

PRINT DIST. 9443-Y-149203 3 2

REVISIONS  
 REV. W.O. 0 10969  
 FIRST ISSUE

BILL OF MATERIAL			
ITEM NO.	NO. REQUIRED	DESCRIPTION	MFR. CAT. NO. OR U.L. STOCK NO.
1	1350'	4/0 WIRE, COPPER, BARE, 19 STRAND, SOFT DRAWN	18 52 031
2	30	1/0 WIRE, COPPER, BARE, 7 STRAND, SOFT DRAWN	18 52 026
3	12	BRONZE SPLIT BOLT CONNECTOR	ANDERSON TYPE C OR EQUAL
4	8	5/8" X 8' LONG GROUND ROD	COPPER BOND 23 63 124
5	2	4' X 4' GROUND MAT	18 16 099
6	4'	1/8" X 1' FLEXIBLE BRAID	18 66 065
7	5	1" BRAID TO 2" O.D. PIPE, GROUND CLAMP	ANDERSON GC-109-06
8	7	4/0 TO 2 1/2" O.D. PIPE, GROUND CLAMP	ANDERSON GC-110-82C
9	5	4/0 TO 2 3/8" O.D. PIPE, GROUND CLAMP	ANDERSON GC-110-102C
10	4	4/0 TO 4" O.D. PIPE, GROUND CLAMP	ANDERSON GC-110-142C
11	8	4/0 TO 5/8" GROUND ROD, CADWELD TYPE GT, CARTRIDGE SIZE I15	22 02 347
12	2	4/0 TO 1/0 SOLID, CADWELD TYPE TA, CARTRIDGE SIZE I15	22 02 347
13	40	4/0 TO 4/0, CADWELD TYPE TA, CARTRIDGE SIZE I50	22 02 346
14	7	4/0 TO 4/0, CADWELD TYPE XB, CARTRIDGE SIZE 250	22 02 357
15	12	4/0 TO FLAT (VERTICLE), CADWELD TYPE VB, CARTRIDGE SIZE I50	22 02 346
16	5'	FLEXIBLE JUMPER	CADWELD TYPE FJ
16		2" 36"R 90° PLASTIC BEND, W/COUPLING	12 51 180
17		3" 36"R 90° PLASTIC BEND, W/COUPLING	12 51 173
18		3" 24"R 90° PLASTIC BEND, W/COUPLING	12 51 253
19		2" 36"R 45° PLASTIC BEND, W/COUPLING	12 51 235
20		1" 18"R 90° PLASTIC BEND, W/COUPLING	12 51 236
21		2C #10 UF DIRECT BURIAL W/GROUND CONNECTOR	18 61 064
22		2" CONDUIT, PLASTIC, TYPE DB, W/COUPLING	12 01 178
23		3" CONDUIT, PLASTIC, TYPE DB, W/COUPLING	12 01 152

NUMBER REQUIRED PRIOR TO LATEST REVISION  
 NUMBER REQUIRED PER LATEST REVISION  
 FOR CONTRACTORS REFERENCE ONLY

LEGEND

	COPPERWELD GROUND MAT 4' X 4' (SEE DETAIL "V")
	COPPERWELD GROUND ROD 5/8" X 15' LONG
	CADWELD PROCESS
	GROUND WIRE, 4/0 COPPER, UNLESS OTHERWISE NOTED
	POWER CONDUIT ENCASED IN CONCRETE
	3" CONTROL CONDUIT, PLASTIC
	2" CONTROL CONDUIT, PLASTIC
	4/0 GROUND RISER TO EXTEND 3' ABOVE GROUND
	4/0 GROUND RISER TO EXTEND 6' ABOVE GROUND

**FOR BIDDING ONLY**  
 - FOR CONSTRUCTION -

GROUNDING & CONDUIT PLAN, DETAILS ..... 9443-Y-149204  
 FOUNDATION LOCATION PLAN ..... 9443-Y-149195  
 PROPERTY- GRADING, SURFACING, & FENCE ..... 9443-Y-149194  
 POWER DUCT ROUTING ..... 9443-Y-149208



