55A/55B SWITCHGEAR REPLACEMENT

University of Louisville
06/08/2023

DIVISION OF ENGINEERING AND CONTRACT ADMINSTRATION
FRANKFORT, KENTUCKY

VICINITY MAP

KFI ENGINEERS

PROJECT CONTACTS

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STATE OF KENTUCKY — GREGORY G. CARTER — 14715 — LICENSED PROFESSIONAL ENGINEER

55A/55B SWITCHGEAR REPLACEMENT

COVER SHEET

DRAWING NO. CV001

COMMONWEALTH OF KENTUCKY
FINANCE AND ADMINISTRATION CABINET
DEPARTMENT FOR FACILITIES AND SUPPORT SERVICES
DIVISION OF ENGINEERING AND CONTRACT ADMINISTRATION
FRANKFORT, KENTUCKY

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AGENCY AUTHORIZED AGENT _____ APPROVED FOR PROGRAM CONCEPT ONLY — DATE _____

DIVISION OF ENGINEERING _____ APPROVED FOR PROGRAM CONCEPT ONLY — DATE _____

ELECTRICAL ABBREVIATIONS

&	AND	EA	EACH	LV	LOW VOLTAGE	S/D	SMOKE DAMPER
@	AT	EM	EMERGENCY	LFC	LIQUID TIGHT FLEXIBLE CONDUIT	SF	SQUARE FOOT
℄	CENTERLINE	ELEV	ELEVATOR	L/LT	LIGHT	SHT	SHEET
°	DEGREE (S)	EQUIP	EQUIPMENT	LTS	LIGHTS	SM	SURFACE MOUNTED
Ø	PHASE OR ROUND	EWC	ELECTRIC WATER COOLER	LTG	LIGHTING	SP	SUMP PUMP
#	POUND OR NUMBER	EXT	EXTERIOR			SPEC	SPECIFICATIONS
				MATV	MASTER ANTENNA TELEVISION	STD	STANDARD
AFCI	ARC FAULT CURRENT INTERRUPTER	FAA	FIRE ALARM ANNUNCIATOR PANEL	MAX	MAXIMUM	SUSP	SUSPENDED
AFF	ABOVE FINISHED FLOOR	FACP	FIRE ALARM CONTROL PANEL	MCC	MOTOR CONTROL CENTER	SW	SWITCH
AFG	ABOVE FINISHED GRADE			MECH	MECHANICAL	SW. BD	SWITCHBOARD
APP	ALARM ANNUNCIATOR PANEL	GC	GENERAL CONTRACTOR	MEZZ	MEZZININE	SW. GR	SWITCHGEAR
AL	ALUMINUM	GEN	GENERATOR	MFR	MANUFACTURER		
AMP	AMPERE	GFCI	GROUND FAULT CIRCUIT INTERRUPTER	MIN	MINIMUM	TEL	TELEPHONE
APPROX	APPROXIMATE	G/GND	GROUND	MISC	MISCELLANEOUS	TERM	TERMINAL
ARCH	ARCHITECT/ARCHITECTURAL	GMB	GROUNDING MAIN BUS BAR	MS	MOTOR STARTER	TGMB	TELECOMMUNICATION GROUNDING
ATS	AUTOMATIC TRANSFER SWITCH			MSP	MOTOR STARTER PANEL		MAIN BUS BAR
AUTO	AUTOMATIC	H	HEIGHT	MSS	MOTOR STARTER SWITCH	TV	TELEVISION
		HP	HORSE POWER			TYP	TYPICAL
BAS	BUILDING AUTOMATION SYSTEM	HZ	HERTZ	N/A	NOT APPLICABLE	UG	UNDERGROUND
BOT	BOTTOM			NL	NIGHT LIGHT	UNO	UNLESS NOTED OTHERWISE
		INT	INTERIOR	N.T.S	NOT TO SCALE		
C	CONDUIT					V	VOLTAGE
CAB	CABINET	JB	JUNCTION BOX	PF	POWER FACTOR	VA	VOLT AMPERE
CB	CIRCUIT BREAKER			PIV	POST INDICATOR VALVE		
CCTV	CLOSED CIRCUIT TELEVISION	KV	KILOVOLT	PNL	PANEL	W	WATT (S)
CLG	CEILING	KVA	KILOVOLT AMPS	PVC	POLYVINYL CHLORIDE	W	WIDTH
C/T	CURRENT TRANSFORMER	KW	KILOWATT			W/	WITH UNIT
				R/RECEPT	RECEPTACLE	WG	WIRE GUARD
D	DEPTH	L	LENGTH	RM	ROOM	WP	WEATHERPROOF
DIV	DIVISION	LF	LINEAL FOOT	SCHED	SCHEDULE		
DWG	DRAWING	LS	LIFE SAFETY	SECT	SECTION	XFRM	TRANSFORMER

LIGHTING SYSTEMS

a A/3	LUMINAIRE DESIGNATION (APPLICABLE TO ALL LUMINAIRES) A - LUMINAIRE TYPE 3 - CIRCUIT NUMBER a - SWITCHING	
	SOLID HATCHING (FULL OR PARTIAL) INDICATES LIFE SAFETY	
	CROSS HATCHING (FULL OR PARTIAL) INDICATES CRITICAL CIRCUIT	
	SURFACE MOUNTED LUMINAIRE	CEILING
	RECESSED MOUNTED LUMINAIRE	CEILING
	LINEAR PENDANT LUMINAIRE	VERIFY
	PENDANT LUMINAIRE	VERIFY
	SURFACE MOUNTED DOWNLIGHT LUMINAIRE	CEILING
	RECESSED MOUNTED DOWNLIGHT LUMINAIRE	FLUSH CEILING
	WALL MOUNTED LUMINAIRE	VERIFY
	STRIP LUMINAIRE	VERIFY
	TRACK LIGHTING AND TRACK LUMINAIRE HEADS	VERIFY
	EXIT LIGHT OUTLET IN CEILING, SHADED QUADRANT DEMOTES FACE DIRECTION. ARROW INDICATES DIRECTION OF TRAVEL	CEILING
H	EXIT LIGHT OUTLET IN WALL, SHADED QUADRANT DEMOTES FACE DIRECTION. ARROW INDICATES DIRECTION OF TRAVEL	8" ABOVE DOOR
H	EXIT LIGHT WITH EMERGENCY LIGHTING UNIT IN WALL, SHADED QUADRANT DEMOTES FACE DIRECTION. ARROW INDICATES DIRECTION OF TRAVEL	8" ABOVE DOOR
	BATTERY POWERED EMERGENCY LIGHTING UNIT	7'-6"
	REMOTE BATTERY POWERED HEAD	VERIFY

LIGHTING CONTROL SYSTEMS

SWITCH LEGEND

2 - DOUBLE POLE SWITCH
3 - THREE WAY SWITCH
4 - FOUR WAY SWITCH
K - KEYED SWITCH
P - SWITCH WITH PILOT LIGHT
IL - SWITCH WITH ILLUMINATED TOGGLE
TS - TIME SWITCH
LV - LOW VOLTAGE SWITCH
LV-2 - LOW VOLTAGE SWITCH (NUMBER INDICATES QUANTITY OF CONTROL BUTTONS)

