

STATE OF IOWA DEPARTMENT OF ADMINISTRATIVE SERVICES  
DOC 3JD CBC NEW BACKUP GENERATOR  
PROJECT #: RFB 946600-01

100% CD

07/18/2025



OWNER  
IOWA DEPARTMENT OF ADMINISTRATIVE SERVICES  
109 SE 13TH STREET  
DES MOINES, IA 50319  
OWNER PROJECT NUMBER: 9466.00  
OWNER REP: JENNIE ELLIOT

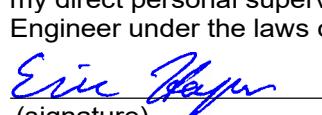
**Boyd Jones**

CONSTRUCTION MANAGER  
ROB GREINER - PROJECT MANAGER  
BOYD JONES CONSTRUCTION COMPANY  
rgreiner@boydjones.biz  
515-650-7777  
CM PROJECT NUMBER: 015PC

**KCL**  
ENGINEERING

ENGINEER  
ERIC HEYNEN, PE  
KCL ENGINEERING  
eheynen@kclengineering.com  
515-300-8092  
ENGINEER PROJECT NUMBER: 25108.00

SHEET LIST	
Sheet Number	Sheet Name
AG00	TITLE SHEET
E000	ELECTRICAL GENERAL NOTES & SYMBOLS
E001	ELECTRICAL SITE PLAN
ED101	ELECTRICAL DEMO
E101	ELECTRICAL POWER
E401	ELECTRICAL ONE-LINE DIAGRAM
E501	ELECTRICAL DETAILS

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa  
 07-18-2025  
ERIC HEYNEN, P.E.  
License Number : P24706  
My license renewal date is December 31, 2025  
Pages or sheets covered by this seal: E\_Sheets

ELECTRICAL ABBREVIATIONS	
A	DEVICE MOUNTED +8" ABOVE COMPLETED CONSTRUCTION LOCATION
AFF	ABOVE FINISHED FLOOR
ATS	AUTOMATIC TRANSFER SWITCH
C	CEILING
CB	CIRCUIT BREAKER
CT	CURRENT TRANSFORMER
EC	EXISTING ITEM TO REMAIN
EC	ELECTRICAL CONTRACTOR
EM	EMERGENCY LIGHT FIXTURE
ER	NEW LOCATION OF EXISTING ITEM
FR	ROUGH IN FOR FUTURE DEVICE
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FSD	FLAME DETECTOR
GSI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
KVA	KILO-VOLT-AMPERES
KW	KILO-WATTS
MC	MECHANICAL CONTRACTOR
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
MLO	MAIN LUGS ONLY
N	NEW DEVICE IN EXISTING LOCATION
NIC	NOT IN CONTRACT
NNS	NON-NEUTRAL
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER-FURNISHED CONTRACTOR-INSTALLED
OFOI	OWNER-FURNISHED OWNER-INSTALLED
R	EXISTING ITEM TO BE REMOVED
RR	EXISTING ITEM TO BE REMOVED AND RELOCATED
RN	EXISTING ITEM TO BE REMOVED AND REPLACED WITH NEW
SCCR	SHORT CIRCUIT CURRENT RATING
TCC	TEMPERATURE CONTROL CONTRACTOR
TV	TELEVISION
TYP	TYPICAL
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VA	VOLT-AMPERES
WG	WIREGUARD COVER
WR	WEATHER RESISTANT DEVICE
*24"	INDICATES MOUNTING HEIGHT CENTER LINE OF DEVICE TO FINISHED FLOOR

