℄ Brg. Pier or Abutment/℄ Masonry P̲L̲.

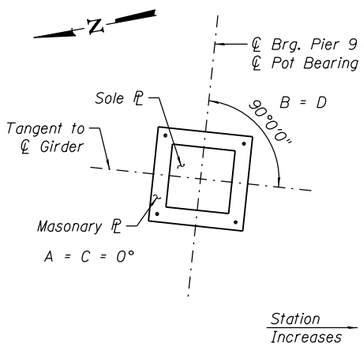
C = Setting angle between ℄ Brg. Pier or Abutment/℄ Masonry P̲L̲ and ℄ Sole P̲L̲.

D = Set ℄ Sole P̲L̲ at right angles to the Direction of Movement/Chord.

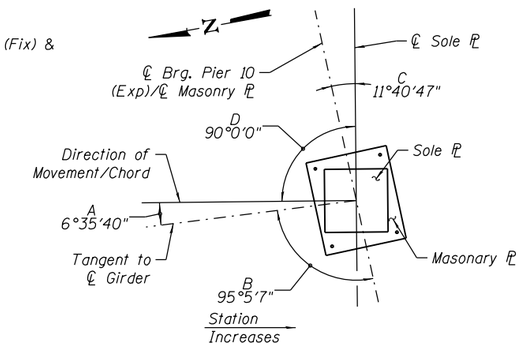
BEARING LAYOUT - UNIT 3



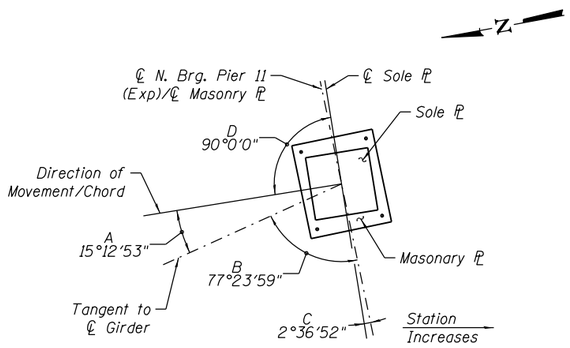
PIER 8



PIER 9



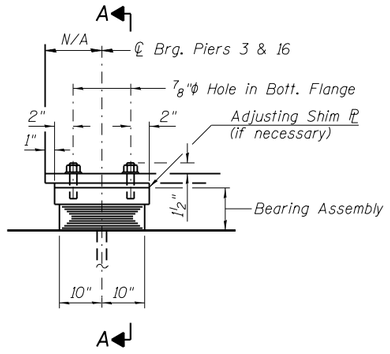
PIER 10



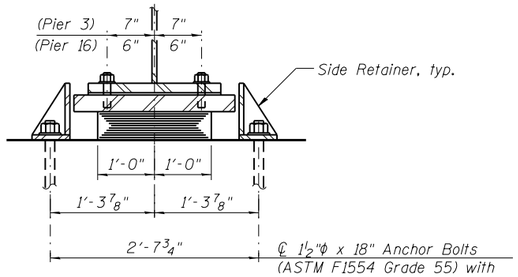
PIER 11 - NORTH BEARING

AECOM	USER NAME = floresg	DESIGNED - AV	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	BEARING LAYOUT & ORIENTATION – UNIT 3 STRUCTURE NO. 016–1715	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED - ATB	REVISED			90/94/290	2014-013R&B-R	COOK	1972	834
	PLOT SCALE = N.T.S.	DRAWN - GF	REVISED						CONTRACT NO. 60X93	
	PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED		SHEET NO. S3-92 OF S3-172			ILLINOIS	FED. AID PROJECT	

0161715-60X93-S091-Bearing-3.dgn



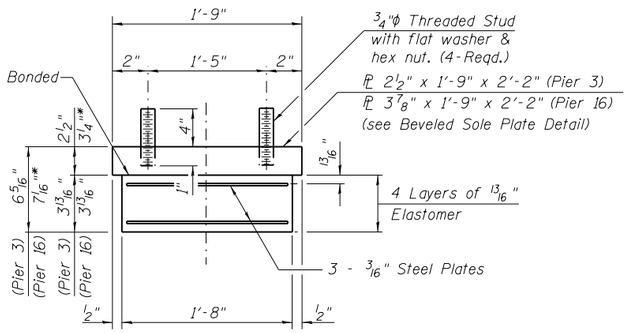
ELEVATION AT PIERS 3 & 16



SECTION A-A

TYPE I ELASTOMERIC EXP. BRG.

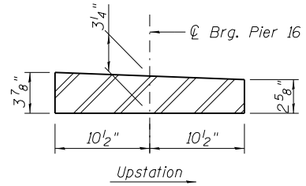
(Piers 3 & 16)



BEARING ASSEMBLY

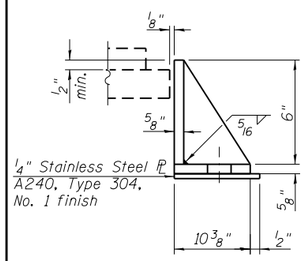
Note:
Shim plates shall not be placed under Bearing Assembly.

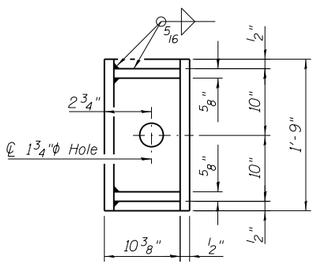
*Thickness @ ℄ Brg.



BEVELED SOLE PLATE DETAIL

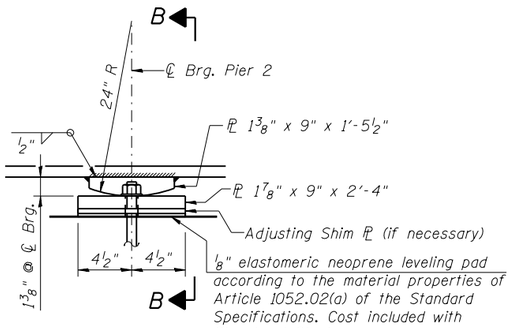
(Pier 16)



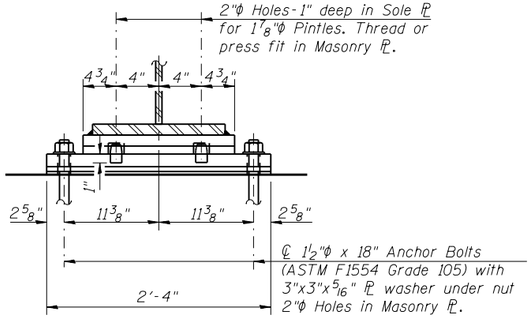


SIDE RETAINER

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



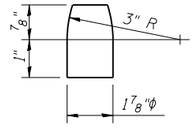
ELEVATION AT PIER 2



SECTION B-B

FIXED BEARING

(Pier 2)
(5 Req'd.)



PINTLE

NOTES:

1. 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.
2. Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.
3. Anchor bolts for side retainers may be cast in place or installed in holes drilled before or after members are in place.
4. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
5. Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I.
6. Fixed Bearing included in "Furnishing and Erecting Structural Steel."
7. 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.
8. All bearing plates, side retainers, anchor bolts, nuts, washers and pintles shall be galvanized according to AASHTO M111 or M232 as applicable.
9. The structural steel for fixed bearing (including pintles) and elastomeric Bearing Assembly shall conform to the requirements of AASHTO M270 Grade 50.
10. Anchor bolts and side retainers at all supports shall be installed as each member is erected unless an equivalent temporary means of lateral restraint is used.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly, Type I	Each	11
Anchor Bolts, 1 1/2"	Each	32

0161715-60X93-S092-BearingDet-1

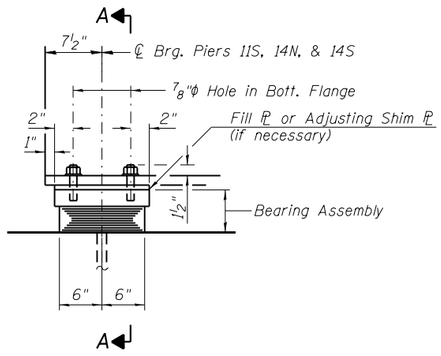
AECOM

USER NAME = vasudevana	DESIGNED - SD	REVISED	
	CHECKED - CLS	REVISED	
PLOT SCALE = N.T.S.	DRAWN - SD	REVISED	
PLOT DATE = 7/30/2018	CHECKED - CLS	REVISED	

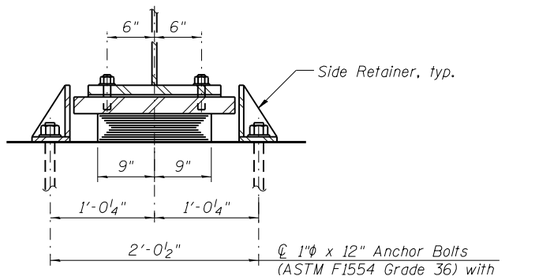
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ELASTOMERIC BEARING DETAILS - 1
STRUCTURE NO. 016-1715
SHEET NO. S3-93 OF S3-172

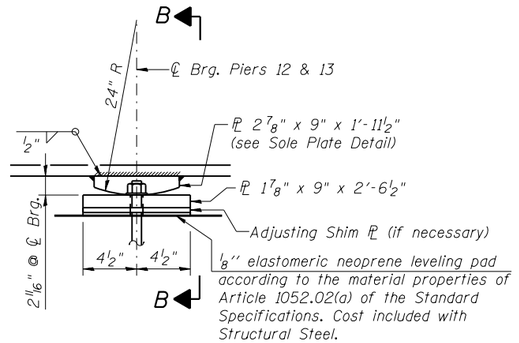
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	835
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			



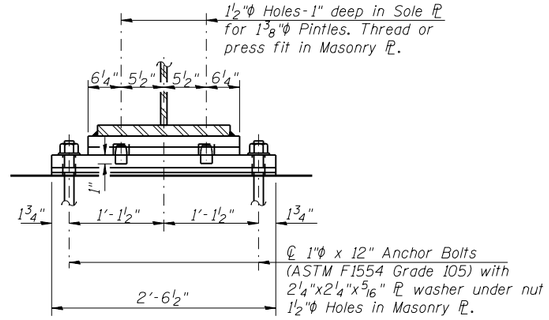
ELEVATION AT PIERS 11S, 14N, & 14S



SECTION A-A



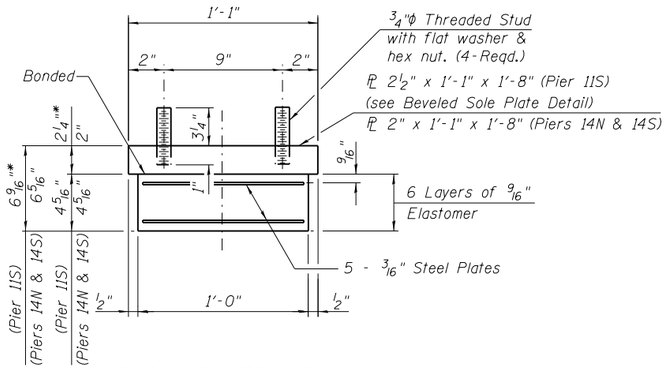
ELEVATION AT PIERS 12 & 13



SECTION B-B

TYPE I ELASTOMERIC EXP. BRG.

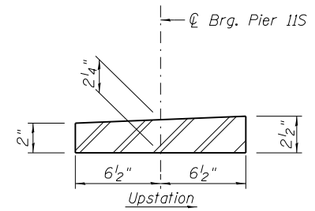
(Piers 11S, 14N, & 14S)



BEARING ASSEMBLY

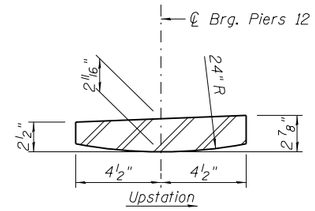
Note:
Shim plates shall not be placed under Bearing Assembly.

*Thickness @ ℄ Brg.



BEVELED SOLE PLATE DETAIL

(Pier 11S)

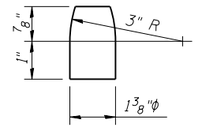


SOLE PLATE DETAIL

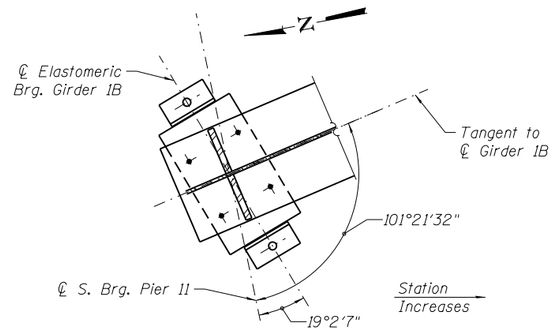
(Piers 12 & 13)

FIXED BEARING

(Piers 12 & 13)
(13 Req'd.)



PINTLE



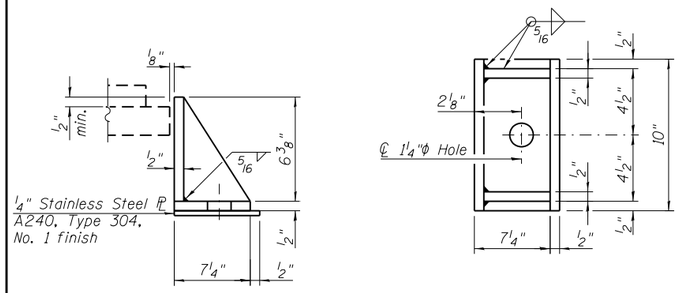
GIRDER 1B - PIER 11S BEARING LAYOUT

FILL PLATE THICKNESS

Pier	Girder	Fill PL Thickness
11N	1	-
	2	3/4"
	3	1 1/8"
	4	-
	5	-
14N	1B	1/4"
	4B	-
	5B	-
	6B	3/8"
	7B	5/8"
	8B	1/4"

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly, Type I	Each	20
Anchor Bolts, 1"	Each	66



SIDE RETAINER

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

NOTES:

1. 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.
2. Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.
3. Anchor bolts for side retainers may be cast in place or installed in holes drilled before or after members are in place.
4. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
5. Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I.
6. Fixed Bearing included in "Furnishing and Erecting Structural Steel."
7. 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.
8. All bearing plates, side retainers, anchor bolts, nuts, washers and pintles shall be galvanized according to AASHTO M111 or M232 as applicable.
9. The structural steel for fixed bearing (including pintles) and elastomeric Bearing Assembly shall conform to the requirements of AASHTO M270 Grade 50.
10. Anchor bolts and side retainers at all supports shall be installed as each member is erected unless an equivalent temporary means of lateral restraint is used.

0161715-60X93-S093-BearingDet-2

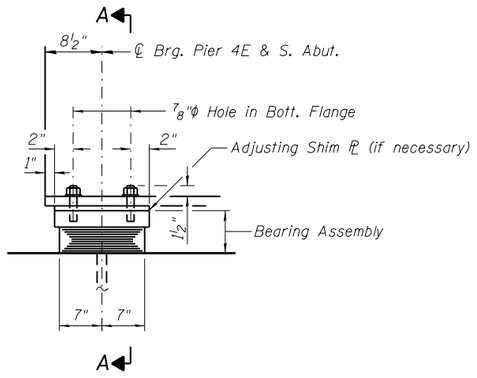
AECOM

USER NAME = vasudevana	DESIGNED - SD	REVISED	
	CHECKED - CLS	REVISED	
PLOT SCALE = N.T.S.	DRAWN - SD	REVISED	
PLOT DATE = 8/27/2018	CHECKED - CLS	REVISED	

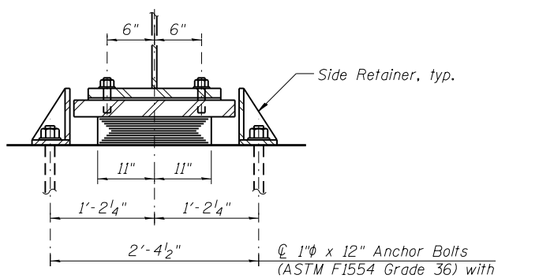
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ELASTOMERIC BEARING DETAILS - 2
STRUCTURE NO. 016-1715
SHEET NO. S3-94 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	836
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			



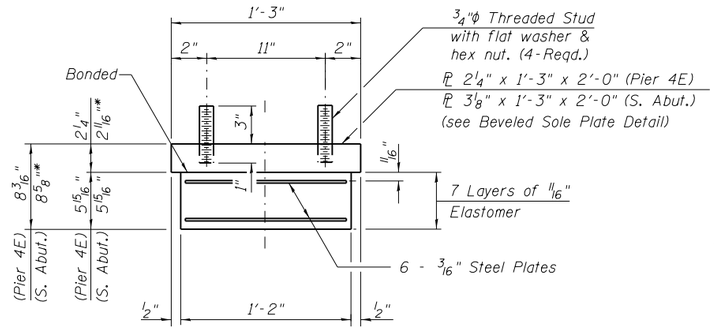
ELEVATION AT PIER 4E & S. ABUT.



SECTION A-A

TYPE I ELASTOMERIC EXP. BRG.

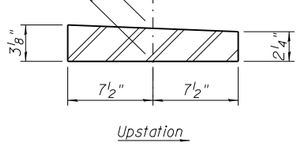
(Pier 4E & S. Abut.)



BEARING ASSEMBLY

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

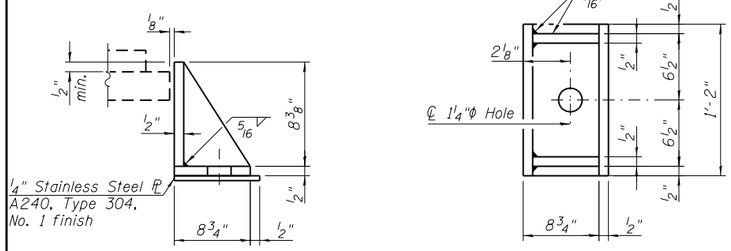
*Thickness @ ℄ Brg.



Upstation

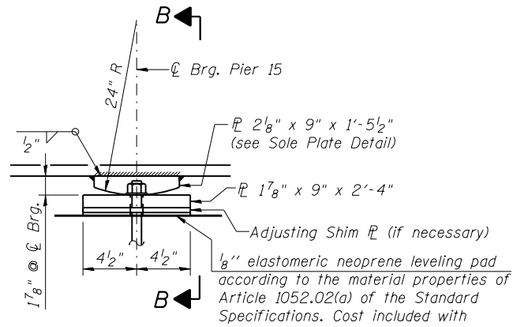
BEVELED SOLE PLATE DETAIL

(S. Abut.)

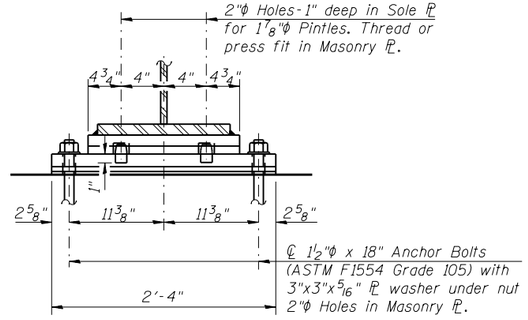


SIDE RETAINER

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



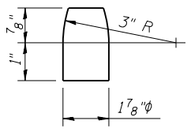
ELEVATION AT PIER 15



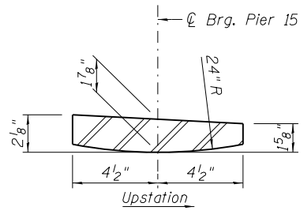
SECTION B-B

FIXED BEARING

(Pier 15)
(6 Req'd.)



PINTLE



SOLE PLATE DETAIL

NOTES:

1. 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.
2. Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.
3. Anchor bolts for side retainers may be cast in place or installed in holes drilled before or after members are in place.
4. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
5. Side retainers and other steel members required for the elastomeric bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I.
6. Fixed Bearing included in "Furnishing and Erecting Structural Steel."
7. Two ⅛ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
8. All bearing plates, side retainers, anchor bolts, nuts, washers and pintles shall be galvanized according to AASHTO M111 or M232 as applicable.
9. The structural steel for fixed bearing (including pintles) and elastomeric Bearing Assembly shall conform to the requirements of AASHTO M270 Grade 50.
10. Anchor bolts and side retainers at all supports shall be installed as each member is erected unless an equivalent temporary means of lateral restraint is used.

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly, Type I	Each	11
Anchor Bolts, 1"	Each	22
Anchor Bolts, 1½"	Each	12

0161715-60X93-S093a-BearingDet-3.dgn

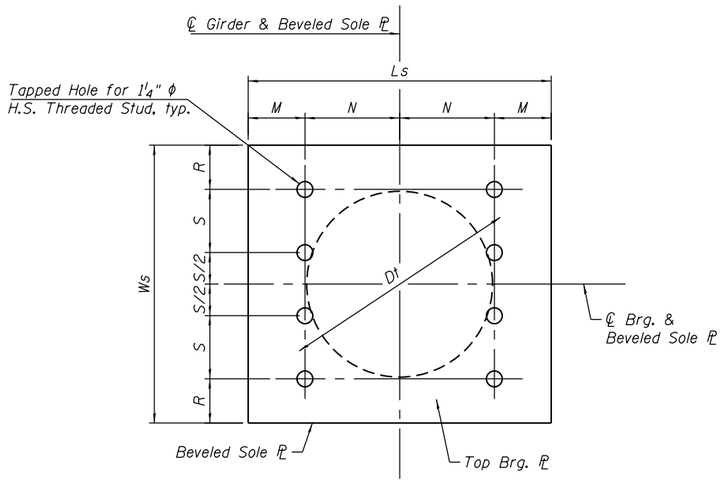
AECOM

USER NAME = vasudevana	DESIGNED - SD	REVISED
	CHECKED - CLS	REVISED
PLOT SCALE = N.T.S.	DRAWN - SD	REVISED
PLOT DATE = 8/23/2018	CHECKED - CLS	REVISED

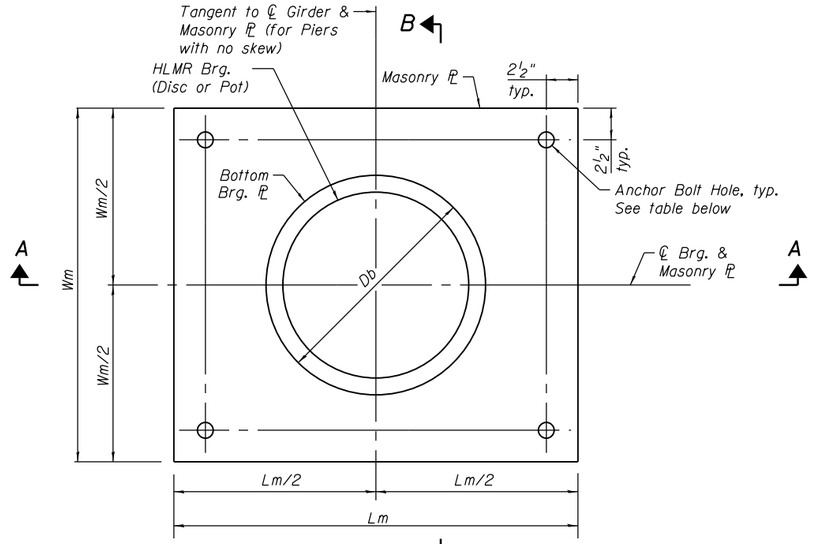
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ELASTOMERIC BEARING DETAILS – 3
STRUCTURE NO. 016–1715
SHEET NO. S3-95 OF S3-172

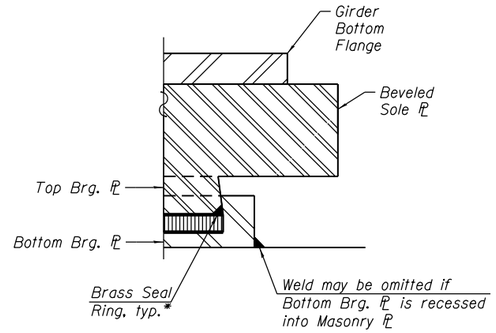
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	837
		CONTRACT NO. 60X93		
ILLINOIS	FED. AID PROJECT			



BEVELED SOLE ℄ & TOP BEARING ℄

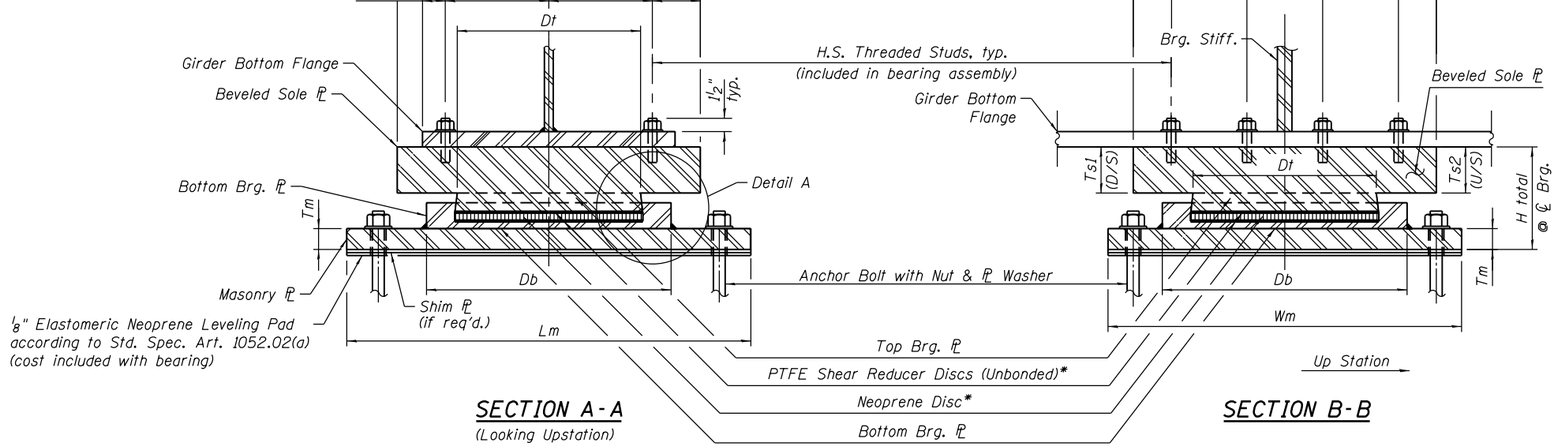


MASONRY ℄, BOTTOM BEARING ℄, & HLMR BEARING (DISC OR POT)



DETAIL A

*Components applicable to Pot Bearings only.



SECTION A-A
(Looking Upstation)

SECTION B-B

*Components applicable to Pot Bearings only.

ANCHOR BOLT DETAILS

Bolt Dia. x Length	Plate Washer
¾" x 12"	2"x2"x5/16"
1" x 12"	2¼"x2¼"x5/16"

BASE PLATE HOLE TABLE

Anchor Bolt ϕ	Max. Hole ϕ
¾"	1¼"
1"	1½"

NOTES:

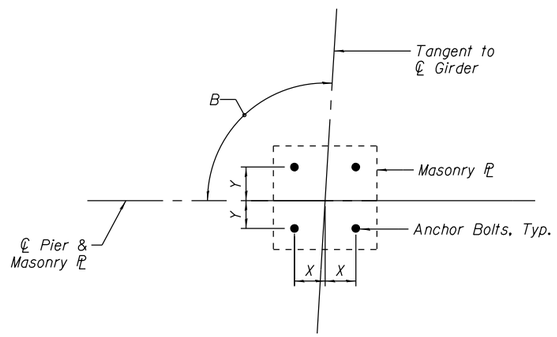
1. The Structural Steel for the top & bottom bearing plates shall be AASHTO M270 Grade 50.
2. See sheet S3-97 Fixed Expansion Bearing Dimensions and Anchor Bolt Details.
3. Top & bottom plates, threaded studs, washers & shim plates are included in the cost of the Bearings.
4. Anchor bolts for bearings shall be placed in holes drilled in the concrete through holes in the bottom bearing plate after members are in place.
5. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
6. Two ⅛ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
7. Work this sheet with sheet S3-97
8. All (embedded and separate) bearing plates, anchor bolts, nuts, washers and pintles shall be galvanized according to AASHTO M111 or M232 as applicable.
9. If base cylinder is recessed into the bottom bearing plate, the thickness of the bottom plate shall be Tm plus the depth of the recess.
10. HLMR Bearing dimensions shown are for a Pot Bearing. Disc type HLMR bearing dimensions will vary.

FIXED BEARING DIMENSIONS TABLE

Brg. Location	Vertical Design Load (kips)	Lateral Design Load (kips)	Masonry Plate			Sole Plate				Cylinder		H Total	M	N	R	S	Anchor Bolt Dia.	Anchor Bolt Specification Grade
			Tm	Lm	Wm	Ts1	Ts2	Ls	Ws	Db	Dt							
Unit 2, Pier 5	300	46	1 3/8"	2'- 6"	2'- 6"	1 5/8"	1 7/8"	1'- 8"	1'- 8"	1'- 1 1/2"	11 1/2"	7 5/8"	4 1/2"	5 1/2"	2 1/2"	5"	0 3/4"	F1554, Grade 55
Unit 2, Pier 6	350	81	1 3/8"	2'- 6"	2'- 6"	1 3/4"	2"	1'- 8"	1'- 8"	1'- 2 3/4"	1'- 0 3/4"	8"	4 1/2"	5 1/2"	2 1/2"	5"	1"	F1554, Grade 55
Unit 3, Pier 9	300	82	1 3/8"	2'- 6"	2'- 6"	1 7/8"	1 1/2"	1'- 8"	1'- 8"	1'- 1 1/2"	11 1/2"	7 9/16"	4 1/2"	5 1/2"	2 1/2"	5"	1"	F1554, Grade 55

BILL OF MATERIAL

Item	Unit	Total
High Load Multi-Rotation Bearings, Fixed 300K	Each	10
High Load Multi-Rotation Bearings, Fixed 350K	Each	5
Anchor Bolts, $\frac{3}{4}$"	Each	20
Anchor Bolts, 1"	Each	40

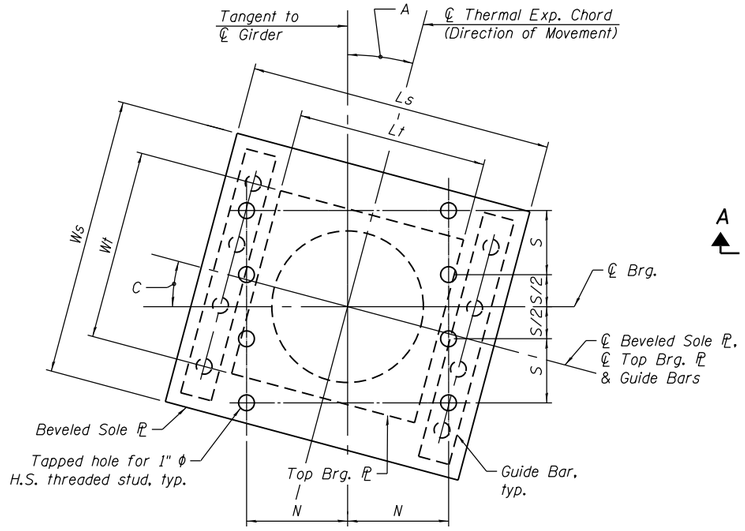


ANCHOR BOLT LOCATION DETAIL.

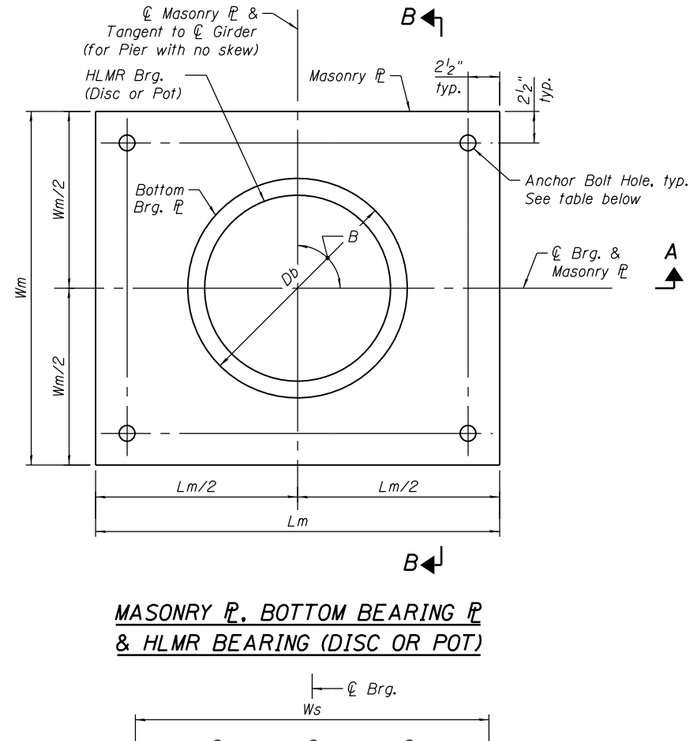
Location	X	Y	B
Unit 2, Pier 5	1'- 0 1/2"	1'- 0 1/2"	109°57'44"
Unit 2, Pier 6	1'- 0 1/2"	1'- 0 1/2"	90°0'0"
Unit 3, Pier 9	1'- 0 1/2"	1'- 0 1/2"	90°0'0"

NOTES:

1. All HLMR bearings shall be designed to carry minimum Factored Ultimate (Strength) Design otation of 0.02 radians. See Special Provision.
2. 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 usedin lieu of ASTM F1554.
3. Work this sheet with sheet S3-96 .
4. Orientation and layout of angle "B" varies at each Pier location. See Sheets S3-90 thru. S3-92 for bearing layout & orientation.



BEVELED SOLE Pl., TOP BEARING Pl. & GUIDE BARS



MASONRY Pl., BOTTOM BEARING Pl. & HLMR BEARING (DISC OR POT)

SECTION A-A
(Looking Upstation)

SECTION B-B
Upstation

* Components applicable to Pot Bearings only.

ANCHOR BOLT DETAILS

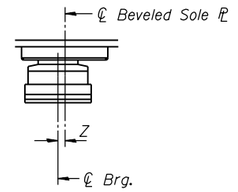
Bolt Dia. x Length	Plate Washer
¾" x 12"	2"x2"x5/16"

BASE PLATE HOLE TABLE

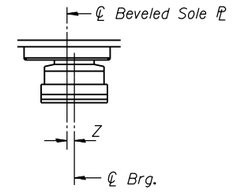
Anchor Bolt ϕ	Max. Hole ϕ
¾"	1¼"

NOTES:

1. The Structural Steel for the top & bottom bearing plates shall be AASHTO M270 Grade 50.
2. See sheet S3-99 Guided Expansion Bearing Dimensions and Anchor Bolt Details.
3. Top & bottom plates, threaded studs, washers & shim plates are included in the cost of the Bearings.
4. 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.
5. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
6. 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.
7. Two 1/8" adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
8. Work this sheet with sheet S3-99
9. All (embedded and separate) bearing plates, anchor bolts, nuts, washers and pintles shall be galvanized according to AASHTO M111 or M232 as applicable.
10. If base cylinder is recessed into the bottom bearing plate, the thickness of the bottom plate shall be Tm plus the depth of the recess.
11. HLMR Bearing dimensions shown are for a Pot Bearing. Disc type HLMR bearing dimensions will vary.
12. Orientation and layout of angle "A", "B" and "C" varies at each Pier location. See sheet S3-90 & S3-92 for bearing layout and orientation.



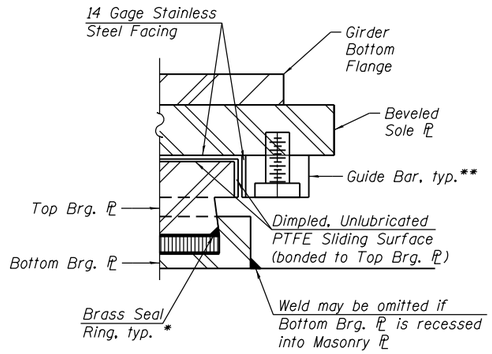
BELOW 50° F.
(Move bott. brg. away from fixed brg.)



ABOVE 50° F.
(Move bott. brg. toward fixed brg.)

SETTING ANCHOR BOLTS AT EXP. BRG.

$Z = \frac{1}{8}''$ per each 100° of expansion for every 15° temp. change from the normal temp. of 50° F.



DETAIL A

* Components applicable to Pot Bearings only.

** As alternates to the bolted connection shown, the Guide Bars may be connected to the Beveled Sole Pl. by groove welds or the Guide Bars and Beveled Sole Pl. may be fabricated as a single piece.

0161715-60X93-S096-ExpPotBrg-1.dgn

AECOM

USER NAME = floresg	DESIGNED - SD	REVISED	
	CHECKED - CLS	REVISED	
PLOT SCALE = N.T.S.	DRAWN - SD	REVISED	
PLOT DATE = 7/26/2018	CHECKED - CLS	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXPANSION HLMR BEARING DETAILS – I
STRUCTURE NO. 016–1715
SHEET NO. S3-98 OF S3-172

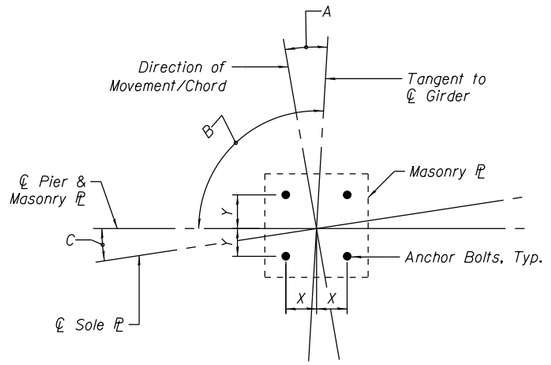
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	840
		CONTRACT NO. 60X93		
ILLINOIS FED. AID PROJECT				

GUIDED EXPANSION BEARING DIMENSIONS TABLE

Brg. Location	Vertical Design Load (kips)	Lateral Design Load (kips)	Total Required Movement (inches)	Masonry Plate			Sole Plate						H Total in.	Db in.	Wt or Lt in.	Anchor Bolt Dia. in.	Anchor Bolt Specification Grade
				Tm in.	Lm in.	Wm in.	Ts1 in.	Ts2 in.	Ls in.	Ws in.	N in.	S in.					
Unit 1, Pier C2	150	12	2 1/2"	1 1/4"	2'- 6"	2'- 2"	1 3/4"	1 1/2"	1'- 8"	1'- 8"	6"	5"	6 3/8"	9"	8"	0 3/4"	F1554, Grade 36
Unit 1, Pier 1	300	27	1 1/2"	1 1/2"	2'- 6"	2'- 2"	1 1/2"	1 3/4"	1'- 8"	1'- 8"	6"	5"	7 3/4"	1'- 0 1/2"	11 1/2"	0 3/4"	F1554, Grade 36
Unit 2, Pier 4	150	11	2"	1 1/4"	2'- 6"	2'- 2"	1 1/2"	1 3/4"	1'- 8"	1'- 8"	6"	5"	6 3/8"	9"	8"	0 3/4"	F1554, Grade 36
Unit 2, Pier 7	300	36	2 1/4"	1 3/4"	2'- 8"	2'- 2"	2 1/4"	1 5/8"	1'- 10"	1'- 8"	7"	5"	8 5/16"	1'- 0 1/2"	11 1/2"	0 3/4"	F1554, Grade 36
Unit 2, Pier 8	150	11	3 1/2"	1 3/8"	2'- 6"	2'- 2"	2 3/4"	1 1/2"	1'- 8"	1'- 8"	6"	5"	7"	9"	8"	0 3/4"	F1554, Grade 36
Unit 3, Pier 8	200	14	1 1/2"	1 1/4"	2'- 6"	2'- 2"	2 3/4"	1 1/2"	1'- 8"	1'- 8"	6"	5"	7 3/8"	10 1/4"	9 1/4"	0 3/4"	F1554, Grade 36
Unit 3, Pier 10	250	25	1"	1 1/2"	2'- 6"	2'- 2"	1 1/2"	1 7/8"	1'- 8"	1'- 8"	6"	5"	7 5/16"	11 1/2"	10 1/2"	0 3/4"	F1554, Grade 36
Unit 3, Pier 11	150	13	2 1/4"	1 3/8"	2'- 6"	2'- 2"	1 1/2"	2 3/8"	1'- 8"	1'- 8"	6"	5"	6 13/16"	9"	8"	0 3/4"	F1554, Grade 36

BILL OF MATERIAL

Item	Unit	Total
High Load Multi-Rotational Bearings, Guided Expansion, 150k	Each	20
High Load Multi-Rotational Bearings, Guided Expansion, 200k	Each	5
High Load Multi-Rotational Bearings, Guided Expansion, 250k	Each	5
High Load Multi-Rotational Bearings, Guided Expansion, 300k	Each	10
Anchor Bolts $\frac{3}{4}$"	Each	160



ANCHOR BOLT LOCATION DETAIL.

Location	X	Y	A	B	C
Unit 1, Pier C2	1'- 0 1/2"	10 1/2"	7°54'56"	73°10'46"	24°44'10"
Unit 1, Pier 1	1'- 0 1/2"	10 1/2"	3°16'59"	90°0'0"	3°16'59"
Unit 2, Pier 4	1'- 0 1/2"	10 1/2"	14°1'50"	90°14'58"	14°16'49"
Unit 2, Pier 7	1'- 1 1/2"	10 1/2"	16°42'28"	90°0'0"	16°42'28"
Unit 2, Pier 8	1'- 0 1/2"	10 1/2"	25°52'27"	90°14'58"	26°7'26"
Unit 3, Pier 8	1'- 0 1/2"	10 1/2"	9°27'25"	90°14'58"	9°42'23"
Unit 3, Pier 10	1'- 0 1/2"	10 1/2"	6°35'40"	95°5'7"	11°40'47"
Unit 3, Pier 11	1'- 0 1/2"	10 1/2"	15°12'53"	77°23'59"	2°36'52"

NOTES:

1. All HLMR bearings shall be designed to carry minimum Factored Ultimate (Strength) Design otation of 0.02 radians. See Special Provision.
2. 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 usedin lieu of ASTM F1554.
3. Work this sheet with sheet S3-98.
4. Orientation and layout of angle "A", "B" and "C" varies at each Pier location. See Sheets S3-90 thru. S3-92 for bearing layout & orientation.

0161715-60X93-S097-ExpPotBrg-11.dgn

AECOM

USER NAME = floresg	DESIGNED - SD	REVISED	
	CHECKED - CLS	REVISED	
PLOT SCALE = N.T.S.	DRAWN - SD	REVISED	
PLOT DATE = 7/26/2018	CHECKED - CLS	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

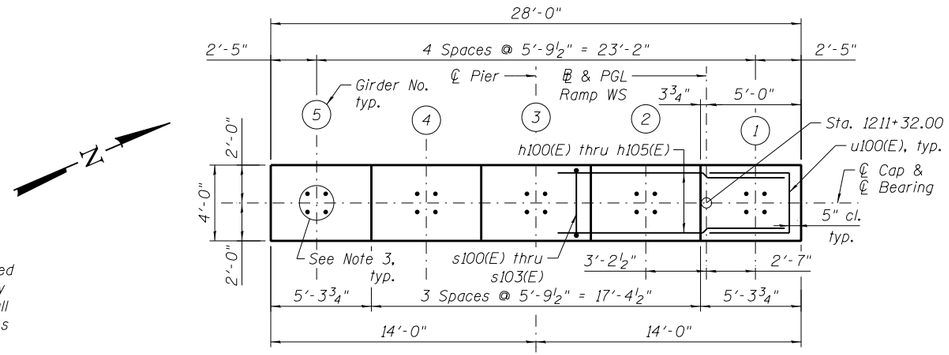
EXPANSION HLMR BEARING DETAILS – II
STRUCTURE NO. 016–1715
SHEET NO. S3-99 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	841
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

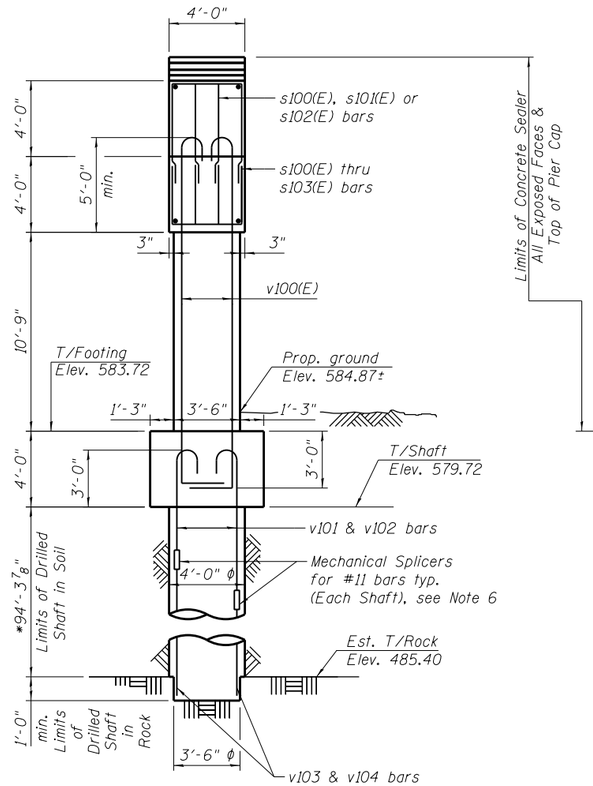
NOTES:

1. Pour steps monolithically with cap.
2. ℄ of Pier is radial to ℄ Ramp WS at Sta. 1211+32.00.
3. For Anchor Bolts Details, see sheets S3-93 thruS3-99 .
4. For Architectural Details, see sheets S3-137 thru S3-139 .
5. See sheet S3-101 for Sections and Details.
6. For Mechanical Splicer Details and Quantities see sheet S3-140 .

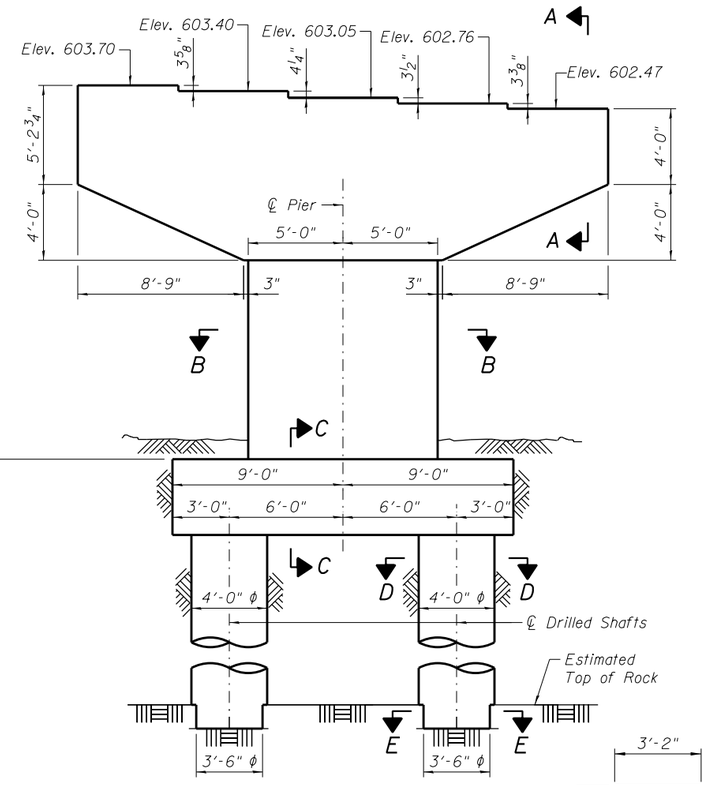
* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.



TOP PLAN

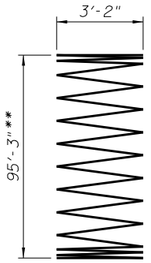


END VIEW

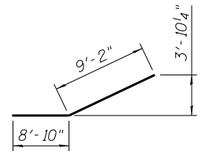


ELEVATION

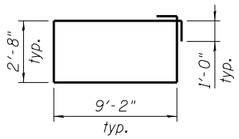
(Looking Upstation)



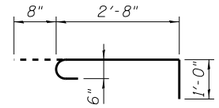
BAR sp100



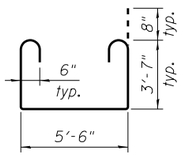
BAR p102(E)



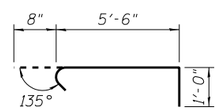
BAR s104(E)



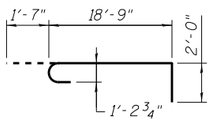
BAR s105(E)



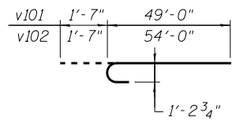
BAR t100(E)



BAR t101(E)



BAR v100(E)



BARS v101 & v102

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h100(E)	14	#7	27'-2"	
h101(E)	2	#7	13'-2"	
h102(E)	2	#7	16'-1"	
h103(E)	2	#7	18'-11"	
h104(E)	2	#7	21'-10"	
h105(E)	2	#7	24'-9"	
h106(E)	12	#5	5'-6"	
h107(E)	8	#5	4'-9"	
h108(E)	12	#6	17'-6"	
p100(E)	8	#11	31'-2"	
p101(E)	8	#11	26'-6"	
p102(E)	16	#8	18'-0"	
s100(E)	52	#5	11'-3"	
s101(E)	64	#5	14'-1"	
s102(E)	20	#5	9'-9"	
s103(E)	22	#5	15'-2"	
s104(E)	11	#6	25'-8"	
s105(E)	44	#6	4'-4"	
sp100	2	#6	95'-3"	
t100(E)	25	#6	14'-0"	
t101(E)	25	#6	7'-2"	
u100(E)	14	#6	12'-0"	
u101(E)	30	#5	4'-10"	
u102(E)	12	#6	14'-4"	
v100(E)	30	#11	22'-4"	
v101	16	#11	50'-7"	
v102	16	#11	55'-7"	
v103	16	#11	49'-0"	
v104	16	#11	44'-0"	
w100(E)	8	#11	21'-6"	
w101(E)	12	#11	22'-6"	

Concrete Structures	Cu. Yd.	60.4
Reinforcement Bars, Epoxy Coated	Pound	14,990
Reinforcement Bars	Pound	22,720
Drilled Shaft in Soil	Cu. Yd.	87.8
Drilled Shaft in Rock	Cu. Yd.	0.8
Structure Excavation	Cu. Yd.	66
Concrete Sealer	Sq. ft.	941
Crosshole Sonic Logging Testing	Each	1
Crosshole Sonic Logging Access Ducts	Foot	191

** Length is height of spiral.

BENT BAR A & B DIMENSIONS

Bar	A	B
p100(E)	27'-2"	2'-0"
s100(E)	2'-1"	4'-7"
s101(E)	2'-1"	6'-0"
s102(E)	2'-1"	3'-10"
s103(E)	3'-2"	6'-0"
u100(E)	3'-2"	4'-5"
u101(E)	3'-2"	10"
u102(E)	5'-6"	4'-5"
w100(E)	17'-6"	2'-0"
w101(E)	17'-6"	2'-6"

MIN. LAP LENGTH

#5 bars: 3'-2"
#8 bars: 7'-2"

0161715-60X93-5098-Pier-1

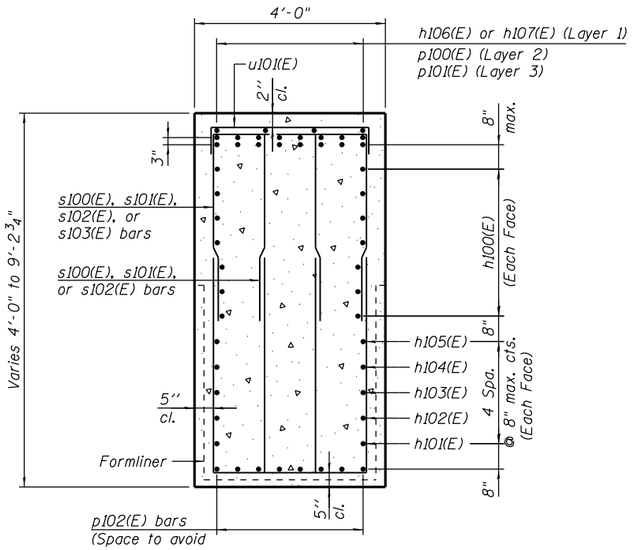
AECOM

USER NAME = vasudevana	DESIGNED - AV	REVISED	
	CHECKED - DD	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 9/19/2018	CHECKED - DD	REVISED	

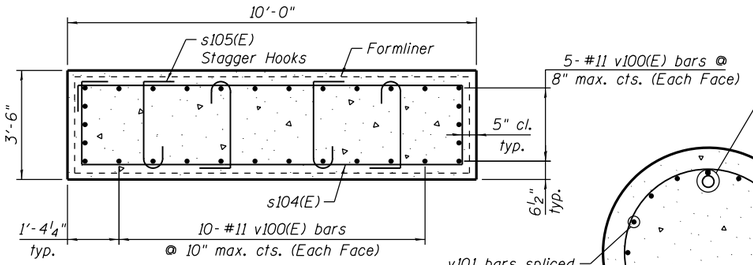
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 1
STRUCTURE NO. 016-1715
SHEET NO. S3-100 OF S3-172

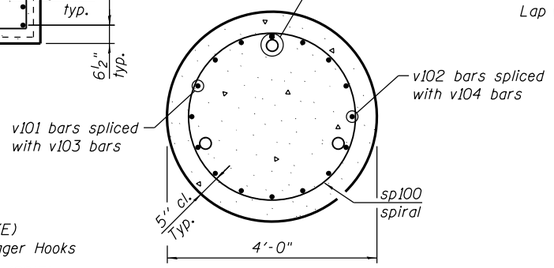
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	842
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			



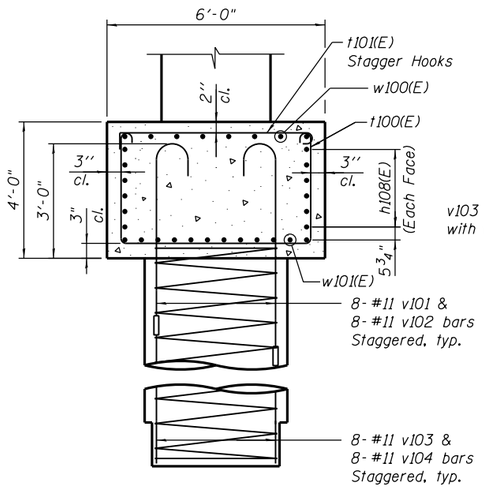
SECTION A-A



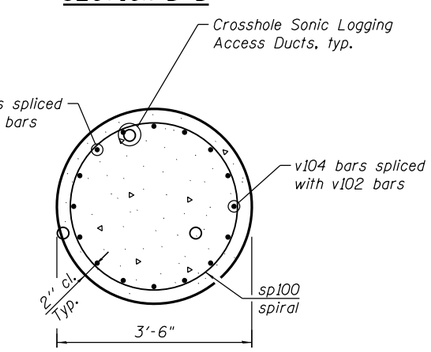
SECTION B-B



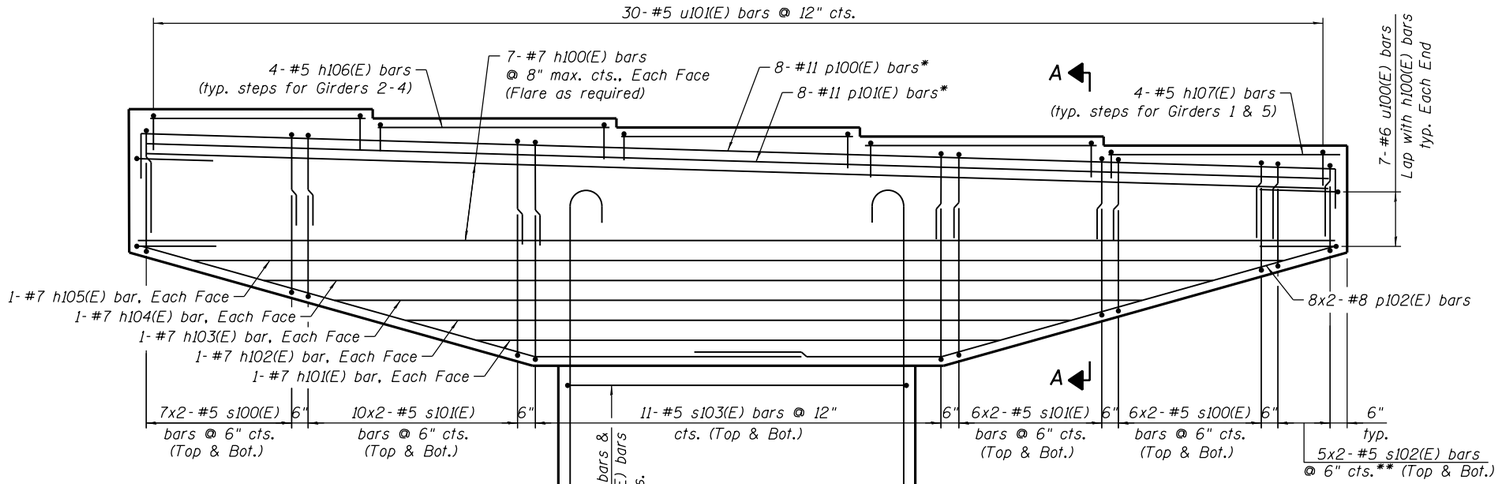
SECTION D-D



SECTION C-C



SECTION E-E



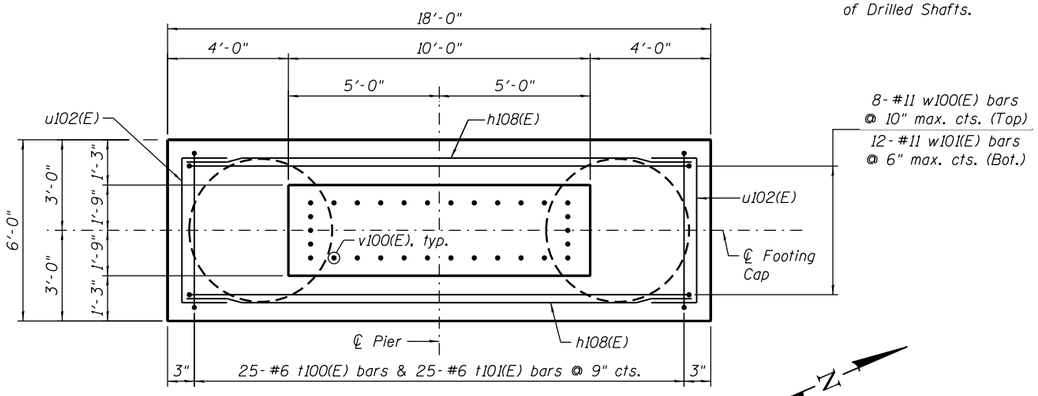
* Slope with bearing steps.
** Field cut as required & maintain 3'-2" min. lap

ELEVATION

(Looking Upstation)

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. sp100 spiral
   1) Provide 1½ 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 1½ 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 Testing of Drilled Shafts.



FOOTING PLAN

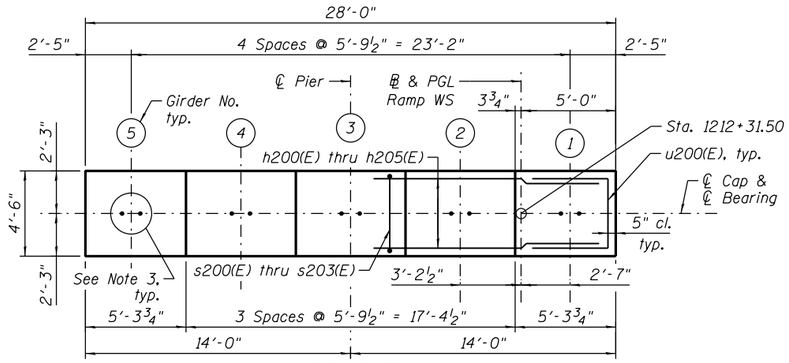
AECOM	USER NAME = floresg	DESIGNED - AV	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PIER 1 DETAILS STRUCTURE NO. 016-1715	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED - DD	REVISED			90/94/290	2014-013R&B-R	COOK	1972	843
	PLOT SCALE = N.T.S.	DRAWN - AV	REVISED						CONTRACT NO. 60X93	
	PLOT DATE = 7/26/2018	CHECKED - DD	REVISED		SHEET NO. S3-101 OF S3-172			ILLINOIS	FED. AID PROJECT	

0161715-60X93-S099-Pier-1.dgn

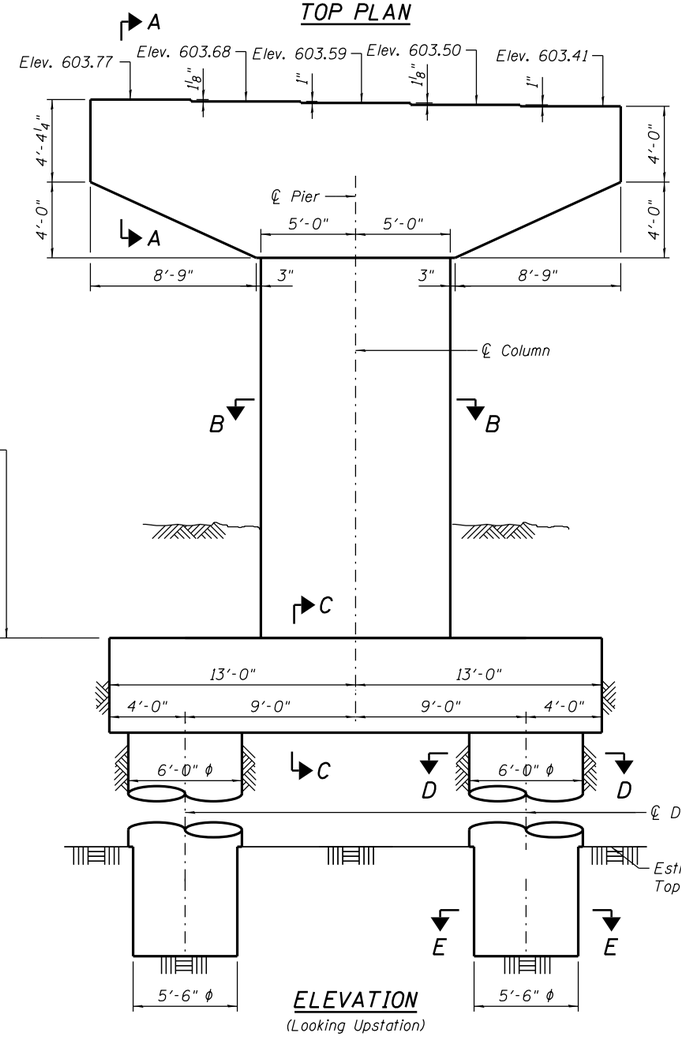
NOTES:

1. Pour steps monolithically with cap.
2. ℄ of Pier is radial to ℄ Ramp WS at Sta. 1212+31.50.
3. For Anchor Bolts Details, see sheets S3-93 thru S3-99 .
4. For Architectural Details, see sheets S3-137 thru S3-139 .
5. See sheet S3-103 for Sections and Details.
6. For Mechanical Splicer Details and Quantities, see sheet S3-140 .