$	SINGLE POLE SWITCH	48"
$$	RECESSED WALL BOX (WITH SWITCH NUMBER AND TYPES AS SHOWN ON PLANS)	48"
OC	WALL MOUNTED OCCUPANCY SENSOR	48"
OC	CEILING MOUNTED OCCUPANCY SENSOR	CEILING

OCCUPANCY SENSOR LEGEND

DT - DUAL TECHNOLOGY
PI - PASSIVE INFRARED
U - ULTRASONIC

VC	CEILING MOUNTED VACANCY SENSOR	CEILING
PP	CONTROL DEVICE POWER PACK	ABOVE CEILING
LS	LIGHT SENSOR (DAYLIGHT HARVESTING)	VERIFY
PC	PHOTOCELL	VERIFY
TC	TIME CONTROL SWITCH (TIME CLOCK)	48"

GENERAL

1 / E100	DETAIL NUMBER SHEET NUMBER	
#	ELECTRICAL KEYED NOTE NUMBER	
	INDICATES ALL DEVICES UNDER ONE COVERPLATE	

RACEWAY SYSTEMS

	CONDUIT CONCEALED IN WALL OR CEILING	
	CONDUIT CONCEALED IN / UNDER FLOOR	
	CONDUIT RUN EXPOSED	
	CONDUIT TRANSITION UP	
	CONDUIT TRANSITION DOWN	
J	JUNCTION BOX	VERIFY
J	JUNCTION BOX - FLOOR MOUNTED	FLOOR
J	JUNCTION BOX - WALL MOUNTED	VERIFY
PB	PULL BOX	VERIFY
MH	MAN HOLE	VERIFY
HH	HAND HOLE	VERIFY

GENERAL ELECTRICAL DEMOLITION NOTES

A. DRAWINGS ARE DIAGRAMMATIC ONLY AND ARE NOT INTENDED TO INDICATE ALL DEVICES OR CONDITIONS ASSOCIATED WITH DEMOLITION. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY ACTUAL CONDITIONS INVOLVED IN THE DEMOLITION AND SUBSEQUENT RECONSTRUCTION REQUIRED TO COMPLETE THE ELECTRICAL INSTALLATION.

B. SEE ARCHITECTURAL/GENERAL DRAWINGS AND SPECIFICATIONS FOR PHASES OF DEMOLITION.

C. CIRCUIT CONTINUITY SHALL BE MAINTAINED TO ELECTRICAL LIGHTING, DEVICES, AND EQUIPMENT REMAINING, BUT AFFECTED BY DEMOLITION. PROVIDE NEW CONDUIT AND WIRING AS NECESSARY TO MAINTAIN CONTINUITY TO EXISTING EQUIPMENT AND DEVICES. FIELD VERIFICATION OF BRANCH CIRCUIT CONFIGURATION SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.

D. IN AREAS OF DEMOLITION, REMOVE ASSOCIATED JUNCTION BOXES, SUPPORTS, CONDUIT AND WIRING TO THE POINT OF ORIGIN FOR LIGHTING, DEVICES AND EQUIPMENT NOT BEING REUSED.

E. EXISTING CONDUIT HOLES OR SLEEVES INSTALLED IN CONCRETE FLOORS OR WALLS THAT ARE ABANDONED AFTER DEMOLITION SHALL HAVE CONDUIT REMOVED AND HOLES FILLED AND PATCHED. PROVIDE PATCHING AND PAINTING AS REQUIRED. SEE ARCHITECTURAL TYPICAL DETAIL.

F. VERIFY EXISTING CONDITIONS BEFORE COMMENCING DEMOLITION OF AN AREA. WHERE NEEDED DURING CONSTRUCTION FOR PHASING, TEMPORARILY RECONNECT CIRCUITS AND DEVICES AFTER DEMOLITION UNTIL PERMANENT INSTALLATION IS COMPLETED. DEMOLISH AFTER INSTALLATION IS COMPLETED.

G. DEMOLISH ALL EQUIPMENT IN A MANNER THAT WILL NOT DESTROY OR DAMAGE EQUIPMENT OR DEVICES THAT ARE TO BE SALVAGED, EXISTING TO REMAIN, OR BE RELOCATED.

H. REPLACE ALL CONDUITS AND RACEWAYS THAT ARE DAMAGED DURING CONSTRUCTION.

I. PROVIDE CONDUIT AND COMMUNICATIONS/DATA CABLING AS NECESSARY FOR A COMPLETE CABLING SYSTEM TO DEVICE LOCATIONS EXISTING TO REMAIN AFTER DEMOLITION.

J. DO NOT REUSE MATERIALS (CONDUIT, CABLING, WIRING, DEVICES, SUPPORTS, EQUIPMENT, ETC...) UNLESS SPECIFICALLY INDICATED OR APPROVED BY THE ENGINEER. ALL CONDUIT, PATHWAYS, AND WIRING SHALL BE NEW UNLESS SPECIFICALLY INDICATED AS "EXISTING TO REMAIN" OR "EXISTING TO BE REUSED".

K. DUE TO DEMOLITION AND REMODELING, ELECTRICAL CONTRACTOR SHALL CONSIDER MINOR CIRCUIT MODIFICATIONS AND REROUTING AS INCLUDED IN THE SCOPE. MAJOR CONCEALED CONDITIONS IN WHICH THE CONTRACTOR COULD NOT ANTICIPATE THE EFFORT LEVEL REQUIRED SHALL BE BROUGHT PROMPTLY TO THE ENGINEER'S ATTENTION. IF THE CONTRACTOR WILL REQUEST A CHANGE IN THE CONTRACT AMOUNT OR CONTRACT TIME DUE TO CONDITION, THEN THE CONTRACTOR SHALL SUBMIT DIGITAL PHOTOGRAPHS OF THE EXISTING CONDITIONS WITH A PROPOSED RESOLUTION. FAILURE TO DO SO IMPLIES THE CONTRACTOR HAS ASSUMED THE WORK EFFORT TO BE INCLUDED IN THEIR BID. ENGINEER WILL PROMPTLY REVIEW INFORMATION AND MAKE RECOMMENDATIONS TO THE OWNER IN AN ATTEMPT TO MAINTAIN CONSTRUCTION SCHEDULE.

GENERAL POWER NOTES

A. REFER TO SPECIFICATIONS AND PROVIDE POWER SYSTEMS STUDIES AS A PART OF THIS CONTRACT. SUBMIT POWER STUDIES RESULTS WITH THE SUBMITTAL OF ELECTRICAL GEAR (SWITCHBOARDS, PANELBOARDS, TRANSFORMERS, CIRCUIT BREAKERS, AUTOMATIC TRANSFER SWITCHES, ETC). THE ELECTRICAL EQUIPMENT SHALL BE PROPERLY RATED FOR THE AVAILABLE FAULT CURRENT AND FULLY COORDINATED WHERE REQUIRED.