**INSTALLATION NOTES - ELECTRICAL**

- INCREASE CONDUCTOR SIZES ON 20A 120V-1 PHASE CIRCUITS EXCEEDING 100 FEET CENTER OF LOAD TO ACCOUNT FOR VOLTAGE DROP.
- RACEWAYS AND BOXES ARE SHOWN DIAGRAMMATICALLY ONLY AND INDICATE GENERAL AND APPROXIMATE LOCATIONS. LAYOUTS DO NOT ALLOW FOR THE TOTAL NUMBER OF FEET OF CONDUIT OR BOXES AS REQUIRED. NOR ARE THE LOCATIONS OF INDICATED RUNS INTENDED TO SHOW THE ACTUAL ROUTING OF THE RACEWAYS.
- LIGHT FIXTURES, SWITCHES, DEVICES, ETC. ARE SHOWN IN PREFERRED LOCATION. MODIFY CONNECTIONS, CIRCUITING, ETC. TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.
- PROVIDE A DEDICATED GREEN INSULATED GROUND CONDUCTOR TO ALL DEVICES. DO NOT USE CONDUIT SYSTEM AS THE ONLY EQUIPMENT GROUNDING METHOD.
- DO NOT INSTALL BOXES BACK-TO-BACK ON OPPOSITE SIDES OF THE SAME WALL. MAINTAIN MINIMUM OF 8" DISTANCE BETWEEN BOXES WHEREVER APPLICABLE.
- BALANCE PANEL LOADS DURING INSTALLATION. CIRCUIT NUMBERING SHOWN ON PLANS MAY BE ADJUSTED TO ACCOMMODATE.
- PROVIDE TYPED PANEL DIRECTORY AT PROJECT COMPLETION FOR NEW PANELS AND EXISTING PANELS WITH CIRCUITS MODIFIED DURING PROJECT. USE OWNER'S CURRENT ROOM NUMBERS AND EQUIPMENT NAMES. PROVIDE UNIQUE CIRCUIT IDENTIFICATION PER NEC 408.4(A).
- CONTRACTOR IS RESPONSIBLE FOR OPENINGS IN WALLS, FLOORS, CEILINGS, AND ROOFS THAT ARE REQUIRED TO COMPLETE THEIR SCOPE OF WORK. SEAL PENETRATIONS IN ACCORDANCE WITH THE RATING OF THE AFFECTED ASSEMBLY. REFER TO ARCHITECTURAL CODE PLAN FOR RATED WALLS, FLOORS, AND CEILINGS.

**CODE NOTES - ELECTRICAL**

- PROVIDE ELECTRICAL INSTALLATION IN ACCORDANCE WITH ALL STATE CODES.
- THE CURRENT ADOPTED EDITION OF THE ELECTRICAL CODE IS THE STANDARD FOR THE ELECTRICAL INSTALLATION. VERIFY WITH LOCAL OFFICIALS WHEN PERMITS ARE OBTAINED. NOTIFY DESIGN TEAM OF ANY DISCREPANCIES BETWEEN THE PROJECT MANUAL OR DRAWINGS AND THE GOVERNING CODE.
- INSTALLATION SHALL FOLLOW REQUIREMENTS OF THE ADAAG -AMERICANS WITH DISABILITIES ACT.

**SCOPE**

- INSTALL NEW STANDBY GENERATOR FOR THE ENTIRE BUILDING.
- GENERATOR TO COMPLY WITH NFPA 110 AND NEC SECTION 202. THIS GENERATOR IS NOT PROVIDED FOR LIFE SAFETY AND WILL ONLY BE UTILIZED FOR BACKUP POWER.
- EXISTING LIFE SAFETY SYSTEM (EMERGENCY LIGHTING AND FIRE ALARM) TO REMAIN INTACT AND OPERATIONAL DURING CONSTRUCTION.
- EXISTING ELECTRICAL SERVICE IS BEING DOWNSIZED FROM 2000A TO 1100A.
- RELOCATE CONDENSING UNIT TO MAKE WAY FOR NEW GENERATOR.
- THE OWNER WILL REPROGRAM SIEMENS DDC SYSTEM TO LAPSE START OF 60 TON CONDENSING UNIT WHEN ON GENERATOR POWER.
- ALTERNATE #1: SALVAGE EXISTING SERVICE CONDUCTORS NO LONGER IN USE. REFER TO MORE NOTES ON SHEET E401.
- AT PROJECT COMPLETION, ELECTRICAL CONTRACTOR WILL BE RESPONSIBLE TO PROVIDE ARC FLASH CALCULATIONS, LABELING, AND DOCUMENTATION FOR THE "MDP" AND "EXISTING" MDP.