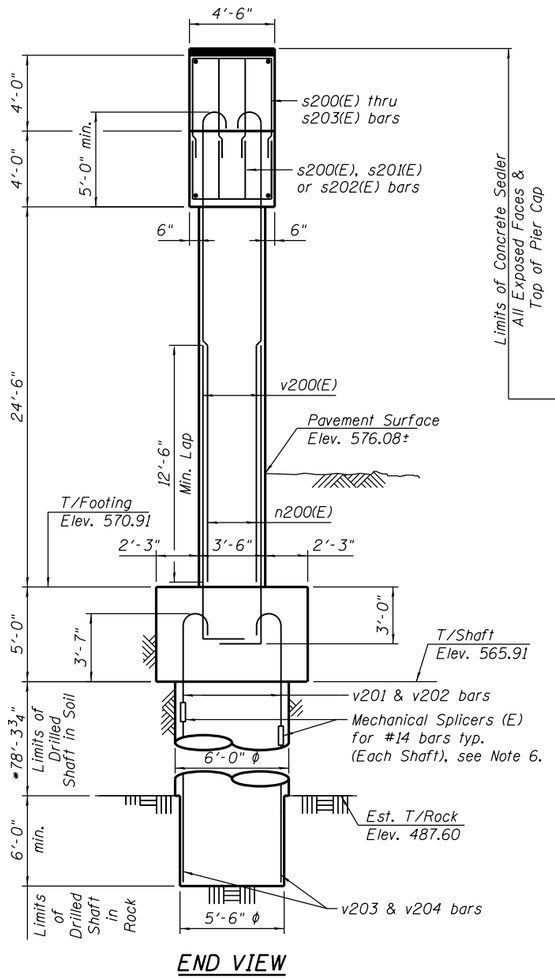
* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.



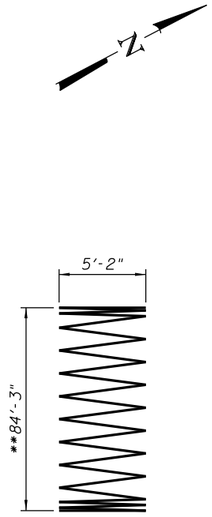
TOP PLAN



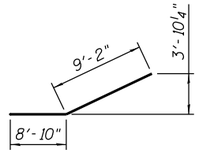
ELEVATION
(Looking Upstation)



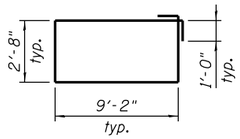
END VIEW



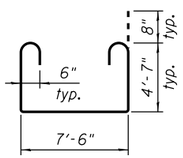
BAR sp200



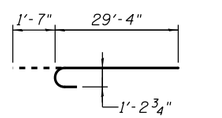
BAR p202(E)



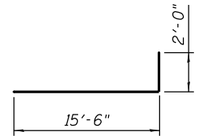
BAR s204(E)



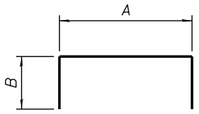
BAR t200(E)



BAR v200(E)

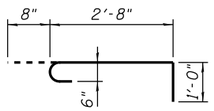


BAR n200(E)

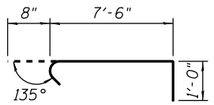


BENT BAR
A & B DIMENSIONS

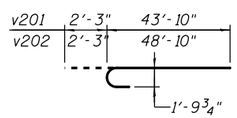
Bar	A	B
p200(E)	27'-2"	2'-0"
s200(E)	2'-6"	3'-10"
s201(E)	2'-6"	4'-6"
s202(E)	2'-6"	5'-6"
s203(E)	3'-8"	6'-0"
u200(E)	3'-8"	4'-5"
u201(E)	3'-8"	10"
u202(E)	7'-6"	4'-5"
w200(E)	25'-6"	2'-0"
w201(E)	25'-6"	3'-6"



BAR s205(E)



BAR t201(E)



BARS v201 & v202

BILL OF MATERIAL

	Bar	No.	Size	Length	Shape
	h200(E)	10	#7	27'-2"	
	h201(E)	2	#7	13'-2"	
	h202(E)	2	#7	16'-1"	
	h203(E)	2	#7	18'-11"	
	h204(E)	2	#7	21'-10"	
	h205(E)	2	#7	24'-9"	
	h206(E)	4	#5	4'-9"	
	h207(E)	16	#7	25'-6"	
	n200(E)	62	#11	17'-6"	
	p200(E)	9	#11	31'-2"	
	p201(E)	9	#11	26'-6"	
	p202(E)	18	#8	18'-0"	
	s200(E)	32	#5	10'-2"	
	s201(E)	40	#5	11'-6"	
	s202(E)	64	#5	13'-6"	
	s203(E)	22	#5	15'-8"	
	s204(E)	48	#6	25'-8"	
	s205(E)	192	#6	4'-4"	
**	sp200	2	#6	84'-3"	
	t200(E)	52	#6	18'-0"	
	t201(E)	52	#6	9'-2"	
	u200(E)	10	#6	12'-6"	
	u201(E)	6	#5	5'-4"	
	u202(E)	16	#6	16'-4"	
	v200(E)	62	#11	30'-11"	
	v201	26	#14	46'-1"	
	v202	26	#14	51'-1"	
	v203	26	#14	43'-9"	
	v204	26	#14	38'-9"	
	w200(E)	12	#11	29'-6"	
	w201(E)	16	#11	32'-6"	
	w202(E)	16	#11	24'-10"	

Concrete Structures	Cu. Yd.	102.6
Reinforcement Bars, Epoxy Coated	Pound	36,040
Reinforcement Bars	Pound	44,100
Drilled Shaft in Soil	Cu. Yd.	164.1
Drilled Shaft in Rock	Cu. Yd.	10.6
Structure Excavation	Cu. Yd.	252.0
Concrete Sealer	Sq. ft.	1,309
Crosshole Sonic Logging Testing	Each	1
Crosshole Sonic Logging Access Ducts	Foot	169

** Length is height of spiral.

MIN. LAP LENGTH

#5 bars: 3'-2"
#8 bars: 7'-2"

0161715-60X93-S100-Pier-2.dgn

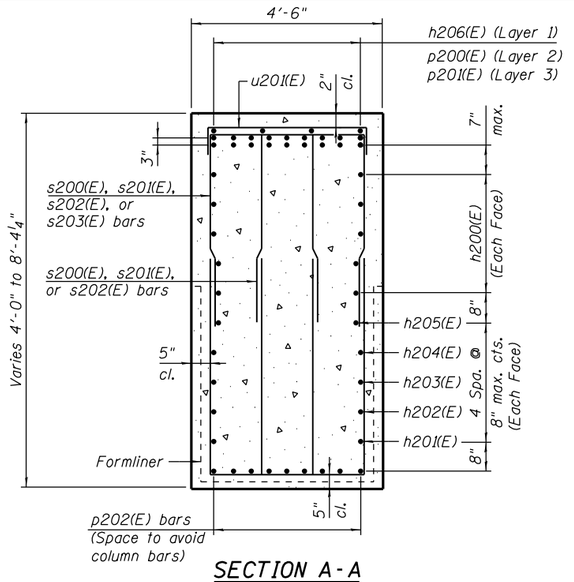
AECOM

USER NAME = floresg	DESIGNED - AV	REVISED	
	CHECKED - DD	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 7/26/2018	CHECKED - DD	REVISED	

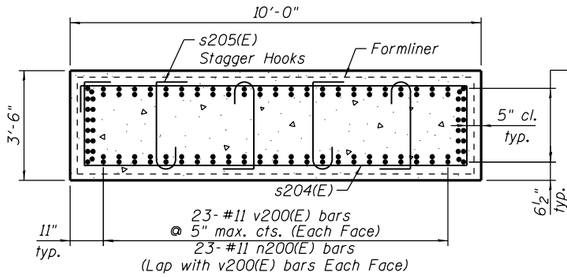
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 2
STRUCTURE NO. 016-1715
SHEET NO. S3-102 OF S3-172

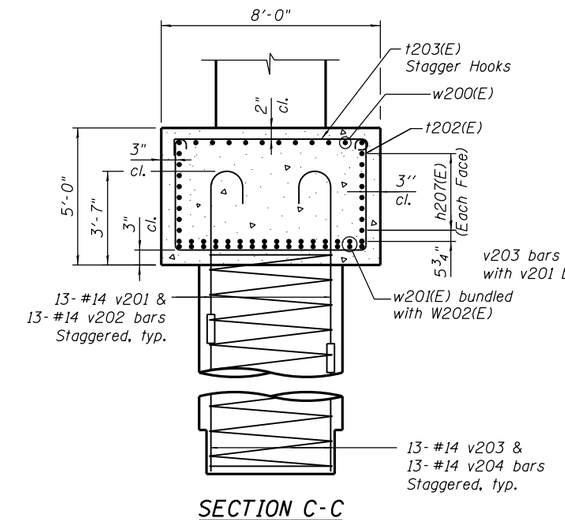
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	844
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			



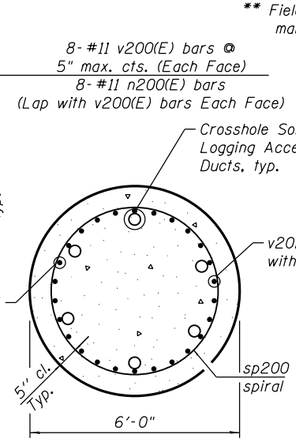
SECTION A-A



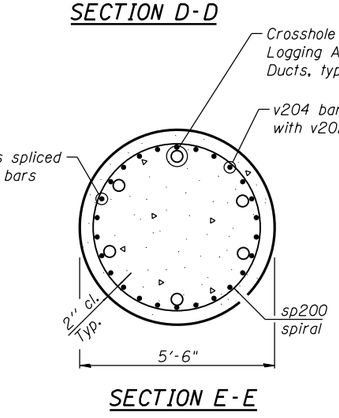
SECTION B-B



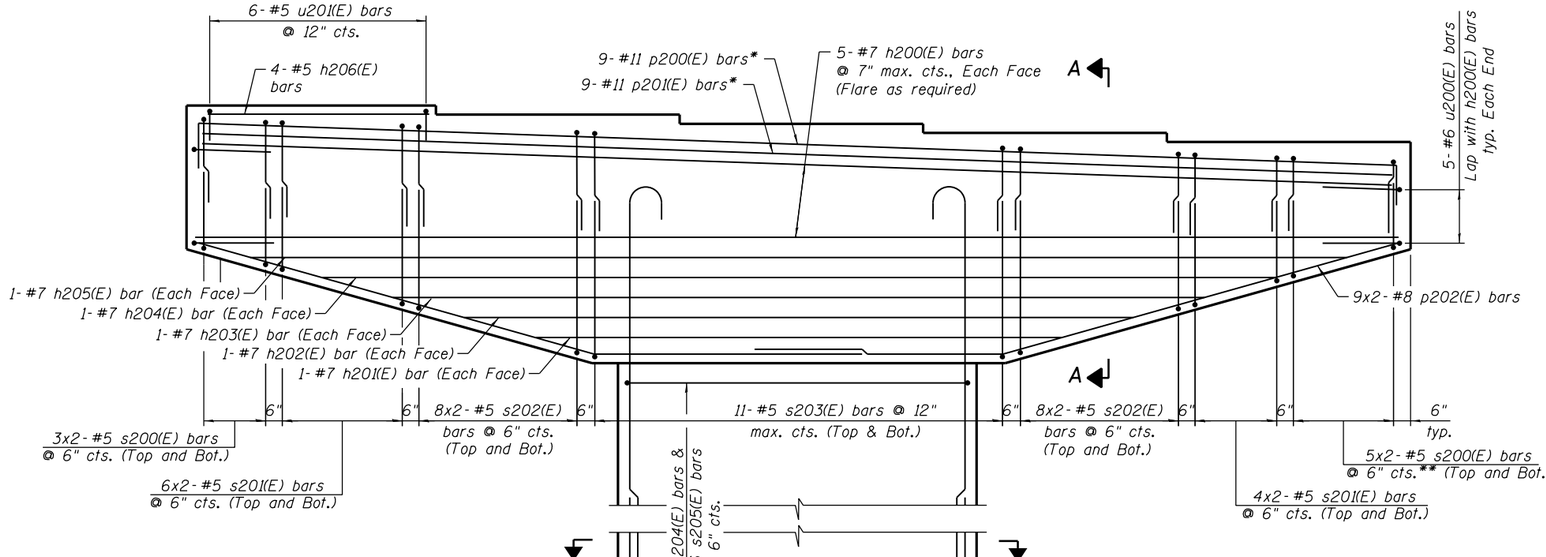
SECTION C-C



SECTION D-D



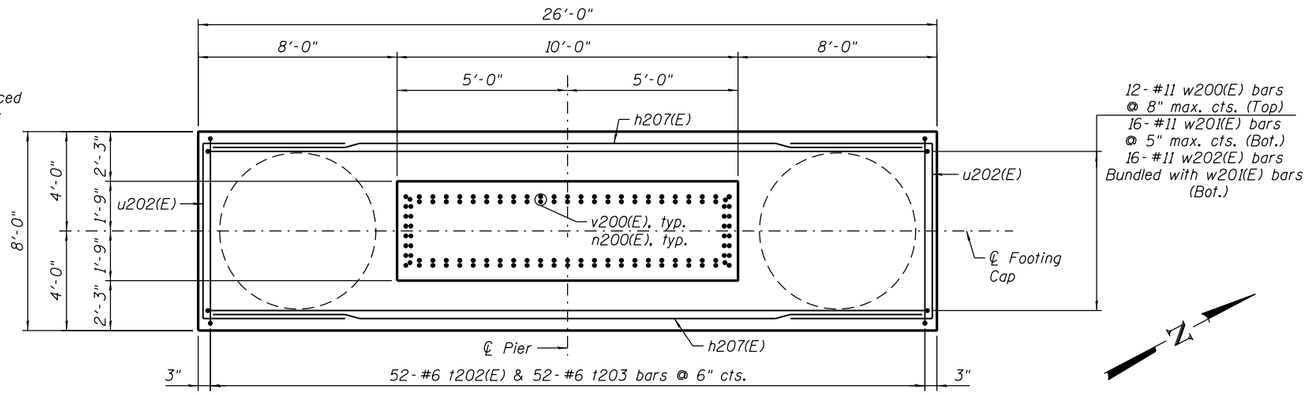
SECTION E-E



* Slope with bearing steps
** Field cut as required and maintain 3'-2" min. lap.

ELEVATION

(Looking Upstation)



FOOTING PLAN

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. sp200 spiral:
   1) Provide $1\frac{1}{2}$ 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 $1\frac{1}{2}$ extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.
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 Testing of Drilled Shafts.

0161715-60X93-S101-Pier-2.dgn

AECOM

USER NAME = floresg	DESIGNED - AV	REVISED
	CHECKED - DD	REVISED
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED
PLOT DATE = 7/26/2018	CHECKED - DD	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

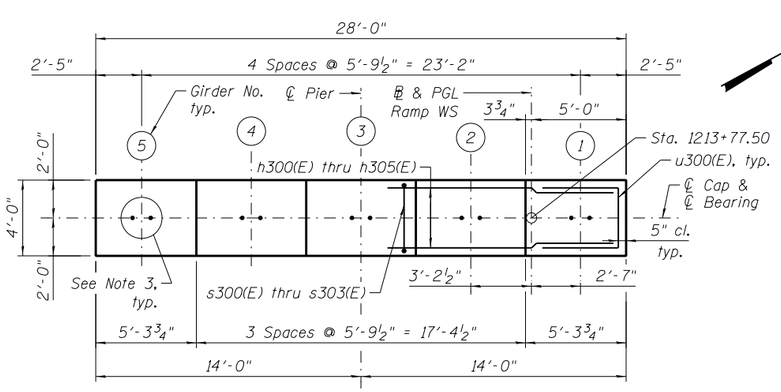
PIER 2 DETAILS
STRUCTURE NO. 016-1715
SHEET NO. S3-103 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	845
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

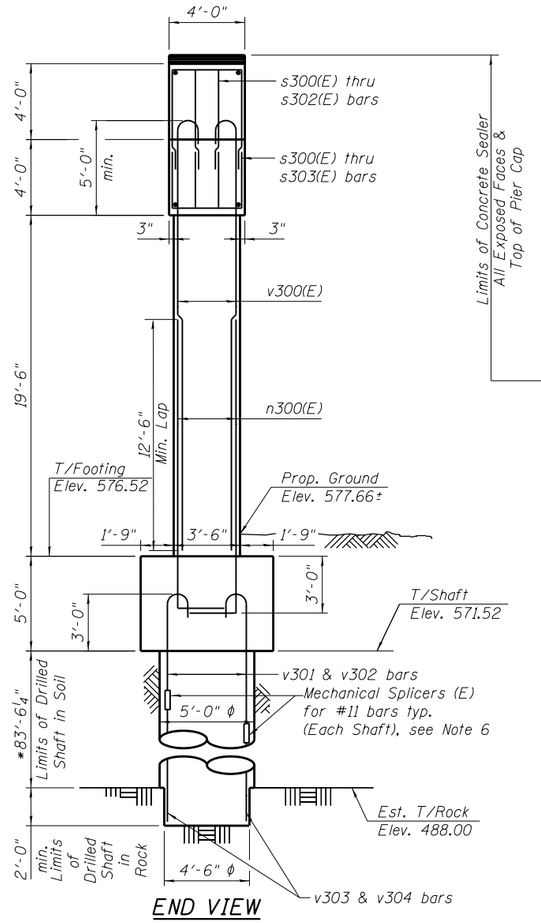
NOTES:

1. Pour steps monolithically with cap.
2. ℄ of Pier is radial to ℄ Ramp WS at Sta. 1213+77.50.
3. For Anchor Bolts Details, see sheets S3-93 thru S3-99 .
4. For Architectural Details, see sheets S3-137 thru S3-139 .
5. See sheet S3-105 for Sections and Details.
6. For Mechanical Splicer Details and Quantities, see sheet S3-140 .

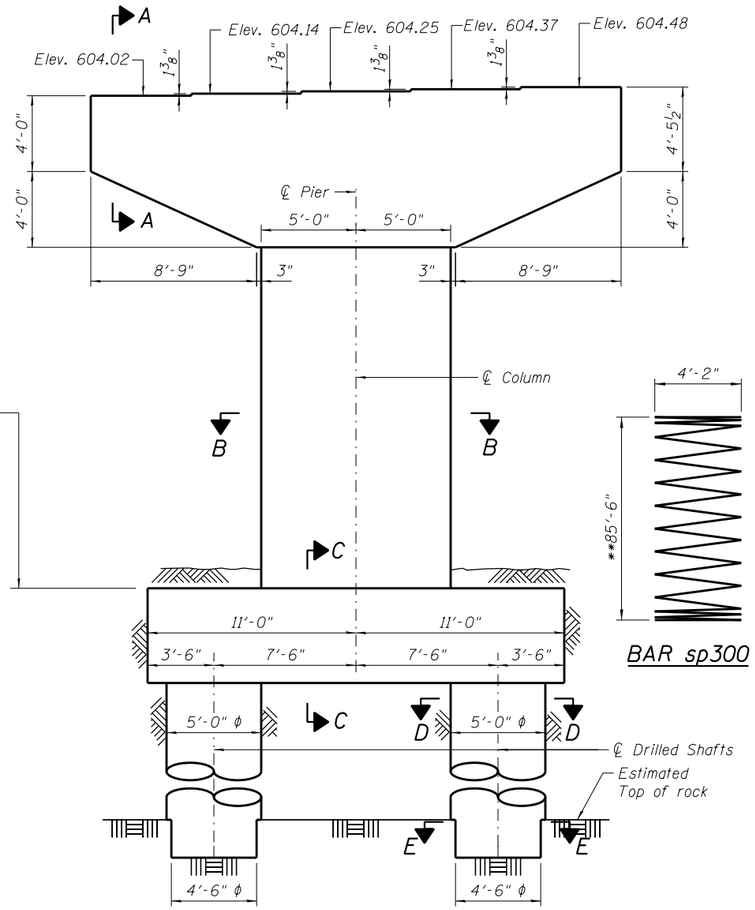
* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.



TOP PLAN

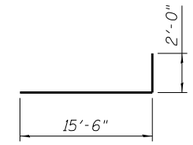


END VIEW

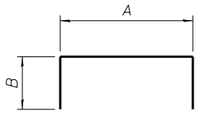


ELEVATION

(Looking Upstation)



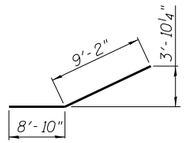
BAR n300(E)



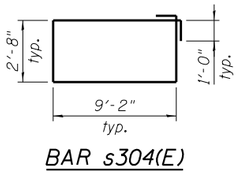
BENT BAR

A & B DIMENSIONS

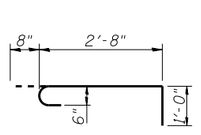
Bar	A	B
p300(E)	27'-2"	2'-0"
s300(E)	2'-1"	3'-10"
s301(E)	2'-1"	4'-5"
s302(E)	2'-1"	5'-6"
s303(E)	3'-2"	5'-6"
u300(E)	3'-2"	4'-5"
u301(E)	3'-2"	10"
u302(E)	6'-6"	4'-5"
w300(E)	21'-6"	2'-0"
w301(E)	21'-6"	3'-6"



BAR p302(E)

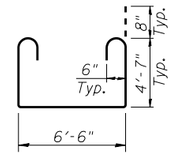


BAR s304(E)

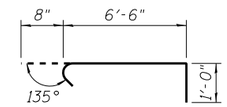


BAR s305(E)

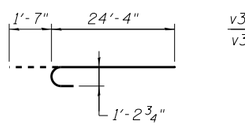
BAR sp300



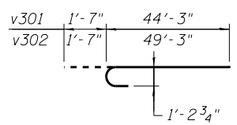
BAR t300(E)



BAR t301(E)



BAR v300(E)



BARS v301 & v302

BILL OF MATERIAL

	Bar	No.	Size	Length	Shape
	h300(E)	14	#7	27'-2"	
	h301(E)	2	#7	13'-2"	
	h302(E)	2	#7	16'-1"	
	h303(E)	2	#7	18'-11"	
	h304(E)	2	#7	21'-10"	
	h305(E)	2	#7	24'-9"	
	h306(E)	4	#5	4'-9"	
	h307(E)	4	#5	5'-6"	
	h308(E)	14	#7	21'-6"	
	n300(E)	30	#11	17'-6"	
	p300(E)	10	#11	31'-2"	
	p301(E)	10	#11	26'-6"	
	p302(E)	20	#8	18'-0"	
	s300(E)	36	#5	9'-9"	
	s301(E)	52	#5	10'-11"	
	s302(E)	76	#5	13'-1"	
	s303(E)	22	#5	14'-2"	
	s304(E)	19	#6	25'-8"	
	s305(E)	76	#6	4'-4"	
**	sp300	2	#6	85'-6"	
	t300(E)	34	#6	17'-0"	
	t301(E)	34	#6	8'-2"	
	u300(E)	14	#6	12'-0"	
	u301(E)	12	#5	4'-10"	
	u302(E)	14	#6	15'-4"	
	v300(E)	30	#11	25'-11"	
	v301	22	#11	45'-10"	
	v302	22	#11	50'-10"	
	v303	22	#11	44'-0"	
	v304	22	#11	39'-0"	
	w300(E)	12	#11	25'-6"	
	w301(E)	12	#11	28'-6"	
	w302(E)	12	#11	20'-10"	

Concrete Structures		Cu. Yd.	82.8
Reinforcement Bars, Epoxy Coated		Pound	23,010
Reinforcement Bars		Pound	27,850
Drilled Shaft in Soil		Cu. Yd.	121.5
Drilled Shaft in Rock		Cu. Yd.	2.4
Structure Excavation		Cu. Yd.	98.0
Concrete Sealer		Cu. Yd.	1150
Crosshole Sonic Logging Testing		Each	1
Crosshole Sonic Logging Access Ducts		Foot	172

** Length is height of spiral.

MIN. LAP LENGTH

#5 bars: 3'-2"
#8 bars: 7'-2"

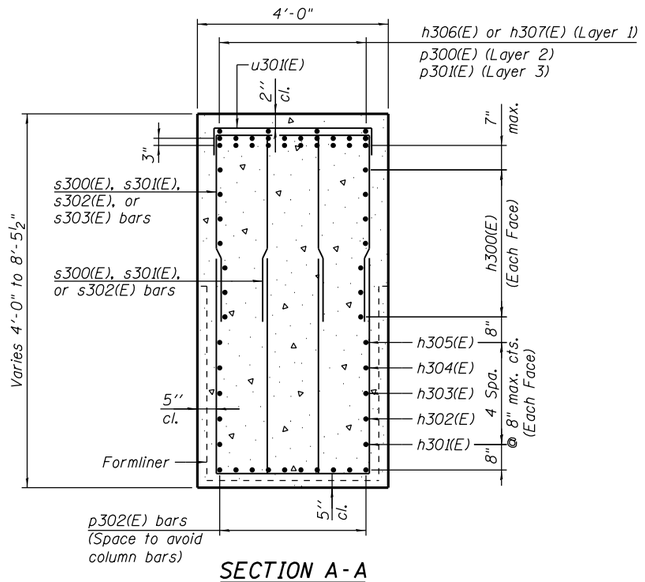
USER NAME = vasudevana	DESIGNED - AV	REVISED	
	CHECKED - DD	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 8/23/2018	CHECKED - DD	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

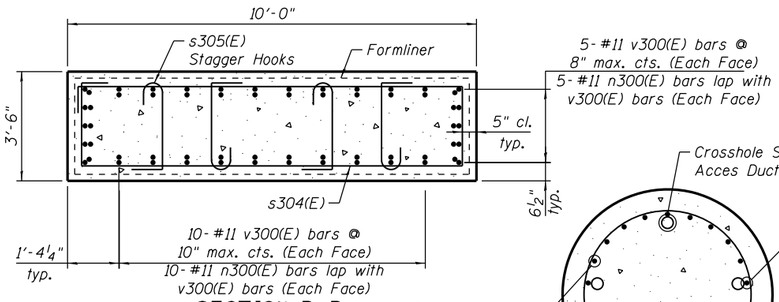
PIER 3
STRUCTURE NO. 016-1715
SHEET NO. S3-104 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	846
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

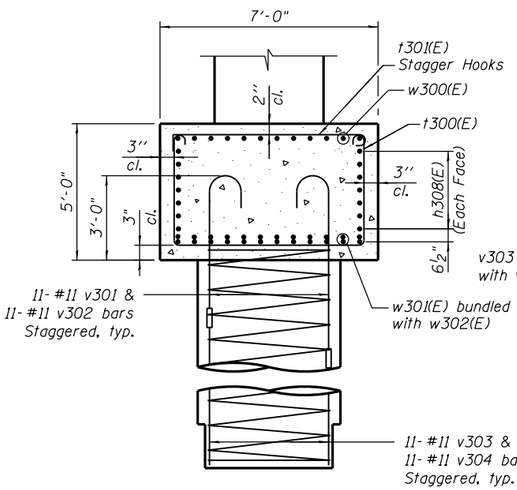
0161715-60X93-S102-Pier-3



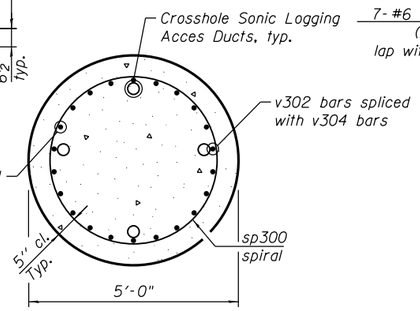
SECTION A-A



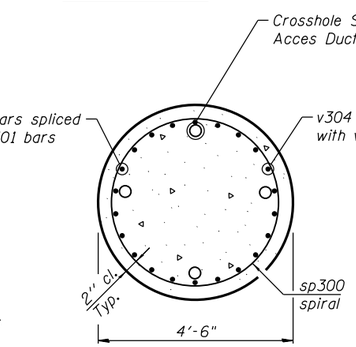
SECTION B-B



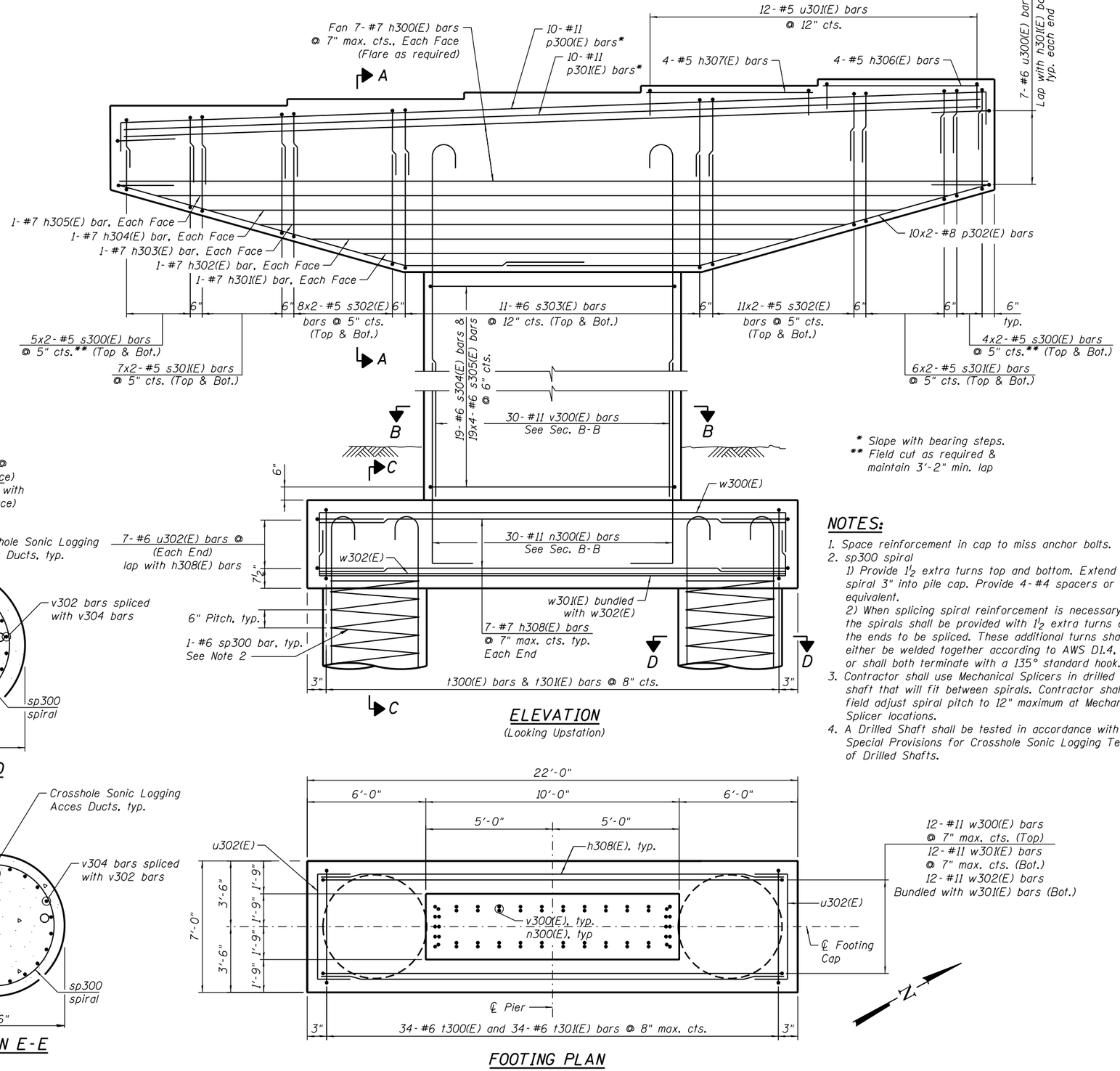
SECTION C-C



SECTION D-D



SECTION E-E



* Slope with bearing steps.
** Field cut as required & maintain 3'-2" min. lap

ELEVATION
(Looking Upstation)

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. sp300 spiral
   1) Provide 1½ 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 1½ 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 Testing of Drilled Shafts.

FOOTING PLAN

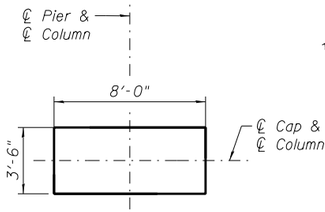
0161715-60X93-S103-Pier-3.dgn

AECOM	USER NAME = floresg	DESIGNED - AV	REVISED
		CHECKED - DD	REVISED
	PLOT SCALE = N.T.S.	DRAWN - AV	REVISED
	PLOT DATE = 7/26/2018	CHECKED - DD	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

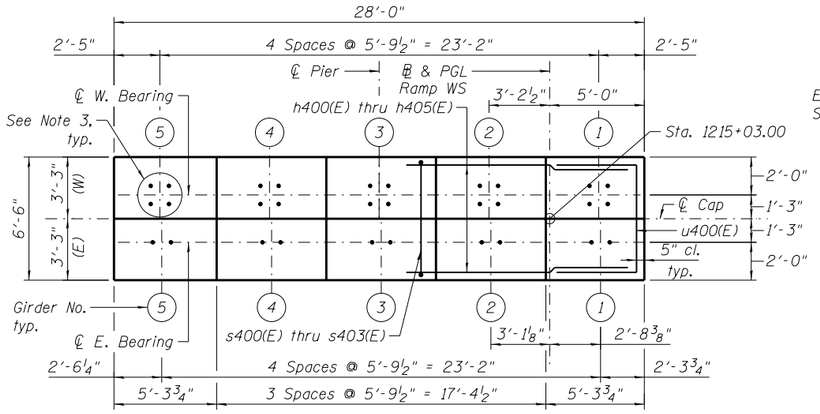
PIER 3 DETAILS
STRUCTURE NO. 016–1715
SHEET NO. S3-105 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	847
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

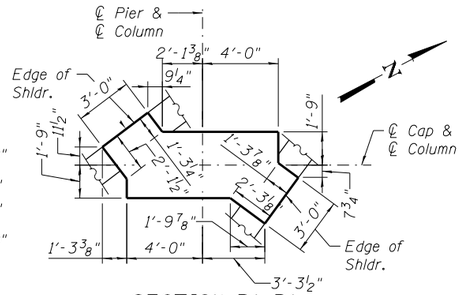


SECTION B2-B2

(See Sheet S3-107 for Column reinforcement details)



TOP PLAN

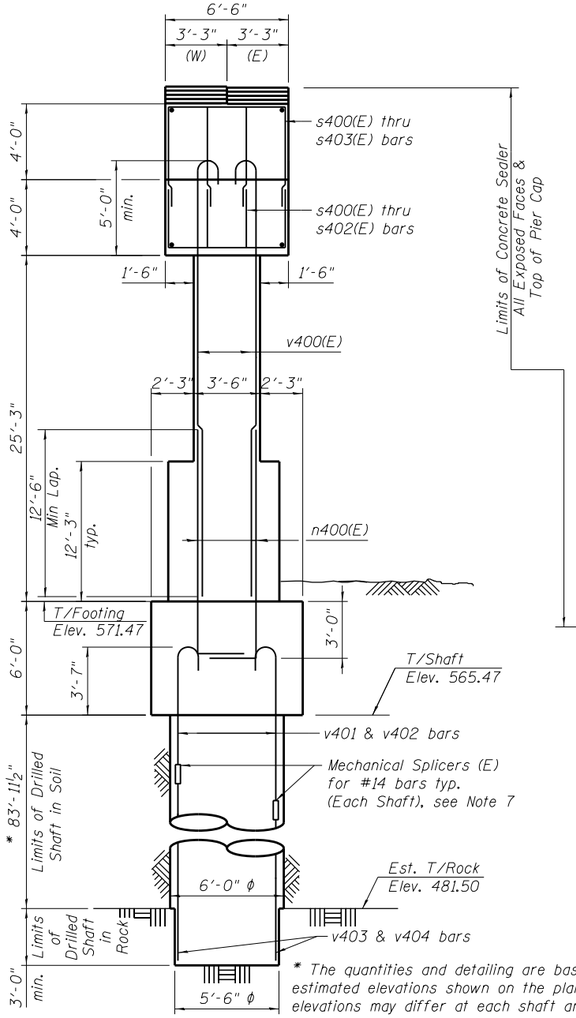


SECTION B1-B1

(See Sheet S3-107 for Column reinforcement details)

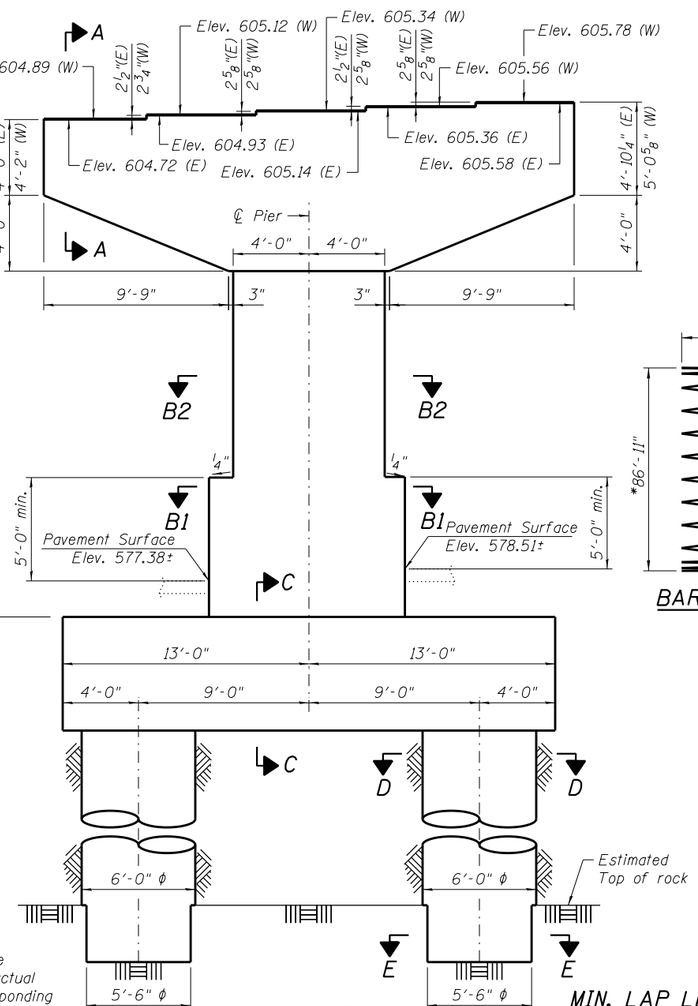
NOTES:

1. Pour steps monolithically with cap.
2. ℄ of Pier is radial to ℄ Ramp WS at Sta. 1215+03.00.
3. For Anchor Bolts Details see sheets S3-93 thru S3-99 .
4. For Architectural Details see sheets S3-137 thru S3-139 .
5. See sheet S3-107 for Sections and Details.
6. (W)-West Girder, (E)-East Girder.
7. For Mechanical Splicers details and quantites see sheet S3-140 .



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.

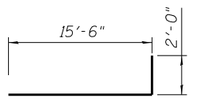


ELEVATION

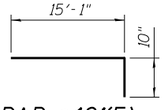
(Looking Upstation)

MIN. LAP LENGTH

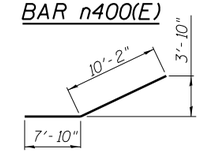
#5 bars: 3'-2"
#8 bars: 7'-2"



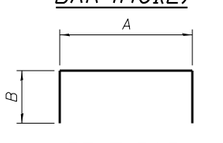
BAR n400(E)



BAR n401(E)

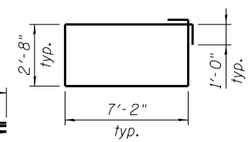


BAR p402(E)

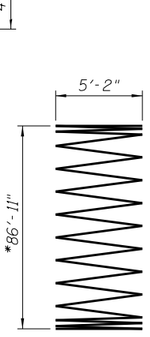


BENT BAR A & B DIMENSIONS

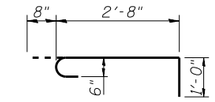
Bar	A	B
p400(E)	27'-2"	2'-0"
s400(E)	3'-6"	4'-0"
s401(E)	3'-6"	4'-6"
s402(E)	3'-6"	5'-6"
s403(E)	5'-8"	5'-6"
u400(E)	5'-8"	4'-5"
u401(E)	5'-8"	10"
u402(E)	7'-6"	4'-5"
u403(E)	2'-8"	2'-6"
w400(E)	25'-6"	2'-0"
w401(E)	25'-6"	3'-6"



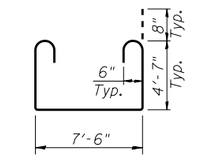
BAR p404(E)



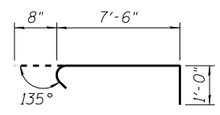
BAR sp401



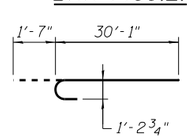
BAR s405(E)



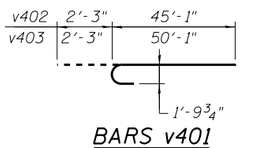
BAR t400(E)



BAR t401(E)



BAR v400(E)



BARS v401 & v402

**Length is height of spiral.

BILL OF MATERIAL

	Bar	No.	Size	Length	Shape
	h400(E)	14	#7	27'-2"	
	h401(E)	2	#7	11'-6"	
	h402(E)	2	#7	14'-9"	
	h403(E)	2	#7	18'-0"	
	h404(E)	2	#7	21'-2"	
	h405(E)	2	#7	24'-5"	
	h406(E)	21	#5	5'-6"	
	h407(E)	14	#5	4'-9"	
	h408(E)	16	#7	25'-6"	
	n400(E)	46	#11	17'-6"	
	n401(E)	20	#5	15'-11"	
	p400(E)	8	#11	31'-2"	
	p401(E)	8	#11	26'-6"	
	p402(E)	16	#8	18'-0"	
	s400(E)	40	#5	11'-6"	
	s401(E)	48	#5	12'-6"	
	s402(E)	96	#5	14'-6"	
	s403(E)	18	#5	16'-8"	
	s404(E)	50	#6	21'-8"	
	s405(E)	200	#6	4'-4"	
**	sp400	2	#6	86'-11"	
	t400(E)	52	#6	18'-0"	
	t401(E)	52	#6	9'-2"	
	u400(E)	14	#6	14'-6"	
	u401(E)	30	#5	7'-4"	
	u402(E)	16	#6	16'-4"	
	u403(E)	13	#5	7'-8"	
	v400(E)	46	#11	31'-8"	
	v401	26	#14	47'-4"	
	v402	26	#14	52'-4"	
	v403	26	#14	45'-2"	
	v404	26	#14	40'-2"	
	w400(E)	12	#11	29'-6"	
	w401(E)	12	#11	32'-6"	
	w402(E)	12	#11	24'-10"	

Concrete Structures	Cu. Yd.	123.2
Reinforcement Bars, Epoxy Coated	Pound	32,230
Reinforcement Bars	Pound	45,420
Drilled Shaft in Soil	Cu. Yd.	175.9
Drilled Shaft in Rock	Cu. Yd.	5.3
Structure Excavation	Cu. Yd.	122
Concrete Sealer	Cu. Yd.	1424
Crosshole Sonic Logging Testing	Each	1
Crosshole Sonic Logging Access Ducts	Foot	174

AECOM

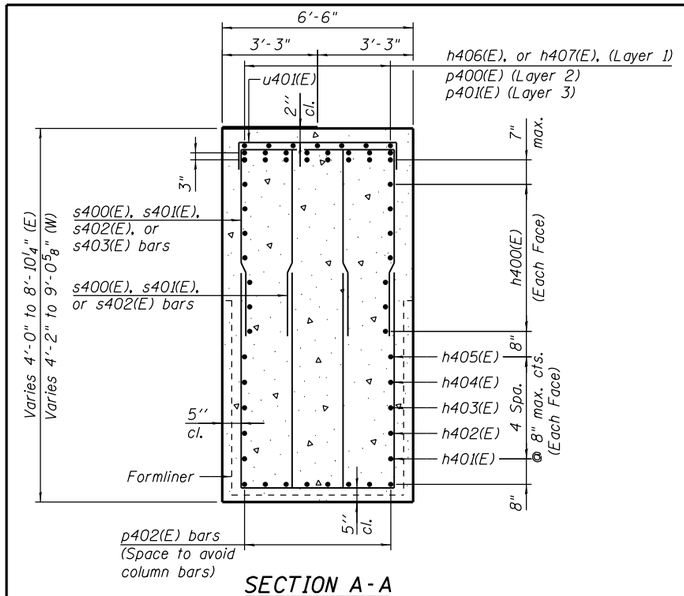
USER NAME = vasudevana	DESIGNED - AV	REVISED	
	CHECKED - DD	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 8/28/2018	CHECKED - DD	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

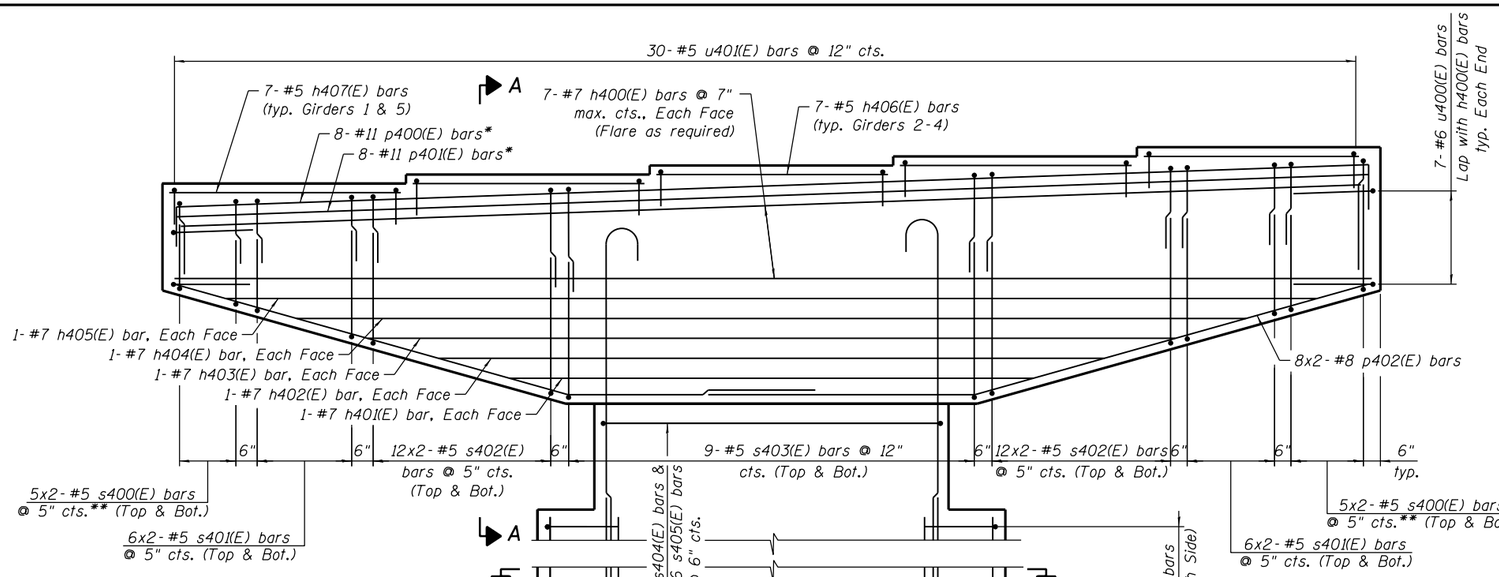
PIER 4
STRUCTURE NO. 016-1715
SHEET NO. S3-106 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	848
		CONTRACT NO. 60X93		
		ILLINOIS FED. AID PROJECT		

0161715-60X93-S104-Pier-4



SECTION A-A



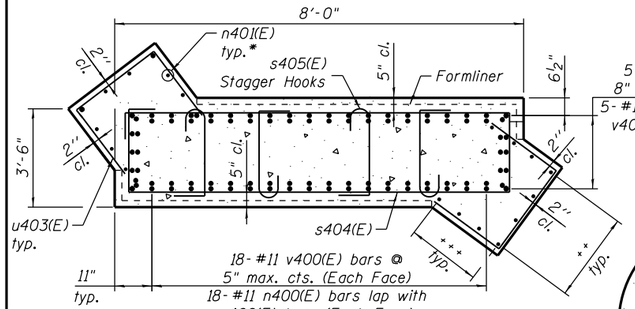
ELEVATION

(Looking Upstation)

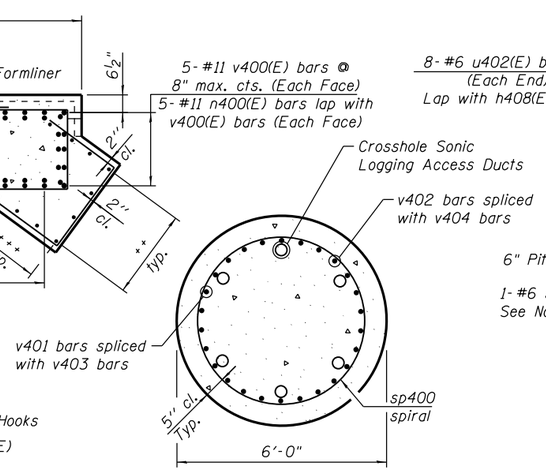
* Slope with bearing steps
** Field cut as required and maintain 3'-2" min. lap

NOTES:

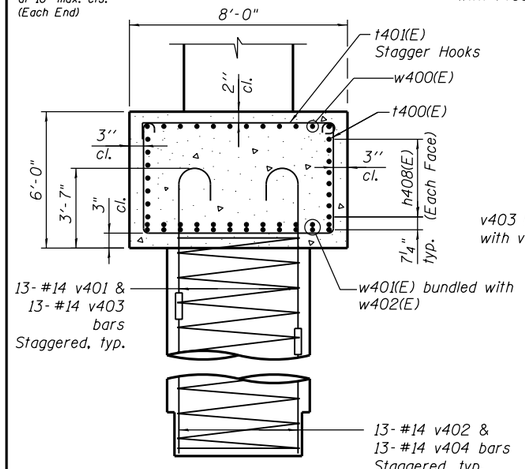
1. Space reinforcement in cap to miss anchor bolts.
2. sp400 spiral
   1) Provide 1½ extra turns top and bottom. Extend spiral 3" into pile cap. Provide 4-#4 spacers or equivalent.
   2) When splicing spiral reinforcement is necessary,the spirals shall be provided with 1½ extra turns at the ends to be 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 Testing for Drilled Shafts.



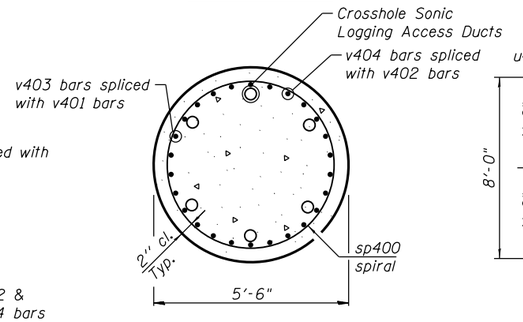
SECTION B-B



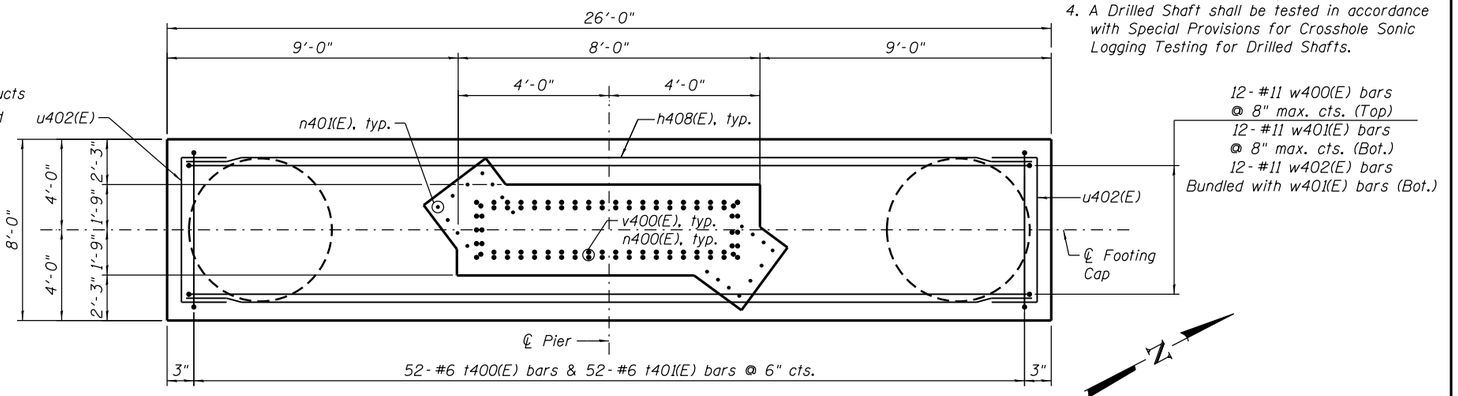
SECTION D-D



SECTION C-C



SECTION E-E



FOOTING PLAN

12-#11 w400(E) bars @ 8" max. cts. (Top)
12-#11 w401(E) bars @ 8" max. cts. (Bot.)
12-#11 w402(E) bars Bundled with w401(E) bars (Bot.)

AECOM	USER NAME = bhatta	DESIGNED - AV	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED - DD	REVISED	
	PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
	PLOT DATE = 9/19/2018	CHECKED - DD	REVISED	

PIER 4 DETAILS
STRUCTURE NO. 016-1715
SHEET NO. S3-107 OF S3-172

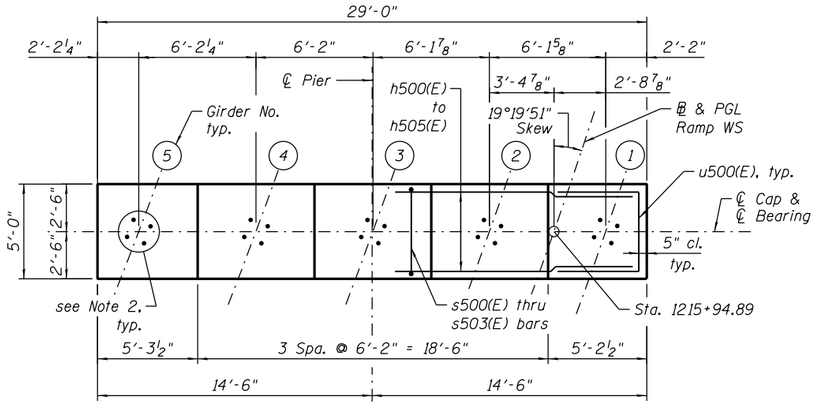
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	849
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

0161715-60X93-S105-Pier-4

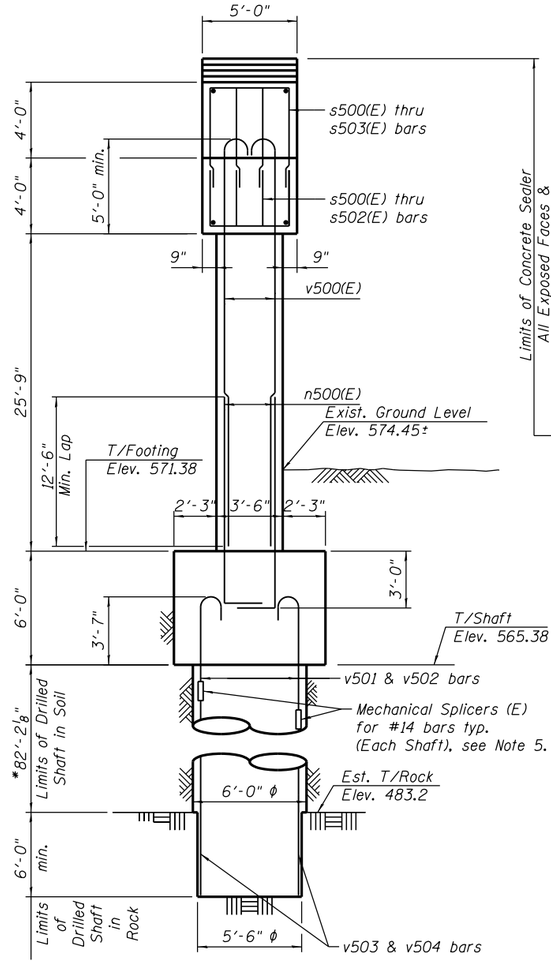
NOTES:

1. Pour steps monolithically with cap.
2. For Anchor Bolts Details see sheets S3-93 thru S3-99.
3. For Architectural Details see sheets S3-137 thru S3-139.
4. See sheet S3-109 for Sections and Details.
5. For Mechanical Splicer Details and Quantaties see sheet S3-140.

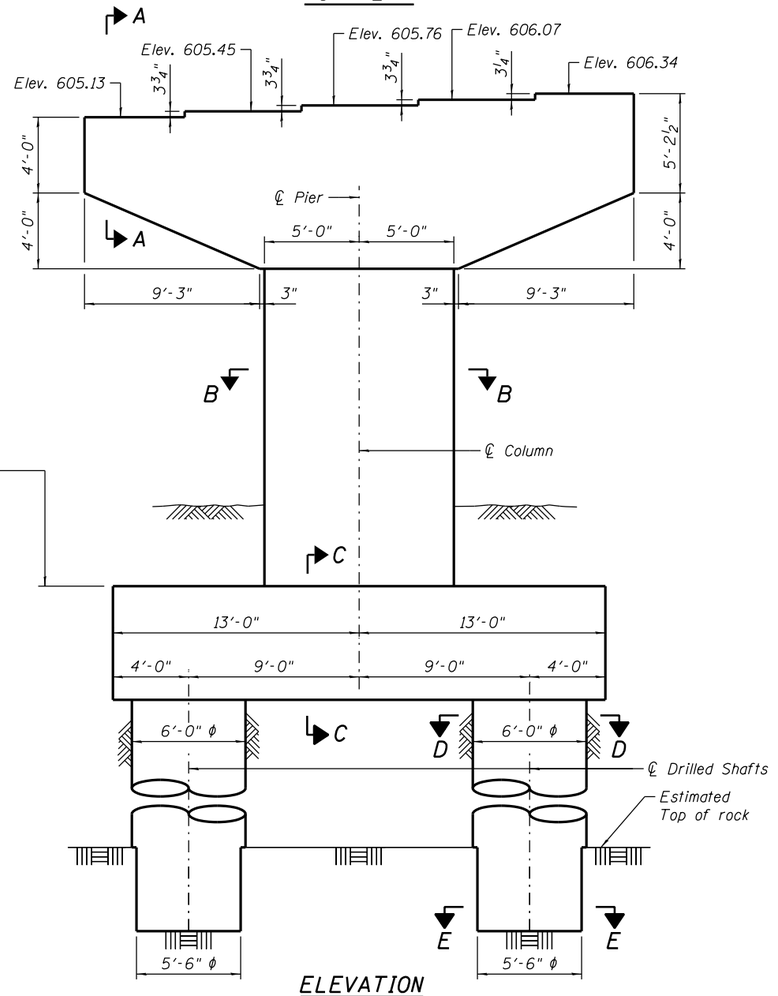
* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.