ELECTRICAL SYMBOLS LEGEND NOTES:

1. THESE SYMBOLS COMPRISE A STANDARD LIST, NOT ALL SYMBOLS MAY APPEAR ON THESE DRAWINGS.
2. MOUNTING HEIGHTS INDICATED ARE FOR STUD WALL CONSTRUCTION. WHEN BLOCK OR BRICK CONSTRUCTION IS USED, ADJUST MOUNTING HEIGHTS TO ALIGN DEVICE PLATES WITH RUNNING JOINT.
3. MOUNTING HEIGHTS ARE TO CENTER OF DEVICE ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE. MOUNTING HEIGHTS INDICATED ON ARCHITECTURAL WALL ELEVATIONS OR AS NOTED SPECIFICALLY ON THE DRAWINGS
4. SHALL TAKE PRECEDENCE OVER MOUNTING HEIGHTS LISTED.
5. PROVDE 4-11/16" SQUARE BOX WITH SINGLE DEVICE MUD RING AND 1"C MINIMUM STUBBED INTO ACCESSIBLE CEILING SPACE AS REQUIRED FOR ROUGH-IN OF LOW VOLTAGE/ TECHNOLOGY SYSTEM OUTLET LOCATIONS.
6. PROVIDE 4-11/16" SQUARE BOX WITH 1.25" MINIMUM STUBBED INTO ACCESSIBLE CEILING SPACE FOR ALL AUDIO-VIDEO OUTLETS AND DEVICES.
7. REFER TO CONSTRUCTION DRAWINGS AND SCHEDULES FOR ADDITIONAL INFORMATION.

NOTE:

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CD3

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STATE OF KENTUCKY
GREGORY G. CARTER
14715
LICENSED PROFESSIONAL ENGINEER

55A/55B SWITCHGEAR REPLACEMENT

ELECTRICAL SYMBOLS AND ABBREVIATIONS

DRAWING NO. E000

COMMONWEALTH OF KENTUCKY
FINANCE AND ADMINISTRATION CABINET
DEPARTMENT FOR FACILITIES AND SUPPORT SERVICES
DIVISION OF ENGINEERING AND CONTRACT ADMINISTRATION
FRANKFORT, KENTUCKY

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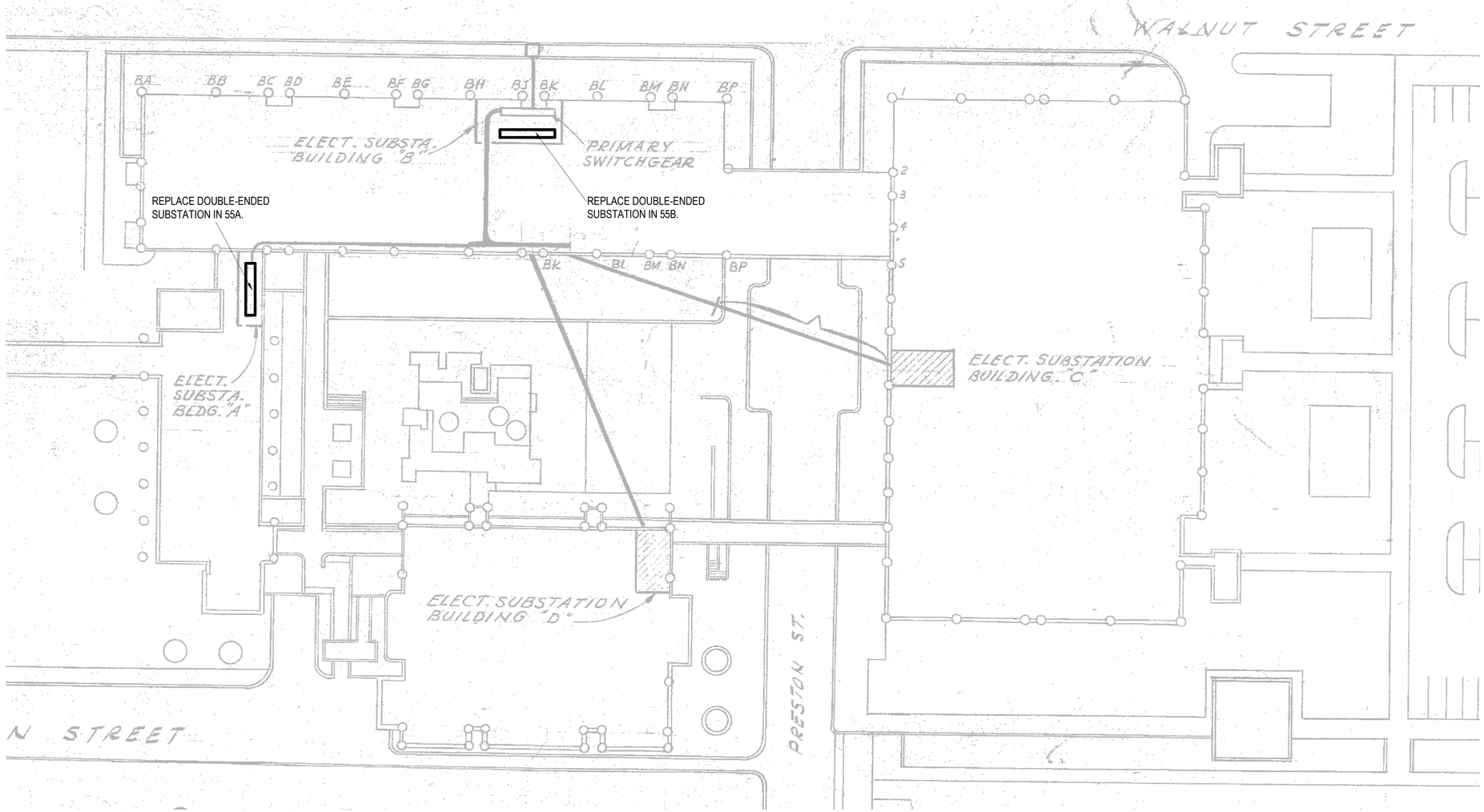

1 / E011 ELECTRICAL SITE PLAN
1" = 30'-0"
0 10' 20' 40'

CD3

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55A/55B SWITCHGEAR REPLACEMENT

