

FOUNDATION PLAN
1/16" = 1'-0"

SCHEDULE FOR TYPICAL PIER DETAIL						
PIER NO.	TOTAL REQ'D	PIER		ANCHOR BOLT PLAN	CU YDS CONCRETE PER FDN	TOTAL
		DIAMETER	LENGTH			
1	4	3'-6"	38'-0"	C	13.54	54.16
2	13	3'-0"	9'-0"	D	2.36	30.68
3	2	3'-0"	13'-0"	E	3.40	6.80
4	12	3'-0"	10'-0"	D	2.62	31.44
5	16	3'-0"	11'-0"	D	2.88	46.08
6	4	3'-6"	13'-0"	C	4.63	18.52
7	3	6'-0"	22'-0"	F	23.04	69.12

SCHEDULE FOR TYPICAL PAD DETAIL						
PAD NO.	TOTAL REQ'D	PAD SIZE		ANCHOR BOLT PLAN	CU YDS CONCRETE PER FDN	TOTAL
		LENGTH x WIDTH	DEPTH			
1	1	55'-4" x 29'-10"	4'-3"	-	127.91	127.91
2 & 2A	3	7'-6" x 6'-0"	1'-6"	A	2.50	7.50
3	1	10'-0" x 8'-0"	1'-6"	B	4.44	4.44
4	1	21'-0" x 11'-0"	1'-6"	D	16.73	16.73
5	1	11'-0" x 5'-0"	1'-6"	D	4.64	4.64
6	1	TBD	TBD	-	-	-

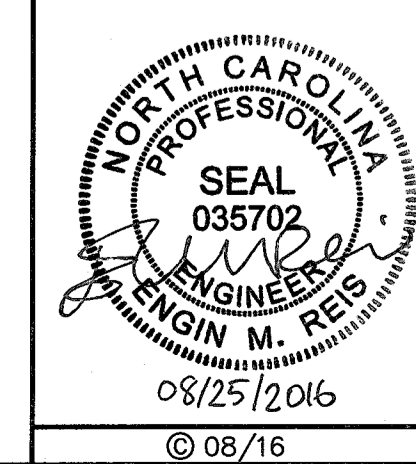
BILL OF MATERIAL			
ITEM	TOTAL QUANTITIES (THIS SHEET ONLY)	SUPPLIED BY:	DESCRIPTION
REBAR	49,134.02	CONTRACTOR	LBS. OF REBAR
CONCRETE	418.02	CONTRACTOR	CUBIC YARDS OF CONCRETE
AB-1	32	STEEL MANUF.	#1 1/4" x 3'-6" ANCHOR BOLT W/ 2-FW, 2-HHN
AB-2	196	STEEL MANUF.	#1" x 2'-6" ANCHOR BOLT W/ 2-FW, 2-HHN
AB-3	12	STEEL MANUF.	#1" x 1'-0" ANCHOR BOLT W/ 1-FW, 1-HHN
AB-4	8	STEEL MANUF.	#1 1/4" x 3'-6" ANCHOR BOLT W/ 2-FW, 2-HHN
AB-5	4	STEEL MANUF.	#1" x 1'-0" ANCHOR BOLT W/ 1-FW, 1-HHN
AB-6	12	STEEL MANUF.	#2 1/4" x 5'-9" ANCHOR BOLT W/ 2-FW, 2-HHN

QUANTITIES PROVIDED ARE ESTIMATES FOR STRUCTURE & EQUIPMENT FOUNDATIONS ONLY & DOES NOT INCLUDE ENCASMENT FOR CIRCUIT EXITS WHEN REQUIRED.
 QUANTITIES SHOWN DO NOT INCLUDE PAD 7.

- NOTES**
- THE FOUNDATION CONTRACTOR SHALL AT ALL TIMES FULLY COMPLY WITH ALL OSHA STANDARDS AS WELL AS THE OWNER'S SAFETY STANDARDS, AS A MINIMUM, ESPECIALLY WITH REGARD TO SHORING OF ALL EXCAVATIONS. THE ENGINEER OR OWNER WILL IMMEDIATELY HALT CONSTRUCTION ACTIVITIES IF THE CONTRACTOR DOES NOT COMPLY WITH THESE STANDARDS. FAILURE TO COMPLY AT ALL TIMES WITH THESE STANDARDS WILL RESULT IN DISMISSAL FROM THE PROJECT.
 - THE FOUNDATION CONTRACTOR IS RESPONSIBLE FOR OBTAINING COPIES OF OSHA STANDARDS AS WELL AS THE OWNER'S SAFETY STANDARDS. COPIES SHALL BE AVAILABLE ON SITE AT ALL TIMES DURING CONSTRUCTION.
 - ALL FOUNDATIONS TO BE CARRIED TO FIRM UNDISTURBED EARTH OR COMPACTED FILL, WITH A MINIMUM BEARING CAPACITY OF 1,500 PSF, UNLESS OTHERWISE NOTED.
 - WASHED STONE AND STRUCTURAL FILL SHALL BE COMPACTED AS SPECIFIED IN THE FOUNDATION SPECIFICATIONS.
 - REINFORCING STEEL SHALL BE GRADE 60 ASTM A-615 OR A-617.
 - FOR QUANTITY, LENGTH & SHAPE OF RODS SEE REBAR SUMMARY & BENDING LEGEND.
 - CONCRETE SHALL BE 4500 P.S.I. @ 28 DAYS. CONCRETE SHALL BE AIR ENTRAINED WITH AN AIR CONTENT BETWEEN FIVE AND SEVEN PERCENT (5%-7%).
 - CONCRETE SLUMP SHALL MEET REQUIREMENTS OF CONCRETE SPECIFICATIONS. THE CONTRACTOR SHALL MAKE OR HAVE MADE A MINIMUM OF ONE (1) SLUMP TEST IN ACCORDANCE WITH ASTM C 143 FOR EACH TRUCKLOAD OF CONCRETE DELIVERED.
 - CONCRETE COVER OVER REINFORCING STEEL SHALL BE THREE INCHES (3") MINIMUM UNLESS OTHERWISE NOTED.
 - ALL CONCRETE TO BE THOROUGHLY VIBRATED DURING PLACEMENT INTO FORMS TO ENSURE ALL VOIDS ARE FILLED.
 - ALL FOUNDATIONS SHALL BE CHAMFERED ONE INCH (1") AROUND ALL TOP EDGES, UNLESS OTHERWISE SHOWN.
 - TO DETERMINE ANCHOR BOLT SPACING, SEE ANCHOR BOLT PATTERN INDICATED. SEE FOUNDATION ANCHOR BOLT SUMMARY FOR DIAMETER, EMBEDMENT LENGTH, THREAD & HOOK REQUIREMENTS.
 - CAREFUL EXAMINATION OF ANCHOR BOLT ORIENTATION MUST BE MADE IN THAT AN X-AXIS & Y-AXIS SYSTEM HAS BEEN INDICATED ON BOTH FOUNDATION PLAN & DETAIL DRAWINGS TO ENSURE PROPER ORIENTATION.
 - ANCHOR BOLT SPACING & EQUIPMENT BASE PLATES SHALL BE VERIFIED TO BE CORRECT PRIOR TO POURING CONCRETE.
 - AFTER FABRICATION ALL BOLTS ARE TO BE HOT DIP GALVANIZED A MINIMUM OF TWO INCHES (2") PAST NOTED THREAD LENGTH.
 - SUBGRADE WILL BE TOPPED WITH THREE INCHES (3") OF CRUSHER RUN & THREE INCHES (3") OF WASHED STONE TO ACHIEVE FINAL SUBSTATION GRADE.
 - SEE DRAWING FP1 FOR TOP OF FOUNDATION ELEVATIONS.
 - CONTRACTOR IS RESPONSIBLE TO COORDINATE INSTALLATION OF ANY CONDUITS LOCATED UNDERNEATH OR PROTRUDING THROUGH FOUNDATIONS. SEE CONDUIT PLAN AND DETAILS FOR CONDUIT LOCATIONS.
 - ALL CONDUITS, WHEN REQUIRED, ARE TO BE PLUGGED OR CAPPED DURING INITIAL CONSTRUCTION TO PREVENT CONTAMINATION.
 - A CONCRETE BONDING AGENT CONFORMING TO ASTM C1059 SHALL BE APPLIED TO ALL ROUGHENED SURFACES PRIOR TO PLACING FRESH CONCRETE.
 - THE CONTRACTOR SHALL PREPARE, OR HAVE PREPARED, IN ACCORDANCE WITH ASTM C-31, FIVE (5) TEST CYLINDERS FROM EACH TRUCKLOAD OF CONCRETE DELIVERED TO THE SITE. WITHIN 20-24 HOURS AFTER BEING PREPARED, THE CYLINDERS SHALL BE DELIVERED TO A QUALIFIED TESTING LABORATORY AND TESTED IN ACCORDANCE WITH THE CONCRETE SPECIFICATIONS AND ASTM C-39. TEST RESULTS ARE TO BE PROVIDED TO THE ENGINEER FOR EVALUATION AND DIRECTION OF CORRECTIVE ACTION IF NEEDED.
 - THE CONTRACTOR SHALL MEET OR EXCEED ALL REQUIREMENTS OF THE CONCRETE SPECIFICATIONS.

REFERENCES

SITE PLAN	14022	S1
PLAN VIEW	14022	S2
SECTIONS	14022	S3-S5
FOUNDATION DETAILS	14022	FD1-FD7
GROUNDING PLAN & DETAILS	14022	G1-G2
CONDUIT PLAN & DETAILS	14022	C1, C3
CONDUIT SCHEDULE	14022	C2



GREENVILLE UTILITIES
GREENVILLE, NORTH CAROLINA

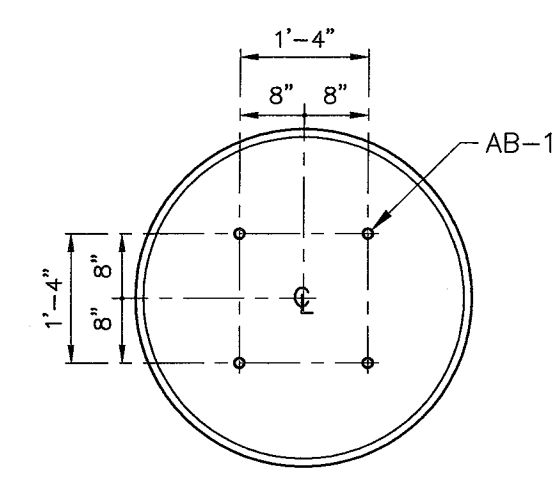
GREENVILLE POD #3
230kV TO 115kV SUBSTATION
FOUNDATION PLAN

Booth & Associates, LLC
REGISTERED PROFESSIONAL ENGINEERS

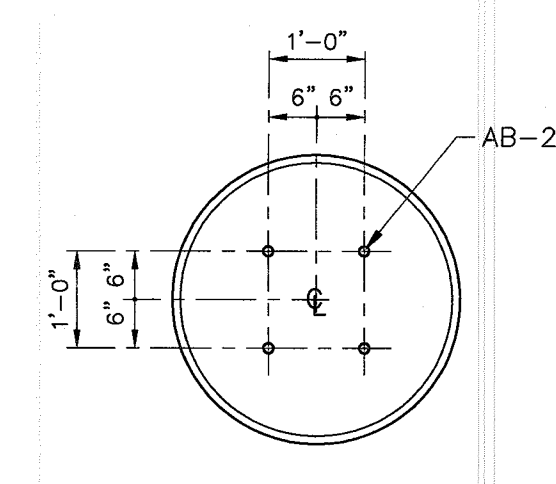
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NO.	REVISIONS	DATE	SCALE: AS NOTED		

SCHEDULE FOR TYPICAL PIER DETAIL						
PIER No.	TOTAL REQ'D	PIER		ANCHOR BOLT PLAN	CU YDS CONCRETE	
		DIAMETER	LENGTH		PER FDN	TOTAL
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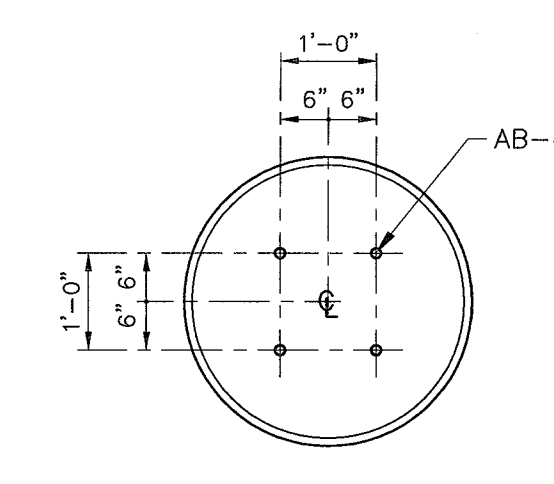
BILL OF MATERIAL			
ITEM	TOTAL QUANTITIES (THIS SHEET ONLY)	SUPPLIED BY:	DESCRIPTION
REBAR	13,978.71	CONTRACTOR	LBS. OF REBAR
CONCRETE	123.08	CONTRACTOR	CUBIC YARDS OF CONCRETE
AB-1	16	STEEL MANUFACTURER	# 1 1/4" x 3'-6" ANCHOR BOLT W/ 2-FW, 2-HHN
AB-2	100	STEEL MANUFACTURER	# 1" x 2'-6" ANCHOR BOLT W/ 2-FW, 2-HHN
AB-4	8	STEEL MANUFACTURER	# 1 1/4" x 3'-6" ANCHOR BOLT W/ 2-FW, 2-HHN



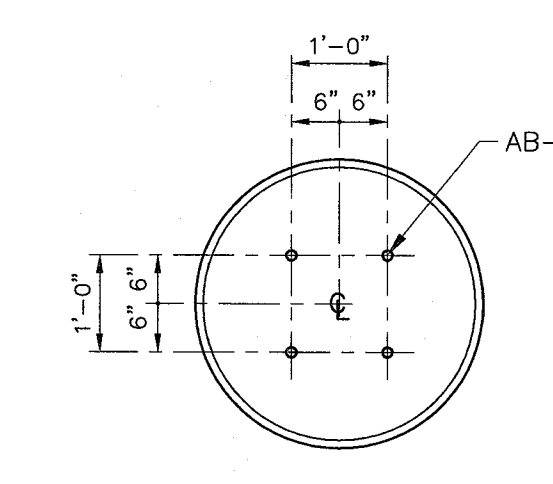
ANCHOR BOLT PLAN C



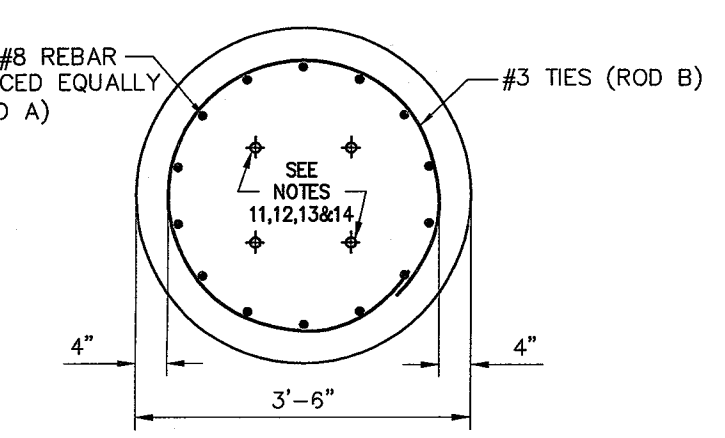
ANCHOR BOLT PLAN D



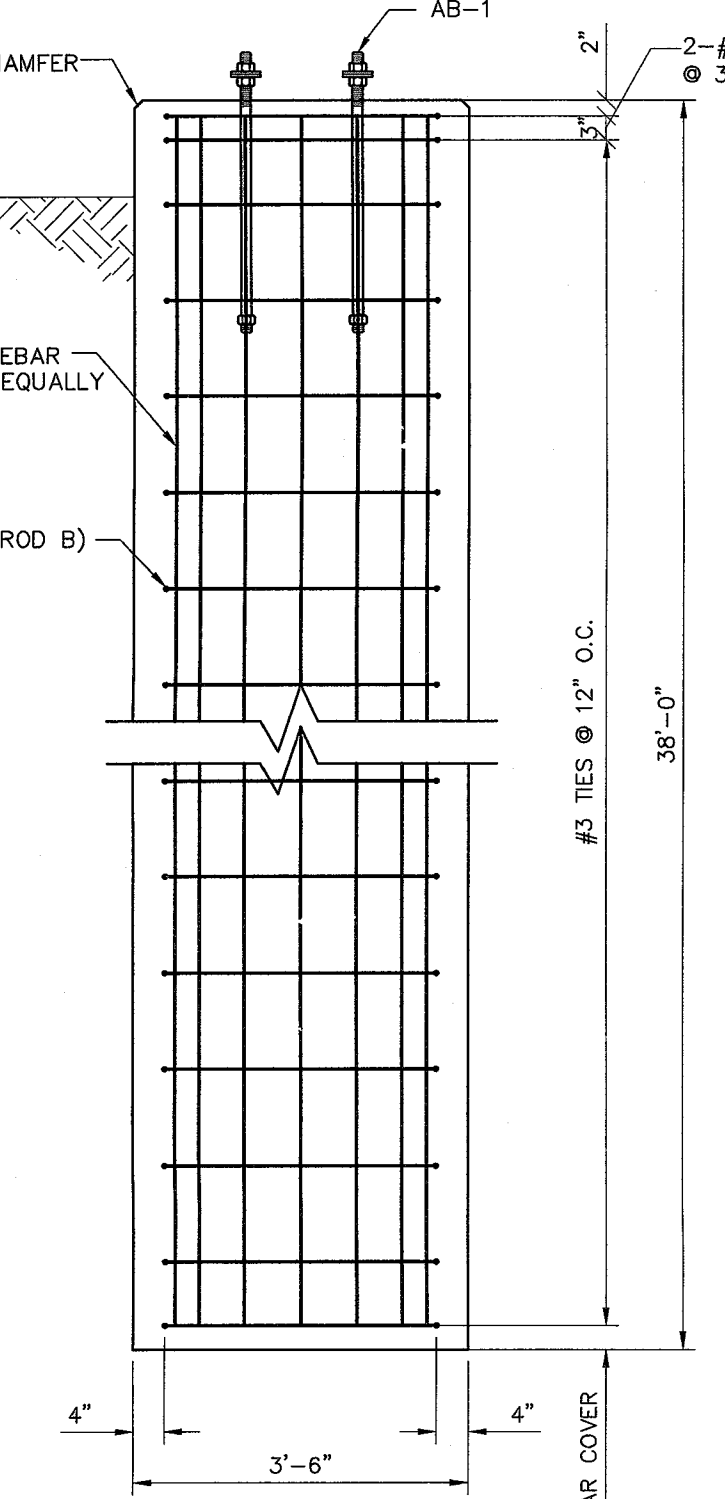
ANCHOR BOLT PLAN E



ANCHOR BOLT PLAN D

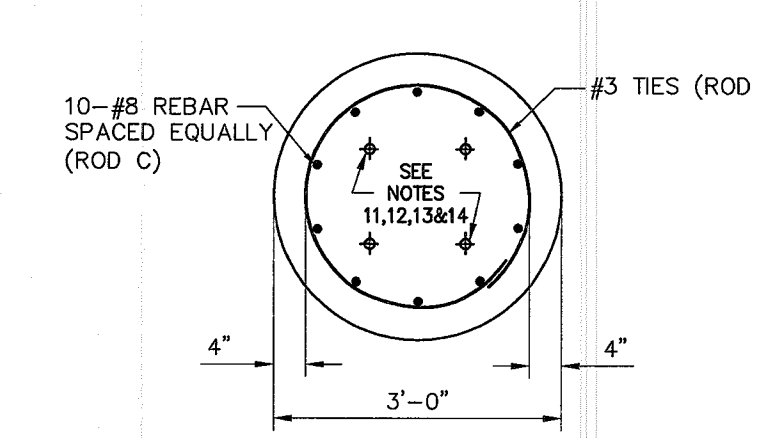


PLAN

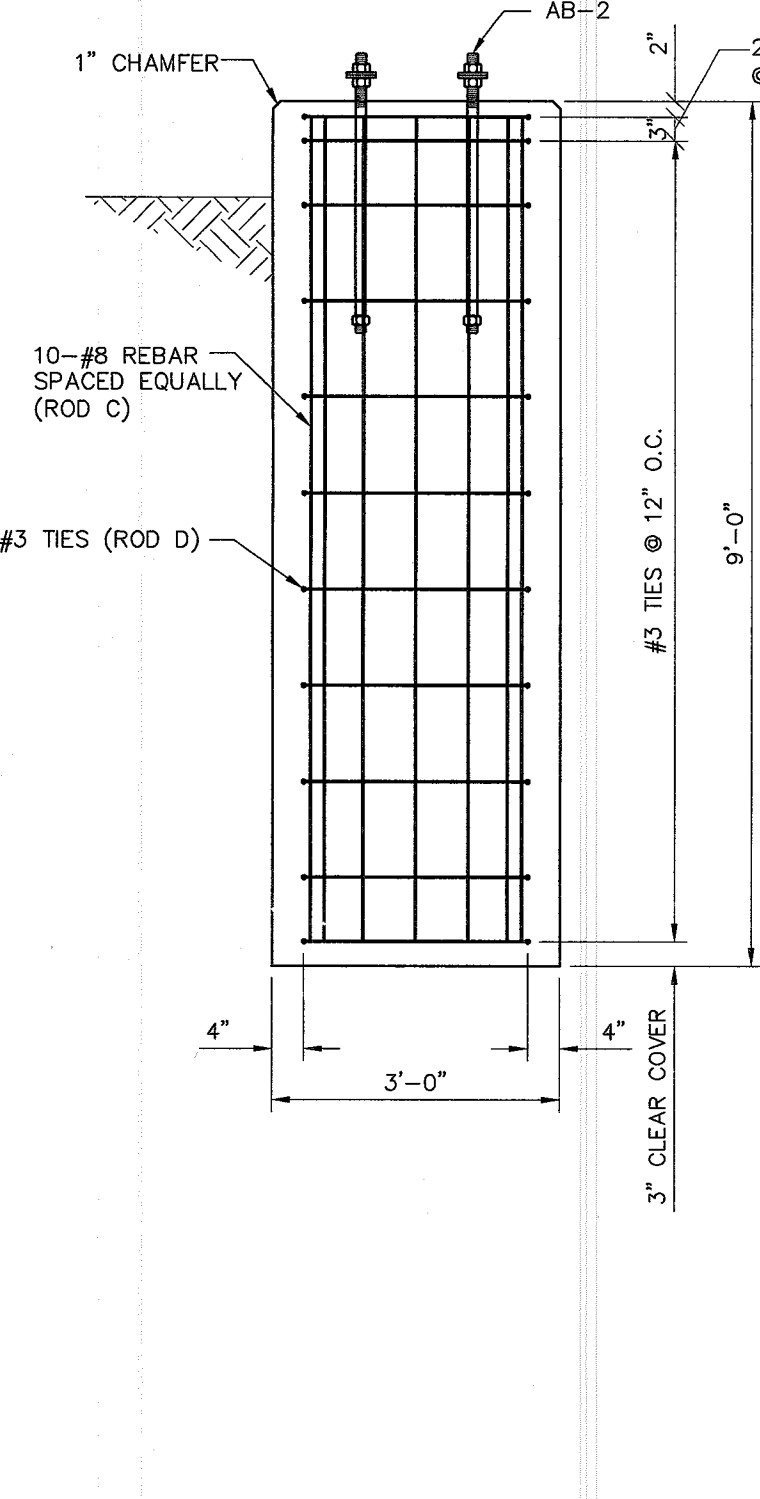


SECTION

PIER 1
SCALE: 1/2"=1'-0"

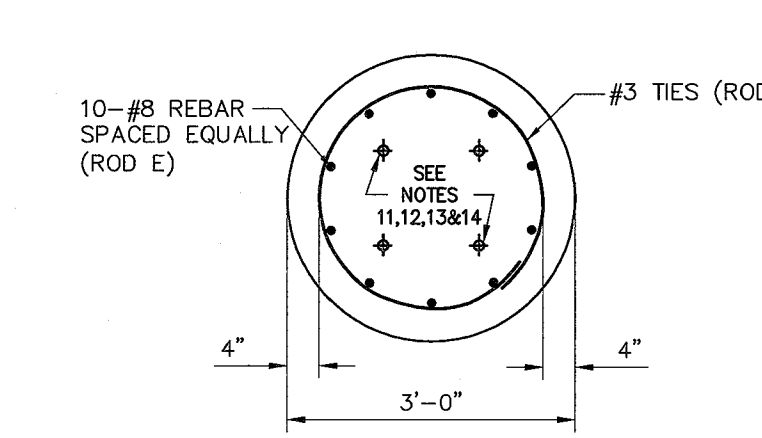


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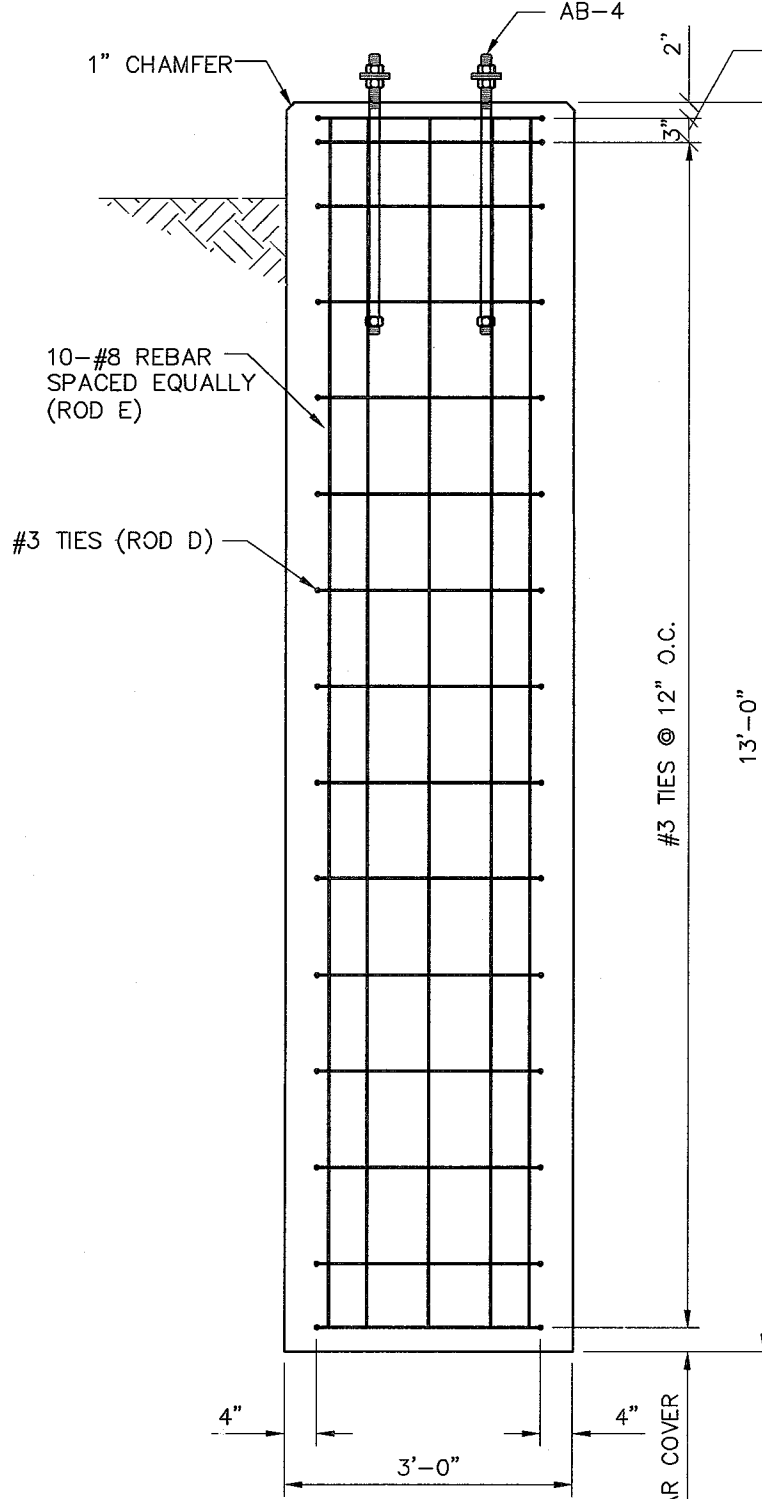


SECTION

PIER 2
SCALE: 1/2"=1'-0"