TOP PLAN

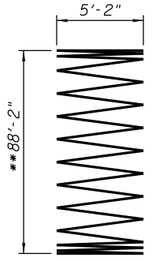


END VIEW

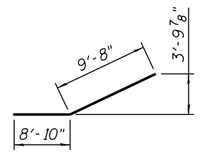


ELEVATION

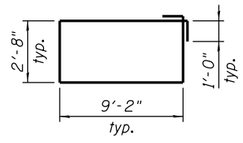
(Looking Upstation)



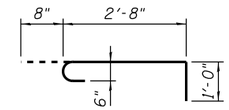
BAR sp500



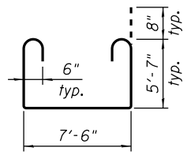
BAR p502(E)



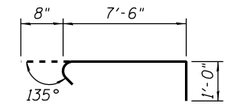
BAR s504(E)



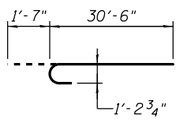
BAR s505(E)



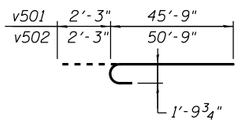
BAR t500(E)



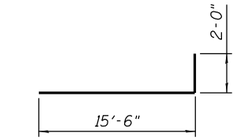
BAR t501(E)



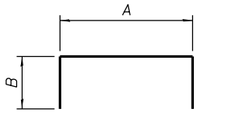
BAR v500(E)



BARS v501 & v502



BAR n500(E)



BENT BAR

A & B DIMENSIONS

Bar	A	B
p500(E)	28'-2"	2'-0"
s500(E)	2'-7"	3'-10"
s501(E)	2'-7"	4'-7"
s502(E)	2'-7"	6'-0"
s503(E)	4'-2"	6'-0"
u500(E)	4'-2"	4'-5"
u501(E)	4'-2"	10"
u502(E)	7'-6"	4'-5"
w500(E)	25'-6"	2'-0"
w501(E)	25'-6"	3'-6"

BILL OF MATERIAL

	Bar	No.	Size	Length	Shape
	h500(E)	14	#7	28'-2"	
	h501(E)	2	#7	13'-4"	
	h502(E)	2	#7	16'-5"	
	h503(E)	2	#7	19'-6"	
	h504(E)	2	#7	22'-6"	
	h505(E)	2	#7	25'-7"	
	h506(E)	12	#5	5'-8"	
	h507(E)	8	#5	4'-8"	
	h508(E)	16	#7	25'-6"	
	n500(E)	36	#11	17'-6"	
	p500(E)	9	#11	32'-2"	
	p501(E)	9	#11	27'-6"	
	p502(E)	18	#8	18'-6"	
	s500(E)	20	#5	10'-3"	
	s501(E)	56	#5	11'-9"	
	s502(E)	68	#5	14'-7"	
	s503(E)	22	#5	16'-2"	
	s504(E)	51	#6	25'-8"	
	s505(E)	204	#6	4'-4"	
**	sp500	2	#6	88'-2"	
	t500(E)	52	#6	20'-0"	
	t501(E)	52	#6	9'-2"	
	u500(E)	14	#6	13'-0"	
	u501(E)	30	#5	5'-10"	
	u502(E)	16	#6	16'-4"	
	v500(E)	36	#11	37'-4"	
	v501	26	#14	48'-0"	
	v502	26	#14	53'-0"	
	v503	26	#14	45'-9"	
	v504	26	#14	40'-9"	
	w500(E)	12	#11	29'-6"	
	w501(E)	12	#11	32'-6"	
	w502(E)	12	#11	24'-10"	
	Concrete Structures		Cu. Yd.	119.1	
	Reinforcement Bars, Epoxy Coated		Pound	30,640	
	Reinforcement Bars		Pound	46,040	
	Drilled Shaft in Soil		Cu. Yd.	172.2	
	Drilled Shaft in Rock		Cu. Yd.	10.6	
	Structure Excavation		Cu. Yd.	125	
	Concrete Sealer		Cu. Yd.	1426	
	Crosshole Sonic Logging Testing		Each	1	
	Crosshole Sonic Logging Access Ducts		Foot	177	

** Length is height of spiral.

MIN. LAP LENGTH

#5 bar: 3'-2"
#8 bar: 7'-2"

0161715-60X93-S106-Pier-5.dgn

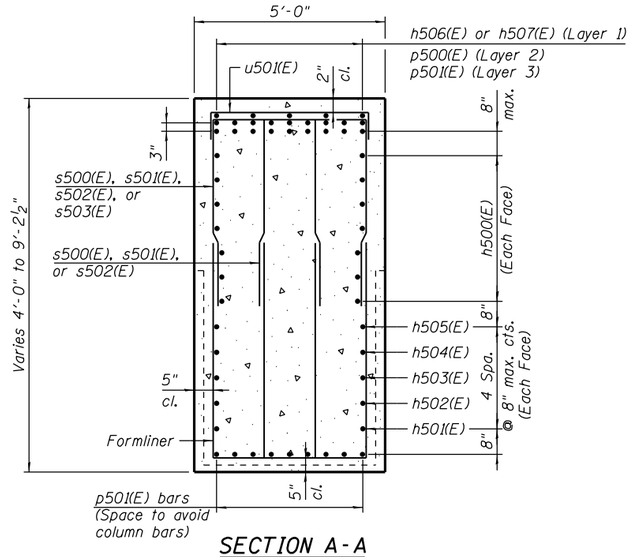
AECOM

USER NAME = floresg	DESIGNED - AV	REVISED	
	CHECKED - DD	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 7/26/2018	CHECKED - DD	REVISED	

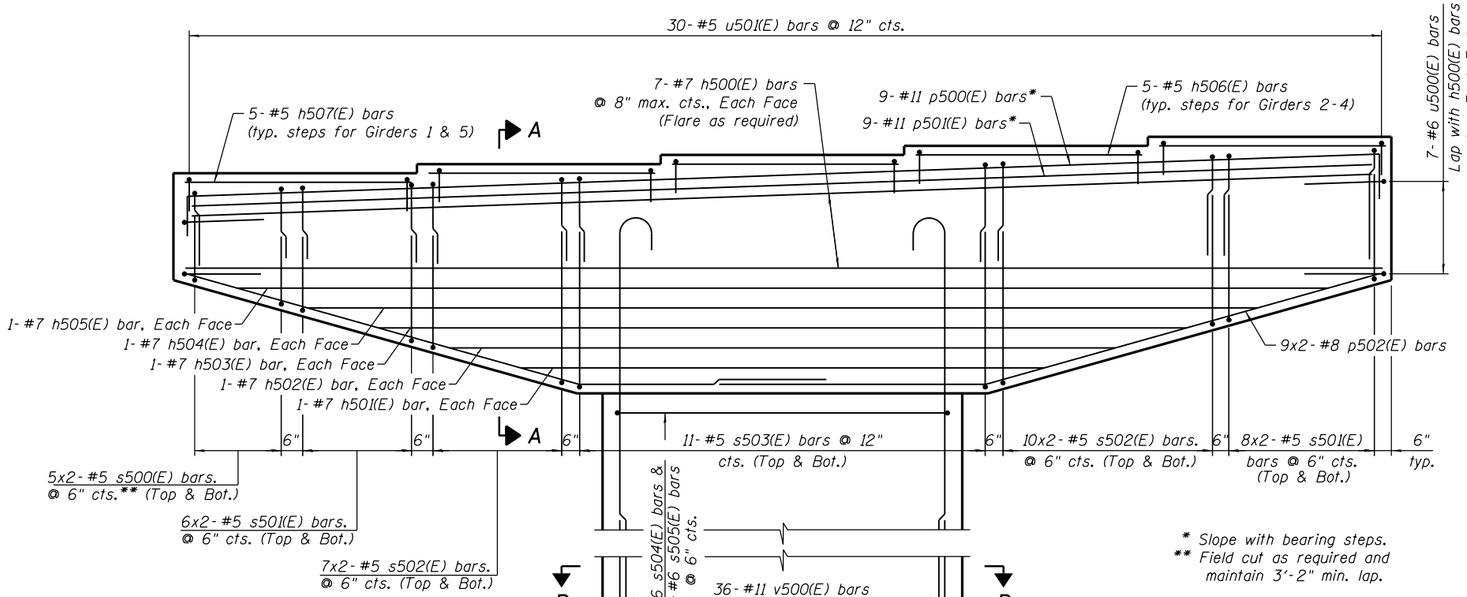
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 5
STRUCTURE NO. 016-1715
SHEET NO. S3-108 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	850
		CONTRACT NO. 60X93		
		ILLINOIS FED. AID PROJECT		



SECTION A-A



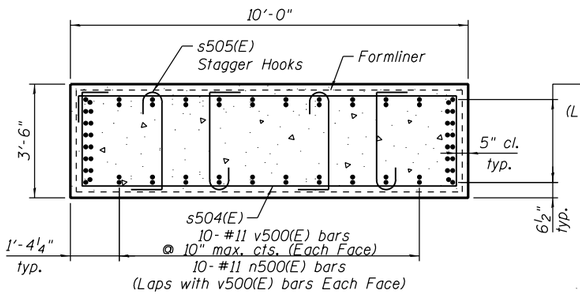
* Slope with bearing steps.
** Field cut as required and maintain 3'-2" min. lap.

ELEVATION

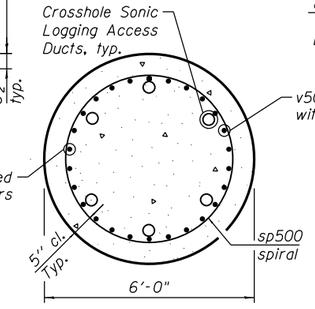
(Looking Upstation)

NOTES:

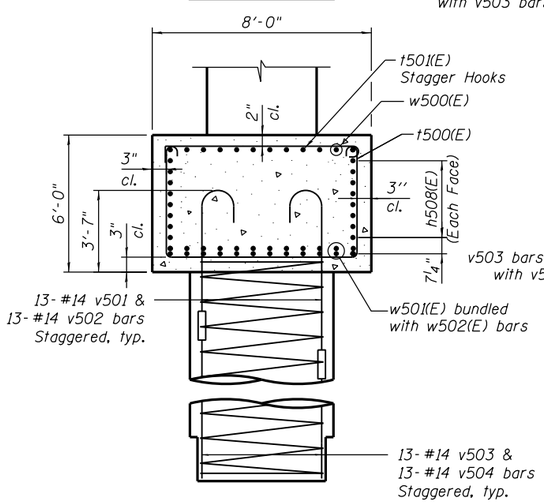
1. Space reinforcement in cap to miss anchor bolts.
2. sp500 spiral:
   1) Provide 1½ extra turns top and bottom. Extend spiral 3" into pile cap. Provide 4-#4 spacers or equivalent.
   2) When splicing spiral reinforcement is necessary, the spirals shall be provided with 1½ extra turns at the ends to 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 Testing of Drilled Shafts.



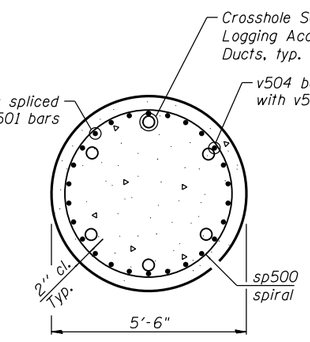
SECTION B-B



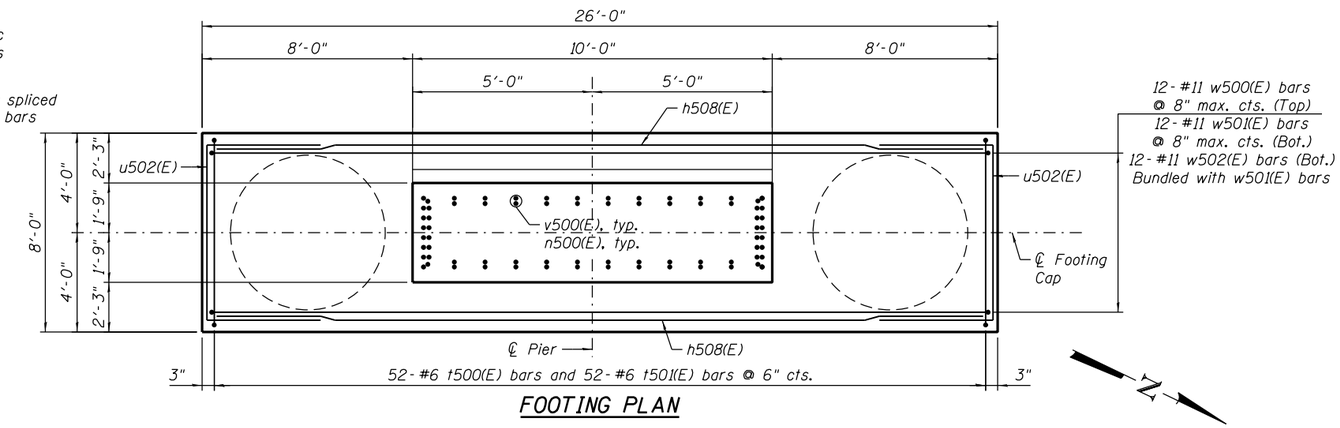
SECTION D-D



SECTION C-C



SECTION E-E

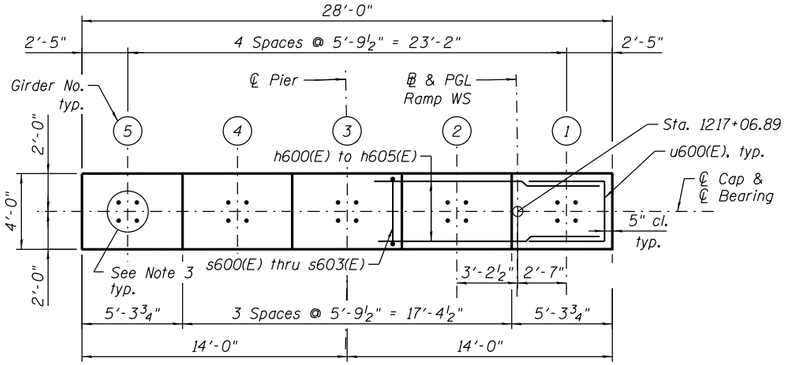


FOOTING PLAN

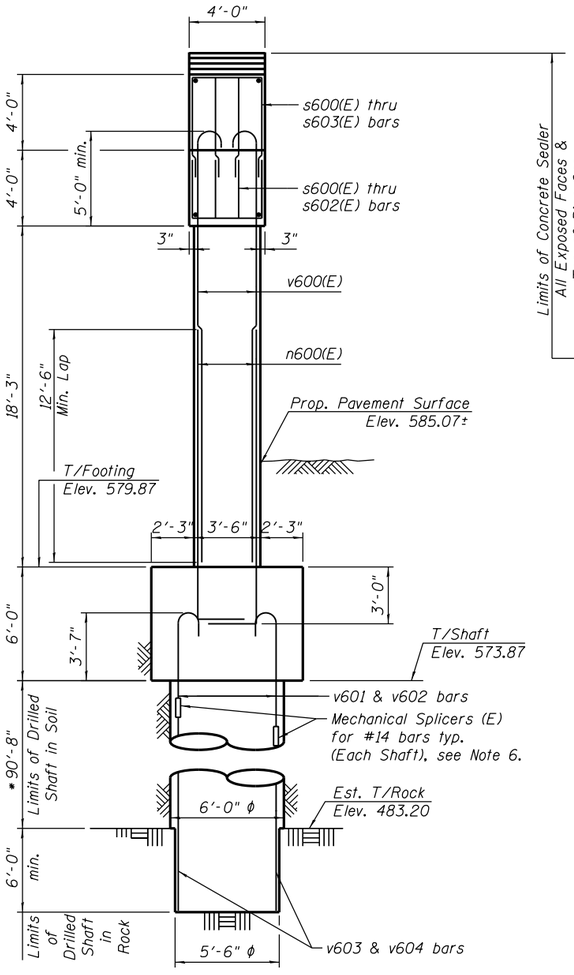
NOTES:

1. Pour steps monolithically with cap.
2. ℄ of Pier is radial to ℄ Ramp WS at Sta. 1217+06.89.
3. For Anchor Bolts Details see sheets S3-93 thru S3-99.
4. For Architectural Details see sheets S3-137 thru S3-139.
5. See sheet S3-111 for Sections and Details.
6. For Mechanical Splicer Details and Qunatities, see sheet S3-140.

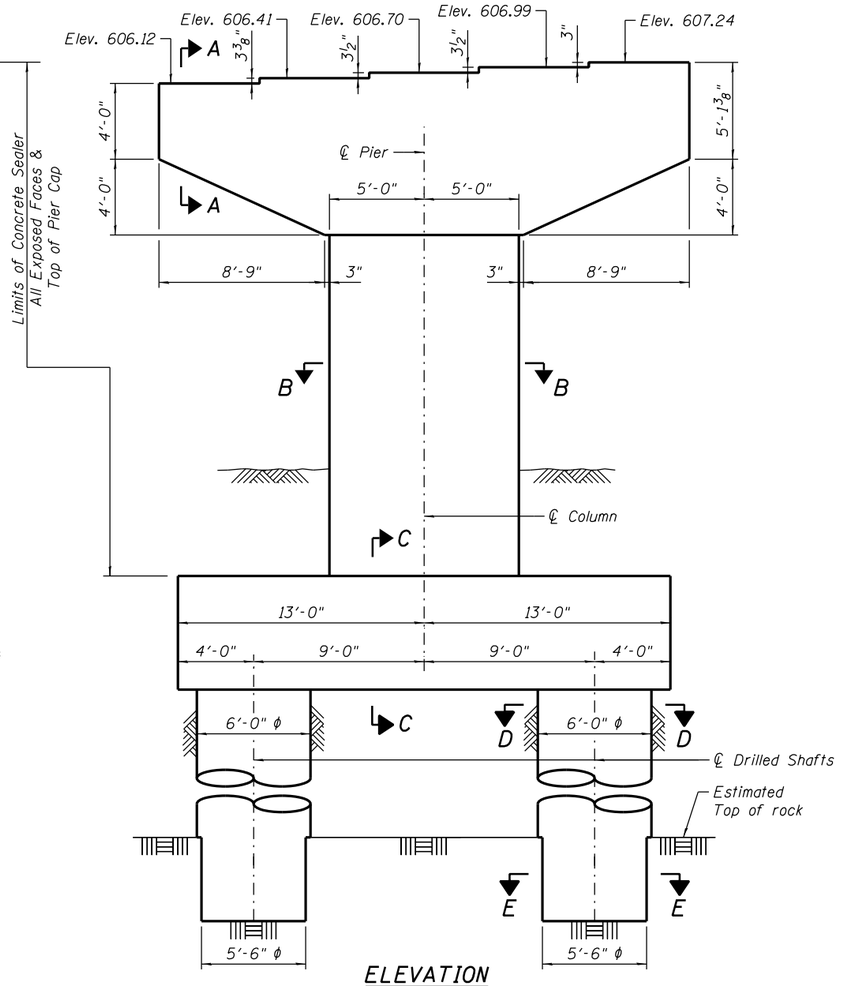
* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.



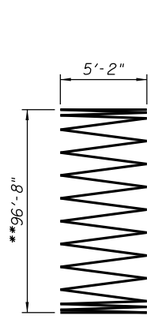
TOP PLAN



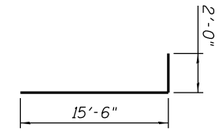
END VIEW



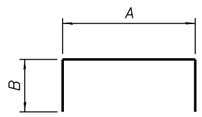
ELEVATION
(Looking Upstation)



BAR sp600

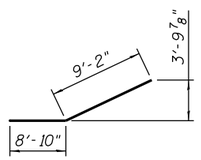


BAR n600(E)

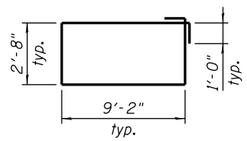


BENT BAR
A & B DIMENSIONS

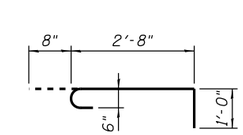
Bar	A	B
p600(E)	27'-2"	2'-0"
s600(E)	2'-1"	3'-9"
s601(E)	2'-1"	4'-6"
s602(E)	2'-1"	5'-8"
s603(E)	3'-2"	5'-8"
u600(E)	3'-2"	4'-5"
u601(E)	3'-2"	10"
u602(E)	7'-6"	4'-5"
w600(E)	25'-6"	2'-0"
w601(E)	25'-6"	3'-6"



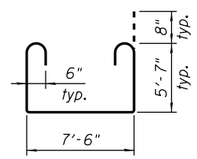
BAR p602(E)



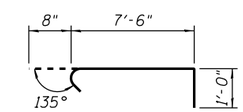
BAR s604(E)



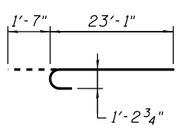
BAR s605(E)



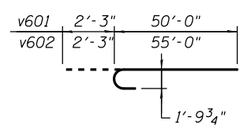
BAR t600(E)



BAR t601(E)



BAR v600(E)



BARS v601 & v602

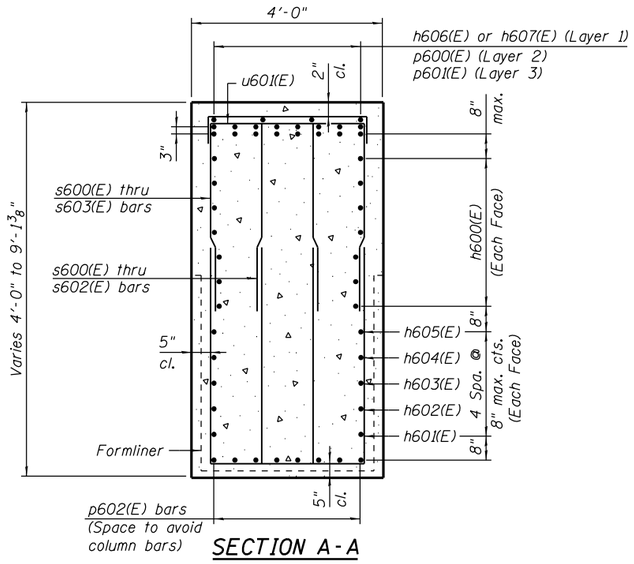
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h600(E)	14	#7	27'-2"	
h601(E)	2	#7	13'-2"	
h602(E)	2	#7	16'-1"	
h603(E)	2	#7	18'-11"	
h604(E)	2	#7	21'-10"	
h605(E)	2	#7	24'-9"	
h606(E)	12	#5	5'-6"	
h607(E)	8	#5	4'-9"	
h608(E)	16	#7	25'-6"	
n600(E)	34	#11	17'-6"	
p600(E)	8	#11	31'-2"	
p601(E)	8	#11	26'-6"	
p602(E)	16	#8	18'-0"	
s600(E)	16	#5	9'-7"	
s601(E)	48	#5	11'-1"	
s602(E)	72	#5	13'-5"	
s603(E)	22	#5	14'-6"	
s604(E)	36	#6	25'-8"	
s605(E)	144	#6	4'-4"	
** sp600	2	#6	96'-8"	
t600(E)	52	#6	20'-0"	
t601(E)	52	#6	9'-2"	
u600(E)	14	#6	12'-0"	
u601(E)	30	#5	4'-10"	
u602(E)	16	#6	16'-4"	
v600(E)	34	#11	24'-8"	
v601	26	#14	52'-3"	
v602	26	#14	57'-3"	
v603	26	#14	50'-0"	
v604	26	#14	45'-0"	
w600(E)	12	#11	29'-6"	
w601(E)	12	#11	32'-6"	
w602(E)	12	#11	24'-10"	
Concrete Structures		Cu. Yd.	100.3	
Reinforcement Bars, Epoxy Coated		Pound	25,940	
Reinforcement Bars		Pound	50,250	
Drilled Shaft in Soil		Cu. Yd.	189.9	
Drilled Shaft in Rock		Cu. Yd.	10.6	
Structure Excavation		Cu. Yd.	130.0	
Concrete Sealer		Cu. Yd.	1141	
Crosshole Sonic Logging Testing		Each	1	
Crosshole Sonic Logging Access Ducts		Foot	194	

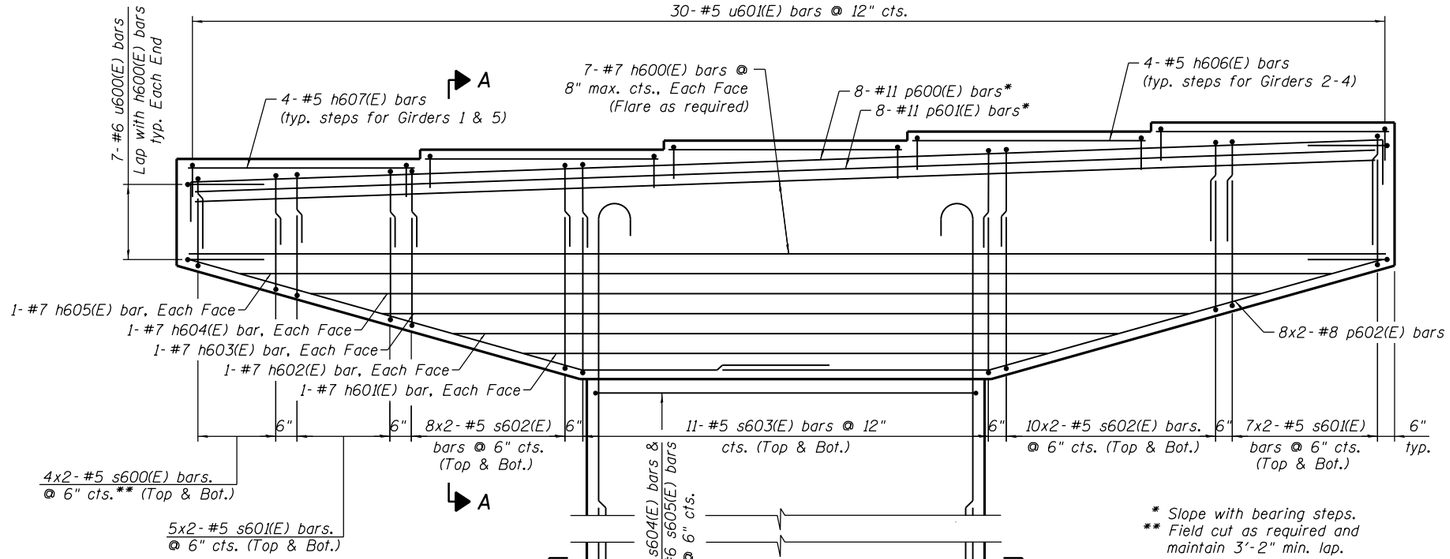
** Length is height of spiral.

MIN. LAP LENGTH

#5 bar: 3'-2"
#8 bar: 7'-2"



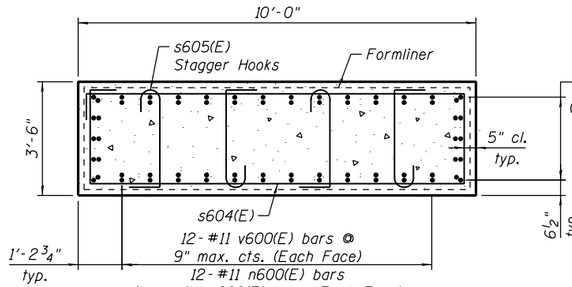
SECTION A-A



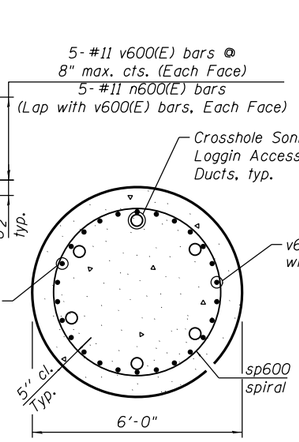
* Slope with bearing steps.
** Field cut as required and maintain 3'-2" min. lap.

ELEVATION

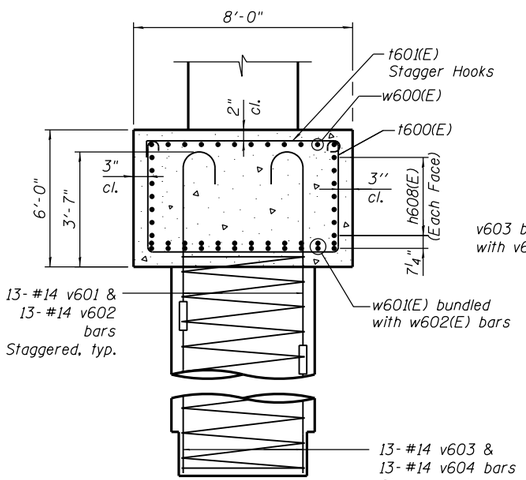
(Looking Upstation)



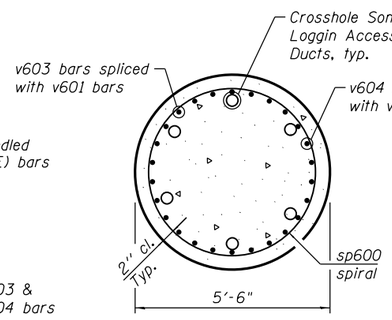
SECTION B-B



SECTION D-D



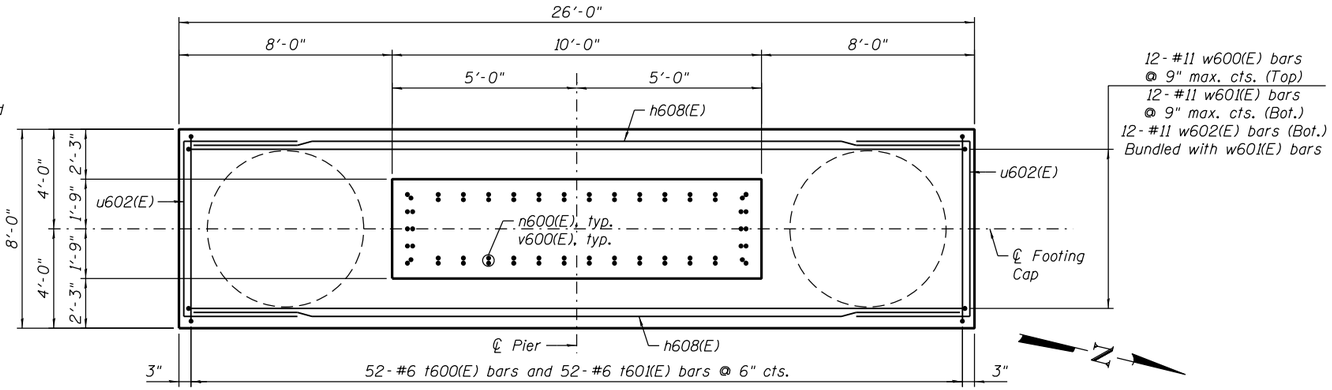
SECTION C-C



SECTION E-E

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. sp600 spiral:
   1) Provide $1\frac{1}{2}$ 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 $1\frac{1}{2}$ extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.
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 Testing of Drilled Shafts.

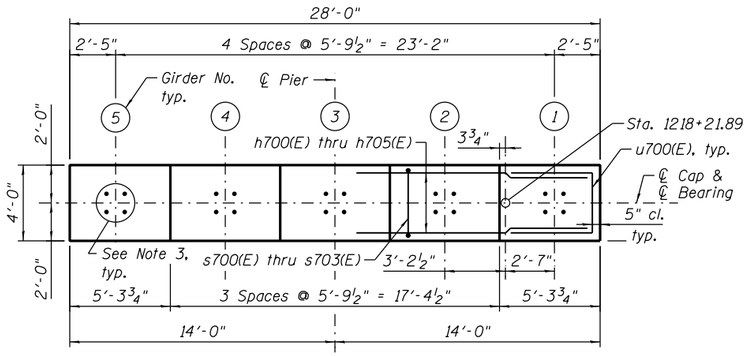


FOOTING PLAN

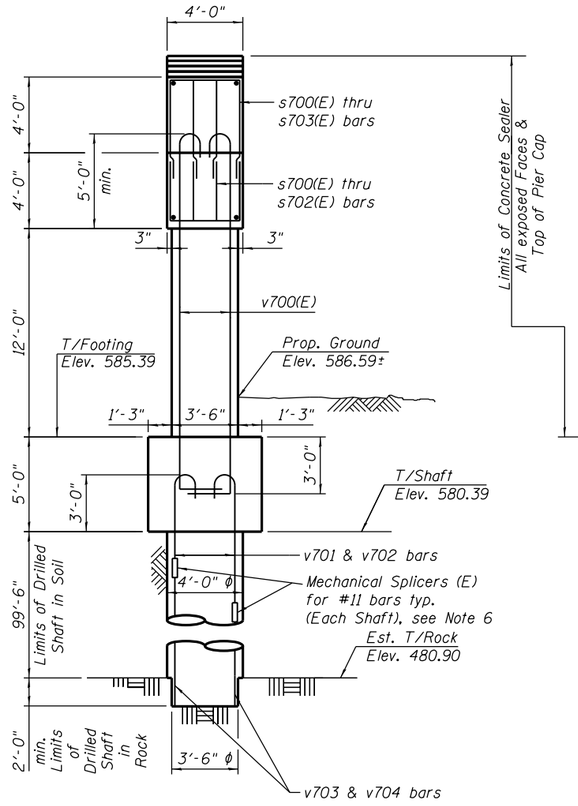
NOTES:

1. Pour steps monolithically with cap.
2. ℄ of Pier is radial to ℄ Ramp WS at Sta. 1218+21.89.
3. For Anchor Bolts Details, see sheets S3-93 thru S3-99.
4. For Architectural Details, see sheets S3-137 thru S3-139.
5. See sheet S3-113 for Sections and Details.
6. For Mechanical Splicer Details and Quantities, see sheet S3-140.

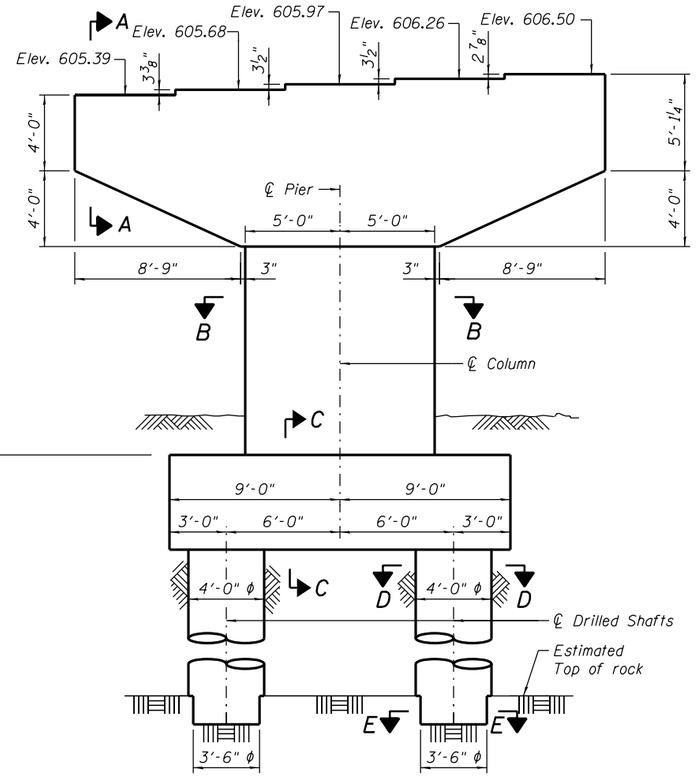
* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.



TOP PLAN

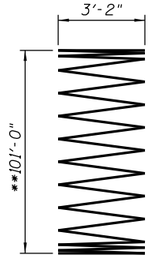


END VIEW

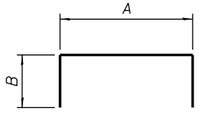


ELEVATION

(Looking Upstation)



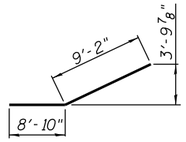
BAR sp700



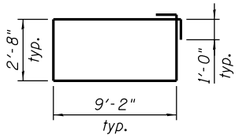
BENT BAR

A & B DIMENSIONS

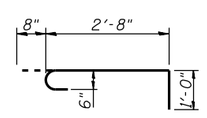
Bar	A	B
p700(E)	27'-2"	2'-0"
s700(E)	2'-1"	3'-9"
s701(E)	2'-1"	4'-6"
s702(E)	2'-1"	5'-8"
s703(E)	3'-2"	5'-8"
u700(E)	3'-2"	4'-5"
u701(E)	3'-2"	10"
u702(E)	5'-6"	4'-5"
w700(E)	17'-6"	2'-0"
w701(E)	17'-6"	3'-6"



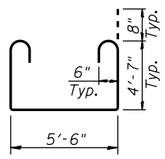
BAR p702(E)



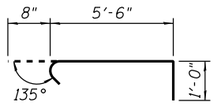
BAR s704(E)



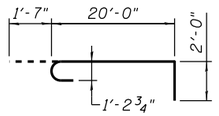
BAR s705(E)



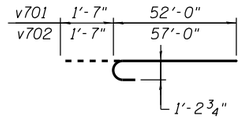
BAR t700(E)



BAR t701(E)



BAR v700(E)



BARS v701 & v702

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h700(E)	14	#7	27'-2"	
h701(E)	2	#7	13'-2"	
h702(E)	2	#7	16'-1"	
h703(E)	2	#7	18'-11"	
h704(E)	2	#7	21'-10"	
h705(E)	2	#7	24'-9"	
h706(E)	12	#5	5'-6"	
h707(E)	8	#5	4'-9"	
h708(E)	16	#7	17'-6"	
p700(E)	9	#11	31'-2"	
p701(E)	9	#11	26'-6"	
p702(E)	18	#8	18'-0"	
s700(E)	16	#5	9'-7"	
s701(E)	48	#5	11'-1"	
s702(E)	72	#5	13'-5"	
s703(E)	22	#5	14'-6"	
s704(E)	22	#6	25'-8"	
s705(E)	88	#6	4'-4"	
sp700	2	#6	101'-6" **	
t700(E)	25	#6	16'-0"	
t701(E)	25	#6	7'-2"	
u700(E)	14	#6	12'-0"	
u701(E)	30	#5	4'-10"	
u702(E)	16	#6	14'-4"	
v700(E)	34	#11	23'-7"	
v701	16	#11	53'-7"	
v702	16	#11	58'-7"	
v703	16	#11	52'-3"	
v704	16	#11	47'-3"	
w700(E)	8	#11	21'-6"	
w701(E)	12	#11	24'-6"	

Concrete Structures	Cu. Yd.	66.0
Reinforcement Bars, Epoxy Coated	Pound	14,830
Reinforcement Bars	Pound	26,630
Drilled Shaft in Soil	Cu. Yd.	92.7
Drilled Shaft in Rock	Cu. Yd.	1.5
Structure Excavation	Cu. Yd.	95.0
Concrete Sealer	Cu. Yd.	971
Crosshole Sonic Logging Testing	Each	1
Crosshole Sonic Logging Access Ducts	Foot	203

** Length is height of spiral.

MIN. LAP LENGTH

#6 bars: 3'-2"
#8 bars: 7'-2"

0161715-60X93-S110-Pier-7.dgn

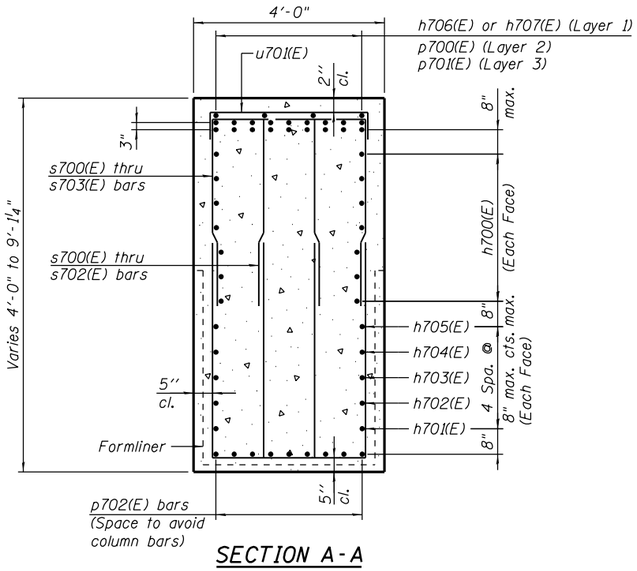
AECOM

USER NAME = floresg	DESIGNED - AV	REVISED	
	CHECKED - DD	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 7/26/2018	CHECKED - DD	REVISED	

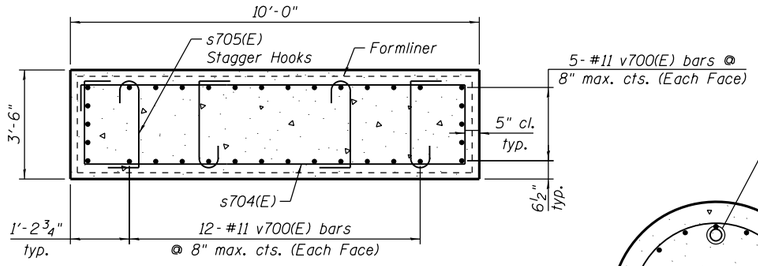
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 7
STRUCTURE NO. 016-1715
SHEET NO. S3-112 OF S3-172

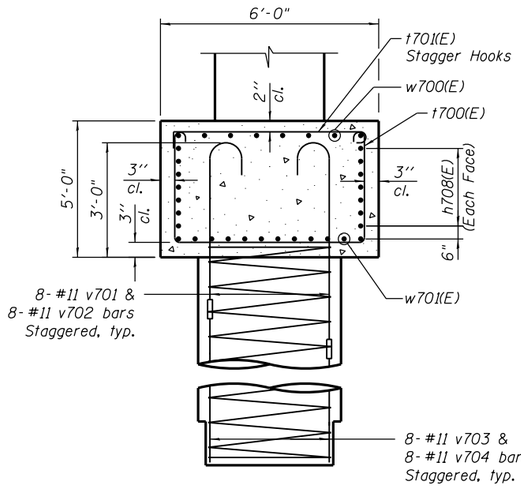
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	854
		CONTRACT NO. 60X93		
ILLINOIS	FED. AID PROJECT			



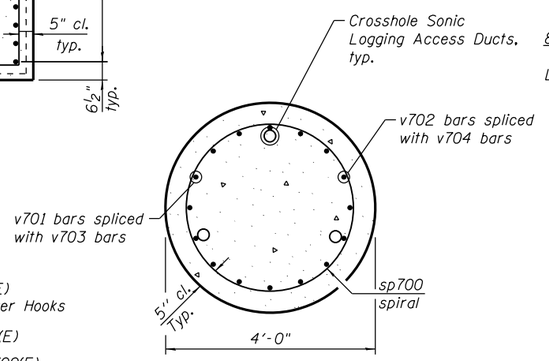
SECTION A-A



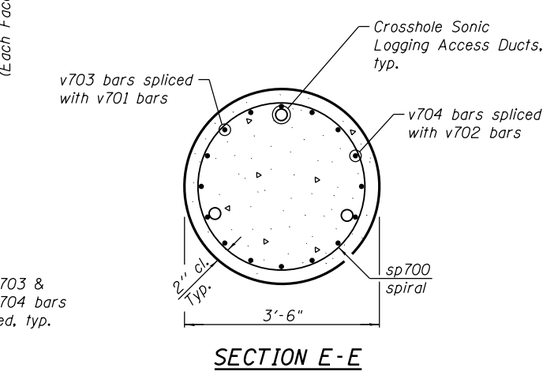
SECTION B-B



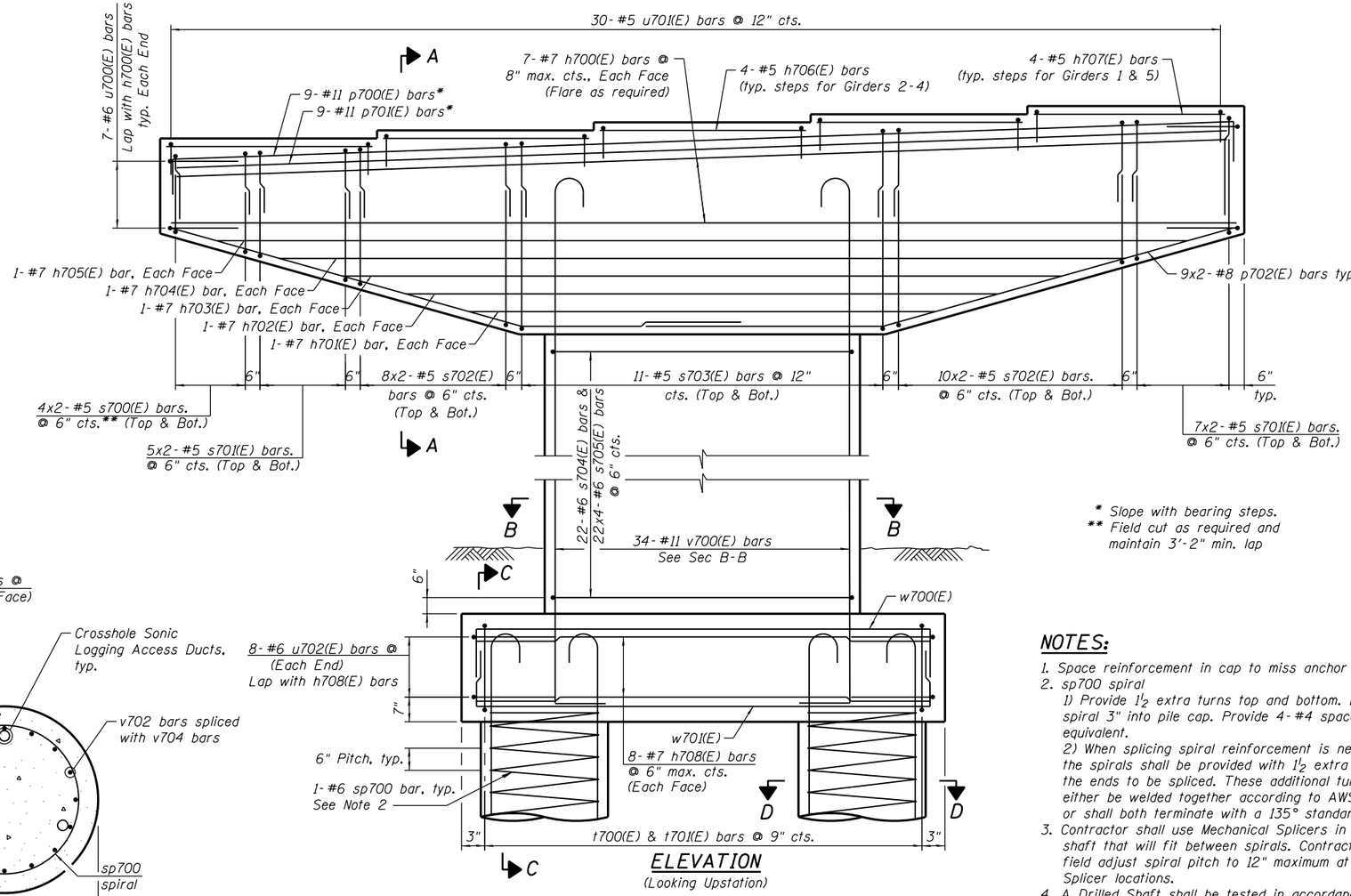
SECTION C-C



SECTION D-D



SECTION E-E



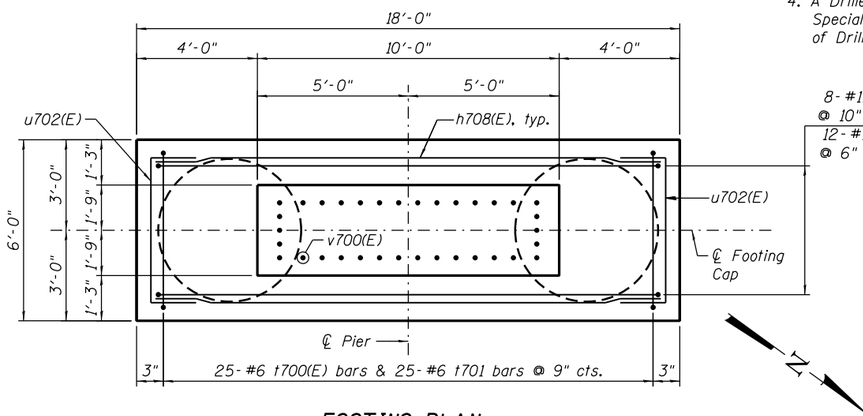
ELEVATION

(Looking Upstation)

* Slope with bearing steps.
** Field cut as required and maintain 3'-2" min. lap

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. sp700 spiral
   1) Provide $1\frac{1}{2}$ 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 $1\frac{1}{2}$ extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.
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 Testing of Drillied Shafts.



FOOTING PLAN

USER NAME = floresg	DESIGNED - AV	REVISED	
	CHECKED - DD	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 7/26/2018	CHECKED - DD	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 7 DETAILS
STRUCTURE NO. 016-1715
SHEET NO. S3-113 OF S3-172

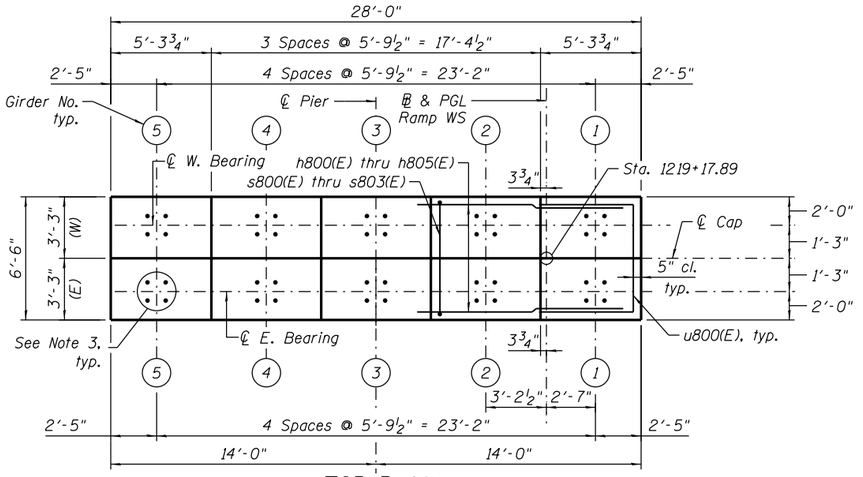
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	855
		CONTRACT NO. 60X93		
	ILLINOIS	FED. AID PROJECT		

0161715-60X93-S111-Pier-7.dgn

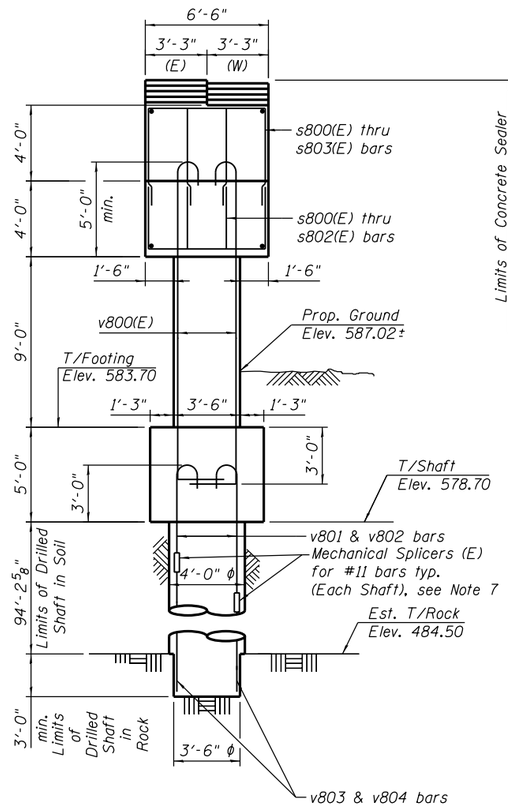
NOTES:

1. Pour steps monolithically with cap.
2. ℄ of Pier is radial to ℄ Ramp WS at Sta. 1219+17.89.
3. For Anchor Bolts Details see sheets S3-93 thru S3-99.
4. For Architectural Details see sheets S3-137thru S3-139
5. See sheet S3-115 for Sections and Details.
6. (W)-West Girder, (E)-East Girder.
7. For Mechanical Splicer Details and Quantities see sheet S3-140 .

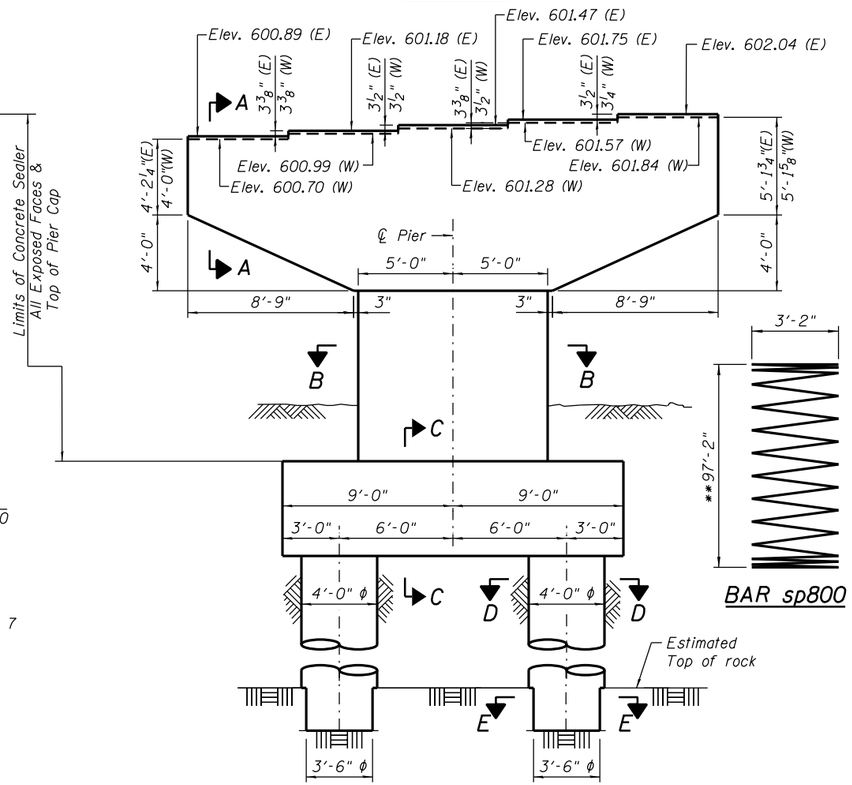
* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.



TOP PLAN

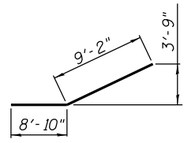


END VIEW

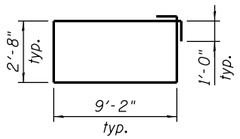


ELEVATION

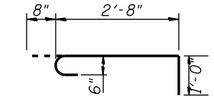
(Looking Upstation)



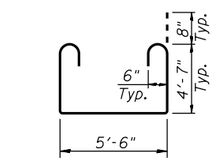
BAR p802(E)



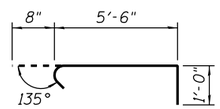
BAR s804(E)



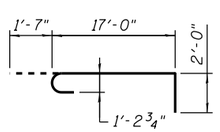
BAR s805(E)



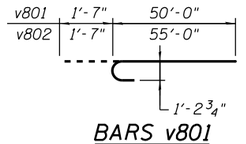
BAR t800(E)



BAR t801(E)



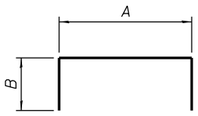
BAR v800(E)



BARS v801 & v802

BAR sp800

BENT BAR A & B DIMENSIONS



Bar	A	B
p800(E)	27'-2"	2'-0"
s800(E)	3'-6"	3'-10"
s801(E)	3'-6"	4'-6"
s802(E)	3'-6"	5'-6"
s803(E)	5'-8"	6'-0"
u800(E)	5'-8"	4'-5"
u801(E)	5'-8"	10"
u802(E)	5'-6"	4'-5"
w800(E)	17'-6"	2'-0"
w801(E)	17'-6"	3'-6"

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h800(E)	14	#7	27'-2"	
h801(E)	2	#7	13'-2"	
h802(E)	2	#7	16'-1"	
h803(E)	2	#7	18'-11"	
h804(E)	2	#7	21'-10"	
h805(E)	2	#7	24'-9"	
h806(E)	21	#5	5'-6"	
h807(E)	14	#5	4'-9"	
h808(E)	12	#7	17'-6"	
p800(E)	9	#11	31'-2"	
p801(E)	9	#11	26'-6"	
p802(E)	18	#8	18'-0"	
s800(E)	32	#5	11'-2"	
s801(E)	40	#5	12'-6"	
s802(E)	64	#5	14'-6"	
s803(E)	22	#5	17'-8"	
s804(E)	9	#6	25'-8"	
s805(E)	36	#6	4'-4"	
sp800	2	#6	97'-2" **	
t800(E)	25	#6	16'-0"	
t801(E)	25	#6	7'-2"	
u800(E)	14	#6	14'-6"	
u801(E)	30	#5	7'-4"	
u802(E)	12	#6	14'-4"	
v800(E)	30	#11	20'-7"	
v801	16	#11	51'-7"	
v802	16	#11	56'-7"	
v803	16	#11	49'-11"	
v804	16	#11	44'-11"	
w800(E)	8	#11	21'-6"	
w801(E)	12	#11	24'-6"	
Concrete Structures		Cu. Yd.	81.1	
Reinforcement Bars, Epoxy Coated		Pound	15,680	
Reinforcement Bars		Pound	23,160	
Drilled Shaft in Soil		Cu. Yd.	87.8	
Drilled Shaft in Rock		Cu. Yd.	2.2	
Structure Excavation		Cu. Yd.	133.0	
Concrete Sealer		Cu. Yd.	1036	
Crosshole Sonic Logging Testing		Each	1	
Crosshole Sonic Logging Access Ducts		Foot	195	

** Length is height of spiral.

MIN. LAP LENGTH

#5 bars: 3'-2"
#8 bars: 7'-2"

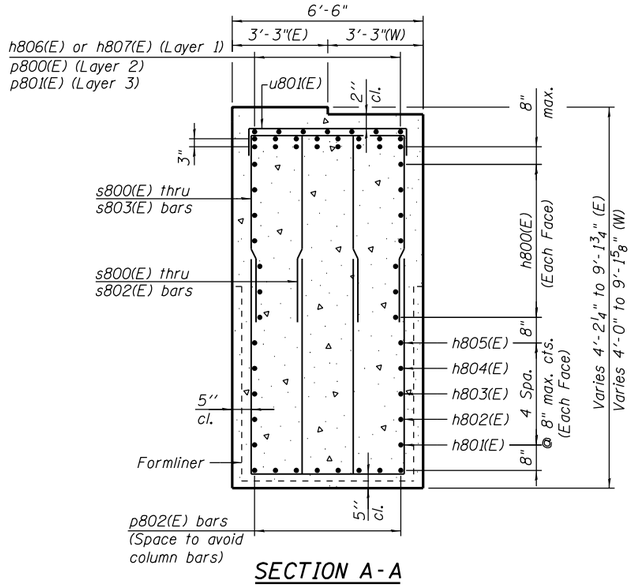
AECOM	USER NAME = floresg	DESIGNED - AV	REVISED
		CHECKED - DD	REVISED
	PLOT SCALE = N.T.S.	DRAWN - AV	REVISED
	PLOT DATE = 7/26/2018	CHECKED - DD	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

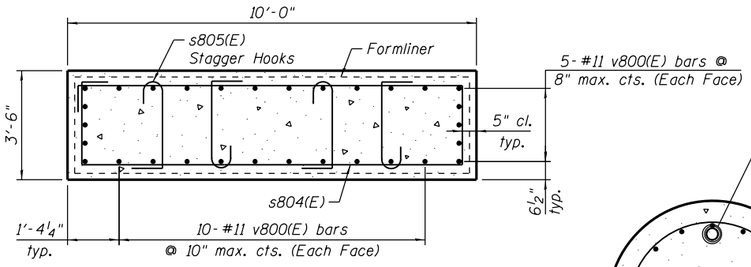
PIER 8
STRUCTURE NO. 016-1715
SHEET NO. S3-114 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	856
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

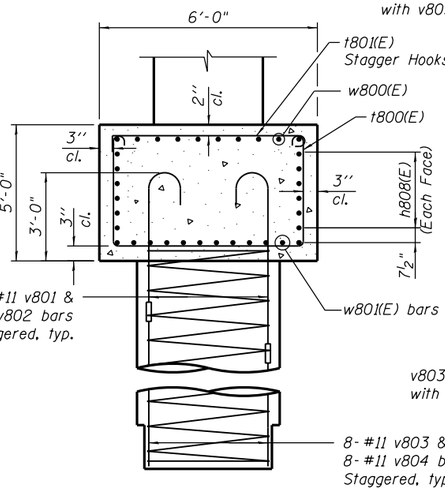
0161715-60X93-S112-Pier-8.dgn



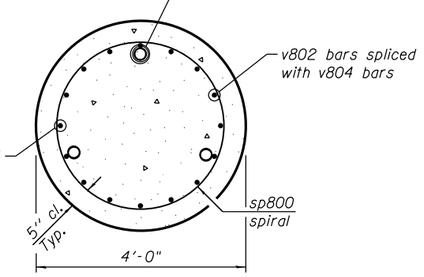
SECTION A-A



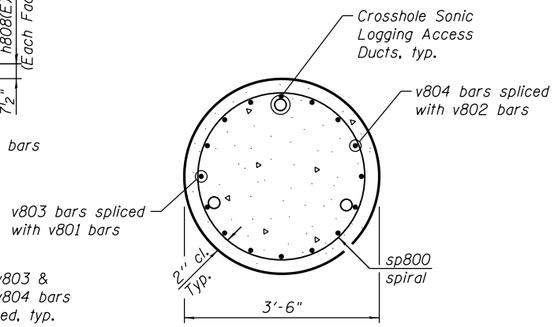
SECTION B-B



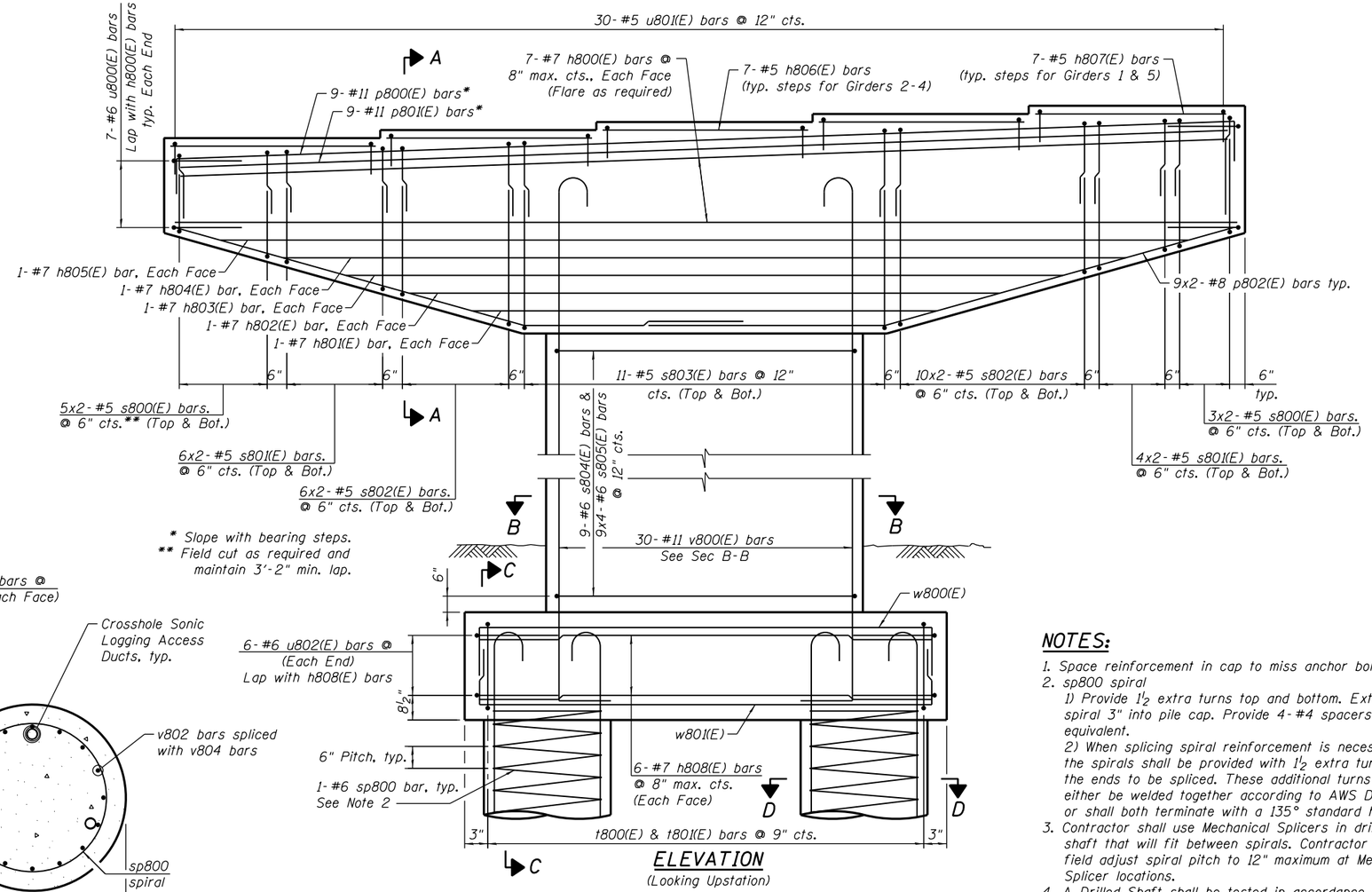
SECTION C-C



SECTION D-D

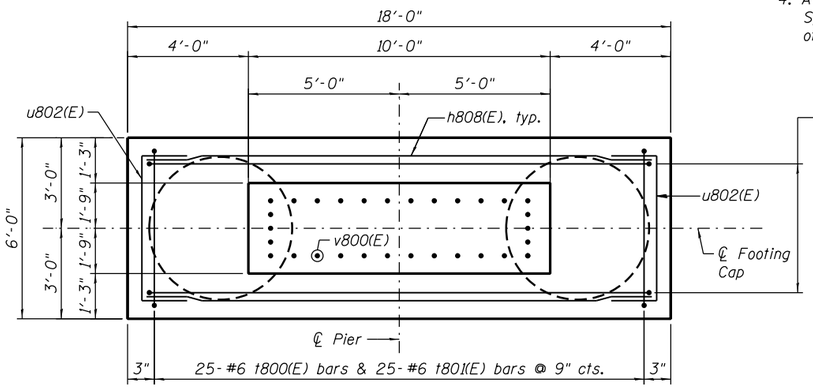


SECTION E-E



* Slope with bearing steps.
** Field cut as required and maintain 3'-2" min. lap.