ELECTRICAL SITE PLAN

DRAWING NO.
E011

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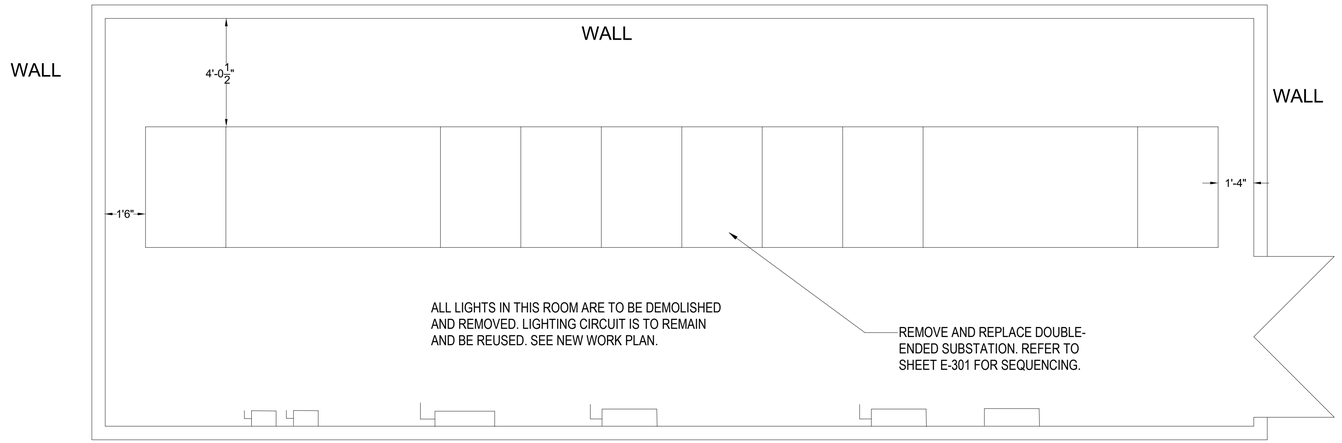
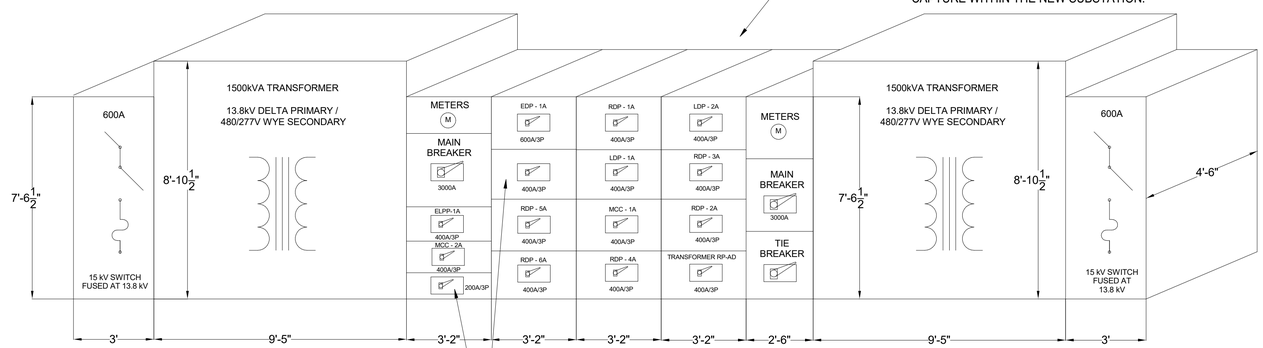


TOP VIEW

REFER TO EXISTING SWITCH LOCATIONS AND SIZES, CONFIGURE NEW SUBSTATION SO THAT BREAKERS ARE IN SIMILAR LOCAITON. EXISTING FEEDER CONDUITS ARE TO CAPTURE WITHIN THE NEW SUBSTATION.



FRONT VIEW

COORDINATE IN FIELD WITH OWNER ON NEW BREAKER NAMING.

1 / E100 55A EXISTING SWITCHGEAR
3/8" = 1'-0"

NOTE:
THERE ARE TWO 600 AMP AND ONE 400A CIRCUITS CURRENTLY TAPPED FROM THE SWITHBOARD BUSS. THESE 600A SWITCHES WILL BE REPLACED WITH 600A/3P BREAKERS IN THE NEW SUBSTATION. THE 400A SWITCH WILLBE REPLACED WITH A 400A/3P BREAKER IN THE NEW SUBSTATION.

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55A/55B SWITCHGEAR REPLACEMENT

ELECTRICAL DEMOLITION 55A

DRAWING NO. E100

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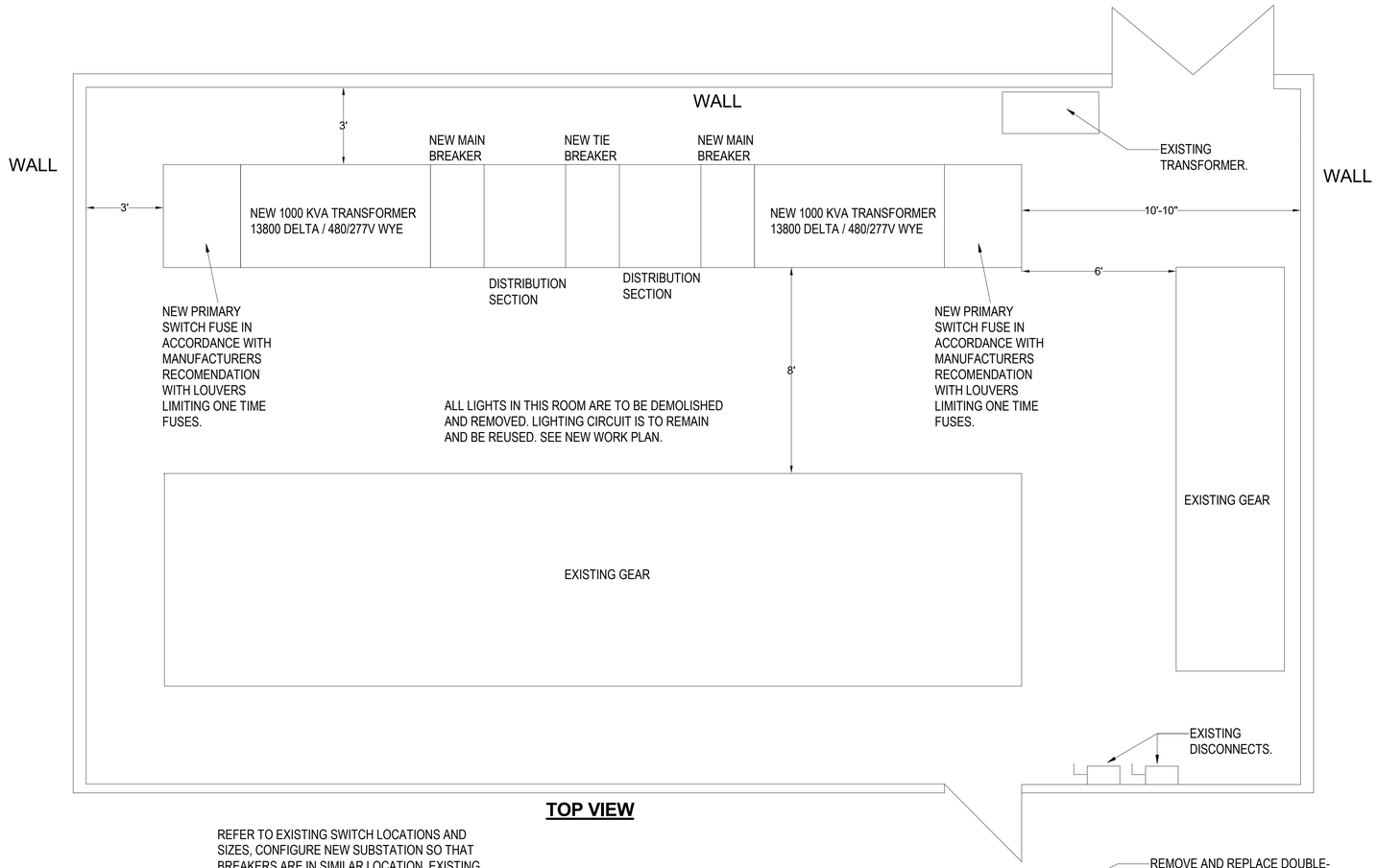
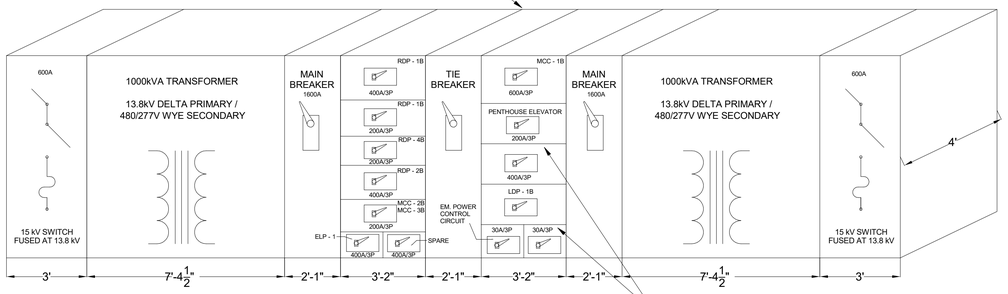


