LUMINAIRE SCHEDULE

A

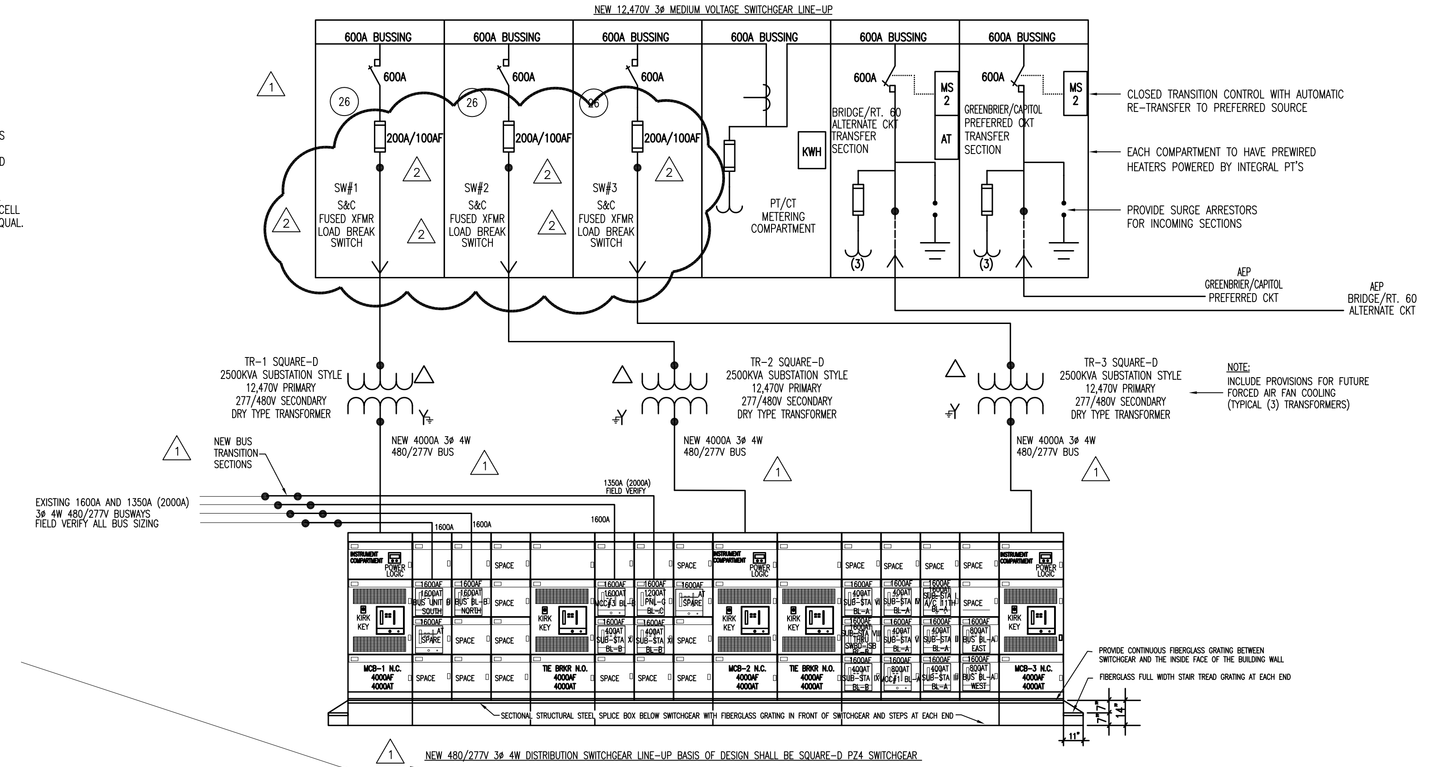
7"WX5"HX4"L VAPORTIGHT FLUORESCENT LUMINAIRE WITH (2) 32WT8 LAMPS METALUX # VT2-232-DR-UNV-EB81 OR APPROVED EQUAL. MOUNT ON UNISTRUT CHANNELS. FIELD LOCATE TO CLEAR ALL CONDUIT, BUSSING AND DUCTWORK.