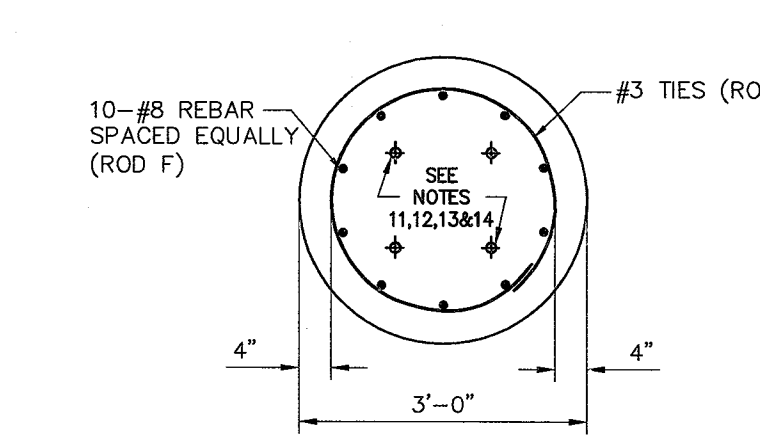


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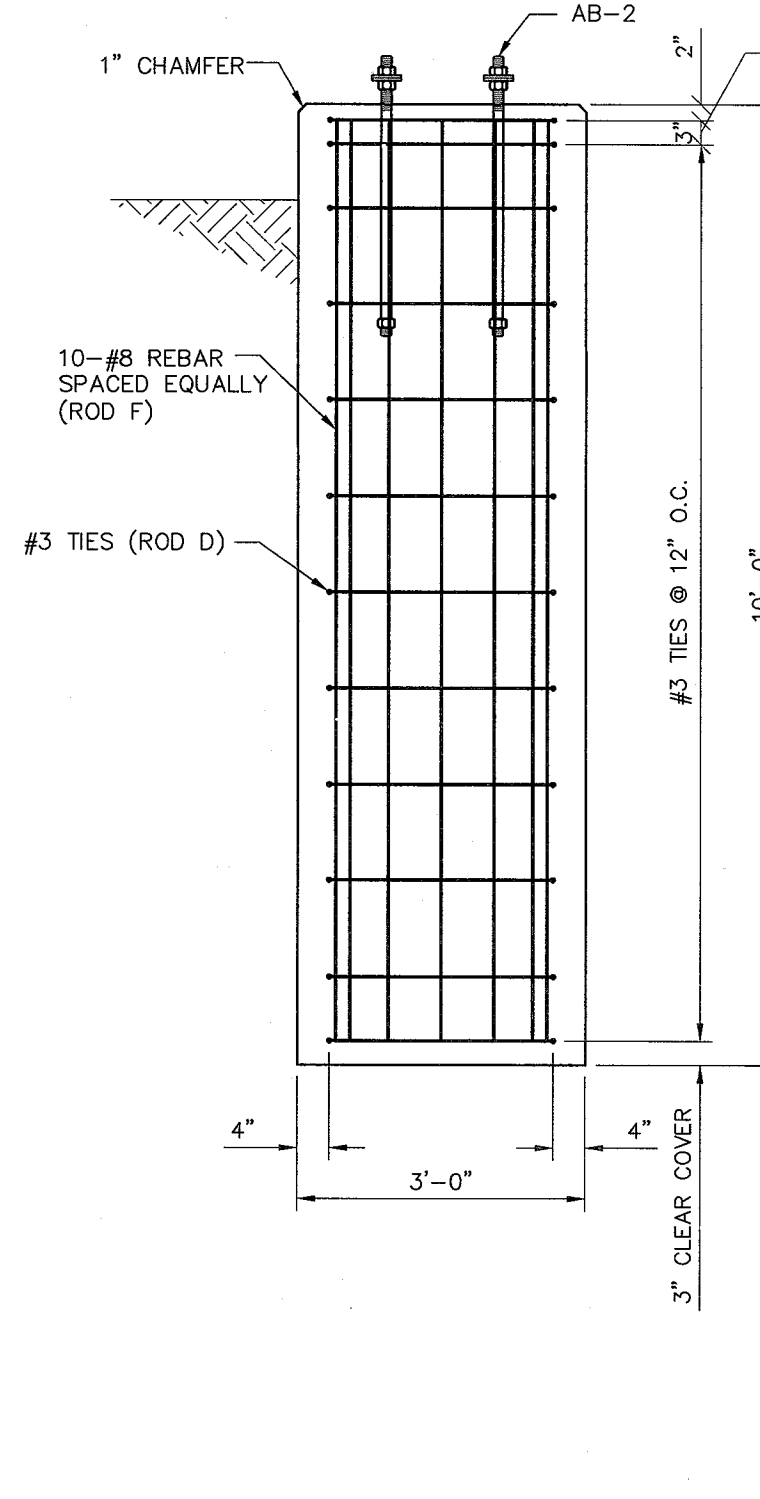


SECTION

PIER 3
SCALE: 1/2"=1'-0"

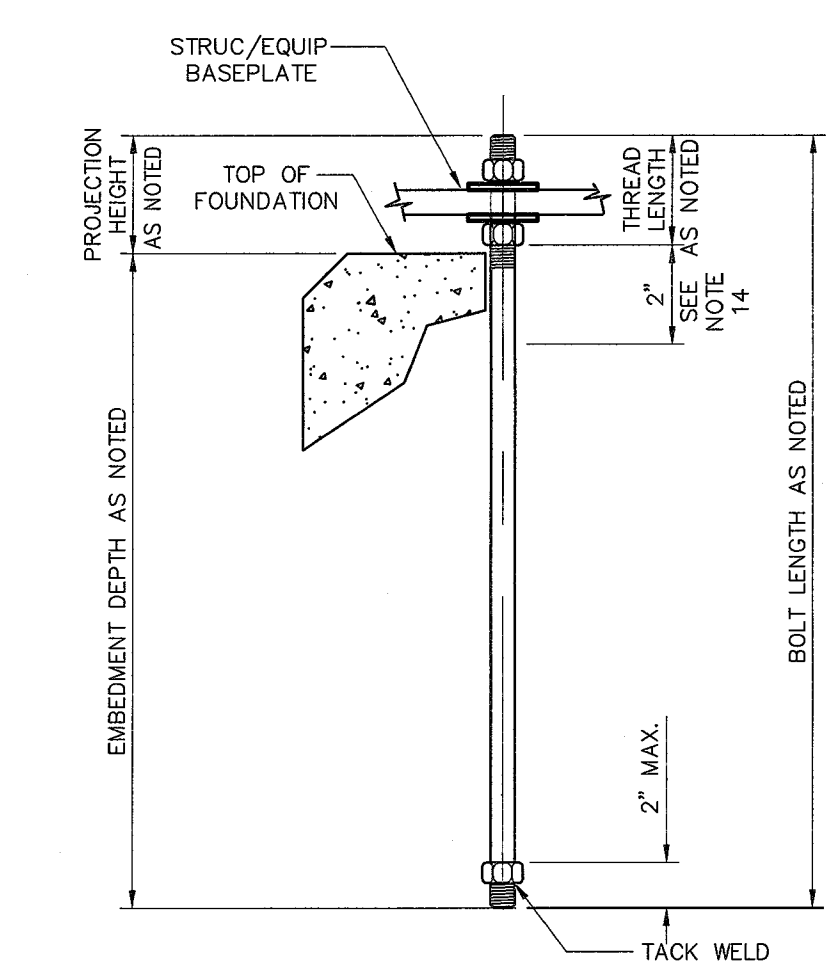


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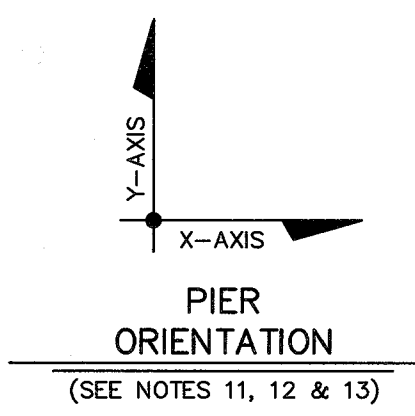
SECTION

PIER 4
SCALE: 1/2"=1'-0"



TYPICAL ANCHOR BOLT - DETAIL

(SEE NOTES 11, 12, 13 & 14)
SCALE: NONE



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PIER No. "1"						
ROD TYPE	SIZE OF REBAR	NO. REQ'D PER FDN	LENGTH	TOTAL REBAR	WEIGHT LBS.	
					PER ROD	PER FDN
A	#8	14	37'-7"	523.8	100.35	1,404.90
B	#3	40	8'-11"	364.0	3.83	153.20
TOTAL WEIGHT OF REBAR PER FDN =					1,558.10	
TIMES TOTAL No. OF FDN'S REQ'D =					6,232.40	

PIER No. "2"						
ROD TYPE	SIZE OF REBAR	NO. REQ'D PER FDN	LENGTH	TOTAL REBAR	WEIGHT LBS.	
					PER ROD	PER FDN
C	#8	10	8'-7"	87.0	22.92	229.20
D	#3	11	7'-4"	81.0	3.23	35.53
TOTAL WEIGHT OF REBAR PER FDN =					264.73	
TIMES TOTAL No. OF FDN'S REQ'D =					3,441.49	

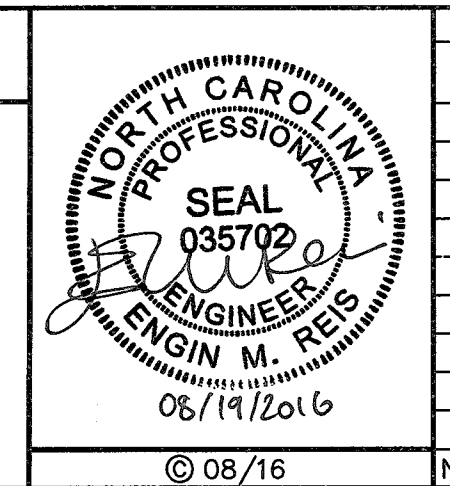
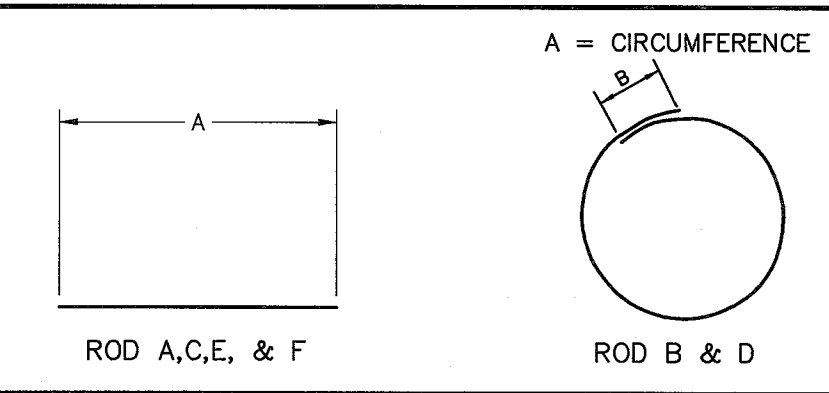
PIER No. "3"						
ROD TYPE	SIZE OF REBAR	NO. REQ'D PER FDN	LENGTH	TOTAL REBAR	WEIGHT LBS.	
					PER ROD	PER FDN
E	#8	10	12'-7"	127.0	33.60	336.00
D	#3	15	7'-4"	135.0	3.23	48.45
TOTAL WEIGHT OF REBAR PER FDN =					384.45	
TIMES TOTAL No. OF FDN'S REQ'D =					768.90	

PIER No. "4"						
ROD TYPE	SIZE OF REBAR	NO. REQ'D PER FDN	LENGTH	TOTAL REBAR	WEIGHT LBS.	
					PER ROD	PER FDN
F	#8	10	9'-7"	107.0	25.59	255.90
D	#3	12	7'-4"	135.0	3.23	38.76
TOTAL WEIGHT OF REBAR PER FDN =					294.66	
TIMES TOTAL No. OF FDN'S REQ'D =					3,535.92	

REFERENCES:
FOUNDATION PLAN 14022FP1

FDN. DESIGNATION	SERVICE	No. OF REQ'D. STRUCT.	No. OF FDN. REQ'D. PER STRUCT.	ANCHOR BOLTS										NOTES	
				ITEM No.	QTY. FDN.	TOTAL QTY. REQ'D.	DIA.	LENGTH				WASHER QTY.-DESC.	NUT QTY.-DESC.		
								EMBED	THREAD MIN.	PROJECTION ABOVE PAD	HOOK				TOTAL
PIER 1	A-FRAME	1	4	AB-1	4	16	1 1/4"	3'-0"	1/2"	7"	5 1/2"	-	3'-6"	2-FW	2-HHN
PIER 2	CVT/VT	5	1	AB-2	4	20	1"	2'-1 1/2"	5"	4 1/2"	-	2'-6"	2-FW	2-HHN	
PIER 2	12' 3/8 BUS STAND	4	2	AB-2	4	32	1"	2'-1 1/2"	5"	4 1/2"	-	2'-6"	2-FW	2-HHN	
PIER 3	20' SWITCH STAND	1	2	AB-4	4	8	1 1/4"	3'-0"	1/2"	7"	5 1/2"	-	3'-6"	2-FW	2-HHN
PIER 4	18 BUS STAND	2	1	AB-2	4	8	1"	2'-1 1/2"	5"	4 1/2"	-	2'-6"	2-FW	2-HHN	
PIER 4	11' SWITCH STAND	5	2	AB-2	4	40	1"	2'-1 1/2"	5"	4 1/2"	-	2'-6"	2-FW	2-HHN	

ROD BENDING LEGEND (NOT TO SCALE)



GREENVILLE UTILITIES
GREENVILLE, NORTH CAROLINA

GREENVILLE POD #3
230KV TO 115KV SUBSTATION
FOUNDATION DETAILS

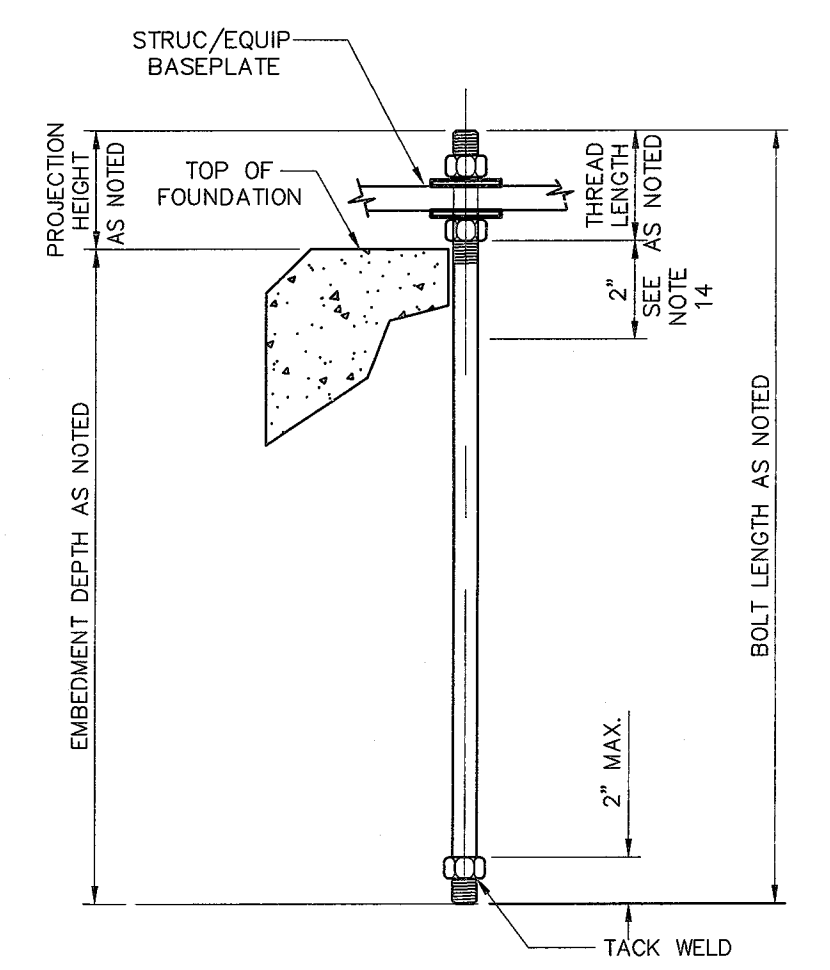
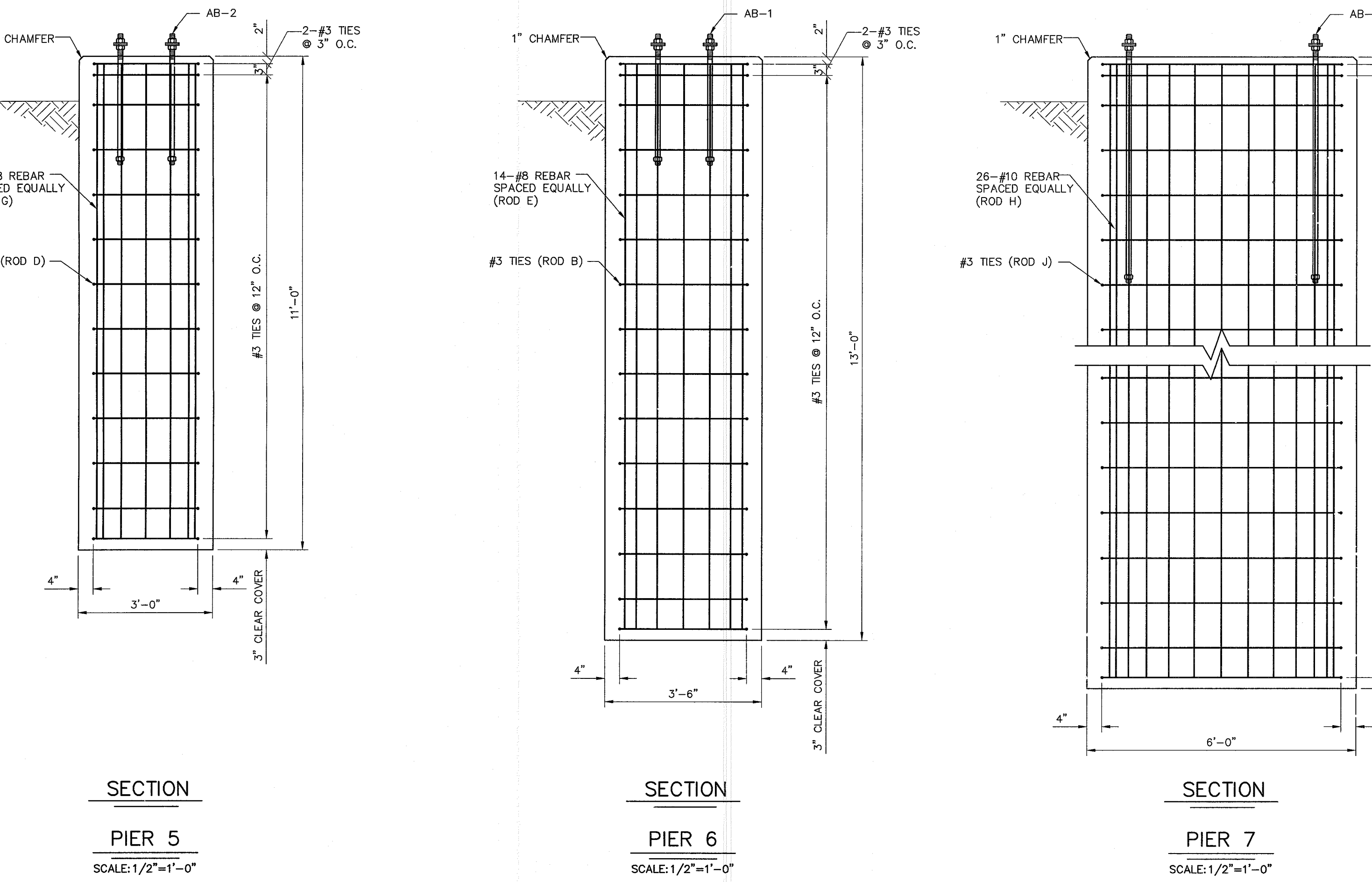
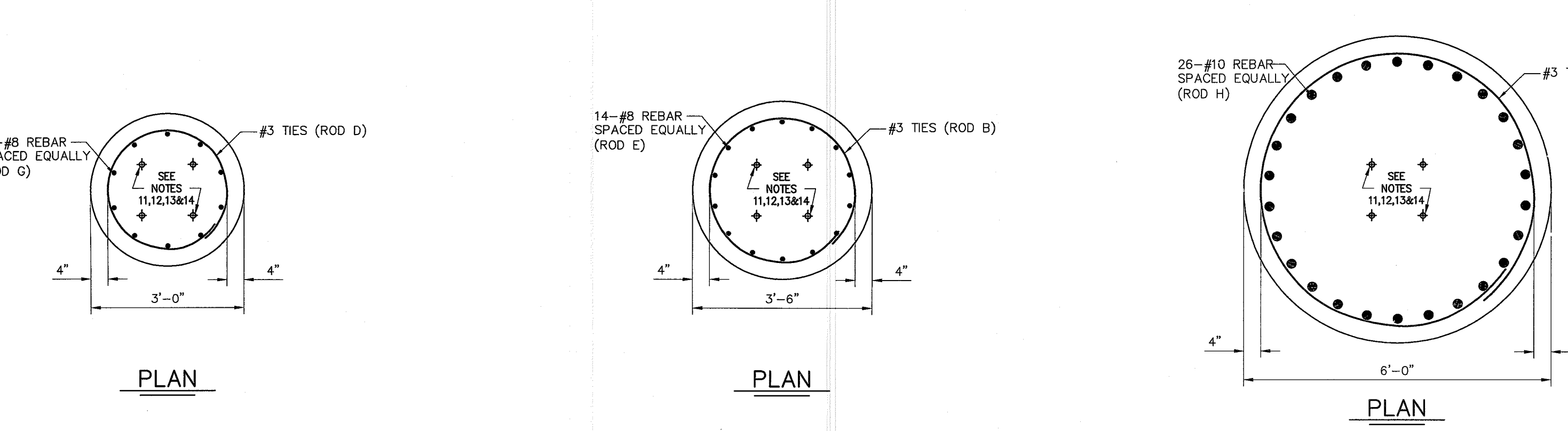
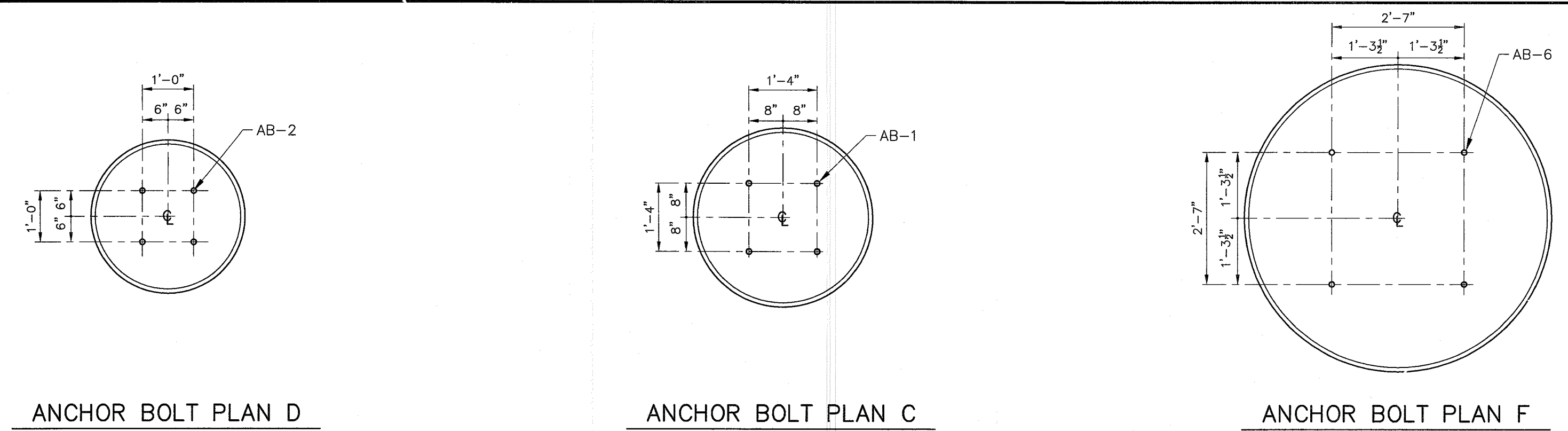
Booth & Associates, LLC
301 Greenwood Avenue | Raleigh, NC 27603 | CONSTRUCTION ENGINEERS

DWN. AAJ DATE: 8/19/2016 DWG. NO. FD1
CKD. CAJ APPD. EMR 14022FD

NO. REVISIONS DATE SCALE: AS NOTED

SCHEDULE FOR TYPICAL PIER DETAIL						
PIER No.	TOTAL REQ'D	PIER		ANCHOR BOLT PLAN	CU YDS CONCRETE PER FDN	TOTAL
		DIAMETER	LENGTH			
5	16	3'-0"	11'-0"	D	2.88	46.08
6	4	3'-6"	13'-0"	C	4.63	18.52
7	3	6'-0"	22'-0"	F	23.04	69.12

BILL OF MATERIAL			
ITEM	TOTAL QUANTITIES (THIS SHEET ONLY)	SUPPLIED BY:	DESCRIPTION
REBAR	15,034.34	CONTRACTOR	LBS. OF REBAR
CONCRETE	133.72	CONTRACTOR	CUBIC YARDS OF CONCRETE
AB-1	16	STEEL MANUFACTURER	# 1 1/4" x 3'-6" ANCHOR BOLT W/ 2-FW, 2-HHN
AB-2	64	STEEL MANUFACTURER	# 1" x 2'-6" ANCHOR BOLT W/ 2-FW, 2-HHN
AB-6	12	STEEL MANUFACTURER	# 2 1/4" x 5'-9" ANCHOR BOLT W/ 2-FW, 2-HHN



TYPICAL ANCHOR BOLT - DETAIL
(SEE NOTES 11, 12, 13 & 14)
SCALE: NONE

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 - ALL CONCRETE TO BE THOROUGHLY VIBRATED DURING PLACEMENT INTO FORMS TO ENSURE ALL VOIDS ARE FILLED.
 - ALL FOUNDATIONS SHALL BE CHAMFERED ONE INCH (1") AROUND ALL TOP EDGES, UNLESS OTHERWISE SHOWN.
 - TO DETERMINE ANCHOR BOLT SPACING, SEE ANCHOR BOLT PATTERN INDICATED. SEE FOUNDATION ANCHOR BOLT SUMMARY FOR DIAMETER, EMBEDMENT LENGTH, THREAD & HOOK REQUIREMENTS.
 - CAREFUL EXAMINATION OF ANCHOR BOLT ORIENTATION MUST BE MADE IN THAT AN X-AXIS & Y-AXIS SYSTEM HAS BEEN INDICATED ON BOTH FOUNDATION PLAN & DETAIL DRAWINGS TO ENSURE PROPER ORIENTATION.
 - ANCHOR BOLT SPACING & EQUIPMENT BASE PLATES SHALL BE VERIFIED TO BE CORRECT PRIOR TO POURING CONCRETE.
 - AFTER FABRICATION ALL BOLTS ARE TO BE HOT DIP GALVANIZED A MINIMUM OF TWO INCHES (2") PAST NOTED THREAD LENGTH.
 - SUBGRADE WILL BE TOPPED WITH THREE INCHES (3") OF CRUSHER RUN & THREE INCHES (3") OF WASHED STONE TO ACHIEVE FINAL SUBSTATION GRADE.
 - SEE DRAWING FP1 FOR TOP OF FOUNDATION ELEVATIONS.
 - CONTRACTOR IS RESPONSIBLE TO COORDINATE INSTALLATION OF ANY CONDUITS LOCATED UNDERNEATH OR PROTRUDING THROUGH FOUNDATIONS. SEE CONDUIT PLAN AND DETAILS FOR CONDUIT LOCATIONS.
 - ALL CONDUITS, WHEN REQUIRED, ARE TO BE PLUGGED OR CAPPED DURING INITIAL CONSTRUCTION TO PREVENT CONTAMINATION.
 - A CONCRETE BONDING AGENT CONFORMING TO ASTM C1059 SHALL BE APPLIED TO ALL ROUGHENED SURFACES PRIOR TO PLACING FRESH CONCRETE.
 - THE CONTRACTOR SHALL PREPARE, OR HAVE PREPARED, IN ACCORDANCE WITH ASTM C-31, FIVE (5) TEST CYLINDERS FROM EACH TRUCKLOAD OF CONCRETE DELIVERED TO THE SITE, WITHIN 20-24 HOURS AFTER BEING PREPARED. THE CYLINDERS SHALL BE DELIVERED TO A QUALIFIED TESTING LABORATORY AND TESTED IN ACCORDANCE WITH THE CONCRETE SPECIFICATIONS AND ASTM C-39. TEST RESULTS ARE TO BE PROVIDED TO THE ENGINEER FOR EVALUATION AND DIRECTION OF CORRECTIVE ACTION IF NEEDED.
 - THE CONTRACTOR SHALL MEET OR EXCEED ALL REQUIREMENTS OF THE CONCRETE SPECIFICATIONS.