TOP VIEW

REFER TO EXISTING SWITCH LOCATIONS AND SIZES, CONFIGURE NEW SUBSTATION SO THAT BREAKERS ARE IN SIMILAR LOCATION. EXISTING FEEDER CONDUITS ARE TO CAPTURE WITHIN THE NEW SUBSTATION.

REMOVE AND REPLACE DOUBLE-ENDED SUBSTATION. REFER TO SHEET E-301 FOR SEQUENCING.



FRONT VIEW

COORDINATE IN FIELD WITH OWNER ON NEW BREAKER NAMING.

1 / E101 55B EXISTING SWITCHGEAR
3/8" = 1'-0"

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55A/55B SWITCHGEAR REPLACEMENT

ELECTRICAL DEMOLITION 55B

DRAWING NO. E101

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FRANKFORT, KENTUCKY

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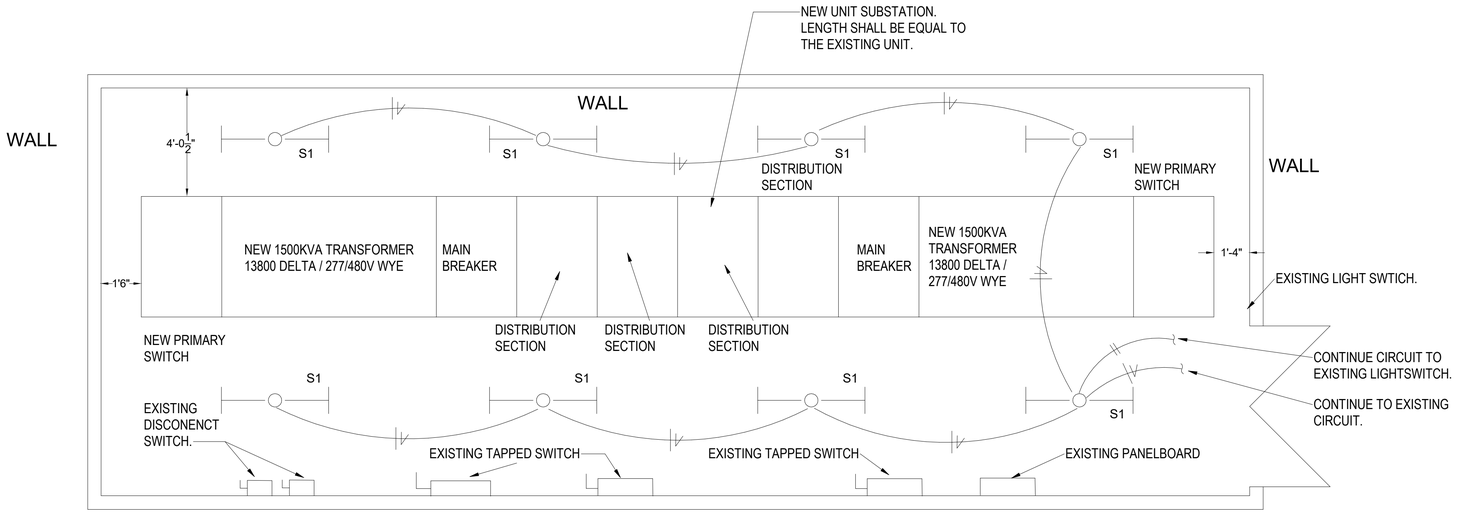


TOP VIEW

2 / E200 NEW 55A SWITCHGEAR
3/8" = 1'-0"

NOTES:

1. ALL S1 FIXTURES SHALL BE LITHONIA ZL1N L48 SMR 5000LM FST MVOLT 40K 80 CRI WH OR EQUAL.

2. ALL S1 FIXTURES ARE BE MOUNTED AT SAME HEIGHT AS EXISTING FIXTURES.

3. LIGHT FIXTURES ARE TO BE POWERED BY EXISTING CIRCUIT.

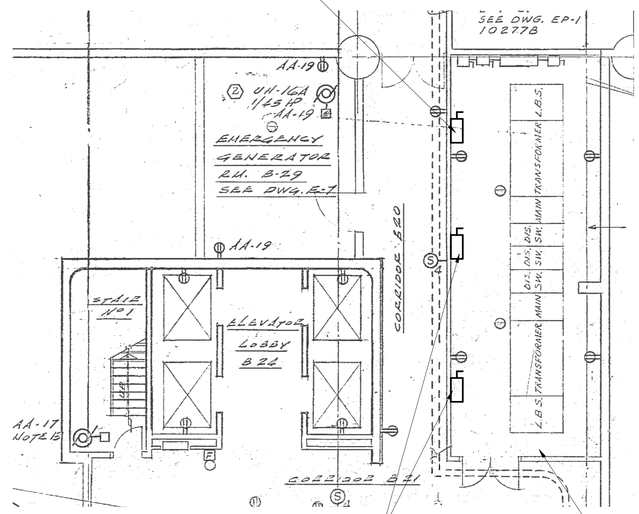
4. CONTRACTOR IS TO INCULDE ALLOWANCE FOR PAINTING OF ROOM. SEE SPECIFICATIONS.

55A

LOCATION: ELECTRIC ROOM
SUPPLY FROM:
MOUNTING:
ENCLOSURE TYPE:
VOLTAGE: 480Y/277
PHASE: 3
WIRES: 4
SCCR. RATING: 65,000
MAIN TYPE: MCB
MCB RATING: 3000 A

CKT #	CIRCUIT DESCRIPTION	POLES	TRIP RATING	REMARKS
1	MAIN BREAKER	3	3000 A	
2	EXISTING CIRCUIT	3	200 A	
3	EXISTING CIRCUIT	3	200 A	
4	EXISTING CIRCUIT	3	400 A	
5	EXISTING CIRCUIT	3	400 A	
6	EXISTING CIRCUIT	3	600 A	
7	EXISTING CIRCUIT	3	400 A	
8	EXISTING CIRCUIT	3	400 A	
9	TIE BREAKER	3	0 A	
10	EXISTING CIRCUIT	3	400 A	
11	EXISTING CIRCUIT	3	400 A	
12	EXISTING CIRCUIT	3	400 A	
13	EXISTING CIRCUIT	3	400 A	
14	EXISTING CIRCUIT	3	400 A	
15	EXISTING TAP CIRCUIT	3	600 A	
16	EXISTING TAP CIRCUIT	3	600 A	
17	MAIN BREAKER	3	3000 A	
18				
19				
20				

EXISTING TAPPED SWITCH TO BE REMOVED AND INCORPORATED IN THE NEW SUBSTATION. THIS SWITCH CURENTLY FEEDS THE VIVARIUM. EXTEND FEEDER TO THE NEW SWITCH BOARD AS REQUIRED.