B

16.5"WX5"HX8.25"D SURFACE MOUNTED CURVED WEDGE WITH (1)32W CFL LAMP, COLD WEATHER EMERGENCY BATTERY PACK, BUTTON TYPE PHOTO CELL CONTROL. LUMARK #PUP-W-32-277E-PE-EM40-277V OR APPROVED EQUAL. MOUNT ABOVE EXIT DOOR.

23.25"W X1.75"H POLYCARBONATE LED EMERGENCY EXIT SIGN WITH TWO UNIT MOUNTED EMERGENCY LAMP HEADS AND SELF DIAGNOSTICS. SURE-LITES # LPXH-7-G-R-WH-DH-SD-WG12, OR APPROVED EQUAL. WALL MOUNT ABOVE DOORS.

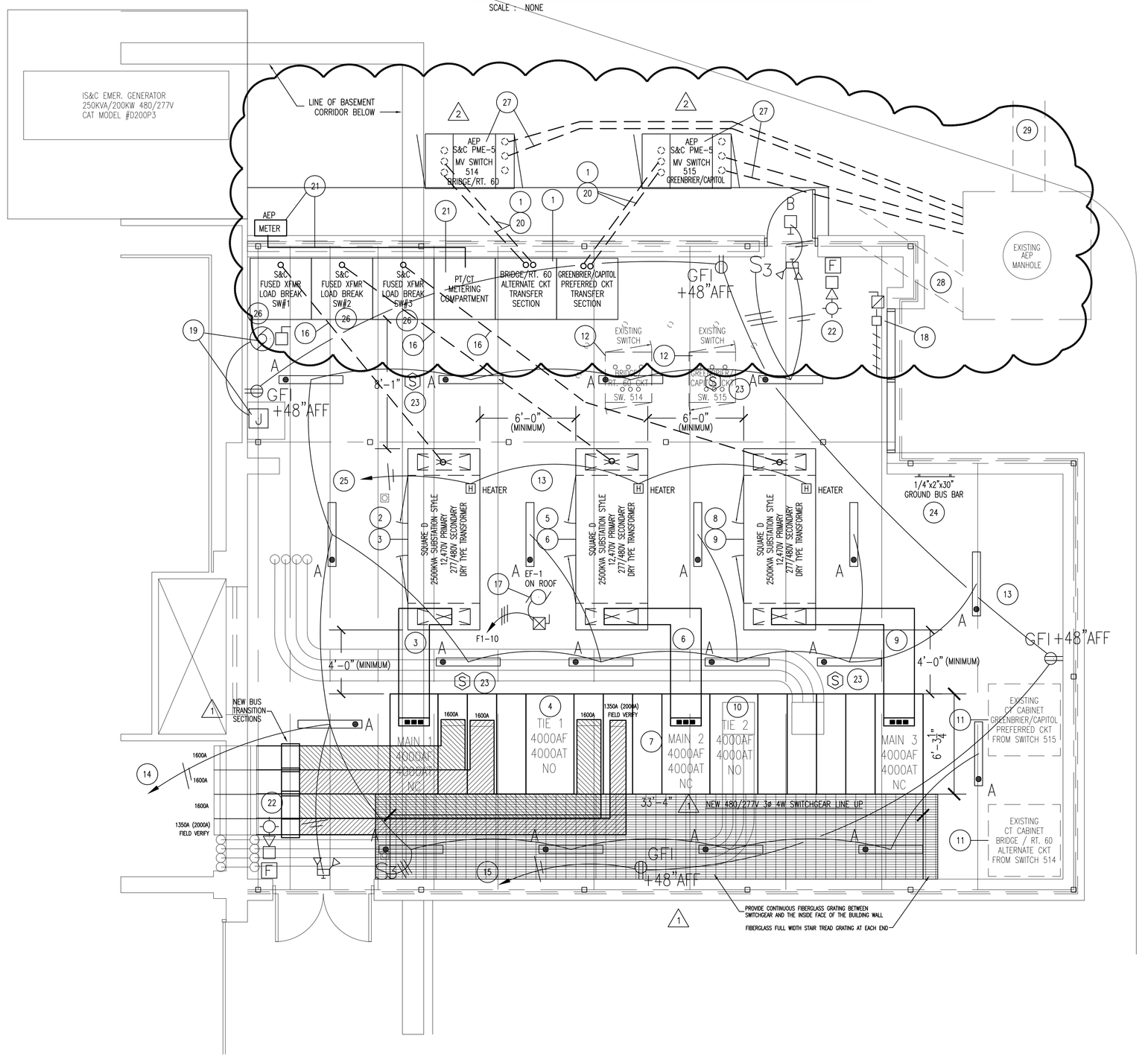
NEW 12,470V 3ø MEDIUM VOLTAGE SWITCHGEAR LINE-UP