POWER SYMBOLS	
	DUPLEX RECEPTACLE, WALL MOUNTED, TAMPER-RESISTANT
	EQUIPMENT CONNECTION. REFER TO EQUIPMENT CONNECTION SCHEDULE FOR CONNECTION TYPE. REFER TO PANEL SCHEDULES FOR GFCI PROTECTION WHERE REQUIRED
	MOTOR CONNECTION. REFER TO EQUIPMENT CONNECTION SCHEDULE FOR CONNECTION TYPE. REFER TO PANEL SCHEDULES FOR GFCI PROTECTION WHERE REQUIRED
	SAFETY DISCONNECT SWITCH
	UTILITY TRANSFORMER
	UTILITY METER
	SPD SURGE PROTECTIVE DEVICE
	PANELBOARD - SURFACE MOUNTED
	PANELBOARD - RECESSED IN WALL
	DISTRIBUTION PANELBOARD/SWITCHBOARD - SURFACE MOUNTED AS NOTED.
	CORD REEL, CEILING MOUNTED - REFER TO DETAIL
	GEN GENERATOR
	MULTI-GROUND ROD ELECTRODE SYSTEM
	ATS AUTOMATIC TRANSFER SWITCH

GENERAL SYMBOLS	
	CONDUIT SLEEVE
	CONDUIT UP, REFER TO TAG ON DRAWING FOR SIZE
	CONDUIT DOWN, REFER TO TAG ON DRAWING FOR SIZE
	JUNCTION BOX, CEILING OR FLOOR MOUNTED.
	JUNCTION BOX, WALL MOUNTED, ELEVATION AS NOTED.
	CIRCUIT HOMERUN, CONCEALED CONDUIT OR CABLE
	CIRCUIT HOMERUN, UNDER FLOOR CONDUIT OR CABLE
	KEYNOTE
	EQUIPMENT IDENTIFICATION TAG. REFER TO EQUIPMENT CONNECTION SCHEDULE
	DETAIL DRAWING REFERENCE TAG, SIM-SIMILAR, TYP-TYPICAL, OPP-OPOSITE SHEET REFERENCE
	SECTION CUT REFERENCE TAG, SIM-SIMILAR, TYP-TYPICAL, OPP-OPOSITE SHEET REFERENCE
	INTERIOR ELEVATION DRAWING REFERENCE TAG
	DRAWINGS REVISION. REFER TO TITLEBLOCK FOR REVISION NAME AND DATE

Project No:	9466.00
Date:	07/18/25
100% CD	
#	Revision
	Date
Drawing Name:	ELECTRICAL GENERAL NOTES & SYMBOLS
Drawing #:	E000



## GENERAL NOTE:

UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES HAVE BEEN SHOWN BASED UPON INFORMATION OBTAINED FROM FIELD LOCATIONS BY UTILITY COMPANIES, AVAILABLE SURVEYS AND RECORDS. THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS ALSO POSSIBLE THAT THERE MAY BE OTHER UNDERGROUND FACILITIES, STRUCTURES, AND UTILITIES IN EXISTENCE THAT ARE NOT SHOWN. IT IS THE RESPONSIBILITY OF EACH INDIVIDUAL PARTY REFERENCING THIS PLAN TO DETERMINE THE EXACT LOCATION AND TYPE OF UNDERGROUND FACILITIES ON THE SITE. HAND EXCAVATE AT CRITICAL POINTS AS NECESSARY TO VERIFY LOCATIONS, SIZES, ELEVATIONS, FLOW LINES, ETC. IF A PROBLEM OR INTERFERENCE EXISTS, NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING.