EXISTING TAPPED SWITCH TO BE REMOVED AND INCORPORATED IN THE NEW SUBSTATION. THIS SWITCH WILL BE A SPARE.

EXISTING UNIT SUBSTATION TO BE REMOVED.

1 / E200 55A ELECTRIC ROOM POWER PLAN
1/8" = 1'-0"

CD3

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55A POWER PLAN

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E200

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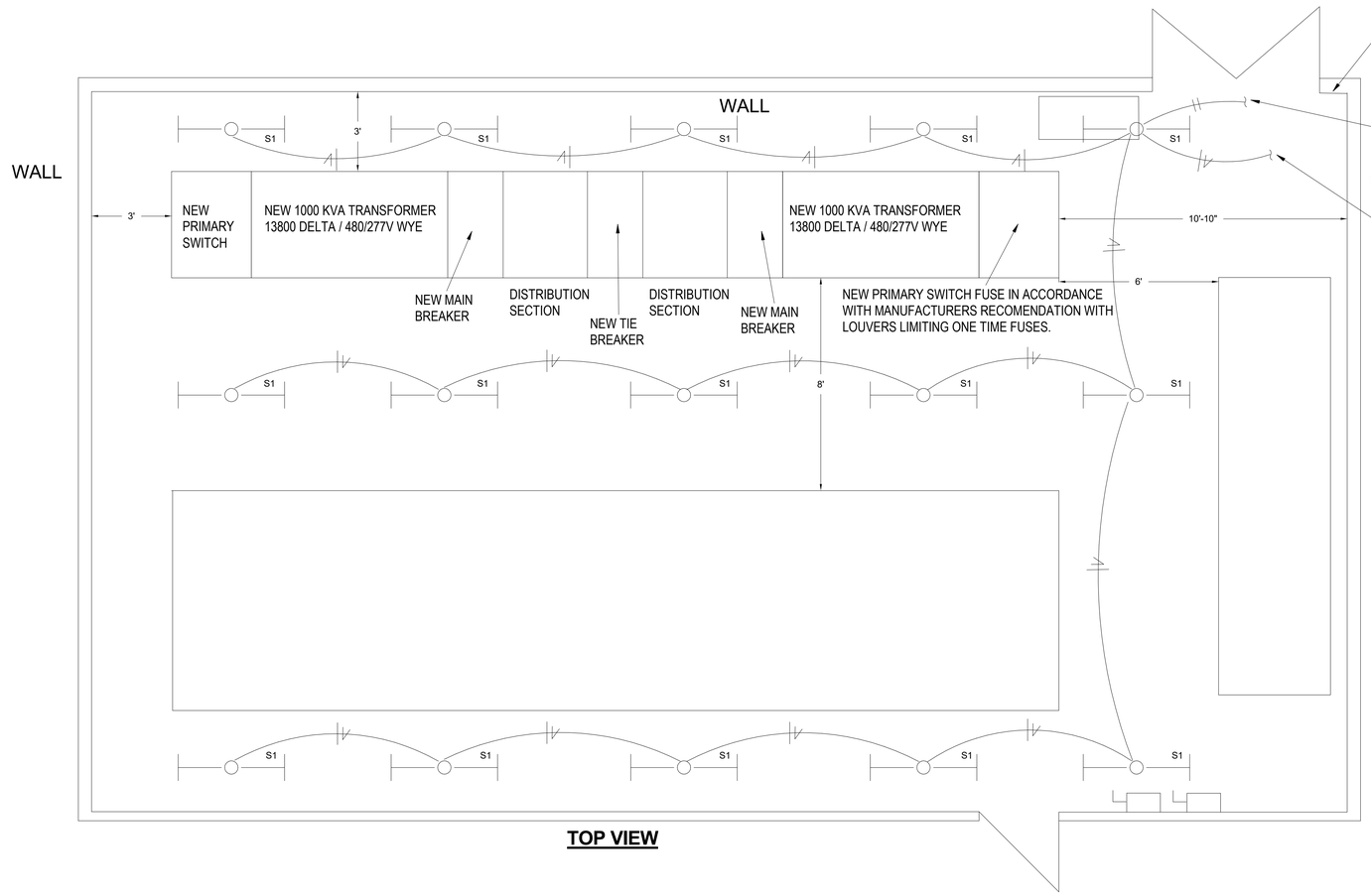


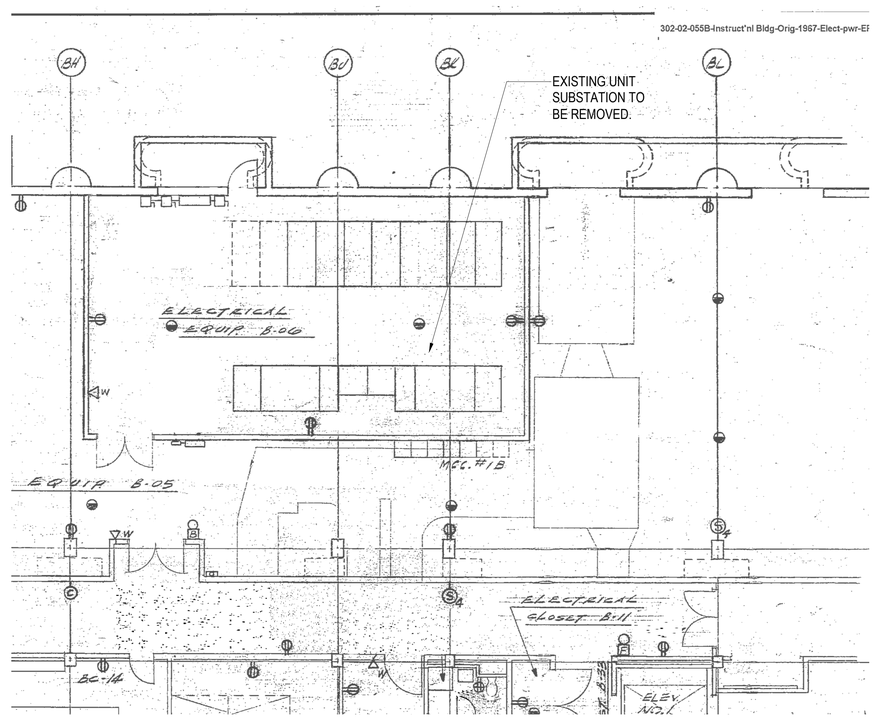
TOP VIEW

3 / E201 55B NEW SWITCHGEAR
3/8" = 1'-0"

55B

LOCATION:	ELECTRIC ROOM	**VOLTAGE:** 480Y/277	**SCCR. RATING:** 65,000
SUPPLY FROM:		**PHASE:** 3	**MAIN TYPE:** MCB
MOUNTING:		**WIRES:** 4	
ENCLOSURE TYPE:			**MCB RATING:** 1000 A