PIER No. "5"							TOTAL No. REQ'D. - 16		
ROD TYPE	SIZE OF REBAR	NO. REQ'D PER FDN	LENGTH DIM A	LENGTH DIM B	TOTAL REBAR PER ROD	WEIGHT LBS. PER ROD	PER FDN	PER FDN	PER FDN
G	#8	10	10'-7"	-	10'-7"	28.26	282.60		
D	#3	13	7'-4"	1'-2"	8'-6"	3.23	41.99		
TOTAL WEIGHT OF REBAR PER FDN =							324.59		
TIMES TOTAL No. OF FDN'S REQ'D =							5,193.44		

PIER No. "6"							TOTAL No. REQ'D. - 4		
ROD TYPE	SIZE OF REBAR	NO. REQ'D PER FDN	LENGTH DIM A	LENGTH DIM B	TOTAL REBAR PER ROD	WEIGHT LBS. PER ROD	PER FDN	PER FDN	PER FDN
E	#8	14	12'-7"	-	12'-7"	33.60	470.40		
B	#3	15	8'-11"	1'-2"	10'-1"	3.83	57.45		
TOTAL WEIGHT OF REBAR PER FDN =							527.85		
TIMES TOTAL No. OF FDN'S REQ'D =							2,111.40		

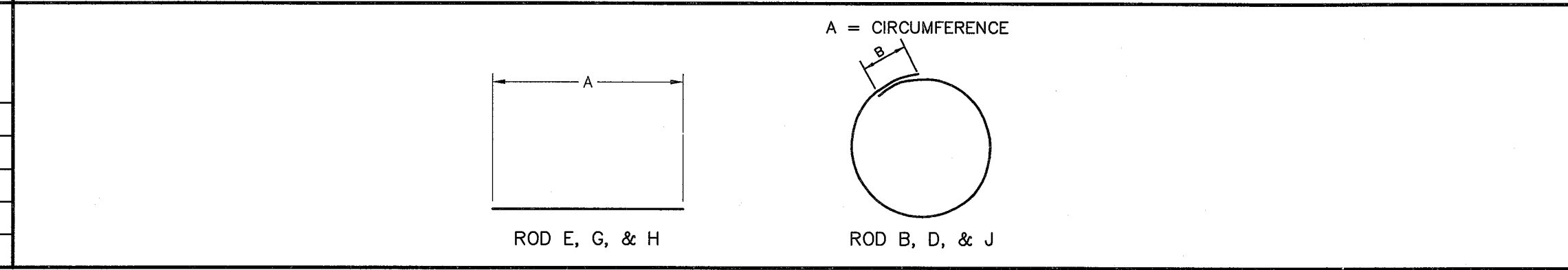
PIER No. "7"							TOTAL No. REQ'D. - 3		
ROD TYPE	SIZE OF REBAR	NO. REQ'D PER FDN	LENGTH DIM A	LENGTH DIM B	TOTAL REBAR PER ROD	WEIGHT LBS. PER ROD	PER FDN	PER FDN	PER FDN
H	#10	26	21'-7"	-	21'-7"	92.81	2,413.06		
J	#3	24	16'-9"	1'-2"	17'-11"	6.81	163.44		
TOTAL WEIGHT OF REBAR PER FDN =							2,576.50		
TIMES TOTAL No. OF FDN'S REQ'D =							7,729.50		

REFERENCES:
FOUNDATION PLAN 14022FP1

FOUNDATION ANCHOR BOLT SUMMARY

FDN. DESIGNATION	SERVICE	No. OF REQ'D. STRUCT.	No. OF FDN REQ'D. PER STRUCT.	ANCHOR BOLTS					NOTES						
				ITEM No.	QTY. FDN.	TOTAL QTY. REQ'D.	DIA.	LENGTH		WASHER QTY.-DESC.	NUT QTY.-DESC.				
PIER 5	21' 3" BUS STAND	8	2	AB-2	4	64	1"	2'-1 1/2"	5"	4 1/2"	-	2'-6"	2-FW	2-HHN	
PIER 6	CENTER BREAK SWITCH STAND	2	2	AB-1	4	16	1 1/4"	3'-0 1/2"	7"	5 1/2"	-	3'-6"	2-FW	2-HHN	
PIER 7	H-FRAME	1	3	AB-6	4	12	2 1/4"	4'-11 1/2"	11"	9 1/2"	-	5'-9"	2-FW	2-HHN	PLATE AT TOP & BOTTOM

ROD BENDING LEGEND (NOT TO SCALE)



GREENVILLE UTILITIES
GREENVILLE, NORTH CAROLINA

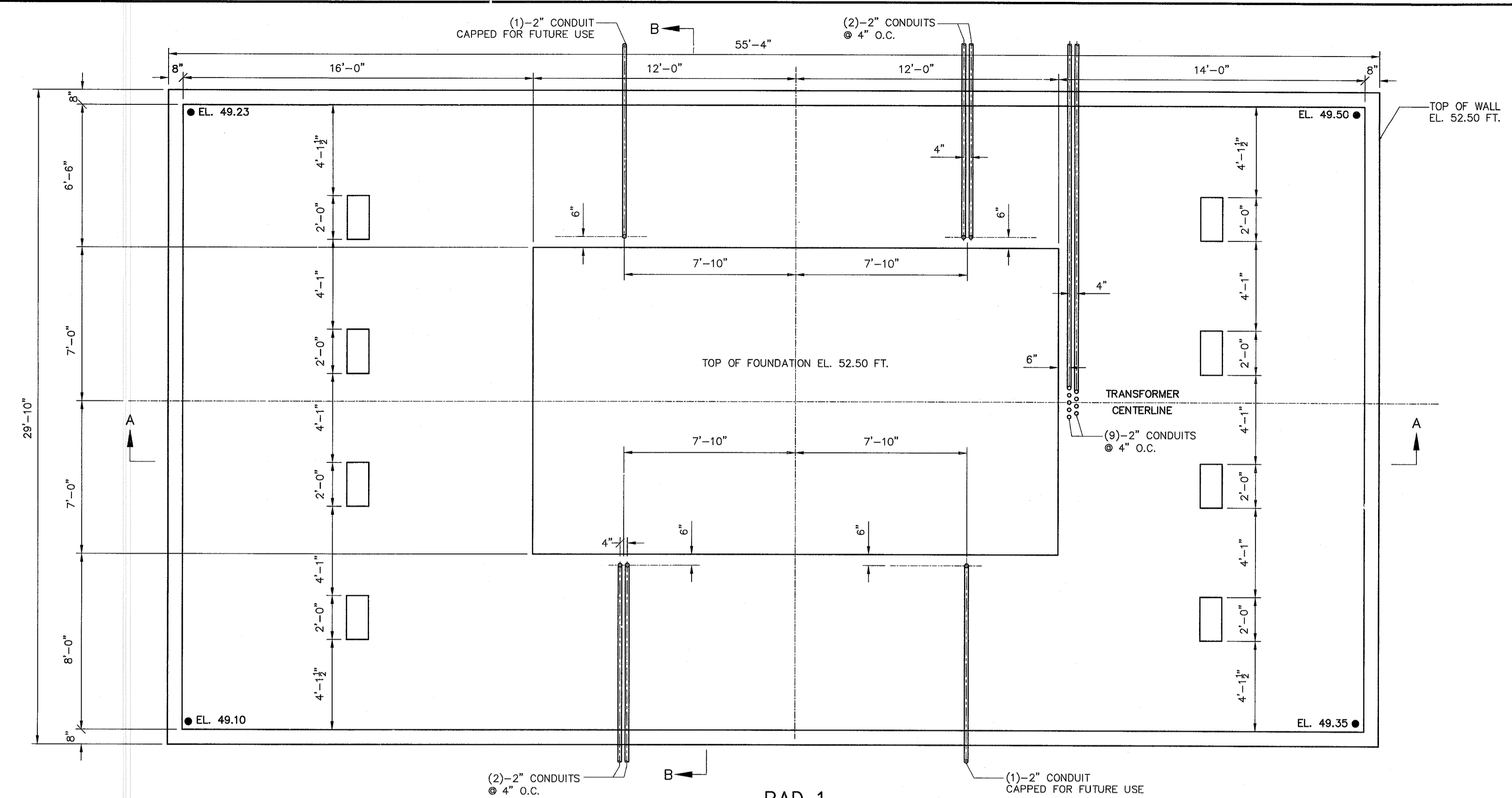
GREENVILLE POD #3
230kV TO 115kV SUBSTATION
FOUNDATION DETAILS

Booth & Associates, LLC
CONSULTING ENGINEERS

SEAL 035782
06/19/2016

DWN. AAI DATE: 8/19/2016 DWG. NO.
CKD. CAJ APPD. EMR FD2
SCALE: AS NOTED 14022FD

NO. REVISIONS DATE

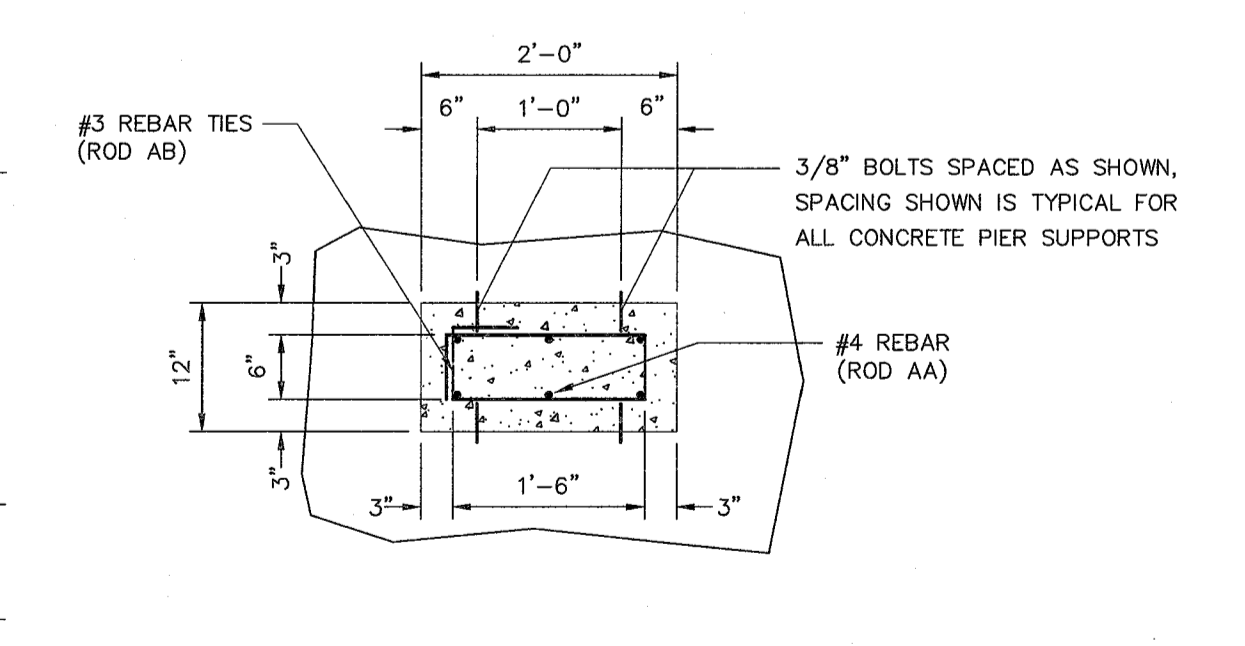
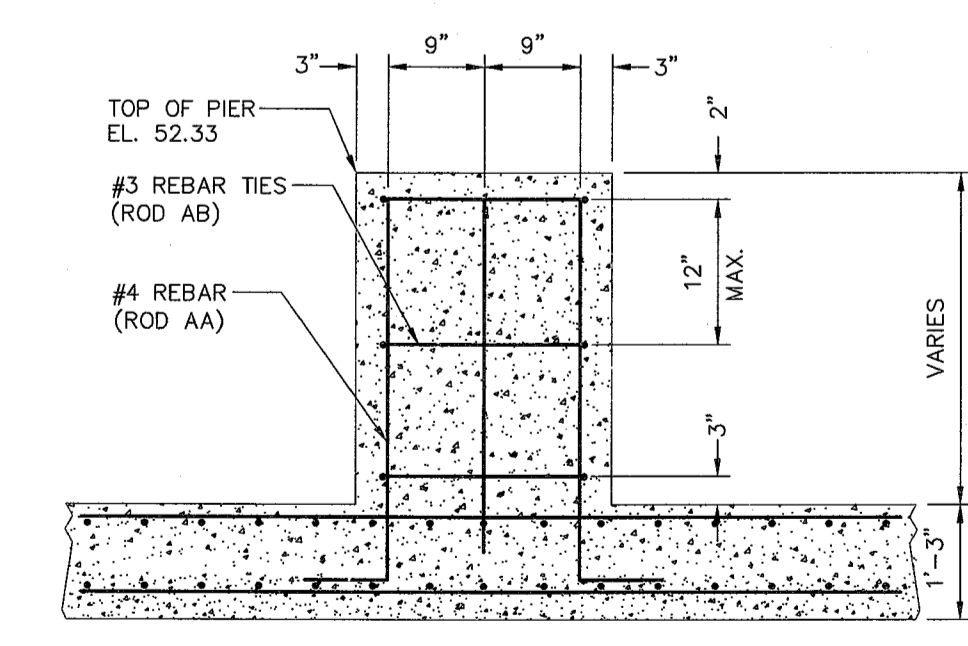
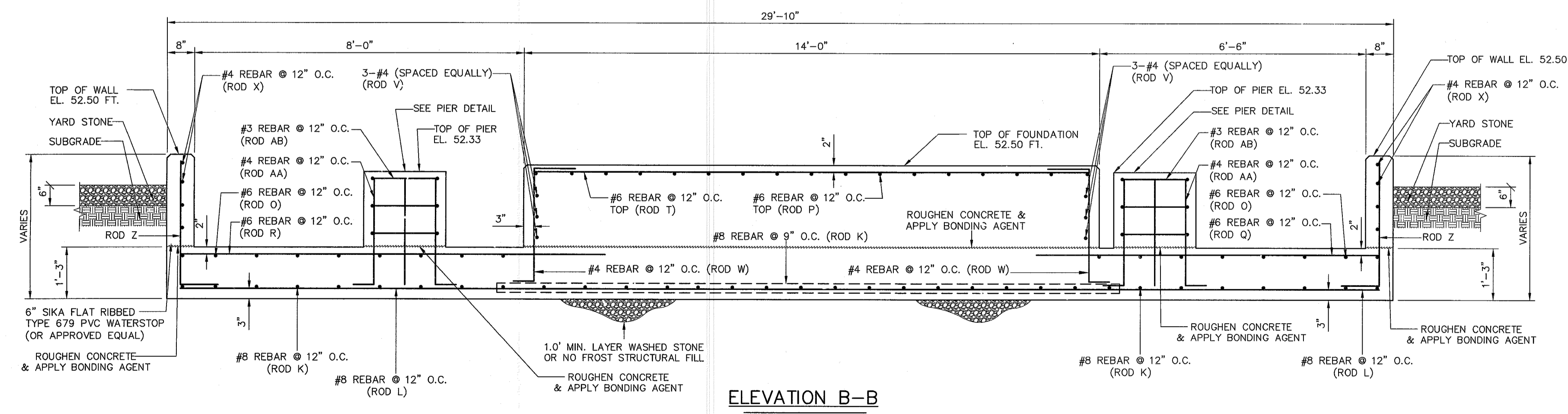
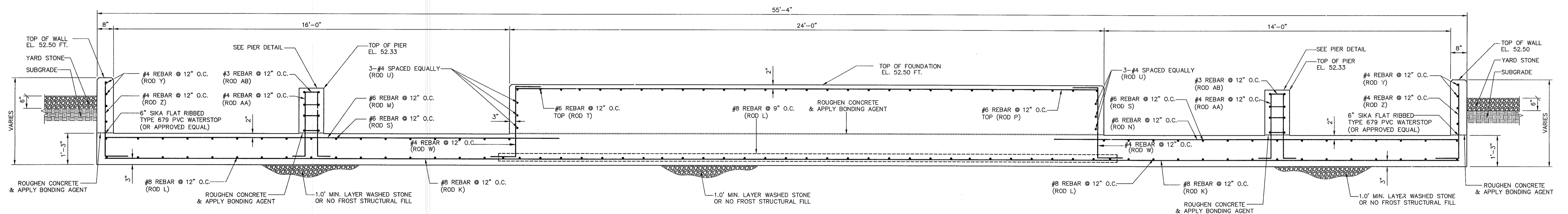
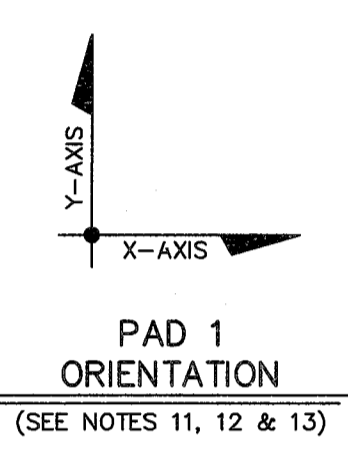


SCHEDULE FOR TYPICAL PAD DETAIL						
PAD No.	TOTAL REQ'D	PAD SIZE		ANCHOR BOLT PLAN	CU YDS CONCRETE	
		LENGTH x WIDTH	DEPTH		PER FDN	TOTAL
1	1	55'-4" x 29'-10"	4'-3"	-	127.91	127.91

BILL OF MATERIAL			
ITEM	TOTAL QUANTITIES (THIS SHEET ONLY)	SUPPLIED BY:	DESCRIPTION
REBAR	17,294.65	CONTRACTOR	LBS. OF REBAR
CONCRETE	127.91	CONTRACTOR	CUBIC YARDS OF CONCRETE

PAD No. #1							TOTAL No. REQ'D. - 1		
ROD NO.	SIZE OF REBAR	No. REQ'D PER FDN	LENGTH DIM A	LENGTH DIM B	TOTAL REBAR	WEIGHT PER ROD	PER FDN		
K	#6	36	54'-8"	-	151.75	151.75	5,254.56		
L	#6	64	29'-2"	-	29'-2"	77.88	4,984.32		
M	#6	14	18'-4"	-	18'-4"	27.50	385.00		
N	#6	14	16'-4"	-	16'-4"	24.50	343.00		
O	#6	17	54'-8"	-	54'-8"	82.00	1,394.00		
P	#6	15	23'-6"	-	23'-6"	35.25	528.75		
Q	#6	23	8'-10"	-	8'-10"	13.25	304.75		
R	#6	23	10'-4"	-	10'-4"	15.50	356.50		
S	#6	34	29'-2"	-	29'-2"	43.75	1,487.50		
T	#6	25	13'-6"	-	13'-6"	20.25	506.25		
U	#4	6	13'-6"	0'-6"	14'-6"	9.72	58.32		
V	#4	6	23'-6"	0'-6"	24'-6"	16.42	98.52		
W	#4	76	3'-10"	0'-9"	5'-1"	3.57	271.32		
X	#4	8	54'-8"	2'-0"	58'-8"	39.31	314.48		
Y	#4	8	29'-2"	2'-0"	33'-2"	22.22	177.76		
Z	#4	170	3'-10"	1'-6"	5'-4"	3.57	606.90		
AA	#4	48	3'-8"	1'-6"	5'-2"	3.46	166.08		
AB	#3	32	1'-6"	0'-6"	4'-8"	1.77	56.64		

TOTAL WEIGHT OF REBAR PER FDN = 17,294.65
TIMES TOTAL No. OF FDN'S REQ'D = 1

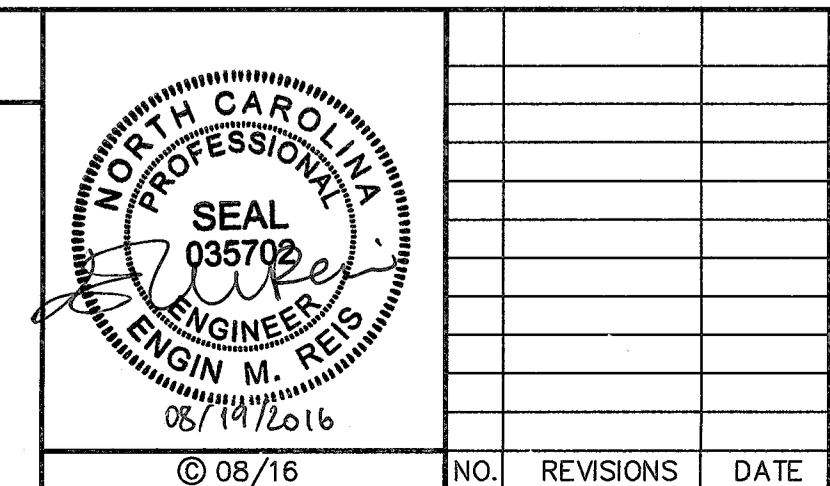
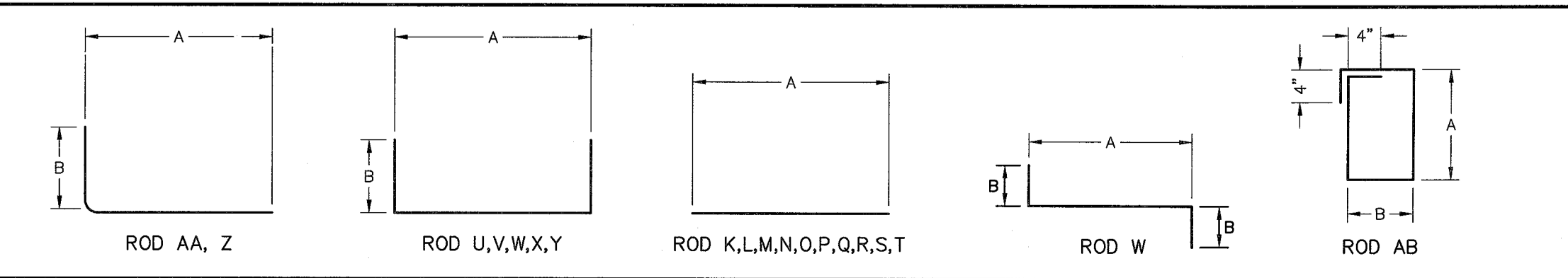


REFERENCES:
FOUNDATION PLAN 14022FP1

FOUNDATION ANCHOR BOLT SUMMARY

FDN. DESIGNATION	SERVICE	No. OF REQ'D. STRUCT.'s	No. OF FDN. REQ'D. PER STRUCT.	ANCHOR BOLTS							NOTES				
				ITEM No.	QTY. FDN.	TOTAL QTY. REQ'D.	DIA.	EMBED	THREAD MIN.	LENGTH PROJECTION ABOVE PAD		HOOK	TOTAL	WASHER QTY.-DESC.	NUT QTY.-DESC.

ROD BENDING LEGEND (NOT TO SCALE)



GREENVILLE UTILITIES
GREENVILLE, NORTH CAROLINA

GREENVILLE POD #3
230kV to 115kV SUBSTATION
FOUNDATION DETAILS

Booth & Associates, LLC
CONSULTING ENGINEERS

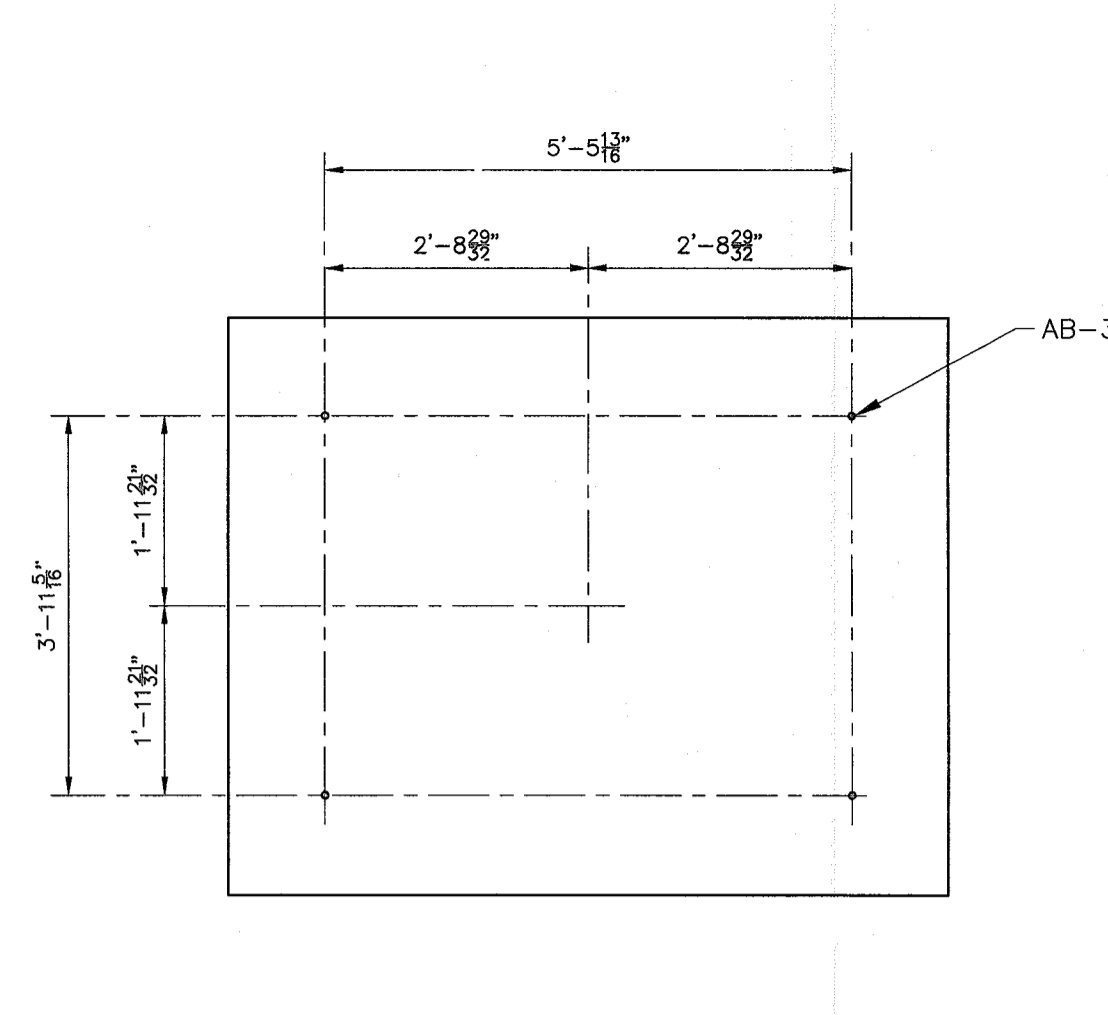
DWN. AAJ DATE: 8/19/2016 DWG. NO.
CKD. CAJ APPD. EMR FD3
SCALE: AS NOTED 14022FD

SCHEDULE FOR TYPICAL PAD DETAIL

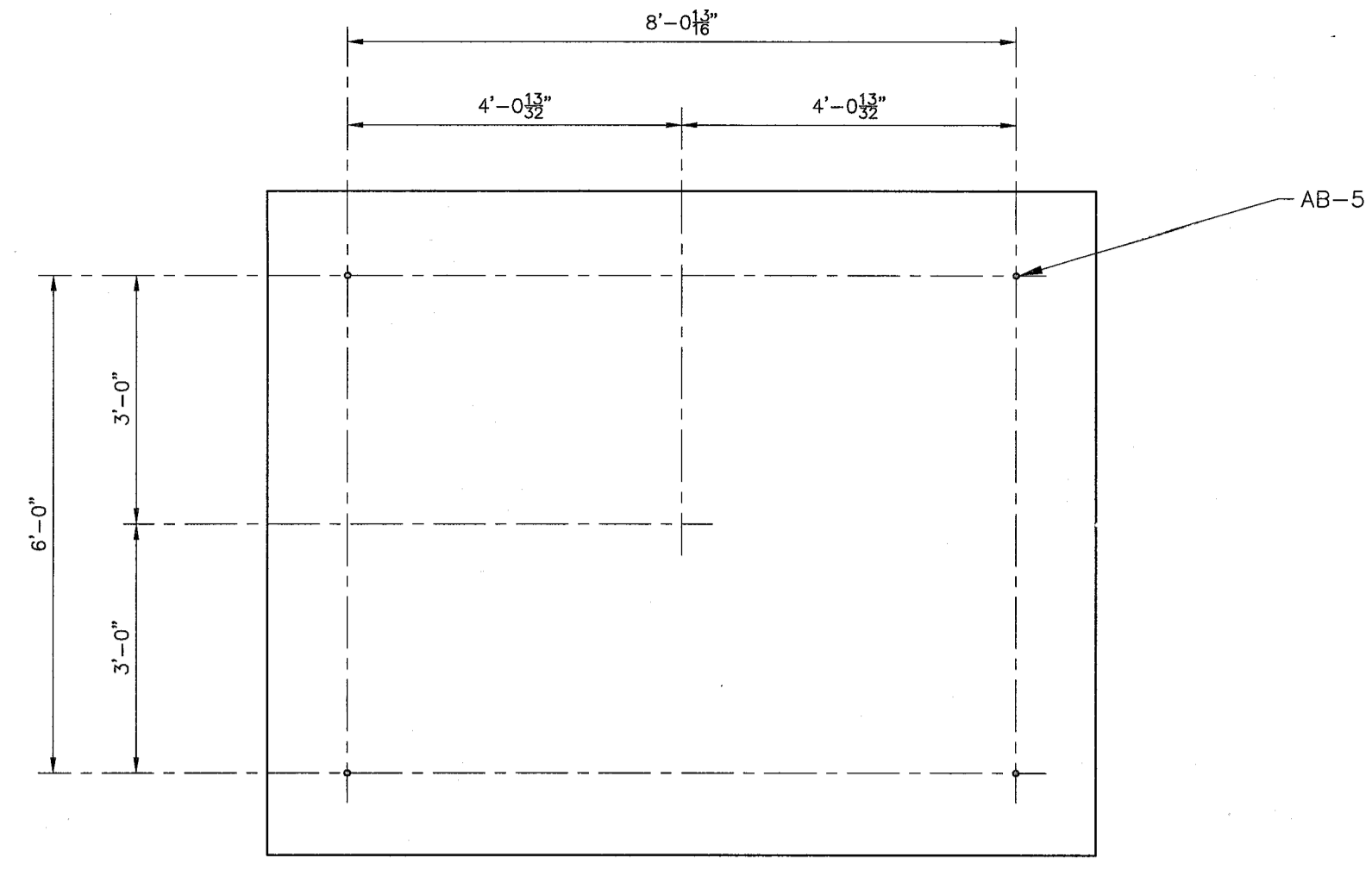
PAD No.	TOTAL REQ'D	PAD SIZE		ANCHOR BOLT PLAN	CU YDS CONCRETE	
		LENGTH x WIDTH	DEPTH		PER FDN	TOTAL
2 & 2A	3	7'-6" x 6'-0"	1'-6"	A	2.50	7.50
3	1	10'-0" x 8'-0"	1'-6"	B	4.44	4.44

BILL OF MATERIAL

ITEM	TOTAL QUANTITIES (THIS SHEET ONLY)	SUPPLIED BY:	DESCRIPTION
REBAR	708.52	CONTRACTOR	LBS. OF REBAR
CONCRETE	11.94	CONTRACTOR	CUBIC YARDS OF CONCRETE
AB-3	12	STEEL MANUFACTURER	1" x 1'-0" ANCHOR BOLT W/ 1-FW, 1-HHN
AB-5	4	STEEL MANUFACTURER	1" x 1'-0" ANCHOR BOLT W/ 1-FW, 1-HHN