ELEVATION
(Looking Upstation)



FOOTING PLAN

8-#11 w800(E) bars @ 10" max. cts. (Top)
12-#11 w801(E) bars @ 6" max. cts. (Bot.)

N

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. sp800 spiral
   1) Provide $1\frac{1}{2}$ 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 $1\frac{1}{2}$ extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.
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 Testing of Drilled Shafts.

AECOM

USER NAME = floresg	DESIGNED - AV	REVISED	
	CHECKED - DD	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 7/26/2018	CHECKED - DD	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 8 DETAILS
STRUCTURE NO. 016-1715
SHEET NO. S3-115 OF S3-172

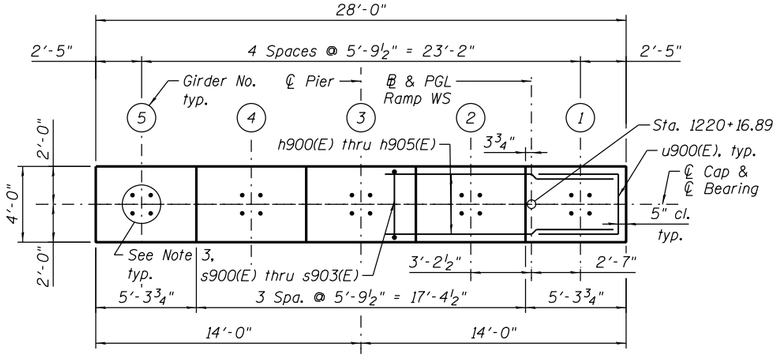
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	857
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

0161715-60X93-S113-Pier-8.dgn

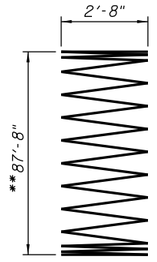
NOTES:

1. Pour steps monolithically with cap.
2. ℄ of Pier is radial to ℄ Ramp WS at Sta. 1220+16.89.
3. For Anchor Bolts Details, see sheets S3-93 thru S3-99.
4. For Architectural Details, see sheets S3-137 thru S3-139.
5. See sheet S3-117 for Sections and Details.
6. For Mechanical Splicer Details and Quantities, see sheet S3-140.

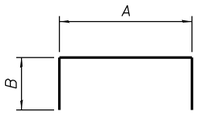
* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.



TOP PLAN



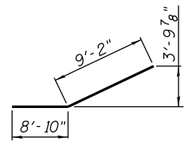
BAR sp900



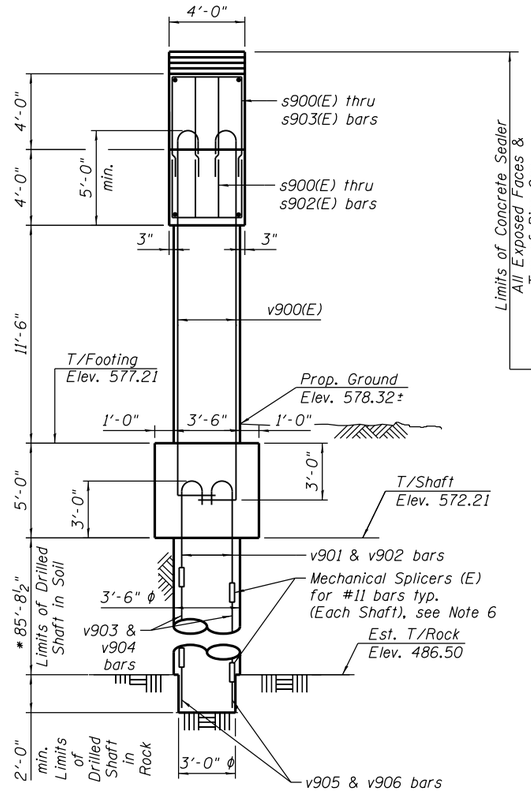
BENT BAR

A & B DIMENSIONS

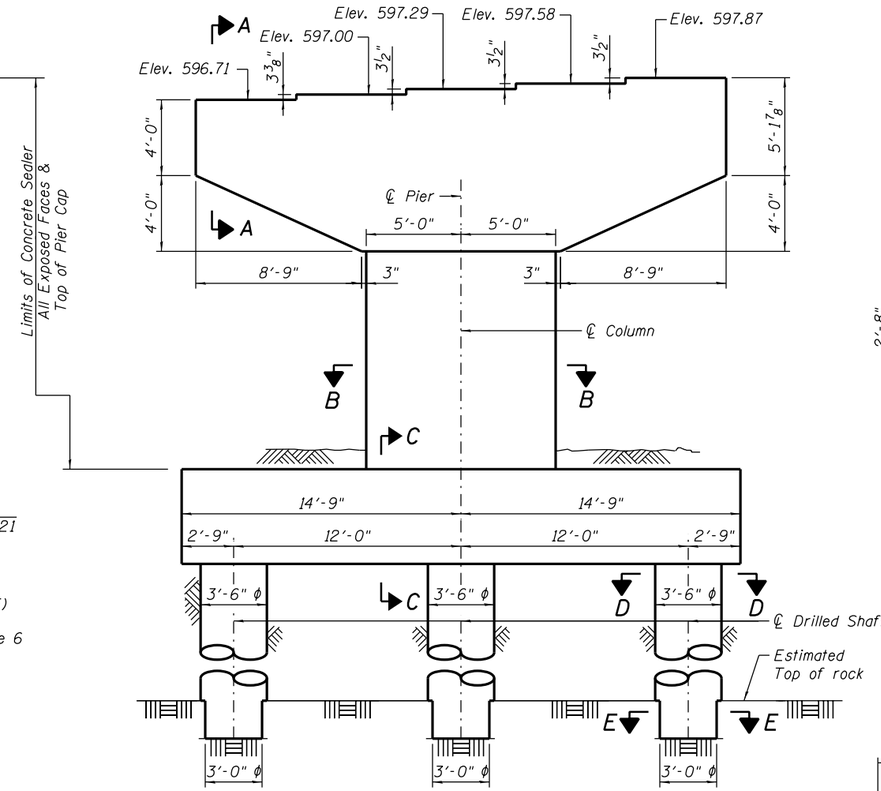
Bar	A	B
p900(E)	27'-2"	2'-0"
s900(E)	2'-1"	3'-9"
s901(E)	2'-1"	4'-6"
s902(E)	2'-1"	5'-8"
s903(E)	3'-2"	5'-8"
u900(E)	3'-2"	4'-5"
u901(E)	3'-2"	10"
u902(E)	5'-0"	4'-5"
w900(E)	29'-0"	2'-0"
w901(E)	29'-0"	3'-6"



BAR p902(E)

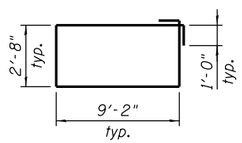


END VIEW

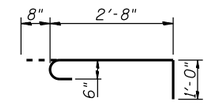


ELEVATION

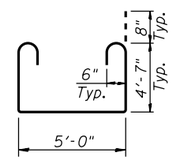
(Looking Upstation)



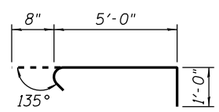
BAR s904(E)



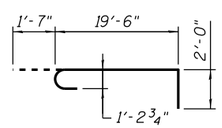
BAR s905(E)



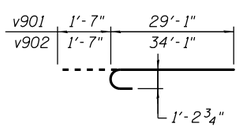
BAR t900E)



BAR t901(E)



BAR v900(E)



BARS v901
& v902

BILL OF MATERIAL

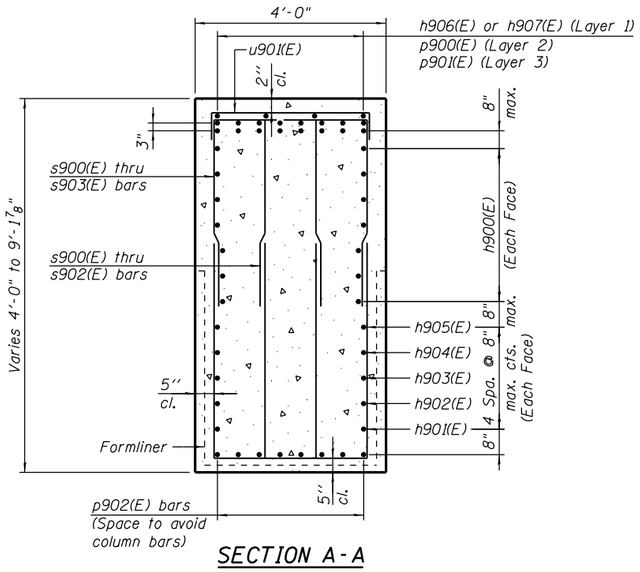
Bar	No.	Size	Length	Shape
h900(E)	14	#7	27'-2"	
h901(E)	2	#7	13'-2"	
h902(E)	2	#7	16'-1"	
h903(E)	2	#7	18'-11"	
h904(E)	2	#7	21'-10"	
h905(E)	2	#7	24'-9"	
h906(E)	12	#5	5'-6"	
h907(E)	8	#5	4'-9"	
h908(E)	12	#7	29'-0"	
p900(E)	8	#11	31'-2"	
p901(E)	8	#11	26'-6"	
p902(E)	16	#8	18'-0"	
s900(E)	16	#5	9'-7"	
s901(E)	44	#5	11'-1"	
s902(E)	76	#5	13'-5"	
s903(E)	22	#5	14'-6"	
s904(E)	12	#6	25'-8"	
s905(E)	48	#6	4'-4"	
sp900	3	#6	87'-8"	**
t900(E)	45	#6	15'-6"	
t901(E)	45	#6	6'-8"	
u900(E)	14	#6	12'-0"	
u901(E)	30	#5	4'-10"	
u902(E)	12	#6	13'-10"	
v900(E)	30	#11	23'-1"	
v901	21	#11	30'-8"	
v902	21	#11	35'-8"	
v903	21	#11	27'-0"	
v904	21	#11	24'-6"	
v905	21	#11	34'-4"	
v906	21	#11	31'-10"	
w900(E)	14	#11	33'-0"	
w901(E)	14	#11	36'-0"	

Concrete Structures	Cu. Yd.	75.4
Reinforcement Bars, Epoxy Coated	Pound	19,010
Reinforcement Bars	Pound	27,270
Drilled Shaft in Soil	Cu. Yd.	91.7
Drilled Shaft in Rock	Cu. Yd.	1.6
Structure Excavation	Cu. Yd.	119.0
Concrete Sealer	Cu. Yd.	959
Crosshole Sonic Logging Testing	Each	1
Crosshole Sonic Logging Access Ducts	Foot	264

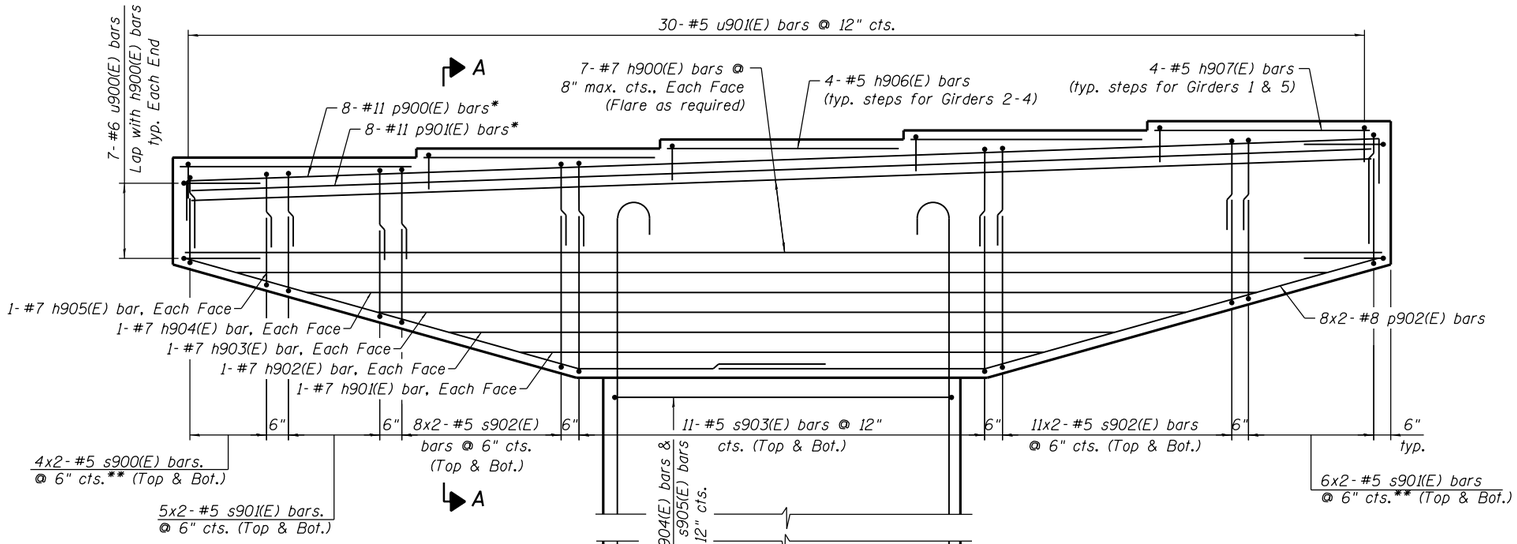
** Length is height of spiral.

MIN. LAP LENGTH

#5 bars: 3'-2"
#8 bars: 7'-2"



SECTION A-A

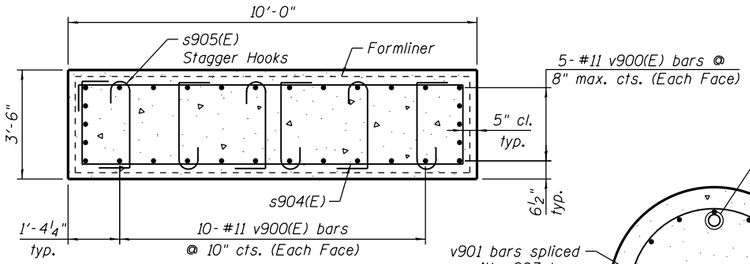


* Slope with bearing steps.
** Field cut as required and maintain 3'-2" lap

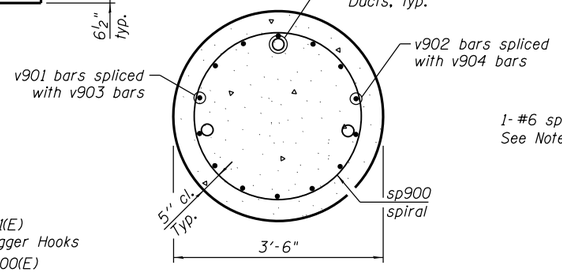
ELEVATION
(Looking Upstation)

NOTES:

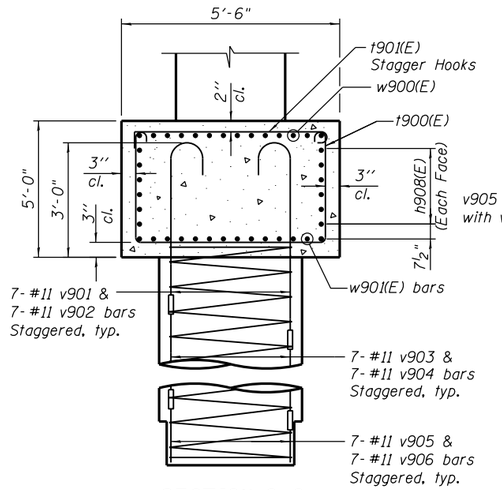
1. Space reinforcement in cap to miss anchor bolts.
2. sp900 spiral
   1) Provide 1½ extra turns top and bottom. Extend spiral 3" into pile cap. Provide 4-#4 spacers or equivalent.
   2) When splicing spiral reinforcement is necessary, the spirals shall be provided with 1½ extra turns at the ends to 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 Testing of Drilled Shafts.



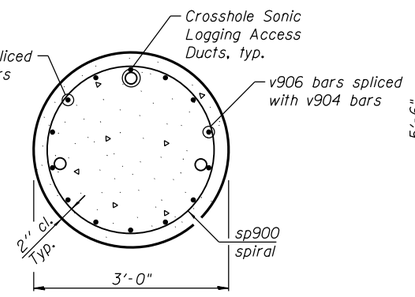
SECTION B-B



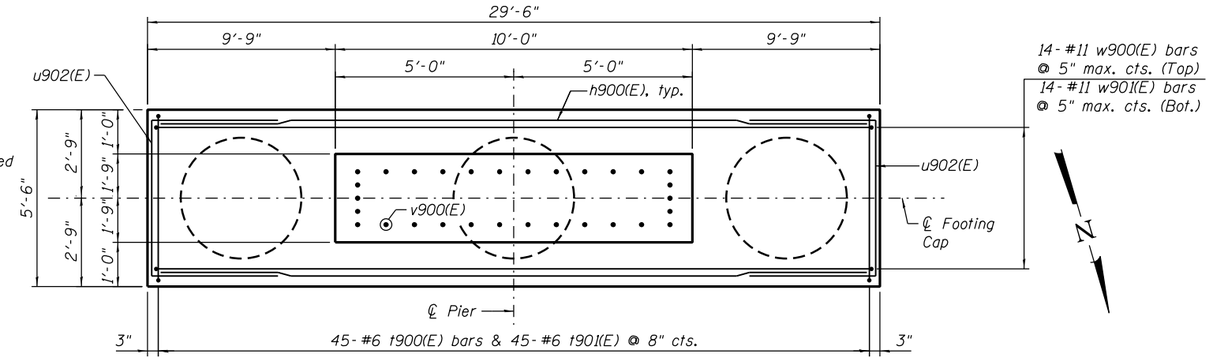
SECTION D-D



SECTION C-C



SECTION E-E



FOOTING PLAN

USER NAME = floresg	DESIGNED - AV	REVISED	
	CHECKED - DD	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 7/26/2018	CHECKED - DD	REVISED	

AECOM

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 9 DETAILS
STRUCTURE NO. 016-1715
SHEET NO. S3-117 OF S3-172

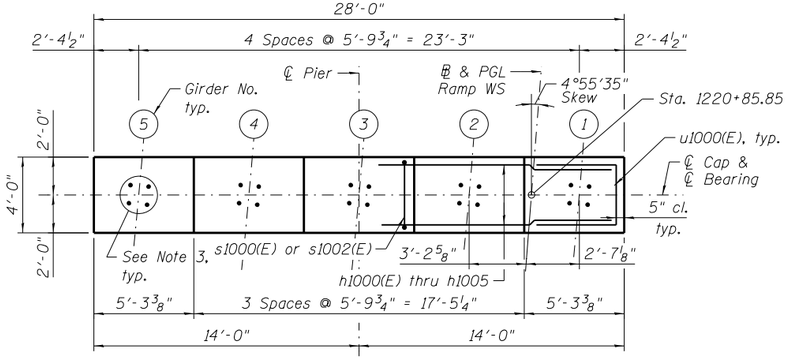
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	859
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

0161715-60X93-S115-Pier-9.dgn

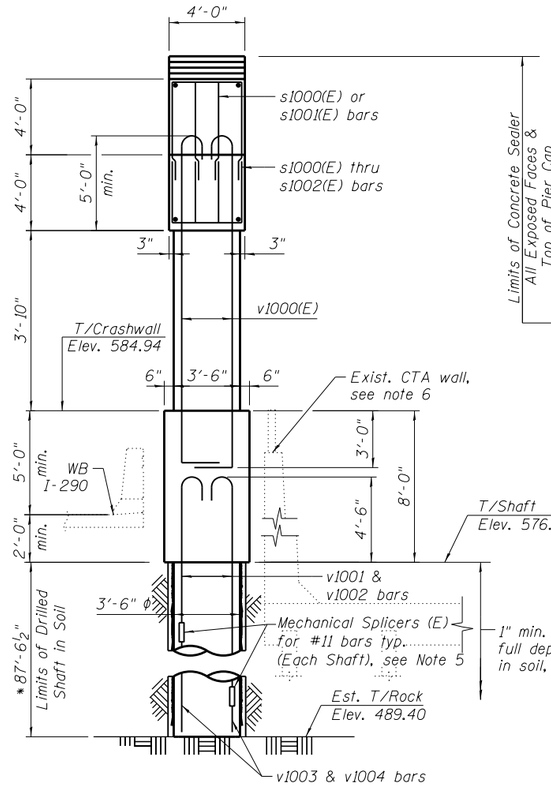
NOTES:

1. Pour steps monolithically with cap.
2. For Anchor Bolts Details see sheets S3-93 thru S3-99.
3. For Architectural Details see sheets S3-137 thru S3-139.
4. See sheet S3-119 for Sections and Details.
5. For Mechanical Splicers Details and Quantaties see sheet S3-140.
6. For clearances to Exist. CTA Wall see sheet S3-10.
7. The Contractor shall install permanent casing as a shaft excavation support method using procedures described in the Special Provisions for Foundation Drilling Procedures.
8. Granular Backfill shall be added between the crashwall and the CTA tunnel. This work shall be completed in accordance with the Special Provision Granular Backfill, Special.

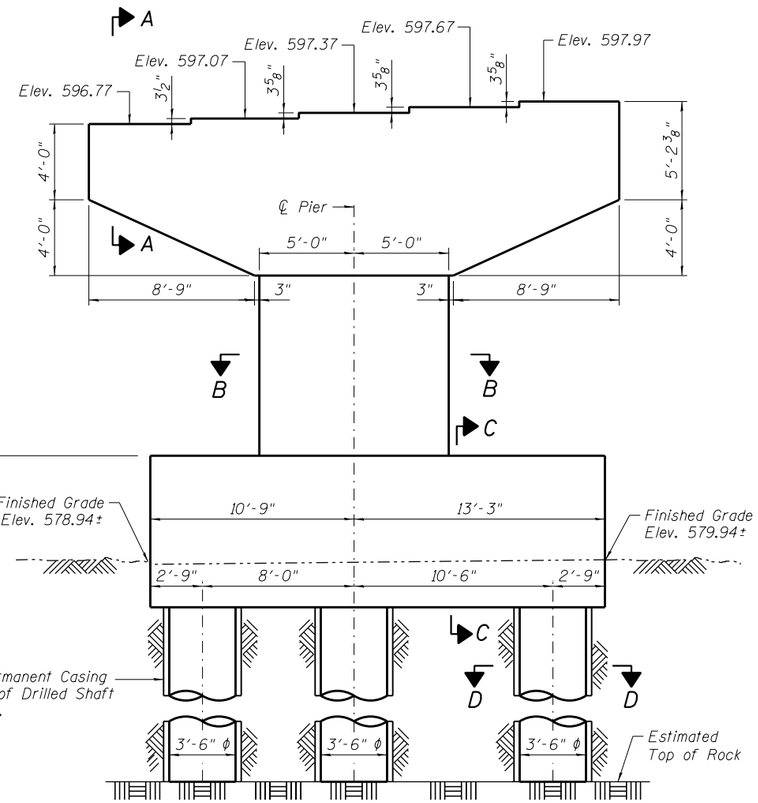
* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.



TOP PLAN

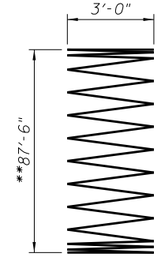


END VIEW

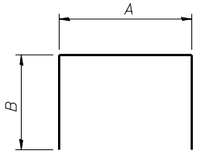


ELEVATION

(Looking Upstation)



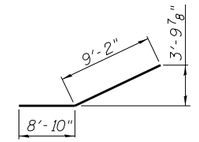
BAR sp1000



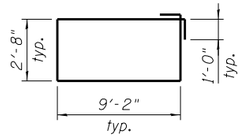
BARS

A & B DIMENSIONS

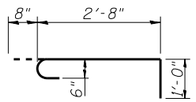
Bar	A	B
p1000(E)	27'-6"	2'-0"
s1000(E)	2'-1"	4'-6"
s1001(E)	2'-1"	5'-11"
s1002(E)	3'-2"	5'-11"
t1001(E)	3'-6"	7'-7"
t1002(E)	3'-6"	2'-0"
u1000(E)	3'-2"	4'-5"
u1001(E)	3'-2"	10"
u1002(E)	3'-6"	4'-5"
w1000(E)	23'-6"	2'-0"
w1001(E)	23'-6"	6'-6"



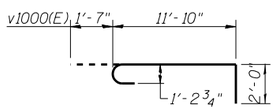
BAR p1001(E)



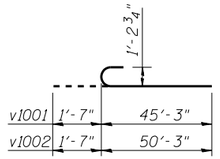
BAR s1003(E)



BAR s1004(E)



BAR v1000(E)



BARS v1001 & v1002

BILL OF MATERIAL

	Bar	No.	Size	Length	Shape
	h1000(E)	16	#7	27'-2"	
	h1001(E)	2	#7	13'-2"	
	h1002(E)	2	#7	16'-1"	
	h1003(E)	2	#7	18'-11"	
	h1004(E)	2	#7	21'-10"	
	h1005(E)	2	#7	24'-9"	
	h1006(E)	12	#5	5'-6"	
	h1007(E)	8	#5	4'-9"	
	h1008(E)	28	#7	23'-6"	
	p1000(E)	10	#11	31'-6"	
	p1001(E)	20	#8	18'-0"	
	s1000(E)	56	#5	11'-1"	
	s1001(E)	80	#5	13'-11"	
	s1002(E)	22	#5	15'-0"	
	s1003(E)	9	#6	25'-8"	
	s1004(E)	36	#6	4'-4"	
**	sp1000	3	#6	87'-6"	
	t1000(E)	48	#10	18'-8"	
	t1001(E)	48	#6	7'-6"	
	u1000(E)	16	#6	12'-0"	
	u1001(E)	30	#5	4'-10"	
	u1002(E)	28	#6	12'-4"	
	v1000(E)	30	#11	15'-5"	
	v1001	21	#11	46'-10"	
	v1002	21	#11	51'-10"	
	v1003	21	#11	46'-6"	
	v1004	21	#11	41'-6"	
	w1000(E)	12	#11	27'-6"	
	w1001(E)	12	#11	36'-6"	
	w1002(E)	12	#11	22'-10"	

	Concrete Structures	Cu. Yd.	63.9
	Reinforcement Bars, Epoxy Coated	Pound	21,450
	Reinforcement Bars	Pound	28,390
	Drilled Shaft in Soil	Cu. Yd.	93.6
	Earth Excavation (Special)	Cu. Yd.	50
	Permanent Casing	Foot	263
	Concrete Sealer	Sq. ft.	754
	Granular Backfill Special	Cu. Yd.	2.7
	Crosshole Sonic Logging Testing	Each	1
	Crosshole Sonic Logging Access Ducts	Foot	88

** Length is height of spiral.

MIN. LAP LENGTH

#5 bars: 3'-2"
#8 bars: 7'-2"

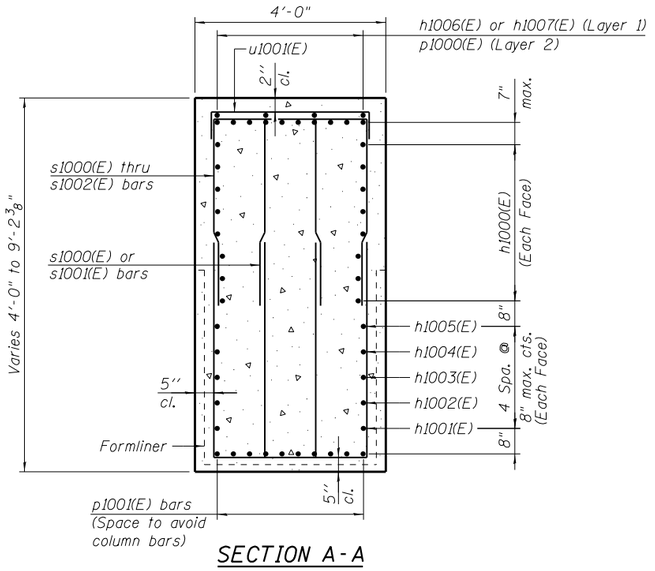
0161715-60X93-S116-Pier-10

AECOM	USER NAME = vasudevana	DESIGNED - AV	REVISED	
		CHECKED - DD	REVISED	
	PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
	PLOT DATE = 8/27/2018	CHECKED - DD	REVISED	

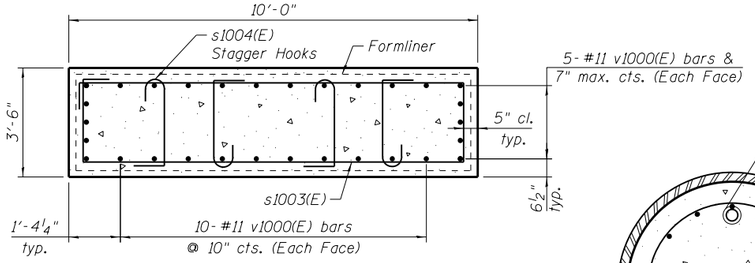
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 10
STRUCTURE NO. 016-1715
SHEET NO. S3-118 OF S3-172

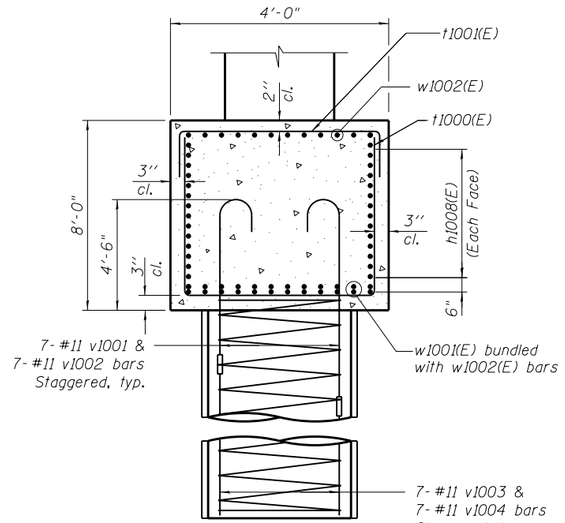
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	860
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			



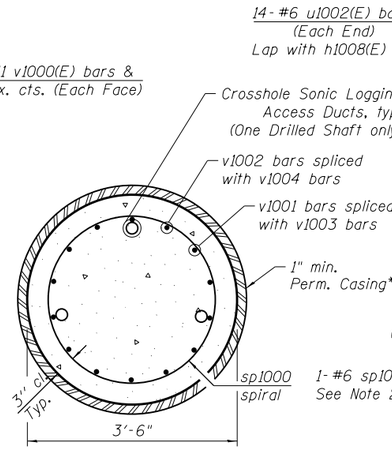
SECTION A-A



SECTION B-B

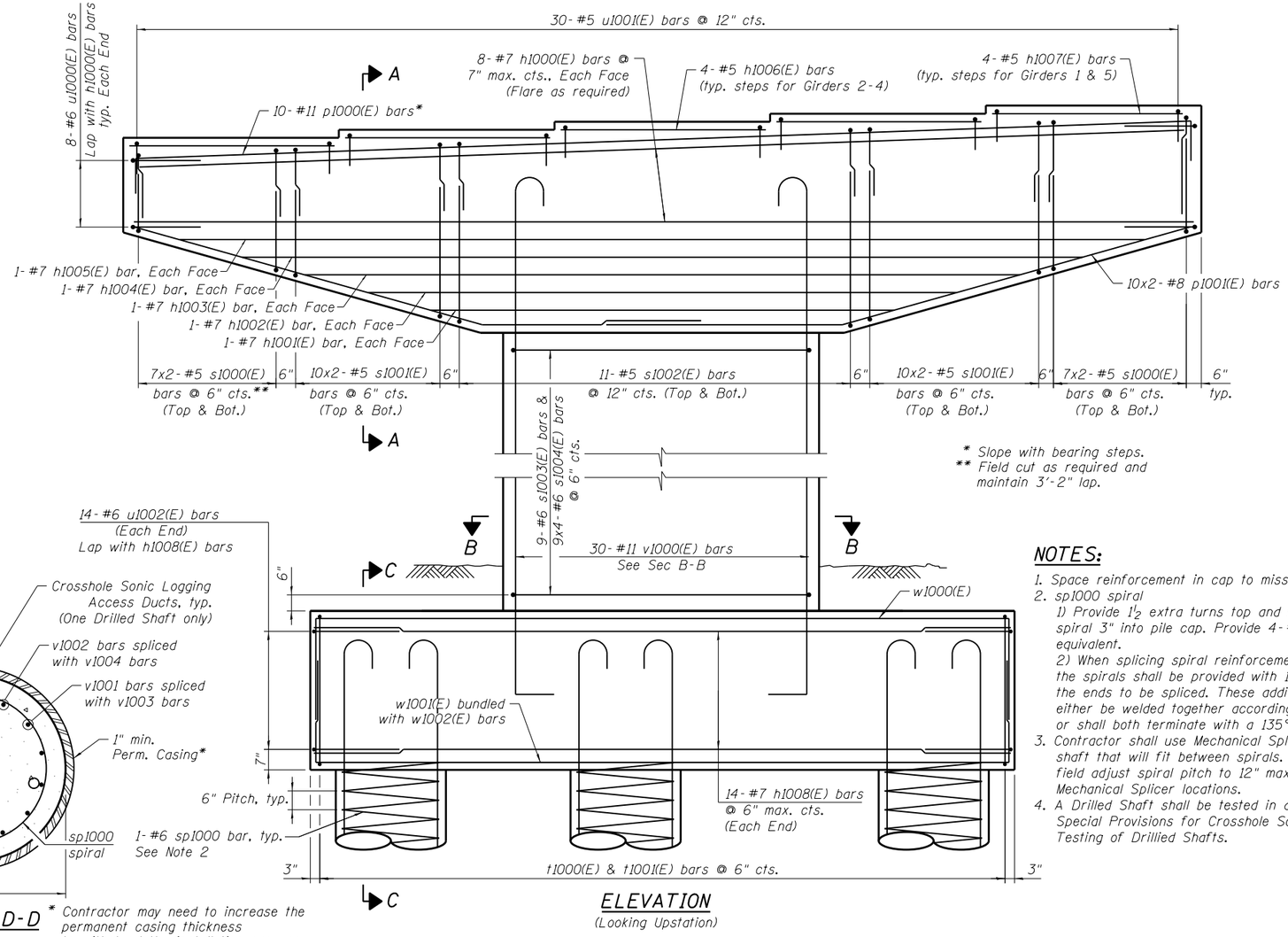


SECTION C-C



SECTION D-D

* Contractor may need to increase the permanent casing thickness to withstand the installation process. Contractor is responible for determining actual casing thickness.

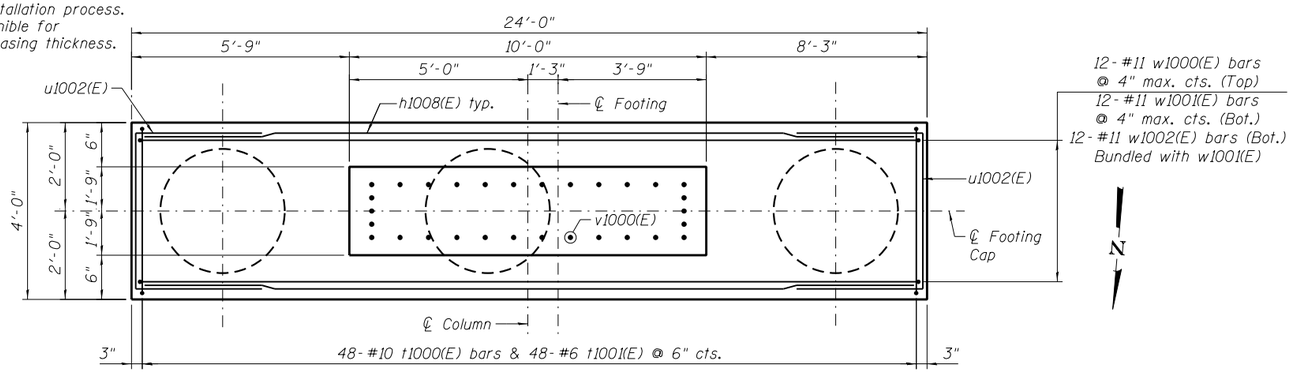


* Slope with bearing steps.
** Field cut as required and maintain 3'-2" lap.

ELEVATION
(Looking Upstation)

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. sp1000 spiral
   1) Provide $1\frac{1}{2}$ 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 $1\frac{1}{2}$ extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.
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 Testing of Drillied Shafts.



CRASHWALL PLAN

USER NAME = vasudevana	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 8/28/2018	CHECKED - ATB	REVISED	

AECOM

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 10 DETAILS
STRUCTURE NO. 016-1715
SHEET NO. S3-119 OF S3-172

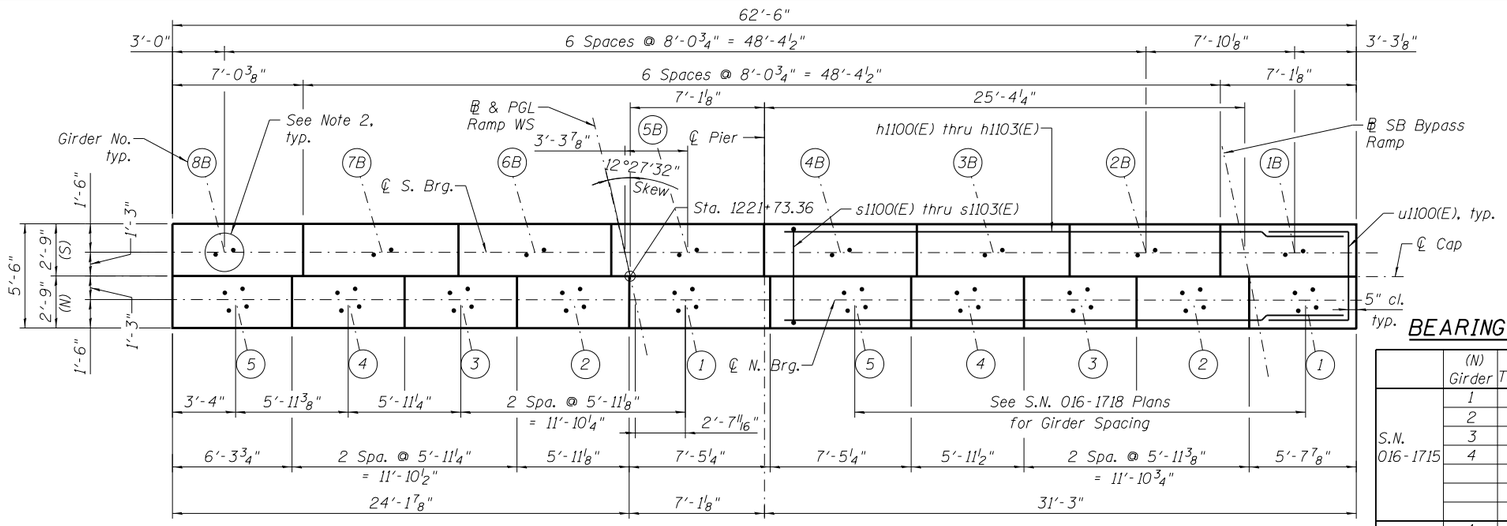
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	861
		CONTRACT NO. 60X93		
		ILLINOIS FED. AID PROJECT		

0161715-60X93-S117-Pier-10

NOTES:

1. Pour steps monolithically with cap.
2. For Anchor Bolts Details see sheets S3-93 thru S3-99 .
3. For Architectural Details see sheets S3-137 thru S3-139 .
4. See sheet S3-121 & S3-122 for Sections and Details.
5. (N)-North Girder, (S)-South Girder
6. For Mechanical Splicers Details & Quantities see sheet S3-140 .
7. For clearances to Exist. CTA Wall see sheet S3-10 .
8. The Contractor shall install permanent casing as a shaft excavation support method using procedures described in the Special Provisions for Foundation Drilling Procedures.
9. Granular Backfill shall be added between the crashwall and the CTA tunnel. This work shall be completed in accordance with the Special Provision Granular Backfill, Special.

** 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.

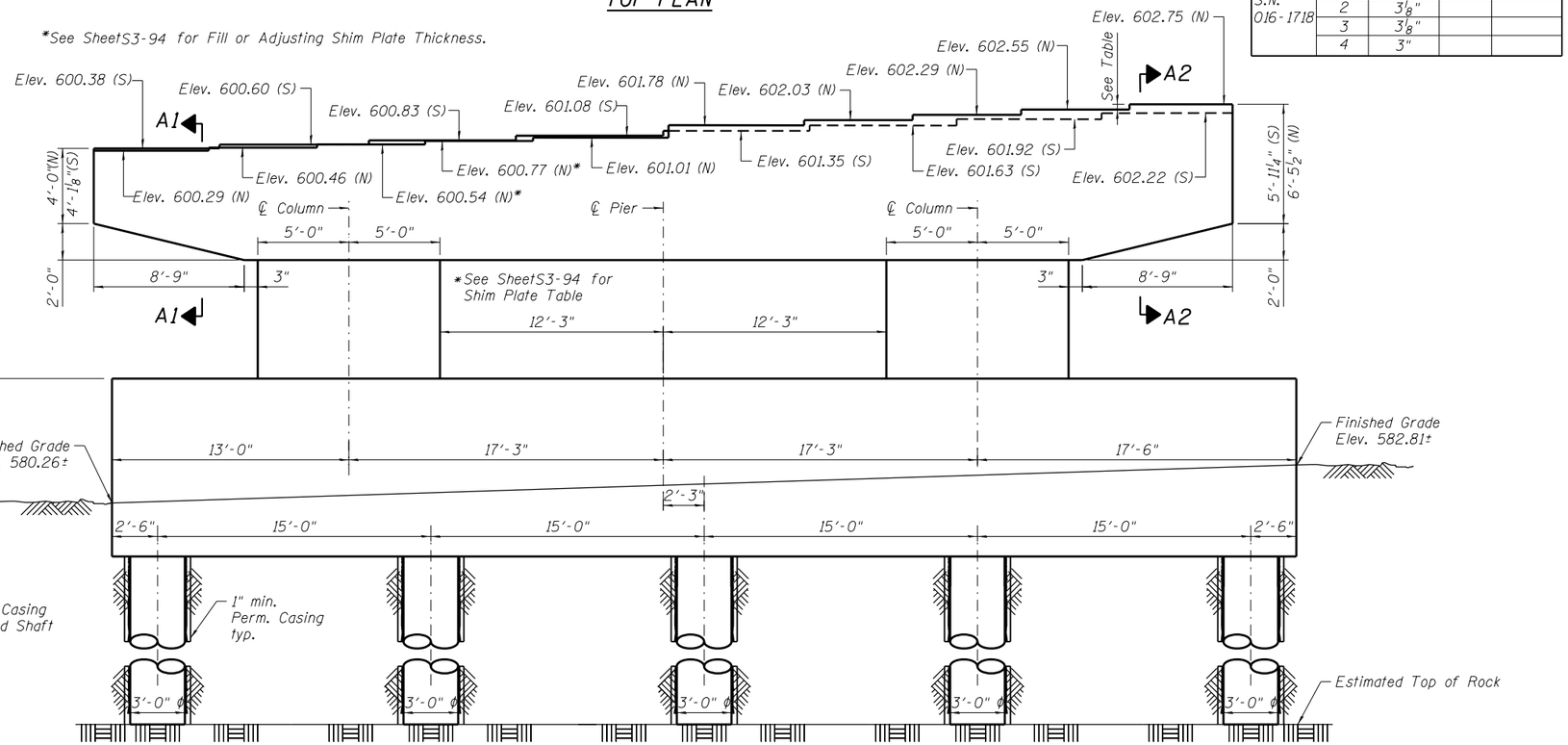


TOP PLAN

BEARING STEPS TABLE

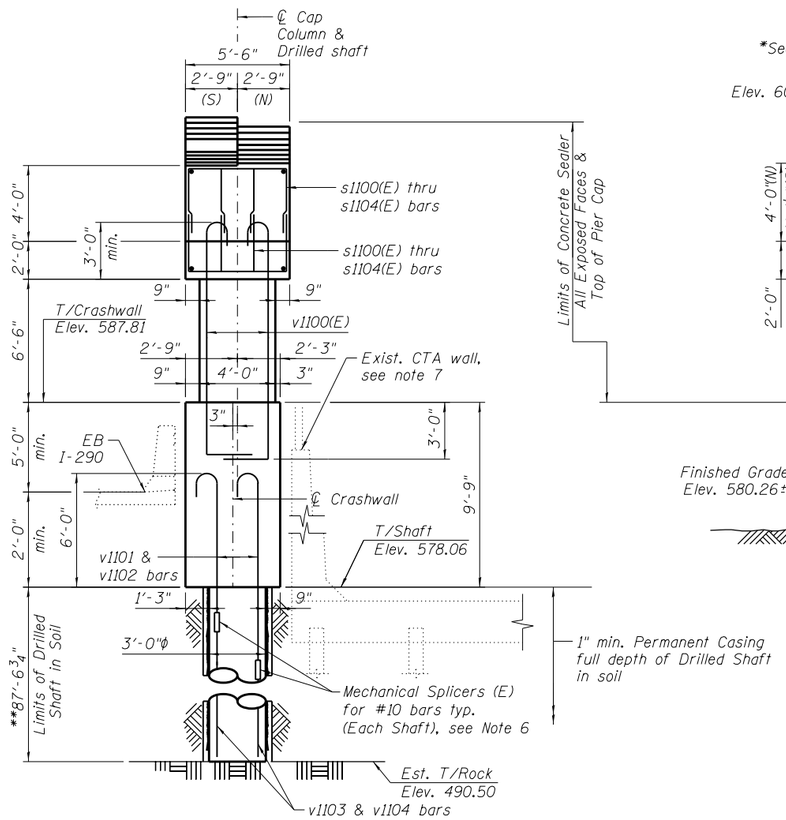
	(N) Girder	Seat Thickness	(S) Girder	Seat Thickness
S.N. 016-1715	1	2 7/8"	1B	3 5/8"
	2	2 3/4"	2B	3 1/2"
	3	7/8"	3B	3 3/8"
	4	2"	4B	3 1/4"
			5B	3"
			6B	2 3/4"
			7B	2 5/8"
S.N. 016-1718	1	2 3/8"		
	2	3 1/8"		
	3	3 1/8"		
	4	3"		

*See Sheet S3-94 for Fill or Adjusting Shim Plate Thickness.



ELEVATION

(Looking Upstation)

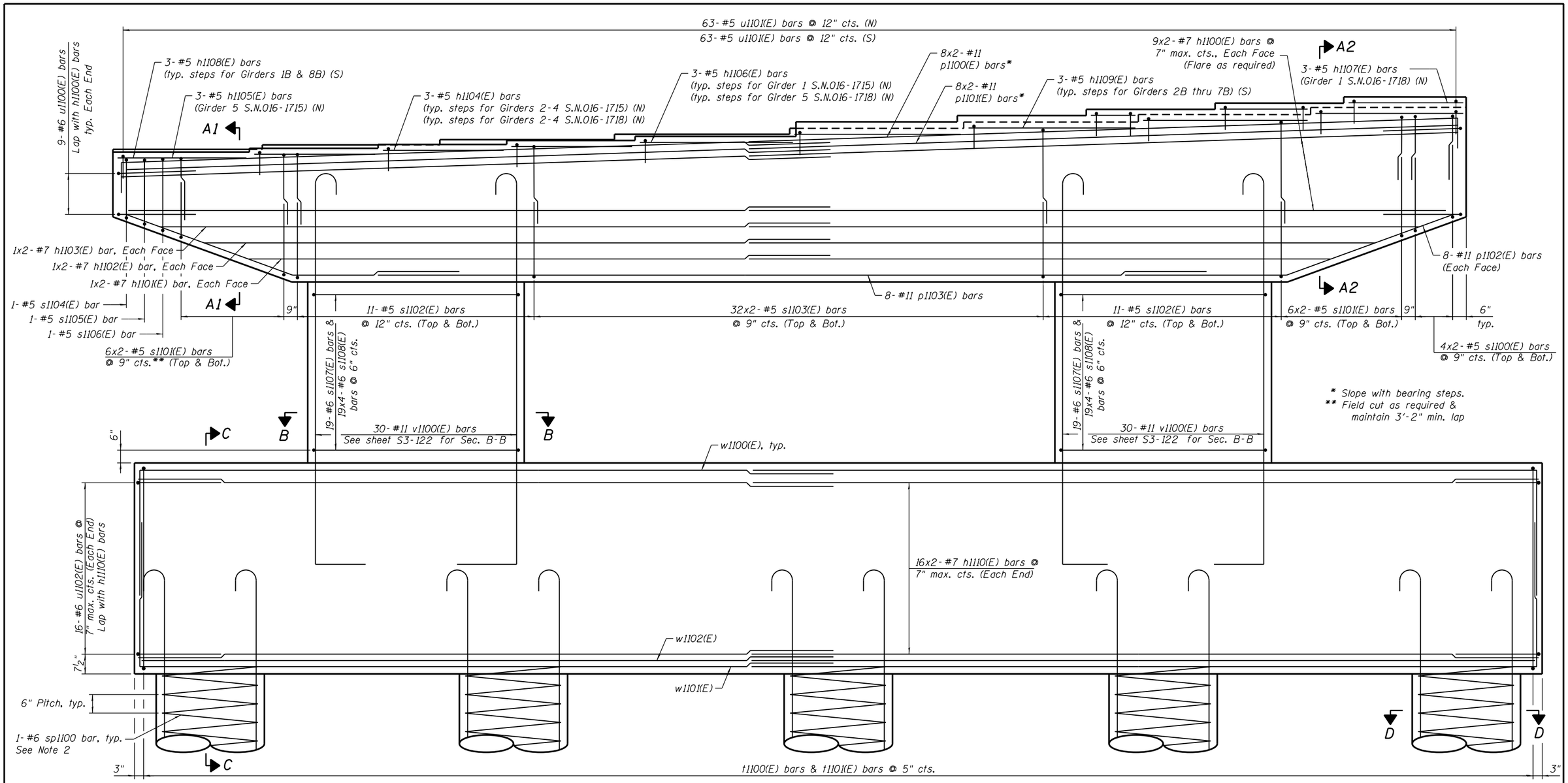


END VIEW

AECOM	USER NAME = vasudevana	DESIGNED - AV	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PIER 11 STRUCTURE NO. 016–1715 SHEET NO. S3-120 OF S3-172
		CHECKED - ATB	REVISED		
	PLOT SCALE = N.T.S.	DRAWN - AV	REVISED		
	PLOT DATE = 8/27/2018	CHECKED - ATB	REVISED		

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	862
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

0161715-60X93-S118-Pier-11



ELEVATION

(Looking Upstation)
NTS

MIN. LAP LENGTH

#5 bars: 3'-2"
#7 bars: 5'-0"
#11 bars: 9'-5"

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. sp1100 spiral
   1) Provide 11#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 11#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 Testing of Drilled Shafts.
5. See sheet S3-122 for crashwall plan.
6. (N) - North Girder, (S) - South Girder.
7. For Bill of Materials see sheet S3-122 .

AECOM

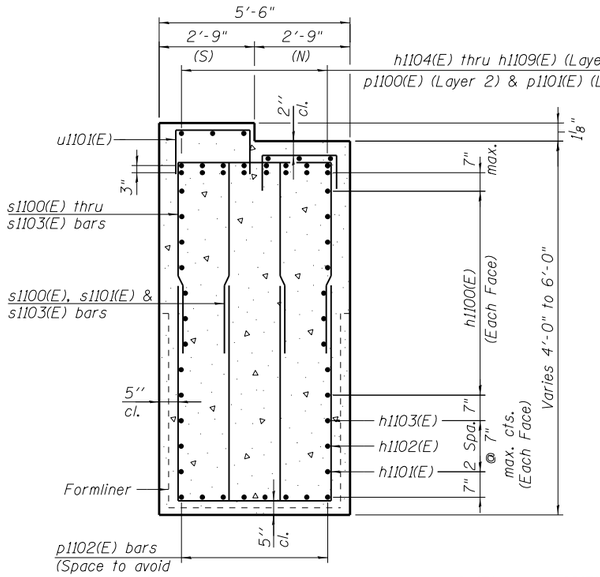
USER NAME = floresg	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

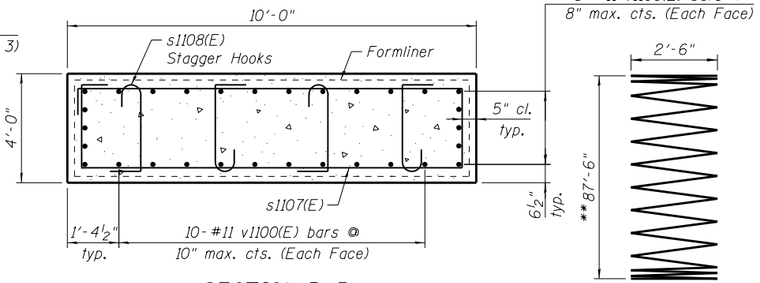
PIER 11 DETAILS – 1
STRUCTURE NO. 016–1715
SHEET NO. S3-121 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	863
		CONTRACT NO. 60X93		
	ILLINOIS	FED. AID PROJECT		

0161715-60X93-S119-Pier-11.dgn

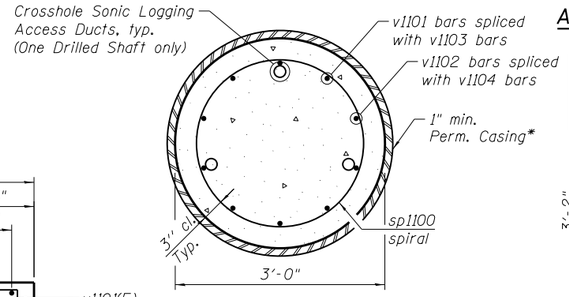


SECTION A1-A1



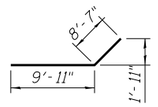
SECTION B-B

BAR sp1100

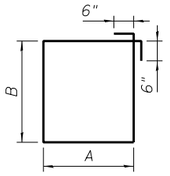


SECTION D-D

* Contractor may need to increase the permanent casing thickness to withstand the installation process. Contractor is responsible for determining actual casing thickness.