CKT #	CIRCUIT DESCRIPTION	POLES	TRIP RATING	REMARKS
1	MAIN BREAKER	3	600 A	
2	EXISTING CIRCUIT	3	400 A	
3	EXISTING CIRCUIT	3	200 A	
4	EXISTING CIRCUIT	3	200 A	
5	EXISTING CIRCUIT	3	400 A	
6	EXISTING CIRCUIT	3	200 A	
7	EXISTING CIRCUIT	3	200 A	
8	EXISTING CIRCUIT	3	400 A	
9	EXISTING CIRCUIT	3	400 A	
10	EXISTING CIRCUIT	3	600 A	
11	TIE BREAKER	3	0 A	
12	EXISTING CIRCUIT	3	400 A	
13	EXISTING CIRCUIT	3	225 A	
14	EXISTING CIRCUIT	3	225 A	
15	EXISTING CIRCUIT	3	400 A	
16	EXISTING CIRCUIT	3	400 A	
17	EXISTING CIRCUIT	3	400 A	
18	EXISTING CIRCUIT	3	225 A	
19	EXISTING CIRCUIT	3	225 A	
20	MAIN BREAKER	3	600 A	



1 / E201 55B ELECTRIC ROOM POWER PLAN
1/8" = 1'-0"

NOTES:

1. ALL S1 FIXTURES SHALL BE LITHONIA ZL1N L48 SMR 5000LM FST MVOLT 40K 80 CRI WH OR EQUAL.

2. ALL S1 FIXTURES ARE BE MOUNTED AT SAME HEIGHT AS EXISTING FIXTURES.

3. LIGHT FIXTURES ARE TO BE POWERED BY EXISTING CIRCUIT.

4. CONTRACTOR IS TO INCULDE ALLOWANCE FOR PAINTING OF ROOM. SEE SPECIFICATIONS.

NOTE:

IT IS NOT INTENDED THAT THE PLANS SHOW ALL OFFSETS IN PIPES, CONDUITS, AND DUCTS REQUIRED FOR INSTALLATION OF THE WORK. DETAILS AND SECTIONS ARE INCLUDED FOR SOME AREAS TO SHOW INTENDED RELATIONSHIP OF THE WORK OF VARIOUS TRADES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SUB-CONTRACTORS TO COORDINATE INSTALLATION OF THE WORK AND TO PROVIDE THE NECESSARY OFFSETS, TRANSFORMATIONS, AND FITTINGS REQUIRED. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR CORRECTION CONFLICTS BETWEEN THE WORK OF VARIOUS TRADES. DETAILS AND SECTIONS ARE SHOWN FOR THE CONTRACTORS CONVENIENCE AND SHALL NOT BE CONSIDERED COMPLETE IN EVERY DETAIL.

Autodesk Docs://23-0094.00 - UL Health Science Campus 55A and 55B Rep/MEP23_UL Health Science Campus 55A & 55B.rvt
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DRAWING INFORMATION	
A & E FILE NO.	23-0094.00
DRAWING DATE	06/08/2023
DRAWN BY	RPG
CHECKED BY	GGC
PHASE	CD

STATE OF KENTUCKY — GREGORY G. CARTER — 14712 — LICENSED PROFESSIONAL ENGINEER

55A/55B SWITCHGEAR REPLACEMENT

55B POWER PLAN

COMMONWEALTH OF KENTUCKY
FINANCE AND ADMINISTRATION CABINET
DEPARTMENT FOR FACILITIES AND SUPPORT SERVICES
DIVISION OF ENGINEERING AND CONTRACT ADMINISTRATION
FRANKFORT, KENTUCKY

DRAWING NO. E201

AS-BUILT DATE

DECA LOG #

KFI ENGINEERS
3264 Loch Ness Drive
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SEQUENCE OF OPERATIONS:

THE FOLLOWING SEQUENCE IS PROVIDED TO INDICATE THE SEQUENCE FOR THE REPLACEMENT OF THE DOUBLE ENDED SUBSTATIONS IN BUILDING 55A AND 55B. THE SWITCHING OPERATIONS WILL BE DONE CLOSED TRANSITION TO MINIMIZE THE IMPACT ON THE USERS. REFER TO THE RESEARCH CAMPUS POWER DISTRIBUTION ONE LINE FOR SWITCH AND BREAKER NUMBERS. THE CONTRACTOR IS RESPONSIBLE FOR THE SEQUENCE OF WORK INCLUDING ADDING SAFETY ITEMS REQUIRED FOR GROUNDING AND VERIFYING SERVICES HAVE BEEN DISCONNECTED. ALTERNATE PLANS WILL BE CONSIDERED BUT ANY ALTERNATE PLAN CONSIDERED MUST NOT EXTEND OUTAGE TIMES FOR THE UNIVERSITY.

REPLACE PRIMARY SWITCH P7 AND TRANSFORMER X1.

1. MOVE THE LOAD ON SUBSTATION 55A AND 55B TO ONE TRANSFORMER IN EACH LINEUP.
2. CLOSE TIE BREAKER T1 AND OPEN MAIN BREAKER M1.
3. CLOSE TIE BREAKER T2 AND OPEN MAIN BREAKER M3.
4. OPEN THE PRIMARY SWITCH 1. THIS CONNECTS ALL THE BUILDING LOADS IN 55A AND 55B TO PRIMARY SWITCH 4.
5. REPLACE THE EXISTING TRANSFORMER X1 AND PRIMARY SWITCH 7 SERVING SUBSTATION 55A WITH THE NEW THE NEW AIR SWITCH AND TRANSFORMER.

RESTORE POWER TO PRIMARY SWITCH P7 AND TRANSFORMER X1 AND TEST.

6) CLOSE PRIMARY SWITCH 1 AND PRIMARY SWITCH 7 AND TEST THE NEW TRANSFORMER.

REPLACE THE SECONDARY SWITCHBOARD IN 55A.

7) START THE BUILDING GENERATOR SERVING 55A AND CONNECT IT TO THE EMERGENCY LOADS.
8) OPEN PRIMARY SWITCH 7 AND PRIMARY SWITCH 8 AND REPLACE THE ENTIRE SECONDARY SWITCHBOARD AND CONNECT IT TO THE NEW TRANSFORMER. THIS WORK SHALL BE DONE CONTINUOUSLY UNTIL THE SWITCHBOARD IS READY TO BE RE-ENERGIZED.
9) ENERGIZE AND TEST THE NEW SWITCHBOARD BY CLOSING PRIMARY SWITCH 7, MAIN BREAKER M1 AND TIE SWITCH T1 AND STARTUP AND TEST THE SWITCHBOARD.
10) AFTER TESTING, ENERGIZE THE SECONDARY LOADS.
11) START THE BUILDING GENERATOR IN 55A AND CONNECT IT TO THE EMERGENCY LOADS.

REPLACE PRIMARY SWITCH P8 AND TRANSFORMER X2

12) MOVE THE LOAD ON SUBSTATION 55B BACK TO PRIMARY SWITCH 1 BY CLOSING MAIN BREAKER M3 AND OPENING MAIN BREAKER M4.
13) OPEN PRIMARY SWITCH 4.
14) REPLACE PRIMARY SWITCH 8 AND THE SECOND TRANSFORMER X2.
15) CONNECT TRANSFORMER X2 TO NEW MAIN BREAKER M2

RESTORE POWER TO PRIMARY SWITCH P8 AND TRANSFORMER X2 AND TEST.