ANCHOR BOLT PLAN A



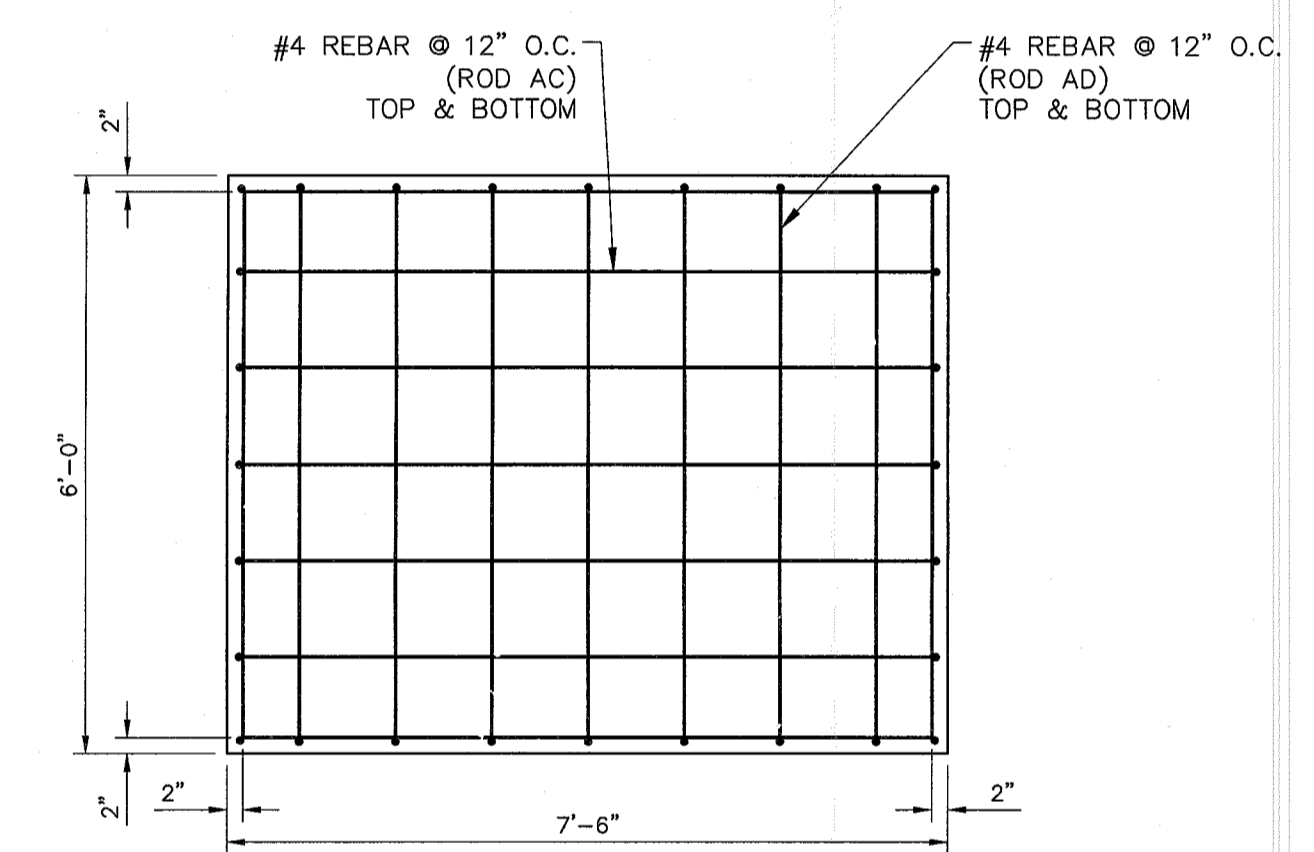
ANCHOR BOLT PLAN B

PAD No. "2 & 2A" TOTAL No. REQ'D. - 3

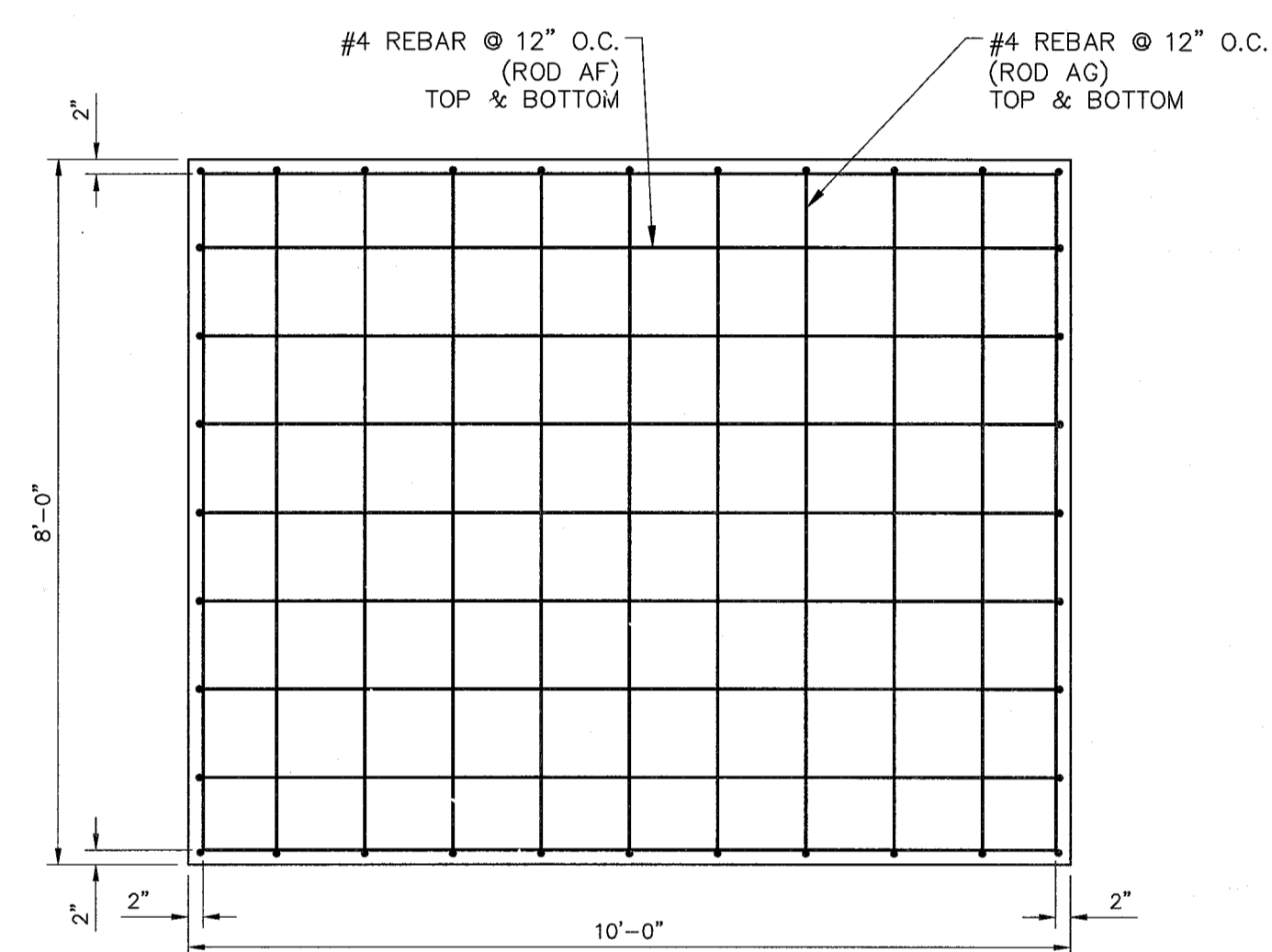
ROD TYPE	SIZE OF REBAR	NO. REQ'D PER FDN	LENGTH	TOTAL REBAR	WEIGHT LBS.		
AC	#4	14	7'-2"	4.80	67.20		
AD	#4	18	5'-8"	3.80	68.40		
AE	#3	28	1'-1"	0'-3"	1'-7"	0.60	16.80
TOTAL WEIGHT OF REBAR PER FDN =					152.40		
TIMES TOTAL No. OF FDN'S REQ'D =					457.20		

PAD No. "3"

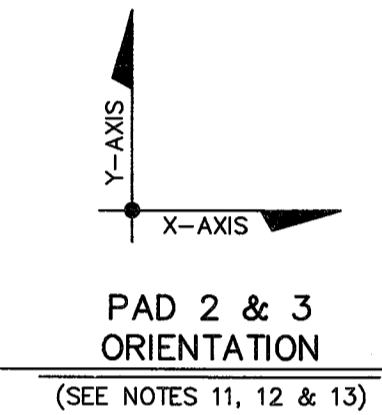
ROD TYPE	SIZE OF REBAR	NO. REQ'D PER FDN	LENGTH	TOTAL REBAR	WEIGHT LBS.		
AF	#4	18	9'-8"	6.48	116.64		
AG	#4	22	7'-8"	5.14	113.08		
AH	#3	36	1'-1"	0'-3"	1'-7"	0.60	21.60
TOTAL WEIGHT OF REBAR PER FDN =					251.32		
TIMES TOTAL No. OF FDN'S REQ'D =					251.32		



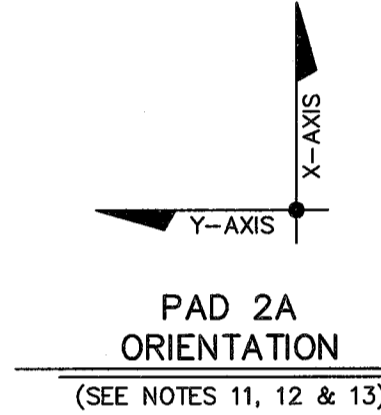
PLAN



PLAN



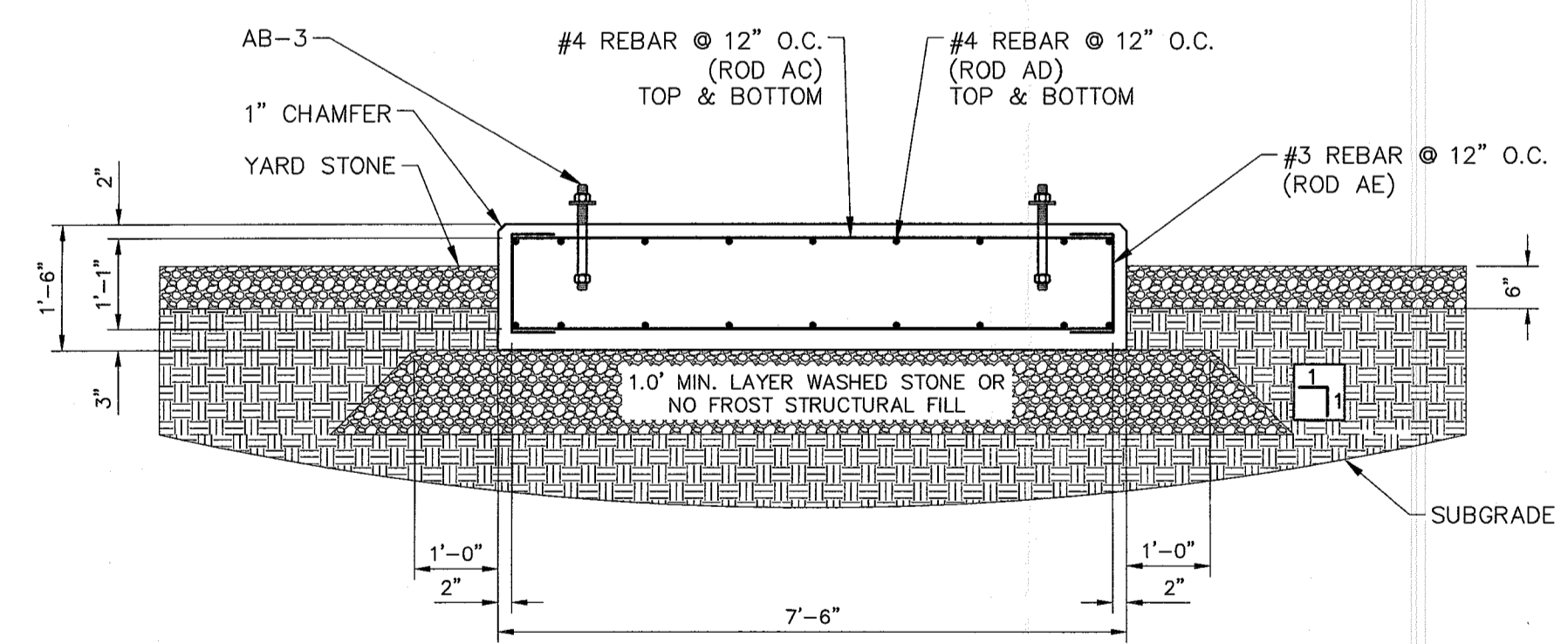
PAD 2 & 3 ORIENTATION



PAD 2A ORIENTATION

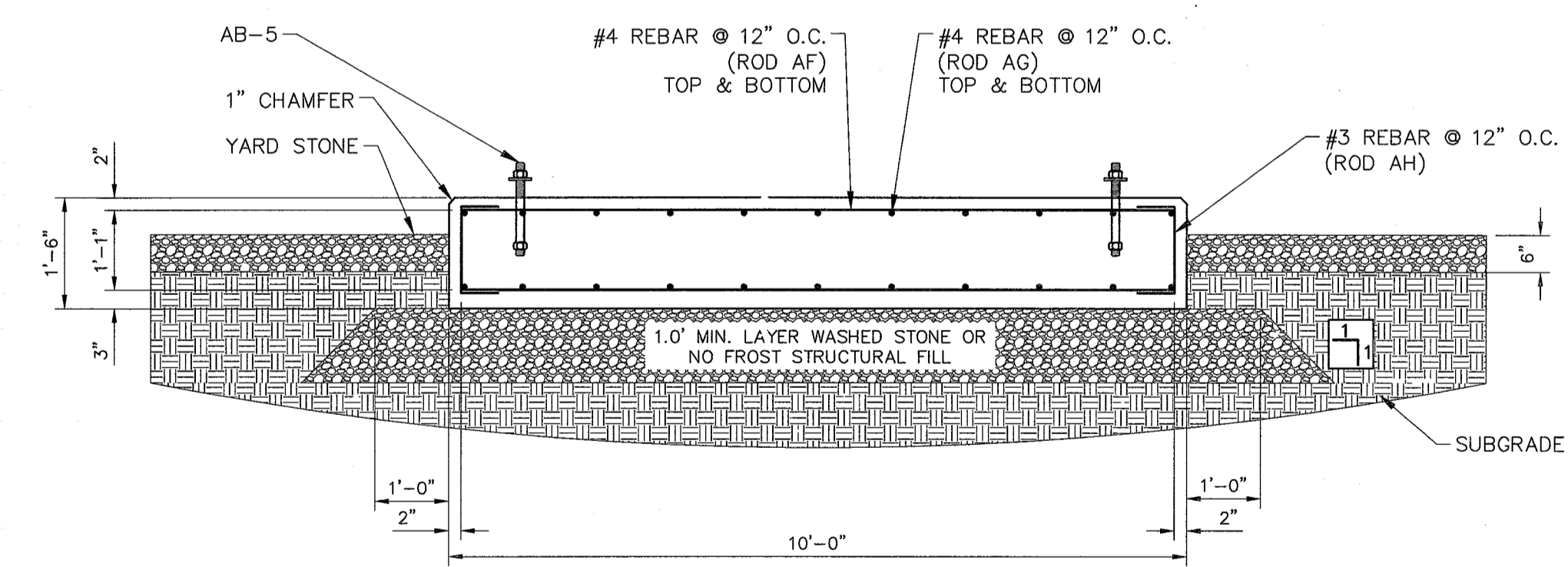
NOTES

- THE FOUNDATION CONTRACTOR SHALL AT ALL TIMES FULLY COMPLY WITH ALL OSHA STANDARDS AS WELL AS THE OWNER'S SAFETY STANDARDS, AS A MINIMUM, ESPECIALLY WITH REGARD TO SHORING OF ALL EXCAVATIONS. THE ENGINEER OR OWNER WILL IMMEDIATELY HALT CONSTRUCTION ACTIVITIES IF THE CONTRACTOR DOES NOT COMPLY WITH THESE STANDARDS. FAILURE TO COMPLY AT ALL TIMES WITH THESE STANDARDS WILL RESULT IN DISMISSAL FROM THE PROJECT.
- THE FOUNDATION CONTRACTOR IS RESPONSIBLE FOR OBTAINING COPIES OF OSHA STANDARDS AS WELL AS THE OWNER'S SAFETY STANDARDS. COPIES SHALL BE AVAILABLE ON SITE AT ALL TIMES DURING CONSTRUCTION.
- ALL FOUNDATIONS TO BE CARRIED TO FIRM UNDISTURBED EARTH OR COMPACTED FILL, WITH A MINIMUM BEARING CAPACITY OF 1,500 PSF, UNLESS OTHERWISE NOTED.
- WASHED STONE AND STRUCTURAL FILL SHALL BE COMPACTED AS SPECIFIED IN THE FOUNDATION SPECIFICATIONS.
- REINFORCING STEEL SHALL BE GRADE 60 ASTM A-615 OR A-617.
- FOR QUANTITY, LENGTH & SHAPE OF RODS SEE REBAR SUMMARY & BENDING LEGEND.
- CONCRETE SHALL BE 4500 P.S.I. @ 28 DAYS. CONCRETE SHALL BE AIR ENTRAINED WITH AN AIR CONTENT BETWEEN FIVE AND SEVEN PERCENT (5%-7%).
- CONCRETE SLUMP SHALL MEET REQUIREMENTS OF CONCRETE SPECIFICATIONS. THE CONTRACTOR SHALL MAKE OR HAVE MADE A MINIMUM OF ONE (1) SLUMP TEST IN ACCORDANCE WITH ASTM C 143 FOR EACH TRUCKLOAD OF CONCRETE DELIVERED.
- CONCRETE COVER OVER REINFORCING STEEL SHALL BE THREE INCHES (3") MINIMUM UNLESS OTHERWISE NOTED.
- ALL CONCRETE TO BE THOROUGHLY VIBRATED DURING PLACEMENT INTO FORMS TO ENSURE ALL VOIDS ARE FILLED.
- ALL FOUNDATIONS SHALL BE CHAMFERED ONE INCH (1") AROUND ALL TOP EDGES, UNLESS OTHERWISE SHOWN.
- TO DETERMINE ANCHOR BOLT SPACING, SEE ANCHOR BOLT PATTERN INDICATED. SEE FOUNDATION ANCHOR BOLT SUMMARY FOR DIAMETER, EMBEDMENT LENGTH, THREAD & HOOK REQUIREMENTS.
- CAREFUL EXAMINATION OF ANCHOR BOLT ORIENTATION MUST BE MADE IN THAT AN X-AXIS & Y-AXIS SYSTEM HAS BEEN INDICATED ON BOTH FOUNDATION PLAN & DETAIL DRAWINGS TO ENSURE PROPER ORIENTATION.
- ANCHOR BOLT SPACING & EQUIPMENT BASE PLATES SHALL BE VERIFIED TO BE CORRECT PRIOR TO POURING CONCRETE.
- AFTER FABRICATION ALL BOLTS ARE TO BE HOT DIP GALVANIZED A MINIMUM OF TWO INCHES (2") PAST NOTED THREAD LENGTH.
- SUBGRADE WILL BE TOPPED WITH THREE INCHES (3") OF CRUSHER RUN & THREE INCHES (3") OF WASHED STONE TO ACHIEVE FINAL SUBSTATION GRADE.
- SEE DRAWING FP1 FOR TOP OF FOUNDATION ELEVATIONS.
- CONTRACTOR IS RESPONSIBLE TO COORDINATE INSTALLATION OF ANY CONDUITS LOCATED UNDERNEATH OR PROTRUDING THROUGH FOUNDATIONS. SEE CONDUIT PLAN AND DETAILS FOR CONDUIT LOCATIONS.
- ALL CONDUITS, WHEN REQUIRED, ARE TO BE PLUGGED OR CAPPED DURING INITIAL CONSTRUCTION TO PREVENT CONTAMINATION.
- A CONCRETE BONDING AGENT CONFORMING TO ASTM C1059 SHALL BE APPLIED TO ALL ROUGHENED SURFACES PRIOR TO PLACING FRESH CONCRETE.
- THE CONTRACTOR SHALL PREPARE, OR HAVE PREPARED, IN ACCORDANCE WITH ASTM C-31, FIVE (5) TEST CYLINDERS FROM EACH TRUCKLOAD OF CONCRETE DELIVERED TO THE SITE. WITHIN 20-24 HOURS AFTER BEING PREPARED, THE CYLINDERS SHALL BE DELIVERED TO A QUALIFIED TESTING LABORATORY AND TESTED IN ACCORDANCE WITH THE CONCRETE SPECIFICATIONS AND ASTM C-39. TEST RESULTS ARE TO BE PROVIDED TO THE ENGINEER FOR EVALUATION AND DIRECTION OF CORRECTIVE ACTION IF NEEDED.
- THE CONTRACTOR SHALL MEET OR EXCEED ALL REQUIREMENTS OF THE CONCRETE SPECIFICATIONS.



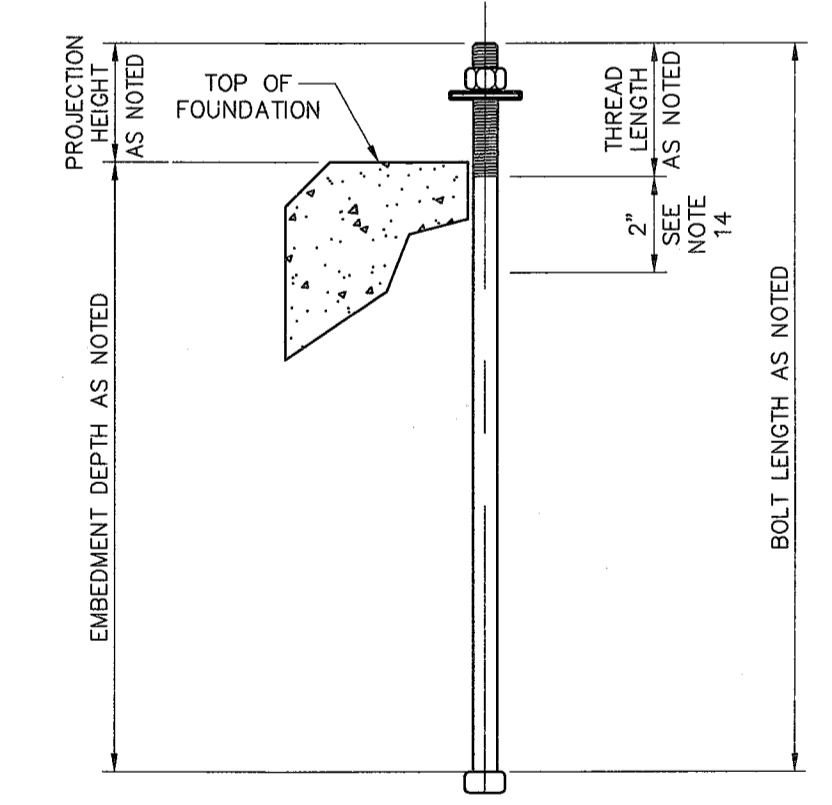
SECTION

PAD 2 & 2A
115KV BREAKER
SCALE: 1/2"=1'-0"



SECTION

PAD 3
230KV BREAKER
SCALE: 1/2"=1'-0"

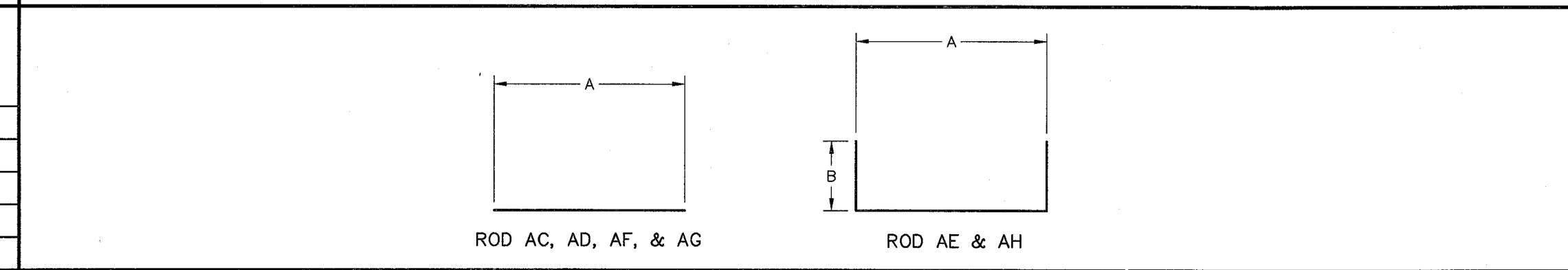


TYPICAL ANCHOR BOLT - DETAIL
(SEE NOTES 11, 12, 13 & 14)
SCALE: NONE

FOUNDATION ANCHOR BOLT SUMMARY

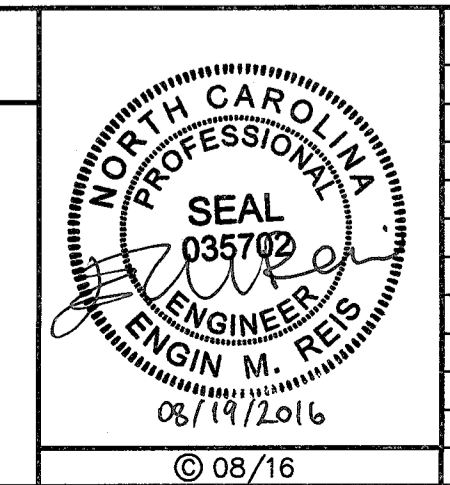
FDN. DESIGNATION	SERVICE	No. OF REQ'D. STRUCT.'s	No. OF FDN. REQ'D. PER STRUCT.	ANCHOR BOLTS							NOTES			
				ITEM No.	QTY. REQ'D.	TOTAL QTY. REQ'D.	DIA.	LENGTH				WASHER QTY.-DESC.	NUT QTY.-DESC.	
								EMBED	THREAD MIN.	PROJECTION ABOVE PAD				
PAD 2 & 2A	115 KV BREAKER	3	1	AB-3	4	12	1"	8 1/2"	6"	3 1/2"	N/A	1'-0"	1-FW	1-HHN
PAD 3	230 KV BREAKER	1	1	AB-5	4	4	1"	8 1/2"	6"	3 1/2"	N/A	1'-0"	1-FW	1-HHN

ROD BENDING LEGEND (NOT TO SCALE)



REFERENCES:

FOUNDATION PLAN 14022FP

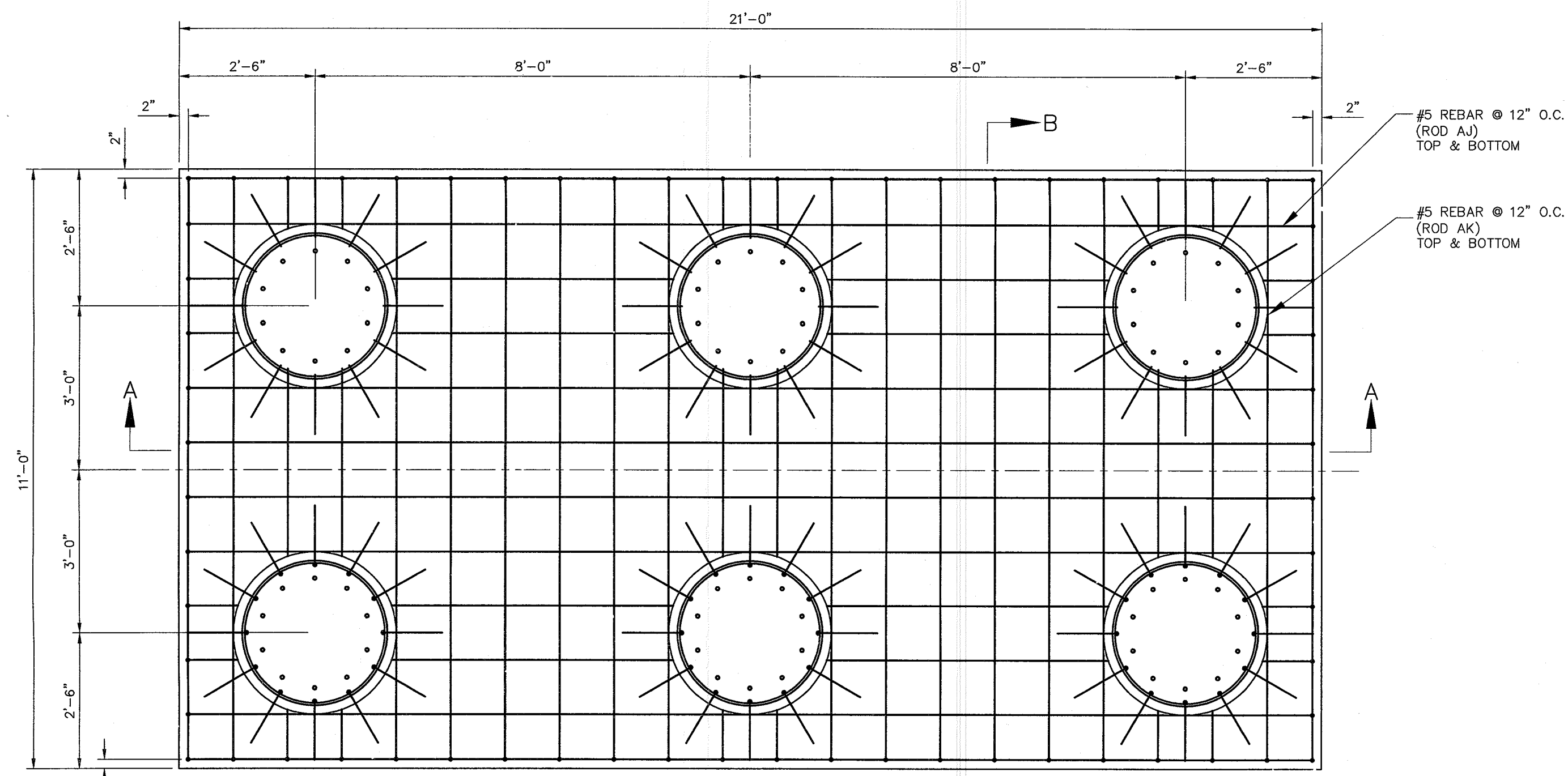


GREENVILLE UTILITIES
GREENVILLE, NORTH CAROLINA

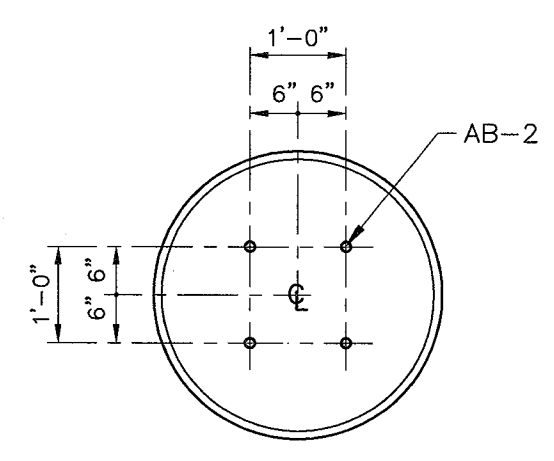
GREENVILLE POD #3
230KV SUBSTATION
FOUNDATION DETAILS

Booth & Associates, LLC
3815 Greenway Avenue 1 Building, Greenville, South Carolina 29615