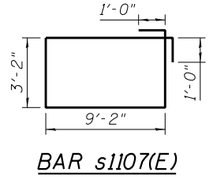
BAR p1102(E)



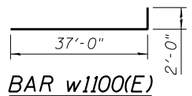
BARS

A & B DIMENSIONS

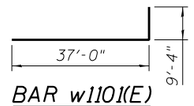
Bar	A	B
s1104(E)	2'-10"	3'-3"
s1105(E)	2'-10"	3'-6"
s1106(E)	2'-10"	3'-10"



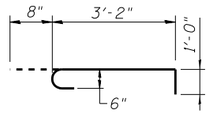
BAR s1107(E)



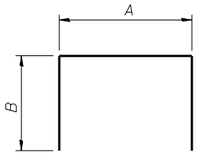
BAR w1100(E)



BAR w1101(E)



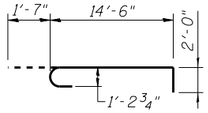
BAR s1108(E)



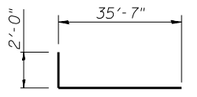
BARS

A & B DIMENSIONS

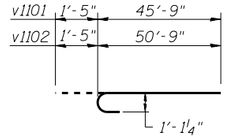
Bar	A	B
s1100(E)	2'-10"	4'-6"
s1101(E)	2'-10"	4'-10"
s1102(E)	4'-8"	5'-0"
s1103(E)	2'-10"	5'-0"
t1100(E)	4'-6"	9'-4"
t1101(E)	4'-6"	2'-0"
u1100(E)	4'-8"	4'-5"
u1101(E)	2'-2"	10"
u1102(E)	4'-6"	4'-5"



BAR v1100(E)



BAR p1100(E)



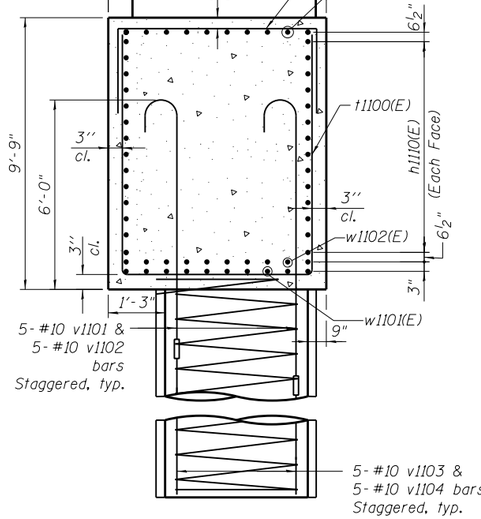
BARS v1101 & v1102

BILL OF MATERIAL

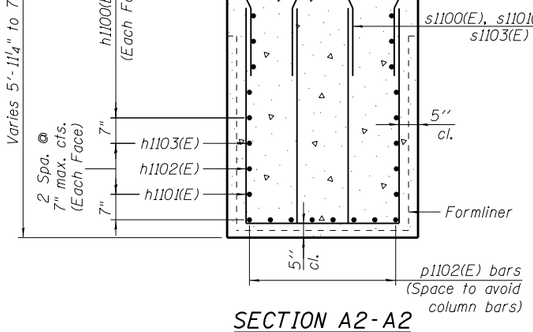
Bar	No.	Size	Length	Shape
h1100(E)	36	#7	33'-4"	
h1101(E)	4	#7	27'-6"	
h1102(E)	4	#7	29'-6"	
h1103(E)	4	#7	31'-7"	
h1104(E)	18	#5	5'-7"	
h1105(E)	3	#5	5'-9"	
h1106(E)	6	#5	7'-1"	
h1107(E)	3	#5	5'-1"	
h1108(E)	3	#5	6'-6"	
h1109(E)	18	#5	7'-8"	
h1110(E)	64	#7	34'-9"	
p1100(E)	16	#11	37'-7"	
p1101(E)	16	#11	35'-3"	
p1102(E)	16	#11	18'-6"	
p1103(E)	8	#11	44'-0"	
s1100(E)	16	#5	11'-10"	
s1101(E)	48	#5	12'-6"	
s1102(E)	44	#5	14'-8"	
s1103(E)	128	#5	12'-10"	
s1104(E)	1	#5	13'-2"	
s1105(E)	1	#5	13'-8"	
s1106(E)	1	#5	14'-4"	
s1107(E)	38	#6	26'-8"	
s1108(E)	152	#6	4'-10"	
** sp1100	5	#6	87'-6"	
t1100(E)	156	#10	23'-2"	
t1101(E)	156	#6	8'-6"	
u1100(E)	18	#6	13'-6"	
u1101(E)	126	#5	3'-10"	
u1102(E)	32	#6	13'-4"	
v1100(E)	60	#11	18'-1"	
v1101	25	#10	47'-2"	
v1102	25	#10	52'-2"	
v1103	25	#10	47'-6"	
v1104	25	#10	42'-6"	
w1100(E)	20	#11	39'-0"	
w1101(E)	20	#11	46'-4"	
w1102(E)	20	#11	36'-11"	

Concrete Structures	Cu. Yd.	223.3
Reinforcement Bars, Epoxy Coated	Pound	61,390
Reinforcement Bars	Pound	30,870
Drilled Shaft in Soil	Cu. Yd.	114.7
Earth Excavation, (Special)	Cu. Yd.	69
Permanent Casing	Foot	438
Concrete Sealer	Sq. ft.	1867
Granular Backfill Special	Cu. Yd.	2.1
Crosshole Sonic Logging Testing	Each	1
Crosshole Sonic Logging Access Ducts	Foot	88

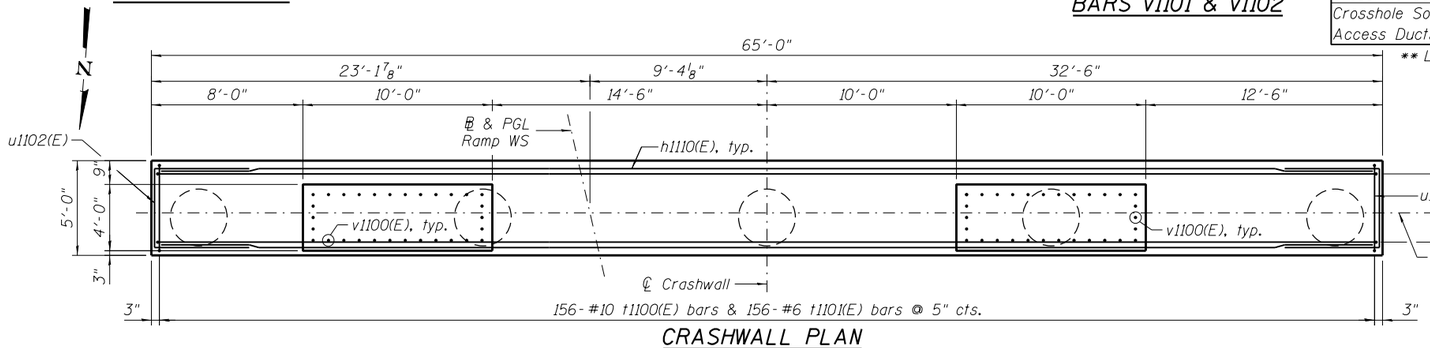
** Length is height of spiral.



SECTION C-C



SECTION A2-A2



CRASHWALL PLAN

USER NAME = vasudevana	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 8/28/2018	CHECKED - ATB	REVISED	

AECOM

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 11 DETAILS – 2
STRUCTURE NO. 016–1715
SHEET NO. S3-122 OF S3-172

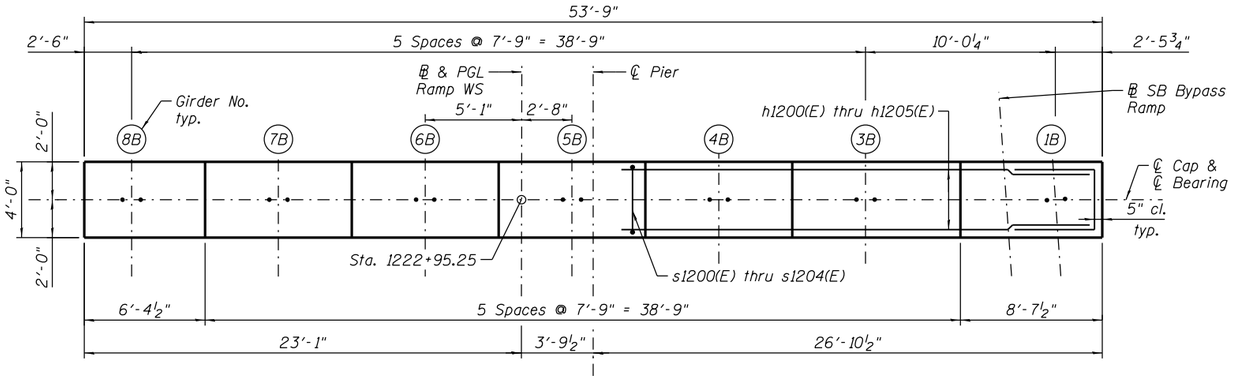
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	864
		CONTRACT NO. 60X93		
		ILLINOIS FED. AID PROJECT		

0161715-60X93-S120-Pier-11

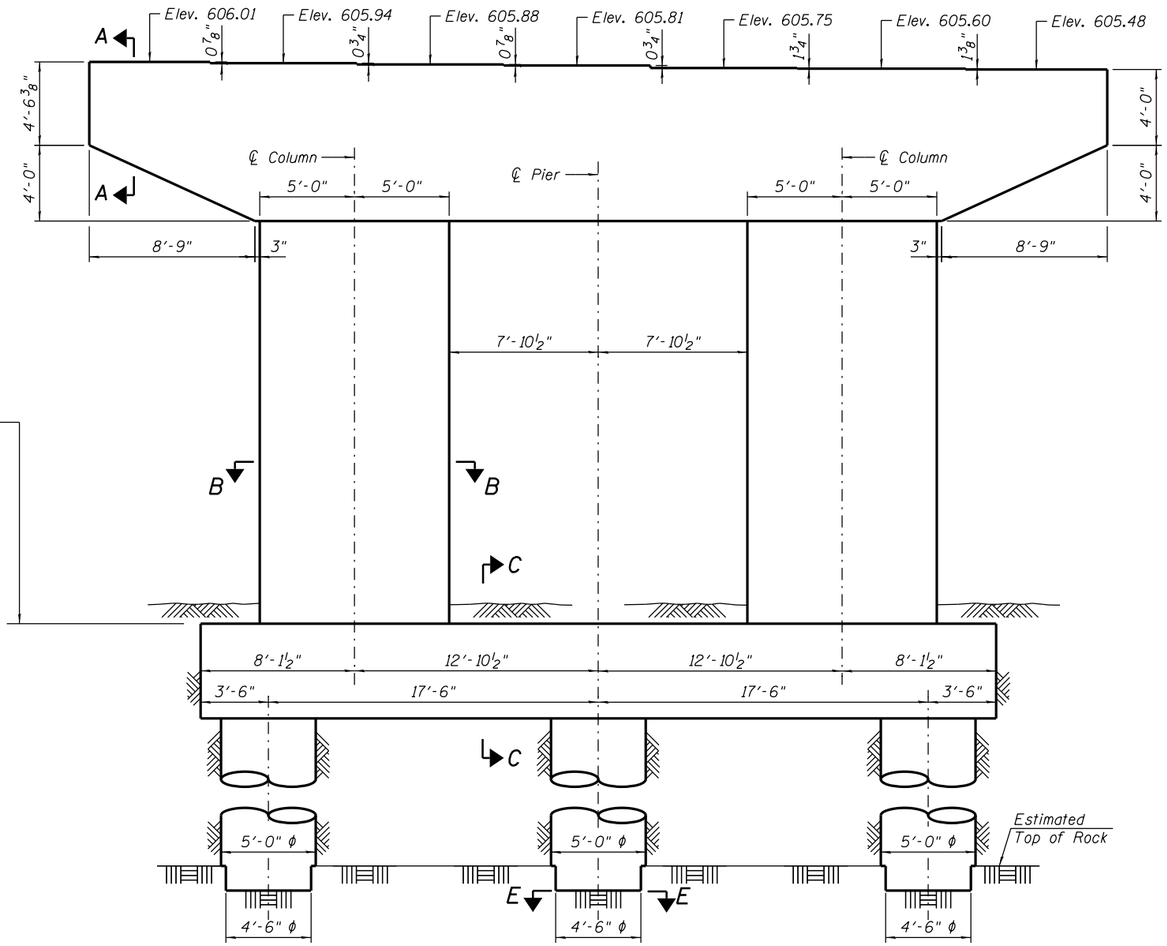
NOTES:

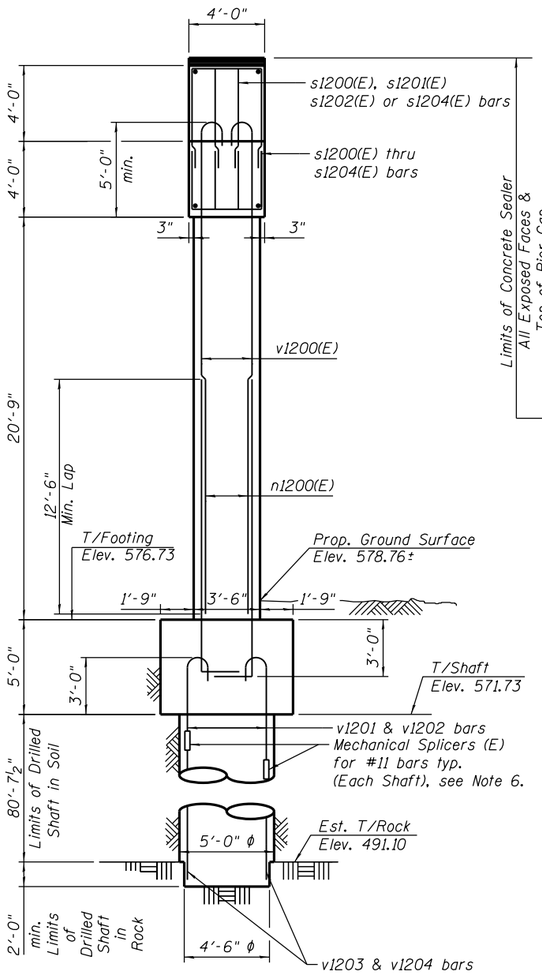
1. Pour steps monolithically with cap.
2. ℄ of Pier is radial to ℄ Ramp WS at Sta. 1222+95.25.
3. For Anchor Bolts Details see sheets S3-93 thru S3-99 .
4. For Architectural Details see sheets S3-137 thru S3-139 .
5. See sheet S3-124 & S3-125 for Sections and Details.
6. For Mechanical Splicer Details & Quantities see sheet S3-140 .

* 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



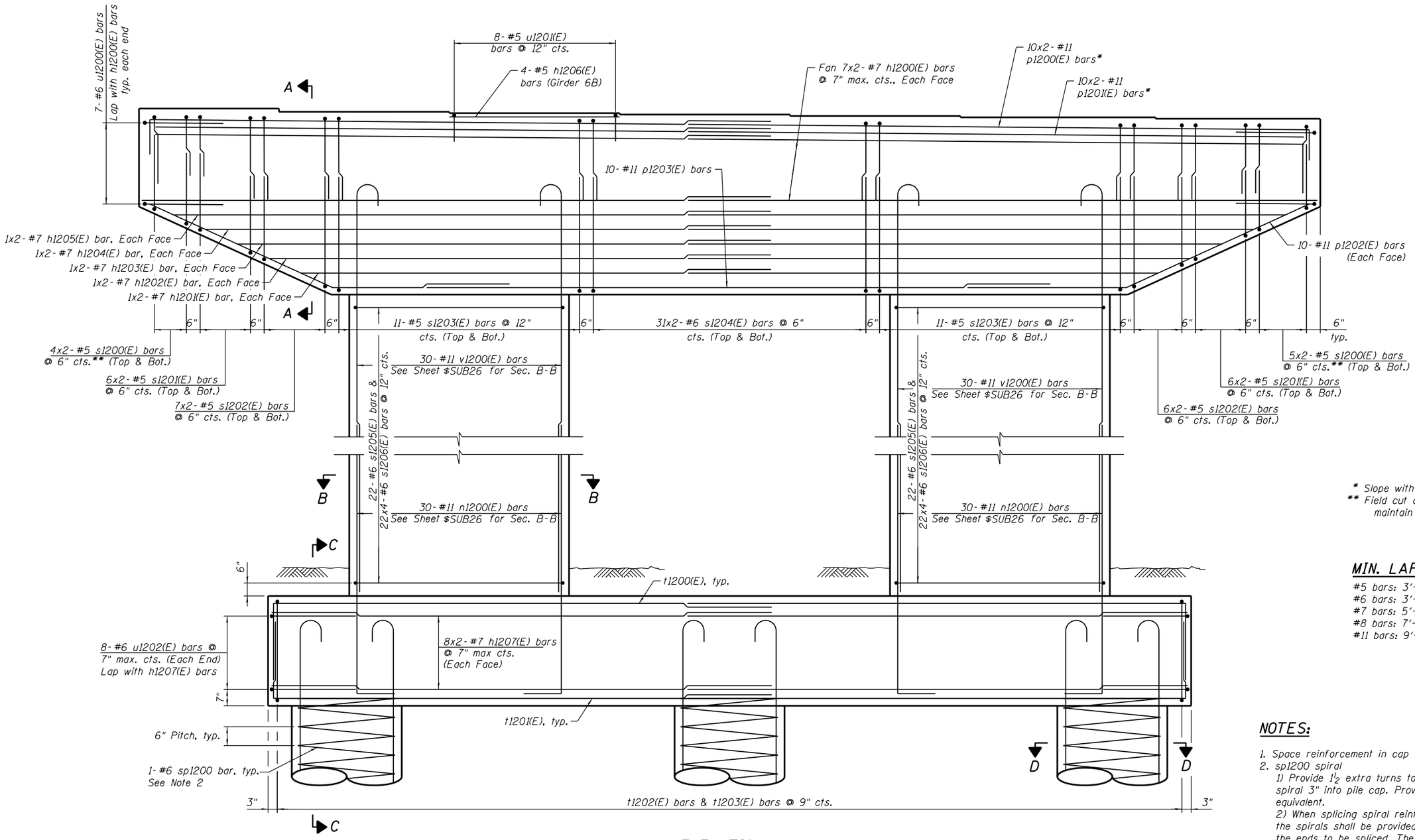


END VIEW

ELEVATION

AECOM	USER NAME = floresg	DESIGNED - AV	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PIER 12 STRUCTURE NO. 016–1715 SHEET NO. S3-123 OF S3-172	F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		CHECKED - ATB	REVISED			90/94/290	2014-013R&B-R	COOK	1972	865
	PLOT SCALE = N.T.S.	DRAWN - AV	REVISED					CONTRACT NO. 60X93		
	PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED				ILLINOIS	FED. AID PROJECT		

0161715-60X93-S121-Pier-12.dgn



ELEVATION
(Looking Upstation)
NTS

* Slope with bearing steps.
** Field cut as required & maintain 3'-2" min. lap

MIN. LAP LENGTH

#5 bars: 3'-2"
#6 bars: 3'-10"
#7 bars: 5'-0"
#8 bars: 7'-2"
#11 bars: 9'-5"

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. sp1200 spiral
   1) Provide $1\frac{1}{2}$ 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 $1\frac{1}{2}$ extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.
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 Testing of Drilled Shafts.
6. See sheet S3-125 for Footing Plan.
7. For Bill of Material see sheet S3-125 .

0161715-60X93-S122-Pier-12.dgn

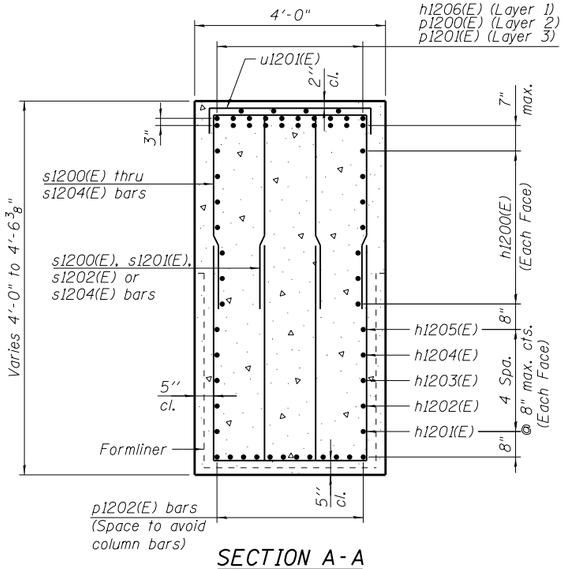
AECOM

USER NAME = floresg	DESIGNED - AV	REVISED
	CHECKED - ATB	REVISED
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED

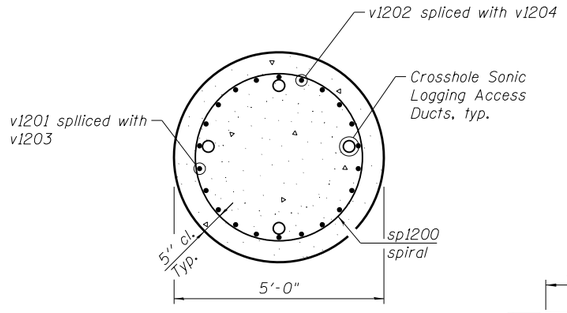
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 12 DETAILS - 1
STRUCTURE NO. 016-1715
SHEET NO. S3-124 OF S3-172

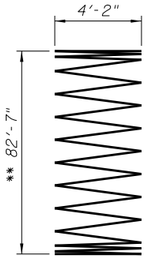
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	866
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			



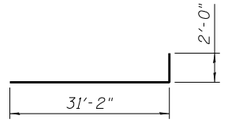
SECTION A-A



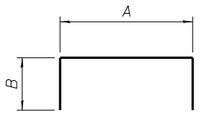
SECTION D-D



BAR sp1200



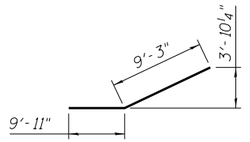
BAR p1200(E)



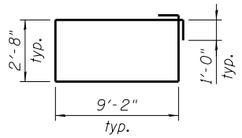
BENT BAR

A & B DIMENSIONS

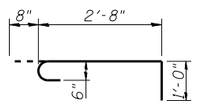
Bar	A	B
s1200(E)	2'-1"	3'-10"
s1201(E)	2'-1"	4'-7"
s1202(E)	2'-1"	5'-4"
s1203(E)	3'-2"	5'-10"
s1204(E)	2'-1"	5'-9"
w1200(E)	41'-6"	2'-0"
w1201(E)	41'-6"	3'-6"
u1200(E)	4'-2"	4'-5"
u1201(E)	3'-2"	10"
u1202(E)	6'-6"	4'-5"



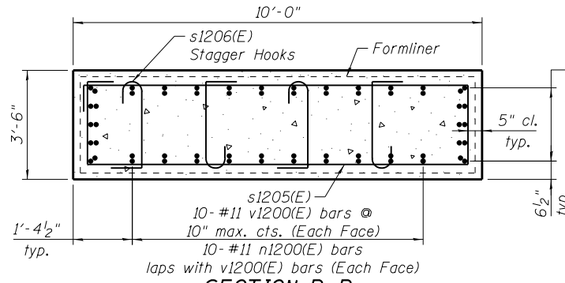
BAR p1202(E)



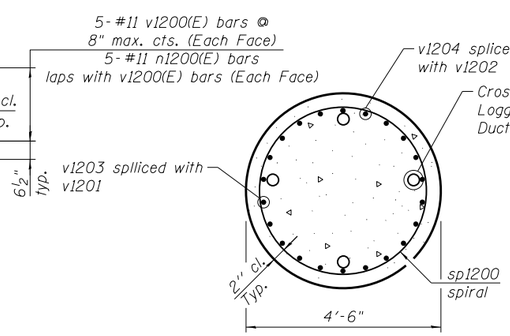
BAR s1205(E)



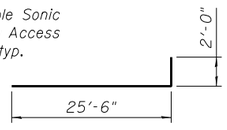
BAR s1206(E)



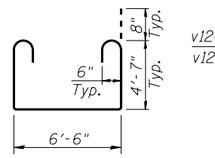
SECTION B-B



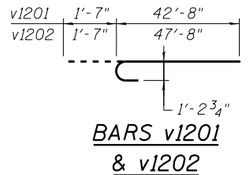
SECTION E-E



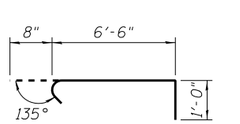
BAR w1200(E)



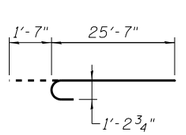
BAR t1200(E)



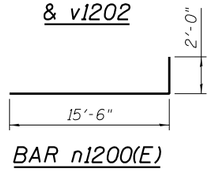
BARS v1201
& v1202



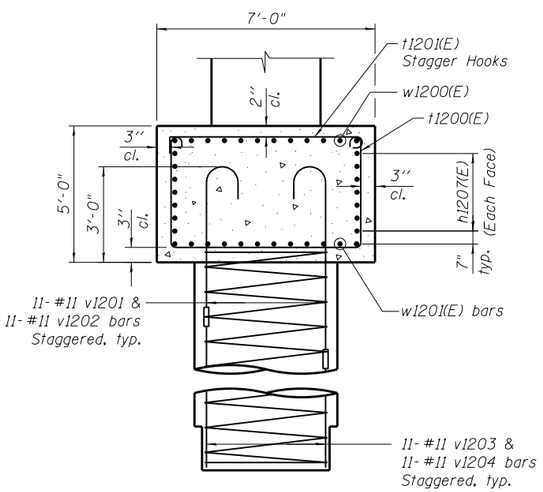
BAR t1201(E)



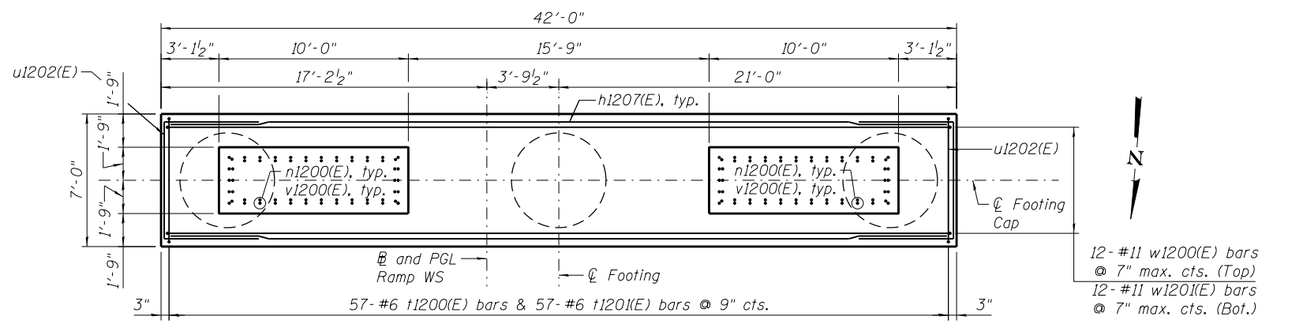
BAR v1200(E)



BAR n1200(E)



SECTION C-C



FOOTING PLAN

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h1200(E)	28	#7	31'-2"	
h1201(E)	4	#7	22'-0"	
h1202(E)	4	#7	23'-5"	
h1203(E)	4	#7	24'-10"	
h1204(E)	4	#7	26'-4"	
h1205(E)	4	#7	27'-9"	
h1206(E)	4	#5	7'-5"	
h1207(E)	32	#7	23'-3"	
n1200(E)	60	#11	17'-6"	
p1200(E)	20	#11	33'-2"	
p1201(E)	20	#11	30'-10"	
p1202(E)	20	#11	19'-2"	
p1203(E)	10	#11	35'-3"	
s1200(E)	36	#5	9'-9"	
s1201(E)	48	#5	11'-3"	
s1202(E)	52	#5	12'-9"	
s1203(E)	44	#5	14'-10"	
s1204(E)	124	#6	13'-7"	
s1205(E)	44	#6	25'-8"	
s1206(E)	176	#6	4'-4"	
** sp1200	3	#6	82'-7"	
t1200(E)	57	#6	17'-0"	
t1201(E)	57	#6	8'-2"	
u1200(E)	14	#6	13'-0"	
u1201(E)	8	#5	4'-10"	
u1202(E)	16	#6	15'-4"	
v1200(E)	60	#11	27'-2"	
v1201	33	#11	44'-3"	
v1202	33	#11	49'-3"	
v1203	33	#11	42'-8"	
v1204	33	#11	37'-8"	
w1200(E)	12	#11	45'-6"	
w1201(E)	12	#11	48'-6"	

Concrete Structures	Cu. Yd.	169.1
Reinforcement Bars, Epoxy Coated	Pound	45,810
Reinforcement Bars	Pound	40,400
Drilled Shaft in Soil	Cu. Yd.	175.9
Drilled Shaft in Rock	Cu. Yd.	3.6
Structure Excavation	Cu. Yd.	143.0
Concrete Sealer	Sq. ft.	2322
Crosshole Sonic Logging Testing	Each	1
Crosshole Sonic Logging Access Ducts	Foot	248

** Length is height of spiral.

0161715-60X93-S123-Pier-12

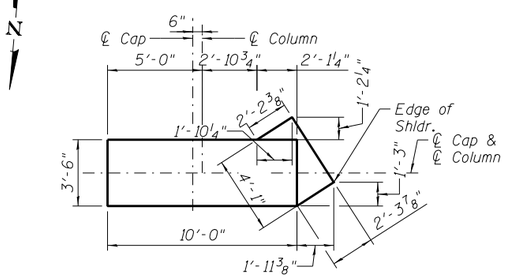
AECOM

USER NAME = vasudevana	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 8/29/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

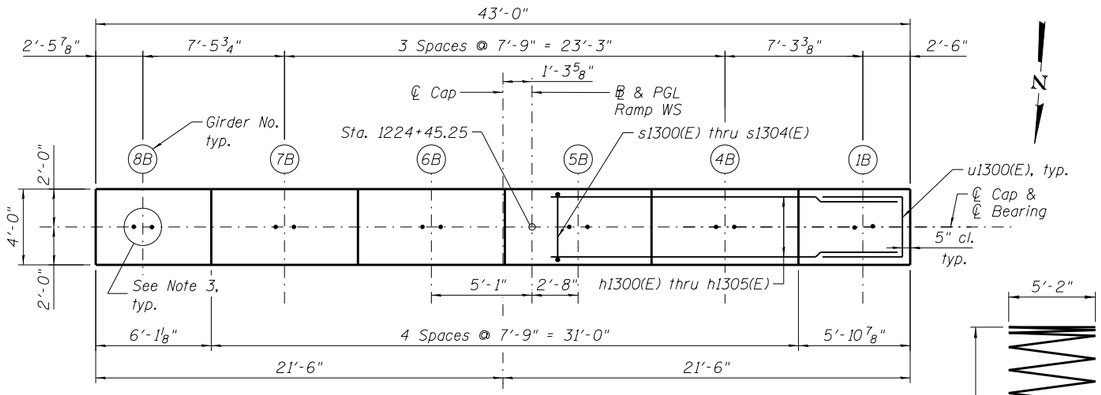
PIER 12 DETAILS – 2
STRUCTURE NO. 016–1715
SHEET NO. S3-125 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	867
		CONTRACT NO. 60X93		
		ILLINOIS FED. AID PROJECT		

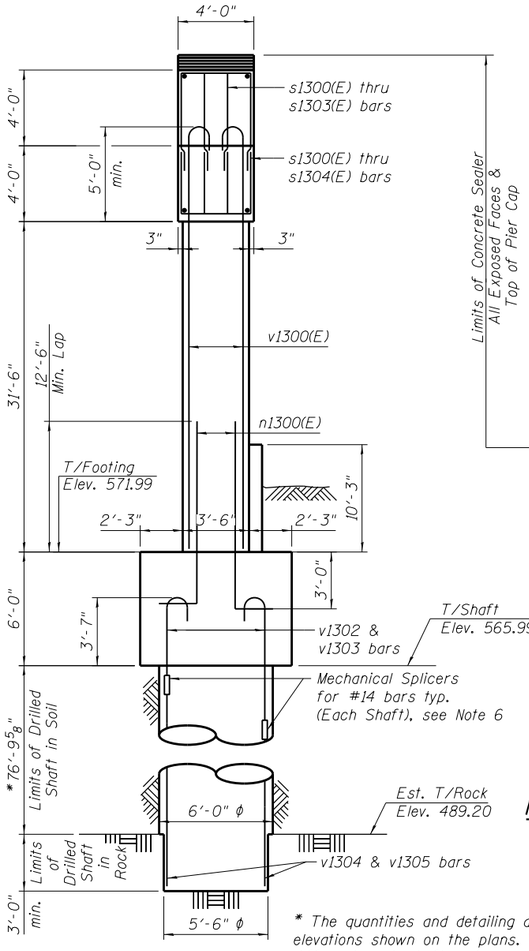


SECTION B-B

See Sheet S3-127 for reinforcement details



TOP PLAN

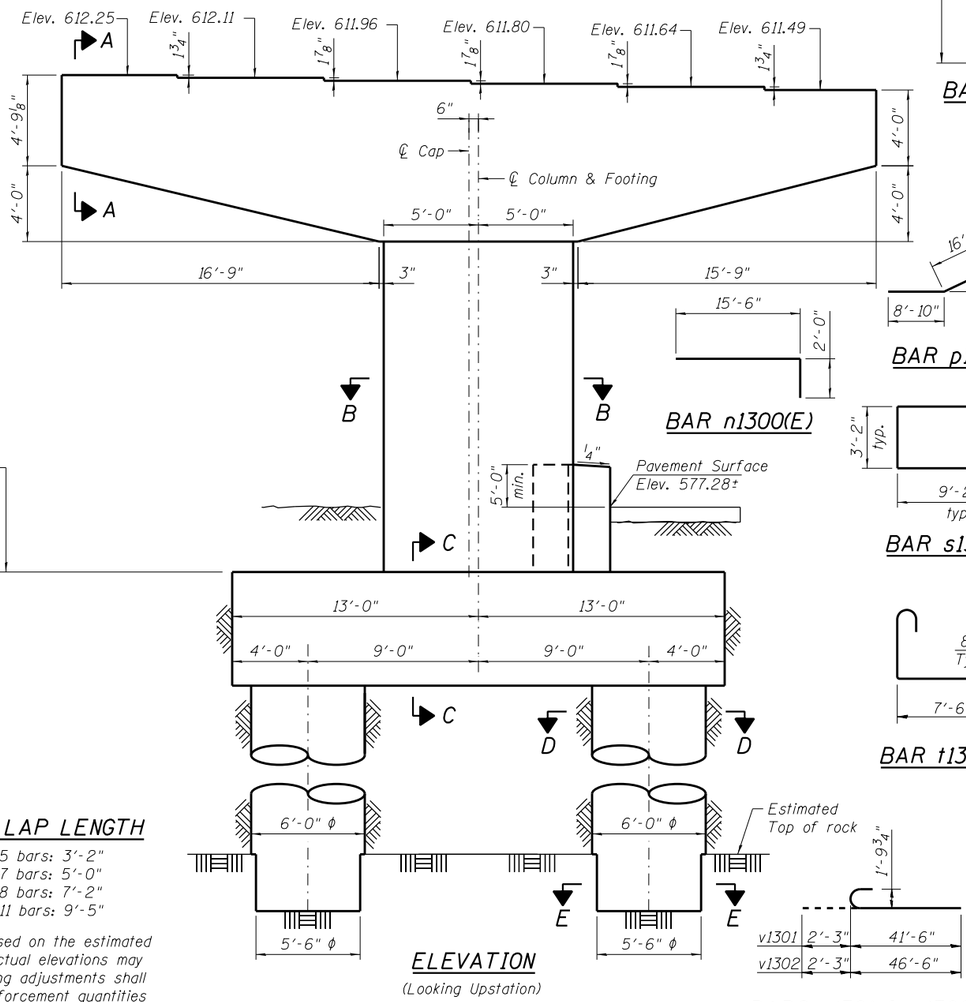


END VIEW

MIN. LAP LENGTH

#5 bars: 3'-2"
#7 bars: 5'-0"
#8 bars: 7'-2"
#11 bars: 9'-5"

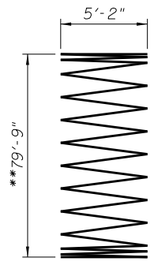
* The quantities and detailing are based on the estimated elevations shown on the plans. The actual elevations may differ at each shaft and corresponding adjustments shall be made to the drilled shaft and reinforcement quantities and payment limits.



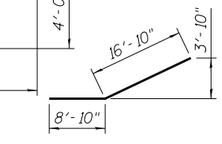
ELEVATION

(Looking Upstation)

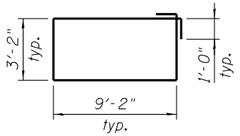
BARS v1301 & v1302



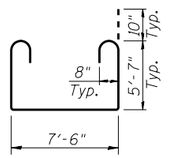
BAR sp1300



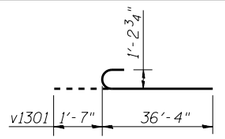
BAR p1302(E)



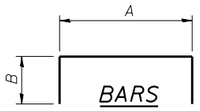
BAR s1305(E)



BAR t1300(E)

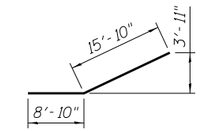


BARS v1300

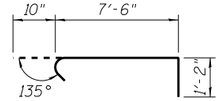


BARS A & B DIMENSIONS

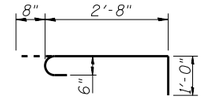
Bar	A	B
p1300(E)	42'-2"	2'-0"
s1300(E)	2'-1"	4'-2"
s1301(E)	2'-1"	5'-1"
s1302(E)	2'-1"	5'-6"
s1303(E)	2'-1"	3'-8"
s1304(E)	3'-2"	5'-6"
w1300(E)	25'-6"	2'-0"
w1301(E)	25'-6"	4'-6"
u1300(E)	3'-2"	4'-5"
u1301(E)	3'-2"	10"
u1302(E)	7'-6"	4'-5"
u1303(E)	3'-9"	2'-6"



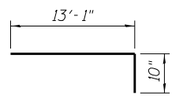
BAR p1303(E)



BAR t1301(E)



BAR s1306(E)



BAR n1301(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h1300(E)	28	#7	25'-7"	
h1301(E)	2	#7	15'-9"	
h1302(E)	2	#7	21'-2"	
h1303(E)	2	#7	26'-7"	
h1304(E)	2	#7	32'-0"	
h1305(E)	2	#7	37'-4"	
h1306(E)	5	#5	7'-5"	
h1307(E)	16	#7	25'-6"	
n1300(E)	58	#11	17'-6"	
n1301(E)	10	#5	12'-5"	
p1300(E)	10	#11	46'-2"	
p1301(E)	20	#11	41'-6"	
p1302(E)	10	#8	25'-8"	
p1303(E)	10	#8	24'-8"	
s1300(E)	72	#5	10'-5"	
s1301(E)	156	#5	12'-3"	
s1302(E)	44	#5	13'-1"	
s1303(E)	32	#5	9'-5"	
s1304(E)	22	#5	14'-2"	
s1305(E)	63	#6	26'-8"	
s1306(E)	252	#6	4'-4"	
** sp1300	2	#6	79'-9"	
t1300(E)	52	#7	20'-4"	
t1301(E)	52	#7	9'-6"	
u1300(E)	14	#6	12'-0"	
u1301(E)	8	#5	4'-10"	
u1302(E)	16	#6	16'-4"	
u1303(E)	10	#5	8'-9"	
v1300(E)	58	#11	37'-11"	
v1301	26	#14	43'-9"	
v1302	26	#14	48'-9"	
v1303	26	#14	41'-7"	
v1304	26	#14	36'-7"	
w1300(E)	22	#11	29'-6"	
w1301(E)	22	#11	34'-6"	
w1302(E)	22	#11	24'-10"	

Concrete Structures	Cu. Yd.	133.1
Reinforcement Bars, Epoxy Coated	Pound	50,810
Reinforcement Bars	Pound	41,870
Drilled Shaft in Soil	Cu. Yd.	160.9
Drilled Shaft in Rock	Cu. Yd.	5.3
Structure Excavation	Cu. Yd.	148.0
Concrete Sealer	Sq. ft.	1810
Crosshole Sonic Logging Testing	Each	1
Crosshole Sonic Logging Access Ducts	Foot	160

** Length is height of spiral.

NOTES:

1. Pour steps monolithically with cap.
2. ℄ of Pier is radial to ℄ Ramp WS at Sta. 1224+45.25.
3. For Anchor Bolts Details see sheets S3-93 to S3-99 .
4. For Architectural Details see sheets S3-137 thru S3-139 .
5. See sheet S3-127 for Sections and Details.
6. For Mechanical Splicer Details & Quantities see sheet S3-140 .

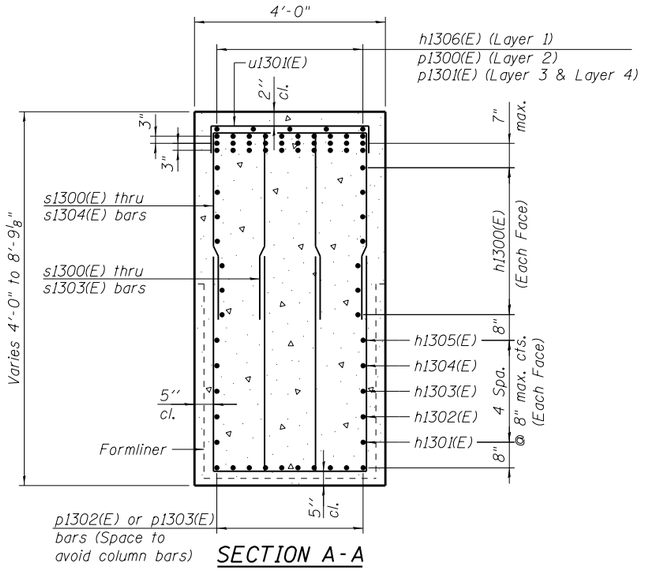
AECOM	USER NAME = vasudevana	DESIGNED - AV	REVISED
		CHECKED - ATB	REVISED
	PLOT SCALE = N.T.S.	DRAWN - AV	REVISED
	PLOT DATE = 8/28/2018	CHECKED - ATB	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

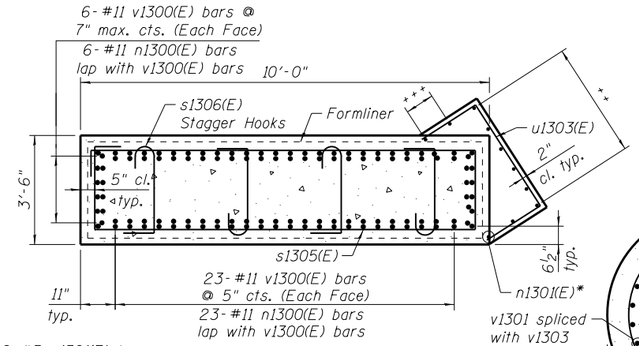
PIER 13
STRUCTURE NO. 016-1715
SHEET NO. S3-126 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	868
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

0161715-60X93-S124-Pier-13



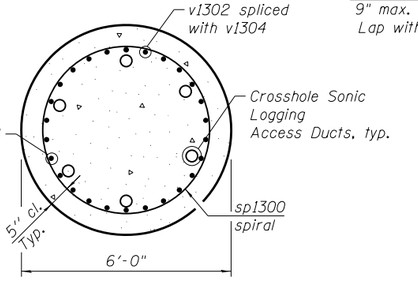
SECTION A-A



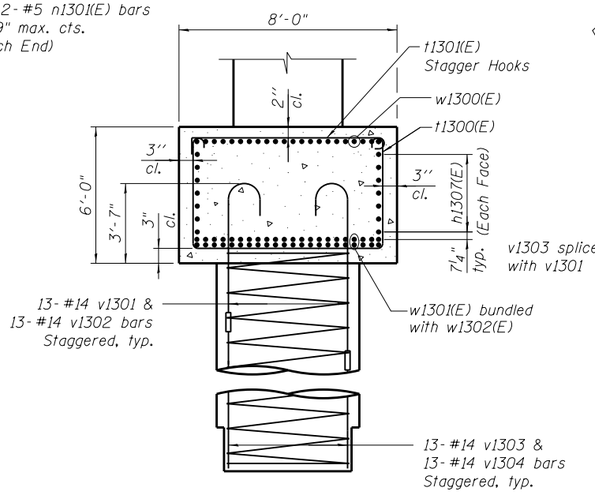
++ 6-#5 n1301(E) bars at 9" max. cts.

++ 2-#5 n1301(E) bars at 9" max. cts. (Each End)

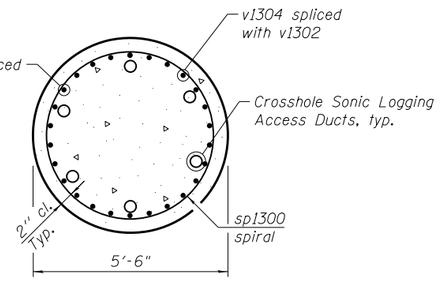
SECTION B-B



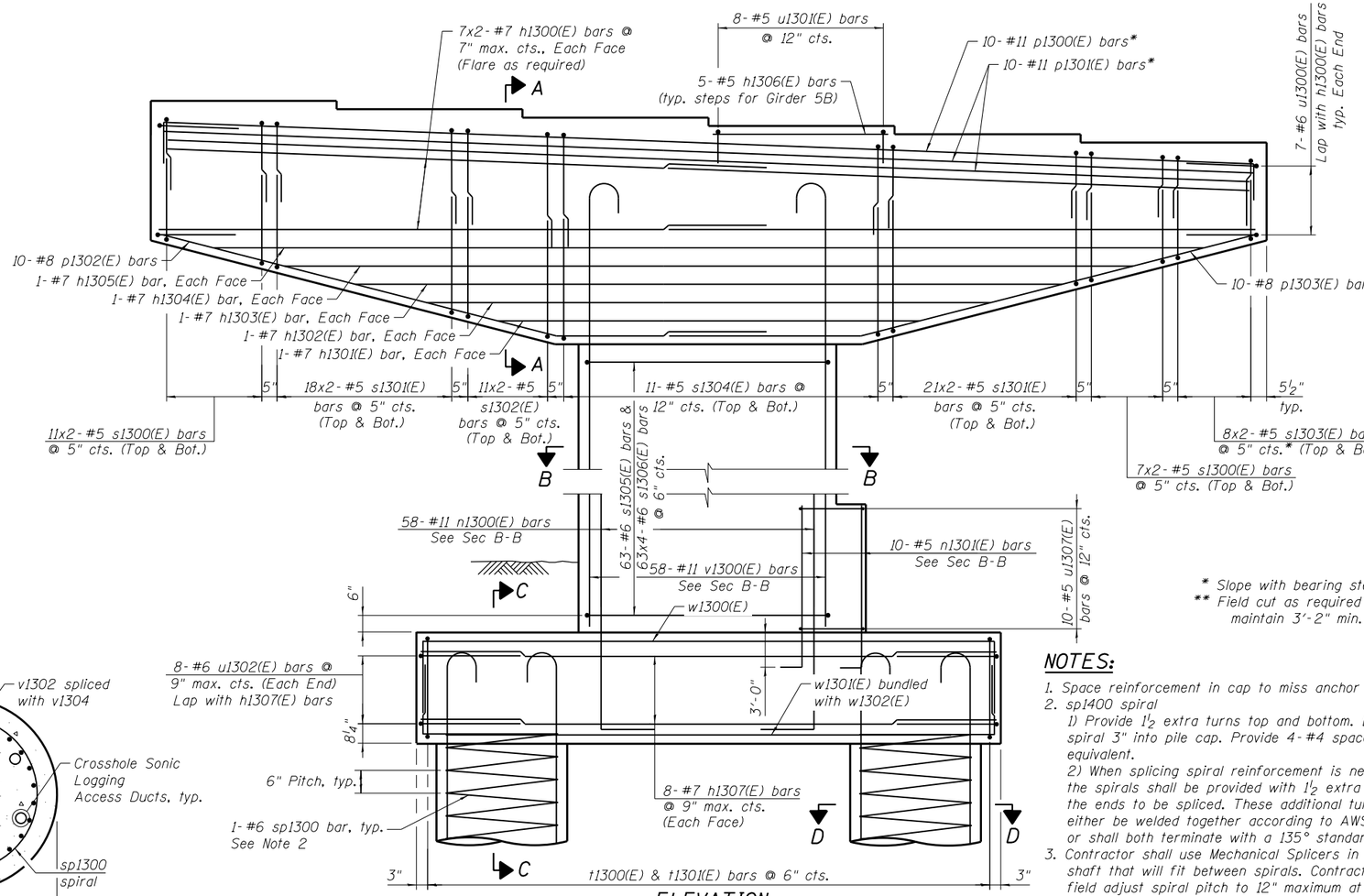
SECTION D-D



SECTION C-C



SECTION E-E



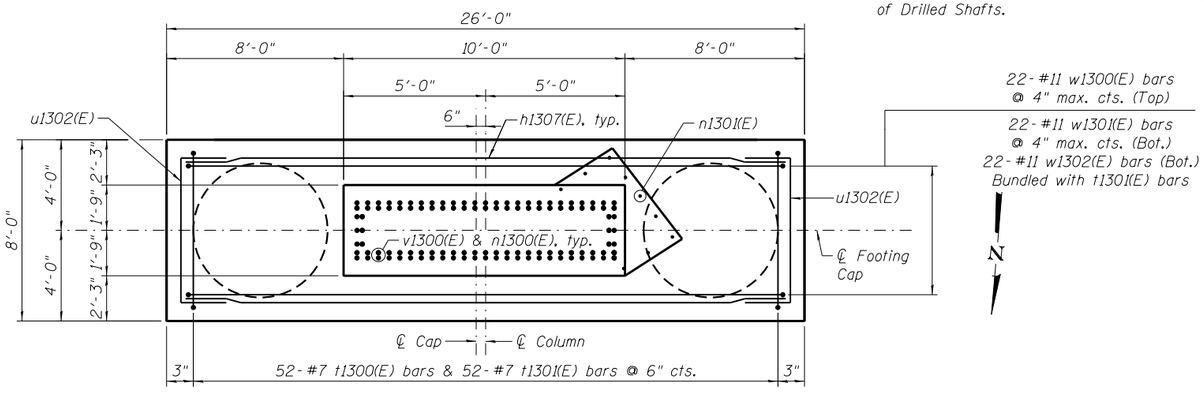
* Slope with bearing steps.
** Field cut as required & maintain 3'-2" min. lap

ELEVATION

(Looking Upstation)

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. sp1400 spiral
   1) Provide 1½ 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 1½ 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 Testing of Drilled Shafts.



FOOTING PLAN

0161715-60X93-S125-Pier-13

AECOM	USER NAME = vasudevana	DESIGNED - AV	REVISED
		CHECKED - ATB	REVISED
	PLOT SCALE = N.T.S.	DRAWN - AV	REVISED
	PLOT DATE = 8/28/2018	CHECKED - ATB	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

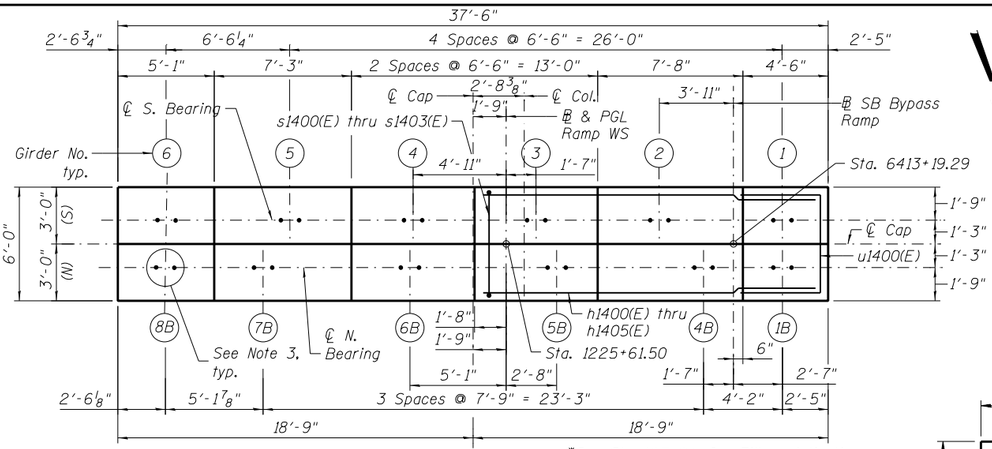
PIER 13 DETAILS – 1
STRUCTURE NO. 016–1715
SHEET NO. S3-127 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	869
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

NOTES:

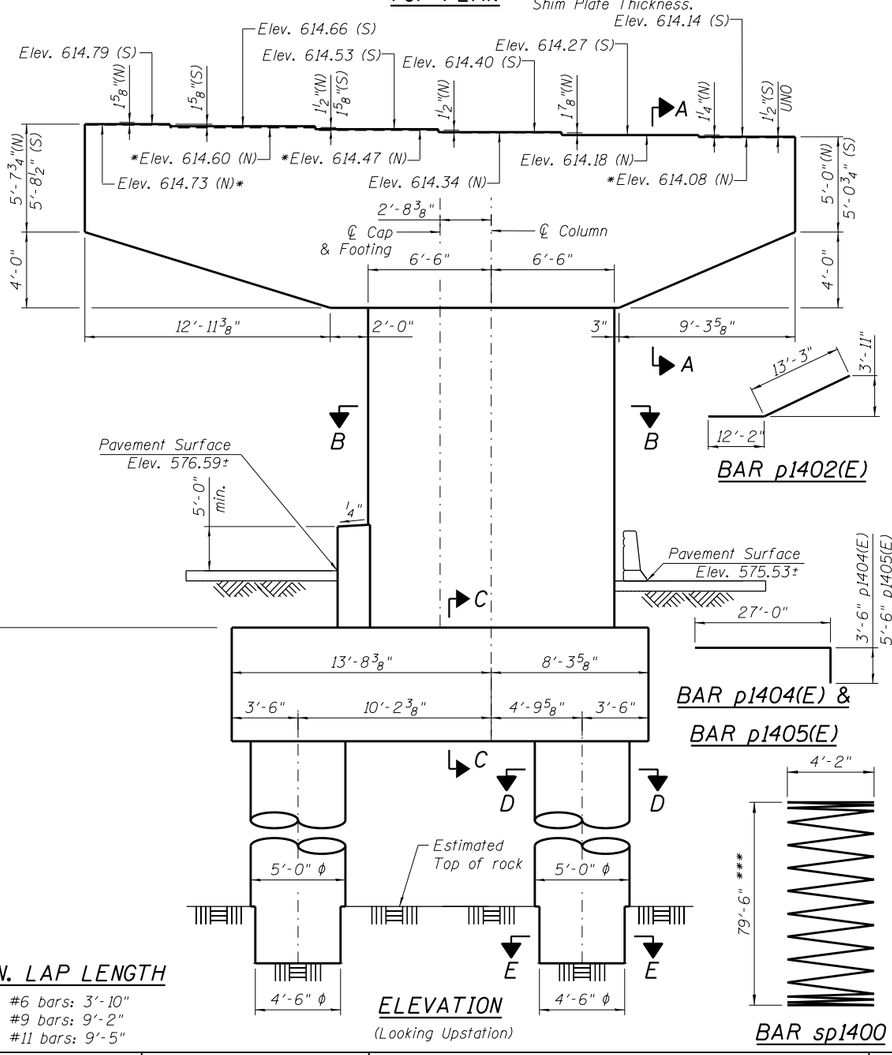
1. Pour steps monolithically with cap.
2. ℄ of Pier is radial to ℄ Ramp WS at Sta. 1225+61.50.
3. For Anchor Bolts Details see sheets S3-93 thru S3-99.
4. For Architectural Details see sheets S3-137 thru S3-139.
5. See sheet S3-129 for Sections and Details.
6. (N)-North Girder, (S)-South Girder
7. For Mechanical Splicer Details and Quantities see sheet S3-140.

** 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.



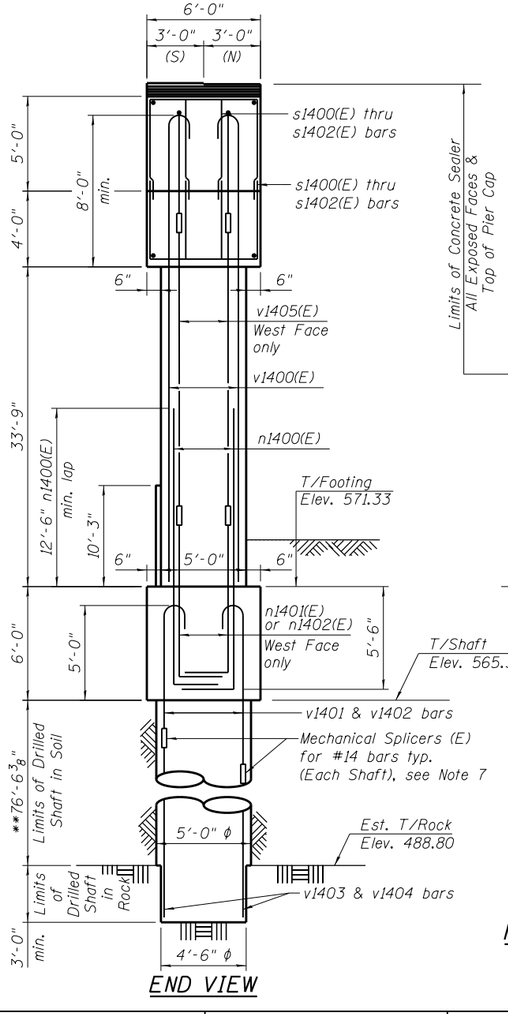
TOP PLAN

*See Sheet S3-94 for Fill or Adjusting Shim Plate Thickness.



ELEVATION

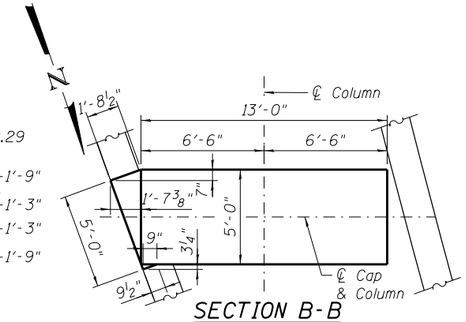
(Looking Upstation)



END VIEW

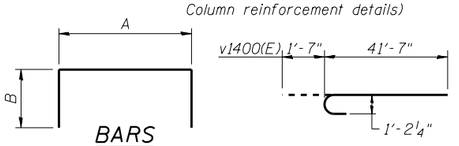
MIN. LAP LENGTH

#6 bars: 3'-10"
#9 bars: 9'-2"
#11 bars: 9'-5"



SECTION B-B

(See Sheet S3-129 for Column reinforcement details)

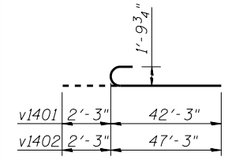


BARS

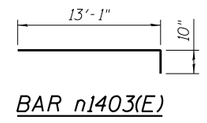
A & B DIMENSIONS

Bar	A	B
p1400(E)	37'-0"	2'-0"
s1400(E)	3'-1"	4'-9"
s1401(E)	3'-1"	5'-3"
s1402(E)	3'-1"	6'-3"
s1403(E)	3'-1"	6'-3"
w1400(E)	21'-6"	2'-0"
w1402(E)	21'-6"	4'-6"
u1400(E)	5'-2"	4'-5"
u1401(E)	5'-2"	10"
u1402(E)	5'-6"	4'-5"
u1403(E)	4'-8"	1'-6"

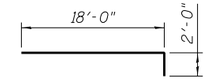
BAR v1400(E)



BARS v1401 & v1402 ***

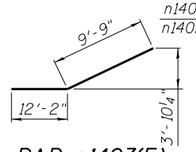


BAR n1403(E)

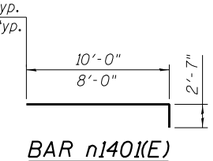


BAR n1400(E)

BAR p1402(E)

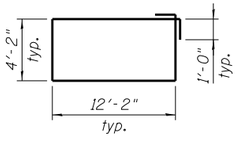


BAR p1403(E)

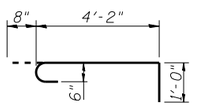


BAR n1401(E) & n1402(E)

BAR p1404(E) & BAR p1405(E)

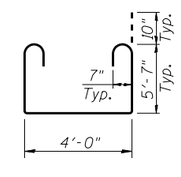


BAR s1404(E)

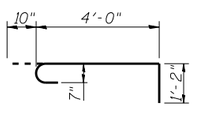


BAR s1405(E)

BAR sp1400



BAR t1400(E)



BAR t1401(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h1400(E)	20	#9	24'-2"	
h1401(E)	2	#9	18'-8"	
h1402(E)	2	#9	22'-4"	
h1403(E)	2	#9	25'-11"	
h1404(E)	2	#9	29'-7"	
h1405(E)	2	#9	33'-2"	
h1406(E)	7	#5	6'-11"	
h1407(E)	28	#11	21'-6"	
n1400(E)	40	#11	20'-0"	
n1401(E)	4	#14	12'-7"	
n1402(E)	4	#14	10'-7"	
n1403(E)	13	#5	13'-11"	
p1400(E)	12	#11	41'-0"	
p1401(E)	12	#11	36'-4"	
p1402(E)	8	#9	25'-5"	
p1403(E)	8	#9	21'-11"	
p1404(E)	4	#14	30'-6"	
p1405(E)	4	#14	32'-6"	
s1400(E)	20	#6	12'-7"	
s1401(E)	64	#6	13'-7"	
s1402(E)	88	#6	15'-7"	
s1403(E)	120	#6	15'-7"	
s1404(E)	78	#6	34'-8"	
s1405(E)	468	#6	5'-10"	
sp1400	2	#6	79'-6" ***	
t1400(E)	84	#7	16'-10"	
t1401(E)	84	#7	6'-0"	
u1400(E)	10	#6	14'-0"	
u1401(E)	8	#5	6'-10"	
u1402(E)	14	#6	14'-4"	
u1403(E)	10	#5	7'-8"	
v1400(E)	40	#11	43'-2"	
v1401	22	#14	44'-6"	
v1402	22	#14	49'-6"	
v1403	22	#14	42'-0"	
v1404	22	#14	37'-0"	
v1405(E)	8	#14	34'-3"	
w1400(E)	9	#11	25'-6"	
w1401(E)	23	#11	20'-10"	
w1402(E)	14	#11	30'-6"	

Concrete Structures	Cu. Yd.	183.1
Reinforcement Bars, Epoxy Coated	Pound	55,660
Reinforcement Bars	Pound	35,490
Drilled Shaft in Soil	Cu. Yd.	111.3
Drilled Shaft in Rock	Cu. Yd.	3.6
Structure Excavation	Cu. Yd.	96
Concrete Sealer	Sq. ft.	2253
Crosshole Sonic Logging Testing	Each	1
Crosshole Sonic Logging Access Ducts	Foot	160

*** Length is height of spiral.

0161715-60X93-S126-Pier-14

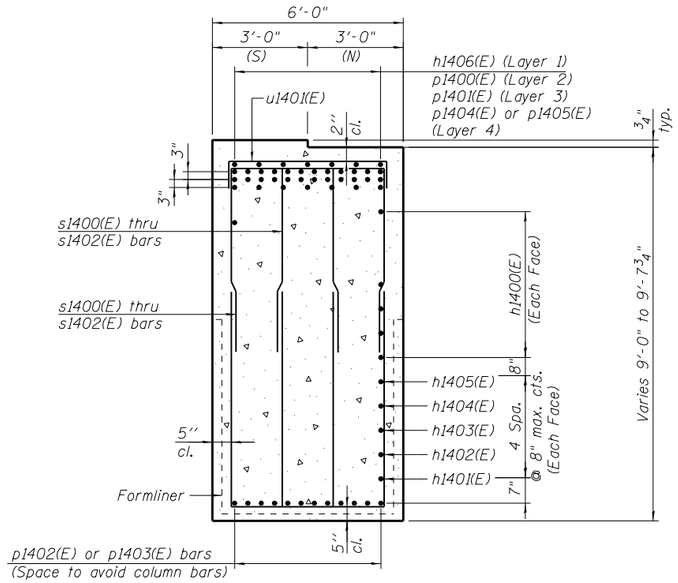
AECOM

USER NAME = vasudevana	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 8/31/2018	CHECKED - ATB	REVISED	

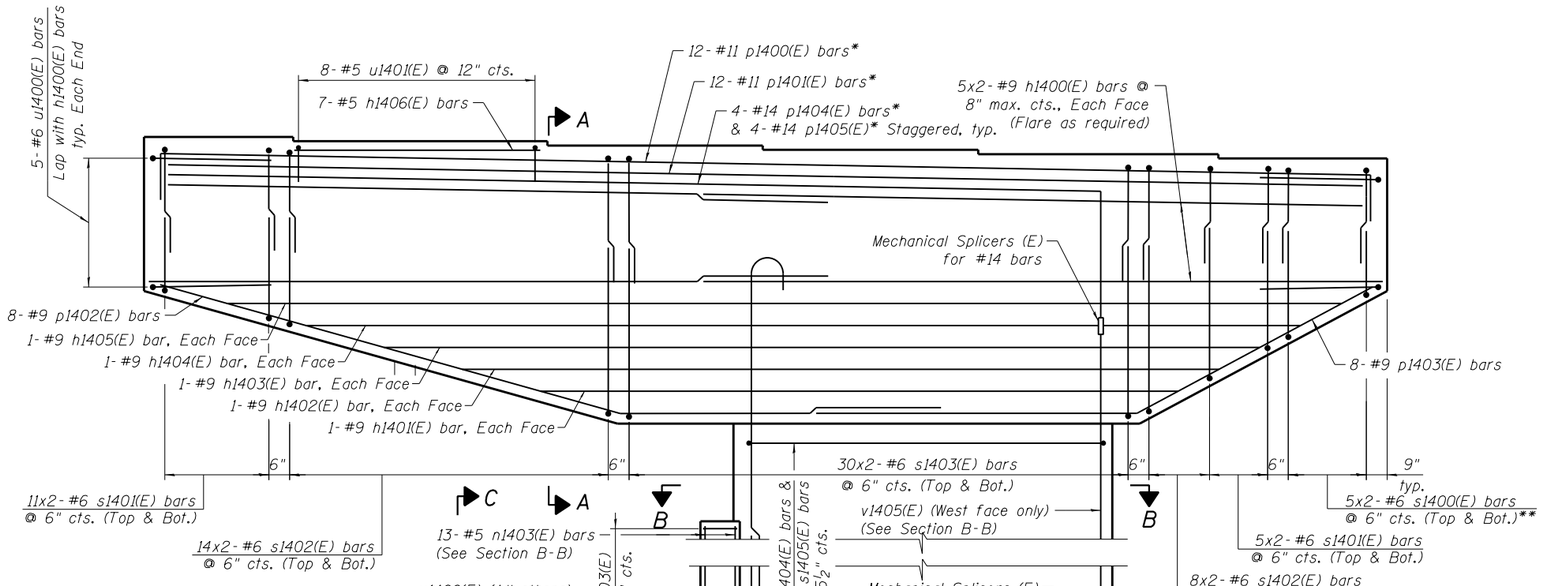
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 14
STRUCTURE NO. 016-1715
SHEET NO. S3-128 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	870
		CONTRACT NO. 60X93		
		ILLINOIS FED. AID PROJECT		



SECTION A-A



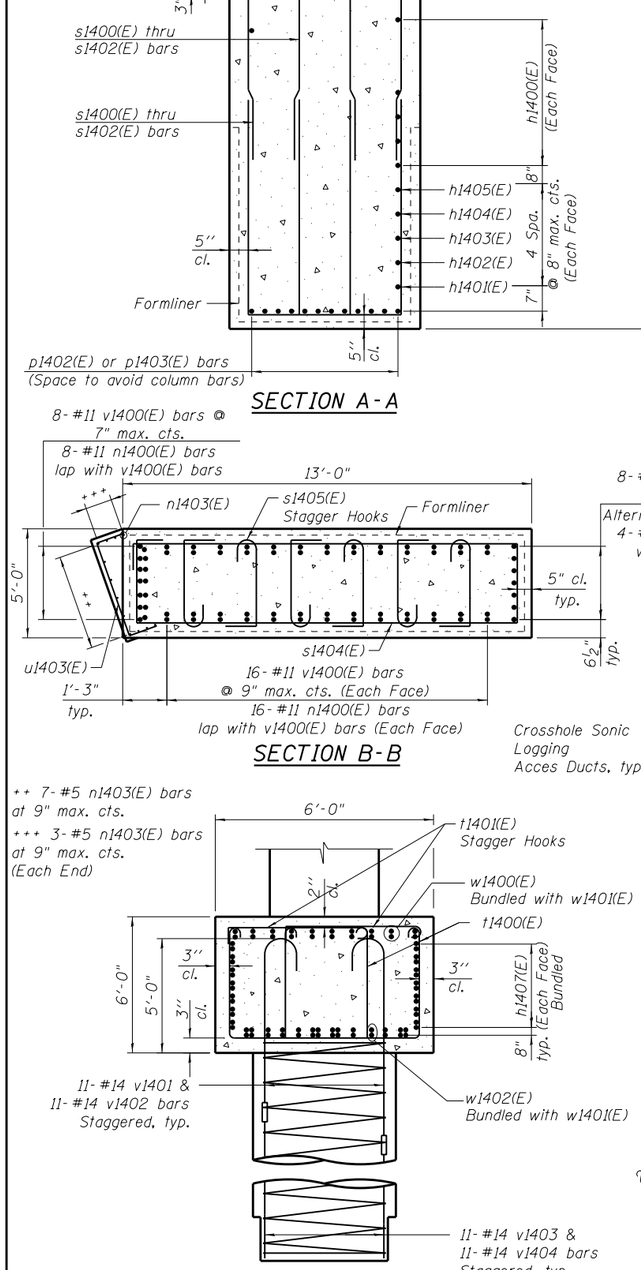
* Slope with bearing steps.
** Field Cut as required & maintain 3'-10" min. lap.