NEW 480/277V 3ø 4W DISTRIBUTION SWITCHGEAR LINE-UP BASIS OF DESIGN SHALL BE SQUARE-D P24 SWITCHGEAR

MEDIUM VOLTAGE RISER DIAGRAM

SCALE : NONE



PRE-CONSTRUCTION NOTES

1. THE FOLLOWING SEQUENCE IS A GUIDE TO ASSIST THE NEW INSTALLATION AND REMOVAL OF EXISTING EQUIPMENT FOR CONSTRUCTION OF THE ENCLOSED ELECTRICAL COURTYARD. THE CONTRACTOR MAY REVISE OR DEVIATE FROM THIS SEQUENCE AS NEEDED IN ORDER TO SIMPLIFY CONSTRUCTION, MEET SCHEDULING MILESTONES OR PERFORM TASKS UNDER STRICT TIME CONSTRAINTS AFTER COORDINATING ALL EFFORTS AND GETTING APPROVAL FROM BOTH THE UTILITY COMPANY AND THE OWNER.
2. PRIOR TO ANY WORK, VERIFY THE FACILITY'S TWO (2) POWER SOURCES; BRIDGE/RT. 60 (ALTERNATE) CIRCUIT FED THRU SWITCH #514 AND GREENBRIER/CAPITOL (PREFERRED) CIRCUIT FED THRU SWITCH #515. CONFIRM THE FACILITY SOURCE AND COORDINATE ALL PHASES OF CONSTRUCTION ACCORDINGLY. NOTE, AT TIME OF DESIGN, SWITCH #514 BRIDGE/RT. 60 (ALTERNATE) CIRCUIT WAS THE UTILIZED OPERATING SOURCE.
3. THE FACILITY MUST REMAIN IN OPERATION THROUGHOUT THE DURATION OF DEMOLITION AND NEW CONSTRUCTION, WHICH OCCURS SIMULTANEOUSLY. ANY POWER OUTAGE MUST BE KEPT TO AN ABSOLUTE MINIMUM, ALTHOUGH LIFE SAFETY SHALL BE THE PRIMARY CONSIDERATION. ALL POWER OUTAGES SHALL BE PRE-APPROVED BY THE OWNER AND COORDINATED WITH THE UTILITY COMPANY.
4. THE CONTRACTOR SHALL SUBMIT A PROPOSED 480 VOLT DISTRIBUTION SWITCHGEAR SEQUENCING OF DEMOLITION AND INSTALLATION TO THE ARCHITECT AND THE OWNER FOR REVIEW AT THE TIME OF SWITCHGEAR SHOP DRAWING SUBMISSION.
5. SCHEDULE A QUALIFIED FACTORY SERVICE TECHNICIAN TO FIELD MEASURE THE EXISTING BUS DUCT CONFIGURATION BETWEEN EACH DISTRIBUTION BUSWAY AND THE 480V DISTRIBUTION GEAR. FABRICATE A NEW BUS TRANSITION TO TIE ONTO THE REMAINING BUS FROM THE 480V DISTRIBUTION GEAR.