NOTICE OF LIMITED RESPONSIBILITY  
 THE RESPONSIBILITY OF THE UNDERSIGNED ENGINEER IS LIMITED TO THE DESIGN WORK SHOWN ON PROJECT DRAWINGS AND DOCUMENTS BEARING HIS/HER SEAL, SIGNATURE, OR INITIALS. HE/SHE DOES NOT HAVE AUTHORITY OVER THE PROJECT AS A WHOLE. THE UNDERSIGNED DISCLAIMS ANY RESPONSIBILITY FOR WORK DONE UNDER SUBSEQUENT REVISIONS AND ANY OTHER DOCUMENTS ASSOCIATED WITH THE PROJECT WHICH DO NOT BEAR HIS/HER SEAL, SIGNATURE OR INITIALS.

APPROVED FOR CONSTRUCTION  
 JOB NO. INITIALS

STATE OF MISSOURI  
 JOHN ANTHONY WILLIAMSON  
 E-19453

DRAWN 07-05-00 M.S.M.  
 CHKD. NOT SUPV.  
 APPD. 7/15/00  
 LOCATION 004726

PREPARED FOR Ameren UE

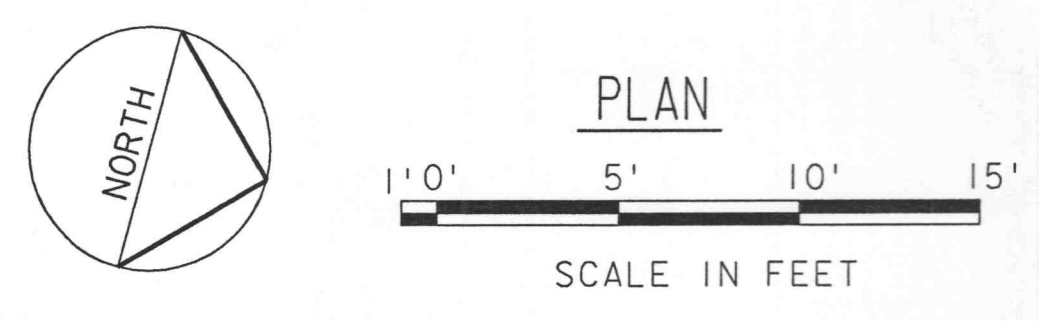
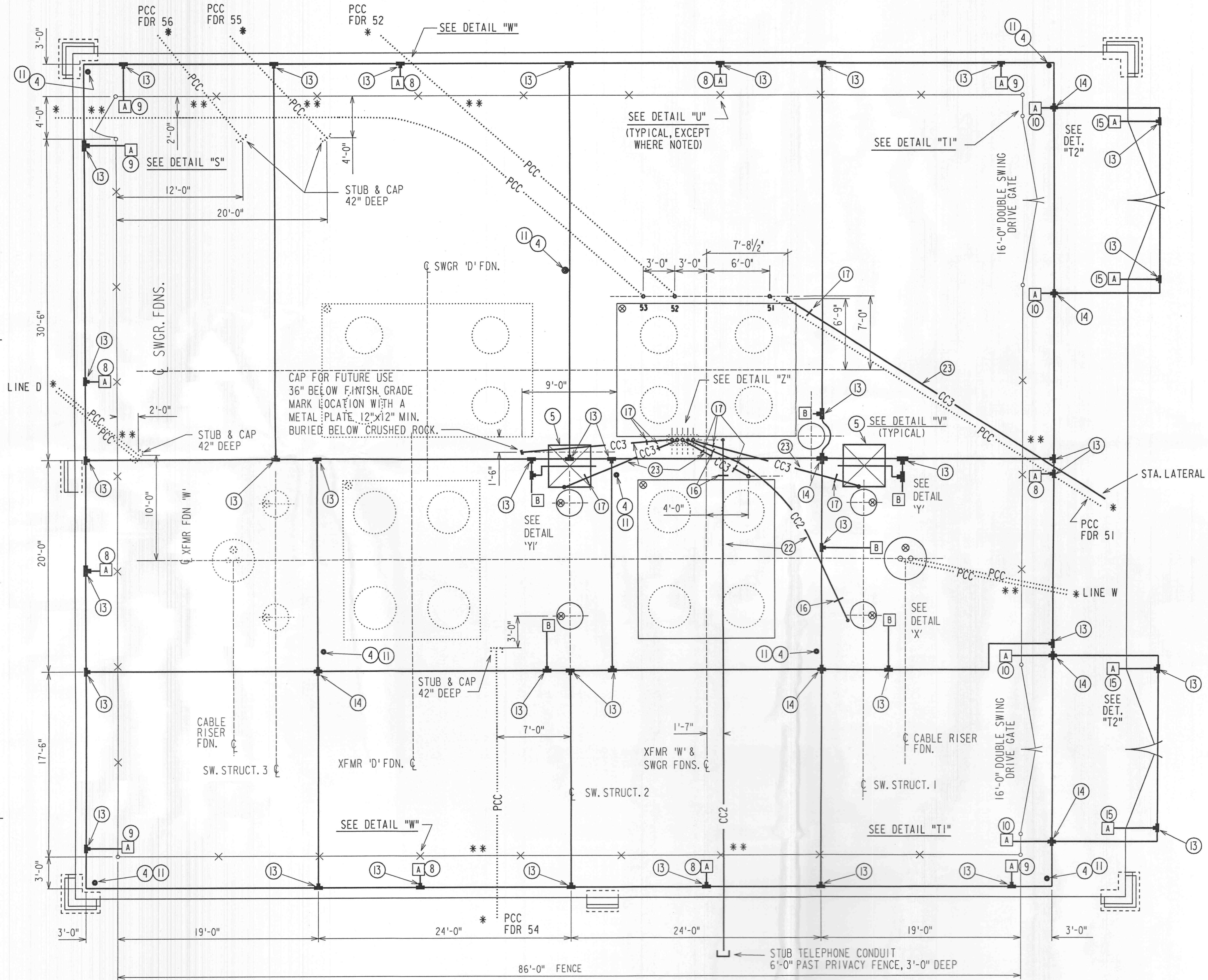
GROUNDING AND CONDUIT PLAN