## SITE GENERAL NOTES

---

- A. UTILITIES SHOWN ARE FROM THE PREVIOUS CONSTRUCTION DOCUMENTS. ALL LOCATIONS SHOULD BE CONSIDERED APPROXIMATE. AS-BUILT DOCUMENTS WERE NOT PROVIDED. VERIFY ALL SITE CONDITIONS AND DIMENSIONS ON SITE.
- B. NEW WORK SCOPE IS UNDERLINED AND BOLD ON PLAN.
- C. PROVIDE TRENCHING, PULL BOXES, BACKFILL, AND PATCHWORK AS REQUIRED TO COMPLETE SITE ELECTRICAL INSTALLATION.
- D. REPAIR ALL AFFECTED SURFACES AND RESTORE TO EXISTING CONDITIONS AT COMPLETION OF PROJECT.
- E. PROVIDE ALL SITE CONDUIT AS 1" MINIMUM, ALL CONDUCTORS AS #10 AWG CU. MINIMUM.
- F. WARNING - CALL BEFORE YOU DIG: LAW REQUIRES ANYONE DOING EXCAVATION, FENCING, PLANTING OR DRILLING TO CALL 48 HOURS IN ADVANCE. HAND DIG WITHIN 18 INCHES OF ANY LOCATE MARK OR FLAG. ONE-CALL 811.

# IOWA DAS DOC 3JD CBC NEW BACKUP GENERATOR

515 Water St,  
Sioux City, IA 51103

Project No: 9466.00  
Date: 07/18/25

100% SB

Drawing Name:  
**ELECTRICAL SITE  
PLAN**

Drawing #: **E001**

# **PROTECT LAWN FROM EQUIPMENT BEING USED**

# **NEW LOCATION OF DIESEL GENERATOR**

**APPROXIMATE  
LOCATION OF CRANE  
AND FUEL TANK.**  
**COORDINATE TRAFFIC  
SIGNALING, TIMING,  
AND REQUIREMENTS**  
**WITH THE CITY OF  
SIOUX CITY.**