KEYED CONSTRUCTION NOTES

1. INSTALL NEW SWITCHGEAR AND CONCRETE PAD COMPLETE WITH UNDERGROUND CONDUITS STUBBED INTO ALTERNATE AND PREFERRED SWITCHGEAR TRANSFER SECTIONS. UTILITY COMPANY SHALL PROVIDE CONDUCTORS FOR BRIDGE/RT. 60 (ALTERNATE) CIRCUIT AND GREENBRIER/CAPITOL (PREFERRED) CIRCUIT AND ENERGIZE THE LINE SIDE OF SWITCHGEAR. COORDINATE ALL WORK WITH THE OWNER AND UTILITY COMPANY.
2. 2 OPEN MAIN BREAKER #1 IN EXISTING 480V DISTRIBUTION GEAR, CLOSE TIE-BREAKER #1 BETWEEN MAIN BREAKER #1 AND MAIN BREAKER #2. REMOVE EXISTING TRANSFORMER TR-1 ALONG WITH ITS ASSOCIATED OVERHEAD BUS DUCT, CONCRETE PAD AND TWO SETS OF FEEDERS.
3. 2 PROVIDE CONCRETE BASE FOR NEW TRANSFORMER TR-1. INSTALL NEW TRANSFORMER ONTO BASE AND PROVIDE UNDERGROUND CONDUIT AND FEEDER CONDUCTORS FROM LOAD BREAK SWITCH #1 TO PRIMARY SIDE OF TRANSFORMER. INSTALL NEW 4000A 3ø 4W BUS DUCT FROM SECONDARY SIDE OF TRANSFORMER TO NEW MAIN #1 IN NEW 480V SWITCHGEAR. SUPPORT OVERHEAD BUS RISERS FROM STRUCTURE ABOVE.
4. VERIFY ALL WORK AND CONNECTIONS ASSOCIATED WITH NEW TRANSFORMER TR-1 ARE COMPLETE. OPEN TIE-BREAK #1, CLOSE MAIN BREAKER #1, ENERGIZE EQUIPMENT AND PLACE ONLINE.
5. 2 OPEN MAIN BREAKER #2 IN EXISTING 480V DISTRIBUTION GEAR, CLOSE EITHER TIE-BREAKER #1 OR TIE-BREAKER #2 . THE CENTER SECTION OF THE 480V GEAR MAY EITHER BE POWERED FROM THE NEW TRANSFORMER TR-1, OR THE EXISTING TRANSFORMER TR-3, CONTRACTOR'S CHOICE. VERIFY WITH OWNER. REMOVE EXISTING TRANSFORMER TR-2 ALONG WITH ITS ASSOCIATED OVERHEAD BUS DUCT, CONCRETE PAD AND TWO SETS OF FEEDERS.
6. 2 PROVIDE CONCRETE BASE FOR NEW TRANSFORMER TR-2. INSTALL NEW TRANSFORMER ONTO BASE AND PROVIDE UNDERGROUND CONDUIT AND FEEDER CONDUCTORS FROM LOAD BREAK SWITCH #2 TO PRIMARY SIDE OF TRANSFORMER. INSTALL NEW 4000A 3ø 4W BUS DUCT FROM SECONDARY SIDE OF TRANSFORMER TO NEW MAIN #2 IN NEW 480V SWITCHGEAR. SUPPORT OVERHEAD BUS RISERS FORM STRUCTURE ABOVE.
7. VERIFY ALL WORK AND CONNECTIONS ASSOCIATED WITH NEW TRANSFORMER TR-2 ARE COMPLETE. OPEN THE APPROPRIATE TIE-BREAK SWITCH, CLOSE MAIN BREAKER #2, ENERGIZE EQUIPMENT AND PLACE ONLINE.
8. 2 OPEN MAIN BREAKER #3 IN EXISTING 480V DISTRIBUTION GEAR, CLOSE TIE-BREAKER #2 BETWEEN MAIN BREAKER #2 AND MAIN BREAKER #3. REMOVE EXISTING TRANSFORMER TR-3 ALONG WITH ITS ASSOCIATED OVERHEAD BUS DUCT, CONCRETE PAD AND TWO SETS OF FEEDERS.