ELEVATION

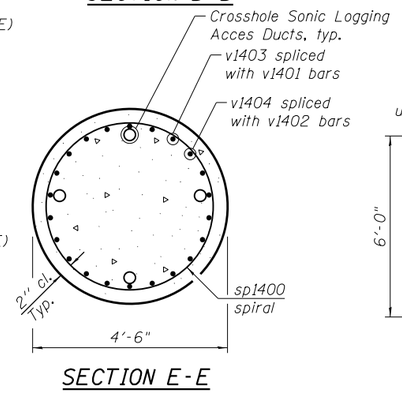
(Looking Upstation)

SECTION B-B

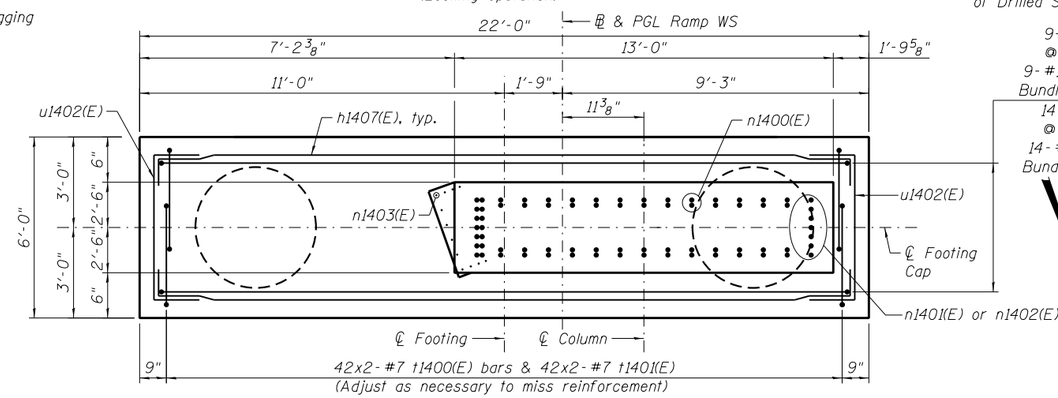
SECTION D-D



SECTION C-C



SECTION E-E



FOOTING PLAN

9-#11 w1400(E) bars
@ 7" max. cts. (Top)
9-#11 w1401(E) bars (Top)
Bundled with w1400(E) bars
14-#11 w1402(E) bars
@ 6" max. cts. (Bot.)
14-#11 w1401(E) bars (Bot.)
Bundled with w1402(E) bars

N

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. sp1400 spiral
   1) Provide 1 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 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 Testing of Drilled Shafts.

0161715-60X93-S127-Pier-14

AECOM	USER NAME = vasudevana	DESIGNED - AV	REVISED
		CHECKED - ATB	REVISED
	PLOT SCALE = N.T.S.	DRAWN - AV	REVISED
	PLOT DATE = 8/31/2018	CHECKED - ATB	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

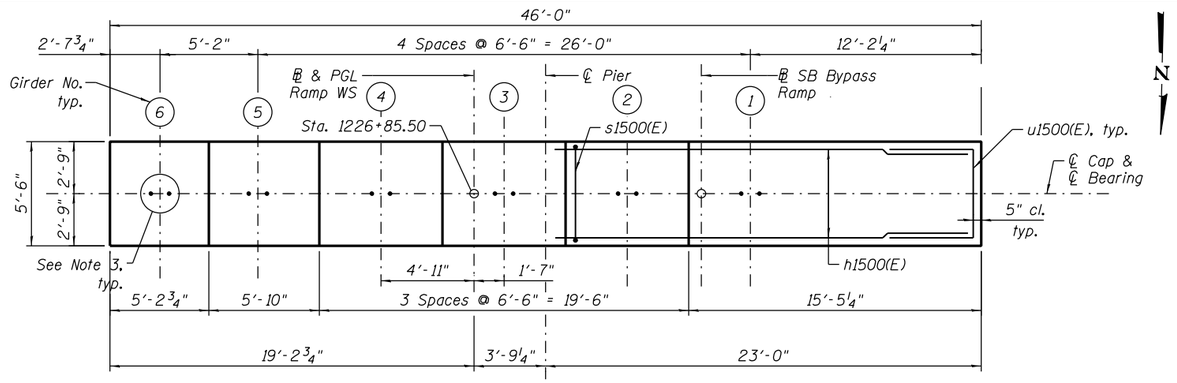
PIER 14 DETAILS – 1
STRUCTURE NO. 016–1715
SHEET NO. S3-129 OF S3-172

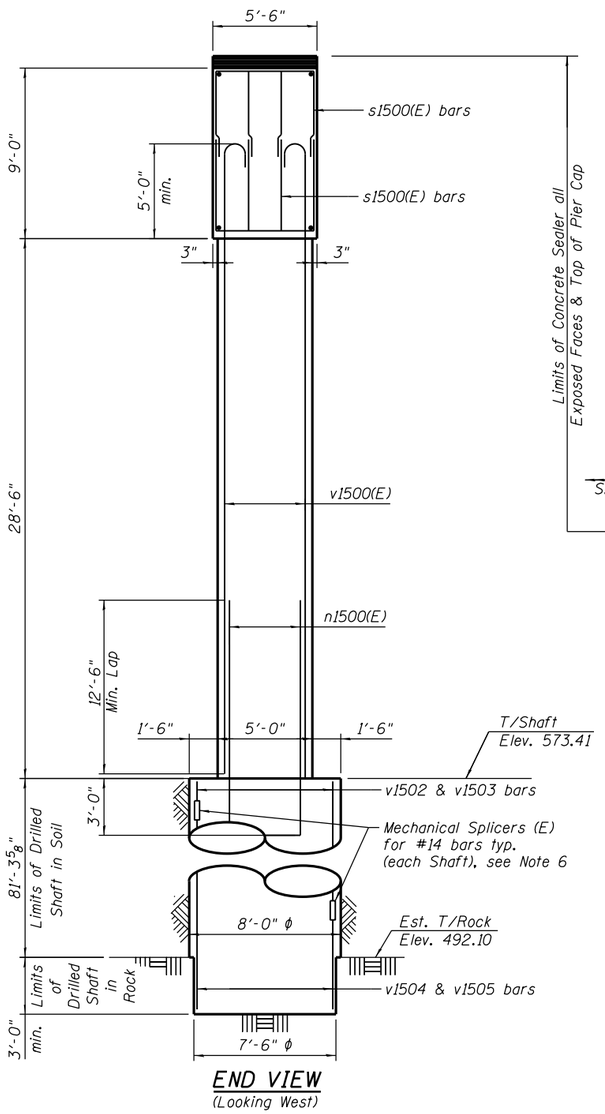
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	871
		CONTRACT NO. 60X93		
		ILLINOIS FED. AID PROJECT		

NOTES:

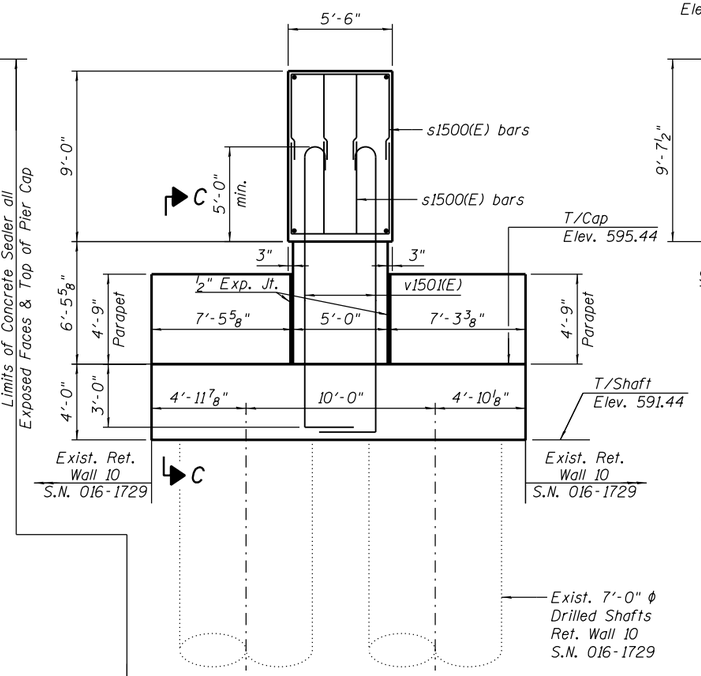
1. Pour steps monolithically with cap.
2. ℄ of Pier is radial to ℄ Ramp WS at Sta. 1226+85.50.
3. For Anchor Bolts Details see sheets S3-93 thru S3-99.
4. For Architectural Details see sheets S3-137 thru S3-139.
5. See sheet S3-131 & S3-132 for Sections and Details.

* 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.

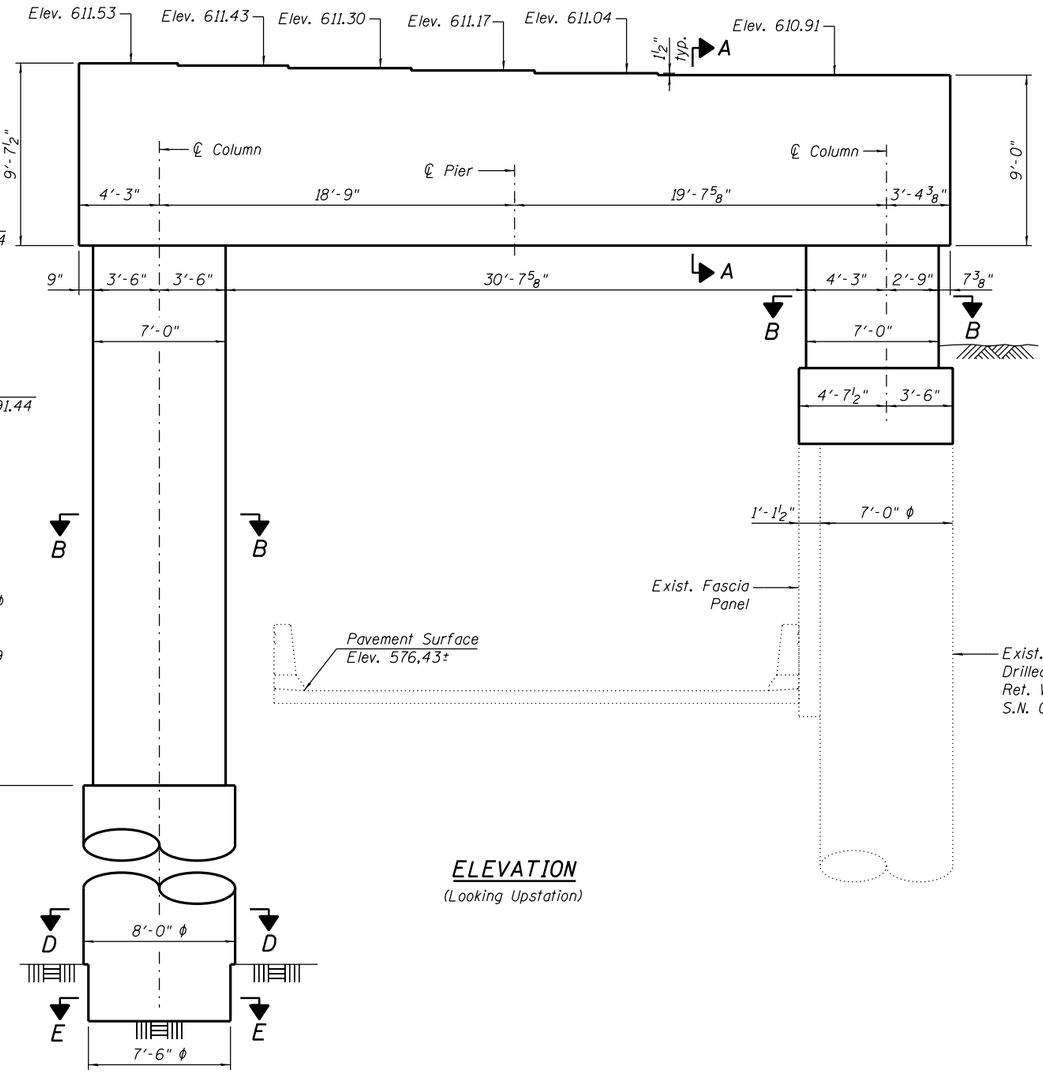


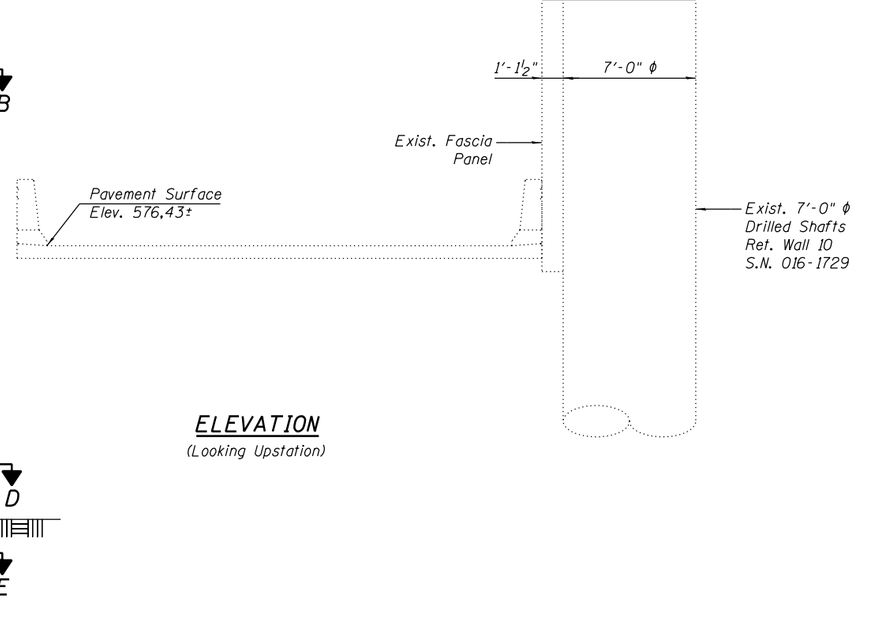


END VIEW
(Looking West)



END VIEW
(Looking East)





ELEVATION
(Looking Upstation)

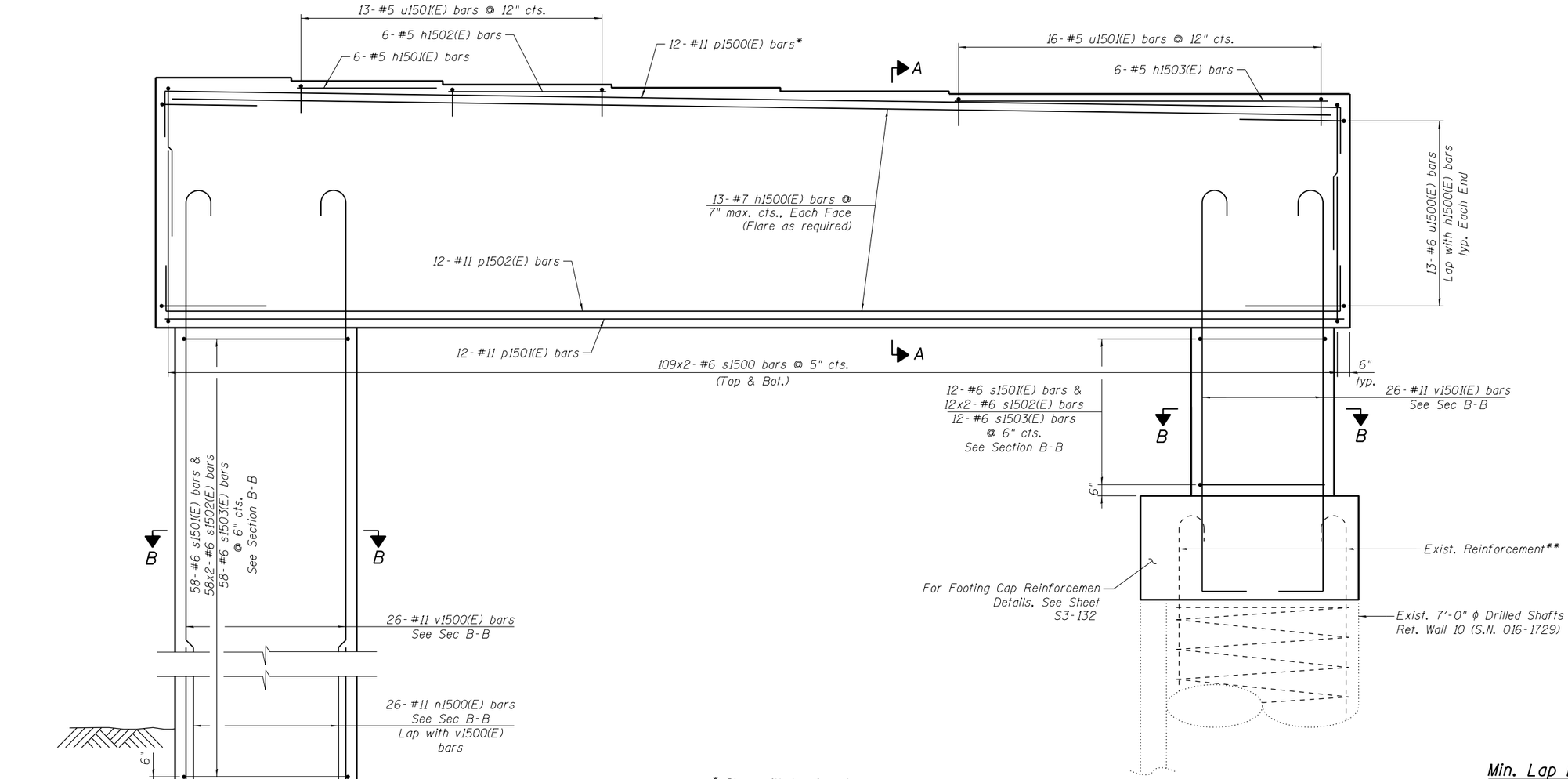
USER NAME = floresg	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 15
STRUCTURE NO. 016–1715
SHEET NO. S3-130 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	872
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

0161715-60X93-S128-Pier-15.dgn



* Slope with bearing steps.

** Existing drilled shaft reinforcement bars shall be cleaned, straightened and incorporated into new footing cap. Any existing reinforcement bars that are damaged during construction shall be repaired or replaced using an approved bar splicer or anchorage system. Cost shall be included with Concrete Structures.

ELEVATION

(Looking Upstation)

Min. Lap Length

#6 bars = 3'-10"
#7 bars = 5'-0"
#11 bars = 9'-5"

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. sp1500 spiral
   1) Provide $1\frac{1}{2}$ 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 $1\frac{1}{2}$ extra turns at the ends to be spliced. These additional turns shall either be welded together according to AWS D1.4, or shall both terminate with a 135° standard hook.
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. Contractor shall test prop. Drilled Shaft in accordance with special provision for Crosshole Sonic Logging Testing of Drilled Shafts.

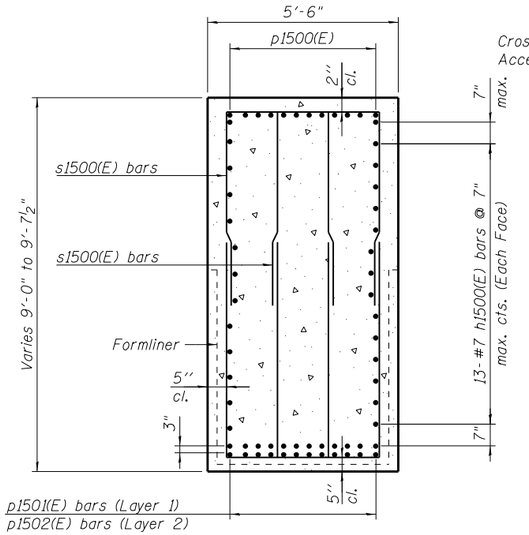
0161715-60X93-S129-Pier-15

AECOM	USER NAME = vasudevana	DESIGNED - AV	REVISED
		CHECKED - ATB	REVISED
	PLOT SCALE = N.T.S.	DRAWN - AV	REVISED
	PLOT DATE = 8/30/2018	CHECKED - ATB	REVISED

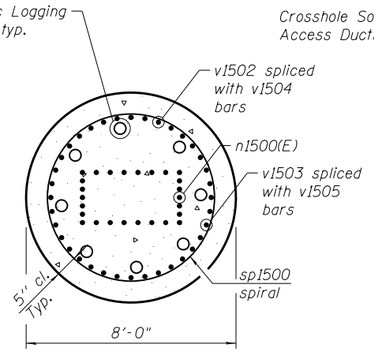
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PIER 15 DETAILS – 1
STRUCTURE NO. 016–1715
SHEET NO. S3-131 OF S3-172

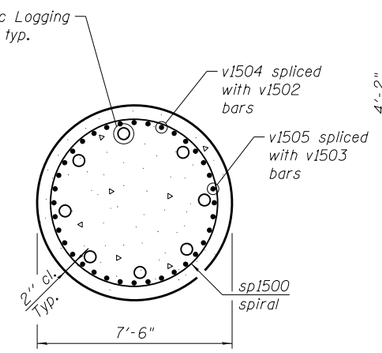
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	873
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			



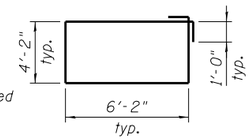
SECTION A-A



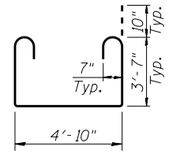
SECTION D-D



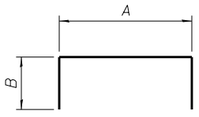
SECTION E-E



BAR s1501(E)



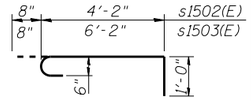
BAR t1500(E)



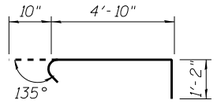
BENT BAR

A & B DIMENSIONS

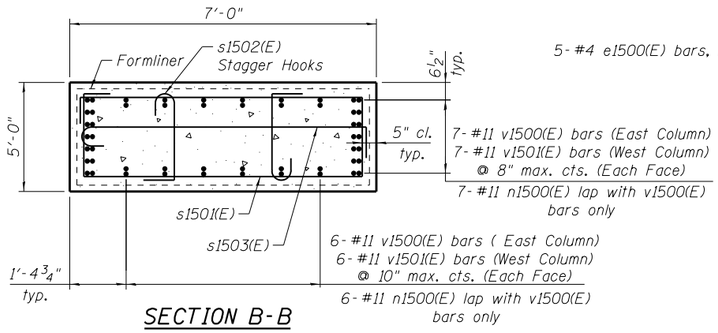
Bar	A	B
p1500(E)	45'-6"	2'-0"
p1501(E)	45'-6"	2'-0"
p1502(E)	45'-0"	2'-0"
s1500(E)	3'-6"	6'-6"
w1500(E)	19'-4"	2'-0"
w1501(E)	19'-4"	3'-0"
u1500(E)	4'-8"	4'-5"
u1501(E)	4'-8"	10"
u1502(E)	7'-6"	4'-5"



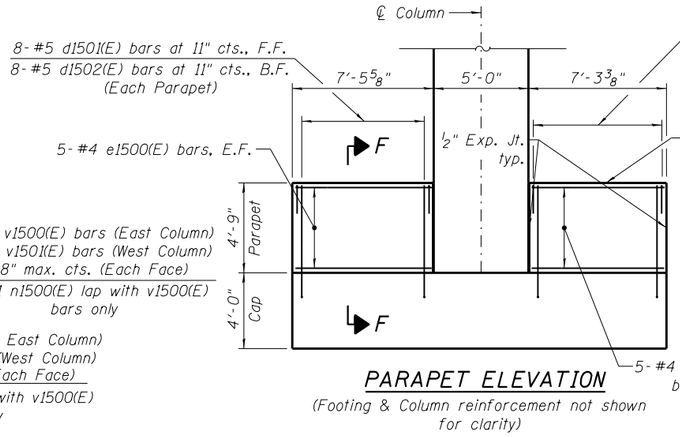
BAR s1502(E) & s1503(E)



BAR t1501(E)

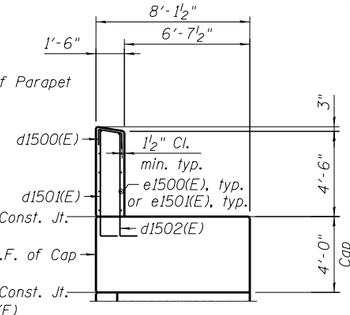


SECTION B-B



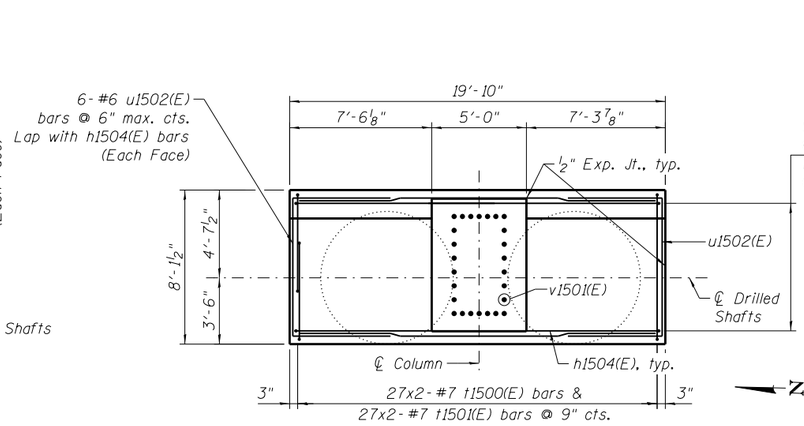
PARAPET ELEVATION

(Footing & Column reinforcement not shown for clarity)

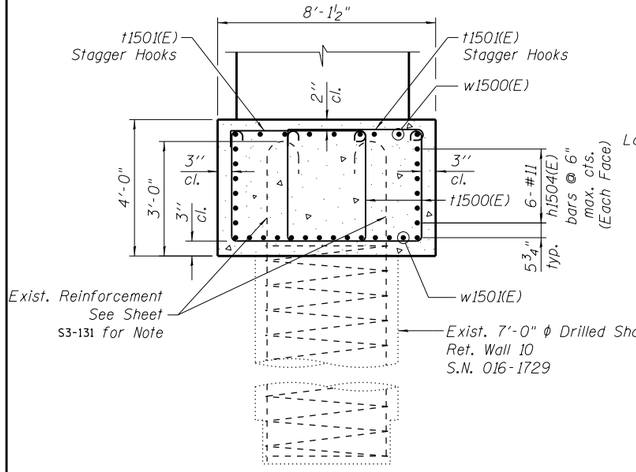


SECTION F-F

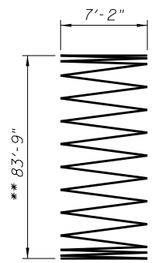
(Footing reinforcement not shown for clarity)



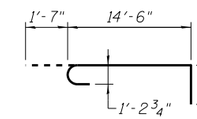
FOOTING PLAN



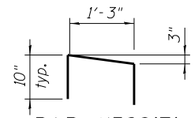
SECTION C-C



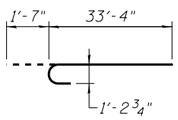
BAR sp1500



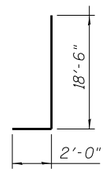
BAR v1501(E)



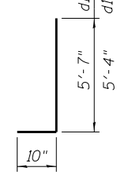
BAR d1500(E)



BAR v1500(E)



BAR n1500(E)



BAR d1501(E) & d1502(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
d1500(E)	16	#5	2'-11"	
d1501(E)	16	#5	6'-5"	
d1502(E)	16	#5	6'-2"	
e1500(E)	10	#4	7'-1"	
e1501(E)	10	#4	6'-11"	
h1500(E)	26	#7	45'-6"	
h1501(E)	6	#5	5'-8"	
h1502(E)	6	#5	6'-4"	
h1503(E)	6	#5	15'-3"	
h1504(E)	12	#11	19'-4"	
n1500(E)	26	#11	20'-6"	
p1500(E)	12	#11	49'-6"	
p1501(E)	12	#11	49'-6"	
p1502(E)	12	#11	49'-0"	
s1500(E)	436	#6	16'-6"	
s1501(E)	70	#6	22'-8"	
s1502(E)	140	#6	5'-10"	
s1503(E)	70	#6	7'-10"	
** sp1500	1	#6	83'-9"	
t1500(E)	54	#7	13'-8"	
t1501(E)	54	#7	6'-10"	
u1500(E)	26	#6	13'-6"	
u1501(E)	29	#5	6'-4"	
u1502(E)	12	#6	16'-4"	
v1500(E)	26	#11	34'-11"	
v1501(E)	26	#11	18'-1"	
v1502	18	#14	42'-0"	
v1503	18	#14	47'-0"	
v1504	18	#14	41'-9"	
v1505	18	#14	36'-9"	
w1500(E)	9	#11	23'-4"	
w1501(E)	14	#11	25'-4"	

Concrete Structures	Cu. Yd.	160.4
Reinforcement Bars, Epoxy Coated	Pound	44,460
Reinforcement Bars	Pound	28,030
Drilled Shaft in Soil	Cu. Yd.	151.4
Drilled Shaft in Rock	Cu. Yd.	5.0
Structure Excavation	Cu. Yd.	1.0
Concrete Sealer	Sq. ft.	2452
Crosshole Sonic Logging Testing	Each	1
Crosshole Sonic Logging Access Ducts	Foot	85

** Length is height of spiral.

0161715-60X93-S130-Pier-15

AECOM

USER NAME = vasudevana	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 9/19/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

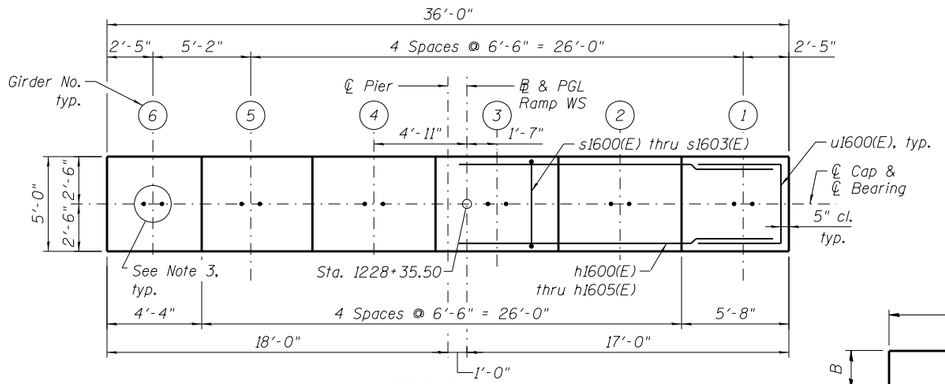
PIER 15 DETAILS – 2
STRUCTURE NO. 016–1715
SHEET NO. S3-132 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	874
		CONTRACT NO. 60X93		
ILLINOIS	FED. AID PROJECT			

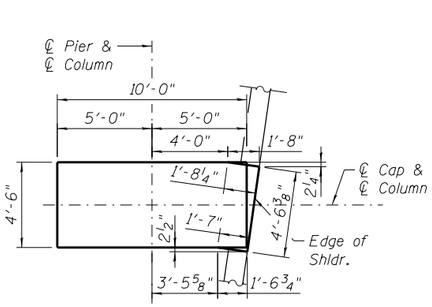
NOTES:

1. Pour steps monolithically with cap.
2. ℄ of Pier is radial to ℄ Ramp WS at Sta. 1228+35.50.
3. For Anchor Bolts Details see sheets S3-93 to S3-99.
4. For Architectural Details see sheets S3-137 thru S3-139.
5. See sheet S3-134 for Sections and Details.
6. For Mechanical Splicer Details & Quantities see sheet S3-140.

* 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.

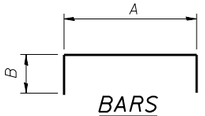


TOP PLAN



SECTION B-B

See SheetS3-134 for Reinfrocement details



BARS

A & B DIMENSIONS

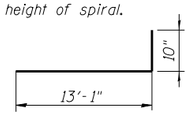
Bar	A	B
p1600(E)	35'-2"	2'-0"
s1600(E)	2'-7"	3'-10"
s1601(E)	2'-7"	4'-7"
s1602(E)	2'-7"	5'-6"
s1603(E)	4'-2"	5'-6"
w1600(E)	25'-6"	2'-0"
w1601(E)	25'-6"	4'-6"
u1600(E)	4'-2"	4'-5"
u1601(E)	4'-2"	10"
u1602(E)	7'-6"	4'-5"
u1603(E)	4'-2"	2'-0"

BILL OF MATERIAL

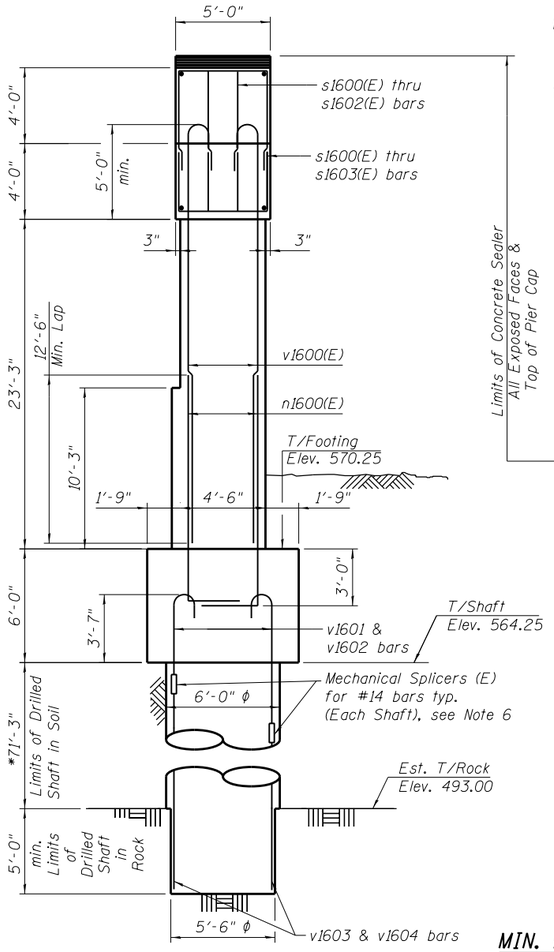
Bar	No.	Size	Length	Shape
h1600(E)	14	#7	35'-2"	
h1601(E)	2	#7	12'-11"	
h1602(E)	2	#7	17'-6"	
h1603(E)	2	#7	22'-0"	
h1604(E)	2	#7	26'-7"	
h1605(E)	2	#7	31'-2"	
h1606(E)	6	#5	3'-9"	
h1607(E)	12	#5	6'-1"	
h1608(E)	16	#7	25'-6"	
n1600(E)	56	#11	17'-6"	
n1601(E)	8	#5	13'-11"	
p1600(E)	12	#11	39'-2"	
p1601(E)	24	#11	34'-6"	
p1602(E)	24	#8	22'-0"	
s1600(E)	44	#5	10'-3"	
s1601(E)	68	#5	11'-9"	
s1602(E)	96	#5	13'-7"	
s1603(E)	22	#5	15'-2"	
s1604(E)	58	#6	27'-8"	
s1605(E)	232	#6	5'-4"	
** sp1600	2	#6	76'-3"	
t1600(E)	52	#7	20'-4"	
t1601(E)	52	#7	9'-6"	
u1600(E)	14	#6	13'-0"	
u1601(E)	18	#5	5'-10"	
u1602(E)	16	#6	16'-4"	
u1603(E)	10	#6	8'-2"	
v1600(E)	56	#11	29'-1"	
v1601	26	#14	42'-0"	
v1602	26	#14	47'-0"	
v1603	26	#14	39'-10"	
v1604	26	#14	34'-10"	
w1600(E)	22	#11	29'-6"	
w1601(E)	22	#11	34'-6"	
w1602(E)	22	#11	24'-10"	

Concrete Structures	Cu. Yd.	131.2
Reinforcement Bars. Epoxy Coated	Pound	46,410
Reinforcement Bars	Pound	40,140
Drilled Shaft in Soil	Cu. Yd.	149.3
Drilled Shaft in Rock	Cu. Yd.	8.8
Structure Excavation	Cu. Yd.	130.0
Concrete Sealer	Sq. ft.	1546
Crosshole Sonic Logging Testing	Each	1
Crosshole Sonic Logging Access Ducts	Foot	153

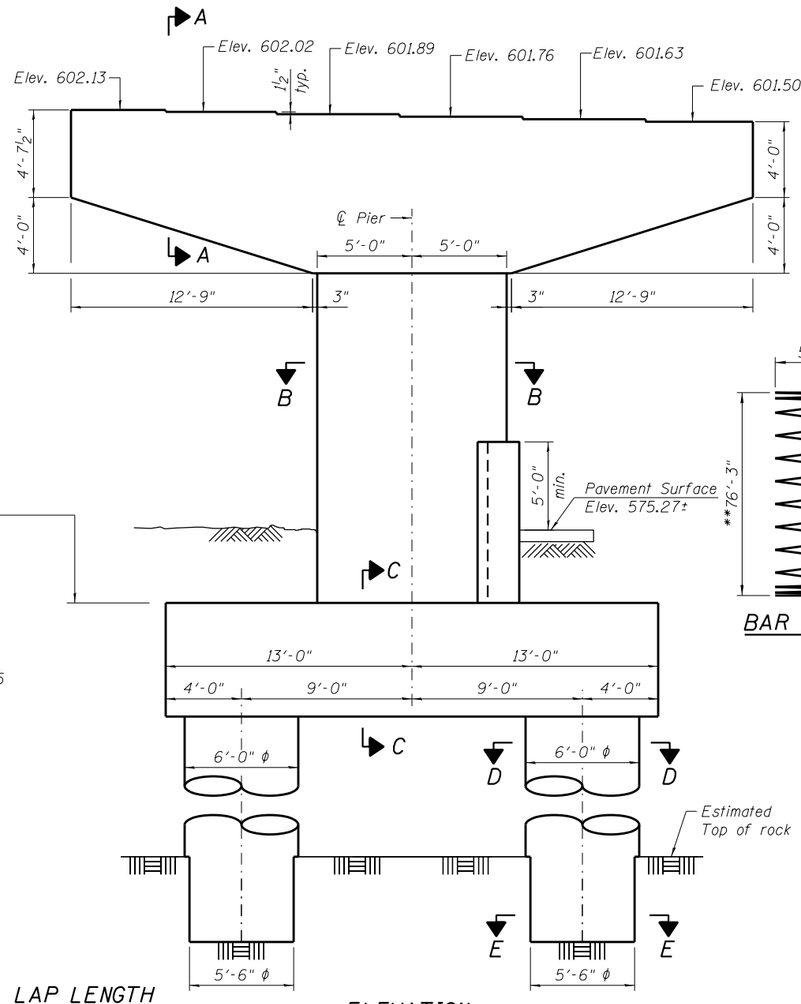
** Length is height of spiral.



BAR n1601(E)



END VIEW

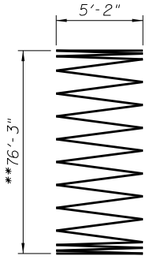


ELEVATION

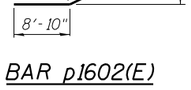
(Looking Upstation)

MIN. LAP LENGTH

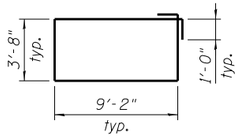
#5 bars: 3'-2"
#8 bars: 7'-2"



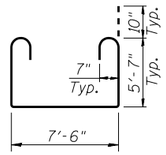
BAR sp1600



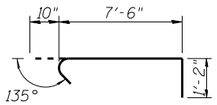
BAR p1602(E)



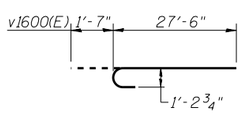
BAR s1604(E)



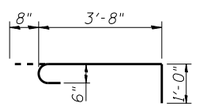
BAR t1600(E)



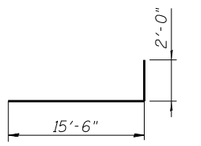
BAR t1601(E)



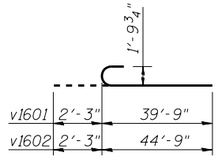
BAR v1600(E)



BAR s1605(E)



BAR n1600(E)



BARS v1601 & v1602

USER NAME = vasudevana	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 8/28/2018	CHECKED - ATB	REVISED	

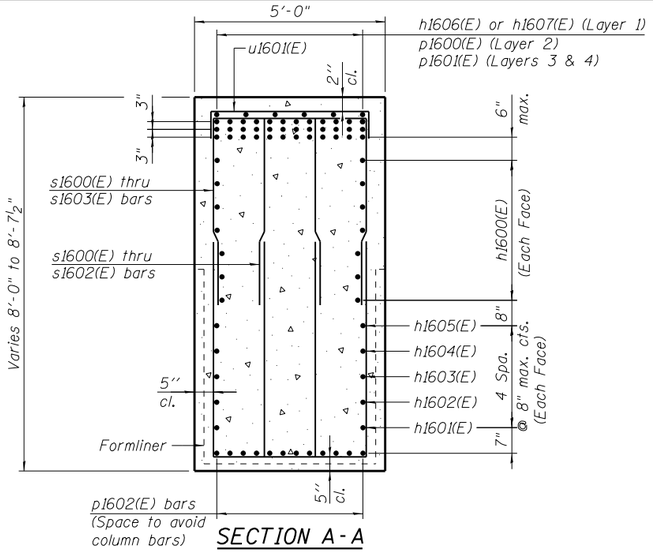
AECOM

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

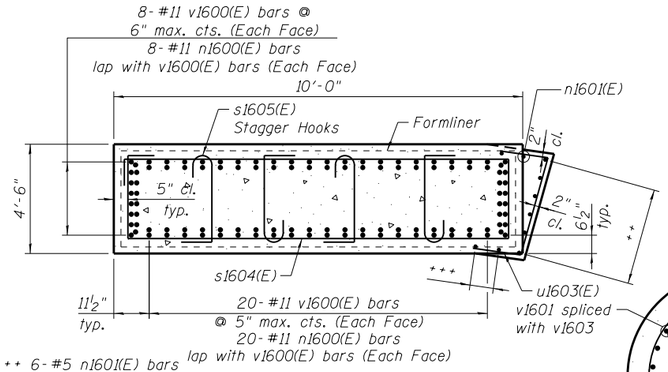
PIER 16
STRUCTURE NO. 016-1715
SHEET NO. S3-133 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	875
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

0161715-60X93-S131-Pier-16



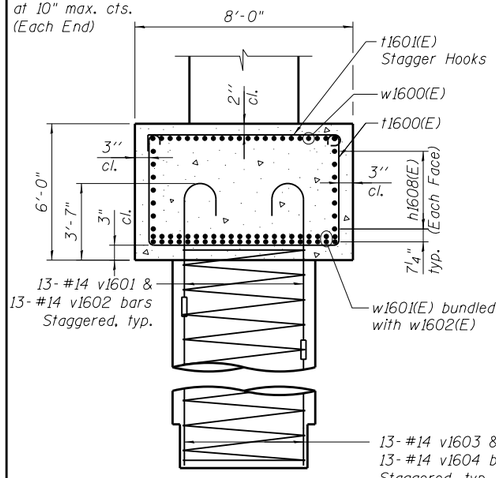
SECTION A-A



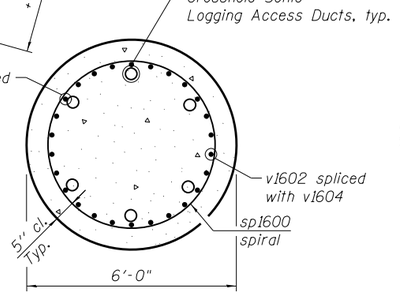
++ 6-#5 n1601(E) bars at 10" max. cts.

+++ 2-#5 n1601(E) bars at 10" max. cts. (Each End)

SECTION B-B

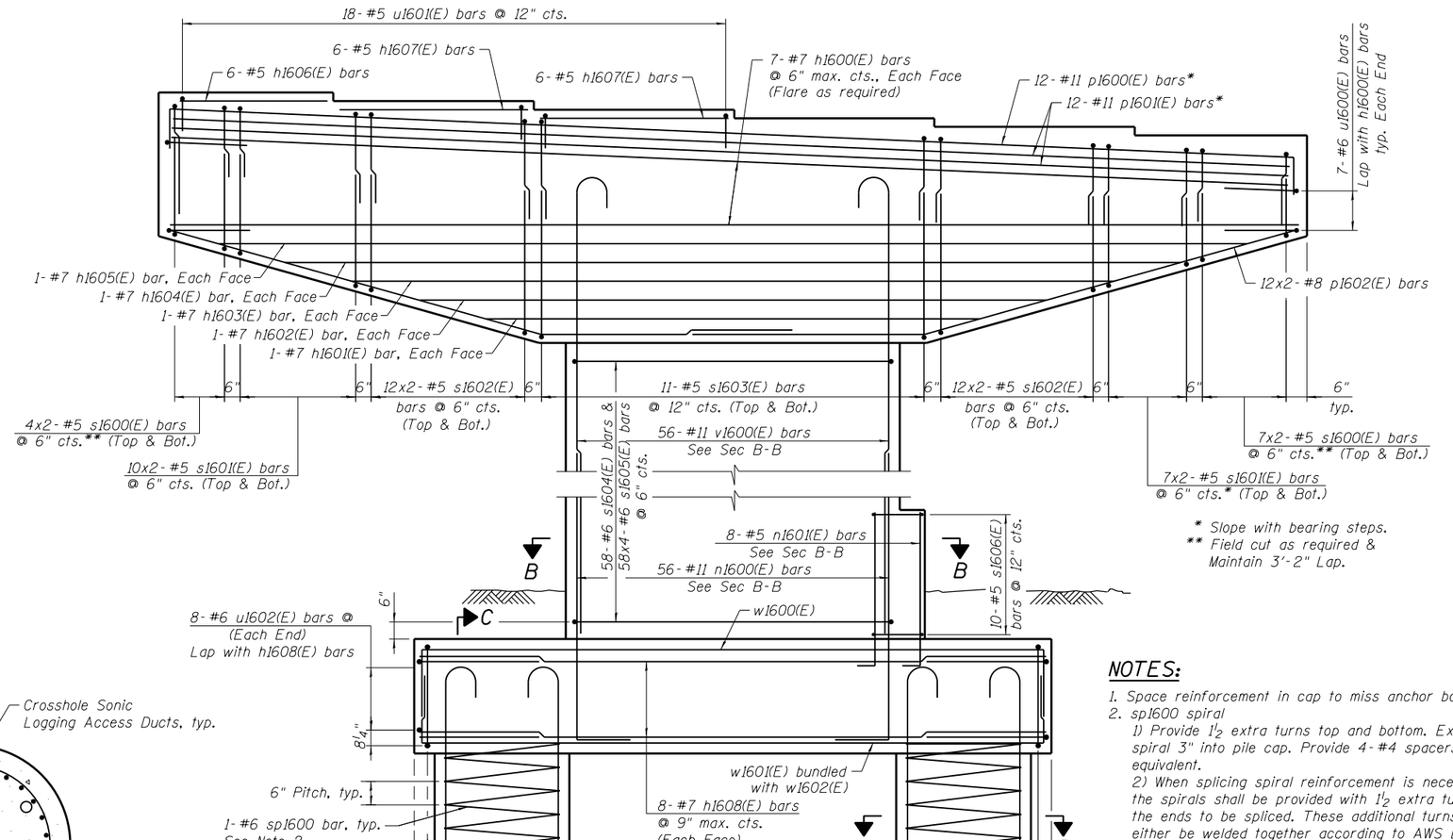


SECTION C-C



SECTION E-E

SECTION D-D

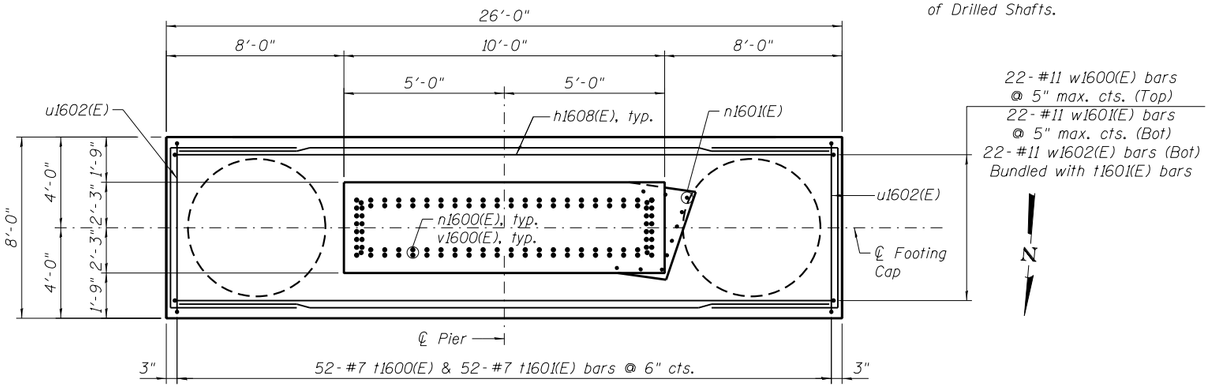


* Slope with bearing steps.
** Field cut as required & Maintain 3'-2" Lap.

ELEVATION
(Looking Upstation)

NOTES:

1. Space reinforcement in cap to miss anchor bolts.
2. sp1600 spiral
   1) Provide 1½ 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 1½ 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 Testing of Drilled Shafts.



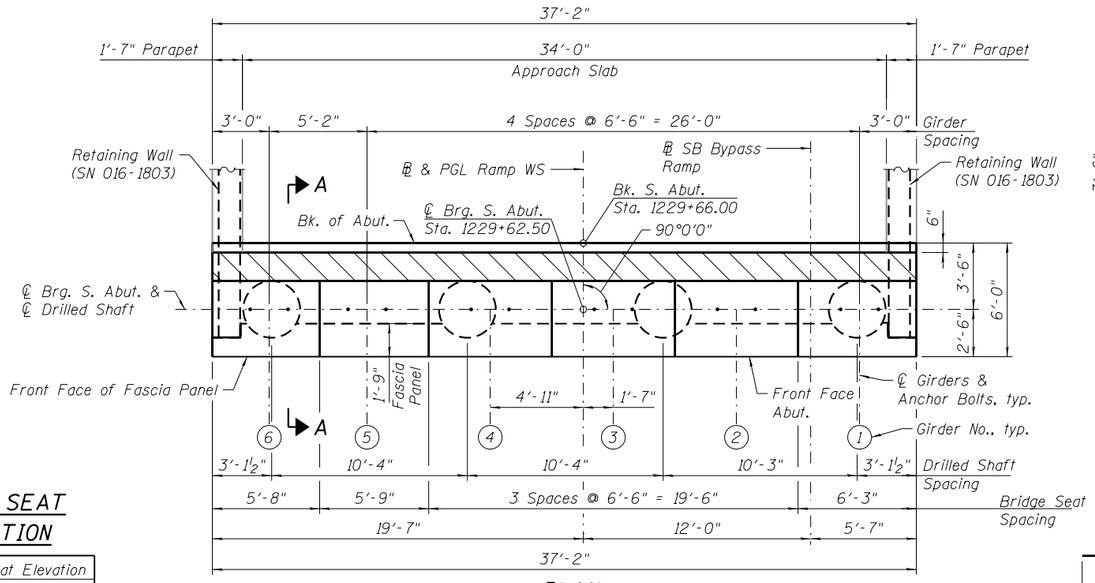
FOOTING PLAN

0161715-60X93-S132-Pier-16

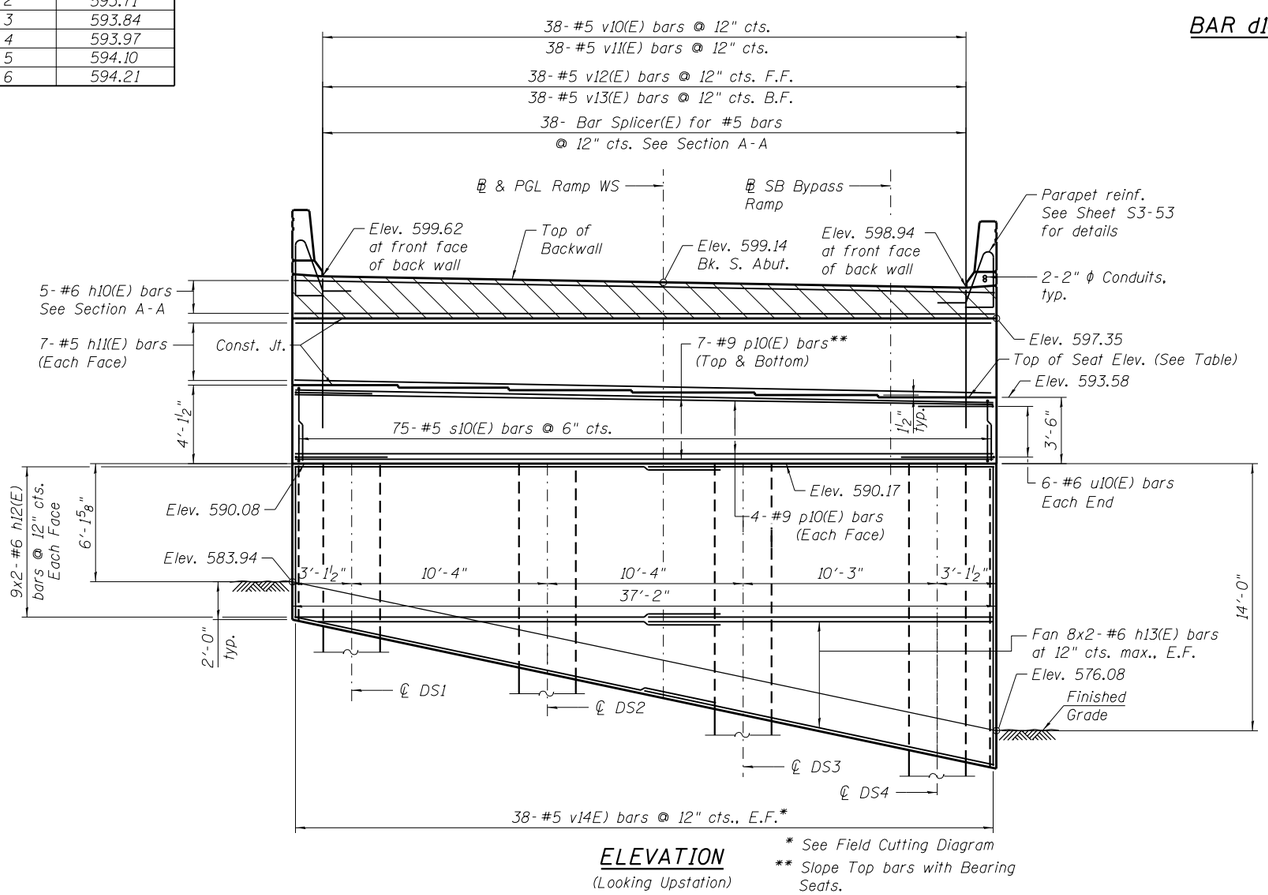
AECOM	USER NAME = vasudevana	DESIGNED - AV	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED - ATB	REVISED	
	PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
	PLOT DATE = 8/28/2018	CHECKED - ATB	REVISED	

PIER 16 DETAILS
STRUCTURE NO. 016–1715
SHEET NO. S3-134 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	876
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			



PLAN

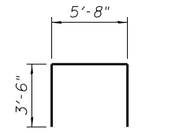


ELEVATION
(Looking Upstation)

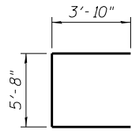
* See Field Cutting Diagram
** Slope Top bars with Bearing Seats.