# **EXISTING UTILITY** **TRANSFORMER TO REMAIN**

# APPROXIMATE LOCATION OF EXISTING FIBER OPTICS AND COMMUNICATIONS. FIELD VERIFY LOCATIONS

## EXISTING TEST FILL LOCATION

# 5TH STREET

1 EXISTING SITE  
NOT TO SCALE

**IOWA DAS  
DOC 3JD CBC NEW BACKUP GENERATOR**

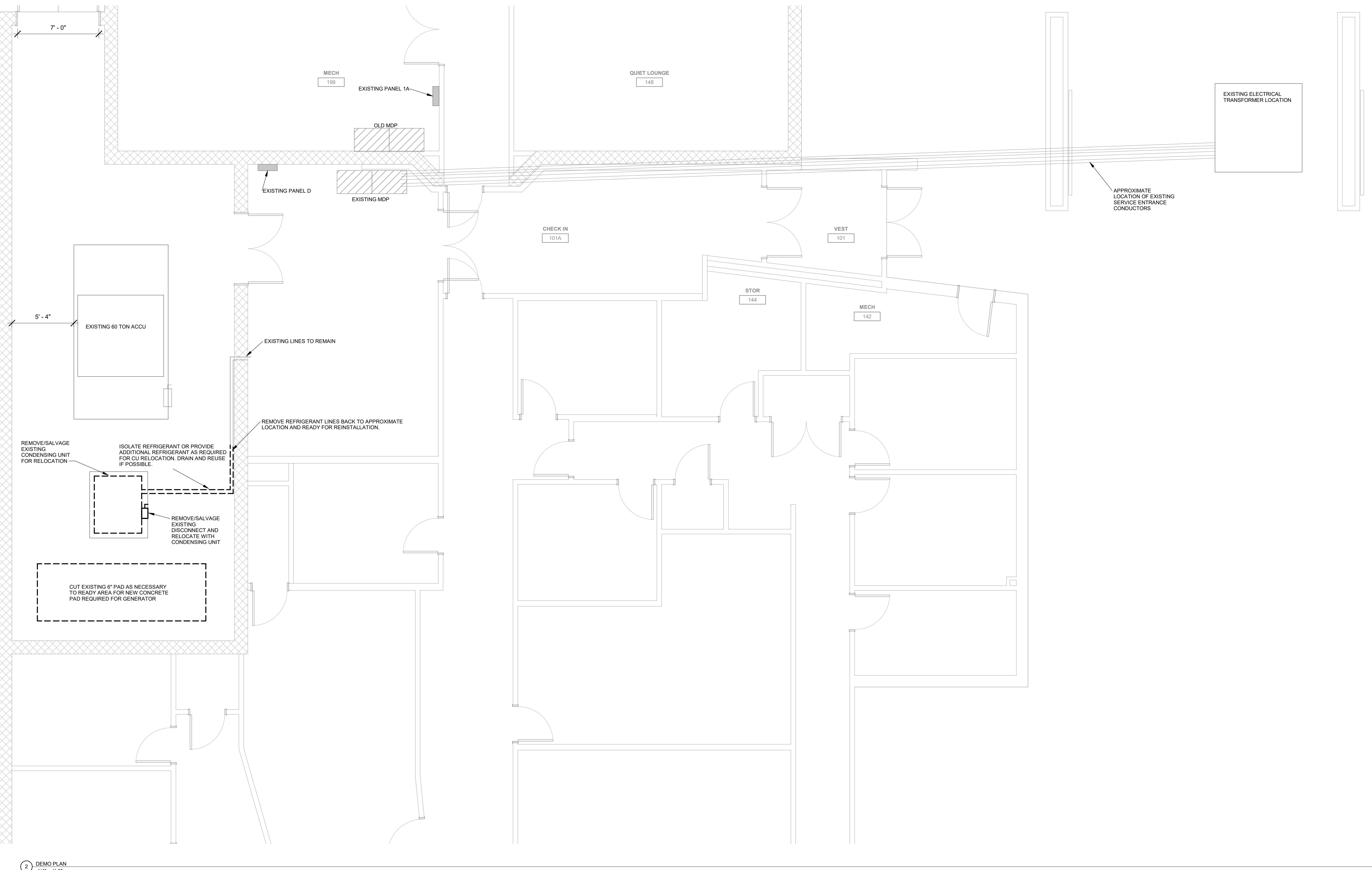
515 Water St,  
Sioux City, IA 51103

Project No: 9466.00  
Date: 07/18/25  
100% CD