16) ENERGIZE AND TEST THE NEW PRIMARY SWITCH 8 AND TRANSFORMER X2 BY CLOSING PRIMARY SWITCH 4.
17) TEST TRANSFORMER X2.
18) REOPEN PRIMARY SWITCH 4.

REPLACE PRIMARY SWITCH P10 AND TRANSFORMER X4.

19) REPLACE PRIMARY SWITCH 10 AND THE TRANSFORMER X4.
20) CLOSE PRIMARY SWITCH 4 AND PRIMARY SWITCH 10 AND TEST THE NEW TRANSFORMER X4.
21) OPEN PRIMARY SWITCH 10.

REPLACE THE SECONDARY SWITCHBOARD IN 55B.

22) START THE BUILDING GENERATOR SERVING 55B AND CONNECT IT TO THE EMERGENCY LOADS.
23) OPEN PRIMARY SWITCH 9.
24) REPLACE THE SECONDARY SWITCHBOARD 55B AND CONNECT TO THE NEW MAIN BREAKER M4. THIS WORK SHALL BE DONE CONTINUOUSLY UNTIL THE SWITCHBOARD IS READY TO BE RE-ENERGIZED.
25) CLOSE PRIMARY SWITCH 10 AND TEST THE NEW SWITCHBOARD.
26) AFTER TESTING RESTORE POWER TO THE LOADS BY CLOSING THE SECONDARY BREAKERS.
27) SHUT DOWN THE BUILDING GENERATOR.

REPLACE PRIMARY SWITCH P9 AND TRANSFORMER X3

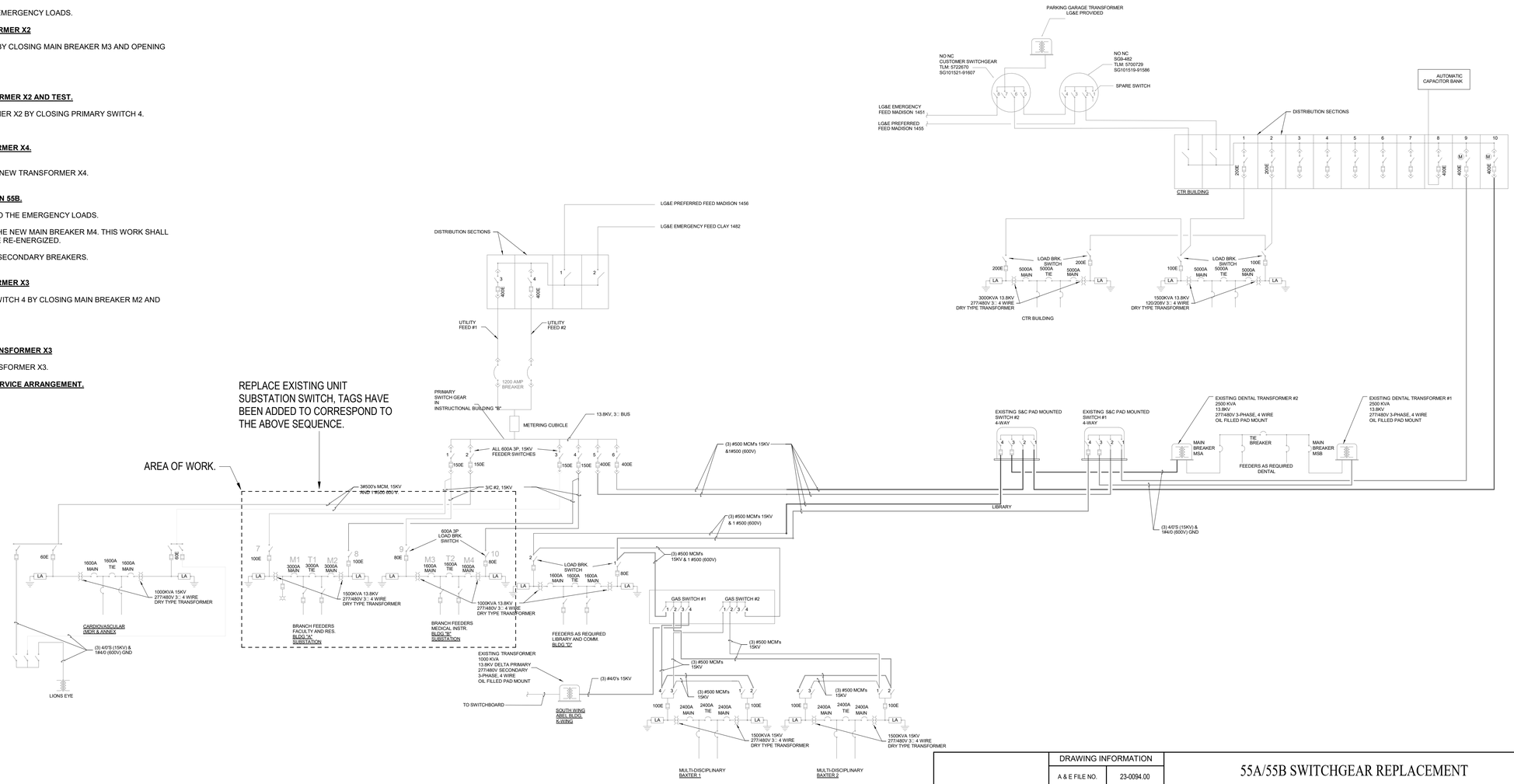
28) MOVE THE LOADS CONNECTED TO SUBSTATION 55A TO PRIMARY SWITCH 4 BY CLOSING MAIN BREAKER M2 AND CLOSING MAIN BREAKER M1.
29) OPEN PRIMARY SWITCH 1.
30) REPLACE PRIMARY SWITCH P9 AND TRANSFORMER X3.
31) CONNECTED TRANSFORMER X3 TO MAIN BREAKER M3.

RESTORE POWER TO PRIMARY SWITCH P9 AND TRANSFORMER X3

32) CLOSE PRIMARY SWITCH 1 AND PRIMARY SWITCH 9 AND TEST TRANSFORMER X3.

PLACE THE TWO NEW SUBSTATIONS INTO THE NORMAL SERVICE ARRANGEMENT.

33) CLOSE MAIN BREAKER M1 AND OPEN TIE BREAKER T1
34) CLOSE MAIN BREAKER M3 AND OPEN TIE BREAKER T2.



RESEARCH CAMPUS ELECTRICAL POWER DISTRIBUTION ONE LINE DIAGRAM

SCALE: NONE

CD3

NOTE:

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STATE OF KENTUCKY
GREGORY G. CARTER
14715
LICENSED
PROFESSIONAL ENGINEER

55A/55B SWITCHGEAR REPLACEMENT

ELECTRICAL SINGLE LINE DIAGRAM

DRAWING NO.
E301

COMMONWEALTH OF KENTUCKY
FINANCE AND ADMINISTRATION CABINET
DEPARTMENT FOR FACILITIES AND SUPPORT SERVICES
DIVISION OF ENGINEERING AND CONTRACT ADMINISTRATION
FRANKFORT, KENTUCKY

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