9. 2 PROVIDE CONCRETE BASE FOR NEW TRANSFORMER TR-3. INSTALL NEW TRANSFORMER ONTO BASE AND PROVIDE UNDERGROUND CONDUIT AND FEEDER CONDUCTORS FROM LOAD BREAK SWITCH #3 TO PRIMARY SIDE OF TRANSFORMER. INSTALL NEW 4000A 3ø 4W BUS DUCT FROM SECONDARY SIDE OF TRANSFORMER TO NEW MAIN #3 IN NEW 480V SWITCHGEAR. SUPPORT OVERHEAD BUS RISERS FORM STRUCTURE ABOVE.
10. VERIFY ALL WORK AND CONNECTIONS ASSOCIATED WITH NEW TRANSFORMER TR-3 ARE COMPLETE. OPEN TIE-BREAKER #2, CLOSE MAIN BREAKER #3, ENERGIZE EQUIPMENT AND PLACE ONLINE.
11. REMOVE THE TWO EXISTING CT CABINETS, CONCRETE PAD AND ALL ASSOCIATED WIRING AND UNDERGROUND CONDUITS.
12. 2 REMOVE THE TWO EXISTING S&C DISCONNECT SWITCHES AND ALL ASSOCIATED WIRING AND UNDERGROUND CONDUITS. SALVAGE SWITCHES AND RETURN TO UTILITY COMPANY (AEP).
13. POUR NEW CONCRETE FLOOR IN COURTYARD. REFER TO ARCHITECTURAL PLANS FOR INFORMATION.
14. REMOVE SPARE 30A/3P CIRCUIT #11 BREAKER IN PANEL-1E ON LOADING DOCK AND PROVIDE A NEW 20A1P BREAKER IN ITS PLACE TO FEED NEW LIGHTING. INSTALL CIRCUIT BREAKER BLANKS IN UNUSED SPACES. CONDUIT MAY BE SURFACE MOUNTED WITHIN NEW SWITCHGEAR ROOM.
15. PROVIDE NEW 20A 1P CIRCUIT BREAKER IN PANEL-1E ON LOADING DOCK TO FEED NEW GFI RECEPTACLES. CONDUIT AND BOXES SHALL BE SURFACE MOUNTED WITHIN NEW SWITCHGEAR ROOM.
16. 4" RIGID PVC CONDUIT WITH (3) #1/0 (200A) 15KV COPPER MV105 COMPACT STRANDED CONDUCTORS.
17. EF-1 ON ROOF 3HP 480V/3PH WITH COMBINATION MAGNETIC STARTER/FUSED DISCONNECT SWITCH AND H.O.A. SELECTOR SWITCH. FURNISHED BY DIVISION 15 CONTRACTOR, INSTALLED AND WIRED BY DIVISION16 CONTRACTOR. CIRCUIT TO EXISTING PANEL-F1 CIRCUIT #10, 15A 3P SPARE CIRCUIT BREAKER.
18. OPPOSED BLADE MOTORIZED DAMPER WITH DISCONNECT AND CONTROLS PROVIDED AND INSTALLED BY DIVISION 15 CONTRACTOR.
19. 2 RELOCATE EXISTING WALL MOUNTED EXHAUST FAN. EXTEND CIRCUITING TO ROOF AND PROVIDE LOCAL DISCONNECT SWITCH AS REQUIRED. COORDINATE WITH DIV. 15 CONTRACTOR.
20. 2 1 (2) 5" RIGID PVC CONDUITS ENCASED IN CONCRETE BY THE CONTRACTOR. PROVIDE ONE SPARE 5" RIGID PVC CONDUIT FOR EACH MAIN FEEDER RUN. CONDUCTORS SHALL BE PROVIDED AND TERMINATED BY THE UTILITY COMPANY. COORDINATE STUB UP LOCATIONS WITH THE UTILITY COMPANY.
21. PROVIDE CONDUIT AND METERING AS REQUIRED BY UTILITY COMPANY. COORDINATE LOCATIONS WITH UTILITY COMPANY.