# Revision Date

Drawing Name:  
ELECTRICAL DEMO

Drawing #:  
**ED101**



**IOWA DAS  
DOC 3JD CBC NEW BACKUP GENERATOR**

515 Water St,  
Sioux City, IA 51103

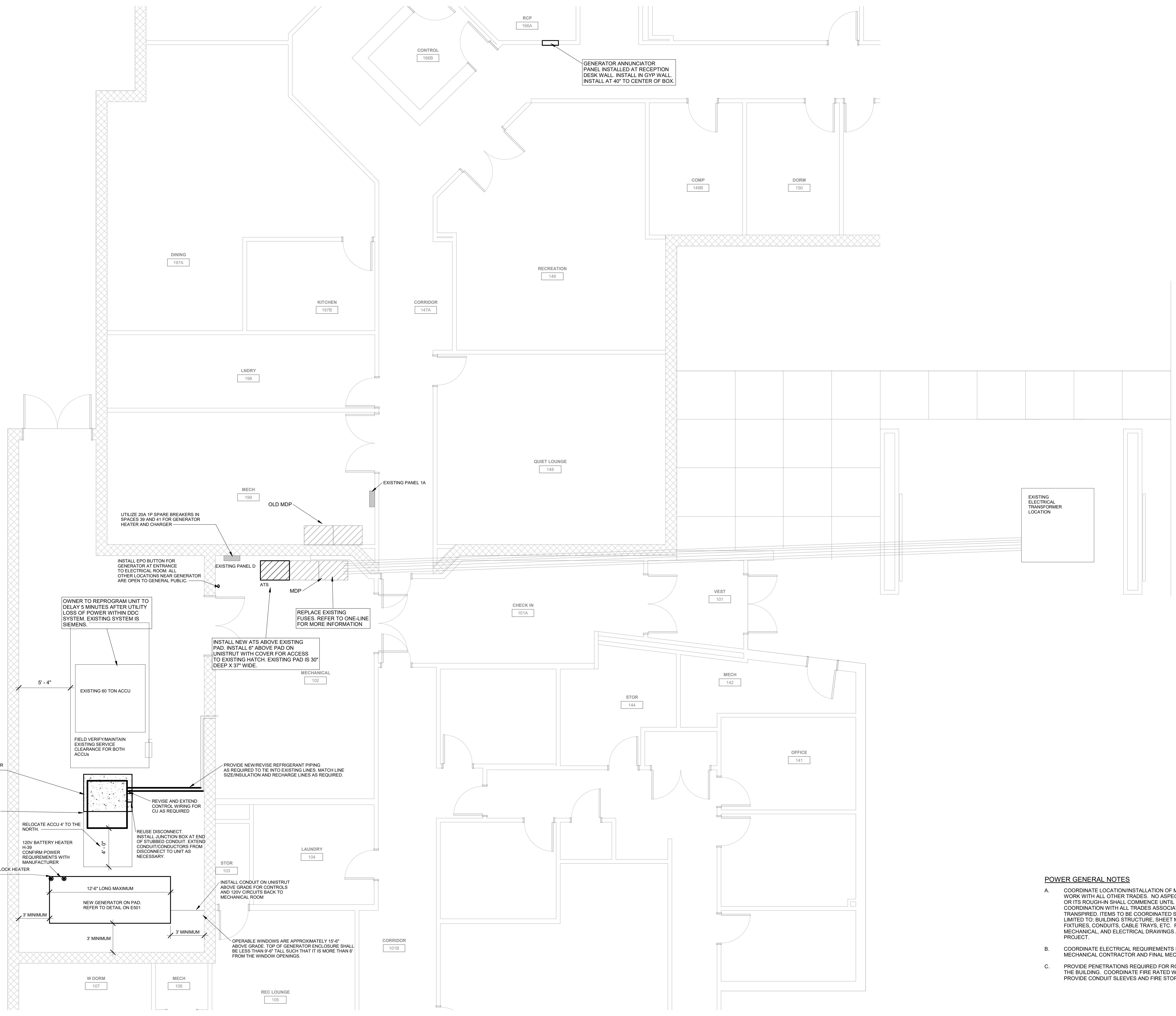
Project No: 9466.00  
Date: 07/18/25

100% CD

# Revision Date

Drawing Name: ELECTRICAL POWER

Drawing #: E101



**IOWA DAS  
DOC 3JD CBC NEW BACKUP GENERATOR**

515 Water St,  
Sioux City, IA 51103