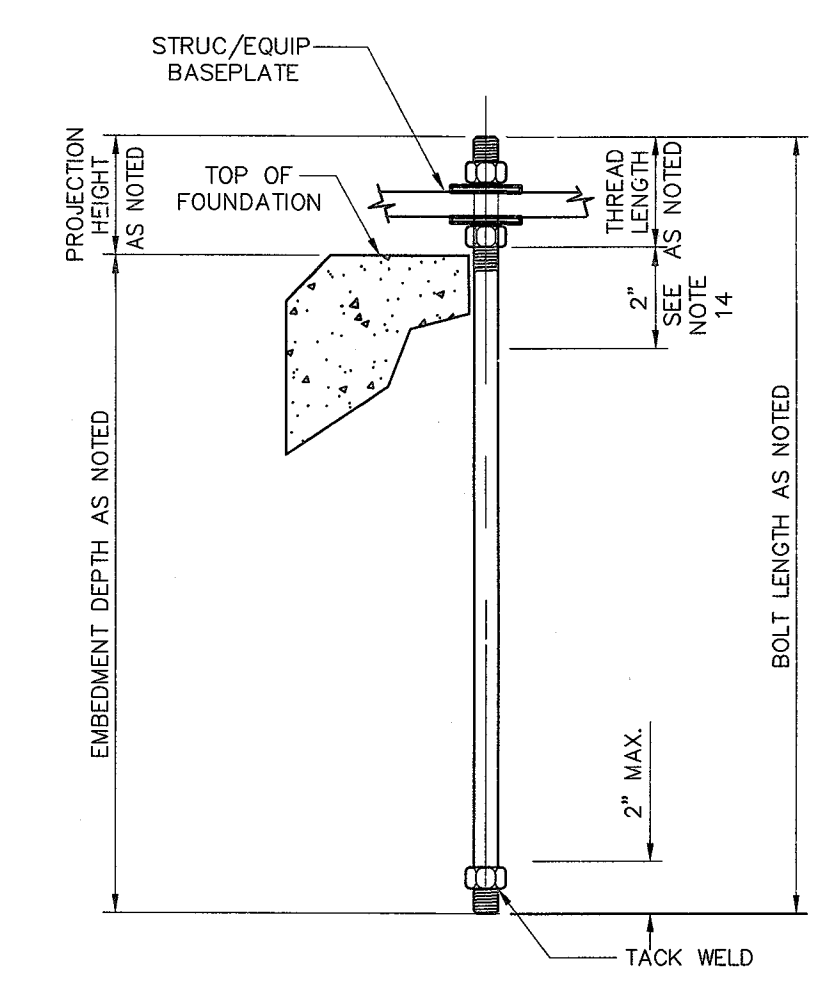
DWN. AAI	DATE: 8/19/2016	DWG. NO.
CKD. CAJ	APPD. EMR	FD4
NO.	REVISIONS	DATE
SCALE: AS NOTED		14022FD



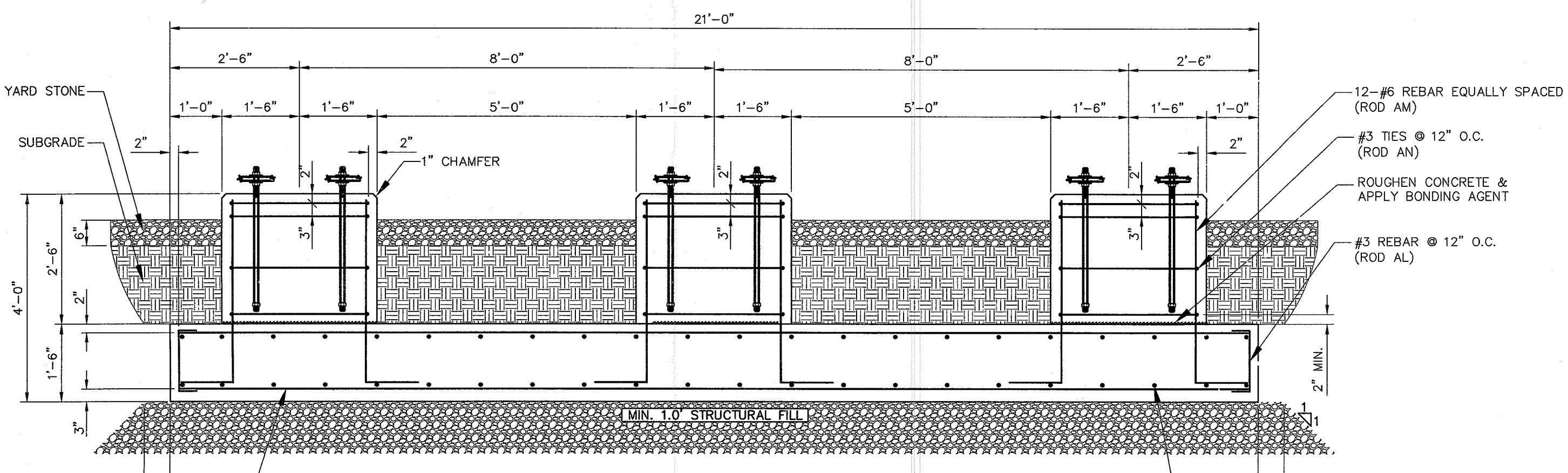
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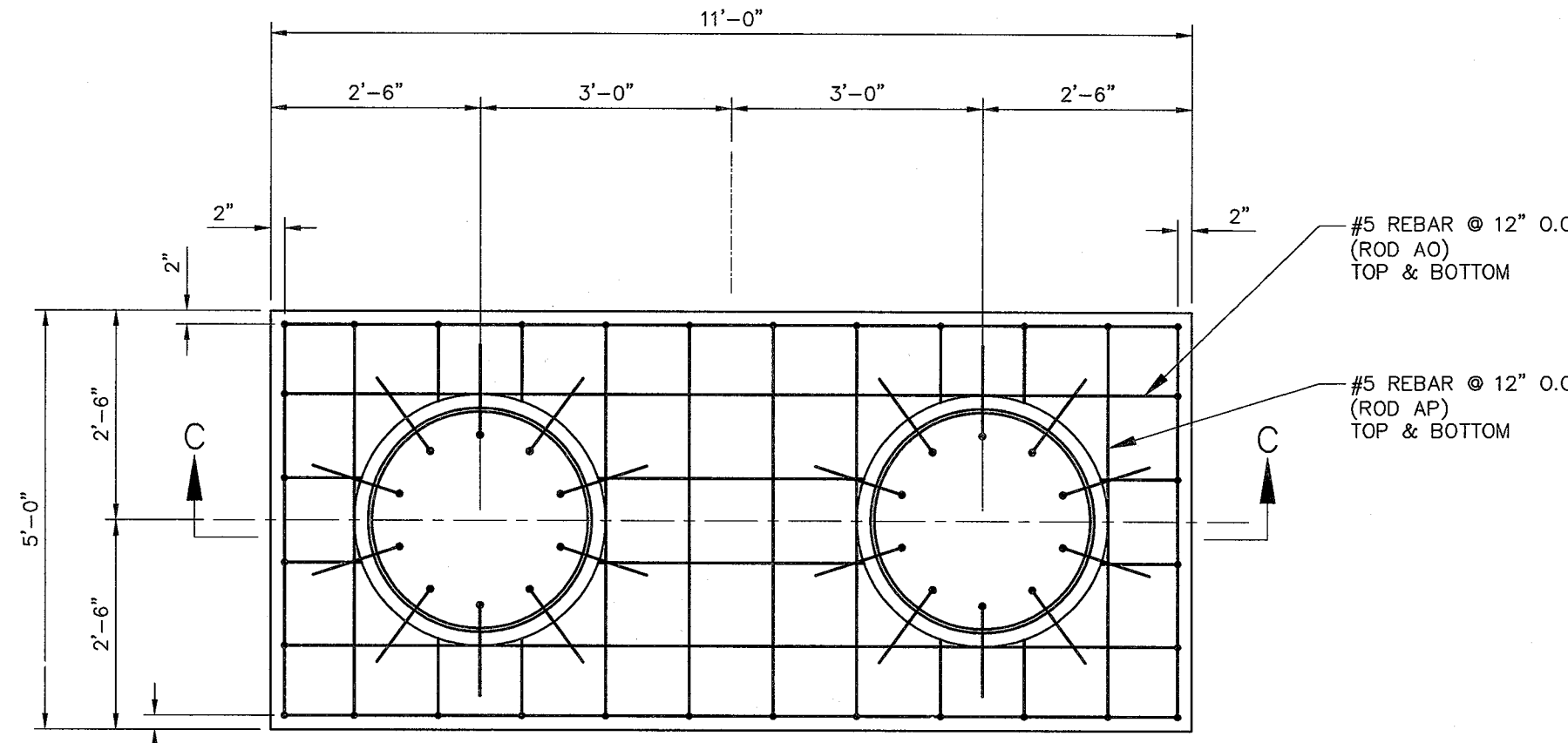
ANCHOR BOLT PLAN D



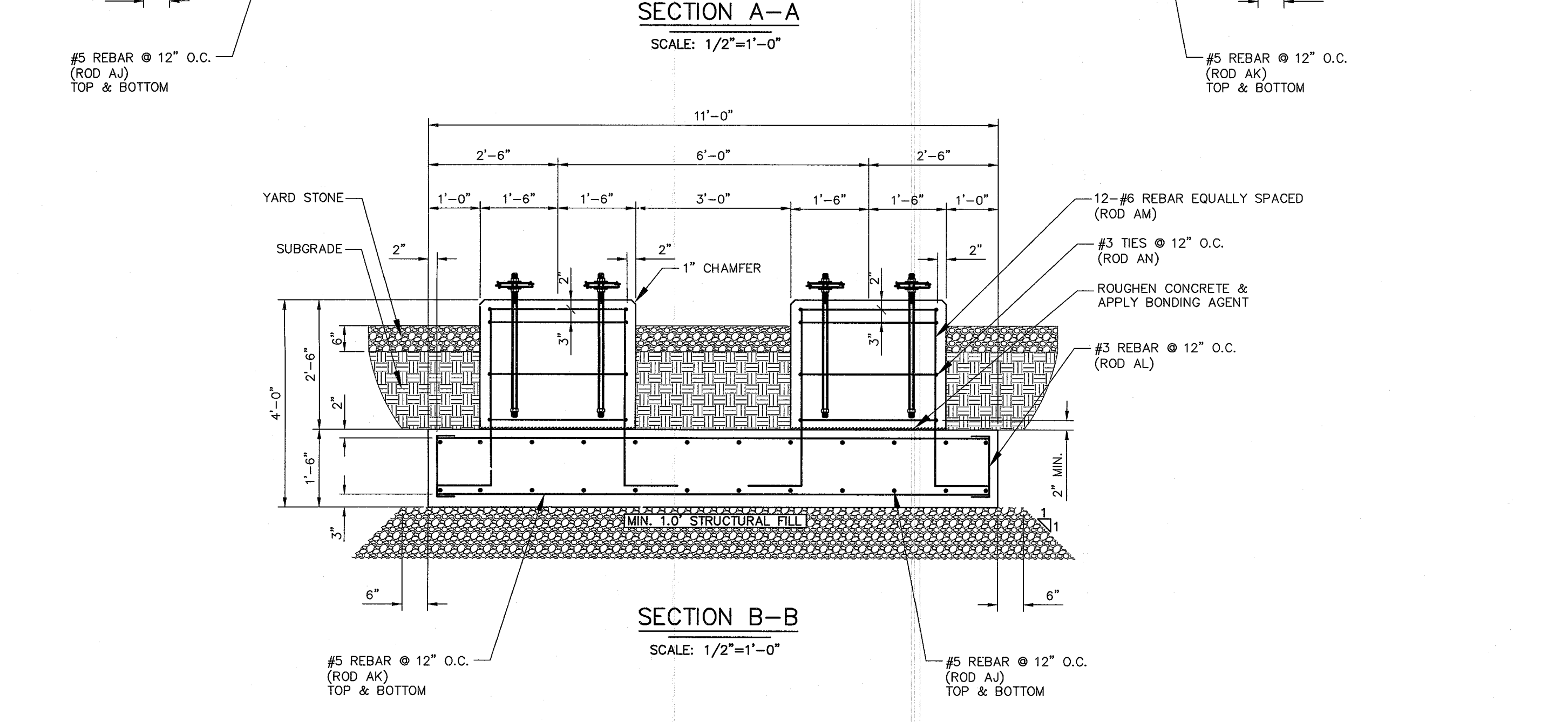
TYPICAL ANCHOR BOLT - DETAIL
(SEE NOTES 11, 12, 13 & 14)
SCALE: NONE



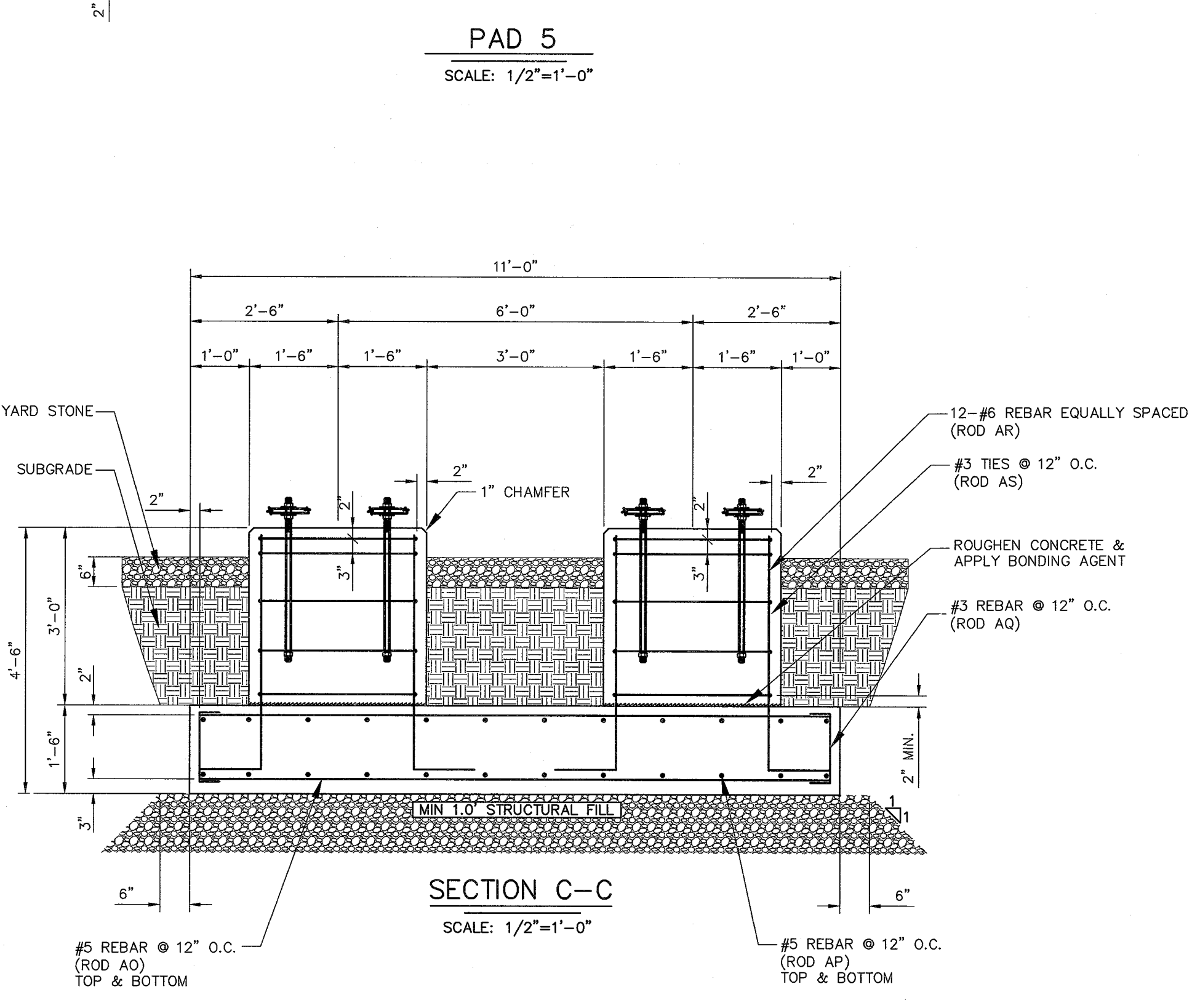
SECTION A-A
SCALE: 1/2"=1'-0"



PAD 5
SCALE: 1/2"=1'-0"



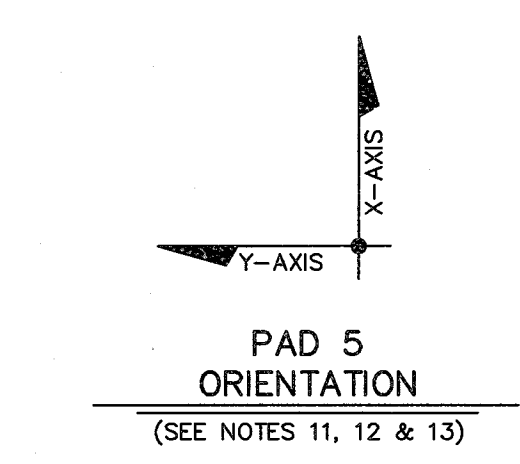
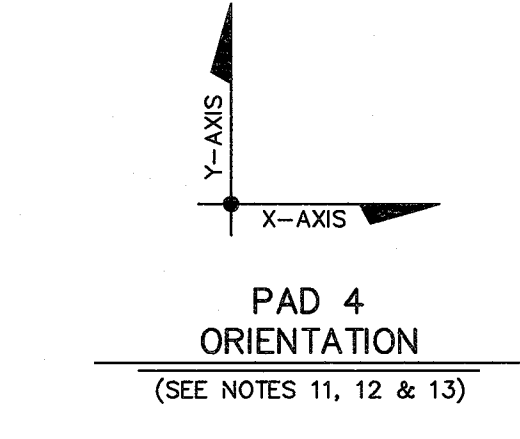
SECTION B-B
SCALE: 1/2"=1'-0"



SECTION C-C
SCALE: 1/2"=1'-0"

SCHEDULE FOR TYPICAL PAD DETAIL								
PAD NO.	TOTAL REQ'D	PAD SIZE		PEDESTAL		ANCHOR BOLT PLAN	CU YDS CONCRETE	
		LENGTH X WIDTH	DEPTH	DIAMETER	DEPTH		PER FDN	TOTAL
4	1	21'-0" x 11'-0"	1'-6"	3'-0"	2'-6"	D	16.73	16.73
5	1	11'-0" x 5'-0"	1'-6"	3'-0"	3'-0"	D	4.64	4.64

BILL OF MATERIAL			
ITEM	TOTAL QUANTITIES (THIS SHEET ONLY)	SUPPLIED BY:	DESCRIPTION
REBAR	2,117.80	CONTRACTOR	LBS. OF REBAR
CONCRETE	21.37	CONTRACTOR	CUBIC YARDS OF CONCRETE
AB-2	32	STEEL MANUFACTURER	1" X 2'-6" ANCHOR BOLT W/ 2-FW, 2-HHN



PAD No. "4"							TOTAL No. REQ'D. - 1
ROD TYPE	SIZE OF REBAR	NO. REQ'D. PER FDN	LENGTH DIM A	LENGTH DIM B	TOTAL REBAR PER FDN	WEIGHT PER FDN	WEIGHT LBS.
AJ	#5	24	20'-8"	-	20'-8"	21.50	516.00
AK	#5	44	10'-8"	-	10'-8"	11.10	488.40
AL	#3	64	1'-1"	0'-4"	1'-9"	0.87	42.88
AM	#3	72	3'-7"	1'-0"	4'-7"	6.87	494.64
AN	#3	24	8'-3"	1'-2"	9'-5"	3.58	85.92
TOTAL WEIGHT OF REBAR PER FDN =						1,627.84	
TIMES TOTAL No. OF FDN'S REQ'D =						1,627.84	

PAD No. "5"							TOTAL No. REQ'D. - 1
ROD TYPE	SIZE OF REBAR	NO. REQ'D. PER FDN	LENGTH DIM A	LENGTH DIM B	TOTAL REBAR PER FDN	WEIGHT PER FDN	WEIGHT LBS.
AO	#5	12	10'-8"	-	10'-8"	11.10	133.20
AP	#5	24	4'-8"	-	4'-8"	4.86	116.64
AQ	#3	32	1'-1"	0'-4"	1'-9"	0.87	21.44
AR	#3	24	4'-1"	1'-0"	5'-1"	7.82	182.88
AS	#3	10	8'-3"	1'-2"	9'-5"	3.58	35.80
TOTAL WEIGHT OF REBAR PER FDN =						489.96	
TIMES TOTAL No. OF FDN'S REQ'D =						489.96	

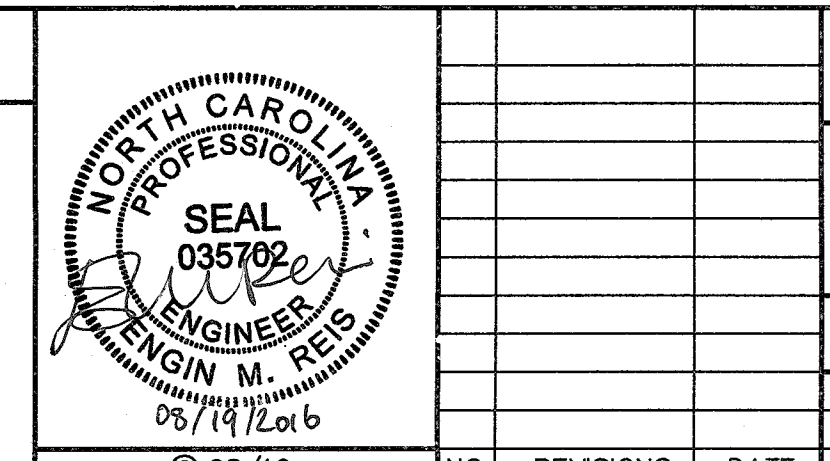
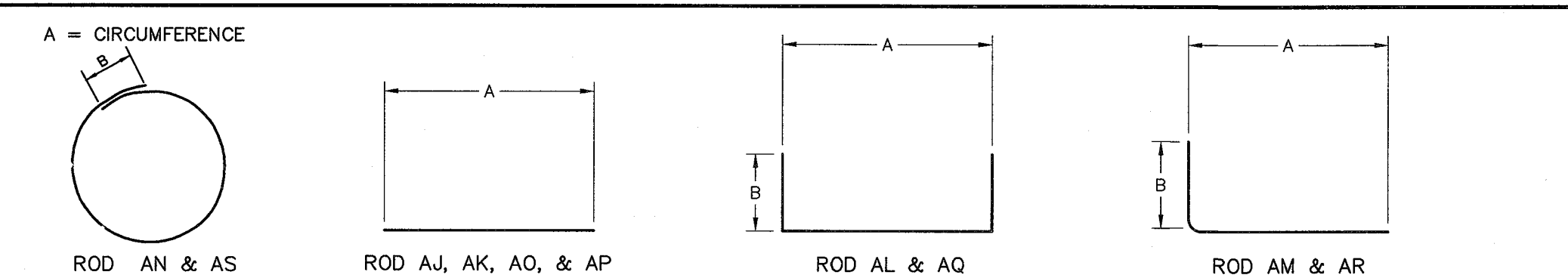
- NOTES**
- THE FOUNDATION CONTRACTOR SHALL AT ALL TIMES FULLY COMPLY WITH ALL OSHA STANDARDS AS WELL AS THE OWNER'S SAFETY STANDARDS, AS A MINIMUM, ESPECIALLY WITH REGARD TO SHORING OF ALL EXCAVATIONS. THE EMPLOYER OR OWNER WILL IMMEDIATELY HALT CONSTRUCTION ACTIVITIES IF THE CONTRACTOR DOES NOT COMPLY WITH THESE STANDARDS. FAILURE TO COMPLY AT ALL TIMES WITH THESE STANDARDS WILL RESULT IN DISMISSAL FROM THE PROJECT.
 - THE FOUNDATION CONTRACTOR IS RESPONSIBLE FOR OBTAINING COPIES OF OSHA STANDARDS AS WELL AS THE OWNER'S SAFETY STANDARDS. COPIES SHALL BE AVAILABLE ON SITE AT ALL TIMES DURING CONSTRUCTION.
 - ALL FOUNDATIONS TO BE CARRIED TO FIRM UNDISTURBED EARTH OR COMPACTED FILL, WITH A MINIMUM BEARING CAPACITY OF 1,500 PSF, UNLESS OTHERWISE NOTED.
 - WASHED STONE AND STRUCTURAL FILL SHALL BE COMPACTED AS SPECIFIED IN THE FOUNDATION SPECIFICATIONS.
 - REINFORCING STEEL SHALL BE GRADE 60 ASTM A-615 OR A-617.
 - FOR QUANTITY, LENGTH & SHAPE OF RODS SEE REBAR SUMMARY & BENDING LEGEND.
 - CONCRETE SHALL BE 4500 P.S.I. @ 28 DAYS. CONCRETE SHALL BE AIR ENTRAINED WITH AN AIR CONTENT BETWEEN FIVE AND SEVEN PERCENT (5%-7%).
 - CONCRETE SLUMP SHALL MEET REQUIREMENTS OF CONCRETE SPECIFICATIONS. THE CONTRACTOR SHALL MAKE OR HAVE MADE A MINIMUM OF ONE (1) SLUMP TEST IN ACCORDANCE WITH ASTM C 143 FOR EACH TRUCKLOAD OF CONCRETE DELIVERED.
 - CONCRETE COVER OVER REINFORCING STEEL SHALL BE THREE INCHES (3") MINIMUM UNLESS OTHERWISE NOTED.
 - ALL CONCRETE TO BE THOROUGHLY VIBRATED DURING PLACEMENT INTO FORMS TO ENSURE ALL VOIDS ARE FILLED.
 - ALL FOUNDATIONS SHALL BE CHAMFERED ONE INCH (1") AROUND ALL TOP EDGES, UNLESS OTHERWISE SHOWN.
 - TO DETERMINE ANCHOR BOLT SPACING, SEE ANCHOR BOLT PATTERN INDICATED. SEE FOUNDATION ANCHOR BOLT SUMMARY FOR DIAMETER, EMBEDMENT LENGTH, THREAD & HOOK REQUIREMENTS.
 - CAREFUL EXAMINATION OF ANCHOR BOLT ORIENTATION MUST BE MADE IN THAT AN X-AXIS & Y-AXIS SYSTEM HAS BEEN INDICATED ON BOTH FOUNDATION PLAN & DETAIL DRAWINGS TO ENSURE PROPER ORIENTATION.
 - ANCHOR BOLT SPACING & EQUIPMENT BASE PLATES SHALL BE VERIFIED TO BE CORRECT PRIOR TO POURING CONCRETE.
 - AFTER FABRICATION ALL BOLTS ARE TO BE HOT DIP GALVANIZED A MINIMUM OF TWO INCHES (2") PAST NOTED THREAD LENGTH.
 - SUBGRADE WILL BE TOPPED WITH THREE INCHES (3") OF CRUSHER RUN & THREE INCHES (3") OF WASHED STONE TO ACHIEVE FINAL SUBSTATION GRADE.
 - SEE DRAWING FPI FOR TOP OF FOUNDATION ELEVATIONS.
 - CONTRACTOR IS RESPONSIBLE TO COORDINATE INSTALLATION OF ANY CONDUITS LOCATED UNDERNEATH OR PROTRUDING THROUGH FOUNDATIONS. SEE CONDUIT PLAN AND DETAILS FOR CONDUIT LOCATIONS.
 - ALL CONDUITS, WHEN REQUIRED, ARE TO BE PLUGGED OR CAPPED DURING INITIAL CONSTRUCTION TO PREVENT CONTAMINATION.
 - A CONCRETE BONDING AGENT CONFORMING TO ASTM C1059 SHALL BE APPLIED TO ALL ROUGHENED SURFACES PRIOR TO PLACING FRESH CONCRETE.
 - THE CONTRACTOR SHALL PREPARE, OR HAVE PREPARED, IN ACCORDANCE WITH ASTM C-31, FIVE (5) TEST CYLINDERS FROM EACH TRUCKLOAD OF CONCRETE DELIVERED TO THE SITE, WITHIN 20-24 HOURS AFTER BEING PREPARED. THE CYLINDERS SHALL BE DELIVERED TO A QUALIFIED TESTING LABORATORY AND TESTED IN ACCORDANCE WITH THE CONCRETE SPECIFICATIONS AND ASTM C-39. TEST RESULTS ARE TO BE PROVIDED TO THE ENGINEER FOR EVALUATION AND DIRECTION OF CORRECTIVE ACTION IF NEEDED.
 - THE CONTRACTOR SHALL MEET OR EXCEED ALL REQUIREMENTS OF THE CONCRETE SPECIFICATIONS.