WINGHAVEN SUBSTATION

CLASS 10020

ST. LOUIS, MISSOURI 9443-Y-149203

REV. 0



CONDUIT NOTES

- \* ALL CONDUIT SHALL BE MARKED WHERE THE CONDUIT CROSSES UNDER THE CHAIN LINK FENCE. MARK THE LOCATION WITH PERMANENT SIGNS ATTACHED TO THE FENCE. A VERTICAL RED LINE (AT LEAST 1" WIDE) SHALL INDICATE THE LOCATION AND LETTERING SHALL INDICATE CONDUIT USE. USES SHALL BE: LINE W (I), LINE D (I), STA. LAT. (I), TELE. (I), FDR XX (6,51-56)
- \*\* FOR CONTINUATION OF POWER CONDUITS SEE DWG. # 9443-Y-149208. ALL DUCTS WHICH ARE STUBBED OFF ABOVE GRADE MUST BE PERFECTLY PLUMB AND SHALL BE TERMINATED WITH A PLUGGED FEMALE COUPLING. THE TOP OF THE FEMALE COUPLING SHALL BE FLUSH WITH THE FINISHED ROCK SURFACE. INSTALL NYLON PULLING ROPES IN ALL DUCTS.

GROUNDING NOTES

1. GROUND GRID TO CONSIST OF GROUND RODS INTERCONNECTED WITH 4/0 BARE COPPER CABLE, UNLESS OTHERWISE NOTED, BURIED APPROXIMATELY TWO (2'-0") FEET BELOW GRADE.
2. CADWELD PROCESS TO BE USED ON ALL UNDERGROUND CONNECTIONS.