TOP OF SEAT ELEVATION

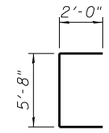
Girder No.	Seat Elevation
1	593.58
2	593.71
3	593.84
4	593.97
5	594.10
6	594.21



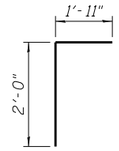
BAR s10(E)



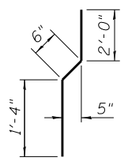
BAR u10(E)



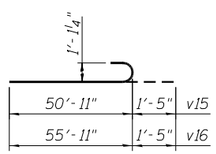
BAR u11(E)



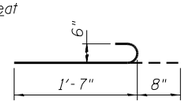
BAR v10(E)



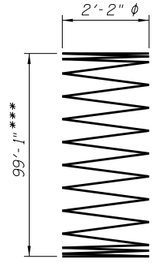
BAR v11(E)



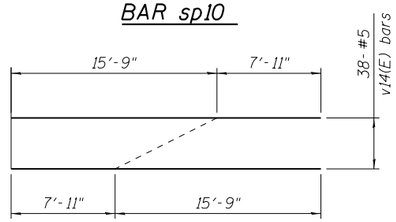
BAR v15 & BAR v16



BAR d10(E)



BAR sp10



FIELD CUTTING DIAGRAM

Order v14(E) bars Full Length. Cut as shown & use remainder of bars in opposite face.

NOTES:

1. Pour steps monolithically with cap.
2. For Anchor Bolt Details, see Sheet S3-95 .
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 & fascia panel.
5. Space bars in cap to miss anchor bolts.
6. For Section A-A, see Sheet S3-136 .
7. A Drilled Shaft shall be tested in accordance with Special Provision for Crosshole Sonic Logging Testing of Drilled Shafts.

SOUTH ABUTMENT BILL OF MATERIAL

	Bar	No.	Size	Length	Shape
	d10(E)	132	#6	2'-3"	⟶
	h10(E)	5	#6	36'-10"	——
	h11(E)	14	#5	36'-10"	——
	h12(E)	36	#6	20'-4"	——
	h13(E)	32	#6	20'-9"	——
	p10(E)	22	#9	36'-10"	——
	s10(E)	150	#5	12'-8"	⊔
***	sp10	4	#5	99'-1"	∿∿
	u10(E)	12	#6	13'-4"	⊏
	v10(E)	38	#5	3'-11"	⌞
	v11(E)	38	#5	3'-10"	⟍
	v12(E)	38	#5	7'-7"	——
	v13(E)	38	#5	5'-2"	——
	v14(E)	38	#5	23'-8"	——
	v15	20	#10	52'-4"	⟶
	v16	20	#10	57'-4"	⟶
	v17	20	#10	50'-11"	——
	v18	20	#10	45'-11"	——

Concrete Structures	Cu. Yd.	57.8
Reinforcement Bars, Epoxy Coated	Pound	10,090
Reinforcement Bars	Pound	23,490
Drilled Shaft in Soil	Cu. Yd.	101.7
Drilled Shaft in Rock	Cu. Yd.	1.5
Concrete Sealer	Sq. ft	1,877
Structure Excavation	Cu. Yd.	13.0
Crosshole Sonic Logging Testing	Each	1
Crosshole Sonic Logging Access Ducts	Foot	397
Geocomposite Wall Drain	Sq. Yd	54
Pipe Underdrain for Structures, 4"	Foot	38

***Length is height of spiral

TYP. MIN. LAP LENGTH

#6 bar: 3'-10"
#5 bar: 3'-2"

0161715-60X93-S133-SouthAbut

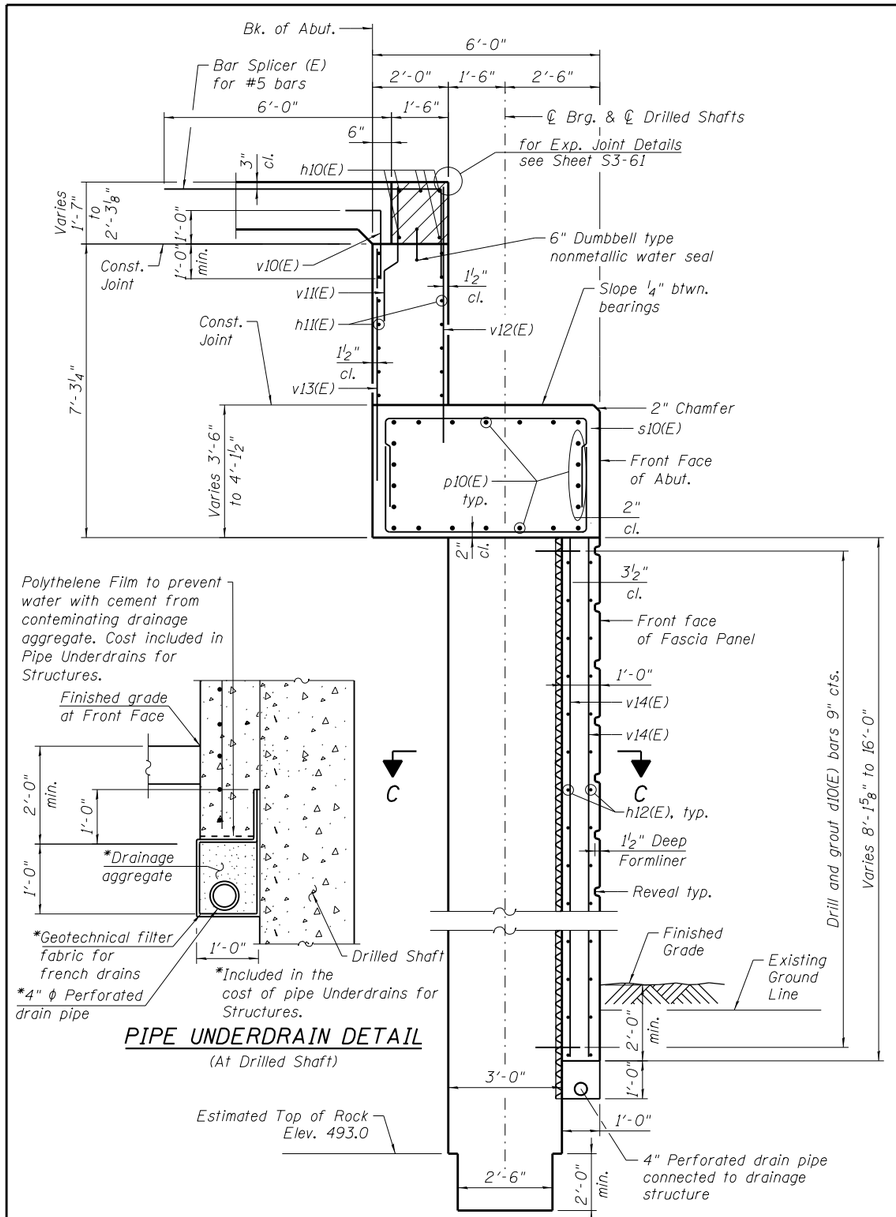
AECOM

USER NAME = vasudevana	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 8/30/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

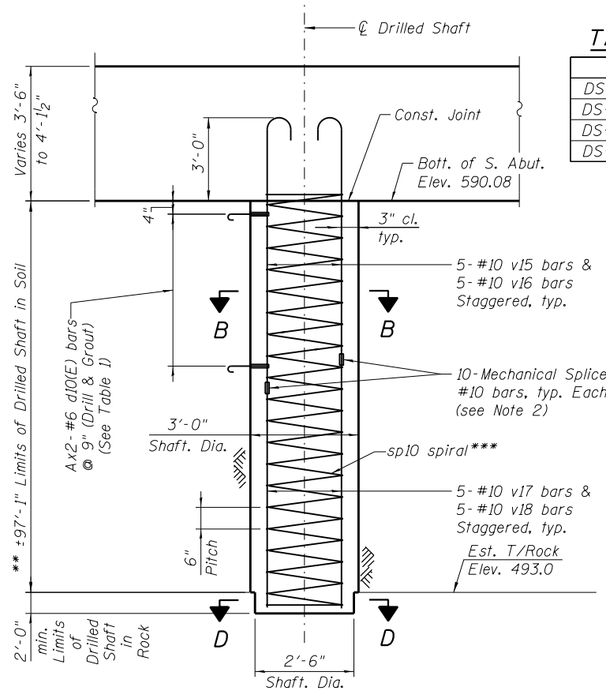
SOUTH ABUTMENT
STRUCTURE NO. 016-1715
SHEET NO. S3-135 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	877
		CONTRACT NO. 60X93		
ILLINOIS FED. AID PROJECT				



PIPE UNDERDRAIN DETAIL
(At Drilled Shaft)

SECTION A-A



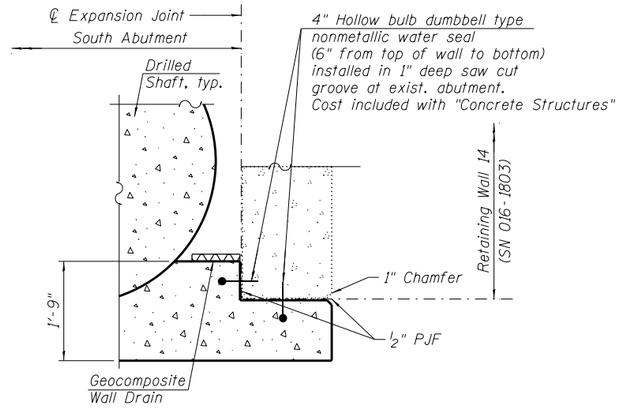
ABUTMENT SHAFT ELEVATION

** 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.

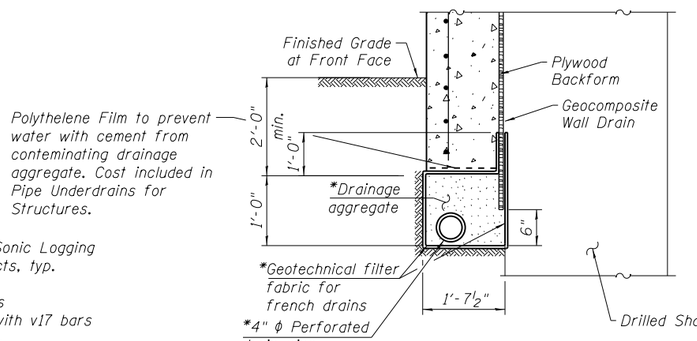
*** Provide 1½" extra turns Top & Bottom of each Drilled Shaft.

TABLE 1

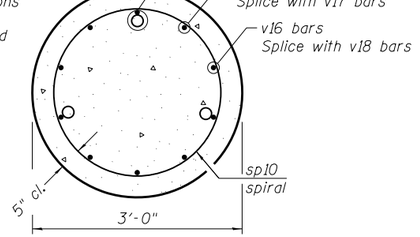
	"A"
DS-1	12
DS-2	15
DS-3	18
DS-4	21



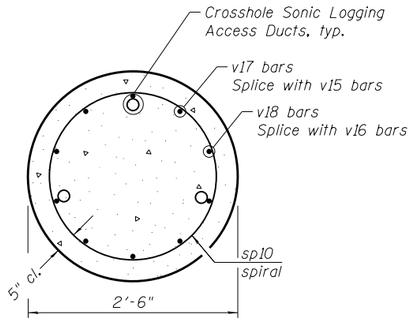
EXPANSION JOINT DETAILS AT SOUTH ABUTMENT



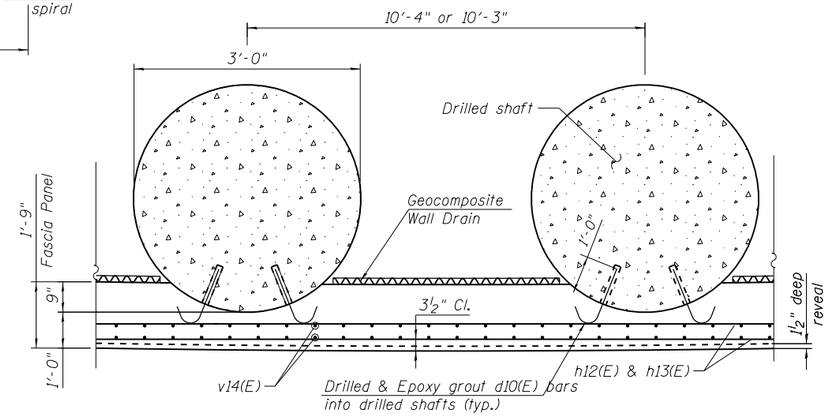
PIPE UNDERDRAIN DETAIL
(Between Drilled Shaft)
* Included in the cost of pipe underdrains for structures.



SECTION B-B



SECTION D-D



SECTION C-C
(Shaft Reinforcement not shown for clarity)

NOTES:

1. When splicing spiral reinforcement is necessary, the spiral shall be provided with 1½ 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.
2. For mechanical splicer details and quantities see S3-140 .
3. Drilled Shaft quantity from top of existing ground elev. to bottom of abutment cap elev. shall be included with Drilled Shaft In Soil.
4. 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.
5. Drilling & Grouting shall be per Section 584 of the standard Specifications. Enbedment depth shall be 12". Cost shall be included with drilled shaft in soil.

AECOM

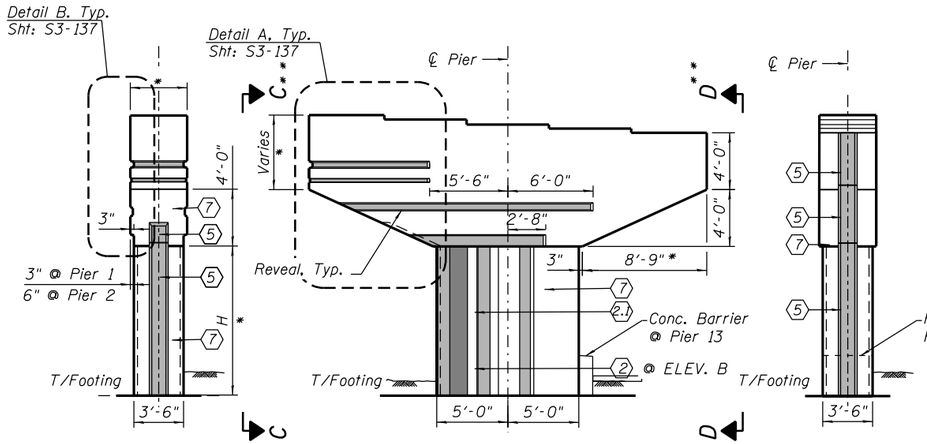
USER NAME = vasudevana	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 8/30/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ABUTMENT DETAILS
STRUCTURE NO. 016-1715
SHEET NO. S3-136 OF S3-172

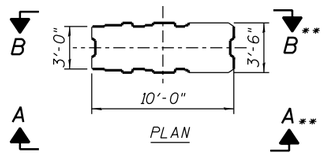
F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	878
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

0161715-60X93-S134-SouthAbutDet



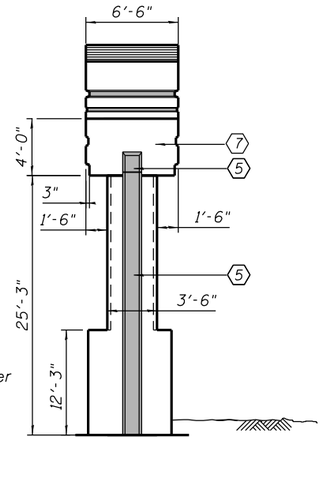
ELEVATION C | ELEVATION A (Looking Up Station, Typ.) | ELEVATION D

ELEVATION B - Similar; Opp. Hand

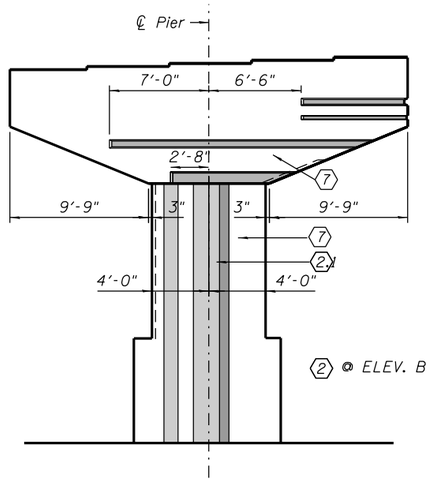


PLAN

PIER 1, 2 & 13

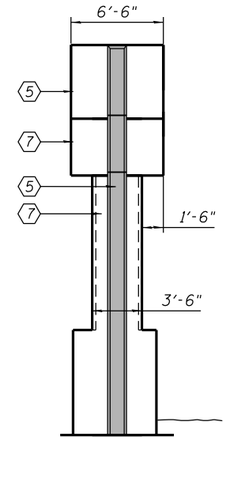


ELEVATION C

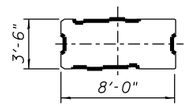


ELEVATION A (Looking Up Station, Typ.)

ELEVATION B - Similar; Opp. Hand



ELEVATION D



NOTES:

* Dimensions of piers and pier caps are different for each pier. See structural drawings.

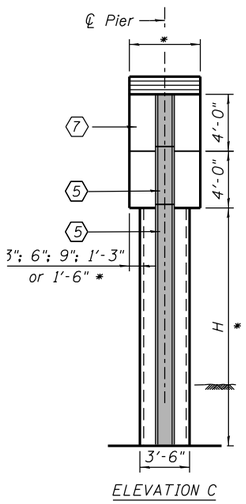
* *Elevation designations are typical for all piers. Verify all dimensions with structural drawings

LEGEND:

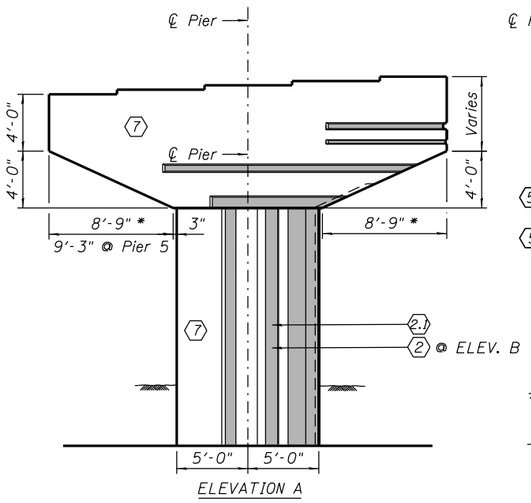
(1) (2) (3) (4) (5) (6) Textured Formliner

(7) Contractor's form

PIER 4

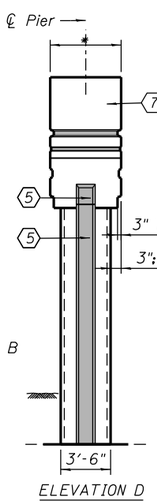


ELEVATION C

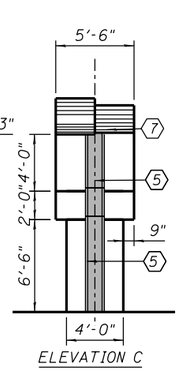


ELEVATION A (Looking Up Station, Typ.)

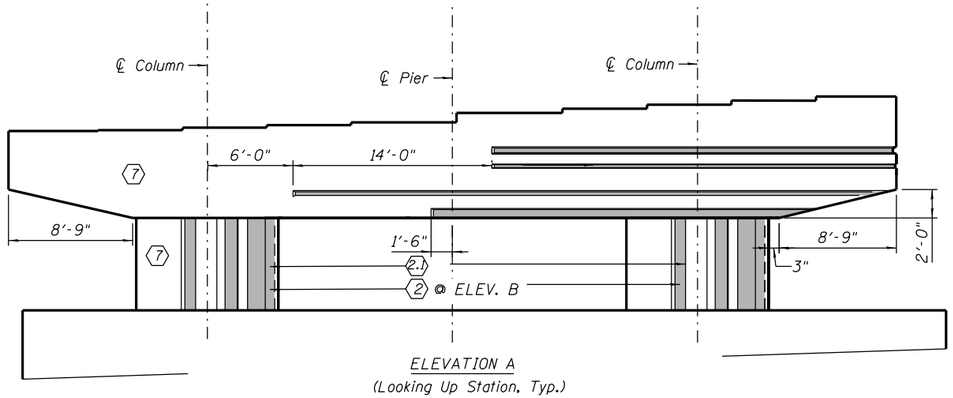
ELEVATION B - Similar; Opp. Hand



ELEVATION D

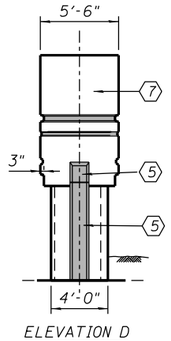


ELEVATION C

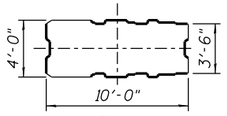


ELEVATION A (Looking Up Station, Typ.)

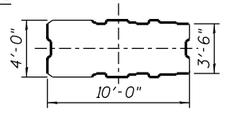
ELEVATION B - Similar; Opp. Hand



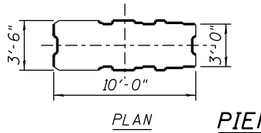
ELEVATION D



PLAN



PLAN



PLAN

PIER 3; 5; 6; 7; 8; 9 & 10

PIER 11

USER NAME = floresg	DESIGNED - MR	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

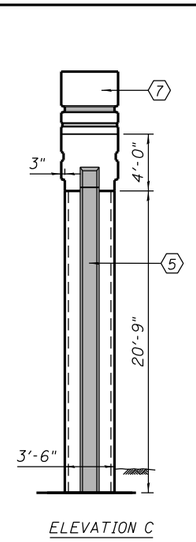
AECOM

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

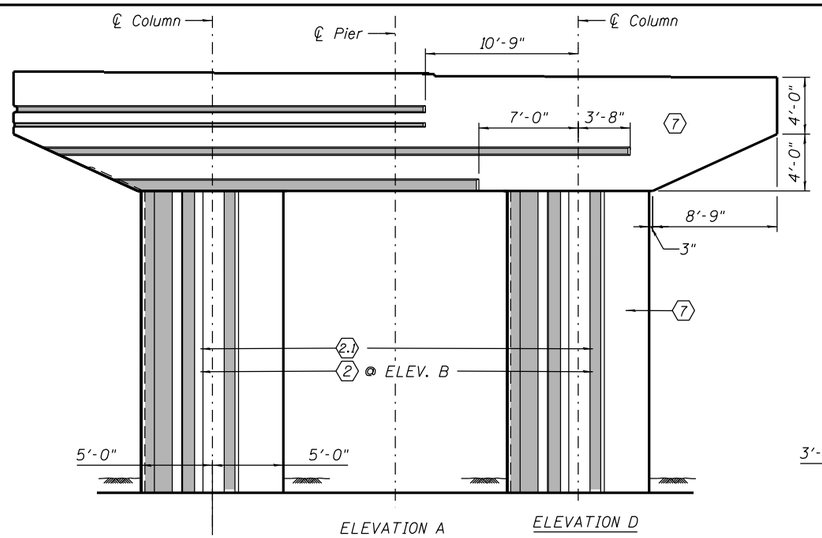
ARCHITECTURAL DETAILS – I
STRUCTURE NO. 016–1715
SHEET NO. S3-137 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	879
		CONTRACT NO. 60X93		
	ILLINOIS	FED. AID PROJECT		

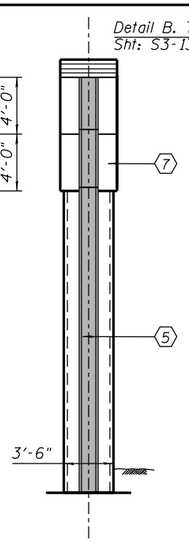
0161715-60X93-S135-Arch 1.dgn



ELEVATION C



ELEVATION A
(Looking Up Station, Typ.)
ELEVATION B - Similar -Opp. Hand

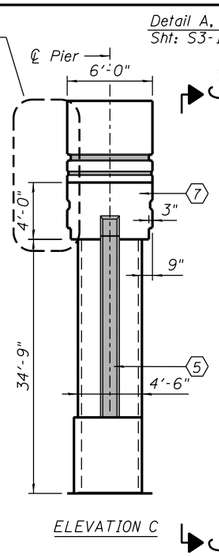


ELEVATION D

PLAN

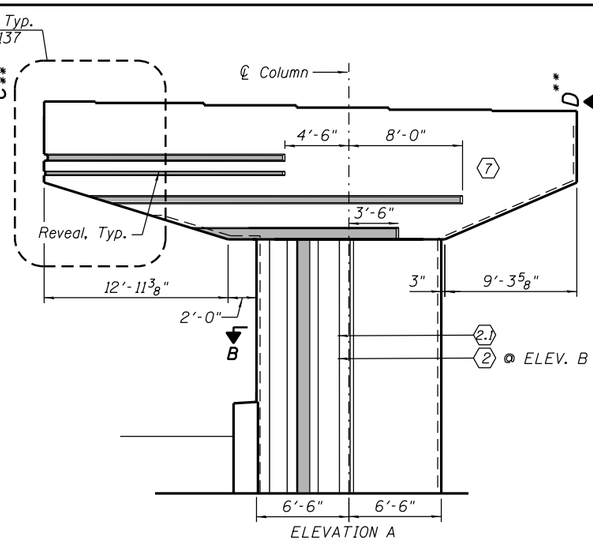
PIER 12

Detail B. Typ.
Sht: S3-137

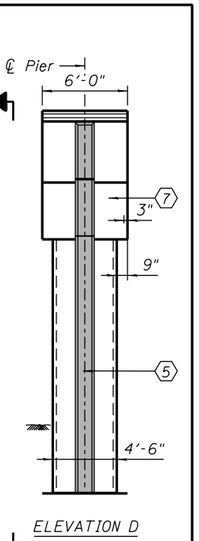


ELEVATION C

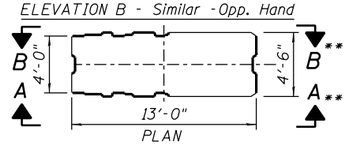
Detail A. Typ.
Sht: S3-137



ELEVATION A
(Looking Up Station, Typ.)
ELEVATION B - Similar -Opp. Hand



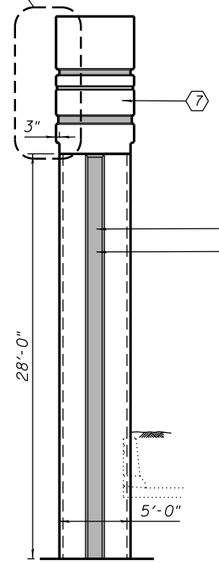
ELEVATION D

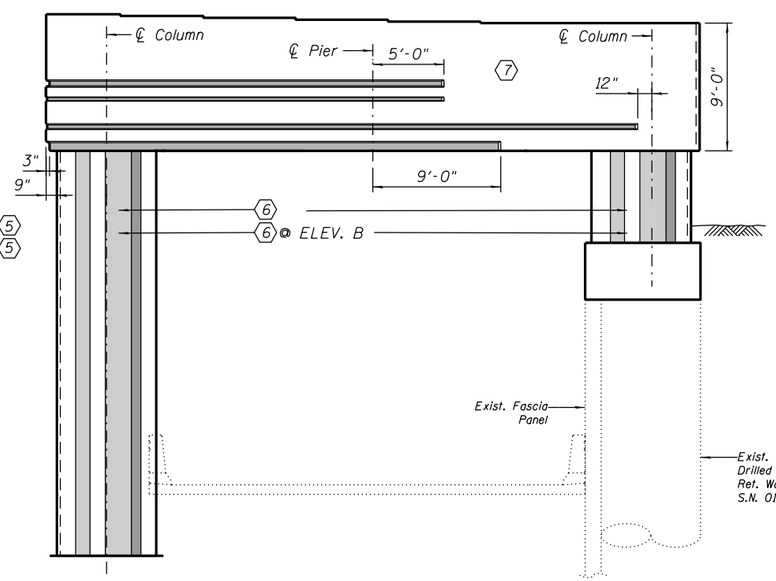


PLAN

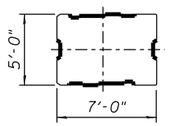
PIER 14

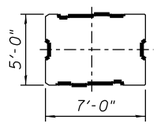
Detail C. Typ.
Sht: S3-137



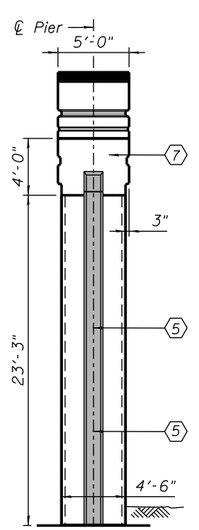


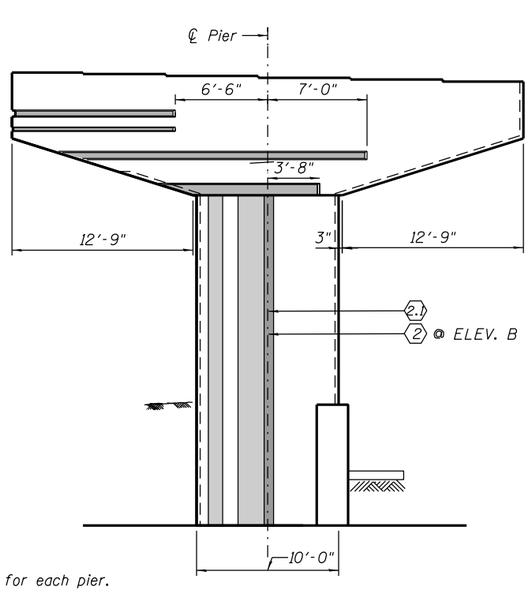
ELEVATION
(Looking Upstation)

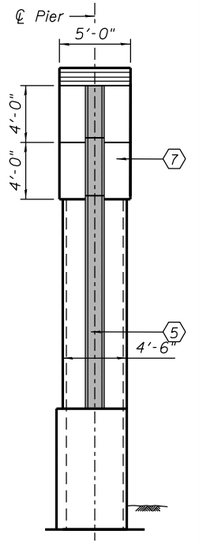




PIER 15







NOTES:

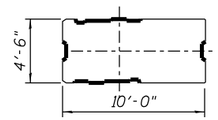
* Dimensions of piers and pier caps are different for each pier. See structural drawings.

* *Elevation designations are typical for all piers. Verify all dimensions with structural drawings

LEGEND:

⟨1⟩⟨2⟩⟨3⟩⟨4⟩⟨5⟩⟨6⟩ Textured Formliner

⟨7⟩ Contractor's form



PIER 16

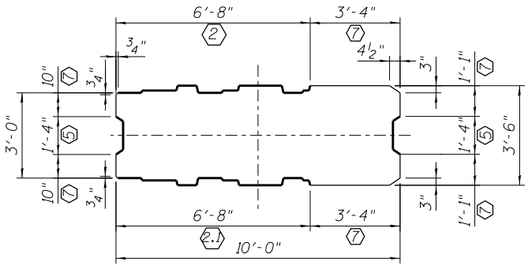
USER NAME = floresg	DESIGNED - MR	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

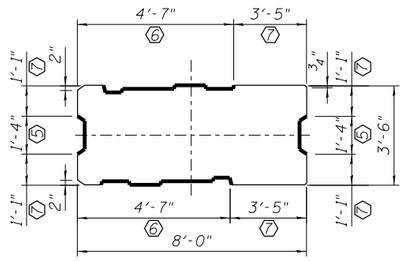
ARCHITECTURAL DETAILS – II
STRUCTURE NO. 016–1715
SHEET NO. S3-138 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	880
		CONTRACT NO. 60X93		
		ILLINOIS FED. AID PROJECT		

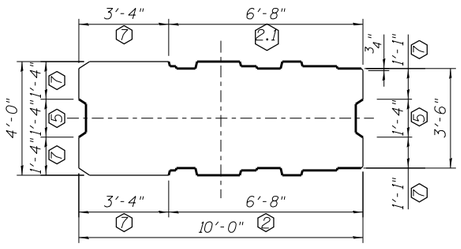
0161715-60X93-S136-Arch II.dgn



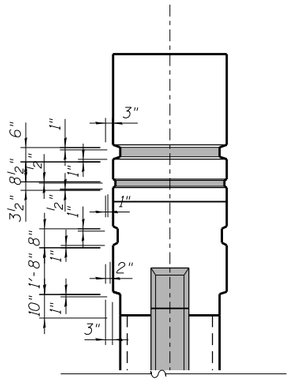
FORMLINER LAYOUT
TYP. FOR COLUMNS AT
PIER 1, 2, 3, 5, 6, 7, 8, 9, 10, 12, & 13



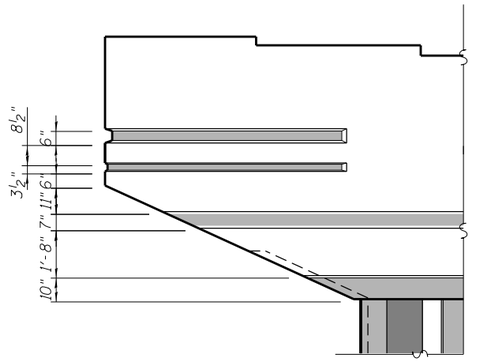
FORMLINER LAYOUT
COLUMN AT PIER 4



FORMLINER LAYOUT
COLUMN AT PIER 11

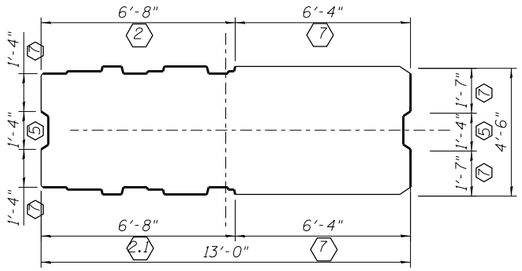


DETAIL A

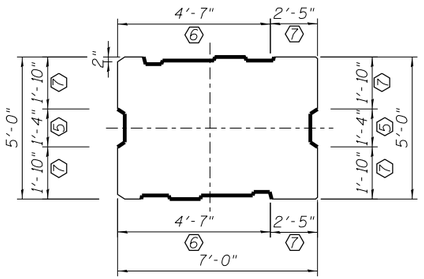


DETAIL B

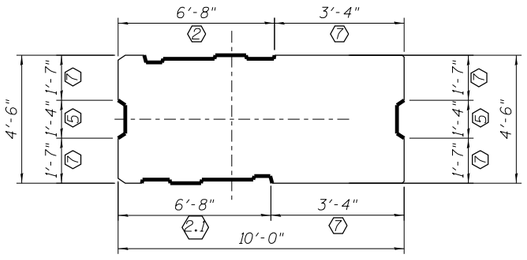
PIER CAP REVEAL DETAIL, TYP @ ALL PIERS, UNO



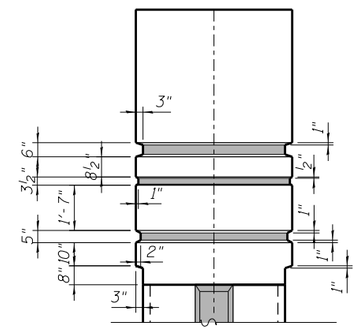
FORMLINER LAYOUT
COLUMN AT PIER 14



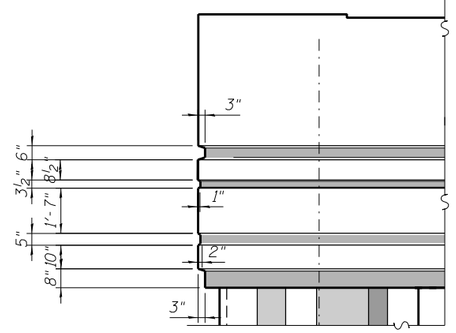
FORMLINER LAYOUT
COLUMN AT PIER 15



FORMLINER LAYOUT
AT PIER 16



DETAIL C



PIER CAP REVEAL DETAIL AT PIER 15

LEGEND:

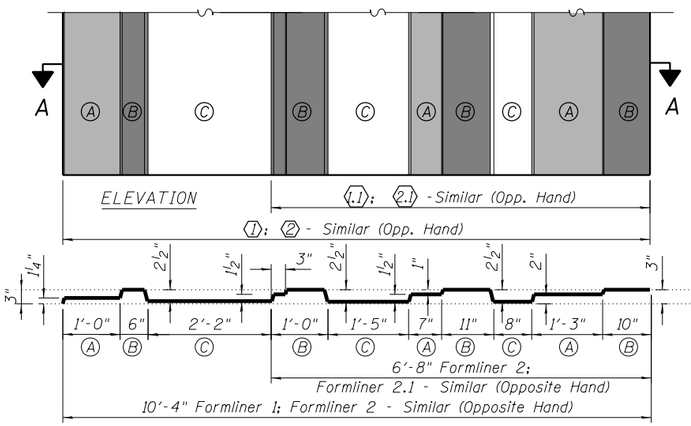
(1) (2) (1.1) (2.1) (3) (4) (5) (6) Formliner Panel Designation
(7) Contractor's form: Rubbed Finish at all concrete surface on columns and pier caps, exposed to view and not indicated as textured formliner or textured reveal.
(A) Texture: Light Sandblast: Max Depth: 0.0625"
(B) Texture: Medium Sandblast: Max Depth: 0.125"
(C) Texture: Smooth

NOTES:

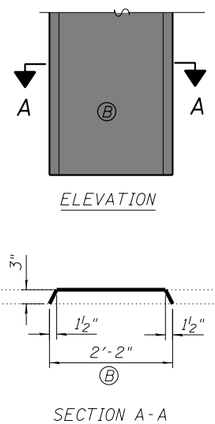
1. Verify / coordinate pier dimensions with drawings S-98 - S3-131.
2. Unless otherwise noted on plans, draft at formliner will be 1/4" per inch depth, typ.
2. Maximum depth of formliner texture at columns and maximum depth of reveals at pier caps is 3".

TABLE 1

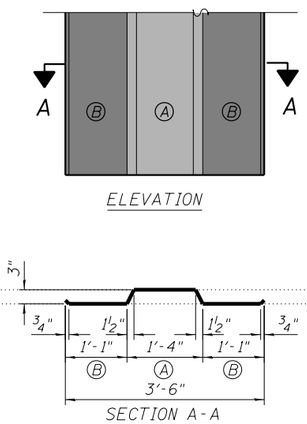
Pier	Formliner Quantity (Sq.Ft.)	Rubbed Finish Quantity (Sq.Ft.)
1	213	608
2	479	733
3	399	682
4	204	704
5	503	794
6	362	681
7	245	620
8	189	648
9	236	615
10	96	543
11	249	1,123
12	797	1,320
13	610	1,049
14	688	1,266
15	482	1,468
16	387	899



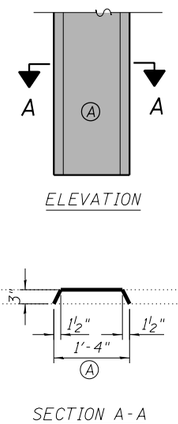
FORMLINER (1) (2) (1.1) (2.1)



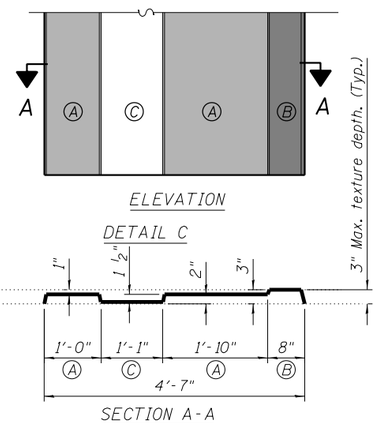
FORMLINER (3)



FORMLINER (4)



FORMLINER (5)



FORMLINER (6)

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Form Liner Textured Surface	Sq. Ft.	6,139
Rubbed Finish	Sq. Ft.	13,753

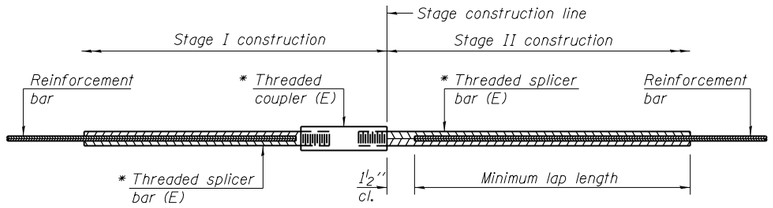
AECOM	USER NAME = vasudevana	DESIGNED - MR	REVISED
		CHECKED - ATB	REVISED
	PLOT SCALE = N.T.S.	DRAWN - AV	REVISED
	PLOT DATE = 8/28/2018	CHECKED - ATB	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ARCHITECTURAL DETAILS – III
STRUCTURE NO. 016-1715
SHEET NO. S3-139 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	881
		CONTRACT NO. 60X93		
		ILLINOIS	FED. AID PROJECT	

0161715-60X93-S137-Arch III

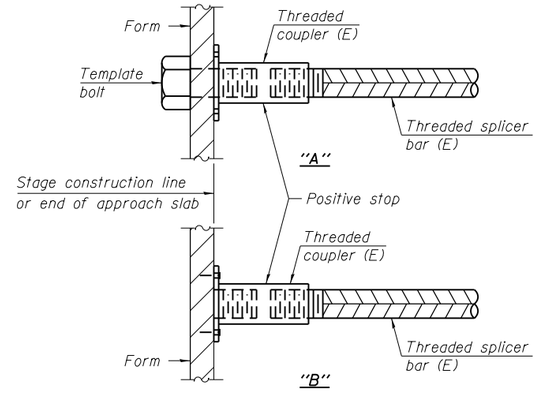


STANDARD BAR SPLICER ASSEMBLY

Threaded splicer bar length = min. lap length + 1½" + thread length

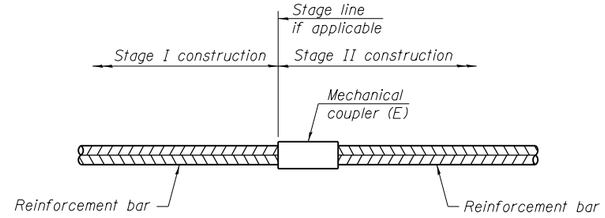
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. of Assemblies Required	Minimum lap length



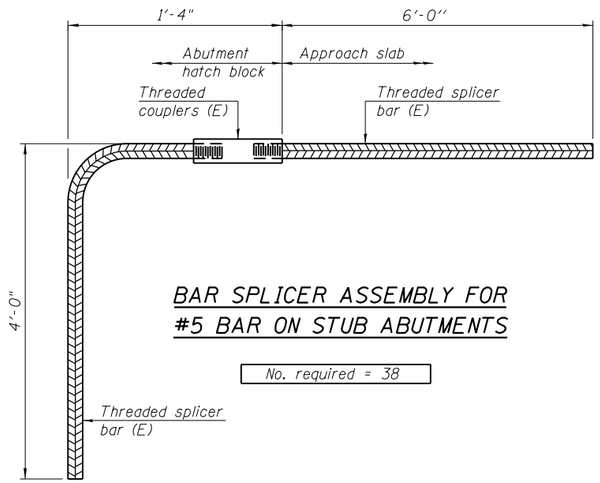
INSTALLATION AND SETTING METHODS

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



STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required
Pier 1	#11	32
Pier 2	#14	52
Pier 3	#11	44
Pier 4	#14	52
Pier 5	#14	52
Pier 6	#14	52
Pier 7	#11	32
Pier 8	#11	32
Pier 9	#11	42
Pier 10	#11	42
Pier 11	#10	50
Pier 12	#11	66
Pier 13	#14	52
Pier 14	#14	60
Pier 15	#14	36
Pier 16	#14	52
S. Abutment	#10	40



BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS

No. required = 38

NOTES

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.

All reinforcement shall be lapped and tied to the splicer bars.

Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.

See approved list of bar splicer assemblies and mechanical splicers for alternatives.

BSD-1

2-17-2017

AECOM

USER NAME = vasudevana	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - AV	REVISED	
PLOT DATE = 8/23/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BAR SPLICER AND MECHANIC SPLICER DETAILS
STRUCTURE NO. 016-1715
SHEET NO. S3-140 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	882
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

0161715-60X93-S138-Bar Splice

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 0461-B-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 587.18 ft
North: 1898107.11 ft
East: 1172063.72 ft
Station: 1210+23.99
Offset: 19.2353 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
	586.4	10-inch thick CONCRETE --PAVEMENT--						
	586.0	4-inch thick GRAVELLY SAND --BASE COURSE--						
		Dense, gray, fine SAND --FILL--			1	15 15 18	NP	21
	584.2	Very stiff, gray SILTY CLAY, trace gravel	5		2	3 3 4	2.05 B	22
	581.7	Very soft to soft, gray CLAY to SILTY CLAY, trace gravel			3	2 1 2	0.41 B	25
			10		4	0 1 2	0.33 B	24
					5	0 1 1	0.16 B	26
			15		6	0 0 0	0.16 B	27
					7	0 0 0	0.25 B	26
			20		8	0 0 2	0.25 B	26
	558.4	Stiff, gray SILTY CLAY LOAM, trace gravel	25		9	1 2 2	0.41 B	23
					10	0 1 2	0.25 B	23
					11	0 2 2	0.44 B	26
			30		12	2 2 5	1.17 N/6	14
	550.4	Very soft to soft, gray CLAY to SILTY CLAY, trace gravel			13	2 3 3	1.00 N/6	
			35					
					14	0 1 2	0.16 B	23
			40					

GENERAL NOTES

Begin Drilling: 03-24-2014 Complete Drilling: 03-24-2014
Drilling Contractor: Wang Testing Services Drill Rig: CME-55 TMR [85%]
Driller: R&N Logger: M. de los Reyes Checked by: C. Marin
Drilling Method: 2.25" SSA to 12.5', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 6/15/17

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 0461-B-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 587.18 ft
North: 1898107.11 ft
East: 1172063.72 ft
Station: 1210+23.99
Offset: 19.2353 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
	540.4	Very stiff to hard, gray SILTY CLAY to SILTY CLAY LOAM, trace gravel	45		15	0 1 2	0.49 B	29
			50		16	1 7 8	2.46 B	23
			55		17	8 11 14	6.56 B	14
			60		18	6 10 13	4.10 B	20
	525.4	Hard, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel	65		19	18 30 28	2.46 S	10
			70		20	15 17 21	8.20 S	13
			75		21	11 17 22	9.59 B	14
			80		22	60/5	NP	13

GENERAL NOTES

Begin Drilling: 03-24-2014 Complete Drilling: 03-24-2014
Drilling Contractor: Wang Testing Services Drill Rig: CME-55 TMR [85%]
Driller: R&N Logger: M. de los Reyes Checked by: C. Marin
Drilling Method: 2.25" SSA to 12.5', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 6/15/17

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 0461-B-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 587.18 ft
North: 1898107.11 ft
East: 1172063.72 ft
Station: 1210+23.99
Offset: 19.2353 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
		--HARD DRILLING-- *--Possible Cobbles--*						
	600.4	Very dense, gray GRAVELLY SAND --Moist--	85		23	40 60/6	NP	22
			90		24	60/4	NP	9
		--HARD DRILLING-- *--Possible Cobbles--*	95		25	54/2	NP	12
		--HARD DRILLING-- *--Possible Cobbles--*			26	50/4	NP	15
	487.2		100					
		--WEATHERED BEDROCK-- --DIFFICULT DRILLING--	105					
	484.7	--AUGER REFUSAL-- Boring terminated at 102.50 ft	110					
			115					
			120					

GENERAL NOTES

Begin Drilling: 03-24-2014 Complete Drilling: 03-24-2014
Drilling Contractor: Wang Testing Services Drill Rig: CME-55 TMR [85%]
Driller: R&N Logger: M. de los Reyes Checked by: C. Marin
Drilling Method: 2.25" SSA to 12.5', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 6/15/17

NOTE:

1. *Station and offset are measured along ℄ Ramp WS & PGL.*

AECOM	USER NAME = floresg	DESIGNED - AV	REVISED	
		CHECKED - ATB	REVISED	
	PLOT SCALE = N.T.S.	DRAWN - GF	REVISED	
	PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS – 1
STRUCTURE NO. 016–1715
SHEET NO. S3-141 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	883
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

0161715-60X93-S139-Boring.dgn

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1087-B-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 594.63 ft
North: 1897505.91 ft
East: 1171279.56 ft
Station: 1226+22.18
Offset: 70.1849 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	593.6	12-inch thick, black SILTY CLAY --TOPSOIL--							
		Very stiff to hard, dark brown to brown SILTY CLAY, trace gravel, concrete and brick fragments --FILL--				1	4 5 17	> 4.50 P	17
	589.1		5			2	3 4 4	3.75 P	15
		Very loose to medium dense, brown, fine SAND, trace concrete, clay, and rock fragments --FILL--				3	2 1 1	NP	7
			10			4	10 4 11	NP	27
	584.1	Very stiff, gray SILTY CLAY, trace gravel				5	3 5 7	2.38 B	18
	581.6	Very soft to medium stiff, gray CLAY, trace gravel							
			15			6	2 2 3	0.66 B	23
						7	0 0 0	0.33 B	19
		--L_L(%)=29, P_L(%)=16-- --%Gravel=5.7-- --%Sand=17.7--	20			8	0 0 2	0.41 B	21
		--%Silt=52.3-- --%Clay=24.4-- --A-6 (9)--				9	0 0 1	0.50 P	20
			25			10	0 0 3	0.41 B	25
						11	0 2 2	0.33 B	26
			30			12	0 0 0	0.16 B	26
			35			13	0 2 2	0.16 B	27
			40			14	0 0 2	0.16 B	26

GENERAL NOTES

Begin Drilling: 03-03-2013 Complete Drilling: 03-04-2013
Drilling Contractor: Wang Testing Services Drill Rig: B-57 TMR [100%]
Driller: R&J Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 2.25" SSA to 15', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: ▽ 10.50 ft
At Completion of Drilling: ▼ mud in the borehole
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 11000401.GPJ WANGENG.GDT 6/15/17

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1087-B-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 594.63 ft
North: 1897505.91 ft
East: 1171279.56 ft
Station: 1226+22.18
Offset: 70.1849 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
			45			15	0 0 2	0.41 B	27
			50			16	1 2 2	0.41 B	28
	542.6	Stiff, gray SILTY CLAY, trace gravel							
			55			17	0 4 7	1.23 B	18
	537.6	Dense, gray SILTY LOAM to SILTY CLAY LOAM, trace gravel and sand seams							
		--L_L(%)=23, P_L(%)=14-- --%Gravel=5.1-- --%Sand=23.5--	60			18	16 19 17	NP	11
		--%Silt=55.6-- --%Clay=15.8-- --A-4 (4)--							
		--L_L(%)=28, P_L(%)=13-- --%Gravel=6.7-- --%Sand=16.0-- --%Silt=54.0-- --%Clay=23.2-- --A-6 (9)--	65			19	10 24 25	NP	17
	527.6	Medium stiff to very stiff, gray SILTY CLAY, trace gravel							
		--L_L(%)=35, P_L(%)=15-- --%Gravel=1.1-- --%Sand=8.1-- --%Silt=53.3-- --%Clay=37.5-- --A-6 (17)--	70			20	6 12 12	3.44 B	21
			75			21	0 3 5	0.66 B	23
	517.6	Medium dense, gray SANDY LOAM, trace gravel							
	514.9		80			22	4 11 15	NP	27

GENERAL NOTES

Begin Drilling: 03-03-2013 Complete Drilling: 03-04-2013
Drilling Contractor: Wang Testing Services Drill Rig: B-57 TMR [100%]
Driller: R&J Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 2.25" SSA to 15', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: ▽ 10.50 ft
At Completion of Drilling: ▼ mud in the borehole
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 11000401.GPJ WANGENG.GDT 6/15/17

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1087-B-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 594.63 ft
North: 1897505.91 ft
East: 1171279.56 ft
Station: 1226+22.18
Offset: 70.1849 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		Hard, gray SILTY LOAM, trace gravel							
			85			23	6 15 25	5.74 B	16
			90			24	11 14 30	4.67 B	19
	502.6	Very dense, gray GRAVELLY SANDY LOAM, some dolostone fragments							
			95			25	50/2"	NR	
	495.6	Boring terminated at 99.00 ft				26	50/3"	NP	
			100						

GENERAL NOTES

Begin Drilling: 03-03-2013 Complete Drilling: 03-04-2013
Drilling Contractor: Wang Testing Services Drill Rig: B-57 TMR [100%]
Driller: R&J Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 2.25" SSA to 15', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: ▽ 10.50 ft
At Completion of Drilling: ▼ mud in the borehole
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 11000401.GPJ WANGENG.GDT 6/15/17

NOTE:

1. Station and offset are measured along ℄ Ramp WS & PGL.

0161715-60X93-S140-Boring.dgn

AECOM	USER NAME = floresg	DESIGNED - AV	REVISED	
		CHECKED - ATB	REVISED	
	PLOT SCALE = N.T.S.	DRAWN - GF	REVISED	
	PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS - 2
STRUCTURE NO. 016-1715
SHEET NO. S3-142 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	884
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

BORING LOG 1087-B-02

WEI Job No.: 1100-04-01

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 577.83 ft
North: 1897618.19 ft
East: 1171373.71 ft
Station: 1225+43.65
Offset: 53.5267 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
	577.5	4-inch thick ASPHALT --PAVEMENT--						
	576.2	15-inch thick CONCRETE --PAVEMENT--						
		Medium dense CRUSHED STONE --FILL--			1	10 9 12	NP	
			5		2	4 2 3	NP	7
	572.3	Medium stiff, gray SILTY CLAY, trace gravel			3	2 3 2	0.74 B	20
	569.8	Soft to medium stiff, gray CLAY, trace gravel			4	2 2 3	0.33 B	21
		--L_L(%)=32, P_L(%)=17-- --%Gravel=1.9-- --%Sand=15.6-- --%Silt=52.2-- --%Clay=30.3-- --A-6 (11)--	10		5	2 1 2	0.25 B	24
			15		6	1 2 1	0.16 B	27
					7	1 2 1	0.25 B	27
	541.1	Hard, gray SILTY LOAM, trace gravel and sand lenses	20		8	1 2 2	0.25 P	28
			25		9	0 2 1	0.25 B	27
					10	0 0 3	0.41 B	26
					11	1 1 2	0.41 B	25
			30		12	1 2 2	0.57 B	26
			35		13	0 1 1	0.49 B	29
			40		14	9 10 13	7.79 B	18

GENERAL NOTES

Begin Drilling: 03-06-2013 Complete Drilling: 03-14-2013
Drilling Contractor: Wang Testing Services Drill Rig: B-57 TMR [100%]
Driller: R&J Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 2.25" SSA to 20', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: ▽ 3.50 ft
At Completion of Drilling: ▼ mud in the borehole
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 8/15/17

BORING LOG 1087-B-02

WEI Job No.: 1100-04-01

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 577.83 ft
North: 1897618.19 ft
East: 1171373.71 ft
Station: 1225+43.65
Offset: 53.5267 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
		--L_L(%)=24, P_L(%)=13-- --%Gravel=3.5-- --%Sand=28.1-- --%Silt=52.4-- --%Clay=16.0-- --A-6 (5)--	45		15	7 10 18	6.47 B	13
	530.8	Very stiff to hard, gray SILTY CLAY, trace gravel						
			50		16	7 12 20	6.72 B	20
		--L_L(%)=40, P_L(%)=15-- --%Gravel=0.4-- --%Sand=3.8-- --%Silt=49.8-- --%Clay=46.1-- --A-6 (24)--	55		17	6 6 7	2.05 S	24
	520.8	Medium dense, gray, SANDY LOAM						
		--%Gravel=0.0-- --%Sand=74.0-- --%Silt=25.1--	60		18	5 7 10	NP	23
		--%Clay=0.9-- --A-2-4 (0)--						
	515.8	Hard, gray SILTY LOAM, trace gravel						
			65		19	12 20 25	10.25 B	13
		--L_L(%)=22, P_L(%)=12-- --%Gravel=4.6-- --%Sand=19.7-- --%Silt=61.8-- --%Clay=13.9-- --A-4 (5)--	70		20	19 30 34	5.00 S	13
			75		21	27 34 47	> 4.50 P	18
	500.8	Very dense, gray GRAVELLY SANDY LOAM, some dolostone fragments						
			80		22	50/3	NP	15

GENERAL NOTES

Begin Drilling: 03-06-2013 Complete Drilling: 03-14-2013
Drilling Contractor: Wang Testing Services Drill Rig: B-57 TMR [100%]
Driller: R&J Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 2.25" SSA to 20', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: ▽ 3.50 ft
At Completion of Drilling: ▼ mud in the borehole
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 8/15/17

BORING LOG 1087-B-02

WEI Job No.: 1100-04-01

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 577.83 ft
North: 1897618.19 ft
East: 1171373.71 ft
Station: 1225+43.65
Offset: 53.5267 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
		--HARD DRILLING--	85		23	50/3	NR	
	488.8	Strong, good rock quality, light gray, fresh, slightly fractured, joint breaks with little to no infill, slightly vuggy DOLOSTONE Run#1: 89 to 99 feet --RECOVERY=100%-- --RQD=84%-- ROCK MASS RATING: Strength of rock material = 12 Drill core quality RQD = 17 Spacing of joints = 20 Condition of joints =20 Groundwater condition =10	90	CORE	24			
	478.8	Boring terminated at 99.00 ft	95					
			100					

GENERAL NOTES

Begin Drilling: 03-06-2013 Complete Drilling: 03-14-2013
Drilling Contractor: Wang Testing Services Drill Rig: B-57 TMR [100%]
Driller: R&J Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 2.25" SSA to 20', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: ▽ 3.50 ft
At Completion of Drilling: ▼ mud in the borehole
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 8/15/17

NOTE:

1. Station and offset are measured along ℄ Ramp WS & PGL.

0161715-60X93-S141-Boring.dgn

AECOM

USER NAME = floresg	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - GF	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS - 3
STRUCTURE NO. 016-1715
SHEET NO. S3-143 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	885
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1087-B-02 Alt

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 577.78 ft
North: 1897624.78 ft
East: 1171370.00 ft
Station: 1225+36.25
Offset: 51.9824 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--DRILLED WITHOUT SAMPLING--	5					
			10					
			15					
			20					
			25					
			30					
			35					
			40					

GENERAL NOTES

Begin Drilling: 03-14-2013 Complete Drilling: 03-14-2013
Drilling Contractor: Wang Testing Services Drill Rig: B-57 TMR [100%]
Driller: R&J Logger: N. Boddy Checked by: C. Marin
Drilling Method: 2.25" SSA to 10', mud rotary thereafter, boring
backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA
The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 11000401.GPJ WANGENG.GDT 6/15/17

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1087-B-02 Alt

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 577.78 ft
North: 1897624.78 ft
East: 1171370.00 ft
Station: 1225+36.25
Offset: 51.9824 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--DRILLED WITHOUT SAMPLING--	45					
			50					
		--DRILLED WITHOUT SAMPLING--	55					
			60					
			65					
			70					
			75					
			80					

GENERAL NOTES

Begin Drilling: 03-14-2013 Complete Drilling: 03-14-2013
Drilling Contractor: Wang Testing Services Drill Rig: B-57 TMR [100%]
Driller: R&J Logger: N. Boddy Checked by: C. Marin
Drilling Method: 2.25" SSA to 10', mud rotary thereafter, boring
backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA
The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 11000401.GPJ WANGENG.GDT 6/15/17

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1087-B-02 Alt

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 577.78 ft
North: 1897624.78 ft
East: 1171370.00 ft
Station: 1225+36.25
Offset: 51.9824 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	494.3							
				O		23 50/3	NR	
		--HARD DRILLING--	85					
	488.8							
		Strong, good rock quality, light gray, fresh, slightly fractured, joint breaks with little to no infill, slightly vuggy DOLOSTONE Run#1: 89 to 99 feet --RECOVERY=100%-- --RQD=84%--	90	C O R E				
			95					
	478.8	Boring terminated at 99.00 ft	100					

GENERAL NOTES

Begin Drilling: 03-14-2013 Complete Drilling: 03-14-2013
Drilling Contractor: Wang Testing Services Drill Rig: B-57 TMR [100%]
Driller: R&J Logger: N. Boddy Checked by: C. Marin
Drilling Method: 2.25" SSA to 10', mud rotary thereafter, boring
backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA
The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 11000401.GPJ WANGENG.GDT 6/15/17

NOTE:

1. Station and offset are measured along ℄ Ramp WS & PGL.

0161715-60X93-S142-Boring.dgn

AECOM

USER NAME = floresg	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - GF	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS – 4
STRUCTURE NO. 016–1715
SHEET NO. S3-144 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	886
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9928

BORING LOG 10-RWB-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 593.61 ft
North: 1897453.61 ft
East: 1171289.67 ft
Station: 7310+10.47
Offset: 64.4358 RT

Elevation (ft)	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)	SOIL AND ROCK DESCRIPTION
593.3							4-inch thick, dark brown SILTY LOAM
592.8							--TOPSOIL--
							Hard, brown SILTY CLAY LOAM, trace gravel and brick fragments
							--FILL--
590.6							Medium dense, brown SILTY LOAM, trace gravel and brick fragments
							--FILL--
	5						Loose to medium dense, brown, fine SAND
							--FILL--
583.9							Stiff to hard, gray brown and gray SILTY CLAY, trace gravel
578.1							Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel
	20						

Elevation (ft)	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)	SOIL AND ROCK DESCRIPTION
			1	9 4 7	NP	13	
			2	5 5 5	NP	12	
			3	3 3 2	NP	14	
			4	3 2 2	NP	19	
			5	3 4 5	2.54 B	18	
	15		6	3 3 3	1.07 B	20	
			7	0 0 1	0.41 B	27	
			8	1 2 1	0.33 B	18	
							--L_L(%)=33, P_I(%)=17--
							--%Gravel=3.4--
							--%Sand=14.9--
							--%Silt=48.7--
							--%Clay=32.9--
							--A-6 (12)--
	40						

Elevation (ft)	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)	SOIL AND ROCK DESCRIPTION
			9	2 3 3	0.66 B	15	
			10	0 1 2	0.50 N/6		
			11	1 1 1	0.16 B	26	
			12	0 1 1	0.16 B	25	
			13	0 0 0	0.16 B	25	
			14	0 0 0	0.25 B	25	