REFERENCES:
FOUNDATION PLAN 14022FP

FOUNDATION ANCHOR BOLT SUMMARY

FDN. DESIGNATION	SERVICE	No. OF REQ'D. STRUCT.	No. OF FDN. REQ'D. PER STRUCT.	ITEM No.	QTY. FDN.	TOTAL QTY. REQ'D.	DIA.	ANCHOR BOLTS				WASHER QTY.-DESC.	NUT QTY.-DESC.	NOTES	
								EMBED	THREAD MIN.	PROJECTION ABOVE PAD	HOOK				TOTAL
PAD 4	CT/PT	6	1	AB-2	4	24	1"	2'-1 1/2"	5"	4 1/2"	N/A	2'-6"	2-FW	2-HHN	
PAD 5	VT/16 BUS	2	1	AB-2	4	8	1"	2'-1 1/2"	5"	4 1/2"	N/A	2'-6"	2-FW	2-HHN	

ROD BENDING LEGEND (NOT TO SCALE)



GREENVILLE UTILITIES
GREENVILLE, NORTH CAROLINA

GREENVILLE POD #3
230KV TO 115KV SUBSTATION
FOUNDATION DETAILS

Booth & Associates, LLC
381 Caldwell Avenue | Raleigh, NC 27603 | CONSULTING ENGINEERS

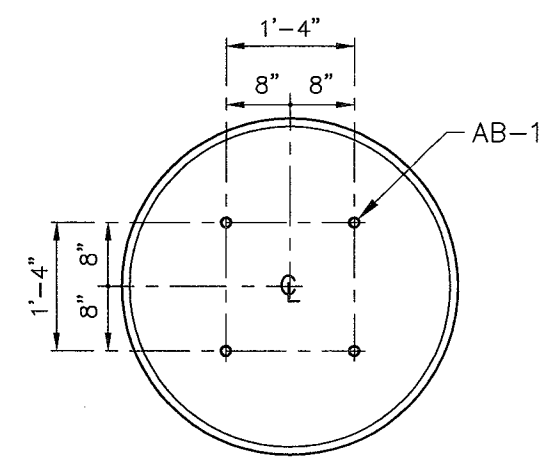
DWN, AAI DATE: 8/19/2016 DWG. NO.
OKD, CAJ APPD. EMR FDS
SCALE: AS NOTED 14022FD

SCHEDULE FOR TYPICAL PAD DETAIL

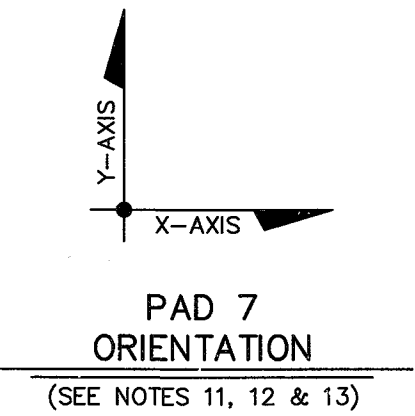
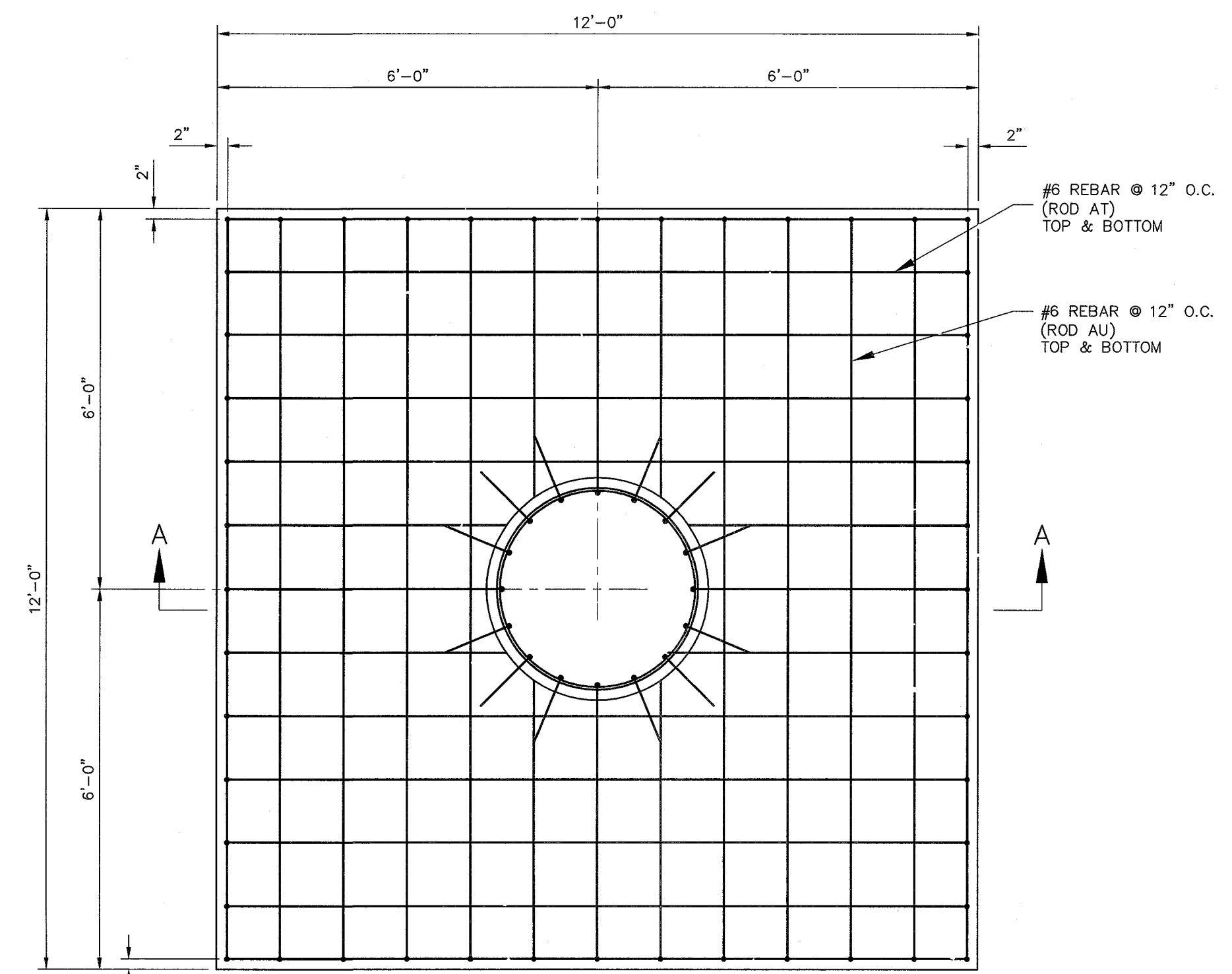
PAD NO.	TOTAL REQ'D	PAD SIZE		PEDESTAL		ANCHOR BOLT PLAN	CU YDS CONCRETE	
		LENGTH X WIDTH	DEPTH	DIAMETER	DEPTH		PER FDN	TOTAL
7	4	12'-0" x 12'-0"	1'-6"	3'-6"	3'-6"	C	9.25	148.00

BILL OF MATERIAL

ITEM	TOTAL QUANTITIES (THIS SHEET ONLY)	SUPPLIED BY:	DESCRIPTION
REBAR	4,390.60	CONTRACTOR	LBS. OF REBAR
CONCRETE	148.00	CONTRACTOR	CUBIC YARDS OF CONCRETE
AB-1	16	STEEL MANUFACTURER	1 1/4" x 3'-6" ANCHOR BOLT W/ 2-FW, 2-HHN



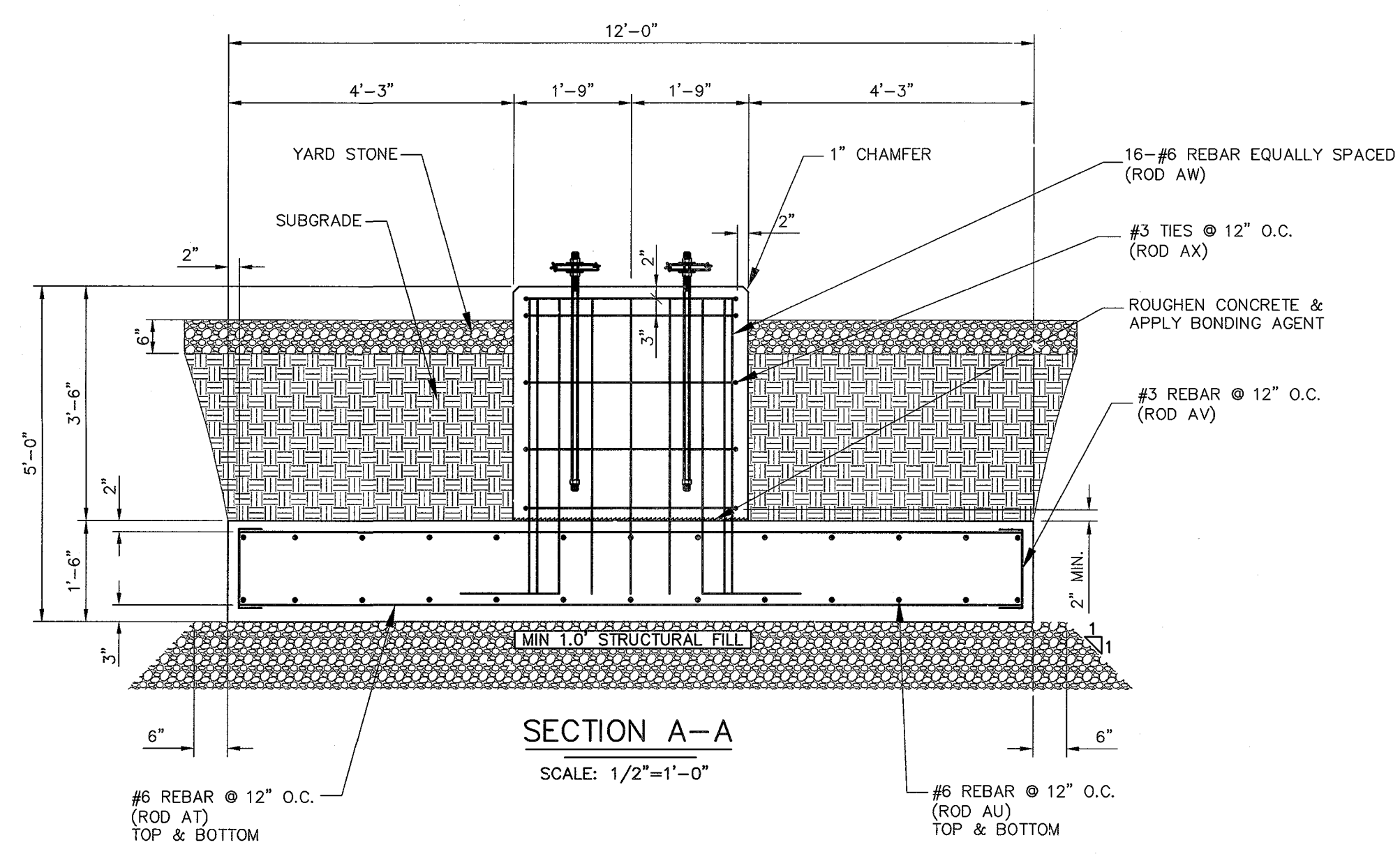
ANCHOR BOLT PLAN C



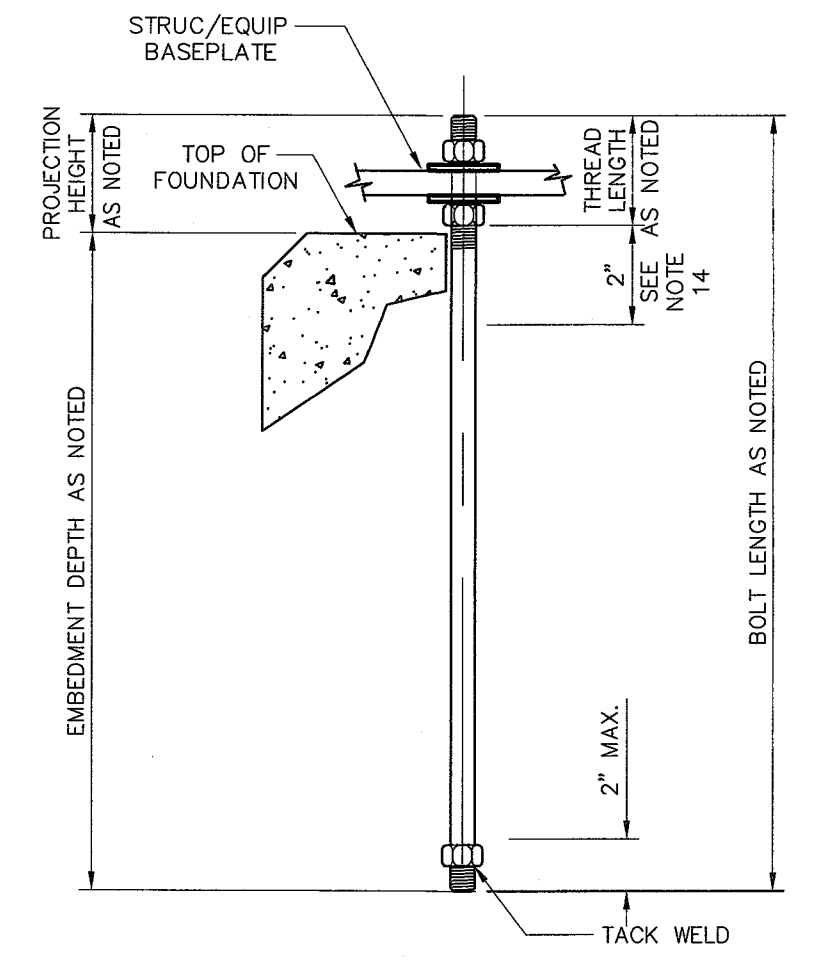
PAD 7 ORIENTATION (SEE NOTES 11, 12 & 13)

PAD No. "7"				TOTAL No. REQ'D. - 4			
ROD TYPE	SIZE OF REBAR	NO. REQ'D. PER FDN	LENGTH	WEIGHT LBS.	PER ROD	PER FDN	
AT	#6	26	11'-8"	17.51	455.26		
AU	#6	26	11'-8"	17.51	455.26		
AV	#3	48	1'-1"	0.67	32.16		
AW	#6	16	4'-7"	8.37	133.92		
AX	#3	5	9'-11"	4.21	21.05		
				TOTAL WEIGHT OF REBAR PER FDN =	1,097.65		
				TOTAL No. OF FDN'S REQ'D =	4,390.60		

PAD 7 SCALE: 1/2"=1'-0"



SECTION A-A SCALE: 1/2"=1'-0"



TYPICAL ANCHOR BOLT - DETAIL (SEE NOTES 12, 13, 14 & 15) SCALE: NONE

NOTES

- THE FOUNDATION CONTRACTOR SHALL AT ALL TIMES FULLY COMPLY WITH ALL OSHA STANDARDS AS WELL AS THE OWNER'S SAFETY STANDARDS, AS A MINIMUM, ESPECIALLY WITH REGARD TO SHORING OF ALL EXCAVATIONS. THE ENGINEER OR OWNER WILL IMMEDIATELY HALT CONSTRUCTION ACTIVITIES IF THE CONTRACTOR DOES NOT COMPLY WITH THESE STANDARDS. FAILURE TO COMPLY AT ALL TIMES WITH THESE STANDARDS WILL RESULT IN DISMISSAL FROM THE PROJECT.
- THE FOUNDATION CONTRACTOR IS RESPONSIBLE FOR OBTAINING COPIES OF OSHA STANDARDS AS WELL AS THE OWNER'S SAFETY STANDARDS. COPIES SHALL BE AVAILABLE ON SITE AT ALL TIMES DURING CONSTRUCTION.
- ALL FOUNDATIONS TO BE CARRIED TO FIRM UNDISTURBED EARTH OR COMPACTED FILL, WITH A MINIMUM BEARING CAPACITY OF 1,500 PSF, UNLESS OTHERWISE NOTED.
- WASHED STONE AND STRUCTURAL FILL SHALL BE COMPACTED AS SPECIFIED IN THE FOUNDATION SPECIFICATIONS.
- REINFORCING STEEL SHALL BE GRADE 60 ASTM A-615 OR A-617.
- FOR QUANTITY, LENGTH & SHAPE OF RODS SEE REBAR SUMMARY & BENDING LEGEND.
- CONCRETE SHALL BE 4500 P.S.I. @ 28 DAYS. CONCRETE SHALL BE AIR ENTRAINED WITH AN AIR CONTENT BETWEEN FIVE AND SEVEN PERCENT (5%-7%).
- CONCRETE SLUMP SHALL MEET REQUIREMENTS OF CONCRETE SPECIFICATIONS. THE CONTRACTOR SHALL MAKE OR HAVE MADE A MINIMUM OF ONE (1) SLUMP TEST IN ACCORDANCE WITH ASTM C 143 FOR EACH TRUCKLOAD OF CONCRETE DELIVERED.
- CONCRETE COVER OVER REINFORCING STEEL SHALL BE THREE INCHES (3") MINIMUM UNLESS OTHERWISE NOTED.
- ALL CONCRETE TO BE THOROUGHLY VIBRATED DURING PLACEMENT INTO FORMS TO ENSURE ALL VOIDS ARE FILLED.
- ALL FOUNDATIONS SHALL BE CHAMFERED ONE INCH (1") AROUND ALL TOP EDGES. UNLESS OTHERWISE SHOWN.
- TO DETERMINE ANCHOR BOLT SPACING, SEE ANCHOR BOLT PATTERN INDICATED. SEE FOUNDATION ANCHOR BOLT SUMMARY FOR DIAMETER, EMBEDMENT LENGTH, THREAD & HOOK REQUIREMENTS.
- CAREFUL EXAMINATION OF ANCHOR BOLT FOUNDATION MUST BE MADE IN THAT AN X-AXIS & Y-AXIS SYSTEM HAS BEEN INDICATED ON BOTH FOUNDATION PLAN & DETAIL DRAWINGS TO ENSURE PROPER ORIENTATION.
- ANCHOR BOLT SPACING & EQUIPMENT BASE PLATES SHALL BE VERIFIED TO BE CORRECT PRIOR TO POURING CONCRETE.
- AFTER FABRICATION ALL BOLTS ARE TO BE HOT DIP GALVANIZED A MINIMUM OF TWO INCHES (2") PAST NOTED THREAD LENGTH.
- SUBGRADE WILL BE TOPPED WITH THREE INCHES (3") OF CRUSHER RUN & THREE INCHES (3") OF WASHED STONE TO ACHIEVE FINAL SUBSTATION GRADE.
- SEE DRAWING FP1 FOR TOP OF FOUNDATION ELEVATIONS.
- CONTRACTOR IS RESPONSIBLE TO COORDINATE INSTALLATION OF ANY CONDUITS LOCATED UNDERNEATH OR PROTRUDING THROUGH FOUNDATIONS. SEE CONDUIT PLAN AND DETAILS FOR CONDUIT LOCATIONS.
- ALL CONDUITS, WHEN REQUIRED, ARE TO BE PLUGGED OR CAPPED DURING INITIAL CONSTRUCTION TO PREVENT CONTAMINATION.
- A CONCRETE BONDING AGENT CONFORMING TO ASTM C1059 SHALL BE APPLIED TO ALL ROUGHENED SURFACES PRIOR TO PLACING FRESH CONCRETE.
- THE CONTRACTOR SHALL PREPARE, OR HAVE PREPARED, IN ACCORDANCE WITH ASTM C-31, FIVE (5) TEST CYLINDERS FROM EACH TRUCKLOAD OF CONCRETE DELIVERED TO THE SITE. WITHIN 20-24 HOURS AFTER BEING PREPARED, THE CYLINDERS SHALL BE DELIVERED TO A QUALIFIED TESTING LABORATORY AND TESTED IN ACCORDANCE WITH THE CONCRETE SPECIFICATIONS AND ASTM C-39. TEST RESULTS ARE TO BE PROVIDED TO THE ENGINEER FOR EVALUATION AND DIRECTION OF CORRECTIVE ACTION IF NEEDED.
- THE CONTRACTOR SHALL MEET OR EXCEED ALL REQUIREMENTS OF THE CONCRETE SPECIFICATIONS.

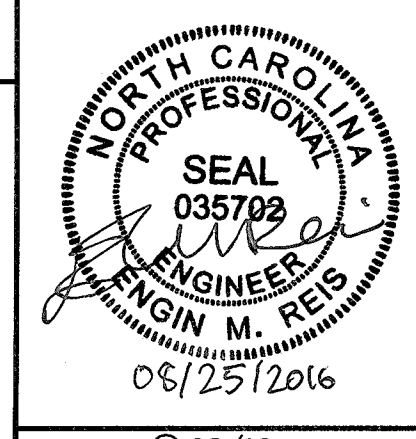
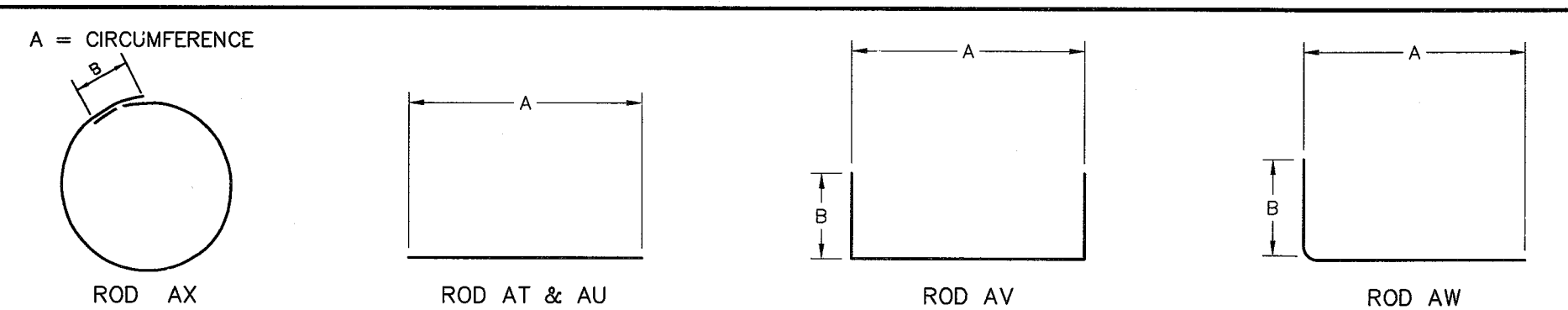
REFERENCES:

FOUNDATION PLAN 14022FP

FOUNDATION ANCHOR BOLT SUMMARY

FDN. DESIGNATION	SERVICE	No. OF REQ'D. PER STRUCT.	No. OF FDN. REQ'D. PER STRUCT.	ANCHOR BOLTS										NOTES	
				ITEM No.	QTY. FDN.	TOTAL QTY. REQ'D.	DIA.	EMBED	THREAD MIN.	PROJECTION ABOVE PAD	HOOK	TOTAL	WASHER QTY.-DESC.		NUT QTY.-DESC.
PAD 7	A-FRAME	1	4	AB-1	4	16	1 1/4"	3'-0 1/2"	7"	5 1/2"	-	3'-6"	2-FW	2-HHN	

ROD BENDING LEGEND (NOT TO SCALE)

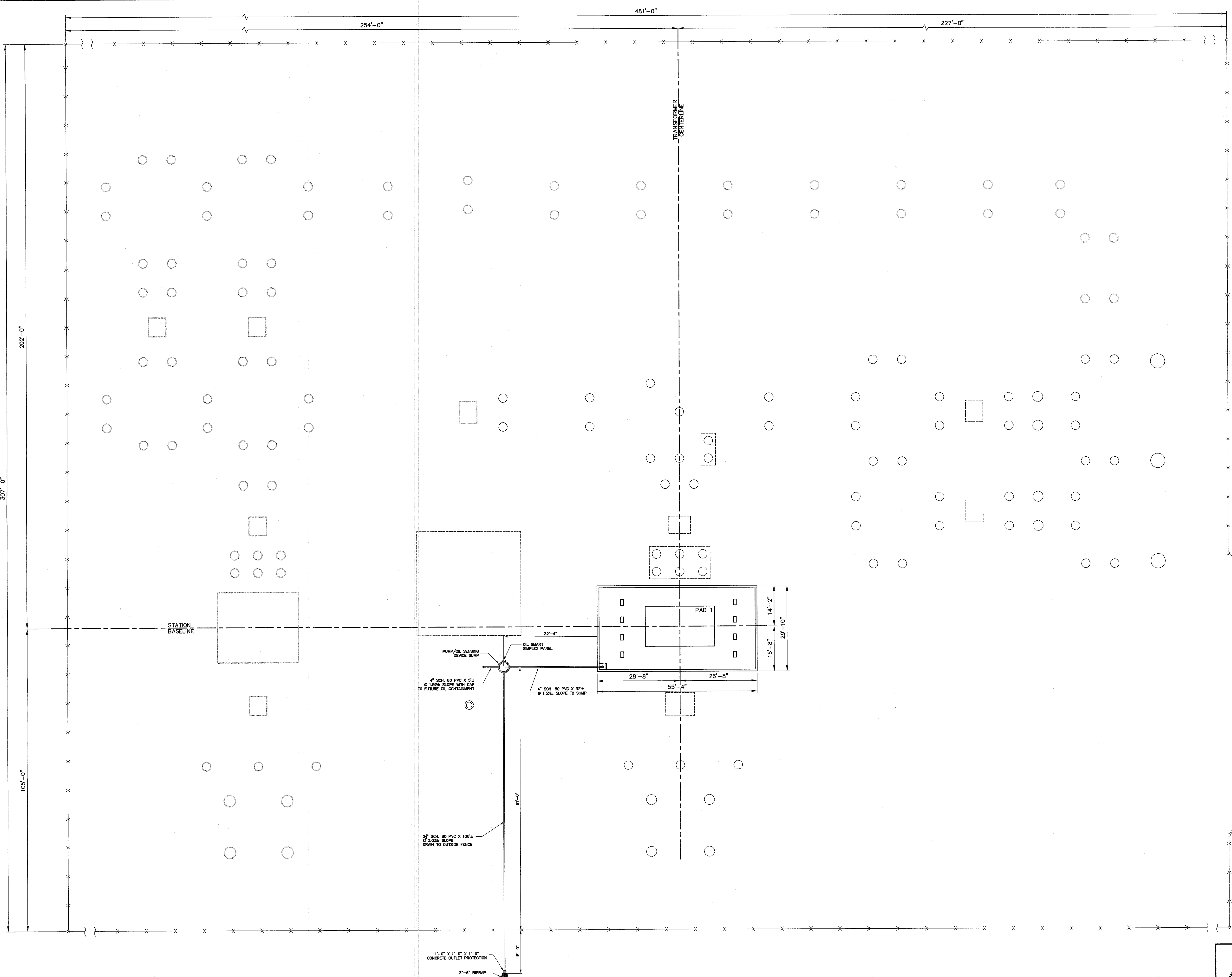


GREENVILLE UTILITIES
GREENVILLE, NORTH CAROLINA

GREENVILLE POD #3
230kV TO 115kV SUBSTATION
PAD 7 (ALTERNATE)

Booth & Associates, LLC
441 Commercial Center | Raleigh, NC 27601 | COMMERCIAL ENGINEERS



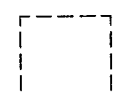



DWN: AAI DATE: 8/19/2016 DWG. NO. FD7
CKD: CAJ APPD: EMR
SCALE: AS NOTED 14022FD



NOTES:

1. THE CONTRACTOR SHALL AT ALL TIMES FULLY COMPLY WITH ALL OSHA STANDARDS AS WELL AS THE OWNER'S SAFETY STANDARDS, AS A MINIMUM, ESPECIALLY WITH REGARD TO SHORING OF ALL EXCAVATIONS. THE ENGINEER OR OWNER WILL IMMEDIATELY HALT CONSTRUCTION ACTIVITIES IF THE CONTRACTOR DOES NOT COMPLY WITH THESE STANDARDS. FAILURE TO IMMEDIATELY COMPLY WITH THESE STANDARDS WILL RESULT IN DISMISSAL FROM THE PROJECT.
2. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING COPIES OF OSHA STANDARDS AS WELL AS THE OWNER'S SAFETY STANDARDS. COPIES SHALL BE AVAILABLE ON SITE AT ALL TIMES DURING CONSTRUCTION.
3. THE OIL CONTAINMENT SYSTEM HAS BEEN DESIGNED TO CONTAIN THE ENTIRE VOLUME OF OIL IN THE SINGLE LARGEST CONTAINER, PLUS RAINFALL BASED ON LOCAL WEATHER RECORDS. HOWEVER, THE OIL CONTAINMENT IS NOT GUARANTEED IN THE EVENT OF AN EXPLOSIVE TYPE FAILURE WHERE OIL IS SPRAYED BEYOND THE PERIMETER OF THE CONTAINMENT BASIN.
4. ALL STRUCTURAL CONCRETE SHALL BE SUPPORTED ON FIRM UNDISTURBED EARTH OR COMPACTED FILL.
5. REINFORCING STEEL SHALL BE GRADE 60 ASTM A-615 OR A-617.
6. TIE RODS SHALL BE LAPPED A MINIMUM OF 12".
7. CONCRETE SHALL BE 4500 P.S.I. MINIMUM AT 28 DAYS. CONCRETE SHALL BE AIR ENTRAINED WITH AN AIR CONTENT BETWEEN FOUR AND SIX PERCENT (5% - 7%).
8. CONCRETE SLUMP SHALL MEET REQUIREMENTS OF FOUNDATION SPECIFICATIONS. THE CONTRACTOR SHALL MAKE OR HAVE MADE A MINIMUM OF ONE(1) SLUMP TEST, IN ACCORDANCE WITH ASTM C-143, FOR EACH TRUCKLOAD OF CONCRETE DELIVERED.
9. CONCRETE COVER OVER REINFORCING RODS SHALL BE THREE INCHES (3") MINIMUM, UNLESS OTHERWISE NOTED.
10. ALL CONCRETE TO BE THOROUGHLY VIBRATED DURING PLACEMENT INTO FORMS TO ENSURE ALL VOIDS ARE FILLED.
11. ALL WALLS SHALL BE CHAMFERED ONE INCH (1") AROUND ALL TOP EDGES.
12. AFTER INSTALLATION, THE OIL CONTAINMENT SYSTEM SHOULD BE CHECKED REGULARLY BY THE OWNER TO ENSURE ALL EQUIPMENT IS IN PROPER WORKING ORDER.
13. THE OIL SENSING DEVICE SHOULD BE TESTED REGULARLY BY THE OWNER ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND REPLACED IF NECESSARY.
14. SEE DRAWING OC2 OF 3 FOR TRANSFORMER PAD ELEVATIONS.
15. ALL LINES SHALL HAVE MINIMUM SLOPES AS INDICATED BY INVERT ELEVATIONS SHOWN ON DRAWING OC2 OF 3.
16. OIL CONTAINMENT SYSTEM DESIGN SHOWN IS IN ACCORDANCE WITH RECOMMENDATIONS OF EPA 40 CFR 112.
17. ESTABLISH POSITIVE DRAIN TO OUTLETS. NOTE ELEVATIONS SHOWN IN PITS. SEE DRAWING OC2 OF 3.
18. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATIONS AND DEPTHS OF ANY EXISTING UNDERGROUND DUCT BANKS, CABLE TRENCHES, CONDUITS, CABLES ETC. TO ENSURE THAT THE EXISTING LOCATIONS AND DEPTHS DO NOT INTERFERE WITH THE INSTALLATION OF THE OIL CONTAINMENT SYSTEM.
19. ALL CONTROL/ELECTRICAL CONDUITS ARE TO BE SCHEDULE 40 PVC. SIZE AS SHOWN ON DRAWING.
20. CONTRACTOR IS RESPONSIBLE TO COORDINATE INSTALLATION OF ANY CONDUITS LOCATED UNDERNEATH OR PROTRUDING THROUGH FOUNDATIONS. SEE CONDUIT PLAN AND DETAILS FOR CONDUIT LOCATIONS.
21. A CONCRETE BONDING AGENT CONFORMING TO ASTM C1059 SHALL BE APPLIED TO ALL ROUGHENED SURFACES PRIOR TO PLACING FRESH CONCRETE.
22. THE CONTRACTOR SHALL PREPARE, OR HAVE PREPARED, IN ACCORDANCE WITH ASTM C-31, FIVE (5) TEST CYLINDERS FROM EACH TRUCKLOAD OF CONCRETE DELIVERED TO THE SITE, WITHIN 20-24 HOURS AFTER BEING PREPARED. THE CYLINDERS SHALL BE DELIVERED TO A QUALIFIED TESTING LABORATORY AND TESTED IN ACCORDANCE WITH THE CONCRETE SPECIFICATIONS AND ASTM C-39. TEST RESULTS ARE TO BE PROVIDED TO THE ENGINEER FOR EVALUATION AND DIRECTION OF CORRECTIVE ACTION IF NEEDED.
23. THE CONTRACTOR SHALL MEET OR EXCEED ALL REQUIREMENTS OF THE CONCRETE SPECIFICATIONS.