22. PROVIDE NEW FIRE ALARM MANUAL PULL STATION AND COMBINATION HORN/STROBE DEVICE AT EXIT DOORS. COORDINATE WITH AND CONNECT TO THE EXISTING BUILDING FIRE ALARM SYSTEM. PROVIDE STROBE POWER SUPPLIES AND BATTERY CABINETS AS REQUIRED.
23. PROVIDE NEW PHOTO ELECTRIC CEILING MOUNTED SMOKE DETECTORS AS INDICATED. COORDINATE WITH AND CONNECT TO THE EXISTING BUILDING FIRE ALARM SYSTEM.
24. ATTACH GROUND RING COMPONENTS FOR ALL SWITCHGEAR EQUIPMENT, INCLUDING TRANSFORMERS AND CABINET ENCLOSURES TO THIS LOCATION.
25. 2 PROVIDE SUITABLE CIRCUIT BREAKER IN PANEL-1E ON LOADING DOCK AND WIRING TO FEED TRANSFORMER UNIT HEATERS PROVIDED WITH EQUIPMENT.
26. PROVIDE ENGRAVED PLASTIC PLAQUE ON FRONT OF 2500KVA 480V-277V TRANSFORMER FIELDS SWITCH TO READ "MANUALLY OPEN TRANSFORMER SECONDARY MAIN CIRCUIT BREAKER IN THE 480 VOLT SWITCHGEAR PRIOR TO MANUALLY CLOSING THIS SWITCH. ONCE THE TRANSFORMER IS ENERGIZED, THE SECONDARY MAIN BREAKER MAY BE CLOSED". PLAQUE WORDING SHALL BE MINIMUM 1" HIGH TEXT AND APPROVED BY THE ARCHITECT DURING THE SHOP DRAWING SUBMITTAL PERIOD. LABEL EACH TRANSFORMER, PRIMARY MEDIUM VOLTAGE SWITCH AND SECONDARY 480 VOLT CIRCUIT BREAKER APPROPRIATELY. 1
27. 2 NEW PAD MOUNTED S&C MODEL PME-5 MEDIUM VOLTAGE UTILITY COMPANY DISCONNECT SWITCHES, CONCRETE PADS, 5" PVC CONDUITS FROM MANHOLE AND CONDUCTORS TO BE FURNISHED AND INSTALLED BY APPALACHIAN POWER COMPANY. (SEE ALTERNATE BID)
28. 2 EXISTING UNDERGROUND 12 WAY DUCT BANK TO BE REMOVED AND RELOCATED TO NORTH SIDE OF THE EXISTING MANHOLE BY A.E.P. COORDINATE WITH UTILITY COMPANY. (SEE ALTERNATE BID)
29. 2 APPROXIMATE LOCATION OF NEW UNDERGROUND 12-WAY DUCT BANK. DUCK BANK TO BE INSTALLED BY UTILITY COMPANY. (SEE ALTERNATE BID)

ELECTRICAL COURTYARD - POWER PLAN

SCALE : ⅛ " = 1'-0"

PLAN NORTH

REVISIONS NO.	DATE	DESCRIPTION
1	2/3/09	GENERAL REVISION - ADDED NEW 480V VOLT DISTRIBUTION SWITCHGEAR REPLACEMENT
2	2/11/09	GENERAL REVISION - REVISED LOCATION AND GENERAL NOTES FOR NEW SWITCHGEAR AND DOOR LOCATION. (ADDENDUM #4)

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ELECTRICAL COURTYARD EXPANSION
STATE OFFICE BUILDINGS 5, 6, AND 7
WEST VIRGINIA STATE CAPITAL COMPLEX
Charleston, West Virginia

CONSTRUCTION DOCUMENTS

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ELECTRICAL POWER PLAN

DRAWN	CHECKED
CASDORPH ABERNETHY	CASDORPH
DATE	08.08.08
COMM. NO.	0807

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