GENERAL NOTES

Begin Drilling: 02-26-2014 Complete Drilling: 03-03-2014
Drilling Contractor: Wang Testing Services Drill Rig: CME-55 TMR
Driller: R&K Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 2.25" SSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: ▽ 8.00 ft
At Completion of Drilling: ▼ 90.00 ft
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 11000401.GPJ WANGENG.GDT 8/1/2016

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9928

BORING LOG 10-RWB-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 593.61 ft
North: 1897453.61 ft
East: 1171289.67 ft
Station: 7310+10.47
Offset: 64.4358 RT

Elevation (ft)	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)	SOIL AND ROCK DESCRIPTION
	45		15	0 2 2	0.25 B	26	
			16	0 0 2	0.33 B	26	
	55		17	6 8 12	5.08 B	21	
			18	14 15 24	6.50 N/6		
541.9							Hard, gray SILTY CLAY to SILTY CLAY LOAM, trace gravel
	60						

Elevation (ft)	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)	SOIL AND ROCK DESCRIPTION
	65		19	10 14 24	5.74 B	19	
			20	11 11 15	> 4.50	21	
521.9							Loose, gray SILTY LOAM, trace gravel
							--Saturated--
	75		21	4 4 5	NP	21	
516.9							Hard, gray SILTY CLAY LOAM, trace gravel
	80		22	17 19 29	9.84 S	13	

GENERAL NOTES

Begin Drilling: 02-26-2014 Complete Drilling: 03-03-2014
Drilling Contractor: Wang Testing Services Drill Rig: CME-55 TMR
Driller: R&K Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 2.25" SSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: ▽ 8.00 ft
At Completion of Drilling: ▼ 90.00 ft
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 11000401.GPJ WANGENG.GDT 8/1/2016

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9928

BORING LOG 10-RWB-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 593.61 ft
North: 1897453.61 ft
East: 1171289.67 ft
Station: 7310+10.47
Offset: 64.4358 RT

Elevation (ft)	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)	SOIL AND ROCK DESCRIPTION
	85		23	17 22 40	9.76 S	14	
506.9							Very dense, gray GRAVELLY SILTY LOAM
							--Saturated--
	90		24	15 21 50/3	NP	23	
							--HARD DRILLING--
							--Possible Cobbles--
501.9							Very dense, gray GRAVELLY SAND
							--Saturated--
	95		25	50/4	NP	15	
							--HARD DRILLING--
							--Possible Cobbles--
496.9							Very dense, gray SILTY LOAM, trace gravel
	100		26	50/5	NP	13	

Elevation (ft)	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)	SOIL AND ROCK DESCRIPTION
492.1							Strong, light gray, fair rock mass quality, bedded fresh DOLOSTONE, up to 10-inch beds, 1- to 8-inch spaced joints, horizontal and vertical joints with none to more than 0.2-inch infilling, hard joint wall, with stylolitic surfaces, and moderately vuggy porosity.
	105						--Run 1 - RECOVERY=100%--
							--RQD=53%--
			1				CORE
	110						
482.1							Boring terminated at 111.50 ft
	115						
	120						

GENERAL NOTES

Begin Drilling: 02-26-2014 Complete Drilling: 03-03-2014
Drilling Contractor: Wang Testing Services Drill Rig: CME-55 TMR
Driller: R&K Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 2.25" SSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: ▽ 8.00 ft
At Completion of Drilling: ▼ 90.00 ft
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 11000401.GPJ WANGENG.GDT 8/1/2016

NOTE:

1. Soil Boring 10-RWB-01, Station 1226+75.08, 76.3653 RT along ℄ Ramp WS & PGL.

0161715-60X93-S143-Boring.dgn

AECOM

USER NAME = floresg	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - GF	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS - 5
STRUCTURE NO. 016-1715
SHEET NO. S3-145 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	887
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

Page 1 of 3

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 10-RWB-02

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 593.54 ft
North: 1897333.82 ft
East: 1171374.94 ft
Station: 7311+57.37
Offset: 11.56 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
	593.0	6-inch thick, black and brown SILTY LOAM --TOPSOIL--						
		Loose to medium dense, brown, fine SAND --FILL--			1	3 5 6	NP	8
			5		2	3 4 7	NP	11
					3	8 7 6	NP	14
					4	4 4 4	NP	21
	583.0	Stiff to very stiff, gray SILTY CLAY LOAM, trace gravel			5	3 5 8	3.69 B	25
			15		6	4 6 5	2.30 B	16
					7	3 3 5	1.48 B	21
	575.5	Soft to stiff, gray CLAY to SILTY CLAY, trace gravel			8	2 2 3	0.66 B	28
			25		9	1 3 3	1.07 B	23
					10	2 2 2	0.49 B	28
					11	1 2 2	0.41 B	24
			35		12	1 2 2	0.67 N/6	
					13	0 1 2	0.33 B	26
					14	1 2 2	0.49 B	23

GENERAL NOTES

Begin Drilling: 02-26-2014 Complete Drilling: 03-03-2014
Drilling Contractor: Wang Testing Services Drill Rig: B-57 TMR [100%]
Driller: P&P Logger: F. Bozga Checked by: C. Marin
Drilling Method: 2.25" HSA to 15', mud rotary thereafter, boring
backfilled upon completion

WATER LEVEL DATA

While Drilling: ▽ 8.00 ft
At Completion of Drilling: ▼ mud at 7 ft
Time After Drilling: 144 hours
Depth to Water: ▽ 16.00 ft

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 6/13/17

Page 2 of 3

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 10-RWB-02

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 593.54 ft
North: 1897333.82 ft
East: 1171374.94 ft
Station: 7311+57.37
Offset: 11.56 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
		--disturbed sample--	45		15	1 1 2	0.25 P	21
					16	2 2 3	0.25 P	26
	541.8	Hard, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel			17	11 11 17	5.66 B	15
		--L_L(%)=23, P_L(%)=15-- --%Gravel=6.7-- --%Sand=26.9--	60		18	14 24 29	4.50 P	12
		--%Silt=49.7-- --%Clay=16.7-- --A-4 (3)--	65		19	11 19 23	8.12 B	15
	526.8	Dense to very dense, gray SILTY LOAM, trace gravel --Moist--			20	14 16 20	NP	18
			75		21	23 25 39	NP	12
	516.8	Hard, gray SILTY CLAY LOAM, trace gravel			22	16 26 31	9.68 B	15

GENERAL NOTES

Begin Drilling: 02-26-2014 Complete Drilling: 03-03-2014
Drilling Contractor: Wang Testing Services Drill Rig: B-57 TMR [100%]
Driller: P&P Logger: F. Bozga Checked by: C. Marin
Drilling Method: 2.25" HSA to 15', mud rotary thereafter, boring
backfilled upon completion

WATER LEVEL DATA

While Drilling: ▽ 8.00 ft
At Completion of Drilling: ▼ mud at 7 ft
Time After Drilling: 144 hours
Depth to Water: ▽ 16.00 ft

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 6/13/17

Page 3 of 3

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9928

BORING LOG 10-RWB-02

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 593.54 ft
North: 1897333.82 ft
East: 1171374.94 ft
Station: 7311+57.22
Offset: 11.9525 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
	506.8	Very dense, gray SILT --Moist--	85		23	12 19 26	NP	18
			90		24	40 36 40	NP	19
	501.8	Hard, gray SILTY CLAY LOAM, trace gravel			25	20 28 50/5	9.18 B	14
	496.5	Very dense, gray GRAVELLY SILTY LOAM --Dry--	100		26	50/4	NP	10

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
	493.0	--DIFFICULT DRILLING-- --WEATHERED BEDROCK--						
	491.5	Strong, light gray, very poor rock mass quality, bedded fresh DOLOSTONE, up to 8-inch beds, up to 4-inch spaced joints, horizontal and vertical joints with none to more than 0.2-inch greenish gray infilling, hard joint wall, with stylolitic surfaces, and moderately vuggy porosity. --Run 1 - RECOVERY=97%-- --RQD=8%--	105	CORE	1			
	481.5	Boring terminated at 68.50 ft --Run 2 - RECOVERY=87%-- --RQD=20%-	110	CORE	2			
			115					
			120					

GENERAL NOTES

Begin Drilling: 02-26-2014 Complete Drilling: 03-03-2014
Drilling Contractor: Wang Testing Services Drill Rig: B-57 TMR
Driller: P&P Logger: F. Bozga Checked by: C. Marin
Drilling Method: 2.25" HSA to 15', mud rotary thereafter, boring
backfilled upon completion

WATER LEVEL DATA

While Drilling: ▽ 8.00 ft
At Completion of Drilling: ▼ mud at 7 ft
Time After Drilling: 144 hours
Depth to Water: ▽ 16.00 ft

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 8/12/16

NOTE:

1. Soil Boring 10-RWB-02, Station 1228+15.06, 31.3380 RT along ℄ Ramp WS & PGL.

0161715-60X93-S144-Boring.dgn

AECOM	USER NAME = floresg	DESIGNED - AV	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED - ATB	REVISED	
	PLOT SCALE = N.T.S.	DRAWN - GF	REVISED	SOIL BORING LOGS - 6 STRUCTURE NO. 016-1715
	PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	SHEET NO. S3-146 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	888
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 13-RWB-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 593.57 ft
North: 1897602.80 ft
East: 1171259.06 ft
Station: 1225+23.63
Offset: 60.4088 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
	593.3	4-inch thick, black SILTY CLAY LOAM, trace gravel, trace wood fragments						
		--TOPSOIL--						
		Loose to medium dense, gray and black SILTY LOAM, trace gravel, brick fragments, slag, and roots			1	8 5 5	NP	16
		--FILL--	5		2	8 3 3	NP	40
	588.1	Loose, brown fine to medium SAND, trace gravel			3	5 4 4	NP	18
		--FILL--						
	585.6	Stiff to very stiff, gray SILTY CLAY			4	4 6 7	3.20 B	25
			10		5	3 3 3	1.48 B	17
	580.6	Soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel			6	3 3 3	0.66 B	17
			15		7	1 2 3	0.57 B	21
					8	1 1 2	0.41 B	20
			20					
					9	1 2 2	0.57 B	21
			25		10	1 1 3	0.33 B	23
					11	1 1 2	0.49 B	24
		--L_L(%)=35, P_L(%)=15-- --%Gravel=2.2-- --%Sand=16.1-- --%Silt=50.7-- --%Clay=31.0-- --A-6 (15)--	30		12	1 1 2	0.57 B	24
			35		13	0 1 1	0.49 B	26
			40		14	0 2 1	0.33 B	26

WANGENGINC 11000401.GPJ WANGENG.GDT 6/15/17

GENERAL NOTES

Begin Drilling: 06-28-2013 Complete Drilling: 07-01-2013
Drilling Contractor: Wang Testing Services Drill Rig: D-25 ATV [93%]
Driller: P&N Logger: A. Tomaras Checked by: C. Marin
Drilling Method: 2.25" HSA to 15', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 13-RWB-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 593.57 ft
North: 1897602.80 ft
East: 1171259.06 ft
Station: 1225+23.63
Offset: 60.4088 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
			45		15	1 2 2	0.33 B	28
			50		16	0 2 1	0.33 B	26
	541.8	Stiff, gray SILTY CLAY LOAM, trace seams of sand and silt			17	4 8 11	1.56 B	14
	536.8	Stiff, gray SILTY CLAY LOAM, trace gravel	60		18	11 17 22	1.48 S	13
	533.8							
		Gray, medium SAND						
	531.8	Stiff to very stiff, gray SILTY CLAY LOAM, trace gravel						
			65		19	8 13 19	3.69 B	19
			70		20	6 8 9	2.95 B	25
	519.4	--2-inch, gray SILT, moist-- Hard, gray SILTY LOAM to SILTY CLAY LOAM, trace gravel	75		21	5 6 8	1.48 B	13
		--L_L(%)=29, P_L(%)=14-- --%Gravel=2.2-- --%Sand=11.8--	80		22	15 18 30	5.66 B	13

WANGENGINC 11000401.GPJ WANGENG.GDT 6/15/17

GENERAL NOTES

Begin Drilling: 06-28-2013 Complete Drilling: 07-01-2013
Drilling Contractor: Wang Testing Services Drill Rig: D-25 ATV [93%]
Driller: P&N Logger: A. Tomaras Checked by: C. Marin
Drilling Method: 2.25" HSA to 15', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 13-RWB-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 593.57 ft
North: 1897602.80 ft
East: 1171259.06 ft
Station: 1225+23.63
Offset: 60.4088 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
		--%Silt=61.8-- --%Clay=24.2-- --A-6 (11)--						
			85		23	20 33 30	7.30 S	10
			90		24	50/5"	7.05 S	12
	499.7	Boring terminated at 93.90 ft			25	50/5"	NR	
			95					
			100					

WANGENGINC 11000401.GPJ WANGENG.GDT 6/15/17

GENERAL NOTES

Begin Drilling: 06-28-2013 Complete Drilling: 07-01-2013
Drilling Contractor: Wang Testing Services Drill Rig: D-25 ATV [93%]
Driller: P&N Logger: A. Tomaras Checked by: C. Marin
Drilling Method: 2.25" HSA to 15', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

NOTE:

1. Station and offset are measured along ℄ Ramp WS & PGL.

0161715-60X93-S145-Boring.dgn

AECOM	USER NAME = floresg	DESIGNED - AV	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED - ATB	REVISED	
	PLOT SCALE = N.T.S.	DRAWN - GF	REVISED	
	PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

SOIL BORING LOGS - 7
STRUCTURE NO. 016-1715
SHEET NO. S3-147 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	889
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

BORING LOG 13-RWB-03

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 593.23 ft
North: 1897624.69 ft
East: 1171234.97 ft
Station: 7308+20.74
Offset: 20.9635 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		Drilled without sampling						
		--In-Situ Vane Shear, 15.0 feet-- --$S_{u\ undis}$ = 1036.0 psf-- --$S_{u\ remold}$ = 543.9 psf-- --Sensitivity = 1.90--	15		1	VS		
		--In-Situ Vane Shear, 19.5 feet--	20		2	VS		
		--$S_{u\ undis}$ = 1113.7 psf-- --$S_{u\ remold}$ = 777 psf-- --Sensitivity = 1.43--				VS		
		--In-Situ Vane Shear, 24.5 feet-- --$S_{u\ undis}$ = 880.6 psf-- --$S_{u\ remold}$ = 647.5 psf-- --Sensitivity = 1.36--	25		3	VS		
		--In-Situ Vane Shear, 29.5 feet-- --$S_{u\ undis}$ = 802.9 psf-- --$S_{u\ remold}$ = 440.3 psf-- --Sensitivity = 1.82--	30		4	VS		
		--In-Situ Vane Shear, 34.5 feet-- --$S_{u\ undis}$ = 802.9 psf-- --$S_{u\ remold}$ = 466.2 psf-- --Sensitivity = 1.72--	35		5	VS		
		--In-Situ Vane Shear, 39.5 feet--	40		6	VS		

WANGENGINC 1100401.GPJ WANGENG.GDT 6/16/17

GENERAL NOTES

Begin Drilling: 07-02-2013 Complete Drilling: 07-03-2013
Drilling Contractor: Wang Testing Services Drill Rig: CME-55 TMR [85%]
Driller: R&J Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 2.25" HSA to 13', mud rotary thereafter, boring
backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

BORING LOG 13-RWB-03

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 593.23 ft
North: 1897624.69 ft
East: 1171234.97 ft
Station: 7308+20.74
Offset: 20.9635 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--$S_{u\ undis}$ = 647.5 psf-- --$S_{u\ remold}$ = 440.3 psf-- --Sensitivity = 1.47--				VS		
		--In-Situ Vane Shear, 44.5 feet-- --$S_{u\ undis}$ = 1292.5 psf-- --$S_{u\ remold}$ = 620.4 psf-- --Sensitivity = 2.08--	45		7	VS		
		--In-Situ Vane Shear, 49.5 feet-- --$S_{u\ undis}$ = 1344.2 psf-- --$S_{u\ remold}$ = 620.4 psf-- --Sensitivity = 2.16--	50		8	VS		
		--In-Situ Vane Shear, 54.5 feet-- --$S_{u\ undis}$ = 7600 psf-- --$S_{u\ remold}$ = NA psf-- --Sensitivity = NA--	55		9	VS		
			60					
			65					
			70					
			75					
			80					

WANGENGINC 1100401.GPJ WANGENG.GDT 6/16/17

GENERAL NOTES

Begin Drilling: 07-02-2013 Complete Drilling: 07-03-2013
Drilling Contractor: Wang Testing Services Drill Rig: CME-55 TMR [85%]
Driller: R&J Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 2.25" HSA to 13', mud rotary thereafter, boring
backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

BORING LOG 13-RWB-03

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 593.23 ft
North: 1897624.69 ft
East: 1171234.97 ft
Station: 7308+20.74
Offset: 20.9635 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
			85					
			90					
			95					
			100					
	489.2	Strong, light gray, fair rock mass quality, bedded fresh DOLOSTONE, up to 18-inch beds, 7-inch joint spacing, horizontal and vertical joints with none to less than 0.2-inch greenish gray infilling, hard joint wall, with stylolitic surfaces, and moderately vuggy porosity. --Run 1 RECOVERY=100%-- --RQD=66%-- Qu = 13,410 psi Qu = 10,600 psi	105		1	CORE		
	479.2	Boring terminated at 114.00 ft	110					
			115					
			120					

WANGENGINC 1100401.GPJ WANGENG.GDT 6/16/17

GENERAL NOTES

Begin Drilling: 07-02-2013 Complete Drilling: 07-03-2013
Drilling Contractor: Wang Testing Services Drill Rig: CME-55 TMR [85%]
Driller: R&J Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 2.25" HSA to 13', mud rotary thereafter, boring
backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

NOTE:

1. Soil Boring 13-RWB-03, Station 1224+95.47, 76.7471 RT along ℄ Ramp WS & PGL.

0161715-60X93-S146-Boring.dgn

AECOM	USER NAME = floresg	DESIGNED - AV	REVISED	
		CHECKED - ATB	REVISED	
	PLOT SCALE = N.T.S.	DRAWN - GF	REVISED	
	PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS - 8
STRUCTURE NO. 016-1715
SHEET NO. S3-148 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	890
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 14-RWB-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 580.85 ft
North: 1897238.90 ft
East: 1171475.76 ft
Station: 1229+27.47
Offset: 39.6372 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	579.6	15-inch thick CONCRETE --PAVEMENT--						
	579.3	3-inch thick ASPHALT						
		Medium dense, brownish white CRUSHED STONE --BASE COURSE--			1	15 17 9	NP	15
	577.6	Soft, gray CLAY to SILTY CLAY, trace gravel	5		2	3 2 3	0.49 B	22
					3	1 2 2	0.57 B	28
			10		4	1 2 1	0.41 B	27
					5	2 1 2	0.41 B	23
			15		6	2 2 2	0.25 B	27
					7	2 1 3	0.25 B	26
	544.1	Very stiff to hard, gray SILTY CLAY, trace gravel	20		8	1 1 1	0.25 B	28
			25		9	1 2 1	0.16 B	23
					10	1 2 1	0.25 B	25
			30		11	0 2 2	0.33 B	26
					12	2 3 3	0.49 B	25
			35		13	2 3 4	0.25 B	21
			40		14	3 4 5	3.00 P	19

WANGENGINC 1100401.GPJ WANGENG.GDT 6/15/17

GENERAL NOTES

Begin Drilling: 07-28-2014 Complete Drilling: 07-29-2014
Drilling Contractor: Wang Testing Services Drill Rig: CME-55 TMR [85%]
Driller: R&J Logger: A. Happel Checked by: C. Marin
Drilling Method: 2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: ▽ 52.00 ft
At Completion of Drilling: ▼ mud in the borehole
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 14-RWB-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 580.85 ft
North: 1897238.90 ft
East: 1171475.76 ft
Station: 1229+27.47
Offset: 39.6372 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	534.1	Very stiff, gray SILTY LOAM to SILTY CLAY LOAM, trace gravel	45		15	12 18 47	5.17 B	17
	529.1	Very dense, gray SAND to SANDY LOAM, trace gravel	50		16	33 45 32/4	3.28 S	15
			55		17	17 23 36	NP	18
			60		18	13 30 22	NP	19
	515.8	Boring terminated at 65.00 ft	65		19	14 23 33	NP	17
			70					
			75					
			80					

WANGENGINC 1100401.GPJ WANGENG.GDT 6/15/17

GENERAL NOTES

Begin Drilling: 07-28-2014 Complete Drilling: 07-29-2014
Drilling Contractor: Wang Testing Services Drill Rig: CME-55 TMR [85%]
Driller: R&J Logger: A. Happel Checked by: C. Marin
Drilling Method: 2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: ▽ 52.00 ft
At Completion of Drilling: ▼ mud in the borehole
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

NOTE:

1. *Station and offset are measured along ℄ Ramp WS & PGL.*

0161715-60X93-S147-Boring.dgn

AECOM	USER NAME = floresg	DESIGNED - AV	REVISED	
		CHECKED - ATB	REVISED	
	PLOT SCALE = N.T.S.	DRAWN - GF	REVISED	
	PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS – 9
STRUCTURE NO. 016–1715
SHEET NO. S3-149 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	891
		CONTRACT NO. 60X93		
	ILLINOIS	FED. AID PROJECT		

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 15-RWB-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 593.54 ft
North: 1897200.61 ft
East: 1171415.26 ft
Station: 7312+95.62
Offset: 5.61 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
	592.4	14-inch thick, black SILTY LOAM --TOPSOIL--						
	590.5	Medium dense, black and brown LOAM, some gravel and brick fragments --FILL--			1	6 10 10	NP	15
		Medium dense to dense, black and brown SILTY LOAM, trace gravel and brick fragments --FILL--	5		2	3 17 14	NP	57
	585.5				3	9 6 5	NP	22
	584.8	Gray, medium SAND, trace gravel						
		Very stiff, gray SILTY CLAY, trace gravel	10		4	2 3 6	3.36 B	23
	580.5				5	5 6 7	3.03 B	26
		Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel	15		6	2 1 2	0.33 B	27
					7	1 1 1	0.16 B	24
			20		8	1 1 1	0.16 B	29
			25		9	2 1 3	0.16 B	24
					10	2 2 2	0.25 B	20
					11	2 1 2	0.33 B	24
			30		12	1 2 3	0.16 B	26
			35		13	1 2 2	0.16 B	25
			40		14	2 3 3	0.25 B	24

WANGENGINC 11000401.GPJ WANGENG.GDT 8/13/17

GENERAL NOTES

Begin Drilling: 02-25-2014 Complete Drilling: 02-28-2014
Drilling Contractor: Wang Testing Services Drill Rig: D-25 ATV [93%]
Driller: N&J Logger: A. Happel Checked by: C. Marin
Drilling Method: 2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 15-RWB-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 593.54 ft
North: 1897200.61 ft
East: 1171415.26 ft
Station: 7312+95.62
Offset: 5.61 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
		L_L(%)=34, P_L(%)= 18-- --%Gravel=4.4-- --%Sand=14.5-- --%Silt=47.7-- --%Clay=33.3-- --A-6 (12)--	45		15	3 4 5	0.50 P	25
	541.8	Hard, gray SILTY CLAY LOAM, trace gravel	50		16	2 2 2	0.82 B	27
			55		17	14 18 30	5.33 S	13
			60		18	14 22 26	6.72 S	13
	531.8	Dense, gray, medium SAND, trace gravel --Moist to wet--	65		19	13 20 25	NP	24
		--HARD DRILLING-- *--Possible Cobbles--*						
		--%Gravel=0.2-- --%Sand=79.5-- --%Silt=18.3-- --%Clay=2.0-- --A-2-4 (0)--	70		20	22 16 24	NP	24
			75		21	14 18 21	NP	19
	516.8	Hard, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel	80		22	18 39 50	4.50 P	13

WANGENGINC 11000401.GPJ WANGENG.GDT 8/13/17

GENERAL NOTES

Begin Drilling: 02-25-2014 Complete Drilling: 02-28-2014
Drilling Contractor: Wang Testing Services Drill Rig: D-25 ATV [93%]
Driller: N&J Logger: A. Happel Checked by: C. Marin
Drilling Method: 2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9928

BORING LOG 15-RWB-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 593.54 ft
North: 1897200.61 ft
East: 1171415.26 ft
Station: 7312+95.51
Offset: 3.9204 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
		L_L(%)=26, P_L(%)=16-- --%Gravel=0.1-- --%Sand=11.7-- --%Silt=62.6-- --%Clay=25.6-- --A-4 (7)--	85		23	22 32 50	9.02 S	13
	503.5	Boring terminated at 90.00 ft	90		24	25 33 48	10.25 S	13
			95					
			100					

WANGENGINC 11000401.GPJ WANGENG.GDT 8/13/16

GENERAL NOTES

Begin Drilling: 02-25-2014 Complete Drilling: 02-28-2014
Drilling Contractor: Wang Testing Services Drill Rig: D-25 ATV
Driller: N&J Logger: A. Happel Checked by: CLM
Drilling Method: 2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: unable to measure
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

NOTE:

1. Soil Boring 15-RWB-01, Station 1229+54.23, 33.2105 RT along ℄ Ramp WS & PGL.

0161715-60X93-S148-Boring.dgn

AECOM

USER NAME = floresg	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - GF	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS – 10
STRUCTURE NO. 016–1715
SHEET NO. S3-150 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	892
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1703-B-05

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 586.64 ft
North: 1898050.50 ft
East: 1171954.33 ft
Station: 5213+04.97
Offset: 31.8899 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
		Stiff to very stiff, brown and gray SILTY CLAY LOAM, trace gravel --FILL--			1	8 7 5	2.00 P	25
			5		2	4 4 5	1.48 B	22
	581.1	Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel			3	2 2 3	0.66 B	24
			10		4	1 2 3	0.41 B	25
					5	1 1 2	0.33 B	24
			15		6	1 1 2	0.25 B	25
					7	1 1 3	0.25 B	25
			20		8	1 3 3	0.33 B	17
			25		9	2 2 3	0.25 B	25
					10	2 2 3	0.33 B	26
			30		11	2 2 2	0.25 B	22
					12	1 2 2	0.25 B	28
			35		13	1 2 2	0.16 B	28
			40		14	1 2 4	< 0.25 P	28

GENERAL NOTES

Begin Drilling: 10-21-2013 Complete Drilling: 10-22-2013
Drilling Contractor: Wang Testing Services Drill Rig: D-25 ATV [93%]
Driller: P&N Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: 89.00 ft
At Completion of Drilling: 89.00 ft
Time After Drilling: NA
Depth to Water: NA
The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 6/16/17

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1703-B-05

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 586.64 ft
North: 1898050.50 ft
East: 1171954.33 ft
Station: 5213+04.97
Offset: 31.8899 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
	539.9	Very stiff to hard, gray SILTY CLAY, trace gravel	45		15	1 2 3	0.25 B	21
			50		16	9 16 24	2.54 B	14
			55		17	12 20 29	6.64 B	14
	527.9	Dense, gray SANDY LOAM, trace gravel --Moist--	60		18	28 25 24	NP	15
	524.9	Hard, gray SILTY CLAY LOAM, trace gravel	65		19	18 25 31	5.41 S	13
			70		20	17 21 34	4.10 S	13
	509.9	Very dense, gray SILTY LOAM, trace gravel	75		21	15 27 46	8.28 B	15
			80		22	50/5"	NP	10

GENERAL NOTES

Begin Drilling: 10-21-2013 Complete Drilling: 10-22-2013
Drilling Contractor: Wang Testing Services Drill Rig: D-25 ATV [93%]
Driller: P&N Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: 89.00 ft
At Completion of Drilling: 89.00 ft
Time After Drilling: NA
Depth to Water: NA
The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 6/16/17

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1703-B-05

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 586.64 ft
North: 1898050.50 ft
East: 1171954.33 ft
Station: 5213+04.97
Offset: 31.8899 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
	504.9	Hard, gray SILTY CLAY LOAM, trace gravel						
			85		23	28 38 50/5"	10.00 S	12
		--HARD DRILLING-- *--Possible Cobbles--*						
	497.6	Very dense, gray SILT, trace gravel	90		24	14 24 43	NP	23
		--HARD DRILLING-- *--Possible Cobbles--*						
			95		25	50/4"	NP	17
	489.9	Very dense, gray GRAVELLY SAND --Saturated--	100		26	50/4"	NP	14
	484.9	--HARD DRILLING-- Very dense, greenish gray SILT/SHALE, some DOLOSTONE fragments --WEATHERED BEDROCK--	105		27	50/5"	NP	16
	479.6	Boring terminated at 107.00 ft	110					
			115					
			120					

GENERAL NOTES

Begin Drilling: 10-21-2013 Complete Drilling: 10-22-2013
Drilling Contractor: Wang Testing Services Drill Rig: D-25 ATV [93%]
Driller: P&N Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: 89.00 ft
At Completion of Drilling: 89.00 ft
Time After Drilling: NA
Depth to Water: NA
The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 6/16/17

NOTE:

1. Soil Boring 1703-B-05, Station 1211+08.27, 67.7706 RT along ℄ Ramp WS & PGL.

0161715-60X93-SI49-Boring.dgn

USER NAME = floresg	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - GF	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS – 11
STRUCTURE NO. 016–1715
SHEET NO. S3-151 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	893
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1705-B-11

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 580.50 ft
North: 1898132.10 ft
East: 1171174.95 ft
Station: 1834+90.93
Offset: 2.3250 LT

Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
579.8					
0					
		1	4 5 6	NP	14
577.5					
		2	2 1 1	2.50 P	14
5					
		3	2 3 3	1.07 B	18
		4	2 1 3	0.74 B	17
10					
		5	0 2 3	1.15 B	18
567.5					
15		6	0 0 0	0.74 B	25
		7	0 0 1	0.74 B	25
20		8	0 0 2	0.74 B	22
25		9	0 0 0	0.49 B	26
		10	0 0 0	0.33 B	28
		11	0 0 2	0.16 B	24
30		12	0 0 1	0.33 B	26
35		13	0 2 3	0.82 B	27
40		14	2 2 3	0.66 B	23

8-inch thick CRUSHED STONE

Medium dense, brown SILTY LOAM, trace gravel and pieces of cinders
--FILL--

Medium stiff to very stiff, brown SILTY CLAY LOAM, trace gravel, pockets of fine sand

Very soft to medium stiff, gray and brown CLAY to SILTY CLAY, trace gravel

GENERAL NOTES

Begin Drilling: 07-28-2013 Complete Drilling: 07-29-2013
Drilling Contractor: Wang Testing Services Drill Rig: D-50 TMR [78%]
Driller: R&N Logger: A. Happel Checked by: C. Marin
Drilling Method: 2.25" SSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 8/15/17

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1705-B-11

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 580.50 ft
North: 1898132.10 ft
East: 1171174.95 ft
Station: 1834+90.93
Offset: 2.3250 LT

Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
538.8					
0					
45		15	5 9 13	4.92 B	16
		16	7 10 15	4.20 B	16
50					
55		17	6 12 18	3.77 B	14
60		18	8 11 16	NP	22
65		19	20 27 42	NP	13
70		20	14 20 29	NP	15
75		21	29 45 50/4	NP	10
80		22	12 25 36	6.97 B	11

Very stiff to hard, gray CLAY to SILTY CLAY , trace gravel

--L_L(%)=37, P_I(%)=17--
--%Gravel=1.9--
--%Sand=11.6--
--%Silt=47.1--
--%Clay=39.5--
--A-6 (17)--

Medium dense, gray SILT
--Moist--

Dense to very dense, gray SILTY LOAM, trace gravel

--HARD DRILLING--
--Possible Cobbles--

Hard, gray SILTY CLAY LOAM, trace gravel

GENERAL NOTES

Begin Drilling: 07-28-2013 Complete Drilling: 07-29-2013
Drilling Contractor: Wang Testing Services Drill Rig: D-50 TMR [78%]
Driller: R&N Logger: A. Happel Checked by: C. Marin
Drilling Method: 2.25" SSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 8/15/17

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1705-B-11

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 580.50 ft
North: 1898132.10 ft
East: 1171174.95 ft
Station: 1834+90.93
Offset: 2.3250 LT

Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
498.8					
0					
85		23	26 46 50/5	NP	24
476.5					
492.5					
90		24	50/3	NA	
486.5		25	50/3	NP	15
95			CORE		
100				NP	
105					
110					
115					
120					

Very dense, gray SILT, trace gravel

--%Gravel=1.0--
--%Sand=1.5--
--%Silt=92.3--
--%Clay=5.2--
--A-4 (0)--

Boring terminated at 104.00 ft

Very dense, GRAVEL, trace cobbles

--HARD DRILLING to 94'--
--Possible Cobbles--

Strong, fair rock quality, light gray, fresh, vertical and horizontal joints, joint breaks with little to no infill, horizontal stylolites, slightly vuggy DOLOSTONE

--Run 1 - RECOVERY=100%--
--RQD (top 5ft)=70%--
--RQD (10ft)=82%--

GENERAL NOTES

Begin Drilling: 07-28-2013 Complete Drilling: 07-29-2013
Drilling Contractor: Wang Testing Services Drill Rig: D-50 TMR [78%]
Driller: R&N Logger: A. Happel Checked by: C. Marin
Drilling Method: 2.25" SSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 8/15/17

NOTE:

1. Soil Boring 1705-B-11, Station 1220+07.86, 44.3373 RT along Ramp WS & PGL.

0161715-60X93-S150-Boring.dgn

AECOM

USER NAME = floresg	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - GF	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS – 12
STRUCTURE NO. 016–1715
SHEET NO. S3-152 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	894
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1706-B-02

WEI Job No.: 1100-04-01

Client: **AECOM**
Project: **Circle Interchange Reconstruction**
Location: **Section 17, T39N, R14E of 3rd PM**

Datum: NAVD 88
Elevation: 573.51 ft
North: 1898279.12 ft
East: 1171636.73 ft
Station: 1214+88.11
Offset: 8.0782 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	572.2	16-inch thick ASPHALT \--PAVEMENT--						
	570.3	Medium dense, white and gray CRUSHED STONE --BASE COURSE--			1	6 12 13	NP	
	568.0	Very stiff, gray SILTY CLAY LOAM, trace gravel	5		2	2 4 4	3.28 B	19
		Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel			3	1 1 1	0.41 B	16
			10		4	0 0 2	0.41 B	27
					5	0 1 1	0.41 B	27
			15		6	0 1 1	0.25 B	26
					7	0 1 1	0.41 B	25
			20		8	0 0 1	0.41 B	24
	541.8	Stiff to hard, gray SILTY CLAY, trace gravel						
			25		9	0 0 1	0.49 B	25
					10	0 1 2	< 0.25 P	27
			30		11	1 2 3	< 0.25 P	24
					12	2 2 3	0.82 B	25
			35		13	7 6 7	1.23 B	18
					14	4 7 8	3.03 B	20
			40					

WANGENGINC 1100401.GPJ WANGENG.GDT 6/15/17

GENERAL NOTES

Begin Drilling: **03-27-2014** Complete Drilling: **03-31-2014**
Drilling Contractor: **Wang Testing Services** Drill Rig: **D-50 TMR [78%]**
Driller: **R&J** Logger: **M. de los Reyes** Checked by: **C. Marin**
Drilling Method: **2.25" SSA to 10', mud rotary thereafter, boring backfilled upon completion**

WATER LEVEL DATA

While Drilling: **Rotary wash**
At Completion of Drilling: **mud in the borehole**
Time After Drilling: **NA**
Depth to Water: **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1706-B-02

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 573.51 ft
North: 1898279.12 ft
East: 1171636.73 ft
Station: 1214+88.11
Offset: 8.0782 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	524.0	Medium dense, gray SILT	45		15	4 6 18	2.87 B	18
			50		16	5 15 13	4.10 B	16
			55		17	7 7 8	NP	23
	516.8	Hard, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel						
			60		18	15 20 27	6.97 S	13
	501.8	--HARD DRILLING-- *--Possible Cobbles--* Very dense, gray GRAVELLY SANDY LOAM	65		19	15 20 27	9.02 S	16
			70		20	16 26 50/2	4.74 B	13
			75		21	50/2	NP	
			80		22	50/3	NP	13

WANGENGINC 1100401.GPJ WANGENG.GDT 6/15/17

GENERAL NOTES

Begin Drilling: 03-27-2014 Complete Drilling: 03-31-2014
Drilling Contractor: Wang Testing Services Drill Rig: D-50 TMR [78%]
Driller: R&J Logger: M. de los Reyes Checked by: C. Marin
Drilling Method: 2.25" SSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1706-B-02

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 573.51 ft
North: 1898279.12 ft
East: 1171636.73 ft
Station: 1214+88.11
Offset: 8.0782 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--HARD DRILLING-- *--Possible Cobbles--*						
	491.8	Very dense, gray SILT, trace CLAY lamination						
		--DRY--	85		23	20 33 28	NP	20
		--DRY--						
	484.3	Very dense, gray GRAVELLY SAND	90		24	17 50 43	NP	16
		--Wet--		CORE	1			
	481.5	Strong, light gray, good rock mass quality, bedded fresh DOLOSTONE, up to 12-inch beds, 9-inch joints spacing, horizontal and vertical joints with none to more than 0.2-inch infilling, up to 2-inch greenish gray argillaceous partings, hard joint wall, with stylolitic surfaces, and moderately vuggy porosity. --Run 1 - RECOVERY=100%-- --RQD=83%--	95					
		--Run 2 - RECOVERY=97%-- --RQD=92%--	100	CORE	2			
	471.5	Boring terminated at 102.00 ft						
			105					
			110					
			115					
			120					

WANGENGINC 1100401.GPJ WANGENG.GDT 6/15/17

GENERAL NOTES

Begin Drilling: 03-27-2014 Complete Drilling: 03-31-2014
Drilling Contractor: Wang Testing Services Drill Rig: D-50 TMR [78%]
Driller: R&J Logger: M. de los Reyes Checked by: C. Marin
Drilling Method: 2.25" SSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

NOTE:

1. *Station and offset are measured along ℄ Ramp WS & PGL.*

0161715-60X93-SI51-Boring.dgn

AECOM

USER NAME = floresg	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - GF	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS – 13
STRUCTURE NO. 016–1715
SHEET NO. S3-153 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	895
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1714-B-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 593.22 ft
North: 1898191.77 ft
East: 1171304.89 ft
Station: 1218+92.09
Offset: 41.4568 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
	593.0	3-inch thick, brown LOAM --TOPSOIL--							
		Hard, brown CLAY LOAM, trace gravel and brick fragments --FILL--				1	6 10 9	> 4.50 P	13
			5			2	7 7 7	4.25 B	20
	587.7	Very stiff to hard, brown and gray SILTY CLAY, trace gravel --FILL--				3	3 3 4	3.25 B	16
			10			4	6 8 8	6.56 B	20
	582.7	Medium stiff to stiff, gray SILTY CLAY, trace gravel				5	2 3 3	1.15 B	19
			15			6	2 2 3	0.98 B	17
						7	2 2 4	1.00 N/6	24
			20			8	2 4 4	1.48 B	18
	572.7	Soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel				9	2 3 3	0.74 B	24
			25			10	2 3 2	0.74 B	25
						11	2 2 2	0.66 B	25
			30			12	2 2 2	0.49 B	24
			35			13	1 2 2	0.25 B	26
			40			14	1 1 2	0.33 B	26

WANGENGINC 11000401.GPJ WANGENG.GDT 6/15/17

GENERAL NOTES

Begin Drilling: 10-16-2013 Complete Drilling: 10-16-2013
Drilling Contractor: Wang Testing Services Drill Rig: CME-55 TMR [85%]
Driller: R&J Logger: A. Tomaras Checked by: C. Marin
Drilling Method: 2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: ▽ Rotary wash
At Completion of Drilling: ▼ mud in the borehole
Time After Drilling: NA
Depth to Water: ▼ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1714-B-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 593.22 ft
North: 1898191.77 ft
East: 1171304.89 ft
Station: 1218+92.09
Offset: 41.4568 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
			45			15	2 2 2	0.25 B	25
			50			16	2 2 2	0.33 B	27
	541.5	Very stiff to hard, gray SILTY CLAY to SILTY CLAY LOAM, trace gravel							
			55			17	7 7 12	2.95 B	20
			60			18	16 15 16	5.17 B	12
			65			19	18 20 23	7.17 N/6	
			70			20	10 13 19	2.54 S	11
			75			21	12 17 23	6.67 N/6	
	516.5	Gray SANDY LOAM --Wet--							
	514.3	Hard, gray SILTY CLAY LOAM, trace gravel	80			22	33 41 40	6.69 S	11

WANGENGINC 11000401.GPJ WANGENG.GDT 6/15/17

GENERAL NOTES

Begin Drilling: 10-16-2013 Complete Drilling: 10-16-2013
Drilling Contractor: Wang Testing Services Drill Rig: CME-55 TMR [85%]
Driller: R&J Logger: A. Tomaras Checked by: C. Marin
Drilling Method: 2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: ▽ Rotary wash
At Completion of Drilling: ▼ mud in the borehole
Time After Drilling: NA
Depth to Water: ▼ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1714-B-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 593.22 ft
North: 1898191.77 ft
East: 1171304.89 ft
Station: 1218+92.09
Offset: 41.4568 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type	Recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
		--HARD DRILLING-- --Possible Cobbles--	85			23	16 21 25	7.30 S	13
	506.2	Very dense, gray SILTY LOAM, trace gravel and cobbles							
			90			24	50/4	NP	12
		--HARD DRILLING-- --Possible Cobbles--	95			26	50/5	NP	11
	496.2	Very dense, gray SILT --Saturated--							
			100			27	50/4	NP	18
	486.5	Very dense, gray GRAVELLY LOAM, trace pyrite and dolostone fragments	105			28	30 45 50/3	NP	24
	484.5	--WEATHERED BEDROCK-- --ROLLER BIT REFUSAL--				29	50/2	NP	12
			110						
	482.2	Boring terminated at 111.00 ft							
			115						
			120						

WANGENGINC 11000401.GPJ WANGENG.GDT 6/15/17

GENERAL NOTES

Begin Drilling: 10-16-2013 Complete Drilling: 10-16-2013
Drilling Contractor: Wang Testing Services Drill Rig: CME-55 TMR [85%]
Driller: R&J Logger: A. Tomaras Checked by: C. Marin
Drilling Method: 2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: ▽ Rotary wash
At Completion of Drilling: ▼ mud in the borehole
Time After Drilling: NA
Depth to Water: ▼ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

NOTE:

1. *Station and offset are measured along ℄ Ramp WS & PGL.*

0161715-60X93-SI52-Boring.dgn

AECOM	USER NAME = floresg	DESIGNED - AV	REVISED	
		CHECKED - ATB	REVISED	
	PLOT SCALE = N.T.S.	DRAWN - GF	REVISED	
	PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS – 14
STRUCTURE NO. 016–1715
SHEET NO. S3-154 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	896
		CONTRACT NO. 60X93		
		ILLINOIS FED. AID PROJECT		

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1714-B-02

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 582.53 ft
North: 1898095.52 ft
East: 1171244.20 ft
Station: 1220+22.80
Offset: 32.5079 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	582.2	4-inch thick ASPHALT --PAVEMENT--						
	581.5	8-inch thick CONCRETE --PAVEMENT--						
	581.0	6-inch thick CRUSHED STONE --BASE COURSE--						
		Very stiff, brown and gray SILTY CLAY LOAM, trace gravel --FILL--			1	6 5 6	3.77 B	16
			5		2	3 4 5	2.62 B	20
	577.0	Medium stiff to stiff, gray SILTY LOAM, trace gravel --L_L(%)=24, P_L(%)=15-- --%Gravel=14.0-- --%Sand=28.0-- --%Silt=45.7-- --%Clay=12.4--			3	2 3 4	1.64 B	18
			10		4	3 4 4	0.98 B	19
	572.0	Very soft to medium stiff, gray CLAY to SILTY CLAY, trace to some gravel			5	0 2 2	0.57 B	24
		--L_L(%)=33, P_L(%)=18-- --%Gravel=10.6-- --%Sand=13.5-- --%Silt=45.8-- --%Clay=30.1-- --A-6 (10)--	15		6	1 1 2	0.25 B	22
					7	1 1 2	< 0.25 P	23
			20		8	1 1 2	0.49 B	25
		--L_L(%)=33, P_L(%)=17-- --%Gravel=23.0-- --%Sand=12.5-- --%Silt=38.7-- --%Clay=25.9-- --A-6 (8)--	25		9	0 0 1	0.33 B	25
					10	0 0 0	0.16 B	24
					11	0 0 2	0.08 B	28
			30		12	0 1 2	0.08 B	26
					13	0 0 2	0.25 B	25
			40		14	2 2 3	0.33 B	36

WANGENGINC 11000401.GPJ WANGENG.GDT 6/15/17

GENERAL NOTES

Begin Drilling: 10-08-2013 Complete Drilling: 10-08-2013
Drilling Contractor: Wang Testing Services Drill Rig: D-50 TMR [78%]
Driller: R&R Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 3.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: DRY
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1714-B-02

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 582.53 ft
North: 1898095.52 ft
East: 1171244.20 ft
Station: 1220+22.80
Offset: 32.5079 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--L_L(%)=33, P_L(%)=17-- --%Gravel=8.5-- --%Sand=12.3-- --%Silt=46.1-- --%Clay=33.1-- --A-6 (11)--	45		15	2 4 6	0.98 B	22
	535.8	Very stiff, gray SILTY CLAY, trace gravel						
			50		16	5 8 12	3.94 B	15
	530.8	Very stiff, gray CLAY						
			55		17	4 9 14	2.95 B	21
		--L_L(%)=35, P_L(%)=17-- --%Gravel=2.9-- --%Sand=11.2--	60		18	6 8 12	2.46 B	24
		--%Silt=47.7-- --%Clay=38.2-- --A-6 (15)--						
	520.8	Medium dense, gray SILT						
			65		19	8 7 6	NP	22
	515.8	Hard, gray SILTY CLAY LOAM, trace gravel						
		--L_L(%)=31, P_L(%)=17-- --%Gravel=3.5-- --%Sand=14.1-- --%Silt=55.7-- --%Clay=26.7-- --A-6 (10)--	70		20	13 21 33	10.25 B	16
	508.5	Very dense, gray SILT to SILTY LOAM, trace gravel						
			75		21	11 17 50	NP	16
			80		22	50/6	NP	9

WANGENGINC 11000401.GPJ WANGENG.GDT 6/15/17

GENERAL NOTES

Begin Drilling: 10-08-2013 Complete Drilling: 10-08-2013
Drilling Contractor: Wang Testing Services Drill Rig: D-50 TMR [78%]
Driller: R&R Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 3.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: DRY
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

Wang Engineering

wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1714-B-02

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 582.53 ft
North: 1898095.52 ft
East: 1171244.20 ft
Station: 1220+22.80
Offset: 32.5079 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		--%Gravel=1.9-- --%Sand=6.8-- --%Silt=83.8-- --%Clay=7.4-- --A-4 (0)--	85		23	60/6	NP	14
			90		24	31 45 36	NP	18
			95		25	50/5	NP	14
	486.5	--HARD DRILLING-- --WEATHERED BEDROCK--						
	484.5	Strong, white and light gray, rock quality, horizontally bedded DOLOSTONE, beds up to 18 inch, joint spacing up to 18 inch,	100	CORE				
		joints with less than 0.2 inch or no infilling, vuggy and cherty, with stylolitic surfaces. --Run 1 - RECOVERY= 93%-- --RQD= 86%--	105		1			
	474.5	Boring terminated at 108.00 ft						
			110					
			115					
			120					

WANGENGINC 11000401.GPJ WANGENG.GDT 6/15/17

GENERAL NOTES

Begin Drilling: 10-08-2013 Complete Drilling: 10-08-2013
Drilling Contractor: Wang Testing Services Drill Rig: D-50 TMR [78%]
Driller: R&R Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 3.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: DRY
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

NOTE:

1. *Station and offset are measured along ℄ Ramp WS & PGL.*

0161715-60X93-S153-Boring.dgn

AECOM

USER NAME = floresg	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - GF	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS – 15
STRUCTURE NO. 016-1715
SHEET NO. S3-155 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	897
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1715-B-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 588.39 ft
North: 1898143.12 ft
East: 1171931.11 ft
Station: 1211+64.12
Offset: 7.8377 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
		Medium to very stiff, brown SILTY CLAY LOAM						
		--FILL--			1	13 12 14	2.87 B	18
			5		2	4 3 5	1.00 P	25
	580.9							
		Very soft to medium stiff, gray CLAy to SILTY CLAY, trace gravel			3	2 2 2	0.33 B	23
			10		4	1 1 2	0.41 B	23
					5	1 2 2	0.16 B	23
			15		6	1 2 3	0.49 B	22
					7	1 2 2	0.57 B	25
			20		8	1 1 3	0.41 B	25
			25		9	1 1 2	0.16 B	26
					10	1 1 2	0.33 B	24
					11	1 1 2	0.33 B	26
			30		12	2 1 2	0.33 B	27
					13	1 2 3	0.33 B	25
			35					
			40		14	2 3 5	0.33 B	25

GENERAL NOTES

Begin Drilling: 03-04-2014 Complete Drilling: 03-06-2014
Drilling Contractor: Wang Testing Services Drill Rig: D-25 ATV [93%]
Driller: N&J Logger: A. Happel Checked by: C. Marin
Drilling Method: 2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 6/15/17

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1715-B-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 588.39 ft
North: 1898143.12 ft
East: 1171931.11 ft
Station: 1211+64.12
Offset: 7.8377 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
	541.6	Very stiff hard, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel						
			45		15	1 2 2	0.33 B	29
			50		16	7 10 20	3.20 B	18
			55		17	12 15 15	6.64 S	13
			60		18	28 26 24	6.56 S	12
	519.4	Very dense, gray SILTY LOAM, trace gravel --Moist--	65		19	26 33 48	> 8.33 N/6	16
			70		20	26 46 28/3	NP	16
	516.6	Hard, gray SILTY CLAY LOAM, trace gravel --L_L(%)=29, P_I(%)=16-- --%Gravel=1.6-- --%Sand=10.8-- --%Silt=63.8-- --%Clay=23.7-- --A-6 (10)--	75		21	17 30 48	> 8.33 N/6	15
	511.6	Very dense, gray SILTY LOAM, trace gravel	80		22	50/4	NP	9

GENERAL NOTES

Begin Drilling: 03-04-2014 Complete Drilling: 03-06-2014
Drilling Contractor: Wang Testing Services Drill Rig: D-25 ATV [93%]
Driller: N&J Logger: A. Happel Checked by: C. Marin
Drilling Method: 2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 6/15/17

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1715-B-01

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 588.39 ft
North: 1898143.12 ft
East: 1171931.11 ft
Station: 1211+64.12
Offset: 7.8377 RT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
			85		23	35 45 50/1	NP	17
		--L_L(%)=29, P_I(%)=16-- --%Gravel=4.7-- --%Sand=10.1-- --%Silt=57.1-- --%Clay=28.0- --A-6 (9)--	90		24	24 50/5	NP	16
			95		25	37 50/5	NP	23
	491.4	--HARD DRILLING-- --*Possible Cobbles*-- Very dense, gray GRAVELLY SAND	100		26	50/3	NP	10
	485.4	--HARD DRILLING-- --*Possible Cobbles*-- --AUGER REFUSAL-- Boring terminated at 103.00 ft	105					
			110					
			115					
			120					

GENERAL NOTES

Begin Drilling: 03-04-2014 Complete Drilling: 03-06-2014
Drilling Contractor: Wang Testing Services Drill Rig: D-25 ATV [93%]
Driller: N&J Logger: A. Happel Checked by: C. Marin
Drilling Method: 2.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: Rotary wash
At Completion of Drilling: mud in the borehole
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 6/15/17

NOTE:

1. Station and offset are measured along ℄ Ramp WS & PGL.

0161715-60X93-S154-Boring.dgn

AECOM	USER NAME = floresg	DESIGNED - AV	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION
		CHECKED - ATB	REVISED	
	PLOT SCALE = N.T.S.	DRAWN - GF	REVISED	SOIL BORING LOGS – 16 STRUCTURE NO. 016–1715
	PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	SHEET NO. S3-156 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	898
		CONTRACT NO. 60X93		
		ILLINOIS FED. AID PROJECT		

BORING LOG 1715-B-02

WEI Job No.: 1100-04-01

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 578.98 ft
North: 1898224.57 ft
East: 1171745.64 ft
Station: 1213+66.68
Offset: 5.771 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
	578.8	2-inch thick ASPHALT --PAVEMENT--						
	578.0	10-inch thick CONCRETE --PAVEMENT--						
		Loose, light brown CRUSHED STONE						
	576.0	--BASE COURSE--						
		Soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel						
					1	4 5 4	NP	10
			5		2	0 1 2	0.82 B	23
					3	2 2 3	0.41 B	19
			10		4	2 2 3	0.49 B	22
					5	1 2 2	0.74 B	20
			15		6	0 1 2	0.33 B	23
					7	1 1 2	0.33 B	26
			20		8	1 1 2	0.25 B	26
			25		9	0 1 2	0.25 B	27
					10	1 1 2	0.50 N/6	
			30		11	0 2 2	0.41 B	26
					12	1 1 2	0.57 B	26
			35		13	2 2 2	0.33 B	28
			40		14	4 6 9	0.67 B	18

GENERAL NOTES

Begin Drilling: 02-23-2014 Complete Drilling: 03-23-2014
Drilling Contractor: Wang Testing Services Drill Rig: B-57 TMR [100%]
Driller: P&P Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 3.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: 3.00 ft
At Completion of Drilling: mud in the borehole
Time After Drilling: 24 hours
Depth to Water: 72.00 ft

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 6/15/17

BORING LOG 1715-B-02

WEI Job No.: 1100-04-01

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 578.98 ft
North: 1898224.57 ft
East: 1171745.64 ft
Station: 1213+66.68
Offset: 5.771 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
	537.2	Very stiff, gray SILTY CLAY LOAM, trace gravel						
			45		15	7 7 7	3.36 B	22
			50		16	6 10 12	2.54 B	16
	527.2	Dense, gray SILT --Wet--						
			55		17	14 16 18	NP	16
	522.2	Hard, gray SILTY CLAY LOAM to SILTY LOAM, trace gravel						
			60		18	18 24 27	8.19 S	12
	507.2	Very dense, gray SILTY LOAM, trace to some gravel --WET--						
			65		19	20 31 42	4.59 S	14
			70		20	20 50/4	5.74 S	13
		--HARD DRILLING-- --Possible Cobbles--	75		21	30 50/4	NP	10
			80		22	50/5	NP	12

GENERAL NOTES

Begin Drilling: 02-23-2014 Complete Drilling: 03-23-2014
Drilling Contractor: Wang Testing Services Drill Rig: B-57 TMR [100%]
Driller: P&P Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 3.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: 3.00 ft
At Completion of Drilling: mud in the borehole
Time After Drilling: 24 hours
Depth to Water: 72.00 ft

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 6/15/17

BORING LOG 1715-B-02

WEI Job No.: 1100-04-01

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 578.98 ft
North: 1898224.57 ft
East: 1171745.64 ft
Station: 1213+66.68
Offset: 5.771 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
		--HARD DRILLING-- --Possible Cobbles--	85		23	50/3	NP	
		--HARD DRILLING-- --Possible Cobbles--	90		24	50/3	NP	10
	488.0	--VERY HARD, STEADY DRILLING-- --WEATHERED BEDROCK--						
	486.0	--ROLLER BIT REFUSAL-- Boring terminated at 93.00 ft	95					
			100					

GENERAL NOTES

Begin Drilling: 02-23-2014 Complete Drilling: 03-23-2014
Drilling Contractor: Wang Testing Services Drill Rig: B-57 TMR [100%]
Driller: P&P Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 3.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: 3.00 ft
At Completion of Drilling: mud in the borehole
Time After Drilling: 24 hours
Depth to Water: 72.00 ft

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 6/15/17

NOTE:

1. *Station and offset are measured along ℄ Ramp WS & PGL.*

0161715-60X93-S155-Boring.dgn

AECOM

USER NAME = floresg	DESIGNED - AV	REVISED	
	CHECKED - ATB	REVISED	
PLOT SCALE = N.T.S.	DRAWN - GF	REVISED	
PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS – 17
STRUCTURE NO. 016–1715
SHEET NO. S3-157 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	899
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1715-B-03

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 574.74 ft
North: 1898289.14 ft
East: 1171492.75 ft
Station: 1216+42.65
Offset: 33.3447 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
	573.5	14-inch thick ASPHALT --PAVEMENT--						
	573.2	24-inch thick CRUSHED STONE --BASE COURSE--						
		Medium dense, brown SANDY GRAVEL			1	5 6 6	NP	
	571.5	--FILL--						
		Very soft to medium stiff, gray CLAY to SILTY CLAY, trace gravel	5		2	4 2 3	0.25 P	26
					3	2 1 3	0.25 B	24
			10		4	1 1 2	0.41 B	25
					5	0 0 2	0.25 B	25
			15		6	1 2 1	0.49 B	25
					7	1 1 1	0.33 B	27
			20		8	0 0 0	0.25 B	26
	538.0	Very stiff to hard, gray SILTY CLAY, trace gravel						
			25		9	1 1 2	0.16 B	27
					10	0 0 1	0.16 B	25
					11	0 0 0	0.16 B	26
			30		12	1 2 3	0.49 B	27
					13	1 3 4	0.74 B	19
			35		14	6 8 10	5.41 B	15
			40					

GENERAL NOTES

Begin Drilling: 03-19-2014 Complete Drilling: 03-19-2014
Drilling Contractor: Wang Testing Services Drill Rig: B-57 TMR [100%]
Driller: P&P Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 3.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: 2.50 ft
At Completion of Drilling: 62.00 ft
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 6/15/17

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1715-B-03

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 574.74 ft
North: 1898289.14 ft
East: 1171492.75 ft
Station: 1216+42.65
Offset: 33.3447 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
		--L_L(%)=36, P_L(%)=18-- --%Gravel=0.5-- --%Sand=3.1-- --%Silt=59.8-- --%Clay=36.7-- --A-6 (18)--	45		15	4 8 14	3.69 B	19
			50		16	5 9 10	2.87 B	24
	523.0	Medium stiff, gray CLAY, trace gravel						
			55		17	4 5 6	0.75 P	27
	518.0	Hard, gray SILTY CLAY LOAM, trace gravel						
			60		18	10 12 16	9.35 S	15
	513.0	Gray SILT, trace gravel --Wet--						
	510.0	Hard (>4.5P), gray SILTY CLAY LOAM, trace gravel	65		19	16 20 21	NP	20
	508.0	Very dense, gray SILTY LOAM, little to some gravel						
			70		20	50/5"	NP	9
		--HARD DRILLING-- --*Possible Cobbles*--						
			75		21	50/5"	NP	13
	498.0	Hard, gray SILTY CLAY LOAM, trace gravel						
			80		22	33 50/4"	7.30 S	10

GENERAL NOTES

Begin Drilling: 03-19-2014 Complete Drilling: 03-19-2014
Drilling Contractor: Wang Testing Services Drill Rig: B-57 TMR [100%]
Driller: P&P Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 3.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: 2.50 ft
At Completion of Drilling: 62.00 ft
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 6/15/17

Wang Engineering
wangeng@wangeng.com
1145 N Main Street
Lombard, IL 60148
Telephone: 630 953-9928
Fax: 630 953-9938

BORING LOG 1715-B-03

WEI Job No.: 1100-04-01

Client: AECOM
Project: Circle Interchange Reconstruction
Location: Section 17, T39N, R14E of 3rd PM

Datum: NAVD 88
Elevation: 574.74 ft
North: 1898289.14 ft
East: 1171492.75 ft
Station: 1216+42.65
Offset: 33.3447 LT

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (bw/6 in)	Qu (tsf)	Moisture Content (%)
	490.7	Very dense, gray SILTY LOAM to SILT, trace gravel --Wet-- --L_L(%)=NP, P_L(%)=NP-- --%Gravel=0.1-- --%Sand=1.1-- --%Silt=92.6-- --%Clay=6.3-- --A-4 (0)--	85		23	13 19 28	NP	22
			90		24	50/2"	NP	19
	483.2	--DIFFICULT DRILLING-- --WEATHERED BEDROCK--						
	480.7	--ROLLER BIT REFUSAL-- Boring terminated at 94.00 ft	95					
			100					

GENERAL NOTES

Begin Drilling: 03-19-2014 Complete Drilling: 03-19-2014
Drilling Contractor: Wang Testing Services Drill Rig: B-57 TMR [100%]
Driller: P&P Logger: D. Kolpacki Checked by: C. Marin
Drilling Method: 3.25" HSA to 10', mud rotary thereafter, boring backfilled upon completion

WATER LEVEL DATA

While Drilling: 2.50 ft
At Completion of Drilling: 62.00 ft
Time After Drilling: NA
Depth to Water: NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 1100401.GPJ WANGENG.GDT 6/15/17

NOTE:

1. *Station and offset are measured along ℄ Ramp WS & PGL.*

0161715-60X93-S156-Boring.dgn

AECOM	USER NAME = floresg	DESIGNED - AV	REVISED	
		CHECKED - ATB	REVISED	
	PLOT SCALE = N.T.S.	DRAWN - GF	REVISED	
	PLOT DATE = 7/26/2018	CHECKED - ATB	REVISED	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SOIL BORING LOGS – 18
STRUCTURE NO. 016–1715
SHEET NO. S3-158 OF S3-172

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
90/94/290	2014-013R&B-R	COOK	1972	900
		CONTRACT NO. 60X93		
	ILLINOIS FED. AID PROJECT			