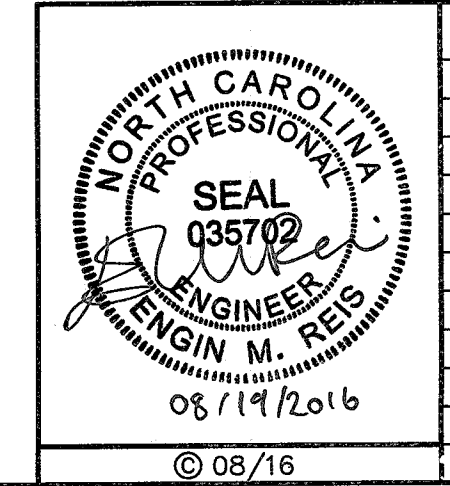
LEGEND:

-  TRANSFORMER FOUNDATION & OIL CONTAINMENT TO BE INSTALLED
-  NEW PIERS
-  NEW PADS
-  FUTURE PADS
-  FUTURE PIERS
-  FENCE TO BE INSTALLED

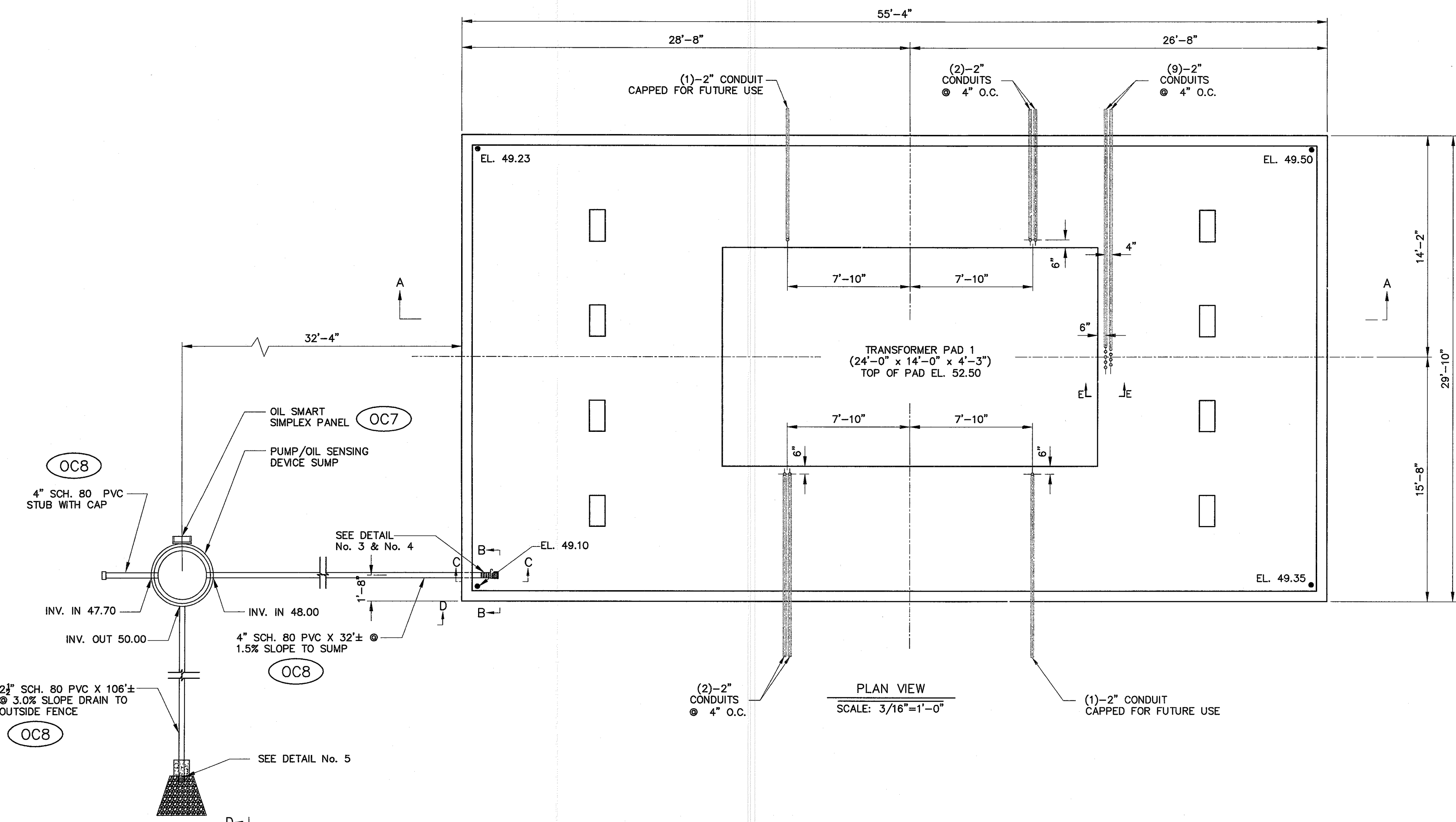
REFERENCES:

FOUNDATION PLAN	14022	FP1 OF 1
OIL CONTAINMENT SYSTEM SECTIONS	14022	OC2 OF 3
OIL CONTAINMENT SYSTEM DETAILS	14022	OC3 OF 3
CONDUIT PLAN	14022	CP1
GROUNDING PLAN	14022	G1 OF 2

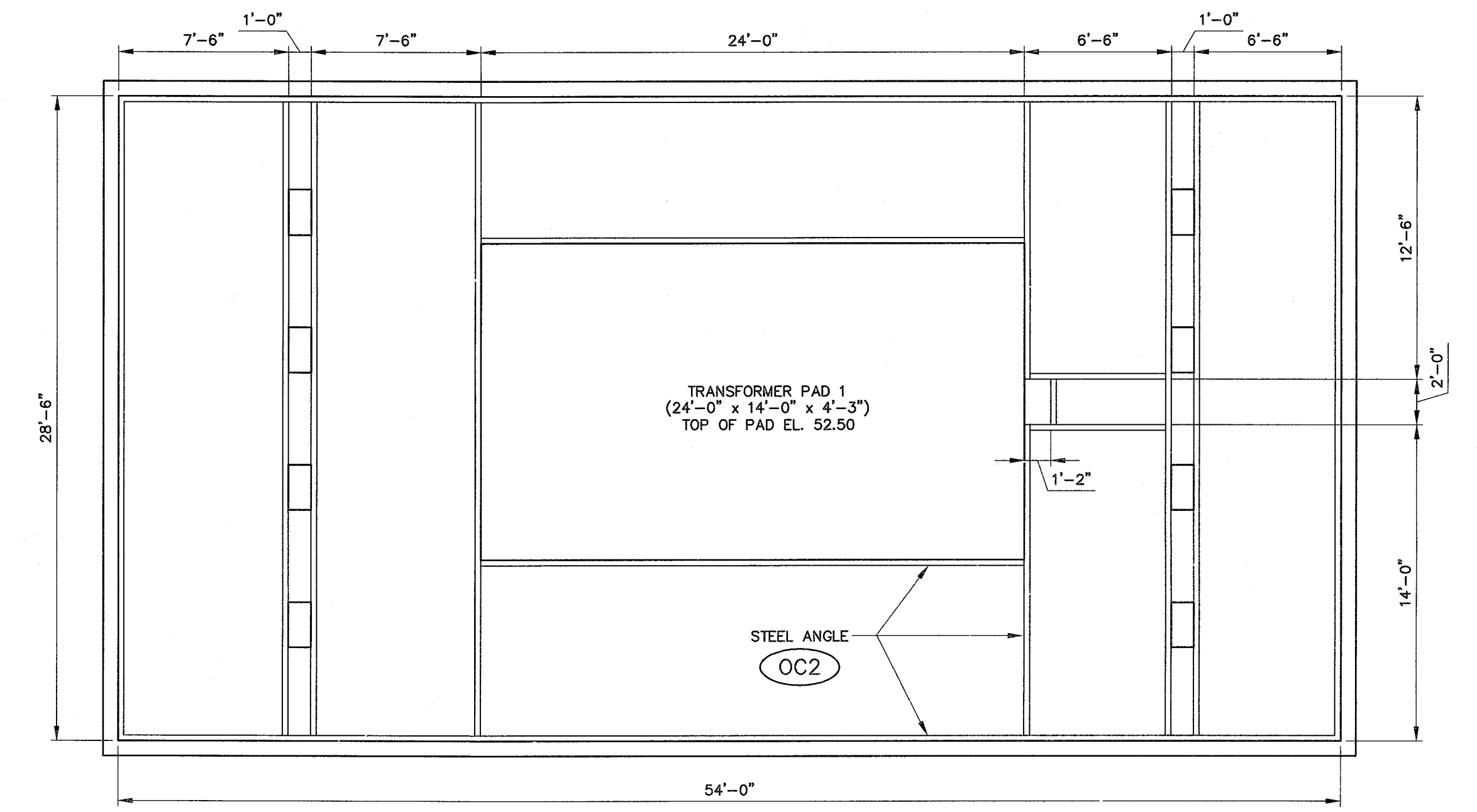
OIL CONTAINMENT PLAN
1/16" = 1'-0"



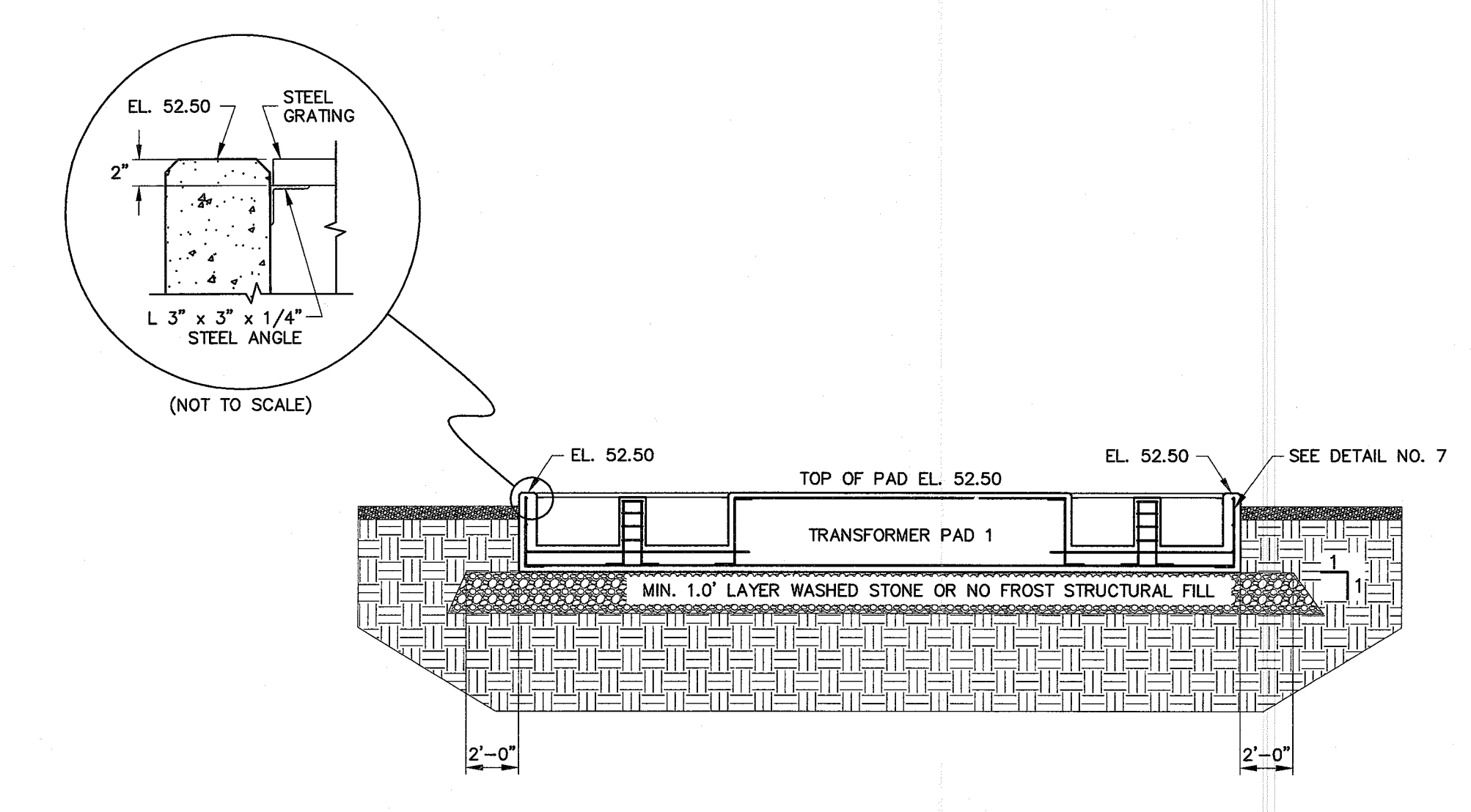
GREENVILLE UTILITIES GREENVILLE, NORTH CAROLINA	
GREENVILLE POD #3 230kV TO 115kV SUBSTATION OIL CONTAINMENT PLAN	
Booth & Associates, LLC <small>201 Cleveland Avenue Raleigh, NC 27602 CONSULTING ENGINEERS</small>	
DWN: AAI	DATE: 8/19/2016
CKD: CAJ	APPD: EMR
NO. REVISIONS	DATE
SCALE: AS NOTED	DWG. NO. OC1 140220C



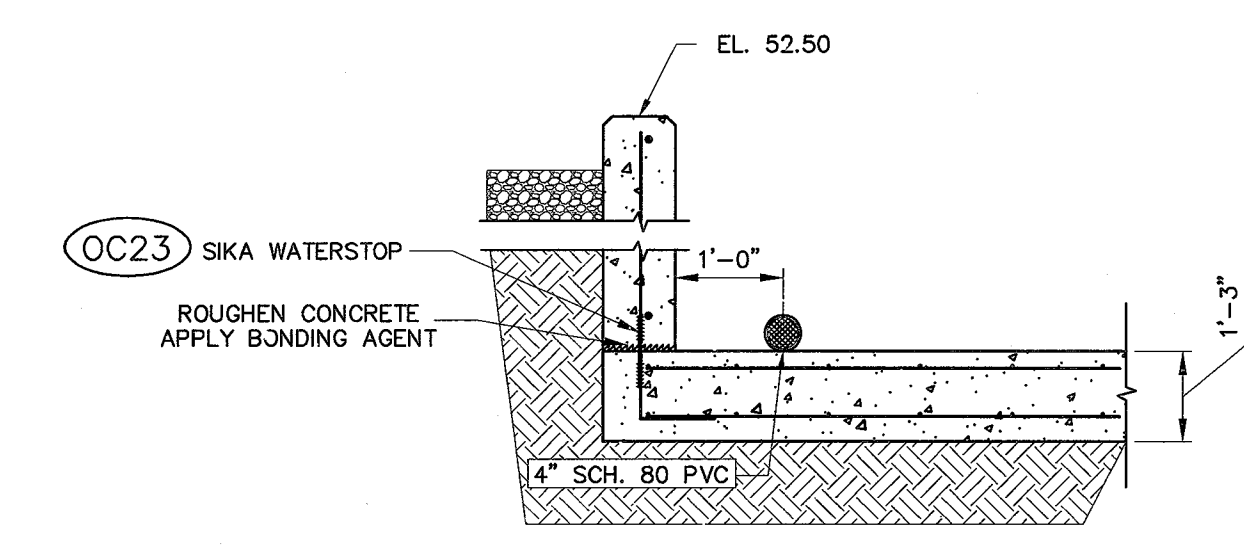
PLAN VIEW
SCALE: 3/16"=1'-0"



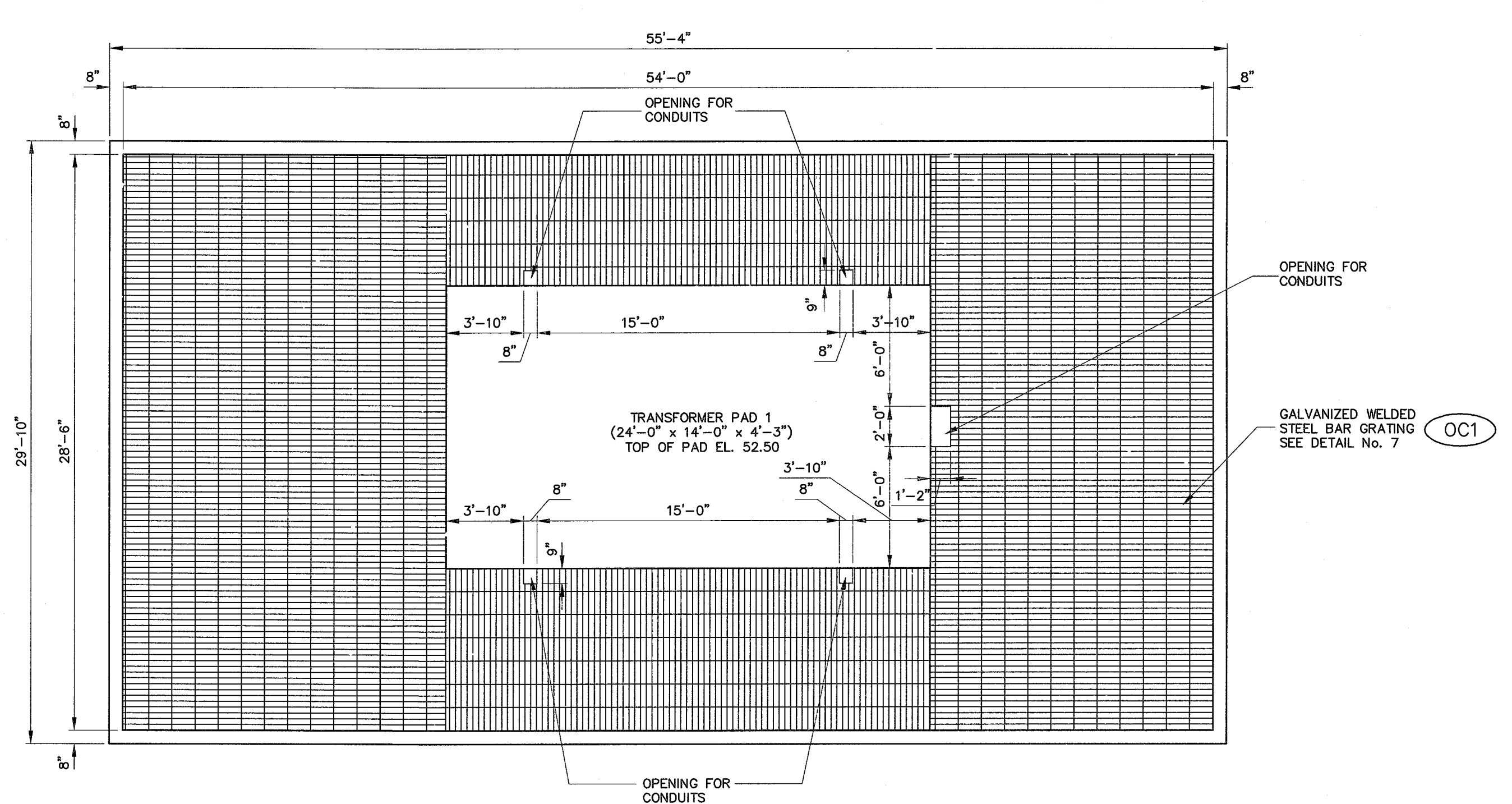
STEEL ANGLE LAYOUT
SCALE: 3/16"=1'-0"



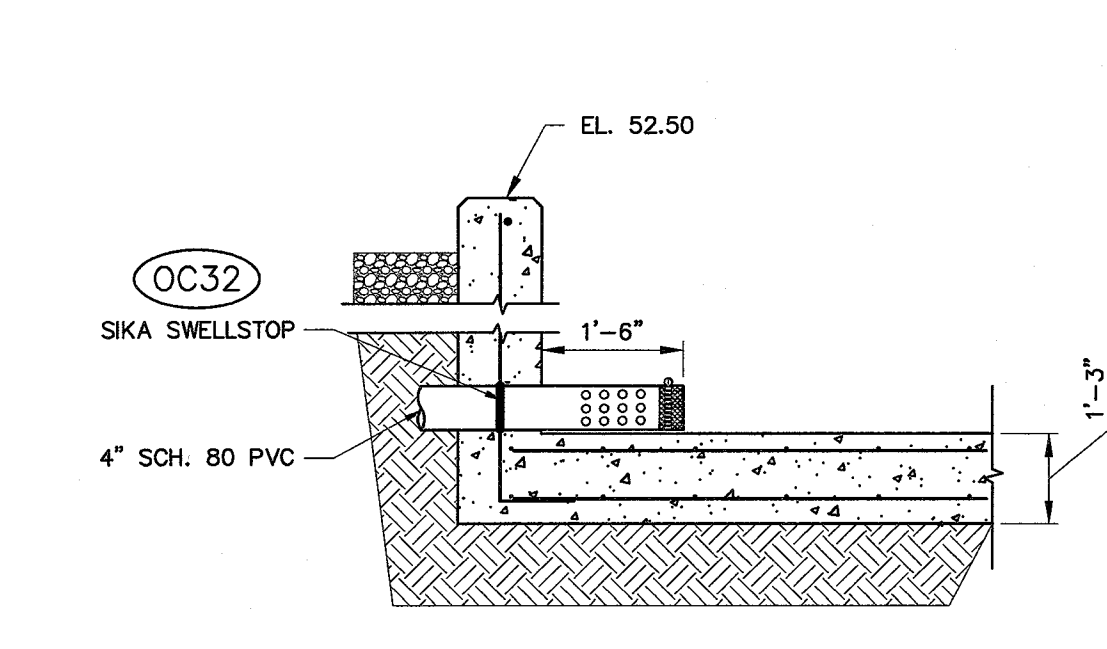
SECTION A-A
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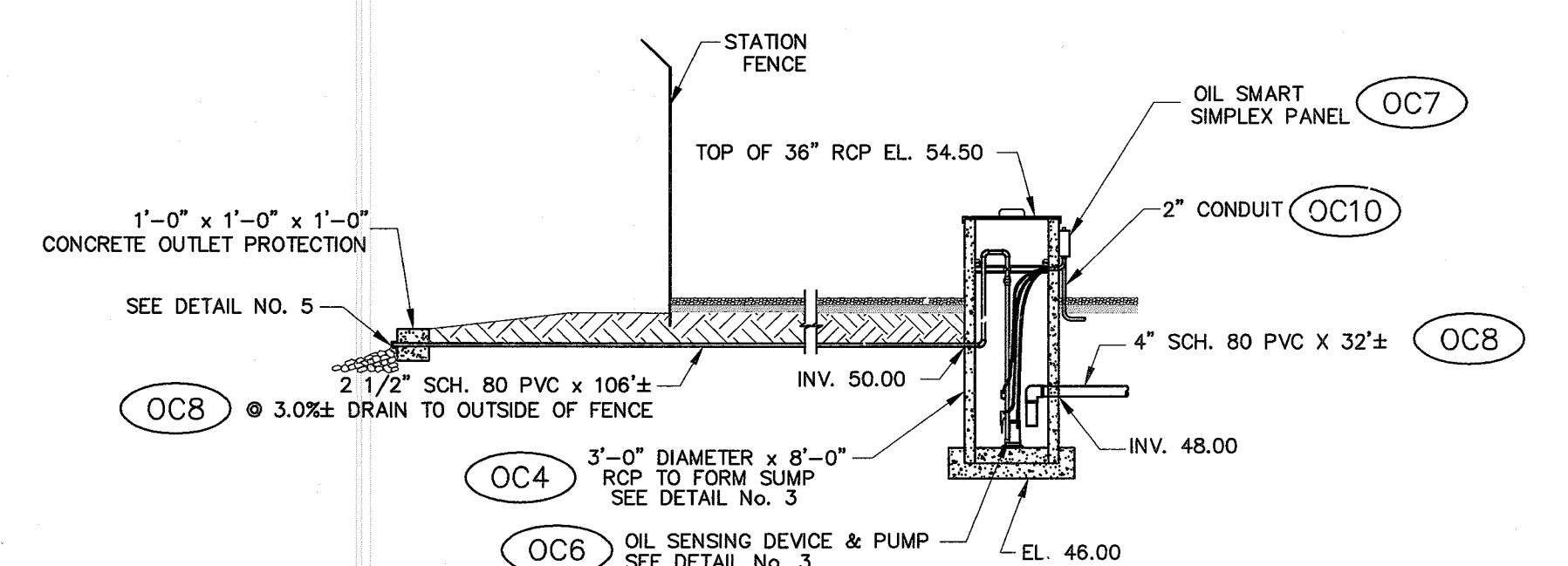
SECTION B-B
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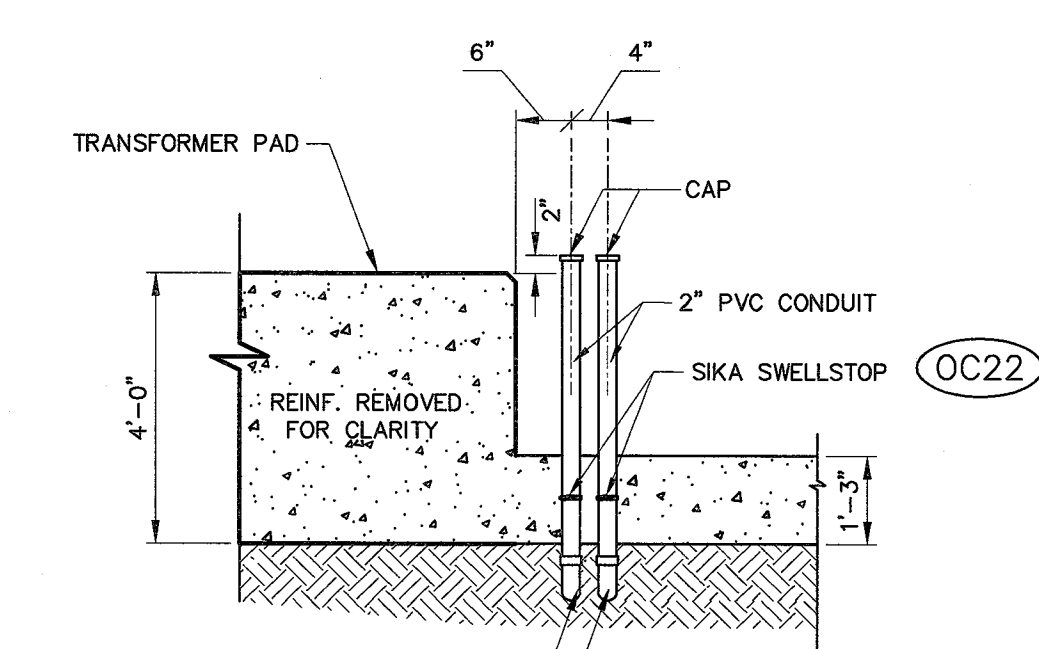
GRATING LAYOUT
SCALE: 3/16"=1'-0"



SECTION C-C
(NOT TO SCALE)



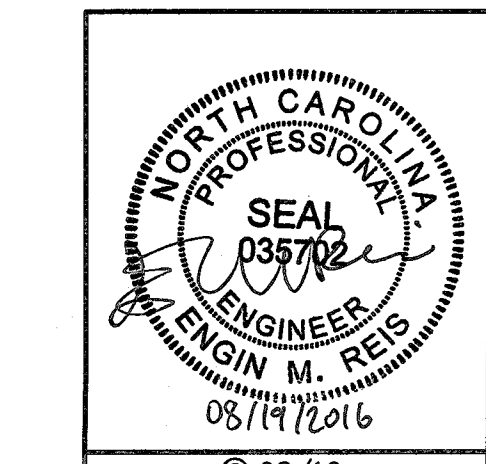
SECTION D-D
(NOT TO SCALE)



SECTION E-E
(NOT TO SCALE)

REFERENCES:

FOUNDATION PLAN	14022 FPI OF 1
OIL CONTAINMENT SYSTEM PLAN	14022 OCI OF 3
OIL CONTAINMENT SYSTEM DETAILS	14022 OC3 OF 3
CONDUIT PLAN	14022 CFI
GROUNDING PLAN	14022 G1 OF 2