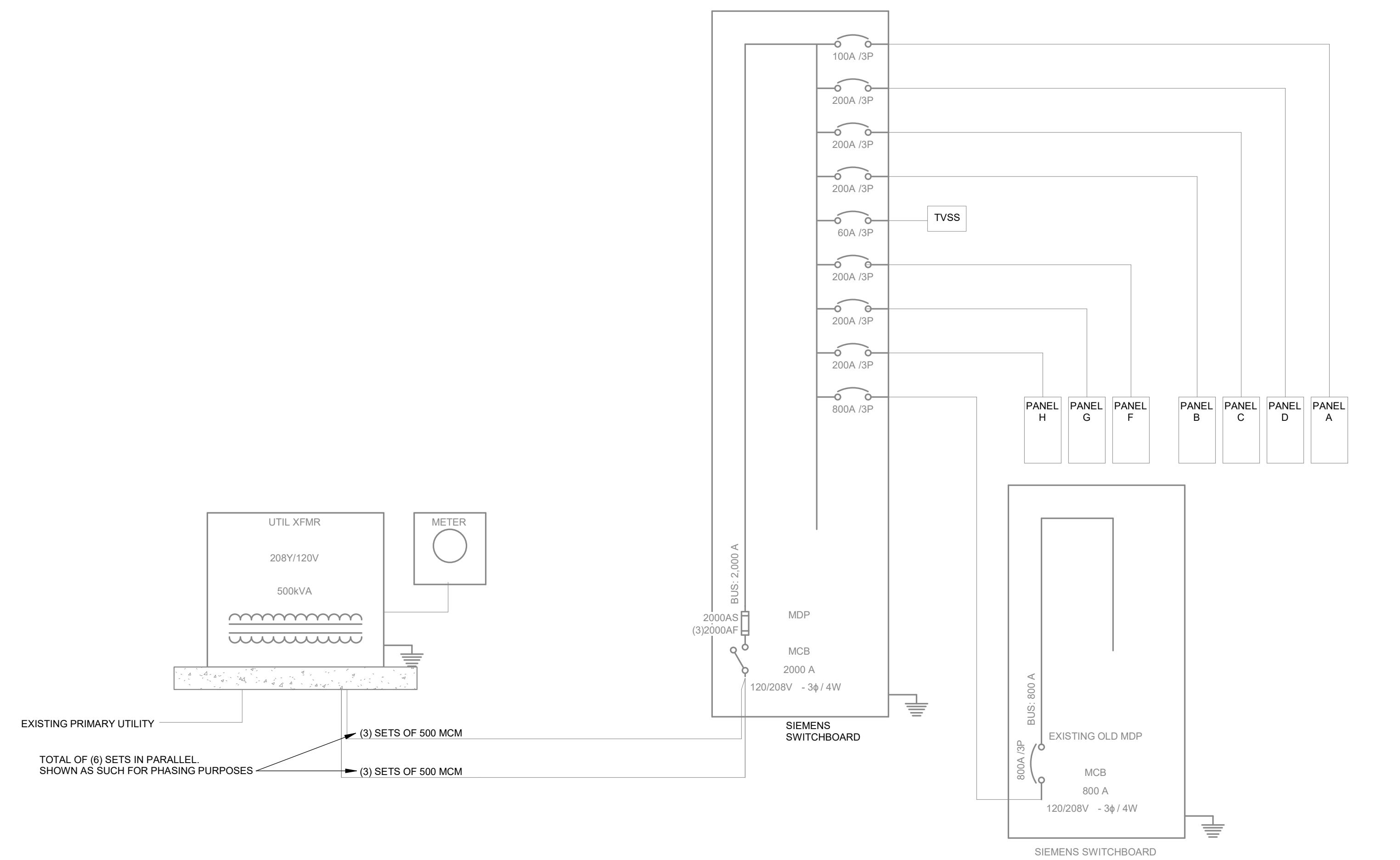
Project No: 9466.00  
Date: 07/18/25

100% CD

# Revision Date

Drawing Name:  
ELECTRICAL ONE-LINE  
DIAGRAM

Drawing #: E401

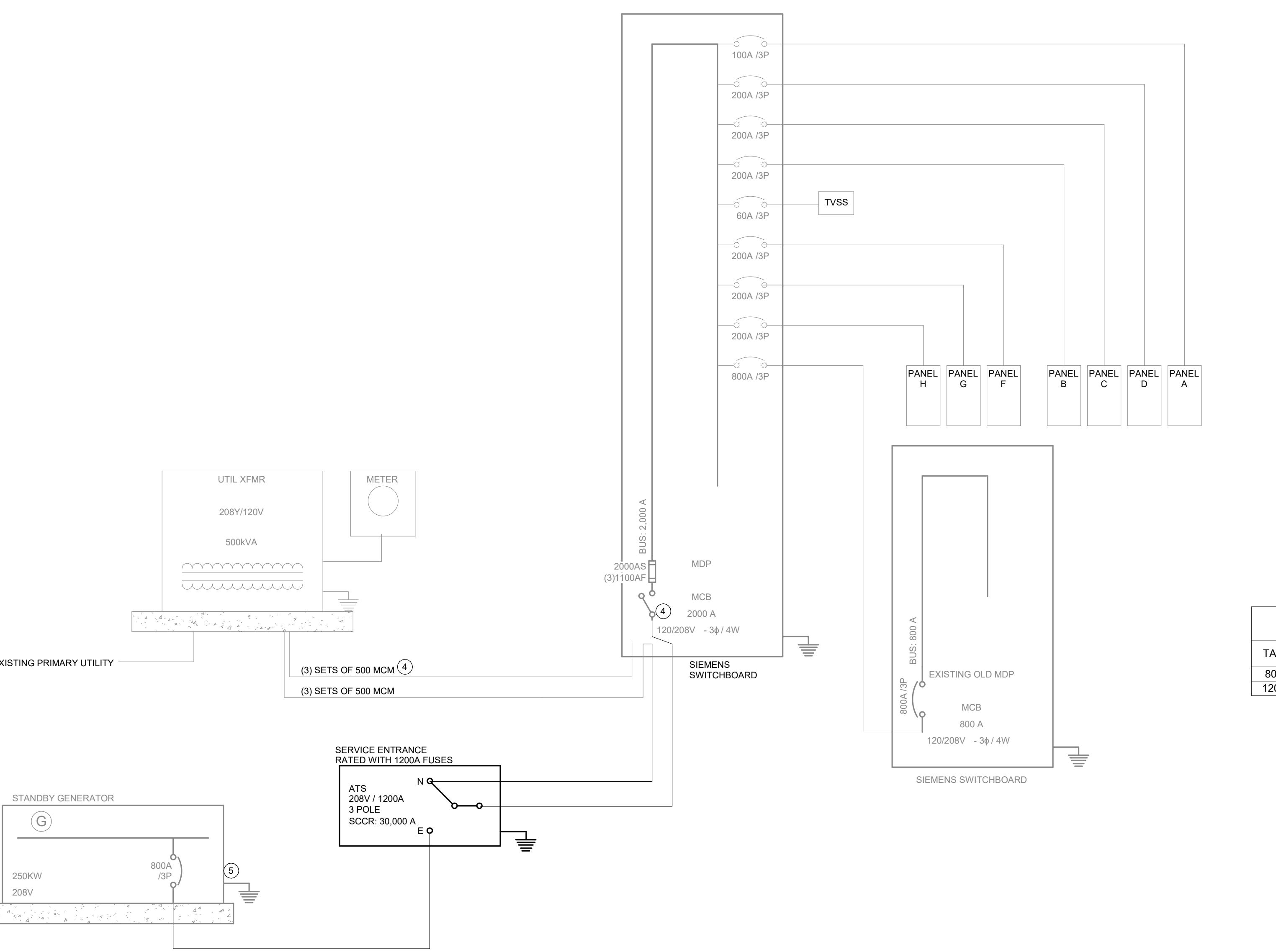


**EXISTING SERVICE LOAD SUMMARY  
(PER NEC 220.87)**

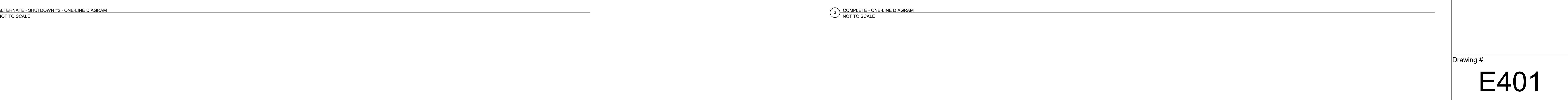
EXISTING MAXIMUM DEMAND: 189kW  
PEAK DEMAND CALCULATION: 189kW x 125% (NEC 220.87) = 236 kW  
LOAD: 236kW / (208V/3P) = 656A



① SHUTDOWN #1 - ONE-LINE DIAGRAM  
NOT TO SCALE



② ALTERNATE - SHUTDOWN #2 - ONE-LINE DIAGRAM  
NOT TO SCALE



③ COMPLETE - ONE-LINE DIAGRAM  
NOT TO SCALE

**IOWA DAS  
DOC 3JD CBC NEW BACKUP GENERATOR**

515 Water St,  
Sioux City, IA 51103

Project No: 9466.00  
Date: 07/18/25  
100% CD

# Revision Date

Drawing Name:  
**ELECTRICAL DETAILS**

Drawing #:

**E501**