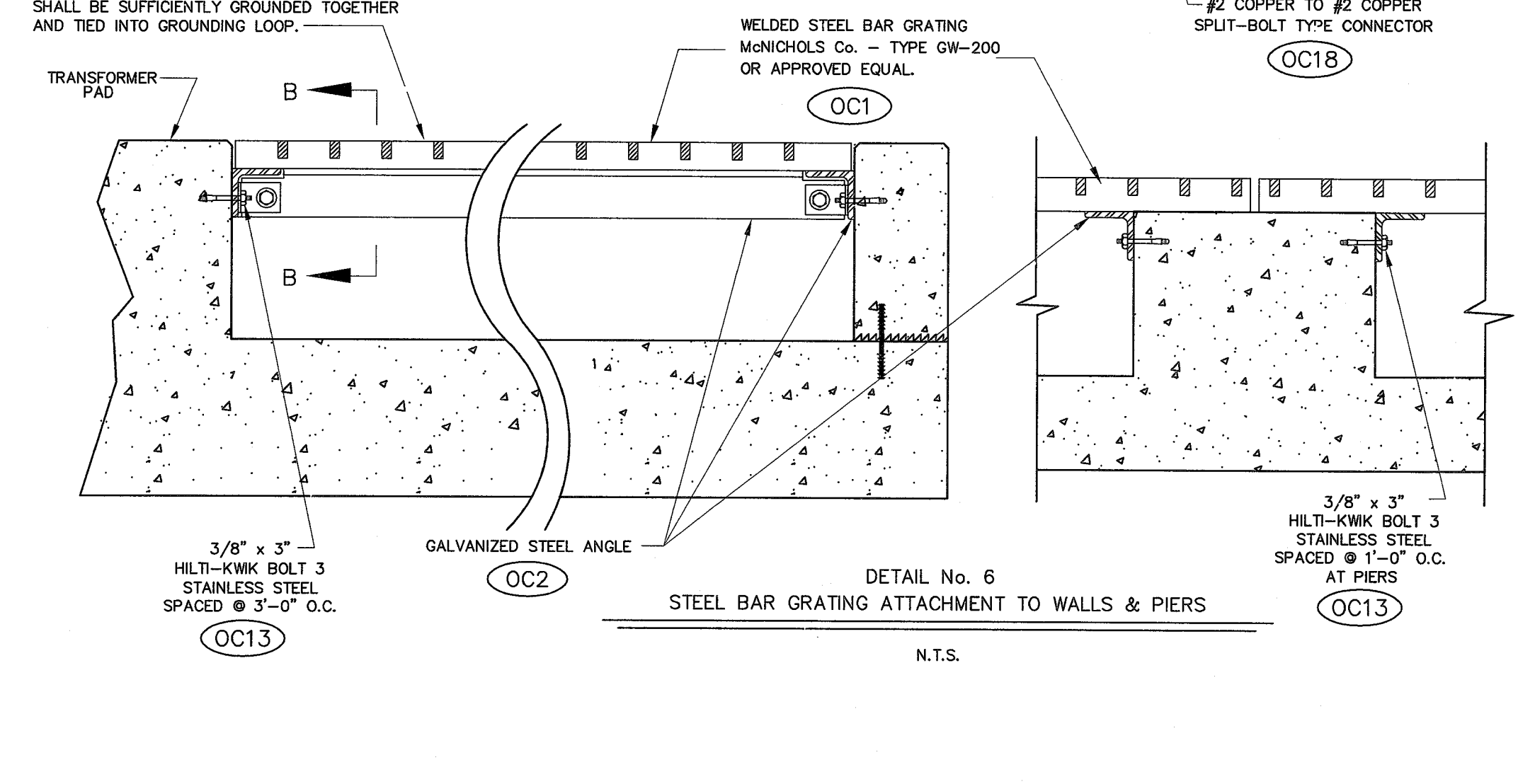
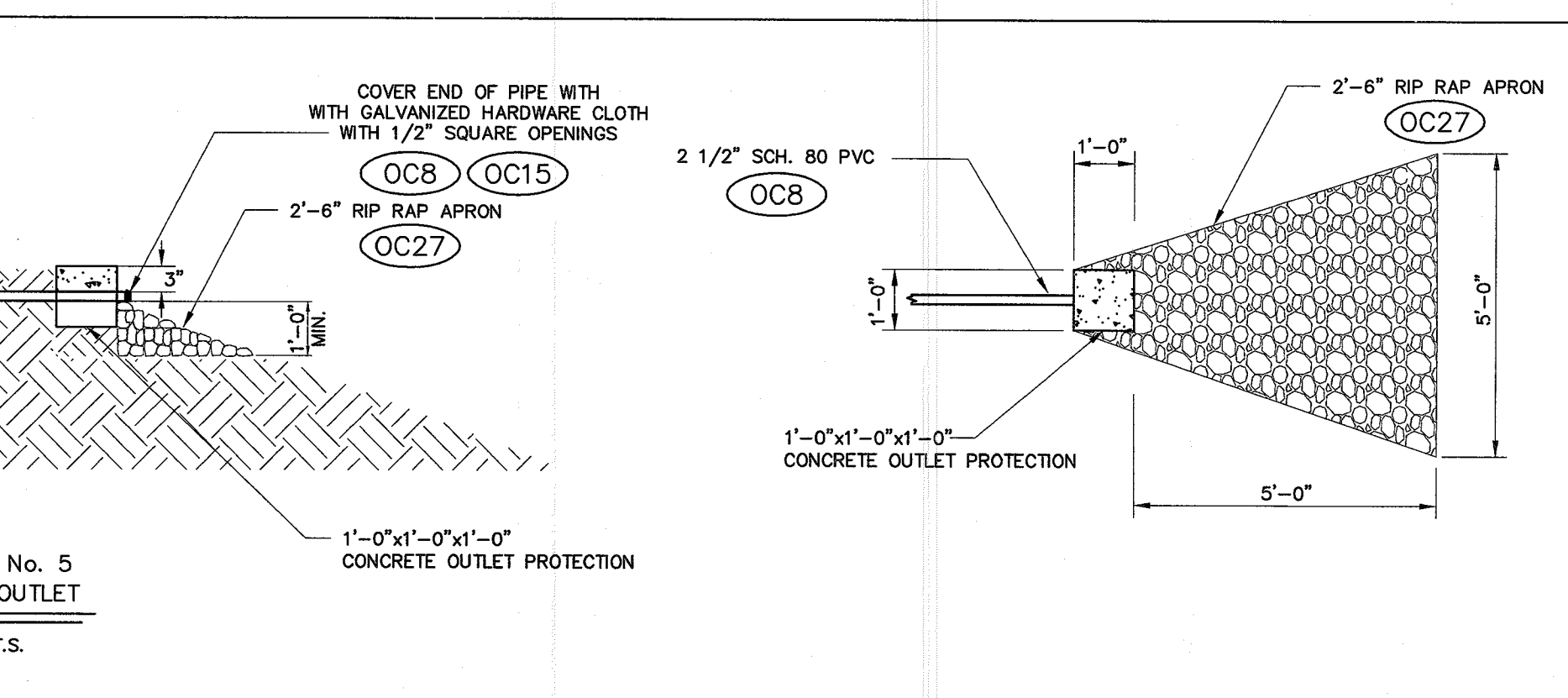
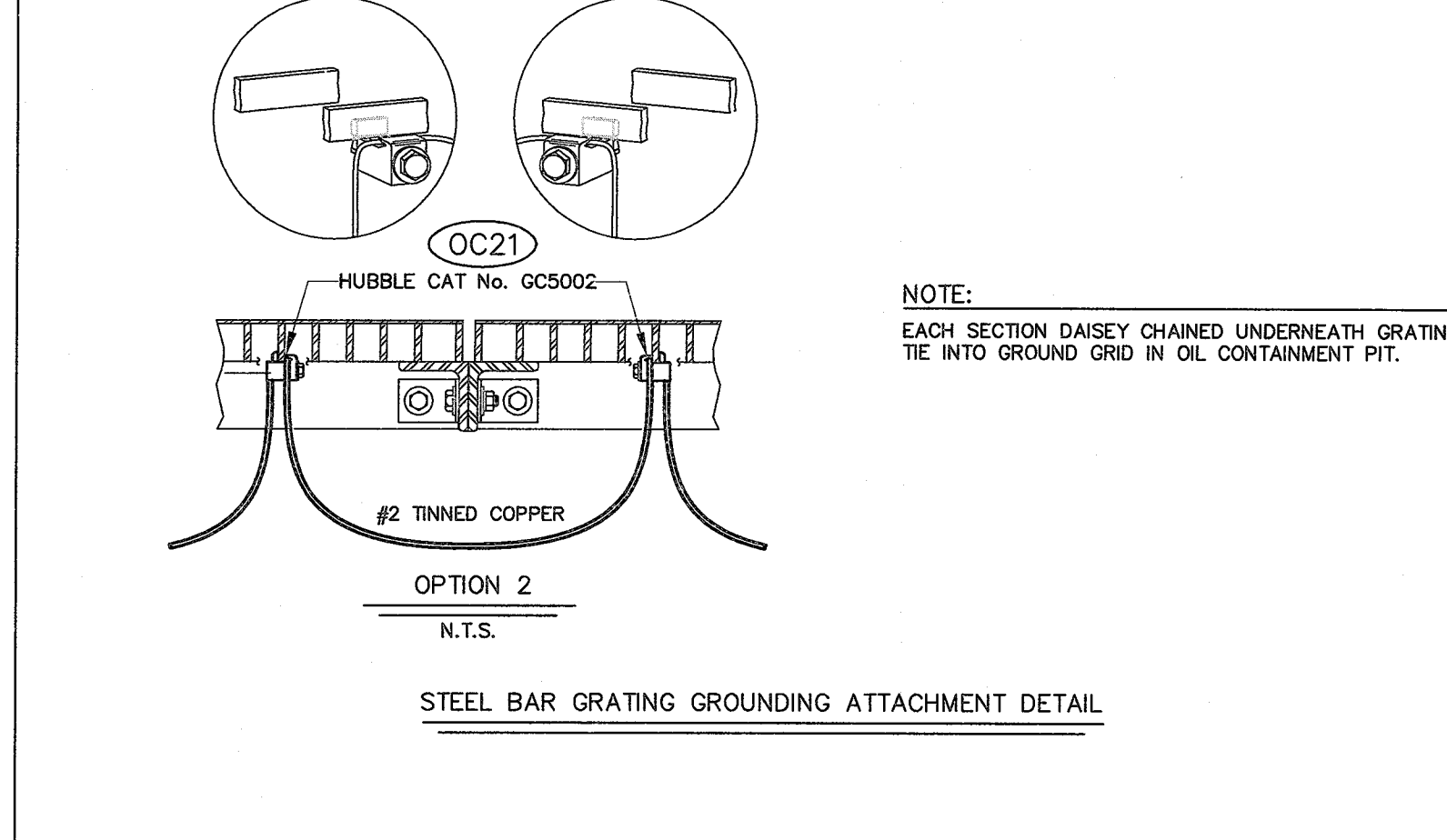
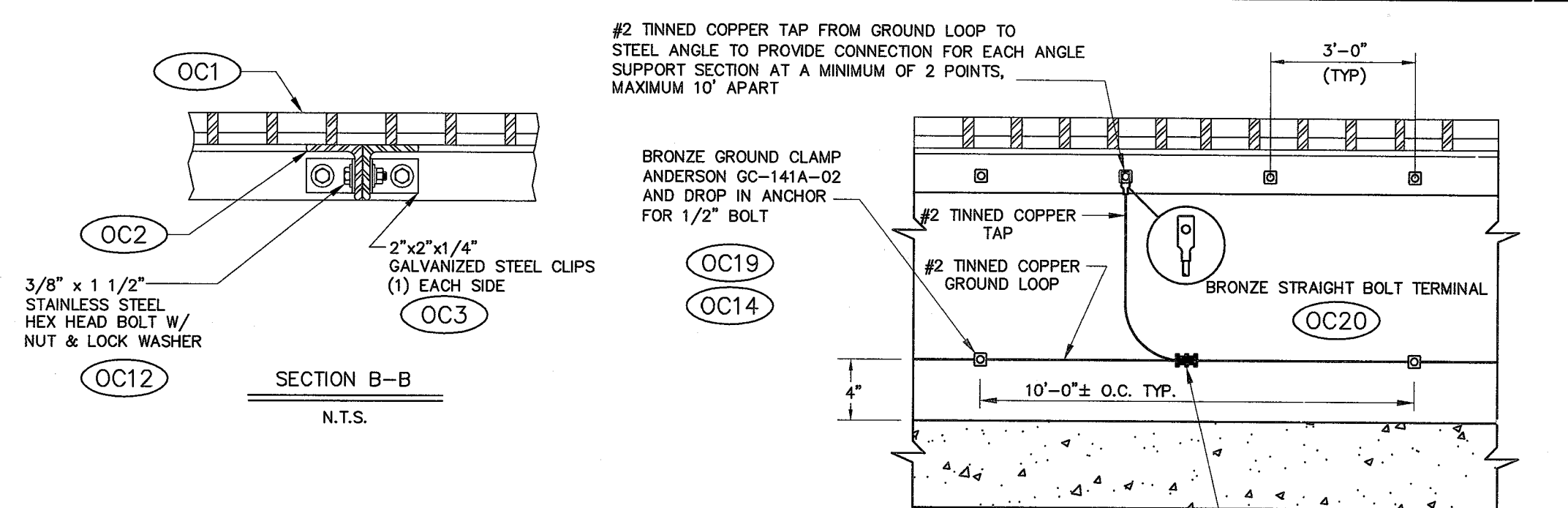
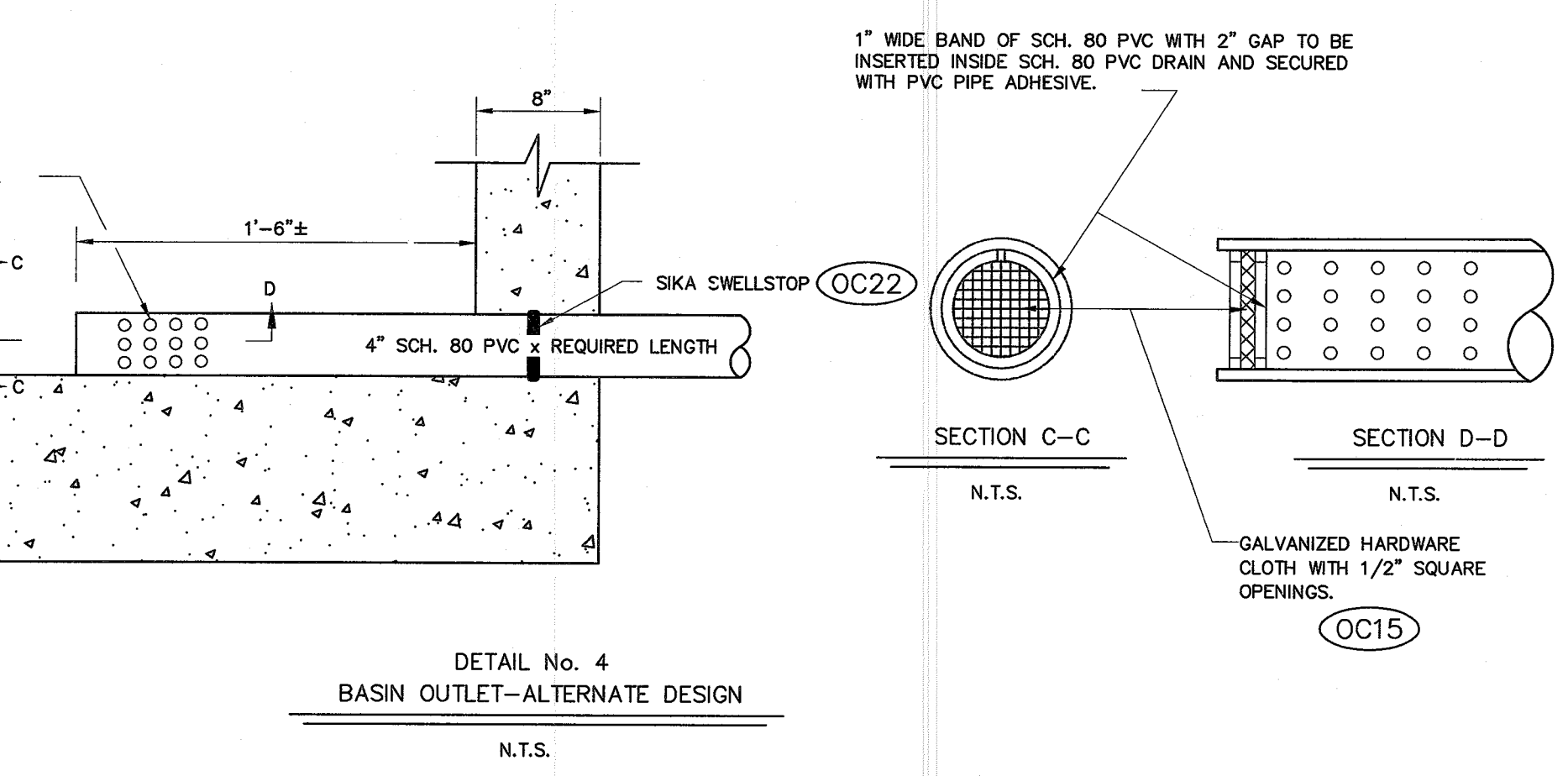
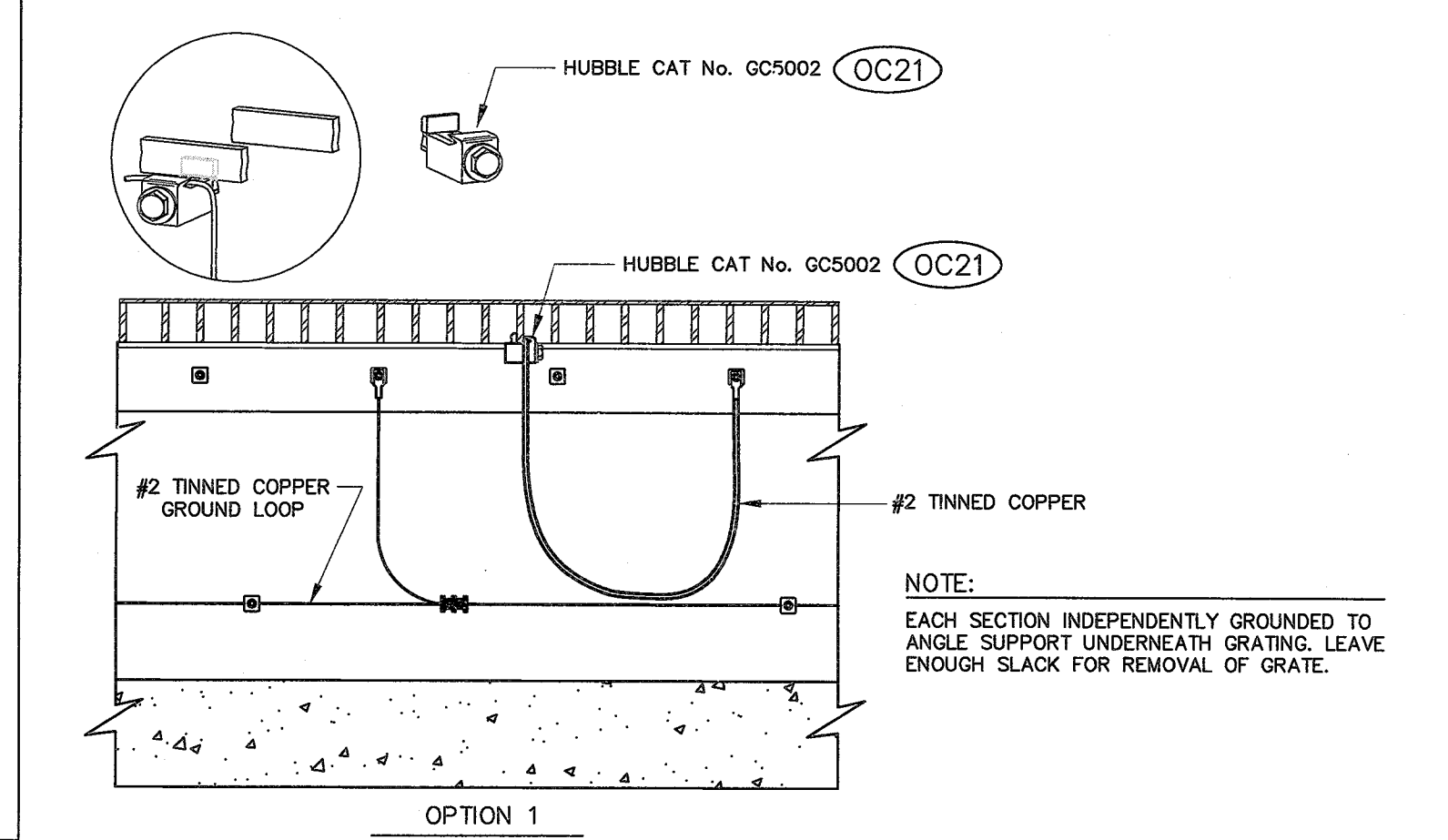
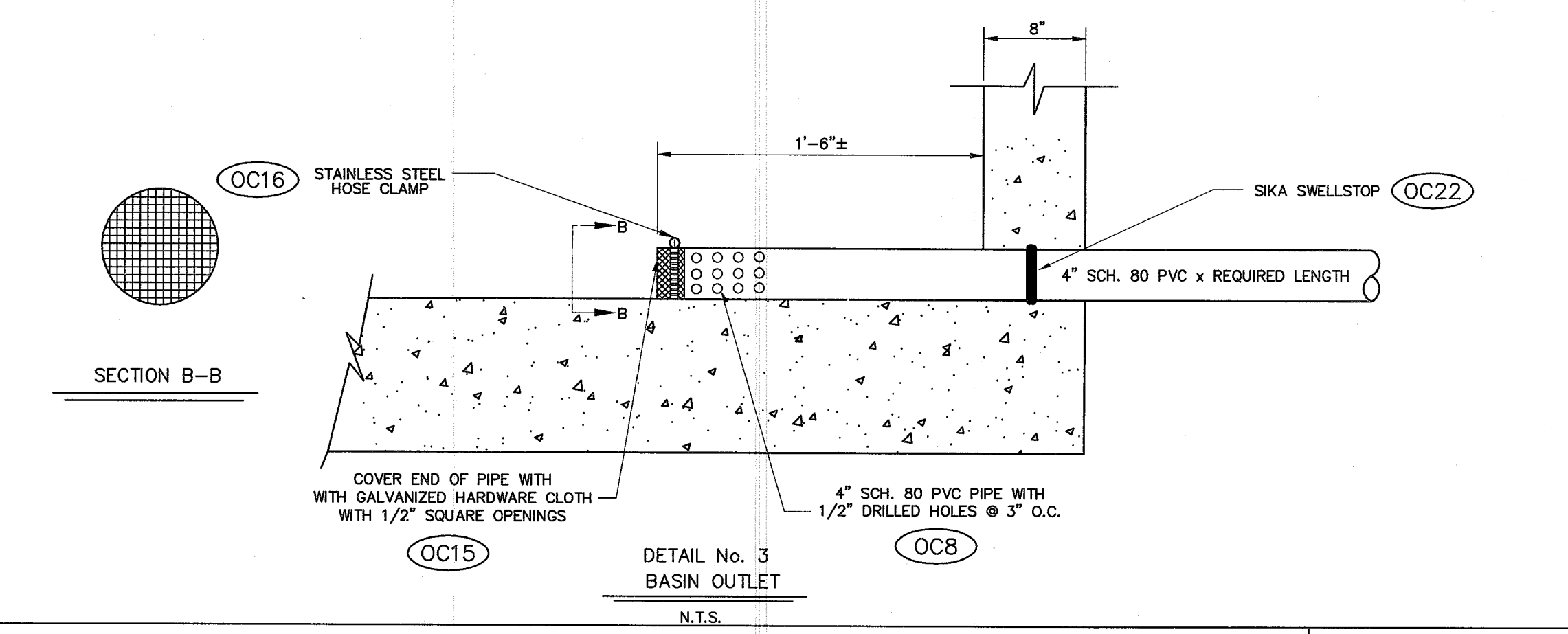
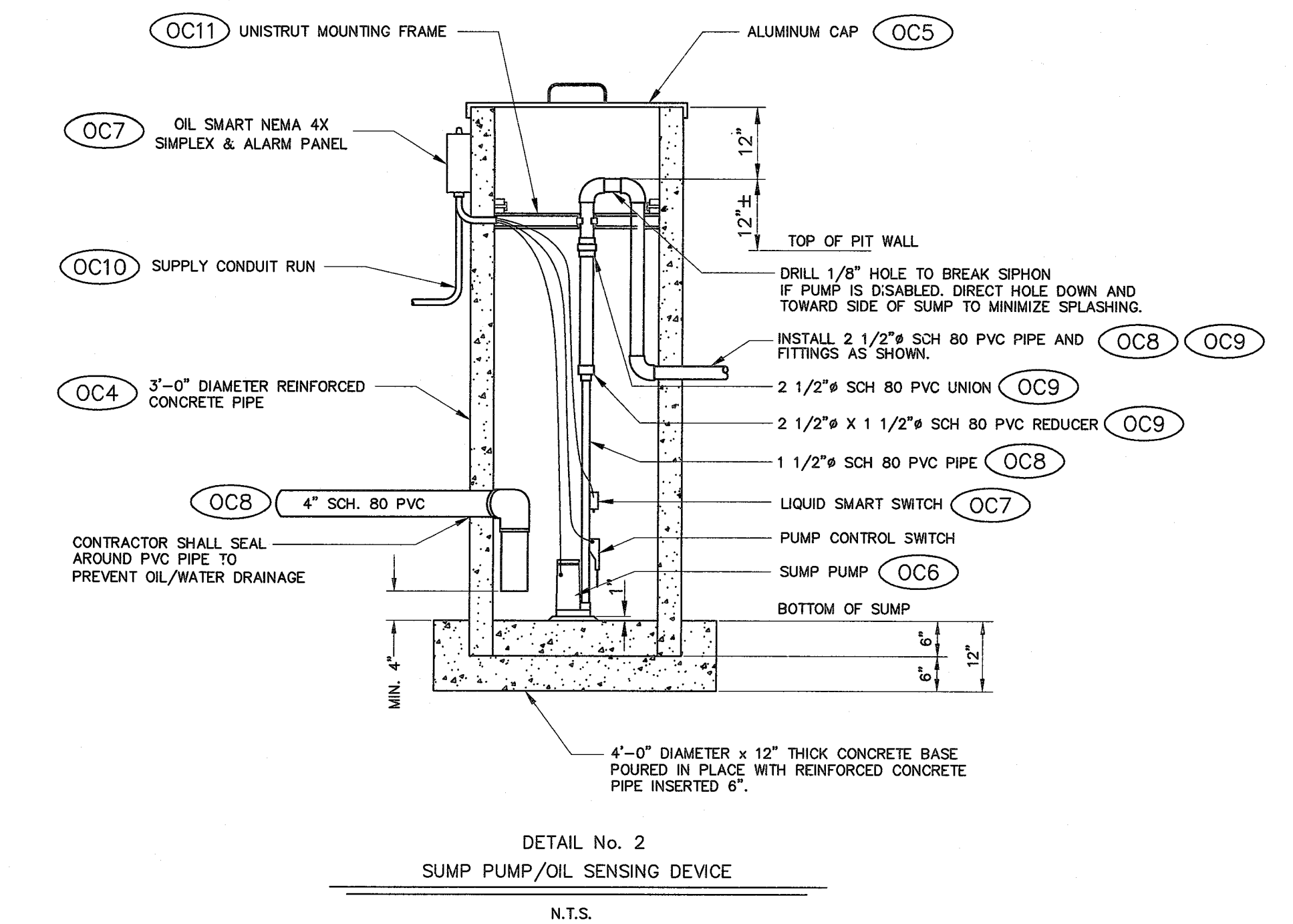
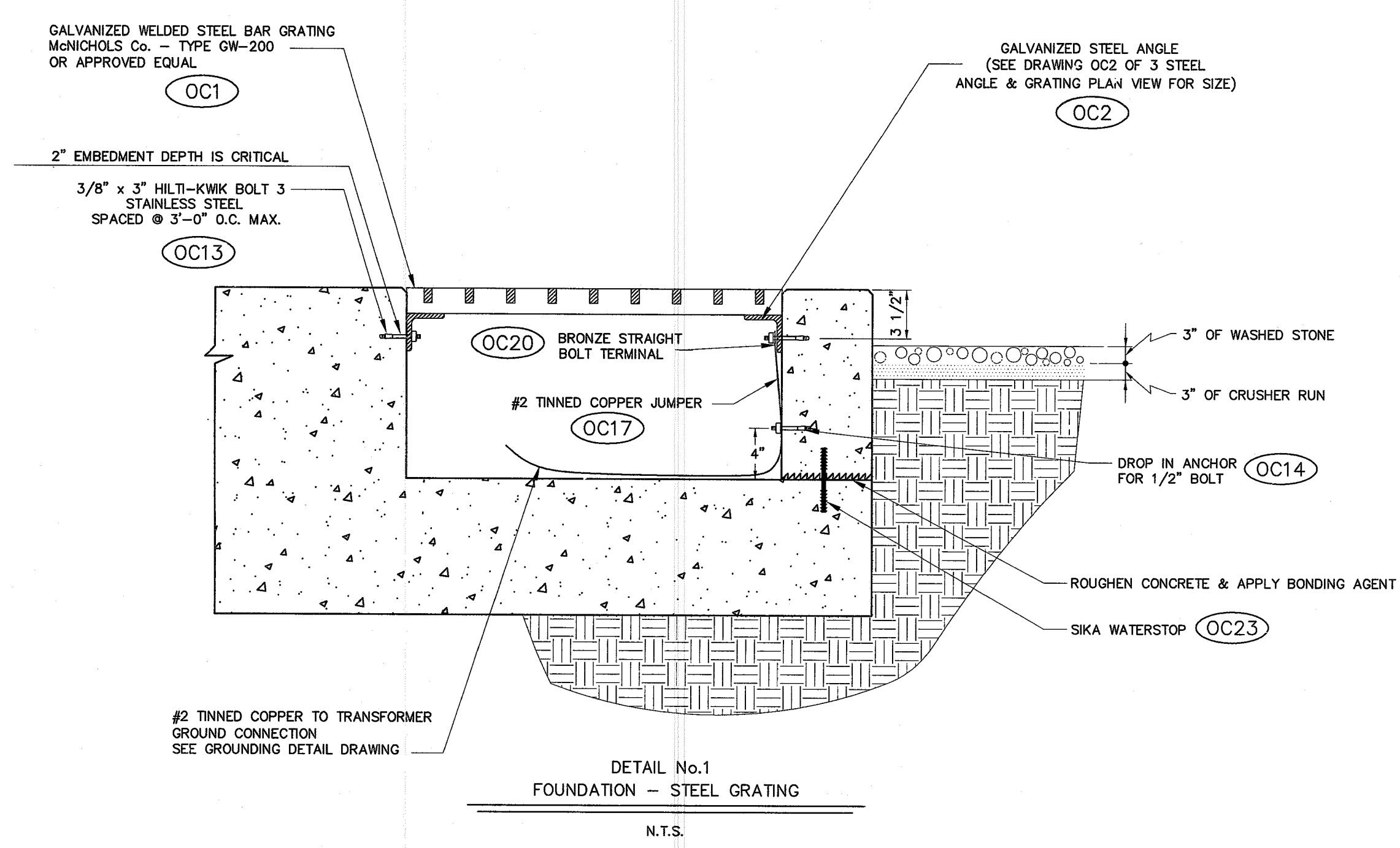
GREENVILLE UTILITIES
GREENVILLE, NORTH CAROLINA

GREENVILLE POD #3
230kV TO 115kV SUBSTATION
OIL CONTAINMENT DETAILS

Booth & Associates, LLC
1811 Quailwood Avenue | Raleigh, NC 27613 | CONSULTING ENGINEERS

DWN. AAI	DATE: 8/19/2016	DWG. NO.
CKD. CAJ	APPD. EMR	OC2
SCALE: AS NOTED		14022OC

NO. REVISIONS DATE



REFERENCES:

- FOUNDATION PLAN 14022 FP1 OF 1
- OIL CONTAINMENT SYSTEM PLAN 14022 OC1 OF 3
- OIL CONTAINMENT SYSTEM SECTIONS 14022 OC2 OF 3
- CONDUIT PLAN 14022 CP1
- GROUNDING PLAN 14022 G1 OF 2

		GREENVILLE UTILITIES GREENVILLE, NORTH CAROLINA	
		GREENVILLE POD #3 230kV TO 115kV SUBSTATION OIL CONTAINMENT DETAILS	
		Booth & Associates, LLC <small>211 Greenview Drive Raleigh, NC 27601 CONTRACTING ENGINEERS</small>	
DWN. AAI	DATE: 8/19/2016	DWG. NO.	
CKD. CAJ	APPD. EMR	OC3	
08/19/2016		14022OC	

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